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We are pleased to present the proceedings of the **14th international scientific conference Hradec Economic Days 2016, held by the Department of Economics and the Department of Management at the Faculty of Informatics and Management, University of Hradec Králové on February 2 – 3, 2016.**

Since its first year, the 'Hradec Economic Days' conference has undergone dynamic development, and has been positively received by participants, as well as the Faculty and University management, which has been very motivating for the organizers. A significant achievement and a sign of recognition was the indexing of the Hradec Economic Days 2005 – 2011, 2013 conference proceedings in the CPCI (Conference Proceedings Citation Index) database on the Web of Science. We are making every effort to ensure that the proceedings from the following years are included in the database as well.

Apart from the increase in the number of participants, the hosting faculty also appreciates the quality of submitted papers, as well as the fact that the speakers at the Hradec Economic Days include leading professionals and researchers from universities and other types of institutions.

It has become a tradition to prepare the conference proceedings of reviewed papers, edited by Ing. Pavel Jedlička, CSc. They include the total of 182 papers, out of which 153 are written in English, 17 in Czech, 2 in Slovak, and 10 in Polish. The authors of the papers come from the Czech Republic (122), Slovakia (23), and Poland (37). In terms of home institutions, the participants represent 25 Czech, 8 Slovak, 19 Polish universities or institutions.

The papers are divided into and discussed in eight sections:

- I. Latest issues in the financial markets
- II. Regional development macroeconomic context
- III. Business economics and management
- IV. Mathematical models in economics
- V. Modern trends in management
- VI. Ekonomia i zarządzanie regionów i przedsiębiorstw
- VII. Ekonomika a řízení firem a regionů

The HED conferences are organised with the aim to present the results of research in the fields of economics, business economics, management, tourism and mathematical models, to provide a platform for encounters of experts in related fields, to reinforce interdisciplinary relations and research, to enable making contacts, which is essential for submission of common research projects, and to provide space for presentation and publication activity of junior educators. The 2016 HED conference aspires to meet all of these goals, too.

Our acknowledgements go to all the conference organisers.

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SOCIAL MODELS OF FINANCIAL COMPENSATION FOR A NON-QUALITY OF CHOSEN POSTAL SERVICE

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Keywords:

on-time delivery – Slovak Post, plc. – social model of a partial financial compensation – social model of a maximal financial compensation – 1st class letter

JEL classification: L87

Abstract:

Paper presents proposals of financial compensation for a non-quality of chosen postal service in conditions of Slovakia. Slovenská pošta, a. s. as the provider of universal postal services must comply with quality standards defined for provided universal services. One of them is the time limit of delivery (transit time) of any postal item defined as “D+n”. Suggested social models of financial compensation, based on the fundamental principles applied in the area of the international mails, point at a need to compensate a non-quality, specifically the failure to meet stated delivery time criterion. In the proposals, we assume inter alia that a customer usually senses a non-quality, but he is not disposed to take any appropriate steps to solve the problem due to fact that the price of service (and hence a potential amount of financial compensation) is negligible in comparison to an effort expended in the official complaining process (under the official Postal Conditions and Claims Procedure accepting STN EN 14012).

Introduction

The postal sector has been representing important part of dynamically evolving tertiary sector of the national economy. The technical progress and implementation of new technologies in the field of postal services foster to improve existing services, mainly improvement and simplification of the process of submission and delivery of mails, parcels and express services can be mentioned, or they help to develop new ones, such as hybrid mail, electronic postal services or other e-commerce activities. All these activities as well as by virtue of growing competitive pressures in the postal market are tailored to customers' requirements. Despite the efforts of providers to meet customers' evolving needs there have been still deficiencies, which reduce quality of provided services and customer's satisfaction, in the postal sector.

When any mails is posting, the customer (individual or corporate) concludes an agreement with a provider of postal services – so-called tacit agreement, in which the

provider commits to deliver it under the proclaimed conditions in writing. In case of the *1st class letter* (also known as “priority letter” or “letter of the fasted category”, thereafter 1CL), the provider guarantees customers to deliver such kind of letters on time within the time limit D+1, which means that the letter will be delivered to the addressee one working day after its posting.

To find whether the provider delivered the letter on time is relatively impossible, unless the customer (sender of the letter), does not directly contact the addressee. If he finds that the provider did not meet his commitment to deliver the letter within the defined time limit, he has possibility to exercise his rights of complain. However, it is questionable how the customer will be compensated if the provider of postal services fails and the customer is not officially notified about the provider’s failure (Achimská, 2009).

This problem is discussed in the following text in more details together with proposals of potential financial compensation in case of chosen postal services – *the 1CL sent within Slovakia up to weight 50 g*. We would like to note that due to the unavailability of some input data, in quantification of the compensation cover, we considered data from 2012, but it does not interfere with the draft methodology.

1. Methods, literature overview and initial problem of the solving issue

Slovenská pošta, a.s. (Slovak Post, plc.; thereafter “*the Post*”) is the national state-owned postal operator and the most significant provider of universal postal services in the Slovak postal market in terms of the *Act No. 324/2011 Coll. on postal services and on amendments and supplements to certain acts* (in Slovak *Zákon č. 324/2011 Z.z. o poštových službách a o zmene a doplnení niektorých zákonov*; thereafter “*the Act on postal services*”). The Post provides postal services under its *Postal Conditions* on the basis of postal agreement (defined in the Section 1(5)) in accordance with the Act on postal services.

As the provider of universal postal services must meet quality standards defined for all products, which are provided within such kind of services, thus also in case of the 1CLs. One of the basic quality standard adopted here is the time limit for delivery of priority letters D+1. In Slovakia any customer, who wants to use this postal service, based on actual pricelist of the Post, is required to pay more than for the letter of 2nd class (known as “standard letter” or “letter of the standard category”) with the delivery time limit D+2. Therefore it is normal when the customer expects that the Post meet the time limit for the delivery of the 1CL. The tracking of the letter is not always easy and the customer is not always notified about failure to meet delivery time. If the customer decides to make an official complaint due to delayed mail (due to non-compliance of the Postal conditions) and if the complaint is justified, he has right to be compensated in accordance with the *Postal conditions* and *Postal claims procedures*. Both official

documents of the Post must be proved by the *Regulatory Authority for Electronic Communications and Postal Services* (in Slovak Úrad pre reguláciu elektronickej komunikácie a poštových služieb; thereafter “*the Regulatory Authority*”). The Post is obliged to pay the compensation at the rate of complained service – in our case the 1CL (at the present 0.65 €, in 2012 0.60 €). However, most of customers do not consider this rate of compensation to high enough in comparison to other opportunity costs, which refer to overall complaints procedures. For that reason many customer do not consider to take any official steps. However, in such case the provider of postal service unjustly enriches himself to the detriment of the whole society (it can be seen as the negative externality of entrepreneurial activity) and profits from non-quality of provided services.

With the phenomenon non-quality the costs of non-quality are logically associated. Sörqvist (2001) defines them as “*the costs which would be eliminated if a company's products and processes in its business were perfect.*” Logically, if they are not, any company may be exposed to the risk that will be forced to deal with costs of non-quality. We know that high quality plays a critical role for sustaining competitive advantage at the present. But in connection with our analysed problem the rule is – if the customer does not take appropriate steps to solve his dissatisfaction, the provider will not deal with services' non-quality and will benefit from given situation.

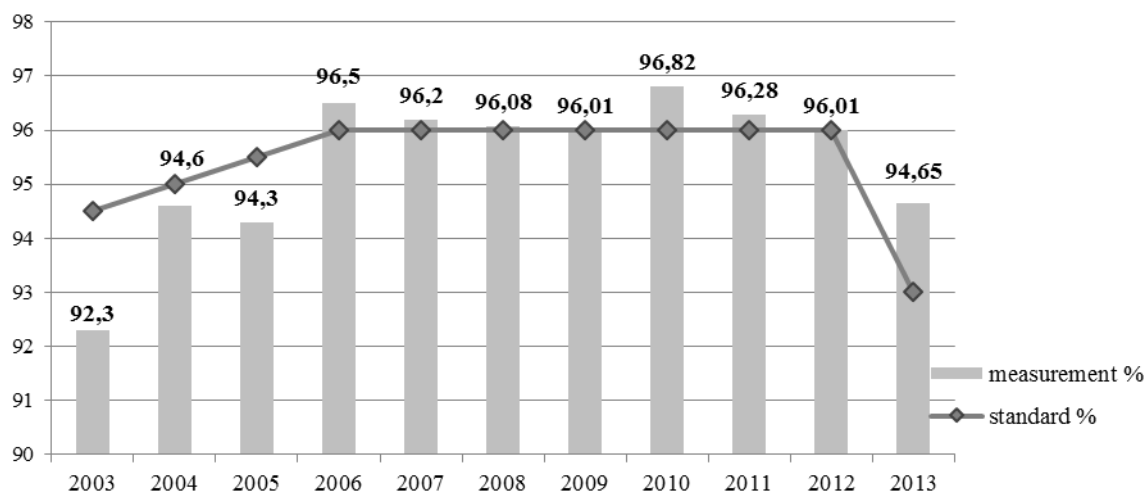
1.1. Current state of the solving issue

Currently, the Regulatory Authority supervises the provision and pricing of postal services and postal payment services in Slovakia. Its competences and liabilities are given by the existing national and international legislative. They include also competences to set quality standards for postal universal services (as the minimal level that should be reached). Based on the European norm *EN 13850:2012* (Postal services. Quality for Services). Measurement of the transit time of end-to-end services for single piece priority mail and 1st class mail; in Slovakia issued as *STN EN 13850*) any provider of universal postal services must perform the measurement of quality of timelessness of delivery of any mails, which are defined as universal postal services. The measurement of on-time delivery of 1CLs is based on “*End to End*” method. The main aim of quality measurement is to find out what share of the 1CLs the Post is able to deliver in the set delivery time limit defined by the norm and approved by the Regulatory Authority. In Slovakia, the measurement is performed by the independent authority (at the request of the Post) – by the University of Žilina in Žilina quarterly. The findings of the measurement must be available to the Regulatory Authority at its request. The results also represent one of the quality indicators of the Post as the national universal postal operator.

The quality standards and their minimal level are defined in the directive issued by the Regulatory Authority “*Requirements for the universal service*” (in Slovak *Požiadavky*

na kvalitu univerzálnej služby) in accordance with the Act on postal services Section 41. Presently, the limit is 93%, which means that at least 93% of all letters of the 1st class must be delivered 1 working day after posting them. If the limit is not met, the Regulatory Authority has the right to penalize the Post as the provider of universal postal services. Information on yearly results of measurements are presented in the following graph. The term “measurement” represents real measured data; the term “standard” represents the limits defined by the directive for each year.

FIG. 1: Results of the delivery time measurement of the 1CLs in comparison to the national norm



Source: compiled by authors based on *the Regulatory Authority for Electronic Communications and Postal Services* (2014) and *Achimský K., Achimská, Kajánek and Achimský L.* (2013)

2. Proposals of social models of financial compensation for a non-quality of chosen postal service

2.1. Background for solving of the analysed issue

Currently functioning system of compensation in the international mails (cross-border priority items) stands at the beginning of our idea dealing with the non-quality of the 1CLs and emerging problems of externalities of the national universal postal service provider. In accordance to the international norms (Directive No. 97/67/EC amended by the Directive No. 2002/39/EC and 2008/6/EC of the European Parliament and Council), the quality standard for priority cross-border letters within the European Community is set at 85% (85% of all priority letters must be delivered within the D+3 limit). However in contrast to the Slovak directive, the norm defines the amount of funds that the universal postal provider will be shorten if he not meet the quality standards. In such a way, the price of non-quality is practically calculated and each provider's failure

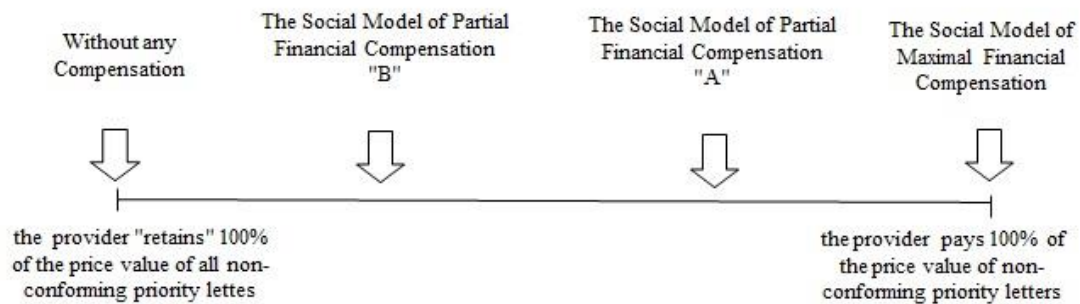
represents “a contribution” to the entrepreneurial loss. The final amount of financial compensation that the provider must pay depends on a potential income from providing of such kind services (cross-border priority letters) and the percentage is given by the convention of the Universal Postal Union.

In case that we would like to create a truly social fair compensation system, based on the model above, we could consider as satisfactory, if the provider delivers all mails on time – it means to meet the time delivery conditions at 100% (no mail will be delayed). This also represents our premise on which we have developed our social models of financial compensation for a non-quality of the 1CLs applicable in the Slovak conditions.

2.2. Initial state

Before creating a model, the limits of potential financial compensation for a non-quality of the analysed product must be defined. A given margin of potential compensation represents a space within which our social models of financial compensation of a non-quality for the 1CLs range. The limits represent the extremes of financial compensation – the first extreme would be the situation, if the non-quality in the area of the 1CLs was not being compensated at all (current situation – when a customer does not make official complaint that his priority letter was not delivered on-time; the provider “retains” 100% of the price value of non-conforming letters), the second one would be the situation of maximal social compensation that encompasses a repayment of the full amount of the price value of non-confirming letters to the dedicated fund.

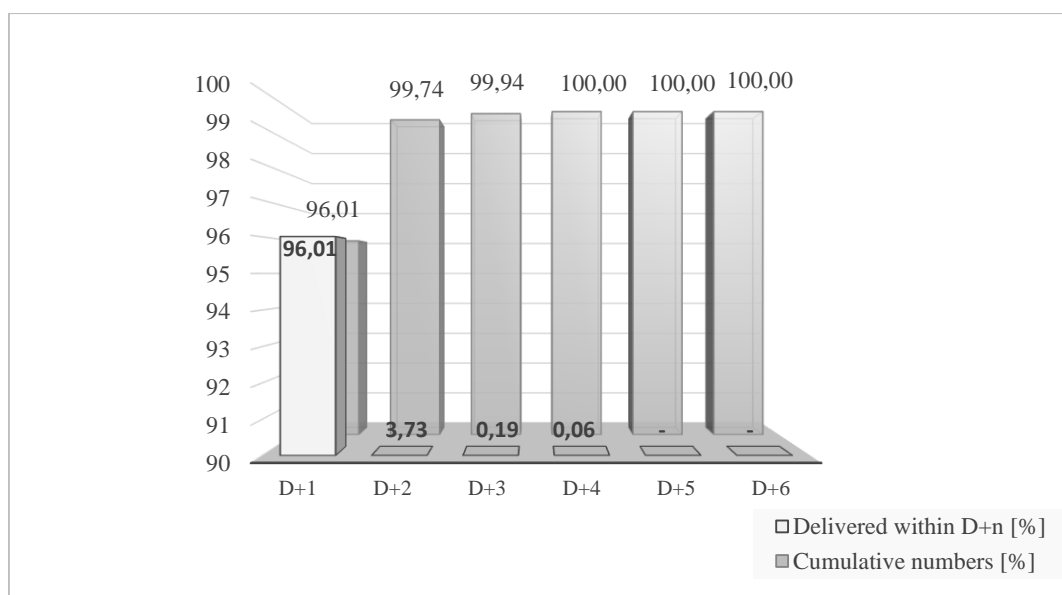
As it is apparent from the following figure, we consider three potential possibilities of financial compensation with the different amounts (model B, model A and model of maximal compensation). It is also clear that the analysis of current state does not make sense, since there is no financial compensation for non-confirming priority letters (letters not delivered on-time according to D+1). As well it must be clear that possible application of suggested models of financial compensation into practise necessarily requires establishing a compensation fund (from the point of view of legislation, functional and organizational rules) into which the providers of universal postal services will pay financial compensation cover as “penalties” for their failure to comply defined quality standards.

FIG. 2: Level of potential financial compensation for a non-quality of postal

services based on the proposed models

Source: authors

In calculating the amount of financial compensation for particular models, which should a provider – in our case the Slovak Post as the single provider of universal services in Slovakia – pay if the Post did not meet the quality standard of on-time delivery, we use the data from the annual measurement of the on-time delivery of the CLs in 2012. The measurement was performed continuously during the whole year by sending test letters of the 1st class throughout the territory of Slovakia (the sender and the addressee were situated in the Slovak Republic). The results of the measurement of on-time delivery of the 1CLs are shown in the following figure. As readers can see, the value of quality standard in 2012 was 96% and the Slovak Post met the delivery time limit of the 1CLs at 96.1%. Furthermore it can be seen that the rest of testing letters were delivered not later than in D+4 limit.

FIG. 3: Results of the delivery time measurement of the 1CLs in D+n limit for 2012

Source: compiled by authors based on *Achimský K., Achimská, Kajánek and Achimský L. (2013)*

As well the price paid for priority letters and the total number of posted priority letters must be known and taken into account. In 2012 the single price for priority letters without any additional services with the weight up to 50g including was 0.60 € and approximately 12.6 million of them were sent in Slovakia.

3. Social models of financial compensation for a non-quality

3.1. Social model of maximal financial compensation

The maximal compensation cover, as we have noted above, represents one of the extremes of the potential financial contribution to the compensation fund. If the principles of this model were applied into practice, the Post would have to pay into the compensation fund the full price (= 100%) of all priority letters, which were not delivered on time. Now, if we consider the data from the quality measurement for 2012, the share of the 1CLs not delivered within one working day after posting was 3.99% of all sent priority letters that represents 502 740 pcs. in the absolute numbers. In the case of maximal financial cover of non-conforming letters, the Post would have to pay to the fund 301 644 € (the price of the priority letter in 2012 multiply by the number of non-conforming letters), which is in total contradiction to the current solution – the Post does not pay any money for non-quality of delivery of the 1CLs within the declared time limit. Next two models can be seen as compromise solutions of the current state and the social model of maximal financial compensation.

TAB. 1: Social model of maximal financial compensation

Delivery term (D+n)	Measured Quality (%)	Measured Non-quality (%)	Costs of Non-quality (€)	Value of sent Letters (thousand pcs.)	Compensation Cover (thousand €)
D+1	96,01	3,99	0,6	12 600	301 644

Source: authors

3.2. The social model of partial financial compensation “A”

The social model of partial financial compensation version “A” would take into account not only the 1CLs that were delivered on time within D+1 limit, but as well the 1CLs that were delivered within 2 working days after posting – within D+2 limit (delayed by 1 day). The Slovak Post would not be obliged to pay into the compensation fund the full price (= 100%) of all priority letters, which were not delivered on time. In contrast to the previous model, the Post would have to pay just a partial financial compensation. The contribution to the Fund we propose to quantify as follows.

As we have already mentioned, the total share of priority letters not delivered within D+1 limit in 2012 was 3.99%, in the absolute numbers 502 740 pcs. Their real times of delivery de facto correspond to the delivery conditions of cheaper postal service – the

2nd class letters. The price of such kind letters in 2012 was 0.40 € (standard letter without any additional services) that was 0.20 € less than the price of the 1CLs that is taken into account in the proposed model of partial compensation version “A”. In this case, we suggest that the compensation cover paid to the Fund should be split into two parts. The first part of compensation would represent the non-quality of the time delivery of the 1CLs (D+1 limit) and its total amount would be given by the price difference of the 1CLs and 2nd class letters and by the total number of non-conforming 1CLs. The second part of the financial cover would also depend on the non-quality of delivery, but within D+2 limit – it would take into account the number of non-confirming letters, which were not delivered within two days after posting (the number of letters delivered later than D+2 limit) – and the full price of the 1CLs 0.60 €. In such case the Post would contribute to the Fund an amount 120 204 €. The calculations are given in the table below.

TAB. 2: Social Model of Partial Financial Compensation “A”

Delivery term (D+n)	Measured Quality (%)	Measured Non-quality (%)	Costs of Non-quality (€)	Number of Sent 1CLs (thousand pcs.)	Compensation Cover (thousand €)
D+1	96,01	3,99	0,2	12 600	100 548
D+2	99,74	0,26	0,6		19 656
Total	-	-	-	-	120 204

Source: authors

3.3. The social model of partial financial compensation “B”

This version of partial financial compensation due to failure to comply the delivery time condition of the 1CLs is based on the assumption, that the customer should be compensated in the amount of the profit margin of given postal service. It means that the model takes into account the Post’s effort to meet all conditions of the tacit agreement and thereby all costs relating to this service should not be a part of the financial cover paid to the Fund. And the same way as the previous model of partial compensation it admits the possibility that the total amount of compensation cover will depend on the share of priority letters not delivered within the time limits D+1 and D+2.

Due to facilitating of the calculations, we will assume that the unit profit margin from one priority letter and the 2nd class letter is 10% (in 2012 it would be 0.06 € and 0.04 € per piece). If the delivery terms D+1 and D+2 were not meet, in case of this model the profit margin would represent unjust enrichment of the Post. The total financial compensation for non-confirming priority letters within D+1 limit based on data from 2012 would be 30 164 € (the total percentage of priority letters not delivered on time multiplies by the unit profit margin) and for non-confirming letters within D+2 limit would be 1 310 € (the total percentage of priority letters not delivered within 2 days

after posting multiplies by the unit profit margin). The complete calculations are given in the following table.

TAB. 3: Social Model of Partial Financial Compensation “B”

Delivery term (D+n)	Measured Quality (%)	Measured Non-quality (%)	Costs of Non-quality (€)	Value of Sent Letters (thousand pcs.)	Compensation Cover (thousand €)
D+1	96,01	3,99	0,06	12 600	30 164
D+2	99,74	0,26	0,04		1 310
Total	-	-	-	-	31 474

Source: authors

We would like to note, that assumed profit margins are hypothetical and real profit margins of postal providers are subjects of their business secrecy. Therefore this social model of partial financial compensation version “B”, please regard as only as illustrative. In any case, this model creates a space for determining the percentage of the selling price of postal services as a financial cover that should serve as the social compensation in case of poor quality of postal services.

Conclusion

The main aim of this paper was to introduce the proposals how the non-quality of chosen universal postal service – the ICLs could be possible solved from the point of view of compensation of the society. Overall we have presented three potential models of financial compensation – their methodology was adapted to the analysed universal postal service in conditions of Slovakia and according to their methodologies the potential financial cover paid to the Fund was quantified. However, it is needed to realize that the quantified financial cover represents the compensation for a non-quality just for one postal product from the whole total product portfolio of any provider of universal postal services. In general, if the postal companies were penalized for the non-quality of all provided universal postal services, alternatively for all postal services, the total amount of financial compensation would be logically much higher. Also it is important to emphasize that all suggested models do not take into account any financial compensation from entitled complaints. If we incorporated this fact into one of the presented models, it would be appropriate to reduce the final amount of financial compensation paid to the Fund, for instance by the amount of compensation payable in respect of recognized claims.

By creating the presented models of financial compensation for the non-quality of postal services we would like to point out the possibility of improving the image of the postal provider from the point of view of provider’s customers (existing as well potential ones). However at the beginning of improved quality of postal services is to make sure that the appropriate standards are set (Cremer, De Donder, Boldron, Joram &

Roy, 2007). As well the models represent the possibility how to solve existing problems of unjust enrichment of the postal service providers to the detriment of whole society, if their customers do not make any official complaint. The providers' mandatory contributions to the Fund, if they not meet the quality standards – in the meaning of the delivery terms, should play a role of important incentives to improve the quality of postal services and awareness of their social responsibility. In our opinion, the Fund should be governed by an independent organization – the regulatory authority seems to be the best. As well, the financial sources of the Fund themselves should also be used to improve the quality of postal services, for instance through the financing of independent measurements of the level of quality of selected postal services.

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IMPACTS OF EDUCATION ON ECONOMIC GROWTH

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Keywords:

economic growth – education – secondary and tertiary education

JEL classification: O470

Abstract:

This paper examines the relationship between the economic efficiency of regions and significance of number of people with secondary and tertiary education. The portion of adult population with secondary and tertiary education and the intensity of R&D expenditures in gross domestic product emerge as the most effective factors enhancing the growth of GDP measured in the regions belonging to EU countries. Nevertheless, while the secondary and tertiary education as the variable is effective in the one region, the impact is significant for all the regions and consequently for the whole country. The remarkable disparities arise among the regions of country and must be examined with using the econometric and statistical analysis. Further connections and influences are researched as this paper is one of many partial research goals. The main result of the paper is that all used variables showed to be substantial and almost in all cases also statistically significant and econometrically verified determinants.

Introduction

Resources in human capital have an embodied STOCK of human capital – defined as a knowledge, skills, competences and attributes that facilitate the creation of personal, social and economic well-being – which is an essential input to innovation. Due to the importance of human resources for innovation, the key objectives of human resource policies have been to raise the level of knowledge and skills of the labour force.

1. Methods, literature overview

Economists have long believed that investments in education, or “human capital,” are an important source of economic growth. Over the last 40 years output has grown about 3.5 percent a year and the productivity of labor has grown about 2.4 percent per year (OECD, 2011). The contribution of education to labor productivity growth is estimated to be between 13 and 30 percent of the total. Further, many people believe that investments in human capital will become even more important in the future as we

become a postindustrial, knowledge-based economy, and they worry we are giving insufficient policy attention to the development of an educated workforce. (William, T., Dickens, W. T. and Sawhill, I., Tebbs, J., 2006) Education has been long viewed as an important determinant of economic success. The theoretical growth literature emphasizes at least three mechanisms through which education may affect economic growth. First, education can increase the human capital inherent in the labor force, which increases labor productivity and thus transitional growth toward a higher equilibrium level of output (as in augmented neoclassical growth theories Bissell, (1994). Second, education can increase the innovative capacity of the economy, and the new knowledge on new technologies, products, and processes promotes growth (as in theories of endogenous growth). Third, education can simplify the diffusion and transmission of knowledge required to understand and process new information and to successfully implement new technologies devised by others, which again promotes economic growth (Hanushek, E.A. and Wößmann, L., 2010) New empirical results show the importance of both, minimal and high level skills, the complementarity of skills and the quality of economic institutions, and the robustness of the relationship between skills and growth. International comparisons incorporating expanded data on cognitive skills reveal much larger skill deficits in developing countries than generally derived from just school enrolment and attainment. The magnitude of change needed makes clear that closing the economic gap with developed countries will require major structural changes in schooling institutions. (Hanushek, E.A. and Wößmann, L., 2007) Human capital is probably the result of education, innate abilities and family and social environment. So if we want to measure human capital, we should consider all these effects. But we can't evaluate innate abilities and family and social environment, so we help ourselves by the assumption that human capital is primarily the result of education. (OECD, 2013) Education should be systematic. It should be based on the needs of the market itself. One of the key factors of education quality and more quality of student are entrance examinations. The analysis in University of Economics Prague shows declining number of points acquired while maintaining the unchanged difficulty of the entrance examinations in mathematics (Beranek and Remeš, 2012). The main goal of this paper is to determine influence and to evaluate significance of number of people with secondary and tertiary education on economic efficiency of a region measured in constant prices of gross domestic product (GDP) in bil. CZK.

2. Results

As it was written in previous part, the main goal of this paper is to determine influence and to evaluate significance of number of people with secondary and tertiary education on economic efficiency of a region measured in constant prices of gross domestic product (GDP) in bil. CZK, a regression and correlation analysis are used which can be considered as standard methods of econometric modelling. The submitted work defines several presumptions which it aims to confirm or disconfirm with minimally 95 %

likelihood. It will use a linear regression model for that which will be applied in a structural analysis of educational and economic aspects affecting the economy of all regions of the Czech Republic. For calculation of particular models, data of the Czech Statistical Office were used in time series in the period 1995 – 2012. They concern basic macroeconomic and demographical factors which are considered, and by modelling it was documented, as substantial explanatory variables. Among these variables, an unemployment rate (UNE) in %, a number of university-educated (EUP) and secondary educated (HEP) people in thousands of persons, and a number of economically active inhabitants in thousands of persons in age of 15 – 64 years (EAP_D) were included.

$$GDP_t = \gamma_{11} + \gamma_{12}UNE_t + \gamma_1UEP_t + \gamma_{14}HEP_t\gamma_{14} + EAP_D_t + u_{1t} \quad (1)$$

When $u_{it} \sim \text{n.i.d. } (0, \sigma^2)$, for $i=1, 2, \dots$

The work will use estimation of linear functions which serve for expression of a direction and an intensity of activity of predetermined variables from the absolute point of view. Models with selected variables will be tested to satisfy all presumptions about a random component including a specification presumption of the whole linear-regression model. After that it is possible to consider the estimations of structural parameter as the best, unbiased, and consistent. The models will be estimated with use of econometric software Gretl. So, in every equation tests of autocorrelation of residues (Breuch - Godfrey test), tests of heteroedasticity of random components (White test), tests of normality of distribution of random components (Jarque – Berra test), a correct function norms (RESET test), and a stability of estimated parameters (Chow test) as well as an absence of perfect and high multicollinearity among explanatory variables (VIF test) will be carried out.

At the beginning of own work, these presumptions were set:

P1: unemployment will be a significant variable which affects inverse proportionally efficiency of all monitored CR regions.

P2: numbers of tertiary educated people will positively influence GDP of CR regions

P3: numbers of secondary educated people will also positively influence GDP of CR regions

P4: a number of economically active inhabitants will be unambiguously contribute to an increase of economic results of the regions.

TAB. 1: Results of estimations of econometric models – structural parameters and statistics

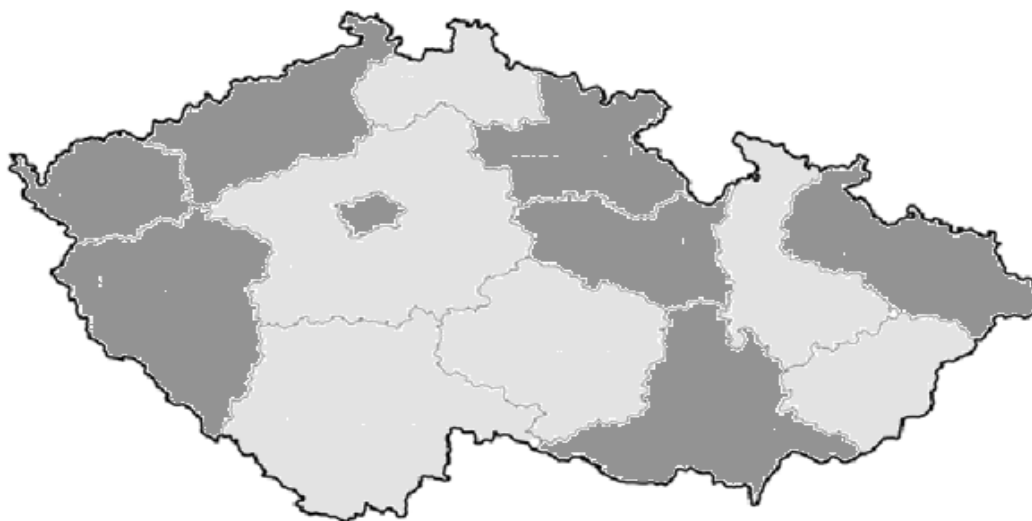
Region (Czech names)	UNE	UEP	HEP	EAP_D	R2adj.	d-statistics	VIF
Praha	-24.8***	1.03**	2.2**	0.7***	0.97	1.89	< 10
Středočeský	-8.9***	3.6***	3.1***	0.04	0.97	2.3	HEP 15.2
Jihočeský	-1.4	1.1***	-0.1	1.4***	0.94	1.52	< 10
Plzeňský	-1.3	0.2	1.0**	0.9**	0.94	1.2	HEP 23.0
Karlovarský	-1.4***	-0.3**	0.4***	0.1	0.76	1.3	UEP 14.1 HEP 25.6
Ústecký	-3.2***	0.3	0.7***	0.5	0.87	2.0	< 10
Liberecký	-3.0**	1.4***	0.9***	-0.7	0.84	1.4	< 10
Královohradecký	-1.5	0.7	1.2***	0.17	0.95	1.33	UEP 12.9 HEP 17.5
Pardubický	-3.3***	0.6	1.5***	1.0**	0.93	1.83	< 10
Vysočina	-2.6***	1.3***	0.4**	1.2**	0.96	1.81	< 10
Jihomoravský	-3.6**	0.6***	1.2***	0.1	0.96	1.03	HEP 13.0
Olomoucký	-2.5**	1.0***	0.5***	-0.2	0.94	2.25	< 10
Zlínský	-3.1***	1.8***	0.6**	0.4	0.98	2.22	HEP 16.6
Moravsko Slezský	-5.9***	-0.3	1.6***	-0.8	0.82	0.98	UEP 24.5 HEP 19.5

Source: own research

From the above mentioned results it is possible to confirm the presumption P1 that the unemployment rate is a significant factor and decreases efficiency of economy. In all regions except Jihočeský, Plzeňský, and Královohradecký regions this parameter is statistically significant and reduces GDP. It operates the most in Prague and in Středočeský region which we can mark as drafters of Czech economy, to which only Jihomoravský and Moravskoslezský region approach only. The presumption P2 is unambiguously confirmed only in regions Jihočeský, Liberec, Vysočina and Olomouc. These regions are illustrated by yellow colour in a map 1. From structural parameters expressed absolutely it is possible to consider a positive influence of numbers of persons with university degree on GDP of a region. Despite this fact, if we express coefficients of elasticity and judge a relative influence of the variables UEP and HEP, results speak in favour of secondarily educated people whose elasticity is, except Jihočeský region, higher than the elasticity of tertiary educated people. In the Středočeský and Zlínský regions, for reason of occurrence of high multicollinearity in the variable numbers of secondarily educated people it is not possible to separate its influence because it operates together just with the numbers of tertiary educated people. This variable was excluded from the model and new estimations brought findings that in this way estimated model has not only better characteristics and better satisfies the presumptions about a linear regression model, but also the size of structural parameter

increased from a value 1.8 to 2.3, same as the elasticity coefficient increased to a value 0.8 % in Zlínský region. In Středočeský region the regression coefficient increased from a value 3.6 to 6.25 with almost the same elasticity as in Zlínský region. From the mentioned it is possible to suppose that the influence of people tertiary educated on economy of the region has more significant influence than numbers of secondarily educated people. The presumption P3 is confirmed in other regions as it is illustrated in a map of the Czech Republic No. 1 with orange colour. People with secondary education have generally bigger influence than their inhabitants with university degree. Not only that this presumption showed as unconfirmed, but also it was found out from a newly estimated model that secondarily and tertiary educated people from Středočeský region have almost triple influence on efficiency of the region Prague against secondarily and tertiary educated inhabitants of Prague. Numbers of secondarily educated people from Středočeský region have the biggest influence of all used determinants measured relatively in a form of elasticity coefficients. This coefficient can be interpreted that with increase in number of the secondarily educated by 1 % HDP will raise by 0.98 %.

FIG. 1: Illustration of influence of secondarily and tertiary educated people in CR regions



Source: own research

Presumption P4 was not unambiguously proved in all regions. In Liberecký, Olomoucký and Moravskoslezský regions the structural parameters results negative which shows a lack of job vacancies. However, these estimations didn't pass tests of statistical significance of parameters, therefore we cannot consider them verified. In other regions the influence of number of economically active inhabitants is positive, however, it is not always statistically significant. Regarding better characteristics of the model, in which this variable is included, we judge that it is dealt with a relevant variable.

3. Discussion

The paper aims to quantify influences of number of secondarily and tertiary educated people together with factors unemployment rate and numbers of economically active people at age of 16 – 64 years on gross domestic product of the given region in constant process. All mentioned variables showed to be substantial and almost in all cases also statistically significant and econometrically verified determinants. A bigger influence of tertiary educated persons showed in six regions. It is dealt with the region Liberec where the increase in number of people with university degree by 1000 would raise GDP by 1.4 mil. CZK. Then Středočeský region when the increase in number of undergraduates by 1000 persons would raise GDP by 3.6 bil. CZK. In Jihomoravský region this change would increase GDP by 1.1 bil. CZK, in the region Vysočina by 1.3 bil. CZK, in the region Olomoucký by 1 bil. CZK and in Zlínský region by 1.8 bil. CZK. In other regions the more dominant roles is played by people with secondary education. The most significant influences of the number of secondary educated people on HDP ranked ascending would show in the region Prague, Moravskoslezský region, Pardubický region, Královohradecký region and Jihomoravský region, in Plzeňský, Ústecký regions, and the least in the region Karlovarský. An intensity of this factor is in increase of the number of secondarily educated people by 1000 persons in an extent from 2.2 – 0.4 bil. CZK of GDP increase in particular regions. From the mentioned results it is possible to raise doubts about rightness of the European Union's intention to increase further percentage representation of people with university degree in the population. Its intention should be above all to be about particular quality of education not only students, but also university pedagogues. From the work it is also obvious that in regions which have their specific problems, such as the region Ústecký, Karlovarský, Liberecký and Moravskoslezský region secondarily educated people participate more significantly in efficiency of economy. However, they are not able to exercise their work efficiently without quality educated and able non-mandatory factor which should be just the university graduates. However, their interest is to work in Prague or in regional capitals which leads to still bigger deepening differences among regions.

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LOCAL GOVERNMENT – BETWEEN LAW AND ECONOMICS

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Abstract

The functioning of local government is influenced by diverse determinants constituting the subject of interest for various scientific disciplines. The leading ones, in this respect, are legal and political sciences, sociology and economy (including the science about an organization and management). Unfortunately, in spite of their highly interdisciplinary nature, the majority of research on local government is focused on the specific areas – not many of these studies, however, present an interdisciplinary nature. The article discusses the dominating concepts of local government at the background of legal and economic sciences. The focus was placed on dichotomy, resulting from different paradigms followed in the particular disciplines, and also the areas of potential closer cooperation were defined. It is aimed at making both economists and administration law specialists aware of other determinants influencing the situation of local government – taking them into consideration can result in better understanding of its nature and the related, more accurate, explanations based on the conducted research.

Introduction

Public sector, in the local scale, is primarily represented by the local government. It can be analysed as a legal entity, the instrument of political power, the community of citizens united by means of social relationships or, finally, as an organization playing a distributive and regulative function. Depending on the above-mentioned perspectives, local government can represent the research domain for: legal and political sciences, sociology and economics. Despite that local government rarely becomes the subject of interdisciplinary analyses conducted simultaneously at the background of at least two scientific disciplines. Separate classifications and concepts frequently make the discussions of researchers, representing various sciences, difficult.

The purpose of the hereby article is to present the review of the leading research trends regarding local government, approached on the grounds of legal and economic sciences. The analysis conducted in this way is supposed to encourage the representatives of the above sciences to consider, in their interpretations, the determinants studies by other disciplines.

The article is of a review nature, mainly based on the analysis of source materials. The conclusions result from literature studies, observations and experiences gained by the authors in the course of a local government practical functioning.

1. Local government concepts

According to the functional concept, also referred to as the state concept, local government is the form of decentralized state power. The sense of local government functioning, in the opinion of this concept advocates, is limited to a more effective and efficient functioning of the state. Therefore, also appointing it and providing with adequate laws and obligations is done by the state.

The natural local government concept is a contradiction to the functional one, since it assumes a spontaneous, grassroots type of initiative resulting from the essence of social life. The need for local systems organization, in order to perform public services more effectively, results from the natural course of events (Swianiewicz, 2004).

The research debate on local government values can be divided into two basic approaches determined by the basics of political philosophy.

Communitarians emphasize the community based sources of civilized social life. In their opinion the role of public authority, and thus also local government, comes down to skilful considering and protecting these natural social relationships. Cultivating local and regional communities is possible only in the conditions of the advanced decentralization.

Liberals, however, are of a different opinion, since for them and individual and his/her right to freedom, remains in the centre of attention. A market and a competition are considered the best mechanisms facilitating self-realisation of an individual. Decentralisation remains the best solution because it extends the freedom of choice and enhances such market oriented functioning of a society and economy (Swianiewicz, 2004).

2. Local government as a legal entity

In the classical perspective, the state under the rule of law perceives local government as a part of its activities, which do not surrender easily to the criteria of economically understood performance or efficiency. Following the concept of the discussed state local government presents no other origin but the universally binding law. It does not serve achieving economic, sociological or political goals, but executing public tasks, primarily defined by the

constitution. Law and the institutionalized supervision of independent courts and tribunals remain the basic paradigm underlying its functioning. Therefore, control is performed from the legal perspective only, rather than that of economic or political concepts. The concepts distant from the universally binding law can thus result in violating one of its basic rules - the rule of law. The establishment of such radical rule was supposed to liberate administrative activities from the features of freedom and discretion (Cane, 1996). This can be true, in the opinion of many administration law specialists, if administration is perceived as a participant in the game of interests, a market game or e.g. takes part in the process of political exchange (Błaś, Boć, Jeżewski, 2007). In accordance with this trend local government cannot experiment in public tasks and their execution methods, especially when there is a risk of narrowing down or restricting significantly the constitutional public rights (Błaś, 1998). Freedom, independence, discretion, creativity, initiative, entrepreneurship, the creation of new works, making some arrangements, creating new concepts, do not remain the characteristics of administrative operations (Cane, 1996).

The concept of local government presenting a strictly defined executive nature against the law raises, however, significant doubts. The main assumption here is the rule of “perfect law” which should be executed unconsciously. Nothing more and nothing above that (Błaś, Boć, Jeżewski, 2004). In the real life practice, however, law is not capable of predicting all possible situations. All innovative and adjustment oriented activities, depending on the changing circumstances, are also eliminated (McGrew, Lewis, 1992).

The indispensable nature of such changes seems obvious in the light of diversified and changing social needs and the specificity of activities performed by e.g. local governments, related to supply and determined by technology and organization of services provision, whereas on the demand side – the nature of needs they are supposed to meet (Zalewski, 2007).

Therefore, within the domain of legal sciences, in the opposition to the classical trend, the concepts of economic theory of law, or simply of Law & Economics, were developed. This trend was initiated at the end of the 50s of the 20th century by Coase (1960), Calabresi (1961) and later widely developed by e.g. Becker (1974), Posner (1998) and also Ehrlich (1996). The representatives of Law & Economics postulate for the law to remain in line with the objective principles applied in economics. It refers to the situation when the legislator cannot limit economic laws in an unrestricted way, as well as to the fact that law should take into consideration the needs of economic turnover efficiency (Stroiński, 2002). Even though this trend is gaining an increasing popularity, it still gives way to the classical approach. In spite of the above Law & Economics stands the chance of playing a bridging role between the environment of economists and lawyers in the research on local government (Bełdowski, Menelska-Szaniawska, 2005).

3. Local government as an economic entity

While legal and social sciences (especially including the political science) have been functioning in this area for many years, economic sciences have only recently started analysing these problems. Major economic research directions focus on the construction of systems and models of administration structures, problems related to quality (management), efficiency of public tasks' performance (economics), or the efficiency of structures in a territorial perspective (spatial economy). Therefore, only in the area of economic sciences the diversification of trends and scales (micro and macro) can be observed, along with the underlying specification of research methods. The major domain of their interest remains within the aspects related to the efficiency of allocation, distribution, stabilization and regulatory function of the local government (Bailey, 1999).

At the background of theoretical concepts the problems referring to local government are present in e.g. the neoliberal theory postulates, in the rational choice theory, public choice theory, in the economics of transactional costs, in new institutionalism, in the concept of organizing public institutions in a network and in the systems theory. In the economic studies on local government the dominating importance is assigned to the positive trend, close to practical problems, based on information from the budget reporting system. Unfortunately, fewer studies covering this sphere are conducted within the stream of normative economics, which seems to be the decisive reason for the defensive role of economics in the creation of the legislation in force. In practice the research on economic effects of the introduced rules of law are encountered more frequently than the creation of legal constructions based on the previously performed economic research.

Along with the analyses carried out by the researchers also the reforms of public administration, inspired by them, were performed (Modzelewski, 2009). The 70s of the previous century were abundant in many negative economic phenomena manifested by the increasing difficulties in balancing public expenditure. These phenomena, and mainly stagflation – i.e. stagnation combined with inflation – were not successfully explained at the background of the dominating at that time Keynesianism, which resulted e.g. in the development of neoliberal streams in the economic theory and economic policy. The concept of New Public Management (NPM) was emerging under their influence, which was identified, relatively quickly, as managerial revolution, the new paradigm for public sector management (Bandarzewski, Kisiel, Chmielnicki, 2005), (Habuda, 2000), (Izdebski, Kulesza, 2004).

The efficiency oriented concepts and new models for public units' management appeared in Anglo-Saxon countries, and particularly in Great Britain, Canada, New Zealand and the USA. The book by D. Osborne and T. Gaebler entitled "Reinventing Government – How the Entrepreneurial Spirit is Transforming the Public Sector" became the source of inspiration,

considered by many researchers as the beginning of general changes in exercising public authority and the origins of the new NPM stream (Habuda, 2000).

The greatest emphasis on deregulation, the introduction of NPM rules and separating public tasks from the state was observed in Anglo-Saxon countries. In the Scandinavian countries, on the other hand, focus was placed on other NPM elements; the researchers analysing administration problems define them as “regime of management focused on results”, which is constructed using the instruments of competition and freedom of choice, as well as selective decentralization and privatization oriented projects (Gorzelać, Szczepański, Ślęzak-Tazbir, 2009). The trend called Public Governance developed on this background, which emphasized the joint participation of citizens in the creation of decisions about the local public spending. Its substantive foundation was established by the publications by e.g. H. Cleveland (1972), J. Kooiman (1993) and G.B. Peters (2000).

The disappointment with the effects of managerial reforms resulted in changing the orientation from the perspective of correct performance of its, regulated by law, tasks into meeting the needs of citizens, the application of diverse consultation techniques, with regard to resources management, paying attention to management by results and the professionalization of public service manifested by changing clerks’ competencies from legal experts to managers. The concept of Neo-Weberian-State evolved in this way (Pollitt, Bouckaert, 2011). Due to the fact that it combines the elements of classical bureaucracy with the possibility of local government economization, it seems a good area for the development of interdisciplinary cooperation between economists and lawyers.

Conclusions

Local government is not just a structure serving the adequate allocation of financial means, representing the sphere of economic research interest. The economic discussion about the efficiency of management should also consider other aspects of local administration functioning.

As the author attempted to illustrate in the presented article, modern administration is mainly influenced by legal regulations. The state following the rule of law provides that the assessment of local government should be based exclusively on its functioning compliance with the adequate legislation in force. Economists find it especially difficult to agree with such an administrative *dictum*, however, local government has to be assessed following such determinants. Single sided approach to local government reduces significantly an objective picture of local government institutions’ functioning. The complexity of problems referring to local government fully justifies the occurrence of numerous research approaches. It seems that primarily the problem of local government modernization should be subject to interdisciplinary analyses. Such perception is not ensured by means of approaching local government based on classical, originating from the turn of the 19th and 20th century, rules

based on the primacy of law. Much more extensive and comprehensive approach is offered e.g. by the new institutionalism (Calabresi, 1961).

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COMPARISON OF DEBT STRUCTURE OF TWO SMALL OPEN ECONOMIES

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Keywords:

government debt – balanced budget – economic growth – GDP

JEL classification: H630, H120

Abstract:

This paper focuses at the current government debt problem, which affects many different countries. The emphasis is put on the structure of government debt and how the debt was created. There are various ways of how the debt can increase, from increasing government size to debt cause by time of war or even in times of peace by poor implementation of government policies. For purpose of this paper I have analyzed and compared annual data of two small open economies, Czech Republic and Slovakia, from 1995 to 2014.

Introduction

This paper examines the current problem, which have almost every country in the world – the debt. This paper is focusing at the chosen two countries of European Union. These countries are both classified as small open economies and had common history development but one is using as national currency euro and the other does not. These are Czech Republic and Slovakia.

1. Literature overview

Rise of government debt was observed in the last decades. Commonly it goes hand in hand with increase in size of government. As shown in Tanzi and Schuknecht (1997), the average size of government for a group of thirteen industrial countries increased from twelve percent of GDP in 1913 to forty-three percent of GDP in 1990. At the end of the period, average public debt-to-GDP ratio was seventy-nine percent for the big governments, sixty percent for medium-sized governments and fifty-three percent for small governments.

In principle it also depends how the debt was accumulated. According to Cukierman and Meltzer (1989), debt incurred during the time of war, has a much smaller impact on future economic growth and inflation as a debt that arose in times of peace and relative prosperity. The post war economic growth tends to be higher as a large part of the

workforce and funds are shifting back into the civilian economy. Also high government expenses related to the hostility that have contributed to the accumulation of debt tend to lower when the conflict ends. On the other hand, the debt which arises in times of peace and prosperity may be caused by some hidden political issues that have a habit to persist for a long time.

Economic and financial crises are also likely to increase the size of government debt as mentioned in paper of Reinhart and Rogoff (2009), which analysing severe post-World War 2 crises.

Lejour, Lukkenzen and Veenendaal (2010) address the problems of debt sustainability in the euro area in the selected countries after the financial crisis. Concretely, which countries are at risk of not being able to maintain or procure their debt? The results of their research shows that the most stable country is the Belgium and that was only in cases which did not included the possibility of an aging population, so all of the monitored countries are in need of convert protective measures until the end of decade.

After the recovery period of the impact of crisis, new works under the auspices of ECB (European Central Bank) were released compared to the last decade, which examines the relationship between government debt and economic growth. For example see: Checherita and Rother (2010), Hartwig Lojsch, Rodríguez-Vives and Slavík (2011), Nickel and Tudyka (2013), or Stracca (2013).

According to these problems governments needs to establish a strategy to manage their government's debt. As mentioned in Baďo and Komínek (2015) every government faces policy choices concerning debt management objectives, in particular its preferred risk tolerance, the management of contingent liabilities and the establishment of governance for public debt management.

1.1. Data and Methods

Some economic literature assumes that debt management should hold principles of sound finance management. According to Matthews and Colander (2004) principles of this theory could be understood as balanced budget approach. On the other hand, Forstater (1999) and Aspromourgos (2014) rejects traditional doctrines of sound finance. According to them the only reason to lower or even extinguish debt is to achieve better rate of interest which result in increased investments and output. More on this topic is explained in Baďo and Komínek (2015).

In the following section will be compared the structure of debt on two similar small open economies, concretely on the data of Czech Republic and Slovakia. Annual data from 1995 till 2014 were used. Choice of this sample is based on the availability of high quality data. Most of these data were obtained from the database of Eurostat. Rest of the data were obtained from the Czech National Bank and from the National bank of

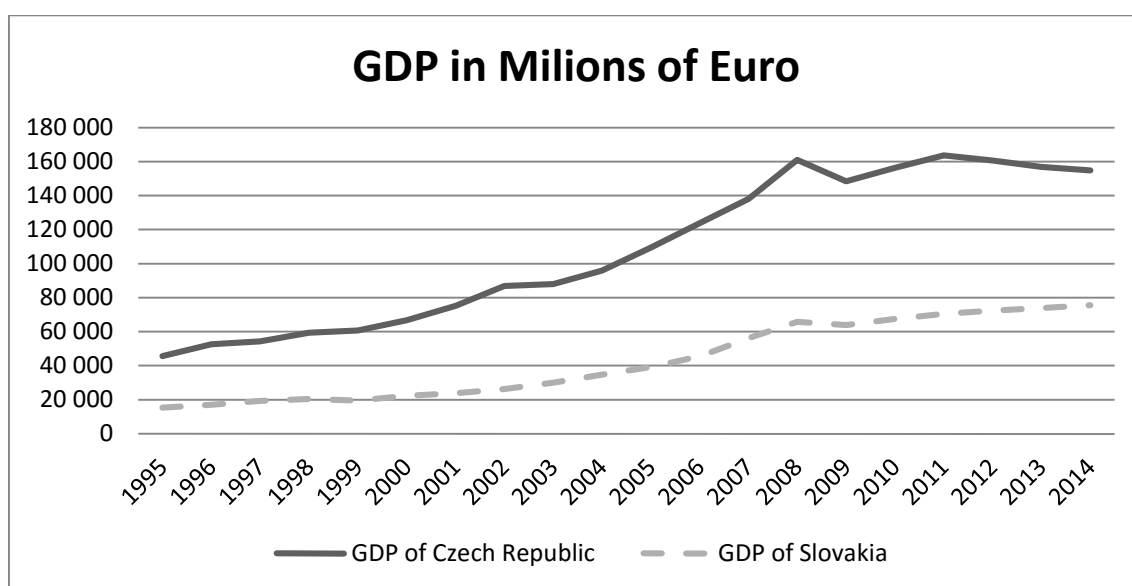
Slovakia. All of the figures have time on the x-axis and on the y-axis I measure various debt components in millions of euro for better comparison.

2. Results

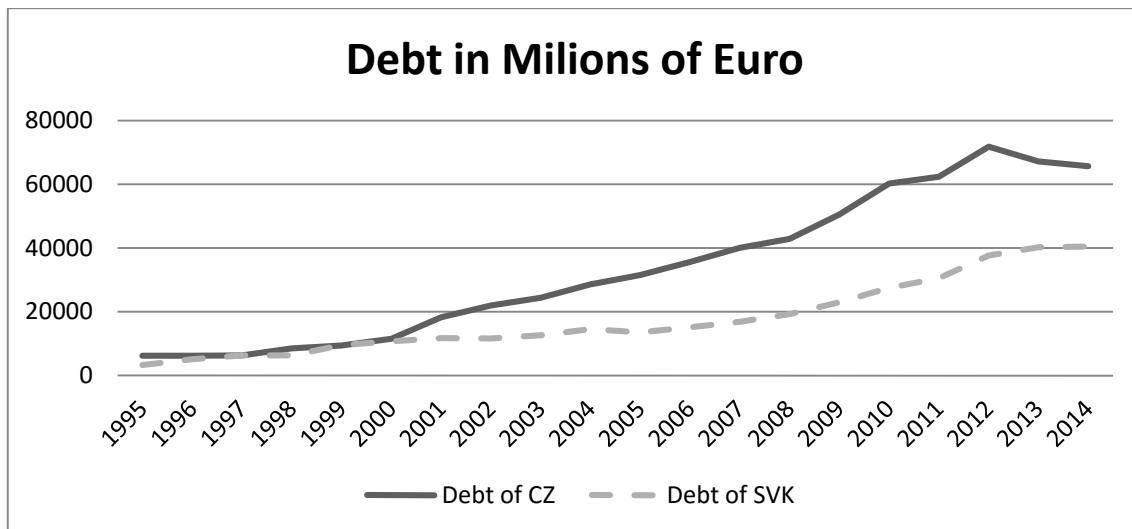
In this section is the comparison of chosen economies.

In the first figure (1) we can see the evolution of GDP of the chosen economies from 1995 till 2014. Until the end of 2008 we can observe a growing trend in GDPs of both states. At the third quarter of year 2008 the financial crisis has afflicted the states of European Union. We can see it as decrease in this growing trend. Also we can notice that GDP of Slovakia has suffered a lesser decrease than Czech Republic. Slovakia has accepted euro as national currency from 1.1. 2009 and this could be the reason of smaller impact of financial crisis on the economy. Moreover the Slovakian GDP has returned to the steady growth rate compare to the Czech Republic.

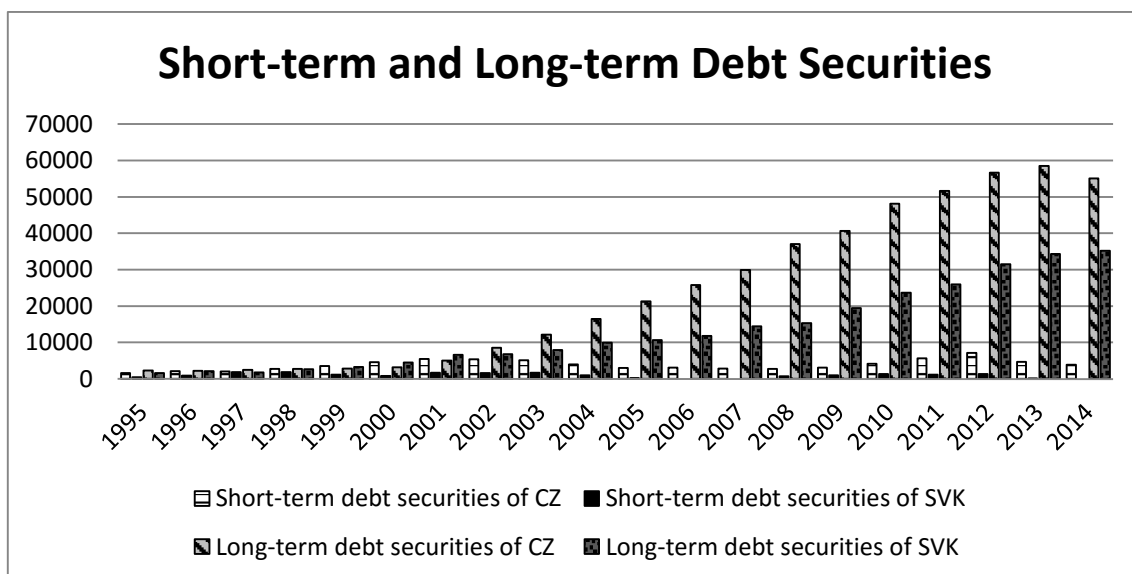
FIG. 1: GDP in Millions of Euro



In the following figure (2) we can look at the development of consolidated gross debt of two economies. Gross debt of both Czech Republic and Slovakia is roughly fifty percent of their GDPs. For the first 5 years of observations, there was very low increase in the gross debt. From the year 2000 we noticed a large increase in growth of Czech debt in comparison with Slovakia. Next large jump is at the end of year 2008, when financial crisis has started to influence European economies. At the end of the sample, we noticed that both economies have taken measures to stop the growing trend of debt and additionally both economies have managed to even decrease their debt level.

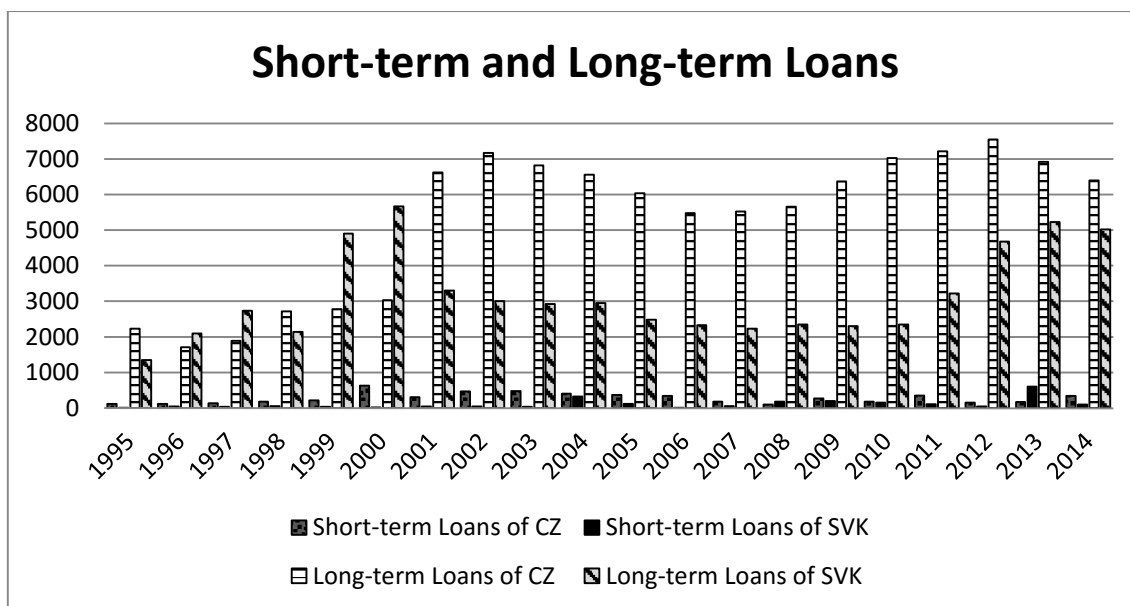
FIG. 2: Gross Debt in Millions of Euro

At the next figure (3), we can look at distinguishing the short-term and long-term debt securities. We can notice that short-term debt securities are significantly lower than the long-term debt securities. Only noticeable increase in short-term securities is in Czech Republic, in years which the country was affected by floods. These "floods" securities had five year maturity and were mostly issued in 1997 and 2002. From the year 2002-2003 we can also observe an increase in long-term debt securities in both countries. The main reason for this increase is most likely the end of maturity of securities issued in 1990s and paying of interest from different sources. Also a large growth in long-term debt securities is in the years, which were affected by the financial crisis. On the other hand, in the year 2014, we can see a decrease in both short-term and long-term debt securities.

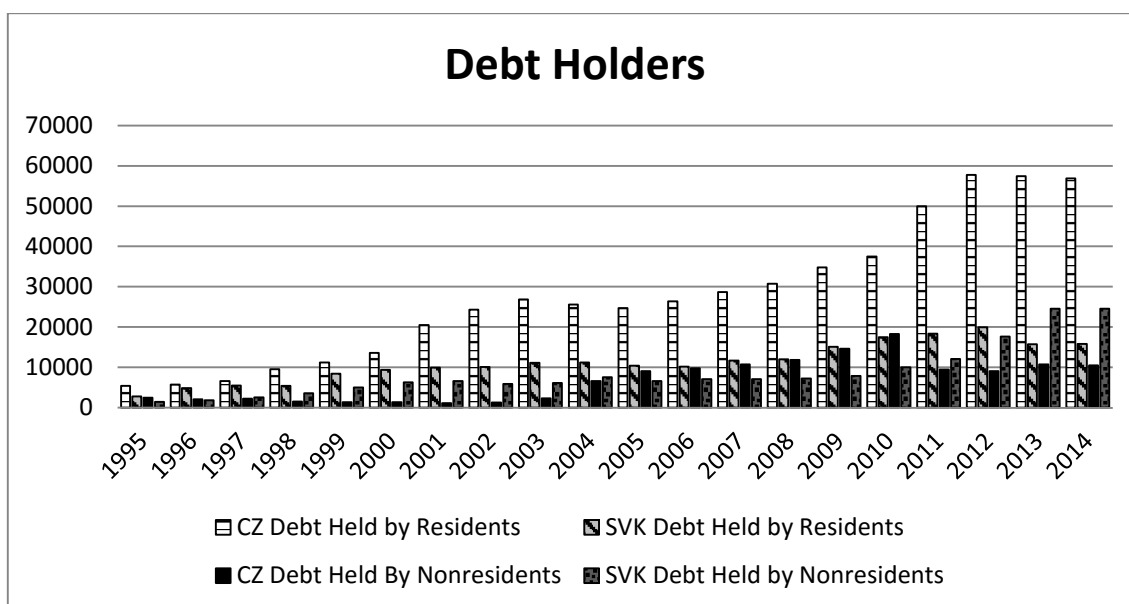
FIG. 3: Short-term and Long-term Debt Securities in Millions of Euro

Similar to the previous figure (3), in the next figure (4), we can see short-term and long-term loans of Czech Republic and Slovakia. At the first look everyone can notice that loans compose a much smaller part of debt than the debt securities. Besides that the short-term loans are almost insignificant to the amount of the long-term loans, it is obvious that the states are using mostly different economic instruments to cover increased government spending, for example the debt securities.

FIG. 4: Short-term and Long-term Loans in Millions of Euro



In the last figure (5), we can see debt holders divided to two main groups. Residents of the observed states and non-residents. We can see that the most of the Czech debt is held by the residents of the state. But year after the admission of Czech Republic to the European Union we can see a permanent increase in non-resident holders. On the other hand, in Slovakia, we can observe a steady increase in both categories for the whole observed sample and after year 2013 more than fifty percent of the debt is held by non-residents. According to the annual report of Ministry of Finance of Czech Republic, more than eighty-eight percent of resident's debt is held by domestic banks.

FIG. 5: Debt Holders in Millions of Euro

3. Discussion

In comparison with other authors, previous result and own expectations, the results are satisfactory. This paper followed a previous research and will work as a base for a further research of debt structure and relationship with economic growth.

Conclusion

In this paper are discussed several main reasons for generating government debt. It is a large difference if the debt was accumulated in time of war or the debt arose in time of peace and prosperity. Also it is known that debt goes hand in hand with increasing size of government. There are also several ways how the governments can manage their debts.

As it can be seen at the comparison of the data of Czech Republic and Slovakia, both countries has to overcome increased level of debt. Both countries have similar debt level according to their GDPs, but Slovakia has suffered lesser impact from financial crisis probably due to the adoption of euro. On the other hand, Czech Republic has an advantage of national currency and less independent monetary policy.

After these results I want to continue with this research in greater scale. I am planning to expend this research to include ten most indebted countries of European Union and to investigate the relationship between government's debt and economic growth.

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EXPLORING THE NATURE OF MISSION STATEMENTS: CASE OF CZECH NONPROFIT ORGANIZATIONS

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non-profit organization – mission – website – content analysis – Czech Republic

JEL classification: H40, L30, M10

Abstract:

Organizational professionalism of non-profit sector has reflected in increasing awareness for developing a high-quality mission as well as for its proper communication towards strategic stakeholders in (board, employees, volunteers) and out (donors, community, government, partners) the organization. The presented study focuses on finding of qualitative and quantitative nature of missions communicated by organisations on the Internet. The research sample (N=703) consists of organisations with accessible web pages obtained by random selection from the official databases of nonprofits representing all regular and legal forms of Czech non-profit organisations. Internet mediated research, explicitly the content analysis of organisational websites, was chosen as the main research tool. Specifically, the research deals with presence, location, focus and length of missions.

Introduction

A mission is one of the basic statements of an organisation allowing long-term successful development of any organisation. Wolf (2012) draws attention to the fact that non-profit organisations are not owned by anyone, they are there only to fulfil their mission. Also, in the case of termination of non-profit organisation activities, the remaining assets are transferred to an organisation with a similar mission. A non-profit organisation has set out the implementation of the mission as its implicit objective. A mission plays an important role in the initial contact with potential donors and self-justification of such a financial contribution from the perspective of both individuals and companies (Hloušek, Hloušková & Hanuš 2012). In general, organisations that publish their strategic Declaration, then considered more quality-driven and of course more efficiency using the entrusted funds.

The presented study deals with identification of the nature of the mission in the new environment of globally available internet. The internet is the platform enabling global competition of non-profit activities and competing for limited funds. Websites and

virtual communication channels become an increasingly common platform for communication in the area of entertainment and business as well as for the life of non-profit organisations: „For non-profit organisations the Internet represents an unprecedented and highly cost-effective opportunity to build and enhance relationships with supporters, volunteers, clients and the community they serve“ (Hart 2002, p. 353). Thus, as mission statement can enhance the positive perception of the public and stakeholders regarding the organisation and is understood is an important management and marketing tool, several aspects of mission was chosen to study: (1) presence and/or availability, (2) location, (3) focus, (4) length.

1. Research questions and its formulation

Undoubtedly, the existence of mission statement belongs to proper strategic governance of every organization. Various benefits of having clear and written mission statement are presented in management literature. It is widely recognized by practitioners and theorists as the initial point in strategic management as the mission is essential for effective design of objectives and strategies (David, David, & David, 2014; Powers, 2012; Collins & Rukstad, 2008). In general, a company which possess its mission statement is perceived better than an organisation without mission. Moreover, Bartkus, Glassman, & McAfee (2000) or for Czech environment Šedivý & Medlíková (2011), argue that if an organisation does not know its targets or does not follow them, it uses its own resources sub-optimally. For these reasons, the first research question (RQ) is formulated as follows: *RQ 1: Do non-profit organisations publish their mission on the websites?*

Given the fact that a mission should be the basic idea of an organisation that basically allows its existence, it can be assumed that the mission should be easy to find on their websites. Grünig (2008) mentions that the mission statement takes precedence over all other corporate documents, similarly McDonald (2007, p. 257) states: “The organisation’s mission is serves as a long-term objective, the achievement of which is the *raison d’être* of the organisation”. The study in this case focuses on finding the easy availability of a mission. *RQ 2: Is the mission is available on the website on an easily accessible placement?*

The mission itself contains countless roles and functions, from which we will select only three basic ones: (1) it justifies the meaning of existence, (2) it expresses the scope of the organisation, and (3) it produces values and patterns of behaviour in relation to employees and volunteers. *The meaning of existence* is vital for communication with external stakeholders, from which the organisation either draws funds or improves its public relations. It communicates the organisation’s identity to stakeholders (Bartkus & Glassman 2008; Leutheusser & Kohli 1997). In addition to this, the mission defines the boundaries of what the organisation carries out, i.e. the *scope of the organisation* (e.g. Bartkus, Glassman & McAfee 2000). *The values and patterns of behaviour* of an

organisation's members are underlined for example by Bart *et al.* (2001) who found that mission statements could positively affect employee behaviour when the organisation displayed commitment and established internal policies/programs that supported the statement. Positive changes in employee behaviour had a direct effect on an organisation's financial performance. For these reasons, the third research question was examined. *RQ3: What is the content of communicated mission?*

Top Non-profits Organisation (2013) analysed missions of the world's most successful non-profits on the Internet using metrics such as number of followers on Facebook and Twitter, search engine optimisation, Google PageRank, evaluating their transparency and accountability. The study showed that the average length of a mission in the fifty best rated organisations is only 15.3 words, for the best 20 organisations then the length of the mission is only 9.5 words. In connection with this finding was formulated RQ4: *What is the scope of communicated mission?*

2. Research methodology

2.1. The method

This study uses a form of internet-mediated research, i.e. a content analysis of the information and documents stored on the website. This kind of analysis is similar to some forms of observation, but the records are placed on the World Wide Web already with a specific purpose. A similar way of exploring in the Czech environment is chosen by Rohrbacher (2007) for example. Content analysis is commonly applied in the testing of any part of written text or recorded communication, in a large number of areas from marketing and media studies, through literature and rhetoric, ethnography and cultural studies, gender and age issues, sociology and political science, psychology and cognitive science and many other fields of investigation. The research sample

The research sample was obtained on the basis of previous research focused on the transparency of non-profit organisations made by one of the authors (Bachmann, 2012), where the sample composed of 2,000 civic associations, 100 public benefit organisations, 100 foundations, 100 endowment funds and 100 church organizations obtained by random selection from official Czech data bases. Taking the same sample, the organisations with functional websites (n=703) were selected for the purpose of this study for further investigation of mission statements. The sample design according to legal forms is illustrated by Table 1.

For later interpretation of the obtained data, it is significant to point out the overall low availability of websites (29.3 %), because it then affects the total availability of a mission statement. Regards to availability according to legal forms, the surveyed organisations can be divided into three groups: a group with high availability of web

pages (church institutions), medium availability (public benefit organisations, foundations and endowment funds) and low availability.

TAB. 1: Proportions of organisations with websites according to legal forms

Legal form	Sample	Organisations with Web		Interval estimates ¹	
		Abs.	Rel.	Lower	Higher
Civic Association	2,000	469	23.5 %	0.21593	0.25307
Public benefit organisations	100	52	52.0 %	0.42208	0.61792
Foundations	100	55	55.0 %	0.45249	0.64751
Endowment fund	100	42	42.0 %	0.32326	0.51674
Church organisations	100	85	85.0 %	0.78002	0.91999
Total	2,400	703	29.3 %	-	-

¹ For the level of significance $\alpha=0.05$

Source: Bachmann, 2012

2.2. Data collection

Data collection was conducted over two time periods. The first phase dated in the period from June to August 2013, when the availability of missions and their placement was detected. The second phase took place in March 2014 and we identified the content, length and clarity of missions. The method of data collection, including relation to the research questions is detailed in Table 2.

TAB. 2: Information obtained from the website documenting the professionalism of management, divided by areas of research and research questions

Research questions	Method of data collection and analysis
<i>1: Do nonprofit organisations publish their missions on a website?</i>	Determining the availability of a mission in existing web presentations. Acquisition of missions explicitly marked like that, as well as text which corresponded to a mission by its nature. Documents stored on websites were also searched through.
<i>2: Is the mission in an easily accessible place available on the web?</i>	Determining the placement of a mission on a website. Categorisation according to the number of clicks leading to finding the mission.
<i>3: What is the content of the communicated mission?</i>	Rating of qualitative dimension of a mission by its focus on the purpose, activity or value. For the purposes of the research, 150 organisations with an available mission were selected.
<i>4: What is the scope of the communicated mission?</i>	Counting the words in the mission. For the purposes of interpretation it was divided into four groups according to the number of words on the basis of the median size.

Source: Authors

Naturally, the research sample in investigation of second question was limited only to organizations with available mission i.e. 342 nonprofit organizations. Similarly, for the

third, fourth and fifth question, the sample was reduced to 150 organisations due to request of equal number of organizations in individual legal forms.

3. Main Findings

3.1. Do nonprofit organisations publish their missions on the website? (RQ 1)

The results indicate that less than half (48.6%) of the examined organisations has available mission statement. The worst situation exists for civil society groups (only 30.3% of the organisations has a mission), who at the same time due to their high frequency in the sample, negatively affect the overall result. Approximately two-thirds (69.2%) availability of mission was detected in public benefit organisations. Higher availability (85.9%) was recorded in church organisations. A strategic statement was mostly mentioned by foundations: foundations (94.5%) and endowment funds (92.9%). The situation in foundations and endowment funds may be resulting from the fact that these entities at their establishment must clearly declare the purpose of their existence. Detailed results of the availability of a mission are contained in Table 3.

TAB. 3: Availability of mission on the website according to legal forms

Legal form	Available mission (abs. frequency)	Available mission (rel. frequency in %)	Total
Civic association	142	30.3	469
Public benefit organisation	36	69.2	52
Foundation	52	94.5	55
Endowment fund	39	92.9	42
Church institutions	73	85.9	85
Total	342	48.6	703

Source: Authors

In addition to these results, it was found that nonprofit organisations often do not understand the difference between mission and vision. Moreover, nonprofits work more with the term of mission rather than with vision.

3.2. Is the mission available in an easily accessible place on the website? (RQ 2)

If nonprofit organisations publish their strategic statement, then it is most often available on the home page (46.9%). Two other placement options, i.e. by one click or by two or more clicks, are available in around a quarter of organisations. Strategic statement most often occurs on the home page - in less than a quarter of the cases (22.8%). Statement available by one click was in approximately a tenth of organisations (12.5%). A slightly higher proportion (13.4%) then was taken up by the organisations with a statement placed by two or more clicks or in the organisational documents

accessible on the web. In terms of legal forms, the examined missions are more readily available in foundations, endowment funds and ecclesiastical, the worst availability is in the most common legal form of nonprofit organisations - civic associations. Summary of results is available in Table 4.

TAB. 4: Placement analysis of missions by legal forms

Legal form	<i>Home page</i>		<i>One click</i>		<i>Two or more clicks</i>	
	<i>Abs.</i>	<i>Rel.</i>	<i>Abs.</i>	<i>Rel.</i>	<i>Abs.</i>	<i>Rel.</i>
Civic association	62	43.67%	27	19.01%	53	37.32%
Public benefit organisations	12	33.33%	14	38.89%	10	27.78%
Foundations	29	55.77%	14	26.92%	9	17.31%
Endowment fund	28	71.79%	4	10.26%	7	17.95%
Church institutions	29	39.73%	29	39.73%	15	18.99%
Total	160	46.78%	88	25.73%	94	27.49%

Source: Authors

3.3. What is the content of the communicated mission? (RQ 3)

Nonprofit organisations communicate primarily within their mission the activities of an organisation (44.80%), followed by the purpose of existence (40.60%), and least often the values (14.60%). Within the analytical breakdown by legal forms, it was found that the most complex missions in terms of content elements that have been subjected to observation, are provided by church charity organisations to their stakeholders. The mission in this case took into account all three observed aspects in more than a third of the organisations (36.67%). Also, interesting is the position of the foundations, which is the only legal form that communicated their purpose of existence more often than their actual activity. Detailed results are provided in Table 5.

TAB. 5: The content of a communicated mission by legal forms

Legal forms	Characteristics of a mission			Total
	<i>purpose</i>	<i>activity</i>	<i>values</i>	
Civic association	21	22	5	48
Public benefit organisations	20	26	7	53
Foundations	22	25	4	51
Endowment fund	17	23	2	42
Church institutions	26	21	20	67
Total	106	117	38	261
	40.6%	44.8%	14.6%	100.0%

Source: Authors

In addition, the content analysis also detected the presence of selected keywords that are commonly used to formulate the mission of the organisation. Most often, of course, it

was represented the keyword “mission” – 51 times. Within the investigated missions the word “objective” was available: 49 times. Then the words aimed at defining the scope of the organisation followed, i.e. activity was there 56 times. Another frequently occurring word in the text of the examined statement was “purpose” which was used by the organisations on 33 occasions. On the other hand, less frequently found were found terms regarding the apparently shorter-term segment, i.e. the words like “role” or “task”: only 3 times. The frequency of use of keywords in different legal forms of an organisation is showed in Table 6.

TAB. 6: The occurrence of keywords in the mission, broken down by legal forms

Legal form	<i>Mission</i>	<i>Target</i>	<i>Business</i>	<i>Activity</i>	<i>Purpose</i>
Civic association	4	12	12	2	5
Public benefit organisations	7	8	6	5	4
Foundations	12	14	8	4	8
Endowment fund	6	11	4	8	12
Church institutions	10	2	2	0	1

Source: Authors

3.4. What is the scope of the communicated mission? (RQ 4)

The fourth research question focused on the length of the communicated mission measured by the number of words in this statement. The results showed that the average length of a mission is 66 words ($\bar{x} = 65.84$). Median (= 51.5) of the research sample however suggests that there is more than one organisation with the mission of shorter than average length of the mission. Most often a mission occurred in a length of 25 words ($\text{Mod}(\bar{x}) = 25$). Other descriptive statistics are as follows: error of the mean = 3.94 and standard deviation = 48.27. Due to the median value the research set was divided into four parts as it is presented in Table 7.

TAB. 7: The mission of an organisation analysed according to its length, divided into size intervals

<i>Interval</i>	<i>Abs. frequency</i>	<i>Rel. frequency</i>	<i>Accumulation %</i>
Mission of up to 25 words	21	14.00%	14.00%
Mission of up to 26-50 words	51	34.00%	48.00%
Mission of up to 51-75 words	33	22.00%	70.00%
Mission longer than 75 words	45	30.00%	100.00%

Source: Authors

Discussion and Conclusion

The present study provides new insights of empirical research mapping the availability, placement, content, size and clarity of a mission published on the Internet by Czech

nonprofit organisations. Interestingly, less than half of missions' availability did not confirm the importance emphasised by theorists that should be specifically attributed to a mission within the nonprofit sector. It also showed that the availability within the Czech context is strongly dependent on the legal form of an organisation, as the examined level of the available missions varied from 30% for civil associations to 95% for foundations. The placement of disclosing missions within the websites is mostly on the home page, almost in half the cases of the organisations with missions available. Two other placement options, i.e. by one or by two or more clicks are same in about a quarter of organisations. Differences between nonprofit legal forms in this case are not very significant. In terms of content focus of a mission, the nonprofit organisations communicate mostly the activities (44%) and the purpose (40%) of the organisation. Surprisingly, less often the missions focus on values and behaviour patterns (only 14%), which is contrary to a number of previous studies dealing with the role of the mission in an organisation. The values were emphasised only by church organisations. The extent of missions varied frequently in the range from 25 to 75 words, more than half of examined organisations possessed a mission of up to 50 words.

Naturally, the presented study has its own limits: the age of organisation not taken into account, keyword selection and content focus of a mission based on a selection of authors, or possible errors in case of manual data retrieval from individual web pages. Therefore, the methods removing these limits, such as linguistic math as well as factors of organisational demography should be the subjects of consequent research in the area.

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GLOBALISATION AND ITS IMPACT ON BUSINESS ACTIVITIES

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Keywords:

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Abstract:

The current process of globalisation has the fundamental impact on the functioning of international economic relations, international business and national economies of states. Under the influence of globalisation the new forms of transnational business are being established. We will demonstrate on the concrete cases that the globalisation has the impact on the business activities in Slovakia, since there is quite large number of companies from France and other states performing their business activities, which contribute considerably in increasing the economic growth, in creating new jobs and in economic development of regions. The aim of this contribution is to evaluate the impact of globalisation on the business activities of foreign persons in Slovakia with the focus on French asset entities.

Introduction

The globalisation represents the process of increasing of international interconnections in all areas causing the whole range of political, economic and social changes. It reduces the local traditions and regional differences and creates the homogenous world culture. (Stachova & Paskrtova, 2014, p. 17)

At international level not only the globalisation of economy, but also the globalisation of politics, culture and law is being formed. There are many definitions of economic globalisation in the expert literature, bellow are some of them.

According to the Stanford Encyclopedia of Philosophy the opinions on globalisation in the current social theory can be summarized as follows: (Standford, 2015)

First, contemporary analysts associate globalization with deterritorialization, according to which a growing variety of social activities takes place irrespective of the geographical location of participants.

Second, recent theorists conceive of globalization as linked to the growth of social interconnectedness across existing geographical and political boundaries.

Third, globalization must also include reference to the speed or velocity of social activity. The conceptual forerunners to the present-day debate on globalization, the proliferation of high-speed transportation, communication, and information technologies.

Fourth, even though analysts disagree about the causal forces that generate globalization, most agree that globalization should be conceived as a relatively long-term process.

Fifth, globalization should be understood as a multi-pronged process, since deterritorialization, social interconnectedness, and acceleration manifest themselves in many different (economic, political, and cultural) arenas of social activity. Although each facet of globalization is linked to the core components of globalization described above, each consists of a complex and relatively autonomous series of empirical developments, requiring careful examination in order to disclose the causal mechanisms specific to it.

The globalisation is understood as the ability to tackle the world as one market, while tackling it paradoxically as with many cultural different businessmen. (Pucik & Tichy & Barnett, 1993) Barney and Griffin characterise the internationalisation and globalisation as the moving of entity towards genuine global (world) entity. (Barney & Griffin, 1993) According to Pearce and Robinson the globalisation means the strategy of entering into the world markets with the standardized products. Such markets are most often being created by the final consumers, who prefer cheaper standardized products before more expensive ones, which are adapted to the clients and global companies using their global activities for gaining the competitiveness at the local markets. In the globalised economy entities compete both at domestic as well as at the international markets. People are being adapted to the global culture, global economy and global change of environment. The part of globalisation process is also the change of economic relations, investment relations, change of legal forms of companies, accounting, taxation, etc. Saxunova (2014, p. 10) emphasizes that „changes in global accounting regulations are part of a complete system of commercial regulations that apply to all business organizations, emphasizing the protection of external parties, especially creditors.” According to Wamboye & Mookerjee (2014) „one of positive aspects of globalisation is that state foreign direct investment may be the driver of financial sector development”. Foresti, Marani a Piroli (2015) found out in their research made in Hungary, Czech Republic, Bulgaria and Romania that the potential accession of the new member states may increase the level of fiscal indiscipline in the Eurozone.

Ever increasing pace of globalisation of world economy brings changes, as well as the new challenges for all national economies, especially for their economic and international business policy, as well as for the development of international business.

1. Methods, literature overview

In elaborating on the given problematics several scientific methods were used having regard to the purpose of this thesis. Both the analytical and synthetical method was applied. The subjects of examination were the phenomena and processes connected with the globalisation and arrival of foreign investors from France to Slovakia. On the basis of analysis of current state of affairs we reached the conclusion, that as a consequence of globalisation the investment relations are being developed, which contributes to the economic growth. This has the positive impact on the regional development. The subject matter of our examination are the activities of French companies in Slovakia, since they were the first investors that came as first to Slovakia after the year 1989.

2. Results

The processes of economic globalisation can be summarised briefly as follows:

- a) Economic globalisation is the extension and deepening of internationalisation. By internalisation we understand the extension of business activities of profit organisations from the domestic market to the foreign markets by export, import, sale and purchase of licenses and foreign investments. The globalisation represents the higher degree of internalisation. It means the extension of these business activities towards the entire world.
- b) The key role in the processes of internationalisation and globalisation is played by enterprises. They are entities having their mother enterprise in the domestic state and controlling by their capital enterprises in many states of the world (daughter companies, joint ventures) and they influence the management of enterprises where they are minority owners.
- c) Economic globalisation is a long term process. The aim of economic globalisation is to create the integrated world economy where the enterprises could freely, without barriers, perform their business activities in any part of the world. The current world is far from being economically globalised. There are many barriers, which are slowing down or hindering these processes. They are especially political, economic (protectionism), cultural and religious barriers. Some regional groupings in the world represent also certain barriers to the globalisation.

The driving forces for the processes of globalisation are reducing and complete removing of commercial and investment barriers and creating the conditions for the free movement of goods and capital around the world. The decisive role in these processes is played by international/national organisations creating the rules for international business (WTO, EU, UNCTAD). One concrete example of the development international economic relations is also represented by the activities of international business companies in the territory of Slovakia. Further to the proper application of the EU single market the companies from the Member States perform their business activities in the territory of several states. There are many foreign companies from the EU Member States and non Member States doing business in Slovakia. Foreign

investors are searching for Slovakia as the destination from various reasons. In general investor is interested in primary advantages of given state stemming from its geographic location, market size and its perspectives, economic development, etc. In addition, the specificities of the concrete state are decisive as well, mainly its political orientation or more concrete direct support of foreign investment. (Stachova, 2013, p.213) Quite frequent instrument used by foreign investors represent the investment incentives in the form of income tax reductions. In case of investment aid provided from public sources its recipient is obliged to create new jobs and preserve them for the period of five years from the day when the job is firstly taken by the employee. As granting the investment aid to the investor is connected with the creation of jobs, one can say that the investment plan has the favourable effects on the employment rate in the region. According to the experience gained so far the Slovak labour force is characterised by the foreign investors acting in Slovakia as educated, motivated, adaptable to various types of managerial styles and with good language skills and positive attitude to work. Referring the facts mentioned the institute Flexiprace has been also established in Slovakia as consequence of implementing and organising flexible forms of work. This trend is visible not only in Slovakia but also in the European Union and in the developing countries of the world. (Wojcak, 2013, p. 8) Globalisation, increased competitiveness, changes in demographic structure of population and the development of information and communication technologies have created throughout the recent years the new needs and challenges for enterprises in Slovakia. This situation has the significant impact on the method of production, processes and the organisation of work itself. (Wojcak & Polakova, 2015, p. 350) The Slovak economy has faced these challenges successfully also thanks to high degree of flexibility of Slovak labour force.

We have focused our examination on obtaining data concerning the activities of French entities from the Commercial Register of the Slovak Republic and from the register of Statistical Office of the Slovak Republic. Many important companies from various parts of the world, such as the USA – US Steel, South Korea - Samsung, Germany – Siemens, etc. are performing their business activities in Slovakia. There are around 400 French companies (not speaking about the bank sector) having either 100% of French capital or being the company with certain capital share. There are around 35 000 employees working in the French entities in Slovakia, which can be considered as the big contribution from the social and economic point of view. (Slovak-france university institut, 2015) Among the most prosperous ranks the PSA Peugeot Citroën Slovakia, this is one of the biggest employers in Slovakia. PSA Peugeot Citroën at the same time faces the strong competition of another car producing companies such as Volkswagen, JSC (Bratislava) and Kia Motors Slovakia, Ltd. (Zilina). In spite of the global economic crisis the company is successful and prosperous, which is evidenced by its economic results. Up to 99% of production capacity is designed for export, which is in numbers 300 000 vehicles per year. (Sario, 2015) It follows from these data that direct foreign

investments represent the accelerator and catalysator of Slovak export policy, which has positive impact on its foreign commerce balance.

Another significant French investors in Slovakia are Electricité de France, Orange, Dalkia, Alcatel, Dexia, Plastic Omnium, Valeo, Faurecia. The company Eurovia ensures the construction of highways in Slovakia. From the year 2002 another foreign investor is acting in Slovakia through companies ISK, IS-LOM Ltd. and Cesty Nitra JSC – French group COLAS. These entities are employing around 1.200 persons. COLAS has significant share in international construction market. It cooperates with local authorities, technical universities and it further invests into the Slovak companies in Slovakia.

Since 2014 the new investment of the biggest European retailer of products for sport and leisure time activities - French company Decathlon is being realised in Slovakia. As a consequence of activities of French entities the sub contracting relationships are being developed and new jobs are being created. Investments of company PSA Peugeot-Citroën reach the volume of 1 billion EUR. The telecommunication operator Orange is also strong economic investor whose investments are reaching 1.1 billion EUR. (Slovak-french university institute, 2015)

Among big French investments in Slovakia ranks also the investment of machinery company CCN GROUP in Belusa, where the components into the turbo blowers should be produced. The company is planning to invest in years 2015-2017 approximately 27 573 000 EUR and to create minimum 230 new jobs till the end of year 2019. One of the reasons for realisation of investment intention is also the fact that there is labour force with the quality education in the field of machinery and with skills in the field of machine toilers in the given region. The company is asking the investment aid according to the Law on Investment Aid in the form of income tax reduction in the maximum nominal value of 5 750 000 EUR. The Government of the Slovak Republic has approved this investment aid in September 2015. (Government of the SR, 2015)

After the industry the foreign investments are arriving also to the sector of services, which is represented for example by company Sodexo and Cheque déjeuner. Besides these, various banking and non-banking institutions and financial institutions are active in Slovakia (AXA, Groupama, Mazars, Accor, J. C. Decaux).

In the following table no. 1 there is sectoral structure, where various French investors in Slovakia are active.

TAB. 1: Sectoral structure of French entities in Slovakia (year 2014)

Sector	Name of entity
Automotive Industry	PSA Peugeot-Citroen
Building Industry	Colas, Vinci, Bouygues
Electrotechnical Industry	Dalkia, Cofely
Food Industry	Danone, Senoble
Pharmaceutical Industry	Sanofi, Boiron
Telekomunikation Industry	Orange, Atos
Chemical Industry	Yves Rocher, L'Oréal, L'Occitane
Textil Industry	Decathlon
Trasport Industry	Gefco

Source: Business Register of the Slovak Republic 2015

It is evident from these data that French companies are well represented in Slovakia. The conditions for doing business are regulated in particular in the Commercial Code (Act No.5123/1991 Coll. as amended). This Law defines business doing as systematic activities independently conducted by an entrepreneur to make a profit in his own name and upon his own responsibility (Art. 2 Act No. 513/1991 Coll.) All forms of business, including their branches and organisational units, must be registered with the Commercial Register. The Commercial Register is maintained by the courts. In accordance with article 21 of the Commercial Code the foreign persons can perform their activities in the territory of the Slovak Republic under the same conditions and to the same extent as Slovak persons, unless the law stipulates otherwise. Doing business by a foreign person in the territory of the Slovak Republic is understood doing business by the person, whose enterprise or its branch is situated in the territory of the Slovak Republic. Article 24 of the Commercial Code regulates the possibility of the foreign person to take part in establishing the Slovak legal person or to take part as the partner or member in already established Slovak legal person for the purpose of doing business. The foreign person is entitled alone to establish the Slovak legal person or to become the sole partner of the Slovak legal person. With regard to the fact that the Slovak economy ranks among the open economies, the foreign business entities are coming to Slovakia also as investors too. In accordance with article 25 of the Commercial Code the property of foreign investor related to business activities performed in the Slovak territory is protected.

TAB. 2: Number of French entities in Slovakia according to regions 2014

Region	Registered business entities	Business entities with foreign participation	Business entities with French capital
Bratislava	48,648 legal persons and 63,573 physical persons	2,973	219
Trnava	15,135 legal persons and 45,570 physical persons	1,522	38
Nitra	16,811 legal persons and 52,830 physical persons	1,992	18
Banská Bystrica	18,120 legal persons and 45,045 physical persons	745	28
Trenčín	15,486 legal persons and 46,461 physical persons	1,163	30
Žilina	17,217 legal persons and 59,830 physical persons	678	16
Prešov	968 legal persons and 61,160 physical persons	639	18
Košice	19,575 legal persons and 43,744 physical persons	1,116	23

Sources: National Regional Development Strategy of the Slovak Republic 2014

This table demonstrates that there are advantageous conditions established in Slovakia for doing business and that there are all legal barriers removed for the business activities of foreign companies. The advantageous tax policy and establishment of equal tax rate for domestic and foreign businesses, as well as the system of preventing the double taxation is significant for the development of economic relations too. Another advantage is also the proper application of the rules of EU single market.

3. Discussion

The globalisation brings significant advantages for many enterprises and many states. By extending their business activities towards many states in the world the transnational entities have the possibility to improve their economic results and prosperity (they use cheaper labour force), they bring production closer towards the sources of raw materials and to consumers, etc.). With regard to the fact, that due to the globalisation also the business environment has been changing in Slovakia and economy has become open, foreign investors are coming to Slovakia. Many global companies are already reaping the rewards of their decision to invest in Slovakia. The largest industries in Slovakia are automotive industry and electronics. The substantive reason for the flow of foreign investment is also the international legal protection and protection of investment.

Investments of investors made on the basis of bilateral investment treaties cannot be confiscated, expropriated or nationalised. There is only one reason when the state can take such measures, and that is the public interest, i.e. for the purpose of general welfare or national interest. Measures have to be taken in accordance with legal regulations and investor has to be compensated on the basis of real value of investments, i.e. fair compensation without unreasonable delay. Expropriation of investment according to the principles of international law can only be made when international treaty knows this institute. However, such case did not occur in Slovakia so far. Another significant factor evidencing the fact that we can talk about advantageous conditions for doing business for foreign investors in Slovakia is the application of rules of competition. Free competition is a key element of an open market economy. It stimulates economic performance and offers consumers a broader choice of better-quality products and services and at more competitive prices. Slovak competition policy is significantly influenced by the Community model. The influence of the EU for forming and applying the competition rules in the Slovakia can be seen especially in the field of legislation, decision making, as well as in the transfer of knowledge and skills. (Zemanovicova 2014, p. 244)

Globalisation has its negative side, as the small and medium enterprises are facing the strong competition pressures, which has its unfavourable effects on their economic results.

Conclusion

We have focused within the framework of our investigation on the investors from France, who have brought the foreign capital and thus created the new jobs (from the year 2000 there were around 35.000 new jobs created) which has its positive impacts especially in the social area in tackling the unemployment problems. As significant is considered also the contribution of French companies in the Slovak export, as they form the decisive part in the export of motor vehicles and thus they improved the commercial balance of the Slovak Republic. Slovakia is small open economy, and that is why we can expect slowing down of its economic growth due to the complicated development of global economy. It is thus necessary to implement the policy of synergy by using the support means with higher effectivity through the regional self governing bodies. With regard to the fact that the globalisation enables the transnational business activities, it is necessary for the entities intending to perform their business in another state to ascertain and verify the legal aspects for such activities. (Trelova 2014, p. 63)

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DEVELOPMENT OF SLOVAK – SPANISH INVESTMENT RELATIONS

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Abstract:

The development of Slovak – Spanish relations has not only political and cultural dimensions, but also an economic dimension. Since 2004 when the Slovak Republic became a member state of the European Union, relations with Spain also have an investment dimension. Spanish investors implement their investment plans in Slovakia in the field of automotive industry, infrastructure development, new technologies, tourism and they use investment stimuli such as income tax reduction to support business development. The intent of this academic study is to analyse the development of Slovak – Spanish investment relations that have a positive influence on employment.

Introduction

Spain is a member state of several important international organizations, e. g. the European Union, the World Trade Bank, the International Monetary Fund, the World Bank, the United Nations Organization, NATO, and many others. Spain's membership in these institutions undoubtedly has certain advantages, and it helped Spain to improve its external political standing and broaden its business and investment relationships which in turn increased the opportunities for economic, social and political changes in the country. The political development of Spain in the 20th and 21st centuries is full of contradictions and multi-culturalism, where the genesis of these phenomena stems from the past. In a politically conservative and economically and socially unstable environment of the first half of the 20th century, an important milestone was the civil war of 1936 – 1939. (Carreras, A. & Tafunell, X., 2010, p. 102) It was a reaction to the country's orientation more to the left, affirmed moreover by Spain being a republic as a political system. The antagonistic international powers of Europe at that time: Germany, Italy and the Soviet Union (which had its own interests in Spain) were all very interested in Spain's civil war, and even more in its result. The United Nations was, just like amidst other conflicts, powerless in the case of Spain, mostly due to differing interests. After the 1939 victory of General Franco the country entered into a long period of political persecutions of the enemies of the autocratic regime. An economic recession resulting from the western power houses boycotting the dictatorship

contributed to the political downfall of Spain. A certain acquiescence with the democratic world was necessary from an operative standpoint of both sides. The United States were interested in Spain's military bases, and managed to achieve this. Spain broke its economic isolation by entering into trade treaties and improved its international political standing by accessing the UNO in 1955. After the king's coronation in 1975 the country started opening up to democratic changes and implementing regulations aimed to improve the burdening economic and social situation in the country. The political parties and democratic unions started acting freely. A smaller part of the army attempted a coup d'état in 1981, the most serious attempt at turning the democratic development of the state, but this was suppressed in its very beginning. (Carr, R. & Fusi, J. O., 1979, p. 169) An intensification of military and economic cooperation with abroad resulted in the country's inception into NATO in 1982 and becoming a member of the European Communities (nowadays European Union) in 1985. Despite the integration efforts in Europe, certain parts of its map show separatist tendencies, and Spain is unable to manage these in the case of the Catalans and Bascs. The Spanish economy was facing, and still is, severe issues appearing in the social sphere – such as unemployment which, at the end of the 20th century and the beginning of the 21st century reached 5 million. (Carreras, A. & Tafunell, X. A., 2010, p. 326) deep financial crisis at that time caused the country's recession. Despite these slowdowns in economy, Spain fulfils (even though sometimes with issues) the criteria of European economic standards. Spain could be considered a country with an important influence on the character of the EU policy towards the Latin American countries and a country that contributes significantly to the framework of Euro-Atlantic structures with respect to the safety of Europe and the world.

Direct foreign investments form a part of the world economy and simplify trade and services, as well as the globalization of business. Their contribution to society lies mainly in the influence they have over the employment policy. They may also be considered to be the instruments of the development of economy. A trade economy creates room for an influx of foreign investments and foreign capital. As a general rule, countries introduce measures geared towards an influx of foreign investments in the form of government aid or investment aid. The economic instruments listed here are often used by foreign investors in Slovakia on a larger scale than by Slovak investors. Wamboye & Mookerjee (2014) state that „one of positive aspects of globalisation is that state foreign direct investments may be the driver of financial sector development”. According to Saxunová (2013) if capital for the company is obtained from international financial markets, then domestic and financial investors require the information on company's performance and its financial position. “It is also necessary to inform about cash flow prospects i.e. on the information that helps to assess amount, timing and uncertainty of future cash flows.” (Saxunová, 2014, p. 148)

1. Methods, literature overview

In this contribution we will focus on the topic of development of Slovak – Spanish economic relations, mostly from the point of foreign investments influx into Slovakia. We will attempt to confirm the hypothesis that Slovak-Spanish relationships keep developing further despite the financial and economic crisis in Europe. In this article we will explain the basis of free capital movement. Based on an analysis of data acquired from the Business Registry of the Slovak Republic we will demonstrate that investment plans of Spanish investors are implemented in Slovakia. In the end we will attempt to synthesize the findings and emphasize the fact that Slovakia has optimal conditions for the development of investment relationships.

2. Results

Starting in 1989 the process of economic transformation begun in Slovakia and this impacted the investment environment and started a process of changing the business environment. The liberalization signified a certain progress as foreign investors started entering the Slovak market and implement their investment plans. In the interest of fulfilling the EU targets, i.e. creation of conditions necessary for the correct functioning of the internal market Slovak Republic needed to adopt measures allowing a free flow of capital from EU member countries. The internal market brings a lot of favourable aspects into European integration processes, it increases the room for economic entities of member states and it protects citizens' consumer rights. A successful creation of the internal market is based on adopting harmonization measures (directives) that help the correct performance of the internal market of the EU. (Nováčková, D., 2010, p. 11) But if we want to talk about a correctly performing internal market we need to take into consideration the fact that an internal market can only perform if the rules of economic competition are obeyed. Preserving a system of free and uninterrupted economic competition is one of the priorities of the EU. The principle of equal treatment belongs to important basic principles of economic and business relations. Every country has its own legal instruments for safeguarding the principle of equal treatment. The principle of equal treatment in business is based on elimination of all forms of discrimination in order to create equal conditions for the development of economic activities of internal and foreign subjects. A result of applying the principle of equal treatment is the creation of optimal conditions for fair treatment, which has a positive impact on the influx of foreign capital. Due to the fact the Slovak Republic is a member state of the European Union it is bound by the paragraphs of the Treaty on Functioning of the European Union with respect to the free movement of persons, services and capital. That means the Slovak Republic, pursuant to its international obligation, removed all legal obstacles interfering with doing business within its boundaries. Investors from Spain are some of the important investors in Slovakia and they focus on the automotive industry, furniture manufacturing, IT etc. The SARIO agency is also active in Slovakia and it helps foreign investors establish business relations and works as a consulting company. In 2004 –

2013 it participated in the implementation of 15 investment projects of Spanish companies in Slovakia, totalling 103 million Euros. Spanish businesses performing business activities in Slovakia are duly registered in the Business Registry. Based on our findings a lot of companies from Spain are active in Slovakia. As an example we list only a few, those that have a significant positive influence on economic growth.

TAB. 1: Spanish investors in Slovakia

Company Name	Type of Business	Region - City
Antolin	Production of interior parts and roofs for the automotive industry	Bratislava, Žilina
ArcelorMittal Gonvarri SSC Slovakia	Processing and distribution of steel products for the automotive industry	Senica
Aluminios Cortizo	Manufacturing of aluminum profiles for construction business	Nová Baňa
Abba Hotels	Tourism	Bratislava
Cikautxo	Manufacturing of natural rubber products for the automotive industry and household appliances	Nové Zámky
Elastorsa	Production of rubber mixes, mostly for the automotive industry	Martin
Estampaciones de Navarraz Pamplona (autonomous area of Navarra) started in the ESNASA Slovakia factory	Manufacturing of cold stamped metal components for the automotive industry	Leopoldov
Fagor Ederlan	Manufacturing of automotive industry components	Žiar nad Hronom
Farguell	Automotive industry	Nitra
Fundería Condals	Metallurgy	Prešov
Grupo Rimar	Logistics	Topoľčany
Hijos de Juan Garay	Manufacturing of metal components for the automotive industry	Bratislava
Jobelsa, Benicassim	Manufacturing of upholstered seats for cars	Košice
Telefónica	Mobile carrier	Bratislava

Source: Business Register of the Slovak Republic 2015

The development of Slovak-Spanish relations is also supported by the Slovak-Spanish Chamber of Commerce with its seat in Bratislava. Pursuant to Section 6 of the Articles of Association of the Slovak-Spanish Chamber of Commerce, the Chamber supports the development of mutual Slovak-Spanish relations and business exchanges between the

Kingdom of Spain and the Slovak Republic as well as technical and commercial cooperation between entrepreneurs from both countries and it provides information on possibilities of economic activities. There is active the Spanish Agency for Support of Investments in Spain, the purpose of existence of which is the support of development of investment relations. Spain, as the Member State of the European Union - when providing advantages to foreign investors is obliged to respect also the legal framework of the European Union and stick to the State aid rules, mainly in connection with the competitiveness policy. A suitable and measurable index for assessment of efficiency of the provided State aid, in accordance with the legal act on investment aid, is the number of genuinely created new jobs, and the amount of State aid per one such a job created in this way. (Paškrtová, L. & Nováčková, D., 2014, p. 20)

An important Slovak investor in Spain is the very Železiarne Podbrezová, a.s., that bought 100% share of the entrepreneurial company TRANSMESA close to Barcelona in 2008. This trading company manufactures cold drawn tubes. The stated company extended its investment business, and opened a factory in Sant Ramón in April 2012. The overall volume of investments represents approximately 19 mil. EUR. (foreign.gov.sk, 2015) Presently there exists the Agreement on Mutual Protection and Support of Investments between the Czech and Slovak Federative Republic and the Kingdom of Spain (December 12, 1990), which is binding for the Slovak Republic and Spain. The stated contractual parties create on their territories conditions for mutual development of investment relations, and they generate favourable conditions for entrepreneurial activities of investors. The above mentioned agreement stipulates that investments of Spanish investors are protected and they cannot be expropriated or nationalized, only in a special case, and that is in case of protection of public interest, and in such a case there must be provided financial reimbursement for the expropriated investments. This institute of legal certainty is important also for investment decisions of management of a trading company.

3. Discussion

The development of the Slovak economy is to a considerable degree influenced by the development of global economy and obligations ensuing from our membership in the European Union. Although the European Union supports the system of an open market and liberalization, at the same time it adopts also a number of regulatory measures that have to be implemented by the Member States, and they have to adapt to them their legal and economic circumstances. The investment policy in Slovakia is implemented in accordance with obligations following from international treaties and from membership in international organizations. The small and medium-size companies are supported by the Slovak Guarantee and Development Bank (Slovenská záručná a rozvojová banka) and by Eximbank of the SR and the National Agency for Support and Development of Small and Medium-Size Businesses. (Milošovičová, P., 2015, p. 106). The measure of attractiveness of Slovakia for foreign investors is preconditioned by our membership in

the EU, and by provision of investment stimuli for foreign investors. The Slovak labour force, based on research results, is on the 33rd place out of 145 countries in the index of knowledge-based economy that means it represents considerable competitive advantage for investments in Slovakia. This fact has been proved by a number of different types of research. (Bajzikova, L. et al., 2013, p. 121)

Presently we can consider investment stimuli for instruments for strengthening of competitiveness, in case they are provided legally and in a legitimate manner, while there does not exist any legal claim for title for their provision. That means that receivers of stimuli are physical or legal entities that are entitled to perform economic activities. In general, the investor is interested in primary advantages of the given country, following from the geographic location, the size of the market and its prospects, the economic development, and the like. But besides that – decisive are also specifics of the given country, taking into consideration its political orientation, or more specific direct support of foreign investments. (Stachová, P., 2013)

Conclusion

Based on the stated facts involving business companies active in Slovakia we wish to summarize in conclusion the acquire knowledge and state arguments confirming our study hypothesis. There have been removed in Slovakia all legal obstacles connected with movement of capital. Foreign investors have the right to use the investment stimuli supporting inflow of foreign capital, in case the investments are focused on regional development and the investor will generate new jobs. The development of economic relations influences also the development of political, cultural and social relations.

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POSSIBLE CONCEPTS OF RISK MEASUREMENT IN INVESTMENT PORTFOLIO MADE BY THE MATHEMATICAL PROGRAMMING

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average absolute negative deviation – portfolio of unit trusts – risk measurement

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Abstract:

This article deals with a measurement of risk level of the investment portfolio that is made via the linear mathematical programming models. Several approaches are described - variance, semivariance, variation coefficient, beta coefficient and Value at Risk. The pros and cons of these concepts are specified regarding their usage in the process of a portfolio making by means of the mathematical programming approach. In order to eliminate the disadvantages of analyzed concepts, a new approach for risk measurement is proposed. It is called the average absolute negative deviation. This principle is described, its advantages are emphasized. The proposed concept is applied to a making portfolio of the open unit trusts.

Introduction

Risk is very important criterion in the process of an investment portfolio making. The potential investor is afraid that he/she loses his/her invested financial resources. In other words, the expectations about investment return will not be fulfilled. The fundamental question is how to measure the level of risk regarding the used methods and approaches of a portfolio making. Beside other methods, an investment portfolio can be made by means of the mathematical programming models and methods. In terms of these models, the risk can be conceived by the concept of variance, semivariance, variation coefficient, beta coefficient or Value at Risk. These approaches are described and their pros and cons are disclosed regarding their usage in the process of a portfolio making by means of the models and approaches of linear mathematical programming. Beside the aim of the analysis of the selected approaches, the main aim is to eliminate the drawbacks of the introduced concepts and propose a new approach for risk measure. It is called as the average absolute negative deviation. Then this concept is applied to a making portfolio of the selected open unit trusts.

The structure of the article is as follows. In the first section, the basic principles of a portfolio making by the mathematical programming models are briefly described. The

expression of risk is emphasized. In the second part, the principles variance, semivariance, variation coefficient, beta coefficient and Value at Risk are analyzed. Then the concept average absolute negative deviation is proposed. Finally, the practical application of a portfolio making in term of risk level measurement is introduced.

1. Portfolio making via the concept of mathematical programming

Beside other methods, the investment portfolio can be made by means of mathematical programming that is inspired by Markowitz portfolio theory (Markowitz, 1952, 1959). The mathematical model can be generally formulated as follows

$$\begin{aligned} \min (\max) \quad & z \\ & g_i(x_1, x_2, \dots, x_n) R_i b_i \quad i = 1, 2, \dots, m, \\ & x_j \geq 0 \quad j = 1, 2, \dots, n \end{aligned} \quad (1)$$

where x_j ($j = 1, 2, \dots, n$) is a share of the j -th investment instrument in a portfolio, i -th ($i = 1, 2, \dots, m$) constraint consists of the left side $g_i(x_1, x_2, \dots, x_n)$, the relation mark R_i ($\leq, \geq, =$) and the right side b_i . The constraints can describe demand on level of return, risk or cost of the portfolio, demand on portfolio diversification, portfolio condition etc. The objective function z can express the return, risk or cost of an investment portfolio. According to this fact, it has minimizing or maximizing form.

The functions in the model can be linear or nonlinear. In the case of nonlinear function in the constraints, the set of feasible solutions can become non-convex, thereby a finding optimal solution becomes more difficult. If the objective function is nonlinear, a finding the global extremes can be also very difficult. If all objective functions are linear, the model of linear (convex) programming is solved more easily by simplex method. In order to conserve a linearity of the model (1), all portfolio characteristics and conditions must be adapted. The risk is not an exception.

2. Concepts of risk measurement

In this section, the possible concepts of risk measurement connected with an investment instrument and also a whole portfolio of investment instruments are described and discussed.

2.1. Variance, semivariance

Very often used measure of risk is variance, or standard deviation, of investment instrument's return. According to Rényi (1972), the variance of return of the j -th investment instrument is computed as follows

$$\sigma_j^2 = \frac{\sum_{i=1}^m (x_{ij} - \bar{x}_j)^2}{m}, \quad (2)$$

where x_{ij} ($i=1,2,\dots,m; j=1,2,\dots,n$) is the i -th return, \bar{x}_j ($j=1,2,\dots,n$) is the average return and m is the number of historical returns of the j -th investment instrument. If the dependence among returns of the investment instruments is taken into account, then the risk of the portfolio of n investment instruments is formulated as (Alexander & Francis, 1986)

$$\sigma_p^2 = \sum_{k=1}^n \sum_{l=1}^n x_k x_l \sigma_{kl}, \quad (3)$$

where σ_{kl} ($k, l=1,2,\dots,n$) is a covariance (variance) of return of k -th and l -th investment instrument, x_k ($k=1,2,\dots,n$), or x_l ($l=1,2,\dots,n$) denotes a share of k -th, or l -th investment instrument in the portfolio.

From my point of view, the main disadvantage of this concept is the fact that the negative and also positive deviations are included. In order to gain the minimal risk, both deviations are minimized, even if the positive deviation is desirable. The similar situation is in the case of covariances. According to the Markowitz portfolio theory (Markowitz, 1952, 1959), a portfolio can be diversified by the investment instruments which have an opposite development of their returns. Then if the risk is minimized, the return is actually also declined. This drawback can be partly weakened by the concept of semivariance (Markowitz, 1959), which uses only negative deviations from the average value. Then the semivariance of the j -th investment instrument's return can be formulated as

$$sem\sigma_j^2 = \frac{\sum_{x_{ij} < \bar{x}_j} (x_{ij} - \bar{x}_j)^2}{m}. \quad (4)$$

However, this concept cannot be used in the situation when the covariances are also calculated in risk measure for an investment portfolio. And if the covariances are also taken into account, the function expressing the portfolio risk (3) is nonlinear. This fact makes a finding solution (portfolio) of the mathematical model (1) more difficult.

2.2. Variant coefficient

After an introduction of the concept of variance, other technique of risk measurement can be described. Similar to (Hindls, Hronová, Seger & Fischer, 2006), the variant coefficient of the return of the j -th investment instrument is formulated in the following form

$$v_j = \frac{\sigma_j}{\bar{x}_j}, \quad (5)$$

where $\sigma_j = \sqrt{\sigma_j^2}$ is a standard deviation of the j -th investment instrument's return. Then the risk of the whole portfolio can be measured as

$$r_p = \sum_{j=1}^n v_j x_j \quad (6)$$

where x_j ($j=1,2,\dots,n$) is a share of the j -th investment instrument in the portfolio.

The advantage compared to the previous concept is that a standard deviation is relatively reached at the average value, which provides more representative view about its size in the context of average. The variant coefficient cannot be used in the situation of the negative average, because its value is not predicative. This fact is a big drawback in the field in the capital market, when the average return can be negative.

2.3. Beta coefficient

Beta coefficient works with a linear dependency of investment instrument's return and market return. Beta coefficient of the j -th investment instrument by Sharpe (1981) or Veselá (2011) is specified as

$$\beta_j = \frac{\sigma_{jm}}{\sigma_m^2}, \quad (7)$$

where σ_{jm} ($j=1,2,\dots,n$) is a covariance of the return of the j -th investment instrument and the market portfolio m , σ_m^2 denotes a variance of the market portfolio return.

In this concept, I see the biggest difficulty to make the market portfolio. The main question is which investment instruments are included, which market segment is selected etc. The response can influence a value of the coefficient so much. The risk of

the entire portfolio can be computed as $r_p = \sum_{j=1}^n \beta_j x_j$. Then the portfolio will be

consisted of the investment instruments with the similar development of their returns compared to the market portfolio return, so a portfolio diversification trails out.

2.4. Value at Risk

Value at Risk (VAR) is a concept computing the loss/profit of the investment instrument (portfolio of investment instruments) which is attainable with a particular

level of probability (e.g. Wilmott, 2007; Ambrož, 2011). Define random variable X_j describing losses and profits of the j -th investment instruments. The value $VAR_\alpha(X_j)$ is a quantile at the confidence level $\alpha \in (0,1)$. $VAR_\alpha(X_j)$ is a value of the loss/profit that will not be greater/lower with the probability $(1-\alpha) \cdot 100\%$. If the random variable X_j has the normal probability distribution $N(\bar{x}_j, \sigma_j^2)$, then the value is computed as

$$VaR_\alpha(X_j) = \bar{x}_j + \sigma_j q_\alpha, \quad (8)$$

σ_j ($j=1,2,...,n$) is a standard deviation of return, \bar{x}_j ($j=1,2,...,n$) denotes the average return, m is the number of historical returns of the j -th investment instrument and q_α marks α -level quantile of the normal distribution $N(0,1)$. As in the previous cases, the portfolio risk can be computed as a weighted sum of the values of VAR .

This concept is easily comprehensible, universal tool for risk measurement. The resumption of the returns normality is not always fulfilled in the real situation. Other disadvantage is the fact that the value VAR systematically undervalues the risk because the values behind regarding the worst situations are not taken into account. To eliminate this drawback, the concept of $TVAR$ and $CVaR$ were proposed (Artzner, Delbaen, Eber & Heath, 1999). But these concepts are essentially more computationally difficult. In the end, a determination of α -level can be also problematic. It is purely a subjective decision.

2.5. Average absolute negative deviation

In the previous sections, the disadvantages of the introduced concepts of risk measurement are specified. They are nonlinear relationships, involvement positive deviations from the average, presence of covariances and hardly subjectively defined input data. In order to eliminate all mentioned drawbacks, I propose a new concept of risk measurement based on the absolute negative deviation from the average value. It is called *average absolute negative deviation*. It is computed for the j -th investment instruments as follows

$$AAND_j = \frac{\sum_{x_{ij} < \bar{x}_j} (\bar{x}_j - x_{ij})}{m}. \quad (9)$$

This indicator is a representative measure of risk. It indicates the average negative deviation from the mean value. It is comprehensible, easily applicable in the real situations. The risk of the whole investment portfolio is specified as in the previous concepts

$$r_p = \sum_{j=1}^n AAND_j x_j . \quad (10)$$

3. Making portfolio of the open unit trusts

Let us imagine the real situation when the client of Česká spořitelna decides to invest his free financial resources in the open unit trusts. The investment will be rather conservative for a longer time period. The purpose of the investment is at least partial financial provision in a pension age. On the basis of a consultation with the investment counsel, a portfolio will be consisted of the bond and stock open unit trusts which are offered and managed by the Česká spořitelna investment company. The bond funds are *High Yield dluhopisový*, *Korporátní dluhopisový*, *Sporobond*, *Sporoinvest* and *Trendbond*. The stock funds are *Global Stocks*, *Sporotrend* and *Top Stocks*.

The three main characteristics are determined - return, risk and cost. *Return* is measured as the average monthly return from the period 2010 - 2015. The development in the capital market in this period is more or less stable, so that this period could describe a long-term future development. *Risk* is measured as the proposed average absolute negative deviation of monthly returns from the period 2010 - 2015. *Cost* includes fee connected with an investment in open unit trust. The input data are in the following table (TAB. 1).

TAB. 1: Return, risk and cost of the open unit trusts

<i>Unit trust</i>	Return in %	Risk in %	Cost in %
<i>High Yield dluhopisový</i>	0.35	2.19	2.49
<i>Korporátní dluhopisový</i>	0.26	1.23	2.75
<i>Sporobond OPF</i>	0.40	0.69	2.20
<i>Sporoinvest</i>	0.06	0.18	1.05
<i>Trendbond</i>	0.26	1.37	2.77
<i>Global Stocks</i>	0.90	2.21	6.33
<i>Sporotrend</i>	-0.70	5.36	5.43
<i>Top Stocks</i>	1.59	3.93	5.82

Source: (Česká spořitelna investment centrum, 2015) and own calculation

As mentioned above, the investment is rather conservative, so a share of the bond unit trusts will dominates. Namely stock funds would produce the greatest profit, but also with the higher level of risk. So a share of the stock funds will be 25 % and bond funds 75 %. Because the bond funds of corporate bonds *High Yield dluhopisový* and *Korporátní dluhopisový* embody greater return instability, their aggregate share has not to be greater than 20 %. The main criterion is risk, so this portfolio characteristic will be

minimized under the conditions for return and cost level. On the basis of the client imagine and also the possibilities of unit trusts, the minimum level of average return is determined at the value 0.3 % per month and the maximum level of cost is set as 3 %. These values can be modified regarding a finding solution (optimal portfolio). In order to diversify the investment portfolio, the maximum share of one unit trust is 30 %.

This economical problem can be formulated by the following mathematical model

$$\begin{aligned}
 \min \quad z &= \sum_{j=1}^8 AAND_j x_j \\
 \sum_{j=1}^8 r_j x_j &\geq 0.3 & \sum_{j=1}^8 c_j x_j &\leq 3 \\
 \sum_{j=1}^5 x_j &= 0.75 & \sum_{j=6}^8 x_j &= 0.25, \\
 \sum_{j=1}^2 x_j &\leq 0.2 \\
 0 \leq x_j &\leq 0.3 \quad j = 1, 2, \dots, 8
 \end{aligned} \tag{11}$$

where $x_j (j = 1, 2, \dots, 8)$ is a share of the j -th unit trust in the portfolio, when the value of index j denotes the unit trust in the rank in TAB. 1, $AAND_j (j = 1, 2, \dots, 8)$ marks a risk of the j -th unit trust expressed by means of the average absolute negative deviation, $r_j (j = 1, 2, \dots, 8)$, or $c_j (j = 1, 2, \dots, 8)$ is the return, or cost of the j -th unit trust. The risk of portfolio is measured by the average absolute negative deviation in the model (11). Then the negative average return can be accepted by a risk measure. The market portfolio has not to be made. Any additional input information from a decision maker is not required (e.g. α -level). In the model, there are only linear relations. The model of linear (convex) mathematical programming is easily solved by simplex method.

The optimal portfolio has the following form: 15 % Korporátní dluhopisový, 30 % Sporobond, 30 % Sporoinvest, 25 % Global Stocks. Under the conditions regarding the portfolio return and cost, two bond funds with the lowest level of risk have the greatest share as possible. The rest of the share of bond unit trusts is paved with the bond fund with the third lowest level of risk. From a group of the stocks funds the unit trust with the lowest level of risk is selected.

Conclusion

This article deals with the concepts of risk measurement of the investment portfolio which is made by the approaches of linear mathematical programming. Selected concepts are described and analyzed. To eliminate their drawbacks, a new risk measurement approach is proposed. This risk measure is applied to a making portfolio of the open unit trusts where the advantages of the proposed concept are shown.

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OUTSOURCING AND OFFSHORING UNDER NEW LEGAL REGULATION

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Abstract:

The concepts of outsourcing and offshoring are based on transfer of selected company activities to third parties which perform them more efficiently. Creation of legal conditions suitable for performing the outsourced activities is crucial. Due to the inexistence of precise definitions of these concepts, it is not yet possible to use complex legal regulation thereof, including a particular nominate contractual type. Under the current legislation, the most favoured approach is to conclude one main contract, while other correlated and mutually interrelated activities are regulated as dependent contracts (by different contractual types). Subsequently, a problem arises concerning the interpretation and enforceability. Therefore, contracts are necessarily modified to avoid conflicts and ensure enforceability.

Introduction

Historically, our society is characterized as a post-industrial society or information society. In the 1980s, economy functioning developed and, together with globalization, resulted in the need for modern approaches which would replace conventional models. During the turn of the century, such processes accelerated computer technology assumed crucial role. In our country, centralized planning disappeared in the early nineties and the legal basis for transition to a market economy was established. The newly adopted Commercial Code No. 513/1991 Coll., as a form of regulating private relations in the society with minimal state interference in business processes, provided the legal basis for entirely new business forms and related contractual relationships. The decisive turn in the development was the gained access to the single European market. The simplified conditions for business within the European Union allowed for an enlarged framework of possibilities for the development of economic relations. The entry of foreign capital and the aforementioned measures mainly led to increased competition between companies operating in the Czech Republic, but also in Europe and worldwide. Increasing competition logically expands the market offer; products are manufactured mostly in higher quality and at lower prices. Price competition leads

companies to search for new production methods and providing higher quality services at maximum cost reduction, some of which can be achieved by outsourcing. It needs to be noted that such rapid development of economies leading to the increased use of outsourcing and offshoring also happened during the late 20th century in other countries, where the free market had not been restrained by the centrally-planned economy (Hutzschenreuter et al., 2011, p. 246). This is the case of Germany, the US and many other countries (ibid., p. 247).

The new legal regulation of civil relations, which abolished the dual legal regulation for business in the Czech Republic, allowed for the adoption of a unified legal regulation of all civil relations in the Civil Code No. 89/2012 Coll.; the entities of civil relations in business were allocated into a separate legal regulation, which is Act No. 90/2012 Coll., on Business Corporations. However, there is still the lingering legal regulation of relations between entrepreneurs in the original legal regulation in relation to the effectiveness of the specified legal regulation of January 1, 2014, both in material and in procedural law.

A rational way to streamline business processes can secure the prosperity of businesses, and thereby society as a whole over the long-term. One of the methods of rationalization and streamlining of processes whilst maintaining the main subject of business is the outsourcing and offshoring method, at present one of the most used methods to streamline management. Its massive development has brought its popularity to such a level that this can be considered a phenomenon of our time. Jensen et al. (2013) state that the scope of outsourcing and offshoring “has reached unprecedented levels in recent years” (p. 315). Creating an appropriate legal framework for enhancing the efficiency of business processes can be regarded as a crucial factor for the development of companies.

1. Objectives and methods

The primary objective of the article is to provide analytical description of outsourcing and offshoring as methods for streamlining business processes. The issue is classified according to pre-defined key characteristics into groups. The characteristics include the basic terms, conditions of implementation, and legal regulation. A historical perspective is incorporated, comparing the original and the current legal regulation, and capturing the changes that affect implementation in practice.

2. The concept of outsourcing and offshoring

In the current economic practice, outsourcing is very common. The universal definition of this concept in academic circles is still debated. Yet, no consensus has been reached and there is no specific definition which could be unambiguously identified as official or “correct”. Thus, the term outsourcing is used inconsistently across many sectors and

disciplines, including legal terminology. It is therefore not even possible to create an adequate, targeted legal environment for related legal relations.

2.1. Outsourcing

Outsourcing (Outside Resource Using), literally means the use of external resources. It represents a choice between two strategies, i.e. “Make or Buy”. Outsourcing is thus the relocation (transfer, displacement) of one or more activities that an organization has not yet implemented, exclusively on its own account, to an external organization from which the results of these activities (goods or services) can be required. Moving the production or business stage outside the organization decreases its level of vertical integration, and the activities that are displaced from the original company are then purchased at market prices. Larsen et al. (2013) focus on the decisions of companies regarding the delegated tasks and note that such tasks have reasonably become very complex (p. 534). This often leads to “cost-estimation errors” of outsourcing (ibid., p. 533).

In case of domestic outsourcing, transactions are implemented by companies within one country. The opposite is foreign, cross-border or international outsourcing. The fundamental difference between outsourcing and simple purchase is the long-term relationship between the client and the outsourcing provider. The basic concepts associated with outsourcing can be found in the statistical classification system of the Czech Statistical Office (CZ-NACE). For subcontracting (outsourcing), the terms used are “contracting authority (principal)”, characterized as a unit that enters into a contractual relationship with another entity (“supplier”) and requires it to carry out specific production activities or services. The Supplier (commissioner) is characterized as a unit that carries out specific activities on the basis of a contractual relationship with the contracting authority – the term “subcontractor” can also be used.

In the classification of economic activities used within the European Union, the activities carried out by a supplier are called “on the basis of contract or agreement” or “representative mediation”. Subcontracting is characterized as a contractual obligation under which the contracting authority requires the supplier to carry out specific production activities or services. Part of the manufacturing process, the entire production process, construction activities, supporting activities, personnel services and other activities can be outsourced. The scope is not limited. In production, the contracting authority provides to the supplier technical specification of activities which are to be carried out to the input material. According to OECD (2007) documents, outsourcing - subcontracting, occurs when one company - the primary manufacturer or contractor – concludes a contract with another company - a subcontractor (pp. 17-20). The output is usually included in the final production of the primary manufacturer.

The supplier company must strictly comply with the technical or commercial specifications of the primary contractor for specific products or services. Today, outsourcing is an integral part of business operations; its use must not be arbitrary, but must be seen as a part of strategic management that includes all business activities from production, finance to research and development. However, the research carried out in this area shows that almost half of negotiated contracts do not achieve the desired results.

The complexity of the above processes requires a comprehensive approach to the issue via “multi-sourcing”. The sourcing strategy is considered, the supplier is evaluated and a win-win strategy that will benefit both sides is established. The outdated view of outsourcing as an autonomous service, in which the supplier is the enemy and management does not have the necessary competencies to manage it is also changing. Multi-sourcing is proactive outsourcing.

2.2. Offshoring

One of the specific forms of outsourcing is offshoring, a term derived from the English word “offshore”. Originally, the concept of offshoring was related to tax havens. This concept means the transfer of one or more activities abroad from the parent state. Interestingly, it is gradually becoming more common to offshore more advanced and more complex tasks than before, so the tasks delegated as part of offshoring are more commonly closer to the activity of the firm (Jensen & Pedersen, 2012, p. 323).

2.3. Historical perspective

The history of outsourcing begins with the division of labour as a form of cooperation in order to increase productivity. In advanced economies the long-term use of external services in business began to expand in 1950s and 1960s. Interest in the use of outsourcing grew from the beginning of the 21st century. Initially, it was mainly perceived as a way to reduce the company’s costs. This was followed by outsourcing of activities in the field of information and communication technologies, which were unavailable for many companies. Today, higher quality services are included. In the future we can expect the use of outsourcing in relation to results of scientific research.

The field and scope of outsourced activities change. Outsourcing is used in fields such as the protection of corporate buildings, building cleaning, catering, information system administration, payroll and accounting records, or purely legal acts. At the beginning of the new millennium integrated solutions, customer service and complex logistics are ever more coming to the forefront. Worksites have newly joined outsourcing, wherein talent of employees is given precedence over fixed assets.

3. Decisions and use of outsourcing

Managing a business is a complex human activity affected by many factors, including the personality and experience of entrepreneurs and managers. For some, outsourcing is a tool to reduce risks, and for others a way to secure missing resources or a way to improve quality of processes. In terms of project management, individual stages must be phased in a logical process of interrelated decisions. A number of commercial companies use outsourcing with the assumption that savings will be achieved without an in-depth analysis of real strategic and economic factors and values. Sufficient attention is not devoted to minimize the risks that exist when outsourcing is done without proper strategic planning, and this fact often leads to failure of expectations. Larsen et al. (2011) have discovered that firms' "organizational design orientation and offshoring experience negatively moderate the relationship between complexity and hidden costs" (p. 2). In their following research, they further examined companies' decision-making in connection to hidden costs and have concluded that firms' strategic behaviour does not often entail the hidden costs of outsourcing (Larsen et al., 2013, p. 550). According to Scheschy (1999), all "partners contribute to and benefit from the relationship, which leverages the strength of each participant for the benefit of all" (p. 31). However, sometimes the question whether "the advantages outweigh the disadvantages" has to be answered (Turner, 2000, p. 55). Furthermore, Zimmermann and Ravishankar (2011) note that outsourcing and offshoring influences the employees' "professional role identities" and leads to an ongoing reassessment of their career aspirations (p. 351).

The main steps for successful outsourcing are mainly the knowledge of the environment, understanding of shaping and planning trends, evaluation of a place on the market and in the economy and society. Jensen & Pedersen (2011) analysed company decision-making regarding outsourcing and found a direct correlation between the choice of the outsourcing location and the attributes of the outsourced activities (p. 355). The following step is planning, where outsourcing goals are analysed, alignment of the strategy with the business activities of the company and setting the strategy for determining the reasons for outsourcing and what value is to be provided and selecting the most appropriate business model. The next step is sourcing, which means deciding on suppliers and locations, negotiation of an outsourcing contract which establishes general validity, financial and legal framework of the environment. The final step is the implementation, which includes management of the transition, knowledge and transfer, setting of priorities, managing of relations during the transition and transfer, permanent measuring of service quality, audits that show customer satisfaction and steady progress in terms of quality. Deciding on outsourcing is one of the strategic decisions of top management. Overall, it can be concluded about the decision-making regarding outsourcing, that it is an extremely complex process, the efficiency of which can only be measured through outcomes, which "happens only with appropriate planning and preparation" (Milligen, 2012, p. 18).

4. Legal aspects of outsourcing - contracts on implementation

The legal aspects of outsourcing also include an institutional view based on a non-economic basis. This is a fact wherein companies in a mutual confined space unify structure, the work processes and often strategy. Companies do so on the basis of the political and institutional impact of society that creates a legal environment where in particular intellectual property rights, trade agreements and changes in the legal environment are regulated.

4.1. Contents of a contract

From a legal point of view the contract is the most important part of implementing outsourcing. This phase involves negotiating the terms of the contract and the overall schedule for launching outsourcing and accompanying contracts. The basis is a well-prepared contract and setting-up of a partnership after inclusion of services provided into the business process.

The basic requirements to be regulated by the contract include a clear specification of the subject of the contract and if the price is firmly agreed it is always necessary to give an accurate account of the fulfilment, treatment of risks, including in particular the protection of personal data and the inflationary and monetary clause, trade secrets, responsibility for defects, compensation for damages, persons responsible for the evaluation process and monitoring compliance with contractual terms and the method of settlement upon termination of cooperation. Since this is usually a long-term relationship, I recommend that the contract be thoroughly prepared.

Key provisions in a contract are the definition of the subject of the contract (scope and quality of fulfilment), pricing provisions (including inflation protection), change issues, compliance with internal and universally applicable laws and legal regulations, audit requirements, responsibility, assuming of the contract its completion and transfer. The termination of a partnership means the early termination of the contract via a notice being given, withdrawal in the event of a breach of the contract or its cancellation by agreement.

In all of these cases, with the termination of a partnership the possibility of transferring all documentation to another outsourcing service provider must be treated in an outsourcing contract, in particular in cases where the contract is not breached by the client of the service. The contract may also address the issue of the method of communication between the contracting parties, using a so-called arbitration clause as an alternative to lengthy legal proceedings. The parties to the contract must agree on the objectives, purpose and scope of the contract. At this stage it is advisable to appoint a team of employees from both parties who will be responsible for the implementation process.

The contract should anticipate future problems. The subsequently appointed team must be equipped with the necessary competencies, including a definition of the role of coordinator and team leader, specialists (e.g. from the area of human resources, finance, legal, or technical solutions). When implementing the outsourcing project the team must address in particular the critical conditions and emergency situations, and it very much needs clearly defined competencies for this. A typical feature of outsourcing is also a very close relationship between the supplier and the client. In many cases, there is a very intensive flow of information between the supplier and the client (e.g. in the event that all documents are stored on the supplier's central servers, without thorough knowledge of the structure of the supplier's database it may be very difficult to distinguish which data are the data of the client, and which are data of the supplier maintained at the supplier's supplier computers for the client, and finally, which data the supplier is storing on the same computers for a completely different client).

4.2. Contract types used

So-called type-named contracts can be used for concluding contracts, which are regulated in the new Civil Code as relative property rights. Contracts for work are regulated by NOZ (New Civil Code), Section 2586 to Section 2651. The original legal regulation was treated in Section 536 to Section 565, Commercial Code. A contract for work is perceived as an activity that is time-limited and completed, whereas outsourcing is a continuous and repeatable activity. Its use must be adapted to the relevant conditions.

Another contractual type is the lease of a plant, which is regulated by NOZ and, in terms of its content it is included amongst the types of lease agreements, the content of which is the use of items and reaping of its benefits. It is regulated by Section 2332 to 2344, 2349 to Section 2357, NOZ. According to the new legal regulation, another advantageous type may be the Instruction in Section 2430 to Section 2444. The original legal regulation was defined as a Mandate Agreement regulated by the Commercial Code, Section 566 to Section 576. It is used in the event that the client would like the supplier to function as a mediator, usually negotiating transactions on its own or as a mediator.

Unnamed (innominate contracts) according to NOZ can be concluded pursuant to the provision of Section 1746, paragraph 2. The original legal regulation was regulated in Section 269, paragraph 1, Commercial Code. The legal order does not directly regulate this type of contract. However, it is necessary to consider such a concluded contract as a risk due to the type of contract that is not expressly regulated in connection with the use of outsourcing. The contents of the contract must be agreed in such a way that all of the essential elements of the contract are regulated, as the text of the Act on type-regulated contracts cannot be used to make corrections. In terms of outsourcing contracts, the name of the contract is not decisive, because the legal orders of individual

countries usually assess contracts not according to form, but rather according to content. It has already been mentioned that a set of contracts is often used for outsourcing, where there is one basic contract, and from it the other types of contracts that accompany the contract are derived.

4.3. Accompanying contracts

Accompanying contracts play a vital role where, in addition to the process itself, the capital necessary for its implementation is displaced – i.e. the tangible and intangible assets and human resources. The entire transfer of means of production is carried out pursuant to the relevant provisions of Act No. 89/2012 Coll., Civil Code, and the type of contract for the purchase of plant may be used, Section 2175 to 2183. The original legal regulation was regulated by the Contract on sale of an company pursuant to the provisions of Section 476 to 488a, Commercial Code. It is also possible to use the provisions on Leasing a Plant, NOZ Section 2332 to 2344, 2349 to Section 2357, which allows for the right to use and benefit from the subject of the contract, and allows for tenure, i.e. the possible sub-lease to another entity. The original legal regulation was resolved by the Contracts on the Lease of an Company pursuant to Section 488b to 488i, Commercial Code. For human resources, it is necessary to proceed in such case under the relevant provisions of the Labour Code, and to enter into a contract on the transfer of employees.

A typical feature of outsourcing is that there are very close links between the supplier and the purchaser. In many cases there is a very intensive flow of information between the supplier and the client (e.g. in the event that all documents are stored on the supplier's central servers, without thorough knowledge of the structure of the supplier's database it may be very difficult to distinguish which data are the data of the client, and which are data of the supplier maintained at the supplier's supplier computers for the client, and finally, which data the supplier is storing on the same computers for a completely different client). It is evident that in contracts that deal with outsourcing, it is necessary to precisely define the responsibilities of both parties for disclosure of information by any of them, or for disclosure or revelation of confidential information of a third party. Given that the precise quantification of damages is usually almost impossible, likely the only possible solution is to implement high contractual penalties, and privilege of the aggrieved party to withdraw from the contract in the event of more serious cases of disclosure or revelation of confidential information.

The new legal regulation also clearly sets out the definition of certain terms used in the course of a business relationship, which will most certainly contribute to a clearer specification of possibly outsourced activities, particularly the definition of the business plant in the provisions of Section 502, NOZ, of a branch in Section 503, NOZ, and of trade secrets in Section 504, NOZ. This definition particularly highlights facts that are competitively significant, identifiable, measurable and generally unavailable, wherein

the owner ensures their confidentiality accordingly based on its interests. It can be assumed that this new legal regulation will allow for facts which are subject to trade secret to be specifically set out, and reduce the risk of possible misuse by another entity. The new prohibition of competition between entrepreneurs in the provision of Section 432 to 435, NOZ, is treated in the same way. In addition, this specification should allow for the risk of mutual competition between companies to be reduced.

Conclusion

A well-chosen outsourcing strategy can ensure the long-term prosperity of an organization. In the common area of business, companies are homogenized in terms of their structure, work procedures and often even strategies. Their mutual cooperation leads to the efficient use of production resources. From an institutional perspective, it is assumed that organizational homogeneity is a result of normative processes that affect cooperation between companies. It can be assumed that the more a given business area is institutionalized, the faster the outsourcing will be used in this industry. Part of this process is the creation of legal conditions for the implementation of outsourcing. The new legal regulation referred to in the Civil Code, 89/2012 Coll., significantly affected the ability to outsource activities between individual companies, in particular by changing the types of contracts and the specifications of their content; it refined the terms and established new legal terminology. However, there is still no comprehensive legal regulation for a specific form of a contract that would cover all of the outsourcing issues. For this reason, it is necessary to pay increased attention when preparing contract in terms of ensuring its content and capturing all of its associated features that must be treated in the contract.

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COMPARATIVE ANALYSIS OF ACTIVITIES OF POLISH FAMILY COMPANIES IN COMPARISON WITH EUROPEAN ONES

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comparative analysis – family business – Europe

JEL classification: D10, L26

Abstract:

Family businesses have been present in the economies of all countries for a long time. Because of their number or development potential, it is worth regularly studying this group of companies under different economic considerations. The subject of the presented article is, however, limited to analyze the activities of such entities in Europe with a particular mention for Poland. The aim of the discussion is therefore to examine and demonstrate the similarities and differences characterizing the Polish family companies against European family entities.

Introduction

Estimates on the number of family businesses in Poland and all over the world are the subject of arguments of scientists. Nevertheless, the populations of these companies are identified even at 90% of all operating companies in the world (Więcek-Janka, 2013, p.35). Polish law does not define family firms as such. By convention, this term is used as regards the company, where at least 51 percent of value is controlled by the persons related to each other (Sulkowski, 2011, p. 10). Its history and recognition associated with a particular name also matters. So the company is a family one when it considers itself as a family business and when it says about itself in that way (Silna rodzina.pl, access 10/4/15). This is a very important social status, even if without legal status (Training and advisory project, access 04/10/15).

There is no doubt that family businesses are very diverse in every respect - (industry, size, origin, experiences, market position, wealth, etc.). So undoubtedly, a lot of aspects differ them, but they also have a lot in common. Neither industry not the size, but the family. It distinguishes them first of all and means that family entrepreneurs hold to similar values and claims (including patrimony, which is not for sale just because it is temporarily not profitable). On the contrary: in situations difficult for the company the whole family is trying to save it. No one thinks or asks for a leave of absence or salary then.

1. Methods, literature overview

The article uses three research methods, that is, in the theoretical part - the analysis of the content of the literature, while in the empirical part: the statistical analysis and comparative analysis. The statistical data were obtained from the report - 'Barometer of family businesses'. It is worth noting that the main organizer of that study is KPMG that is a Polish limited liability company and a member of the KPMG network consisting of independent member partnerships affiliated with KPMG International Cooperative ('KPMG International'), a Swiss law entity.

In a recent published study, (the publication of which was issued in January 2015) for a second time, took part also Polish family businesses. Among the other European countries participating in the study was also confirmed by the representatives of the following countries: Austria, Belgium, Bulgaria, Cyprus, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Malta, Portugal, Romania, Spain, the Netherlands and the United Kingdom. The general objective of that study was to analyze the specificity of activity of family businesses. 'Barometer of family firms' is the specific study, including European countries and repeated regularly every six months. This gives the ability to track the changes in the assessments of entrepreneurs during the time and to make comparisons of native business with Europe.

In the present study, a research method, which is an Internet interview (Computer Assisted Web Interview) was used, these interviews were conducted for six days i.e. from 15 September to 20 October 2014. Consequently, 1022 responses coming from European entrepreneurs were collected, where 144 people came from Poland and the rest of the 878 people came from other, taking part in the study, countries of the European Union. Paying attention to these entities is therefore very necessary and beneficial for various social groups, the government, local authorities and non-governmental organizations - NGOs.

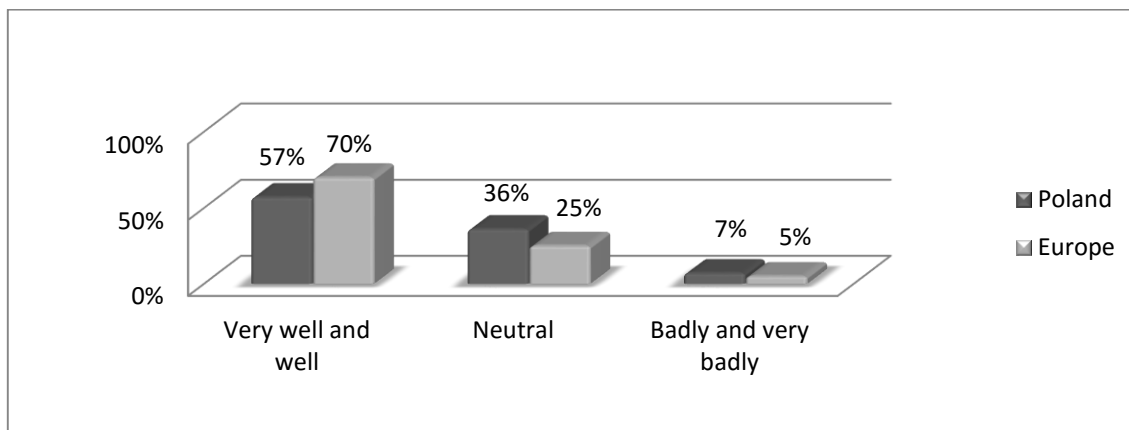
2. Results

2.1. The economic situation of family businesses

The economic environment of the company refers to the country's macroeconomic situation and translates directly into opportunities and risks for the company (Wolak-Tuzimek, 2010, pp. 115-118). According to studies, Polish family businesses, in the perspective of next six months, assess their economic situation as a moderate. 57% of respondents in Poland consider their market situation as a very good or a good one - (g. 1). In Europe, the number is higher, and the same position of the companies was indicated even by 70%. Compared to the results of June 2014 this number is down 1% in both cases. Then a neutral position was assumed successively - in Poland by 36%, and in Europe by - 25% of family businesses. As for the respondents identifying

prospects as bad or very bad, it is reported 7% for Polish family businesses and 5% for European ones. This number has definitely declined through six months, because in June 2014 it was 13% for Poland, and for Europe - 8%.

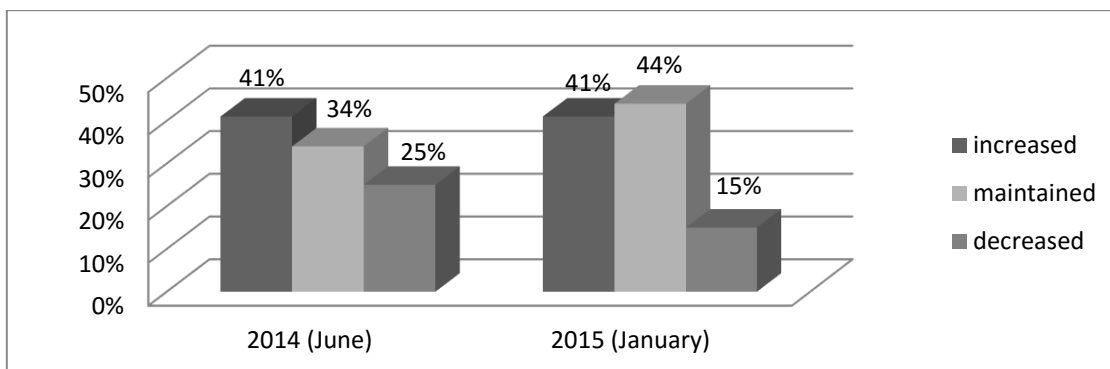
FIG. 1: Evaluation of family businesses in terms of the economic situation in the next six months



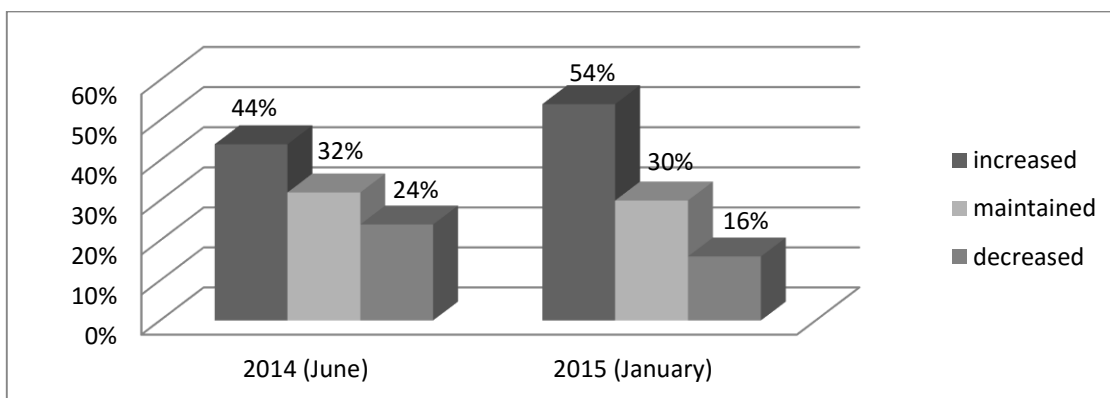
Source: Barometer of family businesses. More certain outlook, KPMG, January 2015, pp. 6-7.

The results which have been presented indicate greater optimism in assessing the economic situation of the respondents. Despite emerging concerns or challenges, Polish and European family businesses are becoming more reliable in taking actions on the market.

Data concerning the revenues of all family businesses are also the confirmation of this thesis. In 2015, again, 41% of respondents (among Polish entrepreneurs) answered that in the last six months their revenues have increased - graph 2. On the other hand, comparing these two periods it should be noted that there has been an increase in entrepreneurs claiming that their incomes have not changed that is from 34% to 44%. Thus, the proportion of those who declare that their incomes have decreased, also reduced (from 25% in 2014 to 15% in 2015). In Europe the situation is different - g. 3. In 2014, 44% of European entrepreneurs who were surveyed indicated that their revenues have increased, while in 2015 this opinion was shared by as many as 54% of respondents. In the European family-owned companies in the previous edition of the survey, 32% replied that their incomes have not changed, and in the latest edition of the Barometer, such answers were given by somewhat fewer, because by 30% of respondents. The percentage of European entrepreneurs, who declare the reduction in income, decreased from 24% to 16% in the latest published study.

FIG. 2: Revenues of family companies in Poland

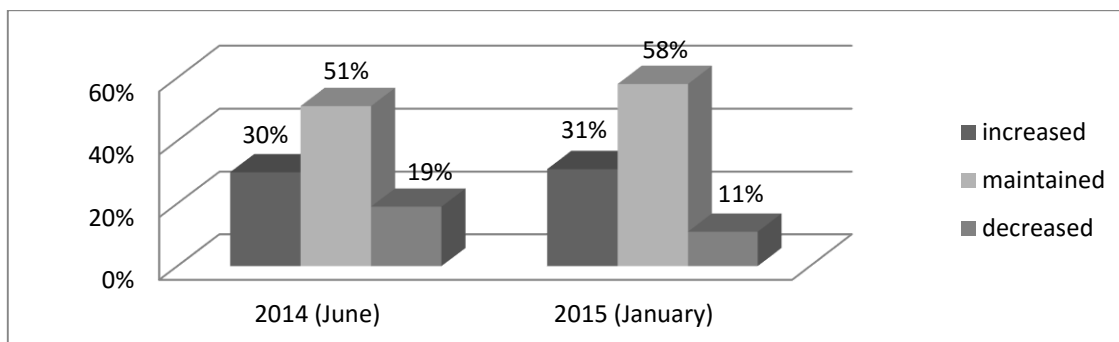
Source: Barometer of family businesses. More certain outlook, KPMG, January 2015, p. 8.

FIG. 3: Revenues of family businesses in Europe

Source: Barometer of family businesses. More certain outlook, KPMG, January 2015, p. 9.

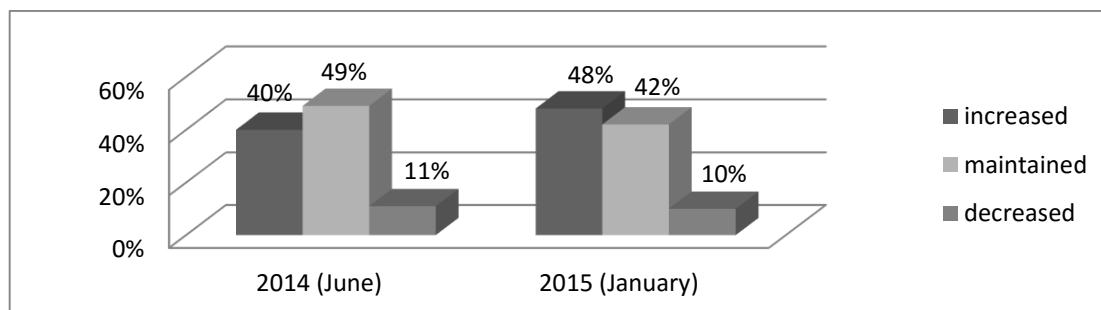
2.2. The level of employment in family businesses

In Poland, most family businesses maintain the current level of employment, which is shown in Graph 4. Comparing the results obtained in 2014 with those from 2015 we can see that the percentage of respondents, claiming that employment in their entities remained unchanged, increased by 7 percentage points (i.e. from 51% to 58%). Every third respondent declared, however, that the level of their employment occurring in the enterprise has increased, while there was a significant decrease in responses saying that the level of employment has decreased, as in 2014 - 19%, and in 2015 only 11% of respondents shared this view.

FIG. 4: Employment in the family businesses in Poland

Source: Barometer of family businesses. More certain outlook, KPMG, January 2015, p. 8.

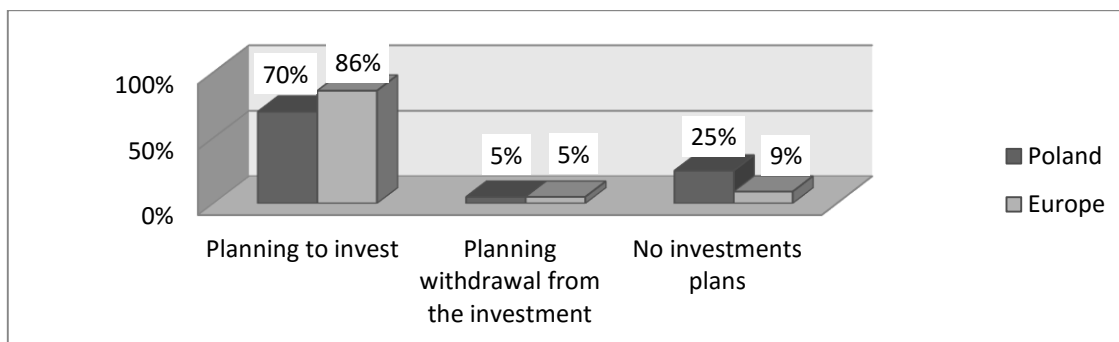
It is also worth drawing attention to the situation of employment occurring in the European economic entities - graph 5. Now, in 2014, 40% of respondents claimed that the employment level increased, while in 2015 this viewpoint was shared by almost every other respondent (48%). While the percentage, showing that employment was maintained at the same level, fell (i.e. from 49% to 42%). In addition, also the percentage of people, who reported a reduction in the level of employment, decreased about one percentage point (from 11% to 10% in 2015).

FIG. 5: Employment in family businesses in Europe

Source: Barometer of family businesses. More certain outlook, KPMG, January 2015, p. 8.

2.3. Investment plans of family businesses

Investments are a crucial element of the strategy of many family businesses. In relation to the results of the June 2014, there was the increase in the number of companies planning to invest from 75% to 86% among European companies - (graph 6). In Poland, 70% of companies belong to this group, which represents a slight decrease from 74%. In 2015, only 5% of both Polish and European respondents declare withdrawal from the investment. These data show that family businesses want to grow and strengthen its position in the market.

FIG. 6: The investment plans of family businesses in 2015

Source: Barometer of family businesses. More certain outlook, KPMG, January 2015, p. 13.

The creators of Barometer also decided to check which types of investments are most desirable for Polish entrepreneurs engaged in family businesses. In the following Table 1, data from the two most recent edition of the survey were collected. After a short analysis of the results of a recent study, we can conclude that the most popular choice is a kind of investment in the basic activity of the company, because this fact is indicated by 77% of respondents. Investments in diversification are equally important, they constitute 55%. Family businesses invest in international activities rather reluctant, because only 23%.

TAB. 1: Types of investments in Poland

Types of investments	June 2014	January 2015
Investments in the basic activity of the company	81 %	77 %
Investments in diversification	49 %	51 %
Investments in internationalization of the company	24 %	23 %

Source: Barometer of family businesses. More certain outlook, KPMG, January 2015, p. 13.

Conclusion

The survey results provide very important information relating to family businesses both the Polish ones and also those European in general. They also bring closer the priority sector of businesses for all European economies. On the basis of it, you can draw similarities and differences in Polish and European family businesses. The conclusions which were drawn from the study are following:

a) Family businesses are positive about their economic situation - both in Poland and Europe, the economic situation of this kind of activity is assessed by the owners well or

very well in the perspective of the future. Positive results are evaluated by respondents respectively in Poland at the level of 57% and 70% in Europe.

b) In January 2015, 58% of Polish respondents said that employment level remained unchanged, while 31% of respondents were of the opinion that it even increased, while only 11% of respondents in their replies indicated a reduction in the level of employment. In contrast, almost half of European entrepreneurs - (48%) shared the view about increasing the level of employment in this period, while 42% of respondents answered that the previous level had remained, while only one in ten entrepreneur indicated that the current level of employment had decreased.

c) Family businesses plan to invest, but mostly in their own country - (investment intentions were indicated by 70% of Polish and 86% of European respondents). As far as the Polish family businesses are concerned, they most often choose to invest in the basic activity of the enterprise - 77%, and the fewest respondents were in favor of investments in internationalization of companies - 23%.

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STATE AID FOR SMALL AND MEDIUM ENTERPRISES IN PERIPHERAL REGIONS

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Keywords:

regional policy – structural funds – competitiveness – state aid – investment aid

JEL classification: R58, L83

Abstract:

Support for economic activity in structurally affected regions and/or in regions with high unemployment rate has been generally one of the main topics of regional policy. Within the programme ROZVOJ implemented in the years 2007 – 2013, state aid has been provided to SMEs for acquisitions of new technological equipment with the aim of enhancing their growth potential and competitiveness. Evaluation of territorial and sectorial structure of supported projects shows very high success rate of applicants in all the regions. However, impacts of these provisions on the regional labour market indicators remain unclear. Such investment support tools may have well corresponded to development needs of SMEs at the time; in the coming years, focus should be shifted to maintaining their competitive advantage via facilitation of international co-operation, greater use of suitable financial instruments or support for further involvement in foreign markets.

Introduction

Public financial incentives are often used to encourage the economic activity of the small and medium enterprises (SMEs). Among its various forms, direct investment aid (i.e. aid enhancing acquisitions of technology) is commonly understood as an instrument accelerating technological development and strengthening innovative potential of the SMEs mainly in the early stages of business. Efforts to increase the capital base of SMEs in peripheral regions are influenced both by innate resource limitations and by location factors such as excessive distance from key markets and higher cost bases for new technology (McAdam, Reid & Shevlin, 2014) while they have been increasingly challenged to respond to market changes, both local and global (Clark, 2010). While the benefits of state aid for individual enterprises are obvious, overall results of these types of aid on macroeconomic indicators and the labour market are contradictory. Moreover, current EU legislation generally allows direct aid instruments only in regions affected by high unemployment and structural imbalances or otherwise disadvantaged areas.

Since its entry in the European Union, the Czech Republic has been a net beneficiary from regional and cohesion policy. The prerequisite of the previous programming period (i.e. years 2007 to 2013) was the fact that Czech businesses still lagged behind other EU countries in terms of equipment, efficiency and innovation intensity. Within the Operational Program Enterprise and Innovation, the program Development (ROZVOJ) represents a significant source of funds for financing investment projects for SMEs in disadvantaged regions.

1. Materials and methods

Currently the term 'evaluation' is dedicated to commonly applied socio-economic research verifying the effectiveness and efficiency of public intervention implemented. Therefore, evaluation studies should be carried out in a strictly systematic way and should lead to an assessment of the quality and worth of public intervention as reflected in economic and financial terms (Sanders 1994); the shift in the approach towards modern public administration contributed to a permanent inclusion of evaluation into the system of public intervention management. The expected outcomes of evaluation are shown in Tab. 1.

TAB. 1: Intervention logic for a business financing measure

<i>Inputs</i>	<i>Outputs</i>	<i>Results</i>	<i>Long-term results</i>	<i>Macroeconomic impacts</i>
Direct investment grants	Acquisition of new technology	New or upgraded product lines New products or services launched	Increased labor productivity rates Increased share of hi-tech manufacturing employment	Enhancing capital and technology base Improving regional competitiveness

Source: European Commission

The EVALSED Guide and Sourcebook are specific resources for evaluation of socio-economic development focused mainly on the EU regional and cohesion policy (European Commission 2013). Except of detailed descriptions, explanations and context of common quantitative methods, it also introduces various other instruments, namely interviews, case studies and methods of qualitative analysis.

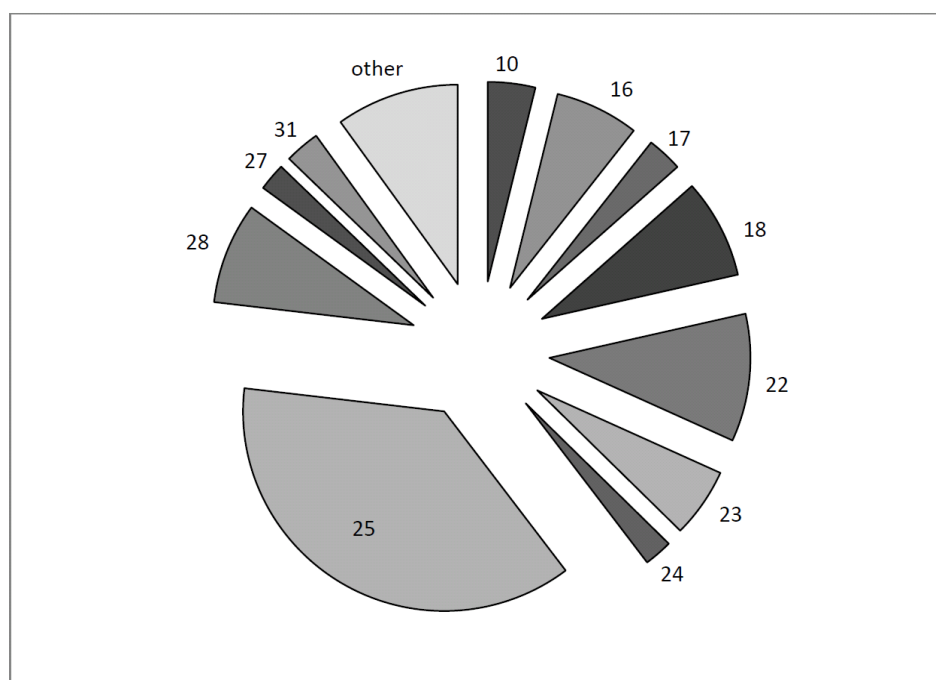
The primary data used in this contribution was retrieved from a publicly available set of statistics regarding supported projects from the three separate calls of programme ROZVOJ announced between the years 2007 - 2015. For comparison of individual regions and sectors, simple relative indicators and calculations were implemented. In order to demonstrate possible macroeconomic impacts of the provided state aid, regional labour market statistics and other data capturing regional economic performance were also exploited.

2. Results

2.1. Sectorial structure of the supported projects

A clear dominance (37%) of businesses in the fabricated metal products (CZ-NACE 25) is shown in terms of the total amount of state aid provided and the number of projects supported. Projects of this field were, however, of an average scope (the median value of the project size amounted to 3.9 mil. CZK). Only two other sectors can be marked as significantly represented in this program: manufacture of machinery and equipment (8 %) and manufacture of plastic products (10 %). Almost half of the eligible sectors had less than 2 % share on the total value of state aid. While the sector of basic pharmaceutical products had only 13 projects supported, average value of state aid provided was relatively high (8.9 mil. CZK). The sectorial structure of supported projects is shown on Fig. 1.

FIG. 1: ROZVOJ – sectorial structure of projects (CZ-NACE)



Source: own

2.2. Regional labour market and economic performance

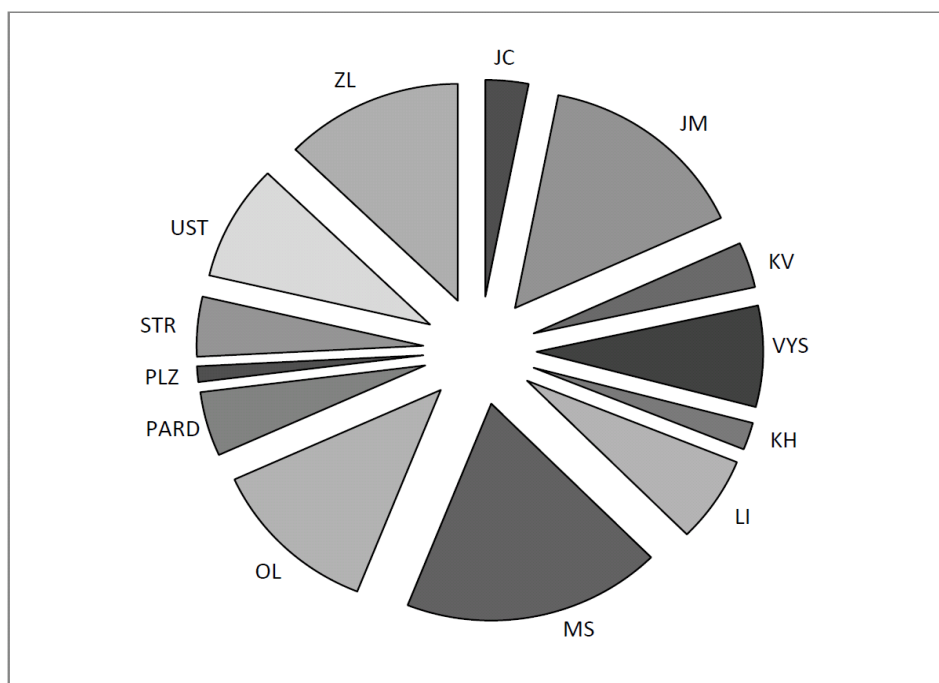
The main purpose of regional investment aid commonly is to stimulate the labour market, fight unemployment and boost competitiveness and economic performance. However, upon the analysis of regional secondary data (Czech statistical office, 2015) no direct short-term impact on the relevant sectors or indicators can be noticed. Besides the fact that the economic crisis was the main mover of the economic indicators in the

years in question, other possible causes and outlooks regarding this issue are discussed below.

2.3. Regional structure of the supported projects

The regions Moravskoslezsky, Jihomoravsky, Olomoucky and Zlinsky absorbed most of the supported projects. This result may not really a surprise since the whole programme has focused mainly on disadvantaged regions. However, the Ustecky region which is seriously affected by structural imbalances, unemployment and other socio-economic disadvantages holds only 8.64 % of the total supported projects' value. The scope of projects in terms of both value and sectors does not show fluctuation across the regions. The regional structure of supported projects is shown on Fig. 2.

FIG. 2: ROZVOJ – regional structure of projects



Source: own

3. Discussion

The results above show that sectorial structure of economic activity in supported industrial SMEs is significantly different from the overall structure of industry; low share of automotive industry could be the main evidence. Also, relatively little sectorial diversity can be noticed; chemical and textile industry or manufacture of food products or furniture could have been expected in higher proportions since most of these sectors have had good status and tradition in the regions of the Czech Republic.

One of possible interpretations of these results may be connected with the problem of information asymmetry. For SMEs, it may be difficult to cover all the available options for funding and to use them effectively since the personnel capacity of these businesses may not be sufficient to deal with these tasks and costs for external consultancy services may result in uneconomic. Timely, accurate and precise information provided in an appropriate way is therefore crucial for the individual subjects. In order to exploit the available financial resources most effectively, it is in the interest of the relevant authorities to provide targeted advice on grant opportunities to the respective group of possible applicants.

Most supported projects fall into sectors with good innovative potential and the overall conditions of the grant programme itself have been suitably adjusted to meet this goal. However, the impact of the state aid on the labour market is not clear. Although the rate of unemployment is above average in most of the disadvantaged regions, the availability of labour force varies by sector as shown by Lepič (2013); current developments in the labour market show the lack of manpower in technical fields. The aim of many supported projects is therefore to substitute missing manpower by high-tech capital equipment. While developing innovative potential, this trend is not facilitating the improvement of the labour market indicators.

When examining the regional structure of the supported projects, the question of selection criteria of “disadvantaged regions” may be raised since some of them are situated within commuting distance of Prague or other regional centres with good employment opportunities. Beroun, Rakovník or other regions do not either show specific structural difficulties and are located near large industrial parks along the D5 motorway. If businesses from most regions are enabled to participate on the state aid provided, the orientation of disadvantaged regions within this programme may be evaluated as rather vague and not very well focused on structural issues; the interest to exploit the available resources as much as possible seems to have become the priority in this case.

In the programming period 2014 – 2020, the mechanism of investment aid for SMEs has a very similar structure to the previous years, as well as other possibilities of support. While strong hi-tech investment base is the foundation of competitive and innovation potential of SMEs, recent recommendations of World Economic Forum (2014) or OECD (2010) emphasize facilitation of international co-operation, use of suitable financial instruments to prevent “financing gap” and export or FDI incentives. At the same time, institutional obstacles and administrative burdens are often named among the most serious issues hindering competitiveness.

4. Conclusion

A simple regional and sectorial analysis and evaluation of state aid provided from the pro-gram ROZVOJ has been carried out in this contribution which also refers to some positive and negative impacts. The main issue to be solved by this programme is consistent with the often presented findings that the lack of innovation still remains one of the Czech Republic's main weaknesses (WEF, 2014). While the direct investment aid has been helpful for the beneficiaries, the positive impact on short- and middle-term macroeconomic indicators has not been proved. On the contrary, higher levels of external financing including state aid may contribute to maintaining the relative financial fragility of these businesses; the obvious recommendation would be to realize the limits of this type of aid and to help SMEs maintain and develop their competitive advantage expressed by already strong capital base. Therefore, focus of the state aid programmes could be shifted to greater autonomy of SMEs regarding financing and management. Properly set instruments permitting access to cash and bank loans on concessional terms, government guarantees on provided loans, instruments enabling easy and reliable intellectual property protection and programmes facilitating international cooperation in manufacturing processes, investment, R&D and trade should be the main subjects of future discussions regarding stronger competitiveness of SMEs.

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ADMINISTRATIVE BURDEN AND ENTREPRENEURSHIP IN THE CZECH REPUBLIC

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JEL classification: M1, M13

Abstract:

This article presents an overview of current official duties related predominantly to business starting and its development in the Czech Republic. The comprehensive findings are presented here in three areas: the total administrative burden of Czech enterprises, further it is the compiled list of concrete administrative requirements when establishing new business, and lastly it is an overview of main barriers to business starting perceived by young people. Authors combine several reliable sources to analyse and identify the measurable demands (mainly statistics and existing studies) with two types of their research: the own compilation of an exhaustive list of duties and documents which are necessary for starts of business as well as results of part of the survey focused on mapping barriers to starting business among young population.

Introduction

According to statistics the Czech Republic has an above-average share of self-employed people in comparison to the rest of the EU (the number of entrepreneurs is 223.02 per 1,000 people, according to official national statistics). However, this is a slightly misleading figure. Nearly 300,000 of the approximately 850,000 active self-employed people are also involved in a traditional employment relationship. Moreover, what is alarming it is the increasing lack of desire among young people to start doing business as they are giving a preference to employment relationships. The administrative burden has been considered as one of the reasons. Therefore, it is one of the areas on which our research has been focused and to which this paper is devoted. Our aim is to familiarize readers with the present situation in the business environment in the Czech Republic. A comprehensive overview of current official duties related predominantly to business starting and its development in the Czech Republic is presented further in this article. The comprehensive findings are in three areas: total administrative burden of Czech enterprises, which has been one the highest in Europe, further it is compiled list of concrete administrative requirements when establishing new business, and lastly it is an

overview of main barriers to starting business perceived by young people, who strongly tend to prefer employment to setting up own business nowadays.

In general, in 2008 entrepreneurial activities in the Czech Republic were regulated by 200 Acts and 300 by-laws; the state for the administrative duties processing had to pay around 80 billion crowns a year. That year the start-up entrepreneur had to settled totally 21 documents and implemented approximately 14 visits at least in nine offices or institutions in the connection with the of the firm foundation. In desired questionnaire he (she) had to fill out more than 600 data. The administrative burden has been reduced a little during the last several years. Nevertheless, it is still high in comparison with many other EU countries till now.

1. Material and Methods

Small and medium sized enterprises (SME) including individual entrepreneurs are considered to be a true back-bone of the European economy, being primarily responsible for wealth, economic growth and especially social cohesion, of which relevance is on rise (Breckova & Havlicek, 2013). Another their important feature is the position stability of SMEs in the national economies. Breckova and Havlicek (2013) also stated that SMEs only rarely leave the home country in terms of moving manufacturing sites, and only rarely they transfer the capital out of country. And as these authors continue “one of the main assets of the SMEs nevertheless, is their flexibility and an ability to survive under various conditions and it applies also to the international operations, which are no longer a domain of large or multinational companies“.

The Czech business environment study project was made within the Global Entrepreneurship Monitor (GEM) in year 2013; it resulted by the Report on the SMEs (Ministry of Ind. and Trade, 2014). According to this Report, 7.33% of the adult population between the ages of 18 and 64 are involved in new business activity in the Czech Republic. Therefore, the Czech Republic ranks in 50th place among the 67 countries involved in the research. The new business activity includes individuals carrying out specific steps to launch new business as well as those who have been running a company for less than 42 months. Compared to year 2011, new business activity has been slightly declined, by 0.31%, compared to year 2006 - when it declined by 0.52% (Report on the SMEs development, 2014). It is also apparent from this source that the main sector in which new companies are being established is the sector of services for end consumers.

This paper is built on combination of the publicly available reliable sources (like statistics, institutional studies and other scholars' survey results) and its analysis, and further of the authors' own research. That was divided into two main streams: first stream of own research was focused on the collecting and analysing data with the aim of

identifying the comprehensive list of administrative requirements necessary just for starting business doing in the Czech Republic, and the second stream concentrated on using the part of the results of quantitative survey among young respondents mapping the willingness to become an entrepreneur, their motivations and barriers perceived.

Statistic figures also have shown in the Czech Republic that predominantly the growth in the number of new enterprises has begun to slow down. There is an alarming trend in particular among the self-employed and micro enterprises, defined as those with 9 or fewer employees (Breckova & Havlicek, 2015). The authors stress the fact that enthusiasm for business from the 1990s has being replaced and the younger generation would rather enter employment relationships.

The quantitative research was applied for obtaining the empirical data. Its main research method was the survey using the in-depth telephone interviews based on a questionnaire for data collection. The survey was conducted in April 2015 and one of the authors of this paper was actively involved in it (for details see the AMSP's 21st survey with the title "Podnikání mladých – Young Business", 2015). For clarity we refer to this survey hereinafter as the "Young Business Survey". Computer Assisted Telephone Interviewing (CATI) was applied as the main survey method. The number of respondents who answered the entire questionnaire was 776 – as it was mentioned before. Their structure was as follows: about 25% were students of secondary vocational schools, about 25% were students of regular secondary schools, and about 50% were university students or fresh graduates. The ratio of respondents who basically did not reject business activity versus those who did reject it was 547: 229. The survey covers all regions of the Czech Republic. The full results of this survey were published as chapter in the book (a scientific monograph) Institutional Aspects of Entrepreneurship: Entrepreneurial Intentions and Careers (Gubik & Wach, 2015 in Breckova & Havlicek, 2015). For the purposes of this paper we will be concentrated only on the selected barriers of entrepreneurship with the accent on burden caused by the public administration authorities.

2. Results and Discussion

2.1. Overall administration burden

Main findings in the area of the administrative requirements and overall administration burden in the Czech Republic are as follow. The government of the Czech Republic adopted two documents: "Action Plan for reducing administrative burden on businesses" and "Methodology for Determining the Amount and Source of Administrative Burden of Entrepreneurs" taking into the consideration the fact that even today particularly start-ups entrepreneurs had to face many administrative constraints preventing them the more rapid development of their business activities. However, their administrative burden remained enormous also in the subsequent years. In year 2007 -

at the time when the European Act for SMEs was proposed by the European Commission - the administrative burden of entrepreneurs in the Czech Republic represented in the financial figures at least 86.38 billion CZK.

The highest administrative burden (23%) was caused by the Ministry of Labor and Social Affairs. The mentioned ministry was followed by the Ministry of Agriculture with (22%), the Ministry of Health (20%) and equally by Ministries of Finance, Environment, Industry and Trade (8%). Among other offices which were increasing the entrepreneurs administrative burden were the Czech Statistical Office, with the cost burden of almost 580 million CZK, the Czech Mining Office (CZK 513 millions CZK), the Czech Telecommunication Office (441 million CZK) and the Industrial Property Office (272 million CZK). This time it was predicted that the reduction of administrative burdens by 20 to 25% - according to foreign data – would enable the GDP growth of 1-1, 5%.

Taking the ongoing criticism of entrepreneurs' situation into account Czech government adopted the "Plan to Reduce the Administrative Burden on Businesses by 2010" in 2008 promising to reduce administrative burdens by 20% compared with year 2005. This term was postponed to 2012 and the target was increased to 25% in comparison with the data base of 2005.

The mentioned figures were confirmed by recent study surveys aimed at the administrative burden assessing that were published under the name of "Paying Taxes 2011: The global picture" by Price Waterhouse Coopers (2011). In 2010, the Czech Republic was ranked as 121st (out of 183 countries involved into the survey). The World Bank (2011) reported that the agenda associated only with the social security and health insurance took in average 300 working hours per year in a medium-sized enterprise. High was also the time needed for tax obligations connected with VAT collection. In comparison, while in Ireland time needed to fulfil tax accounts required only about 30 hours per year in 2010, this figure in the Czech Republic was 178 hours/year. It was also indicated in the study that time spent on taxes obligations fulfilment totalled 413 hours in the Czech Republic, whereas the OECD countries average was 199,3 hours/year.

One of the outcomes from our comparative part of research is that companies globally spent on tax matters in 2014 in average 264 hours a year, which was 4 hours less than a year ago. The Czech Republic was listed unfortunately in Central Europe on the last position. The maximum of administrative burden is caused today by the same authorities, which were mentioned in the first decade of the 21st century. These include the social security administration (which indicated 98% of respondents, from which 11% informed about the frequency of contact more than ten times). Regarding other authorities, 92% of respondents mentioned the Czech Statistical Office (that contacted 16% of companies more than ten times during one calendar year). The health insurance

companies contacted 93% firms (15% of them more than ten times per year), tax authorities (contacted 93% of companies, 7% of them more than ten times per year).

2.2. Administration requirements for business starting

For better clarification of the contemporary situation we are presenting the set of key documents that are required by the administrative authorities from those who try to establish a limited liability company in the Czech Republic in 2015, which is the most frequent form of business there:

- a) notarial deed containing the Deed of Incorporation (if the company has only one shareholder) and the minutes of the General Meeting (if more founders);
- b) consent of the property owner with the location of company headquarters (or establishment) with certified signatures and annex containing the extract from the catastre;
- c) bank document establishing a business account and a deposit in the amount of capital (pursuant to a notarial deed);
- d) statement by the custodian of deposits;
- e) extract from the trade register;
- f) trade declaration form;
- g) affidavit executive;
- h) binding rules for beginning entrepreneurs in the social sector,
- i) regulations specifying the obligations of new entrepreneurs in the field of health and safety at work and fire protection,
- j) hygiene regulations for the operation of new entrepreneurs;
- k) binding rules for beginning entrepreneurs in the social sphere.

2.3. Main barriers for starting business perceived by the youth in the Czech Republic

The survey revealed one of the new phenomena – young people want to have a good work-life balance from the very beginning of their professional careers. For achieving it they find it more convenient to become employed rather than trying to start their own business. It confirms one of the survey results where the respondents perceive business activity as a stressful endeavour that requires a lot of responsibility (33%), which they might intend to avoid. Also, the business environment is perceived by them as not entirely friendly for starting business. A total of 72% of respondents evaluate it as negative or rather negative. Students do not view the current situation as ideal for starting business, and among them vocational students are the most pessimistic in view of the current situation. This barrier was followed by the financing issue. “The financing of new business projects is a logical problem for all starting companies, and respondents describe it as one of the most significant barriers to doing business (63%). They identify with the claim that they neither have the funds to start doing business nor are aware of how to obtain them. Obtaining outside (bank) sources for an entirely new company is practically impossible in reality” (Breckova & Havlicek, 2015). This is also confirmed

by the results of the GEM analysis, according to which "The biggest problem affecting newly launched companies is a lack of financing, followed by bureaucracy and legislative problems. Compared to 2011, the number of entrepreneurs who view poor payment morale among clients as a problem has also increased (11%)." (Report on the Development of SME, 2014). The mentioned analysis describes bureaucracy and legislative problems as serious problems (17%) and states that they have grown since 2011. Surprisingly, only 12% of respondents describe excessive administrative burden as an obstacle to doing business (Breckova & Havlicek, 2015).

Conclusion

Several surveys focused on the administrative burden for entrepreneurs were made in the Czech Republic during the last years. All of them confirm that this burden is high, even one of the highest in Europe and significant worldwide. It is true that some requirements of the Czech central public administration authorities were cancelled, however, new requirements were adopted, so that the statistics is not accurate and a bit manipulated by political authorities at places. The highest administrative burden (23%) was caused to entrepreneurs by the Ministry of Labor and Social Affairs. The mentioned ministry was followed by the Ministry of Agriculture with (22%), the Ministry of Health (20%) and equally by Ministries of Finance, Environment, Industry and Trade (8%).

According to "Paying Taxes" study (PwC, 2014) the Czech Republic was ranked also at 121. position in the world (out of 183 countries involved into the survey). The mentioned study reported that only the agenda associated with the social security and health insurance (in case of employing people) took 300 working hours a year in average in the medium-sized enterprise. High was also time needed for the tax obligations discharge connected with VAT administration.

Compilation of the necessary administrative requirements and a set of key documents when setting up new business (limited liability company, which is the most frequent form of business in the Czech Republic) was made and presented in this paper, and it contains 11 points to fulfil. There is a space for further research in the area of time for fulfilling these requirements.

The quantitative survey results in the area of main business barriers perceived by young people at the starting line of their professional careers have been the last field presented in this paper. New phenomenon was relieved – young people seem to insist on having a good work-life balance from the very beginning of their professional careers. For achieving it they find it more convenient to become employed rather than trying to start their own business. It confirms one of the survey results where the respondents perceive business activity as a stressful endeavour that requires a lot of responsibility (33%), which they might intend to avoid. In contrast, only 12% of respondents describe

excessive administrative burden as an obstacle to doing business in the Czech Republic, and put more emphasis on the business environment, which they perceived as not entirely friendly for starting business.

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HOW DO THE BRAND, PRICE, AND QUALITY OF GOODS INFLUENCE PURCHASING DECISIONS OF SENIORS

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shopping behaviour – price – quality – range of products

JEL classification: M31, M37

Abstract

By gaining an understanding of consumers' actual shopping behavior companies are more successful in meeting customer needs. As part of the research 418 seniors aged 60+ and living in the Ústí region were interviewed. The focus of the research was to evaluate their amount of spending on goods for daily use and the frequency of their purchases while also taking into account sociodemographic factors. What was also examined was their brand loyalty and attitude to price vs. quality. Women buy more frequently and in smaller volumes and almost half of the respondents did not spend more than 500 CZK on a single purchase. 60 % of seniors regularly make use of discounts, while one third do so only occasionally. Most of all the 65+ age group responds to special offers. Brand loyalty applies to less than a quarter of respondents, half of the respondents change goods according to price, which is the deciding factor for most of the elderly. The research shows that seniors do not form a homogeneous group, rather representing to some extent a kind of super segment. Many companies have come to realise that seniors represent an attractive consumer target group, which they must get to know.

Introduction

Companies are able to evaluate how well they meet customer requirements based on the recognition of their consumers' actual shopping behaviour. Although the Czech population has also been aging uncontrollably there has not been much attention paid to the elderly, until recently. The prevalent view has been that this target group does not require specific marketing activities (Reidl, 2012). A certain lack of interest in this group is also reflected in the domestic literature. No relevant extensive comprehensive studies have yet been issued that give specifics on the shopping behaviour of the resident elderly. Domestic authors might only devote a few chapters in their monographs or some articles in journals or anthologies; some of the information is also brought by theses of students from Czech universities. Knowledge of the target group's specifics, determines to a large extent the efficiency of reaching customers and the

consequent increase in sales. What is important is an understanding of the basic socio-demographic distribution of current and potential customers (Meiners & Seeberger, 2012). Today's seniors are different than seniors of ten years ago; they have greater choices and are able to find out more information about products. Many companies have already found that seniors form a lucrative consumer target group.

1. Objective and Methodology

To detect changes in the shopping behaviour of elderly customers, primary data was collected by means of written questionnaires. As part of the research 418 respondents from the 60+ age group living in the Ústí region were interviewed, of which 269 were women. The key variables were age, gender, and income. 60+ seniors form nearly a quarter of the Ústí region's population (CZSO, 2014a).

By distributing the respondents into four age categories it was possible to compare shopping decisions with regard to the above mentioned variables. Since the requirement for a representative selection was not fulfilled a simple random sampling of respondents was carried out instead. The respondents were selected at random, without any guidelines. From the 60–64 age group 147 elderly people were interviewed, from the 65–69 age group 135 respondents replied, 98 of the respondents belonged to the 70–74 age group, and 38 respondents from the 75+ age group were approached. The structure of the addressed people corresponds, approximately, to the age structure of seniors in the region — with the exception of the 75+ age group, which is actually much larger (CZSO, 2014a). The average net monthly income of the respondents was approximately 11 000 CZK (weighted arithmetic average of the interval frequency distribution), which corresponds with official statistics (CZSO, 2014b). 4% of respondents receive 18 thousand CZK, 57% have a monthly amount of 8–12 thousand CZK, 17% manage with 12–15 thousand CZK, 6% have 15–20 thousand CZK, and only 4% of respondents received more than 20 thousand CZK. 12% of respondents did not receive any pension as they are still working (mainly through employment or entrepreneurship), 15% of respondents subsidise their pension by earning extra money (mainly through employment or entrepreneurship) and for almost three quarters of respondents their old-age pension is their only income.

The main data collection technique involved a paper structured questionnaire with closed questions, which interviewers used to write down the respondents' answers. The collected answers were analysed in order to determine relationships and dependencies among the various findings. Before the questionnaire was finalised its content was tested via in-depth interviews with six representatives of the target group. Respondents answered questions concerning their average spending on essentials, based on the frequency of purchases. They also answered as to whether they made use of special offers, whether they purchase goods that they do not need, whether they are brand loyal,

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and how they evaluate the relationship between price and quality when deciding what to buy.

2. Research results

Most respondents (42%) do their shopping 2 to 4 times a week, 38% once a week, 16% daily. Only 4% of respondents shop less than once a week — six respondents from the lowest and six from the highest age groups and eight respondents from the 65–74 group. Most women (45%) shop 2 to 4 times a week, 31% once a week and 18% every day and only 6% less than once per week. Almost half of the polled men shop once per week. 40% of working seniors shop 2 to 4 times per week and the same number once per week; one third of active pensioners shop 2 to 4 times per week and the same number also once per week; 44% of pensioners, who no longer work, shop 2–4 times per week and 37% once per week. Most respondents of the 60–64 and 70–74 age groups shop once per week (41%, 42%) or 2 to 4 times a week (37%, 40%); in the 65–69 group every second pensioner shops 2 to 4 times per week; in the 75+ category 42% of the elderly shop 2 to 4 times per week and 32% once per week. The relationship between the respondents' monthly income and the frequency of their purchases of essentials is captured in Table 1-A.

TAB. 1: The influence of income on the frequency of shopping, on the level of spending, and the utilization of special offers (in percent)

Factor	Answer	Monthly income in thousands CZK				
		to 8	8–12	12–15	15–20	over 20
A — Shopping frequency based on monthly income	Daily	3,3	9,1	2,2	1,4	0
	2–4 times per week	8,1	23	7,4	2,6	1,2
	Once per week	3,3	21,3	7,2	2,2	2,9
	Less than once per week	0,8	3,1	0,7	0,2	0
B — Spending per purchase	Up to 500 CZK	11,5	29,2	5,7	1,8	0,9
	501–1 000 CZK	3,3	21,6	7,4	1,9	1,3
	1 001–1500 CZK	0,7	5,8	3,6	1,7	1,9
	Over 15 001 CZK	0	0	0,7	1	0
C — Utilization of special offers	Definitely yes	9,6	37,8	8,7	1,9	1,9
	Mostly yes	5,6	15,8	6,8	3,1	1,7
	Mostly not	0,5	2,6	2,3	1,5	0,2

Source: own

On average the addressed seniors spend almost 520 CZK on the purchase of essentials (weighted arithmetic average of the interval frequency distribution). It is clear from Table 2-A that almost half of the respondents spend a maximum of 500 CZK per

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purchase. This amount per visit to the shops is spent by 40% of the surveyed men; an equal number of men spend in the range of 501–1 000 CZK. Women pay less for their purchases: 55% of the women pay up to 500 CZK per visit to the shops, and one third pay 501–1 000 CZK.

Pensioners whose only income is their pension spend the least: 55% of them pay up to 500 CZK at the cash register, whereas one third pay 501–1 000 CZK. Working pensioners spend more: nearly 40% of them pay up to 500 CZK per shopping, one percent more of them spend 501–1000 CZK. Economically active respondents spend the most: more than a quarter of them pay between 1001 and 1 500 CZK, 30% up to 500 CZK; and 42% of the members of this segment pay 501–1 000 CZK per purchase.

In the 8 thousand CZK income group almost three quarters of respondents pay less than 500 CZK per purchase, one in five spends 501–1 000 CZK. In the second income group (8000 up to 12 000) almost two fifths of the elderly spend 501–1 000 CZK per visit to the shops, but more than half of them pay less than 500 CZK. 42% of respondents from the 12 001–15 000 CZK income group spent, on a single purchase, an amount ranging 501–1 000 CZK, one third spend up to CZK 500, and one fifth between 1 001–1 500 CZK. 30% of respondents with an income of 15 000–20 000 CZK spend up to 500 CZK per purchase, the same number of respondents spend 500–1 000 CZK, a quarter 1001–1500 CZK, and 15% more than 1501 CZK. Almost half of the addressed seniors from the highest income group spend 1 001–1 500 CZK per purchase.

Among the effective tools that are used by retailers for boosting sales belong special offers. Participants of this survey expressed their attitude towards discounts by providing an answer to a question of whether and how they use discounts while shopping. The range of answers spread from "definitely yes" to "definitely not". Table 2-B shows the effect of discounts on the purchase decisions of respondents by age. At first glance it is clear that 60% of respondents definitely make use of discounts and one third makes use of them most of the time. Discounts are used mainly by seniors from the 65+ age group; conversely less than 7 % of those surveyed are almost unresponsive to specials, only two addressed seniors were not at all interested in discounts.

Discounts on essentials certainly appeal to more than half of the respondents in the 60–64 category, to 41% they appeal somewhat. Special offers attract fewer men; they definitely appeal to 63% of women and to 54% of men, they rather appeal to 30% of women and 37% of men. Discounts are definitely utilized by the elderly whose only source of income is their retirement pension (67%) and also by working pensioners (56%). Two fifths of respondents, who are currently employed, respond to discounts rather positively, but a quarter of them ignore special offers.

TAB. 2: The effect of age on spending, utilization of special offers and brand loyalty

Factor	Answer	Age group (years)			
		60–64	65–69	70–74	over 75
A — Spending per purchase	Up to 500 CZK	14,8	16	11,7	6,7
	501–1 000 CZK	12	12,7	9,1	1,7
	1 001–1 500 CZK	7,9	2,4	2,6	0,7
	Over 1 501 CZK	0,5	1,2	0	0
B — Utilization of special offers	Definitely yes	18,3	21,2	15,1	5,5
	Mostly yes	14,4	8,2	7,4	2,9
	Mostly not	2,7	2,9	0,7	0,7
C — Preferring type of goods to brand	Definitely yes	5,3	5,7	5,7	3,8
	Mostly yes	19,1	17,3	11	3,6
	Mostly not	9,4	8,1	5,3	1,2
	Definitely not	1,4	1,2	1,4	0,5
D — Brand loyalty	Loyal	10,8	6,5	3,8	1,7
	Changing brand according to	price	12,4	20,1	13,9
		quality	12	5,7	5,7

Source: own

In the largest group of respondents (pensioners without economic activity), 65% of them definitely utilize special offers and a quarter of them mostly does. Special offers mostly do attract half of the working seniors, but they mostly do not attract one third of the members of this group. 55% of the economically active senior citizens answered the analyzed question: definitely yes and half of them: mostly yes. As is apparent from Table 1-C, nearly two thirds of seniors from the 8–12 thousand CZK income group and over 60% of the lowest income group are most affected by special offers.

As part of the survey the respondents also answered a question as to whether they buy only goods that they currently need. 40% of respondents (men and women) admitted that they also buy products they do not need at that moment. More than half of the respondents in the 60–64 age group buy only essentials, with increasing age, the proportion of those who purchase only essentials increases up to two thirds. Only essentials are preferred by 46% of the economically active seniors and by 60% of respondents whose only income is their pension and by one third of pensioners who earn some extra money.

During the survey respondents also explained their relationship to a brand. Table 2-C summarizes the responses of those surveyed (by age group) to the question of whether they prefer the type or characteristics of a product rather than the brand. The survey results show that more than 70% of respondents definitely prefer, or mostly prefer, the characteristics or type of a product rather than the brand. A quarter of respondents mostly do not prefer the type over the brand.

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While nearly a quarter of men certainly prefer the type of goods when shopping, for women it is only less than 20%. Only 12% of the economically active seniors definitely prefer the type of goods; in the two other categories (pensioners and working pensioners) more than a fifth of respondents do so. More than half of the economically active seniors and pensioners answered, mostly yes to the question of whether they prefer the type or characteristics of a product rather than the brand.

From the above mentioned findings it is clear that the addressed respondents do not deny loyalty to a particular brand. More than half of them change brands according to the price tag, the rest according to quality. Table 2-D shows how the relationship of surveyed seniors to a brand depends on their age. The most brand loyal are seniors in the first age group — over 30%, the least loyal are those in the second age group, in groups of 70 and more 17% are loyal. Women change brands according to quality more often: 26% vs. 22% of men. Economically active pensioners are the most brand loyal — 35%, the least brand loyal are the elderly whose only income is their pension. Those change brand according to the price tag most frequently — 60%, and according to the quality only 22%. More than a quarter of working seniors change brand according to the price and 42% according to the quality of goods.

3. Discussion

The shopping behaviour of seniors in terms of average spending that depends on the frequency of purchases, in terms of utilization of special offers, and in terms of brand loyalty and the relationship between price and quality has shown a significant dependency, not only on the age of the respondents, but also on their social status, gender, and income. In the absence of a similar recent domestic survey from other regions of the Czech Republic, it was not possible to make a proper comparison that could confirm some differences in the decision-making process during purchases made by seniors.

Because of their conservative views and attitudes seniors rather rely on their life experiences; they can also occasionally succumb to emotional factors. It is therefore not clear whether, during the survey, respondents declared their real motives or whether there were some hidden ones. Based on their statements they are not significantly attracted to special offers. However, it is possible that they do not realize the importance of these activities, or that they match their answers to society's expectations. Such effects would probably be revealed by an in-depth interview.

Women especially do not buy in bulk; they rather visit shops several times per week. Almost half of respondents do not spend more than 500 CZK on a single purchase. Pensioners whose only income is their pension spend the least; conversely, economically active respondents spend the most.

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Traders use price discounts and specials so that they can reward their customers. According to the Nielsen research company such activities contribute almost 50% towards the total sales of retail chains in the Czech Republic (Marketing&media, 2014). The results of this survey confirm these findings to some extent: 60% of respondents definitely make use of discounts and a one third of them mostly do. The biggest response to discounts came from the 65+ age group. These offers appeal less to men. It is evident that discounts of this kind are used mainly by those elderly people whose only source of income is their retirement pension and also by working pensioners. According to marketers the age of seniors does not have such a big influence on their purchasing behaviour as do psychological factors that explain their value system and their reasons for shopping (Turčínková, 2011).

Two fifths of respondents claimed that under influence of the promotional activities of traders they also buy products that they do not currently need. With increasing age, the proportion of such goods declines.

One of the key variables of the purchasing process is brand loyalty. According to the findings of Ernst & Young (2012) in developed countries, every fourth customer-consumer puts emphasis on such loyalty.

They argue that especially older people close to retirement age, when it comes to purchasing, often decide not according to their age but their lifestyle (Kotler & Keller, 2013). These seniors have high brand awareness and sensitivity to the brand, but the brand loyalty among them is not as significant as it is among the older generation.

From my own research it is clear that less than 23% of addressed seniors are brand loyal. However, more than half of respondents change brand according to price, the rest according to quality. The cause of this situation probably lies in the relatively high promotional activities of branded manufacturers, and therefore customers can almost constantly buy goods on special. Even nowadays seniors are sometimes, incorrectly, perceived as a passive segment that is brand loyal and that does not want to experiment, and that may even ruin the brand image (Wigger-Spintig, 2013).

The research shows that the monitored group of customers, when making purchasing decisions, in most cases favours price, which in this customer group acts as a major factor influencing the customer's choice. The recent economic situation has especially forced the elderly "to turn every penny". Many companies respond to this with changes in pricing strategies.

Conclusion

The aging population is changing their lifestyle and as a result the structure of the market is also changing. People who have been used to creating reserves, saving, investing during their working lives, are now entering a new phase of their lives. Each

change is also an opportunity, yet many companies that provide consumer goods continue to focus on a shrinking market, instead of targeting seniors and adapting their products to them.

Some current marketing efforts also raise suspicions among the older customers because they have trouble understanding them (Helm, Scheunert & Landschutze, 2012). This leaves no choice but to rely on their own life experiences, to identify with their environment and to find their place. Seniors want products that are not only functional but also fashionable and that will not automatically give them a stamp of an old age. The research results also show that the effects of physiological aging are not the only determinant in terms of changes in shopping behaviour. The other ones mainly include the economic situation and the resulting social status. The research confirms that the elderly do not form a homogeneous group; they represent a type of super segment for which it is relatively difficult to create an effective strategy in the context of integrated marketing communications.

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BANKRUPTCY PREDICTION IN THE INDUSTRY BRANCH MANUFACTURE OF MACHINERY AND EQUIPMENT

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Abstract:

This paper is focused on the prediction ability of models predicting corporate financial distress, also called bankruptcy models. The models are verified on corporations belonging to one particular industry branch. The selected industry branch is CZ-NACE 28 containing corporations manufacturing machinery and other equipment because it is traditional manufacturing industry branch in the Czech Republic. The data set consists of the corporations classified as healthy as well as ailing. The verification is done by dozens of bankruptcy models coming from developed economies, the Czech Republic as well as other transition economies from Central and Eastern Europe. Tools used for verification of models' accuracy are Type I Error, Type II Error, ROC Curves and related AuROC coefficients.

Introduction

Corporate bankruptcy prediction is a serious research task since 1960's when it is connected with researches done by Altman (1968) or Beaver (1966). The scientific discussion focused on the model predicting corporate financial distress is always reopened when there is a serious shift or change in economic or political conditions. It is also a case of the Czech Republic during recent years because of new Insolvency Act came into force in 2008 and last global economic crisis.

There has been created plenty of models predicting financial distress since 1960's. Some models are publicly known, others were not published because they are part of company's know-how. The question which still remains is which models have enough explanatory power for prediction purposes. This paper should answer the question which models predicting financial distress have the highest possible accuracy and if this accuracy is appropriate for prediction and further decision making process.

1. Literature overview and methods

This paper is based on the verification of already existing models predicting financial distress. The core of verified methods and tools is represented by Czech authors because of working with Czech corporate data. The Czech approaches are following the family indices IN – IN99, IN01 (Neumaierová and Neumaier, 2002) and IN05 (Neumaierová and Neumaier, 2005), followed by Grünwald Bonita Index (Grünwald, 2001) and Balance Analysis System by Rudolf Doucha (Doucha, 1996). On the other hand there are also many approaches created in the developed economies which are very popular because of their origin. The approaches from developed economies are introduced by Altman Z-Score (Altman, 1993), Bonita Index (in the German original Bonitätsanalyse, Wöber and Siebenlist, 2009) or Kralicek (Kralicek, 2007). There are proponents who suggest only using of approaches created in the same time range and same area, for example Grice and Dugan (2001). It is the reason why this paper does not use only approaches from the developed economies but also models from other transition economies. The transition countries as Poland, Hungary or Baltic states (Latvia, Lithuania and Estonia) have comparable political and economic situation with the Czech Republic. Models from Poland are represented by Hadasik (Hamrol and Chodakowski, 2008), Holda (Pociecha, 2005 and Hamrol and Chodakowski, 2008), Gajdka & Stoda (Kisielinska and Waszkowski, 2010 and Hamrol and Chodakowski, 2008), Prusak (Kisielinska and Waszkowski, 2010), PAN-C, PAN-D, PAN-E, PAN-F, PAN-G, Wierzba, Poznanski, D1, D2, D3, D4 (all previous discussed in Kisielinska and Waszkowski, 2010), Apenzeller & Szarzec, Pogodzinska & Sojak, Sojak & Stawicki (all previous discussed Hamrol and Chodakowski, 2008). The Hungarian authors are Hajdu and Virág (2001) who constructed the model based on the discriminant analysis as well as on the logistic regression. The Baltic economies are introduced by approaches Šorins & Voronova (Jansone, Nespors and Voronova, 2010), Merkevicus (Merkevicius et al, 2006), two factor model (Koleda and Lace, 2009), Stoškus (Stoškus et al, 2007), Genriha & Voronova (Genriha, Pettere and Voronova, 2011) and R model (Davidova, 1999). The models' formulas can be found in the mentioned literature and therefore they will not be displayed in this paper.

Methods used for verification of models' accuracy are Type I Error, Type II Error, ROC Curves and related AuROC coefficients. These methods are in detail discussed in Čámská (2015b) or for practice use look at Čámská (2015a).

2. Results

Corporations belonging to different industry branches could have significantly different results in areas such as asset and capital structure, profitability etc. Therefore it is usual that models predicting financial distress are verified on companies from the same industry. It can be proved by researches done by Kovárník and Hamplová (2014), Klečka and Scholleová (2010), Kubíčková (2015) or Čámská (2015a).

This paper is no exception and selected industry branch is CZ-NACE 28 containing corporations manufacturing machinery and other equipment. It is a traditional industry branch in the Czech Republic which is highly connected with the economic cycle. Two groups of companies are tested – healthy and ailing. Healthy companies should have created positive economic value added in the time period 2010-2012 and ailing companies should have declared bankruptcy in the time period 2012-2014. Another assumption is availability of corporate financial statements. All these assumptions have consequences that final data set contains 33 healthy companies and 12 bankrupt companies. Models predicting financial distress are verified on this data set. Results are displayed in the following tables. Table 1 shows accuracy for all models except the Polish approaches. Dark coloured numbers indicate when error indicators are higher than 50% or reliability indicators are lower than 50%. Light coloured numbers are used when it almost hits 50%.

TAB. 1: Accuracy of the verified models except the Polish models

Model	Bankrupt companies		Healthy companies	
	Reliability	Type I Error	Reliability	Type II Error
Altman	0.775	0	0.455	0.030
IN99	0.725	0.025	0.061	0.030
IN01	0.850	0.025	0.394	0
IN05	0.900	0.025	0.576	0.030
Doucha	0.675	0.075	0.758	0
Grünwald	0.625	0.050	0.788	0
Kralicek	0.850	0.050	0.939	0
Bonita index	0.775	0.050	0.879	0
Hajdu & Virág	0.075	0.900	1.000	0.000
Hajdu & Virág-logit	0.900	0.050	0.606	0.394
Šorins & Voronova	0.975	0	0.848	0.152
Merkevicius	0.975	0	0.545	0.455
2factor_1	0.100	0.875	1.000	0
2factor_2	0.600	0	0	1.000
2factor_3	0.025	0.950	1.000	0
Stoškus	0.350	0.600	0.606	0.394
Genriha & Voronova	0.300	0.700	1.000	0
R model	0.850	0.150	0.867	0.121

Source: own research

Table 2 displays accuracy for all tested polish approaches. The usage of colours is same as in previous table.

TAB. 2: Accuracy of the verified Polish models

Model	Bankrupt companies		Healthy companies	
	Reliability	Type I Error	Reliability	Type II Error
Hadasik	0.667	0.333	1.000	0
Holda1	0	1.000	1.000	0
Holda2	0	1.000	0.970	0
Gajdka & Stoda 1	0.250	0.750	1.000	0
Gajdka & Stoda 2	0.250	0.333	0.818	0.152
Prusak 1	0.833	0.083	0.545	0.091
Prusak 2	0.833	0	0.455	0.091
PAN-C	0.417	0.417	1.000	0.000
PAN-D	0.417	0.417	1.000	0.000
PAN-E	0.750	0.083	0.970	0.030
PAN-F	0.917	0.083	1.000	0
PAN-G	0.833	0.167	1.000	0
Wierzba 1	0.417	0.583	1.000	0
Wierzba 2	0.500	0.500	1.000	0
Poznanski	0.750	0.250	0.970	0.030
D1	1.000	0.000	0.303	0.697
D2	0.917	0.083	0.545	0.455
D3	1.000	0.000	0.424	0.576
D4	1.000	0.000	0.394	0.606
Appenzeller & Szarzec	0.500	0.417	1.000	0
Pogodzinka & Sojak	0.250	0.500	1.000	0
Sojak & Stawicki	0.500	0.167	0.939	0

Source: own research

The methods predicting corporate financial distress chosen according to the results in Table 1 and 2 are evaluated using the ROC Curve and its appropriate AuROC coefficient. The statistical program SPSS is used for this determination. The final results are shown in Table 3. The models in Table 3 are displayed in the order from the best to the worst chosen one. The critical value of any area under the ROC Curve is usually stated as 0.8 but according to the strict polarization the critical value should be moved. If it is shifted to 0.9 boundary then models Hadasik, Hajdu and Virag, Doucha and Appenzeller/Szarzec do not have enough explanatory power. We should prefer models as IN01, IN05, Prusak 2, from family PAN F,E and G, Grünwald bonita index, Bonita index, Altman, Merkevicus, Prusak 1, Poznanski, Šorins, Kralicek, D2, IN99 and R model as it is proved by the table 3.

TAB. 3: AuROC values for models with low Type I and II Error

Results			Asymptotic	95% Confidence Interval	
Models	Area	Std. Error ^a	Sig. ^b	Lower	Upper
IN01	1	0	0	1	1
IN05	1	0	0	1	1
Prusak 2	1	0	0	1	1
PAN-F	1	0	0	1	1
Grünwald	1	0	0	1	1
Bonita	1	0	0	1	1
PAN-E	0.996	0.007	0	0.981	1
PAN-G	0.996	0.007	0	0.981	1
Altman	0.991	0.012	0	0.968	1
Merkevicius	0.991	0.012	0	0.968	1
Prusak 1	0.982	0.02	0	0.944	1
Poznanski	0.978	0.021	0	0.937	1
Sorins	0.978	0.022	0	0.935	1
Kralicek	0.977	0.019	0	0.94	1
D2	0.96	0.031	0	0.898	1
IN99	0.946	0.053	0	0.843	1
R model	0.915	0.05	0	0.817	1
Hadasik	0.879	0.081	0.001	0.721	1
Hajdu a Virág	0.871	0.053	0	0.767	0.976
Doucha	0.866	0.116	0.002	0.638	1
Appenzeller/Szarzec	0.835	0.112	0.004	0.615	1

Source: own research

Conclusion

This paper verified dozens of models predicting financial distress. The results show that there are models with enough high accuracy without respect where and when there approaches were created. The used data sample consists only of companies operating in one selected industry branch and there were only 5 dozens statistical units tested. Further research is based on the verification of other industry branches which can lead to exclusion of some models recommended in this paper. It is necessary to emphasize that model predicting corporate financial distress should provide quick and inexpensive recommendations. They will never work as a physical law achieving 100% correctness.

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CURRENT STATE OF QR CODES USAGE IN RETAIL INDUSTRY IN THE CZECH REPUBLIC

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Keywords:

retail – QR code – smart mobile devices – QR code scanning

JEL classification: M15, M31, F18

Abstract:

Retail industry has been changing rapidly over past decade. Various modern technologies have been implemented in store units with numerous goals. One of the key goals is to attract customer and provide him with shopping experience. QR codes represent a cheap and easy way to gain this goal. In this paper the results of two follow-up researches are presented. In the Czech Republic the usage of QR codes by retailers or producers of goods is very limited but slowly grows over years. The continuous results of the research held in 2015 suggest that the potential of QR codes in terms of the encrypted information is not fulfilled.

Introduction

Technological novelties have been changing the face of current retail industry. With the massive adoption of Internet and popularity of e-shops the brick and mortar stores face a revolution in retail. Customers have become savvy and they do not need traditional stores as much as they did few decades ago. For this reason brick and mortar store have to be more attractive for customers and offer something that they cannot find or experience online. One of the most stressed trends worldwide concerning traditional stores is shopping experience. (Boston Retail Partners, 2013; Deloitte, 2010)

Providing shopping experience to customers has become essential part of retail business. Nowadays, customers are not as loyal as they used to be, they want to enjoy shopping. And that is the moment where technological novelties come in. More and more brick and mortar stores install interactive displays, self-service checkouts, self-scanning terminals or magic mirrors, they also offer a Wi-Fi connection to the Internet for their customers or use QR codes to provide customers extra information or benefits. (Winterberry Group, 2013; Vong, 2012; Retail Innovation, 2014; Poulter, 2010)

The main aim of this paper is to present the current usage of QR codes (as one of the technologies that can provide shopping experience) in brick and mortar stores in the Czech Republic.

1. Literature overview

QR codes are type of barcodes, 2D barcodes to be specific. QR stands for "quick response". A maximum amount of characters that can be encrypted in the QR code is more than 7.000 (Cata et al, 2013). One of the advantage of QR codes is ability to be scan even if the QR code is slightly damaged. QR codes can be scanned by terminals or by smart device such as tablet or smartphone using a special application. (Krčmář, 2010; Roebuck, 2011; Weir, 2010)

In retail industry QR codes are used to provide an extra information or benefit for customers or business partners of retailer. Usually, QR codes are placed on product itself, product package, posters, billboards, catalogues or website (Kim & Yoon, 2014). Nowadays QR codes are very popular worldwide and the typical information or internet links encrypted in QR code are as follows:

- a) catalogue of products,
- b) description of new item in assortment,
- c) technical specification of products,
- d) register form,
- e) invitation to an event,
- f) coupons,
- g) social network profile. (O'Malley, 2014)

In Asian countries QR codes are very trendy. In Japan QR codes are widely used to loyalty programs promotion. Japanese are motivated to scan QR codes because based on Okazaki, Li and Hirose (2012) findings every fourth QR code has encrypted some benefit or incentive for customers. In the Czech Republic no analogous research was conducted.

Over past few years the usage of various modern technologies in retail industry has been one of the key research topics of author and her team. There are two major researches concerning the topic that has been conducted lately, the first one was held in 2013 and the second in 2015. Both researches are aimed to same goal - to find out current state of chosen modern technologies usage in retail industry in the Czech Republic. In both years store units situated in chosen Bohemian regions only could be part of the study. These regions are: Pilsen, Prague, Central Bohemia, Karlovy Vary, Liberec, Ústí nad Labem and South Bohemia.

Mystery shopping was used in order to collect data concerning modern technologies within store units in both years. The main aim of follow-up research is to find out the trend of chosen modern technologies usage. For purpose of this paper QR codes

represent the chosen modern technology. Mystery shoppers followed the record sheet to collect data. The seeking of QR codes was standardized in order to keep the comparability of collected data from every store unit.

2. Results

Only store units that offer chosen six types of assortment could be part of the research. These types of assortment are presented in table 1. Table 1 also shows total number of store units that were included in the research in 2013 and continuous number of store units that were included in the research in 2015 (data are gathered from July to December 2015, this paper presents preliminary results).

TAB. 1: Sample characteristics

assortment type	2013	2015
food	107	31
cosmetics	116	38
sports equipment	154	41
clothes	436	166
household equipment	92	29
electronics	105	42
total number of stores	1010	347

Source: Čechurová et al., 2014, own research

The main objective of this paper is to compare results concerning the usage of QR codes within store units that came up from the research held in 2013 with the follow-up research. As shown in table 1 the total number of store units that were included in the continuous results of 2015 research represents one third of store units visited in 2013.

Firstly it is essential to compare overall number of QR codes that were found within store units. Table 2 shows the total number of QR codes in both researches. In 2013, only 33 QR codes were found within 1010 store units. Two years later almost the same amount of QR codes (32) were found in 347 store units. This result can demonstrate that the usage of QR codes has been increasing.

Table 2 also present the type of information that person who scan QR code with his smart device gets. In 2013, the most frequent results of QR code scanning were link to retailer's website and information about product. But in 2015 the most repeated result was a link to producer's website followed by link to retailer's website.

The information about product was encoded in only one QR code in 2015 which is interesting in the customer (that scan QR codes) point of view. The reason is that customer scan QR codes in order to get additional information or get some benefit but

results of current research show that there is almost none QR code that offers additional information. The majority of QR codes encrypt a link to homepage of retailer's or producer's website and there is no additional information nor any benefit for customer that scan these codes.

TAB. 2: QR codes and content

	2013 (n. 1010 stores)	2015 (n. 347 stores)
total number of QR codes	33	32
link to producer's website	4	16
link to retailer's website	17	9
link to mobile app installation	2	4
link to electronic magazine	1	2
information about products	9	1

Source: Čechurová et al., 2014, own research

The encrypted information in QR codes has changed over past two years. As shown in table 3 the most frequent places where the QR codes are placed have not changed that significantly. The most common place where QR code can be found is product package or price tag concerning clothes. Sometimes QR code is not on the package or price tag itself but on the stand or rack where the product is displayed. Posters within store units or shop windows are also used quite often place where QR codes are printed.

TAB. 3: Table caption (style HED - object caption)

QR codes are printed on	2013 (n. 1010 stores)	2015 (n. 347 stores)
product package	12	13
poster	9	6
shop window	2	6
stand/rack	6	5
on product (sticker)	4	2

Source: Čechurová et al., 2014, own research

3. Discussion

In order to map the trend of QR codes usage in retail industry in the Czech Republic, the same research will be once again held in 2017. A survey that mapped a frequency of QR code scanning by customers in the Czech Republic was held in 2014. In total 612 respondents from Bohemia regions participated the survey and the results showed that only 6% of all respondents scan QR codes usually or often (Králová, 2015). This result can be effected by the fact that people do not get any extra information nor benefit by

scanning QR codes and based on this experience they are not motivated to scan them over and over.

Conclusion

For retailers QR codes represent an easy way to provide extra information or benefit to their customers on one hand and chance to become different from their competitors on the other. Unfortunately, current state of the QR code usage presented in this paper suggests that retailers in the Czech Republic do not use the potential of QR codes. Instead of providing interesting in depth information about products or services or some benefit for customers as a reward for scanning QR code retailers in the Czech Republic encrypt only link to their website with no extra useful information about product. The producer's QR codes are not any better.

Even though there are only few QR codes in store units selling chosen assortment type in the Czech Republic the continuous results of 2015 research show that the total amount of QR codes is increasing. The usage of QR codes will be observed in future research.

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UNFAVOURABLE PRODUCTIVITY GROWTH IN THE EUROPEAN UNION - THE ROLE OF LABOUR MARKET INSTITUTIONS

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Keywords:

TFP– European Union – Labour Market Institutions – Panel Data – Labour productivity

JEL classification: C23, E24, J48

Abstract:

Could be blamed the European labour markets for the unfavourable development of the productivity growth in the EU? This paper investigates the relation between selected labour market institutions and productivity growth in 19 EU member states. The effects of previous labour market regulations via youth and long-term unemployment are also considered. The analysis is executed for the period from 1995 to 2013. As analytical tool, panel data model with fixed effects is applied. The results suggest significantly positive effect of trade unions and robust negative effects of active labour market policies and unemployment benefits on both total factor and labour productivity growth.

Introduction

The long-term unfavourable trend of productivity growth in the EU even more worsens in the recent years. As declining productivity means a serious problem for the European economies, researchers and policy makers are heavily interested in finding out its determinants.

Given the long-run character of this problem, we suggest the importance of structural factors. More precisely, in accordance with the recent studies, we supposed that the inherent structural problems of the European labour market could be blamed for this development. Recently, labour market institutions attract more and more attention of researchers and international organizations. But, despite their real importance, there is no scientific consensus about their role in determining the country's productivity.

The aim of this paper is to determine the effect of selected labour market institutions on productivity growth in the European Union. The paper is organized as follows. The first part deals with theory and empirics of labour market institutions and productivity. After the second part with the explanation of methods and data used in the analysis, empirical results are presented. The last part provides a short summary of our main findings.

1. Impact of Labour Market Institutions on Productivity Growth - Theory and Empirics

A shift in perception of growth determinants over the last decades made possible to introduce LMI in endogenous growth theories (Domicián, 2014). In the context of these theories, the role of LMI is in determining productivity growth through their impact on innovations and human capital accumulation (Barro & Sala-i-Martin, 1997). Later empirical results suggested that human capital and technological progress alone are not able to explain economic growth in long-run (Gwartney, Lawson & Holcombe, 1999). As Kohn (2009) pointed out, the economists started to take into account the role of institutions in facilitating or impeding a productivity of the economy.

Labour market institutions represent a set of laws, norms and conventions that alter decisions of labour force by imposing constraints or incentives (Boeri & van Ours, 2013). The rationale for labour market regulations of one or another form rests on the existence of market failures (Sloane, Latreille & O'Leary, 2013). On the one hand, they are introduced with aim to protect workers or redistribute income to them; on the other hand, they can lead to efficiency gains due to their impact on labour market functioning and productivity (Betcherman, 2012).

Theoretically, we can identify various channels through which LMI positively affect a country's productivity. They improve the quality of human capital by providing incentives for workers or firms to invest in education and training (Fialová & Schneider, 2008; Acemoglu & Pischke, 1999); induce the willingness of employees to adjust their behaviour to the targets of firms and help implement productivity-enhancing work practices (Soskice, 1997; Belot et al., 2002); increase the efficiency of labour force allocation, encourage a mobility of labour force; facilitate the responsiveness of firms or industries to changes in demand or technology and boost technological changes by making labour force more expensive (Lasinio & Valanti, 2013). Moreover, generous unemployment benefits provide more time for unemployed to find jobs consistent with their skills and experience (Marimon and Zilibotti, 1999), encourage the creation of high-risk, high-productivity jobs making job contracts with a high risk of being fired more acceptable for unemployed (Acemoglu and Shimer, 1999) or may lead to better job matches (Belzil, 2001).

There are also theoretical explanations for the negative impact of LMI on the productivity. Labour market policies could make firms reluctant to hire new workers, impede labour market flexibility and labour force mobility (Saint-Paul, 1997); conserve low-productivity jobs (f.e. Messina and Vallanti, 2007); reduce labour effort as there is a lower threat of layoff in case of poor working performance or absenteeism (Ichino and Riphahn, 2001). Generous unemployment benefits may increase the duration and level of unemployment leading to human capital depreciation and inefficient use of resources (OECD, 2006) or reduce work effort by reducing the opportunity cost of unemployment

(Shapiro and Stiglitz, 1984). Furthermore, trade unions increase insiders' wages leading to a reallocation of labour force into lower productivity sectors (Fialová & Schneider, 2008).

We are interested in four types of labour market institutions: collective bargaining institutions, employment protection legislation, unemployment benefits and active labour market policies. The empirical results in the case of these particular LMI are also not unanimous. Unlike the rest of empirical works, we assume that not only the actual state of LMI need to be assessed. The effect of labour market regulations in previous years matters, too. To catch up this influence, we incorporate into the analysis variables for youth and long-term unemployment assuming that they are at least partially induced by previous labour market regulations.

2. Methods and Data

2.1. Data

The data consist of time series covering the period from 1995 to 2013 for the member states of the European Union. In total, the dataset includes 19 observations for 19 countries on 9 variables. The choice of member states was determined by the availability of data for the given period.

TAB. 1: Summary statistics and sources of data

Variable	Source	Mean	Median	Min	Max	Std.Dev.
TFP	Total Economy Database	0,2224	0,1943	-9,2676	6,5164	2,0503
LP	Total Economy Database	47,599	49,656	15,235	96,888	16,336
GDPgap	Own calculations	146,42	-754,40	-1,4e+005	99602	2700,0
TUD	OECD.Stat	34,154	27,906	4,2054	83,138	20,188
EPL	OECD.Stat	2,4237	2,3571	1,0952	4,5833	0,6668
UB	OECD.Stat	1,3322	1,1000	-0,0265	4,4000	0,9331
ALMP	OECD.Stat	0,7250	0,6400	1,1000	2,3500	0,4469
YU	Eurostat	19,084	18,300	4,3700	58,300	9,8597
LU	Eurostat	38,861	39,800	0,0000	73,100	13,758

Source: Own estimations using Gretl software package

Based on our research question, the dependent variables are total factor productivity growth and labour productivity growth (approximated by log differences of the level variable). The explanatory variables are GDP gap (derived by application of Hodrick- Prescott filter on data for total GDP in Gretl), trade union density (the share of wage and salary earners that are trade union members in the total number of wage and salary earners), strictness of employment protection for regular contracts (index with values

from 1 to 6), public expenditures on unemployment (% of GDP), public expenditures on active labour market policies (% of GDP), youth unemployment (% of total labour force ages 15-24), long-term unemployment (% of total unemployment). The summary statistics of all variables, including the sources are presented in Table 1 (in the same order).

To get un-biased results in the case of panel data, we need stationary time series. Thus, before running the regressions, unit root tests for all variables were conducted via Levin-Lin-Chu test (Levin, Lin & Chu, 2002). According to the results, UB, ALMP, YU and LU indicated the presence of unit roots. As solution for this problem of non-stationarity, rather than levels, first differences of variables were used in the regression models.

2.2. Panel Data Model with Fixed Effects

As baseline model for our analysis we use an empirical model introduced by Buchele and Christiansen (1999). They investigated the influence of three LMI indices (collective bargaining institutions, employment protection legislation and social security) on the TFP growth in 6 developed countries.

In our specification, we include additional variables to catch up the effects of labour market regulations from previous years and to control the influence of the business cycle on productivity growth. Thus, our baseline model is the following:

$$p_{i,t} = \beta_0 + GDPgap_{i,t}\beta + LMI_{i,t}'\gamma + LMO_{i,t}'\delta + \varepsilon_{i,t} \quad (1)$$

The productivity growth in country i and time t is explained by the difference between potential and real product ($GDPgap_{i,t}$), set of labour market institutions ($LMI_{i,t}$) and set of labour market indicators as outcomes of previous labour market regulations ($LMO_{i,t}$).

Assuming the presence of unobserved (individual) heterogeneity, the regression is executed via panel model with fixed effects. As variable for productivity growth, we apply both total factor productivity growth and labour productivity growth. Then the equation (1) can be rewritten to the following forms:

$$TFP_{i,t} = a_i + GDPgap_{i,t}\beta + LMI_{i,t}'\gamma + LMO_{i,t}'\delta + u_{i,t} \quad (2)$$

$$l\Delta LP_{i,t} = a_i + GDPgap_{i,t}\beta + LMI_{i,t}'\gamma + LMO_{i,t}'\delta + u_{i,t} \quad (3)$$

where a_i represents all country-specific, time-consistent factors and $u_{i,t}$ are independently and identically distributed error terms. In the equation (2), the dependent

variable is total factor productivity ($TFP_{i,t}$). In the equation (3), log difference of labour productivity ($l\Delta LP_{i,t}$) is explained by the set of explanatory variables. The matrix of labour market institutions includes trade union density ($TDU_{i,t}$), employment protection index ($EPL_{i,t}$), first difference of unemployment benefices ($\Delta UB_{i,t}$) and first difference of expenditures on active labour market policies ($\Delta ALMP_{i,t}$). The matrix of labour market outcomes consists of first difference of youth unemployment ($\Delta YU_{i,t}$) and first difference of long-term unemployment ($\Delta LU_{i,t}$).

The correctness of the model specification was tested by Hausmann test. In both regressions, a null hypothesis of common intercept was rejected at any reasonable significance level favouring the use of fixed effect (within) estimator rather than random effect estimator. To be aware the reliability of our interferences, we executed tests for heteroskedasticity via Wald test. Given very low p-values, we could reject the null hypothesis of homoskedastic error terms in both regression models. Moreover, tests for autocorrelation of residuals, based on Durbin-Watson statistics, did not indicate autocorrelated error terms in any regression models.

3. Results and Discussion

The estimated parameters for regression equations (2) and (3) are reported in Table 2. The results of regression model (2) suggest statistical significance of three LMI in explaining TFP growth, however, with opposite signs. While trade union density seems to have positive effect on TFP growth, unemployment benefits and active labour market policies have negative effect on TFP growth. The same is true for the effect of LMI on labour productivity growth. On the contrary, the strictness of employment protection legislation in the EU member states does not indicate statistically significant effect on their productivity growth.

Regarding the effects of youth unemployment and long-term unemployment, the results are very interesting. The significantly negative effect of the former one is in line with our assumptions about productivity loss when increasing number of young (productive) unemployed. A significant effect of the latter one could be explained by efficiency gains if jobs are occupied by more educated and more productive workers (we assume that only unproductive, unskilled persons are not able to find any job in long-run).

The absence of statistical significance in the case of GDP gap reflects an important fact. The unfavourable development of productivity growth in the EU is a result of inherent structural problems (including the institutional setting of European labour markets) rather than short run fluctuations of business cycle. This conclusion is in conformity with the presence of stagnating productivity growth even before the global crisis.

TAB. 2: Regression results for TFP growth as dependent variable

	(2)	(3)
const	-2,697 * (1,618)	-0,018 (0,017)
GDPgap	5,54e-06 (3,9e-06)	5,48e-08 (4,2e-08)
TUD	0,077 *** (0,022)	0,001 *** (0,000)
EPL	0,117 (0,735)	0,001 (0,008)
Δ UB	-1,724 *** (0,515)	-0,012 ** (0,006)
Δ ALMP	-2,171 ** (0,962)	-0,022 ** (0,010)
Δ YU	-0,228 *** (0,034)	-0,001 *** (0,000)
Δ LU	0,087 *** (0,018)	0,001 *** (0,000)
Observations	342	342
Within R2	0,304	0,194
F Statistic	8,291	6,846
P-value (F)	1,44e-22	3,01e-18

Source: Own estimations using Gretl software package

Conclusion

The long-term unfavourable trend of productivity growth in the European Union even more worsens in the recent years. Given the long-run character of this problem and increasing attention in the role of labour market imperfections in determining the country's productivity, we are occupied by the question whether the European labour markets could be really blamed for the productivity decline.

The aim of the paper was to determine the effects of 4 labour market institutions on both total factor and labour productivity growth in 19 EU member states. Our result suggests that unemployment benefits and active labour market policies have significantly negative effects on the productivity growth. Moreover, a significantly negative influence of increasing share of young unemployed on productivity growth was found out. As we assumed, the fluctuation of economic activities does not have any significant contribution to explaining the development of the productivity in the EU. On the contrary the institutional factors are those which really matter.

We can conclude that via improvement in the institutional set up of the European labour market, we can achieve productivity gains in the future.

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ENSURING OF EXCHANGE RATE – CASE STUDY

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JEL classification: F31, F37

Abstract:

The contribution which is called Ensuring of exchange rate – case study deals with the use of financial derivatives by export companies to ensure foreign exchange risk. The main objective of the article is one case study that monitors ways of financial derivative use in a company was created, gained results and findings are evaluated. The paper uses real data from the years 2011 to 2013 and works with the Company's financial statements.

Despite the fact that in November 2013 started the CNB foreign exchange interventions and the society knows the expected rate of the Czech currency, the topic is still current. It can be expected that the significance will rise in time when the CNB finished the foreign exchange intervention. The volatility of the Czech crown will again increase.

Introduction

One type of forward is an agreement on the exchange of pre-agreed amount of money in one currency for an agreed amount in another currency at a future date. So founders bet on the future spot rate between the two currencies. (Dittrichová, Svobodová, et. al. 2014)

The exchange rate is the ratio of the mutual exchange of two currencies. It is given mostly in direct quotations, which means that the fraction is the ratio of base currency (i.e. the one which the trader sells or buys) and the contractual currency. In value terms, the ratio is reversed. For example, a euro-crown couple expressed in direct quotations makes 25.630 CZK/EUR.(CNB 2013)

Euro in this case is the base currency and Czech crown is the contractual one. In the case of indirect quotation ratio would be reversed, i.e. 0.039 EUR/CZK.

1. Methods and goals

In the article were used primarily secondary sources. The secondary sources are represented by the materials from the analysed company, official authorities in the

Czech Republic, professional literature, information collected from professional press, legal regulations, websites, discussions or previous participations in professional seminars and conferences relating to the chosen subject. Primary sources are represented by the opinion and results from the interview with the management of the company.

Then it was necessary to select, classify and update accessible relevant information from the numerous published materials that would give the basic knowledge of the initial state. Qualitative research will be used for the examination.

The goal of the article is to evaluate the case study in the export company in the field of foreign trading and hedging.

Hypothesis: it is expected that the hedge will be in the case study beneficial to the company.

2. Basic description of the facts in the enterprise

The company exclusively uses financial derivatives such as forwards for hedging of future cash flows. An important finding is the fact that these foreign exchange forward contracts aren't concluded strictly for specific contracts with purchasers of products, but are gradually fluently concluded with the partner bank. This way the company ensures a steady cash flow of foreign currency needed for production. When the contract is concluded, the company has at any moment financial reserves and is ready to produce immediately. Income from paid deliveries is also used to offset amounts of money back to the bank. Such procedure is typical for a manufacturing company, as stated in one of the interviews. (Financial reports of the analysed company)

Conclusion of forward agreements is in the company quite often performed on intuitive base; and according to the company's management a system or guidance for decision-making should be applied in the future.

Company trades with international partners mainly in euros. They have accounts in euros, U.S. dollars and Czech crowns in the financing bank; recalculation rate is used for accounting purposes.

Individual case study will be elaborated with its business partners.

3. Case study

A contract with the British company to manufacture goods on value 2,646,950 crowns was negotiated in June of 2011. Production order was filed after confirmation 24th June which is mandatory for commencement of production. Submitted tender is clearly shown in the following table.

TAB. 1: General overview of calculation of the offer

Recapitulation (for EPASS)	(CZK)	
Material consumption limit (CZK)	1 130 000,0	
Other direct costs (CZK)	505 000,0	
Direct personnel costs (CZK)	435 600,0	
Total direct costs (CZK)	2 070 600,0	(CZK/USD)
The offer price (CZK)	2 646 950,0	
Total contribution margin (CZK)	576 350,0	21,8%
Contribution Margin per man-hour (CZK)	309,9	
Contribution Margin (CZK)	1 011 950,0	40,4%
Total amount of man-hours – manufacturing	1 860,0	KP
Total amount of man-hours – constructional	0,0	PN total
Total weight (kg)	26 500,0	
The total number of units (pieces)	1	

Source: information from the analysed company 2011 - 2012

The current spot rate of 17.2 crowns per U.S. dollar was used when creating the quotation. Hedging was not made in this case, but following forwards were agreed to the same date as can be seen in the table below.

TAB. 2: General overview of calculation of the offer

Number of trade GID	Trade date	Due-date	The first currency	The volume of trade	The other currency	Exchange rate
49750018	5.1.2011	19.7.2011	EUR	200000	CZK	24,70
50256647	24.5.2011	29.7.2011	EUR	376000	CZK	24,44
50380119	24.6.2011	29.7.2011	USD	47000	CZK	17,03
49750020	5.1.2011	17.8.2011	EUR	650000	CZK	24,70
50256661	24.5.2011	31.8.2011	EUR	176000	CZK	24,44
49750022	5.1.2011	19.9.2011	EUR	200000	CZK	24,70
49750032	5.1.2011	19.10.2011	EUR	200000	CZK	24,70
49750036	5.1.2011	18.11.2011	EUR	200000	CZK	24,70
50227993	17.5.2011	30.11.2011	EUR	170000	CZK	24,24
49750040	5.1.2011	19.12.2011	EUR	650000	CZK	24,70
50237799	19.5.2011	2.1.2012	EUR	170000	CZK	24,30
50237828	19.5.2011	31.1.2012	EUR	170000	CZK	24,30
50380051	24.6.2011	31.1.3012	USD	150000	CZK	17,03
50105452	30.6.2011	18.7.2011	EUR	176000	CZK	24,29

Source: information from the analysed company 2011 - 2012

The table shows the part hitherto unsettled forward contracts entered into with the Bank no later than 30 June 2011. The first case which we are going to monitor is to ensure the

sum of \$ 47,000 due on the 29th July 2011 and then a further amount of \$ 150,000 payable on the 31st January 2012. Forward rate was at 17.03 crowns per U.S. dollar.

Profile case got complicated by bankruptcy of the customer. The liability was taken over by another company. Payment was divided into several parts.

The first invoice was issued 1 July 2011; it was due on the 8th August 2011. Payment was held on 24 August 2011, after agreement. 30% of total costs were paid. The course was at that time 16.968 Czech crowns per U.S. dollar. Due to the agreed forward course, the hedging paid off at that time so the company profited:

$$57060 * (17.03 \text{ to } 16.968) = 3538 \text{ crowns.}$$

The second invoice for the additional \$ 57,060 was issued on the 28th November 2011; it was due on the 23rd January 2012. The customer made the payment on the 8th March 2012, when the current rate was 18.706 crowns to the dollar after a sharp increase, which then continued. Losses arising from hedging against were:

$$57060 * (17.03 \text{ to } 18.706) = - 95633 \text{ crowns.}$$

The customer paid off the remaining amount of \$ 76,080 in his last invoice. The invoice was issued on the 16th April 2012, the maturity determined for 21 May 2012. The course at that time was even 19.784 crowns per U.S. dollar. If the company did not provide hedging, the income would be more than 2 crowns per dollar higher than in this case, when the company provided hedging. The potential loss resulting from this was:

$$76080 * (17.03 \text{ to } 19.784) = - 209,524 \text{ crowns.}$$

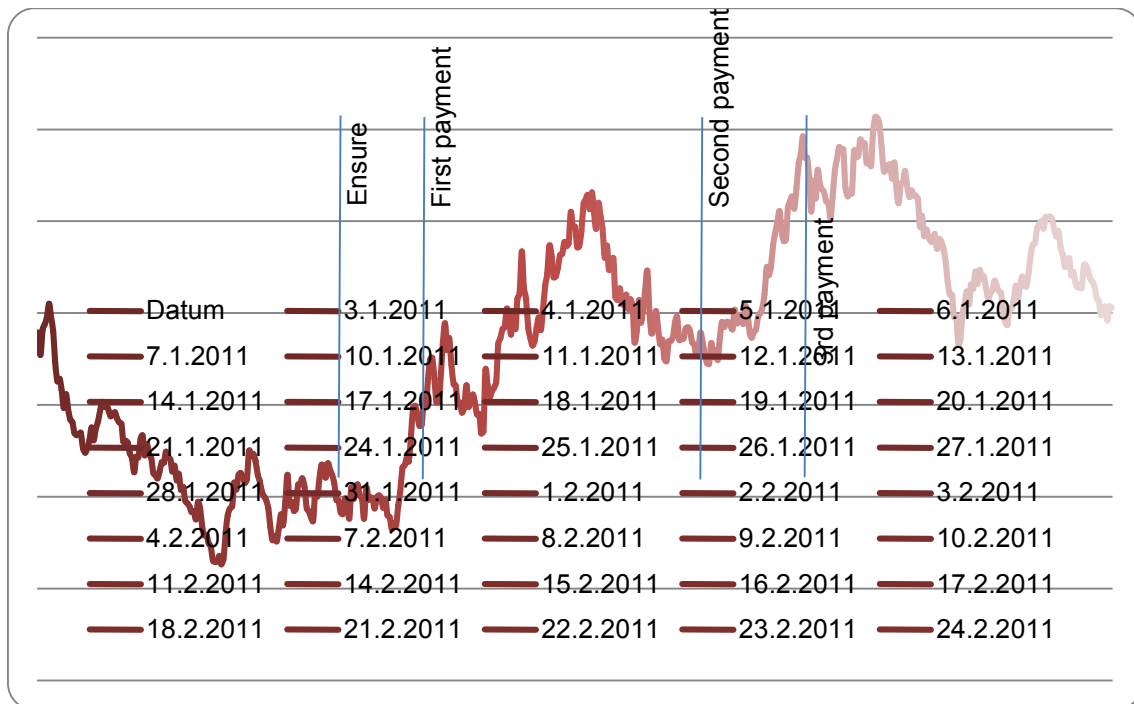
Recap of the case is shown in the following table.

TAB. 3: Detailed calculation using forward in the case study

Date	Income (USD)	Forward (hedged)	Spot rate	Balance (CZK)
24.8.2011	57060	17,03	16,968	+ 3 538
8.3.2012	57060	17,03	18,706	- 95 633
21.5.2012	76080	17,03	19,784	- 209 524
Total -301 619				

Source: own processing

The exchange rate CZK / USD by Czech National Bank with the terms of individual operations is shown in the following chart.

FIG. 1: Spot rate CZK / USD by CNB with marked dates in the case study

Source: Exchange rates. Czech national bank [online], own processing

If there is no hedging the company would in this case benefit 301,619 crowns more if it always sold at the spot rate.

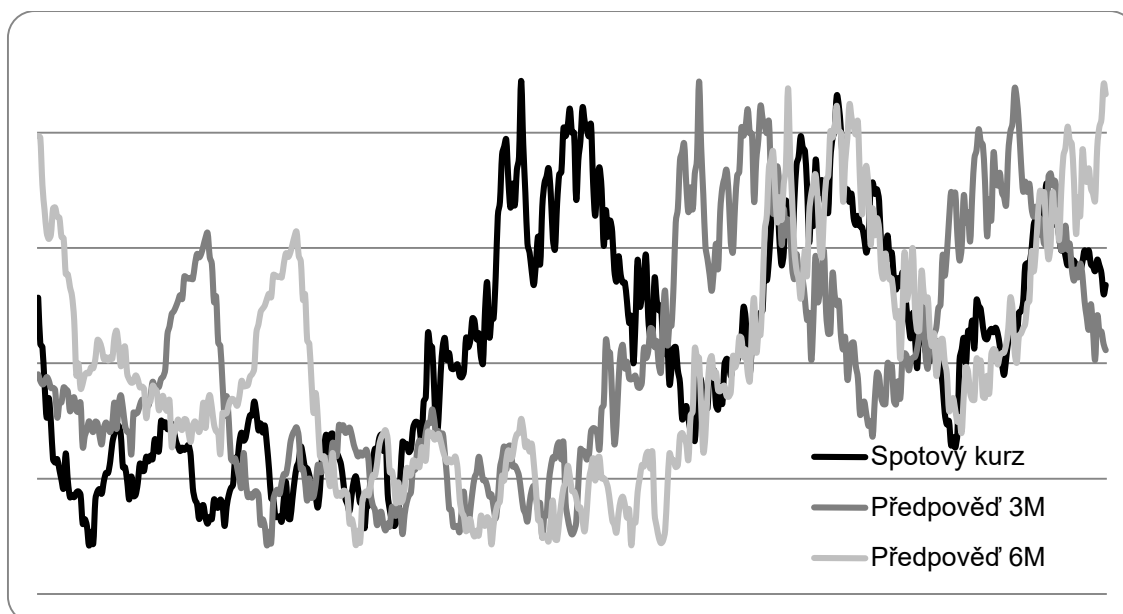
3.1. Orientation according to forward rates strategy

Another strategy using CNB data is monitoring of forward points development which is used for determining the forward course for the given period.

There is a figure on CNB pages representing forward points for the three and six month horizon.

The value determines for how many units of one currency can be traded the second currency for the future period of three or six months. Indirectly it says, whether the CNB expects growth rate or decline. If the forward points values are positive the value 3M < 6M applies, then the gradual growth rate for six months is expected.

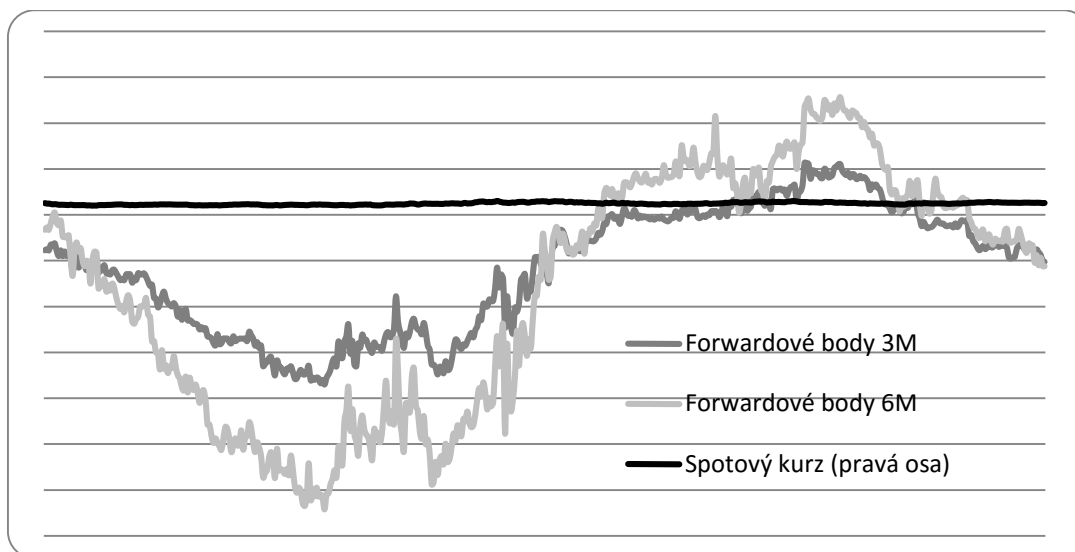
To verify the analysis, we will compare the actual spot rate with the values predicted by the CNB, three, or six months ago.

FIG. 2: Comparing of spot rate and forward predictions

Source: Foreign exchange market. Czech national bank [online], own processing

It is obvious that the prediction of forward rate does not correspond to reality. Both forward rates do not correspond to reality, which for months occurred. It is possible to state, that relying on monitoring of forward monitoring points have not been motive to hedge the foreign exchange risk application. Forward rate correspond to the spot, but they are always delayed by the time value, which corresponds to the period for which they are predicted. The value of the six-month forward exchange rate is similar to spot rate in 2012 because it occurred on the same exchange rate movements within just six months. The correlation between the spot rate and the expected three-month rate is 0.17, the correlation between the spot and six-month course then 0.23. Look now even that depends on the value of forward points on the current spot rate.

Data in the following chart shown whether the value of forward points depends on the current spot. Apparently neither development of forward points do not correspond to movements in the spot rate. Finally, this analysis seems therefore not recommended monitoring the movements of forward points for predicting the future development of exchange rates.

FIG. 3: The development of the spot rate and forward points

Source: Foreign exchange market. Czech national bank [online], own processing

3.2. Use of other derivatives

The company provides future cash flows using exclusively forward type derivatives with its partner bank.

There is an awareness on use of other derivatives, options as tools for hedge the exchange rate risk however there hasn't been any practical use adopted, yet.

The next possibility should be the utilization the options instead of hedge. Offer price remains on 2,646,950 crowns. To securitization will be used option contract. The company would agree with his business partner on the fact that the company obtains the right to contract sales for the current price. The offer was 17.2 crowns per US dollar. Conversely, the buyer has paid an option premium, which is in the case of the analysed contract and conditions of around 1% of the base price. [4] It would mean, therefore, to pay the sum of 26,470 crowns. This amount is also the maximum possible loss of our company and maximal profit of business partner.

The first invoice was issued for the amount of 57,060 USD. The current rate was 16.968 CZE / USD. The company should in this case apply for a higher sales rate, although it could sell at the current spot rate. The company will gain 971,732 crowns instead of 968,194 crowns.

The second invoice was listed on the same amount as the first one. That is 57,060 USD. The current rate at the time of the payment was already 18.706. The company had the right to pre-empt rate 17.03, but it would in this case certainly did not apply the right

and left flop. Instead of the original 971,732 crowns would be sold for 1,067,364 crowns.

In the last invoice the company charged the remaining amount of the contract, ie. 76,080 USD. Rate at the time of the payment was 19.784 CZE / USD. Right sell for 17.03 crowns to the dollar is therefore uninteresting compared to sales for the current spot rate. The firm would profited 1,505,167 crowns instead of 1,295,642 crowns.

Calculation is summarized in the table that follows.

TAB. 4: Calculation for the use of options

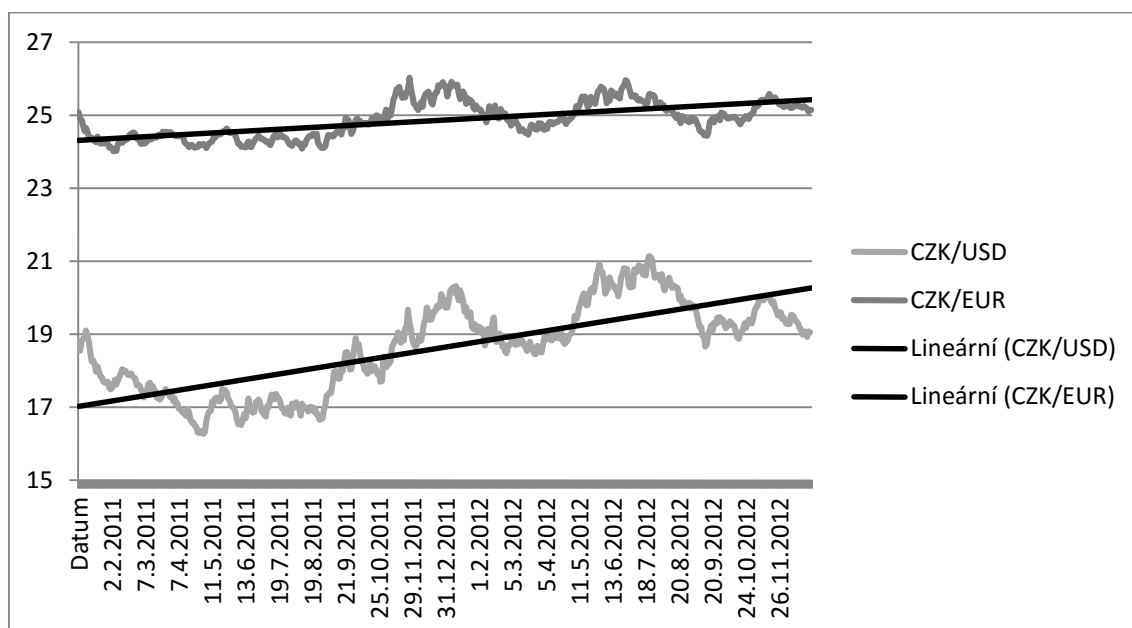
Amount (USD)	Prepaid rate	Spot rate	Potential profit (CZK)
57 060	17,03	16,968	971 732
57 060	17,03	18,706	1 067 364
76 080	17,03	19,784	1 505 167
Option premium – 26 470			
Total 3 517 793			

Source: own processing

3.3. Strategy no ensuring

The examined case study shows that the provision of foreign exchange risk in the export company may be not always convenient. There is, therefore, a strategy for saving funds, and do not ensure at all. Such a conclusion, however, leads us feedback especially knowledge of the conditions that occurred at that time. For example, it can be clearly said that the trend of development of both monitored currencies has been growing, as we can see on the following chart.

The chart shows that the evolution of currencies was quite similar reversals came at the same time. Euro in this period proved to be a stable currency and volatility was not as strong as the US dollar. It can be concluded that in such a case to ensure exchange rate risk is not worthwhile, because the future spot sales price will probably be higher than the current spot price at the time. Such reasoning can not be considered valuable because you can never predict the evolution of exchange rates, and it is providing help in cases where the development would be contrary, but mainly provides a smooth flow of money and possible planning for the longer term future, even though it means a loss for the company.

FIG. 4: The development of the currencies USD and EUR rates in the years of 2011 and 2012

Source: Foreign exchange market. Czech national bank [online]

Conclusion

The case study present rather negative results for the application of the current model for hedge of the exchange rate risk of an export company. In the case, the company profited less than if derivatives such as forward hadn't been used at all or if it had applied other hedge tools.

Development of indicators in that period greatly contributed to it, because for two years the trend of the development of exchange rate of the crown against the euro and the dollar was rising.

The study describe contract of about 2,650,000 crowns. If there had been no hedge the company would have profited by 301,690 crowns more than actually occurred. This view is distorted, however, because we evaluate the situation now when we know how the market developed.

The assumption that the central bank is able to predict the future course development and forward rates it determines in accordance with this development was not confirmed.

Return on derivatives depends mostly on macroeconomic development of the entire market. Monitoring Czech national bank financial reports which analyse development

and bring predictions on the economic environment might be recommended as a useful strategy.

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Interview with the management of the analysed company done 11th of April 2013

Financial reports of the analysed company

SKILLS MISMATCH DETERMINANTS AMONG THE UEP'S GRADUATES

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Abstract:

This paper investigates determinants of skills mismatch among the university graduates from the University of Economics, Prague. We use the dataset from the international cross-section Flexible Professional in the Knowledge Society, named REFLEX, survey that collects information about labour market status of the higher education graduates five years after graduation. The method of binary logit model with skills mismatch as outcome variable was used. As determinants of mismatch demographic, educational mismatches, and early career experience were incorporated in the models. We tested several hypotheses such as more probable skills mismatch for graduates with Slovak nationality, and advantage of male graduates and graduates with highly educated parents for a better match between skills and occupation.

Introduction

Skills mismatch is generally considered to be an important aspect of the labour market due to its impact on unemployment, economic competitiveness and growth, undermining social inclusion and quite limited ability of monetary policy to mitigate its impact. It also generates significant economic and social cost. From the micro-level point of view the shortage of skilled workers leads to lower job satisfaction and wage differentials (Robst, 2007) than properly matched, but these conclusions cannot be interpreted as straightforward: educational requirements for a certain job can rise over time, individuals can be overqualified due to low ability for that level of qualification or they freely chose to work at less stressful work, etc. (McGuinness & Sloan, 2011).

We tested the following hypotheses: skill mismatch is more likely for Slovak graduates of UEP, and advantage of male graduates and graduates with highly educated parents for a better match between skills and occupation.

The paper is structured as follows: the first chapter is dedicated to the used methods and literature overview, in the second chapter we briefly describe analysed dataset and we discuss the empirical results of estimated models. In the last chapter we conclude our findings.

1. Methods, literature overview

We briefly introduce theoretical framework and methodology of binary choice logit model used for determining the factors of skills mismatch among the graduates within the following chapter.

The concept of skills mismatch in the labour market as the fact that levels or kinds of skills of individuals are inadequate in view of particular job requirements has no accepted unified theory. Some authors tried to conceptualise and explain the problem within the framework of semi-formal economic models (Sala, 2011). In the study, we partially followed the approach introduced in (Robert, 2014) where factors of mismatching in four countries (Hungary, Poland, Lithuania, and Slovenia) were investigated such as age, higher parental education, study-related work experience, etc.

We consider a class of binary response models of the form (Wooldridge, 2012):

$$P(y = 1|\mathbf{x}) = G(\beta_0 + \beta_1 x_1 + \dots + \beta_k x_k) = G(\beta_0 + \mathbf{x}\boldsymbol{\beta}), \quad (1)$$

where G is a function taking on values strictly between 0 and 1: $0 < G(z) < 1$, for all real numbers z . For the estimation of response probabilities we use logit model, hence G is the logistic function:

$$G(z) = \frac{e^z}{1+e^z}, \quad (2)$$

which has values between 0 and 1 for all real numbers z and this is the cumulative distribution function for a standard logistic random variable. The expression $P/(1 - P)$ presents odds ratio in favour of the occurrence of an event. If we take the natural log of this expression, the result is

$$L = \ln \frac{P}{1-P} = \beta_0 + \mathbf{x}\boldsymbol{\beta}, \quad (3)$$

and L (logit, hence the name logit model) is the natural log of the odds ratio linear in \mathbf{x} and in parameters. We use the maximum likelihood method for the estimation of the logit model. This method is consistent, normally distributed and efficient in large samples.

Marginal (partial) effects for continuous explanatory variable on $p(x) = P(y = 1|\mathbf{x})$ is obtained from the partial derivative:

$$\frac{\partial p(x)}{\partial x_j} = g(\beta_0 + \mathbf{x}\boldsymbol{\beta})\beta_j, \quad (4)$$

where $g(z) = \frac{dG}{dz}(z)$ is probability density function associated with G . Due to non-negativity of the density function, the partial effect of the x_j will always have the same sign as β_j .

Marginal (partial) effects for discrete explanatory variable on the probability x_k going from c_k to $c_k + 1$ is

$$G[\beta_0 + \beta_1 x_1 + \beta_2 x_2 \dots + \beta_k (c_k + 1)] - G(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k c_k) \quad (5)$$

Standard errors of marginal effects (4) and (5) can be calculated using e.g. delta method (Wooldridge, 2012).

To analyse the correctness of the model several tests will be run. For testing multiple restrictions the likelihood ratio (LR) as a twice the difference in the log-likelihoods is used:

$$LR = 2(L_{ur} - L_r), \quad (6)$$

where L_{ur} is the log-likelihood for the unrestricted model and L_r is the log-likelihood for the restricted model. As a goodness of fit we calculate the following *McFadden's* R^2 :

$$McFadden's R^2 = 2 \left(\frac{L_{ur}}{L_r} \right). \quad (7)$$

Hosmer-Lemeshow and *Andrews* χ^2 tests as another comparison of the fitted expected values to the actual values were used (Wooldridge, 2012).

2. Results

The data were gained from the REFLEX survey (Research into Employment and professional FLEXibility) that was held by the Education Policy Center, Charles University Prague, in 2013. This project is a large scale international project that has been carried out in 15 European countries and Japan. Altogether 21 public, and 15 private colleges and universities were participated on this survey in the Czech Republic. Sub-sample of graduates from the University of Economics, Prague consists of 1,704 respondents that graduated during years 2008–2012 and that are currently employed. Data was weighted by the proportion of faculties, type of study, gender, economical status and year of graduating. Due to lack of answers in some explanatory variables we use final dataset of 1,298 graduates (785 women and 513 men).

We considered binary logit model with *Skills mismatch* as dependent variable derived from the response to a question asking respondents to rate on a 1 (not at all) to 5 (very high extent) to which their skills and knowledge were utilized in their job with

a response 1 or 2 deemed consistent with over skilling. We included following demographic characteristics in models: *Female* is coded as 1 for women, *Age* is measured in years. Parental highest earned education is distinguishing between *Mother's* and *Father's education*, coded as follows: 1 – elementary/basic school, 2 – secondary education with apprenticeship certificate, 3 – secondary education with school-leaving exam, 4 – bachelor's, master's and doctoral type of study. Continuous variables related to *Work experience*, measured in months, differentiate between two options of the graduate's job *experience in study-related* and *non-study-related* activities. *Left first employment* is dummy variable that distinguish those respondents who still work in their first employment after five years of graduation from those who already left their jobs. We also included *Number of jobs* the graduate had during the labour market career until the data collection. Dummy variable *Type of contract* in the current occupation takes the value of 1 if the job is permanent in contrast to fixed-term employment or self-employment and this variable test possible trade-off between job safety and mismatch. Dummy variable *Horizontal job mismatch* where a graduate is considered as mismatched when his/her job is not related to the field of study of the programme was constructed, dummy variable *Vertical job mismatch* mismatches level of education and current graduate's job, variable *Nationality* differentiates between Slovak nationality of the graduates and others.

We present means and standard deviations (SD) of all included variables in TAB. 1. We can observe that 51.4% of the graduates view themselves as skill mismatched, 22% are horizontally mismatched at their first job and only 9.6% are mismatched vertically (women are more educationally mismatched). Average age of the graduates is almost 28 years. We can conclude that work experience in study related field is in average 4 months longer than in non-study-related field, women's work experience is significantly shorter. Most of the graduates (78%) have permanent type of contracts.

TAB. 1: Means and standard deviations of variables

Variables	Full		Female		Male	
	Mean	SD	Mean	SD	Mean	SD
<i>Skills mismatch</i>	0.514	0.500	0.498	0.500	0.538	0.499
<i>Female</i>	0.605	0.489	1.000	0.000	0.000	0.000
<i>Age</i>	27.977	3.402	27.777	3.274	28.283	3.569
<i>Father's education</i>	3.348	0.890	3.298	0.916	3.425	0.842
<i>Mother's education</i>	3.362	0.786	3.301	0.780	3.456	0.787
<i>Work exper. (study rel., in months)</i>	27.553	279.124	19.925	40.892	39.226	441.107
<i>Work exper. (not study rel., in months)</i>	23.196	277.726	17.061	19.199	32.583	441.225
<i>Left first employment (= 1)</i>	0.621	0.485	0.622	0.485	0.620	0.486
<i>Number of jobs</i>	1.561	0.858	1.543	0.835	1.589	0.893
<i>Type of contract (permanent = 1)</i>	0.777	0.417	0.744	0.437	0.827	0.379
<i>Horizontal job mismatch</i>	0.220	0.415	0.245	0.430	0.183	0.387
<i>Vertical job mismatch</i>	0.096	0.295	0.116	0.320	0.066	0.249
<i>Nationality (SVK = 1)</i>	0.059	0.235	0.051	0.220	0.070	0.256

Source: Own calculations in EViews 9

3. Discussion

The estimated coefficients, standard errors (SE), odds ratios, marginal effects (ME) and its standard errors (SE) for all respondents – full model, model for female and male are presented below in TAB. 2, 3, and 4. We used econometric software EViews 9 for all the estimations and further calculations. As odds ratios, marginal effects and standard errors are not included in EViews 9, we programmed own procedures. While the value of the estimated coefficient does not give a clear interpretation of the relationship when using a binary logit model, the sign of the coefficient does have the same interpretation as with an ordinary least square model (Wooldridge, 2012).

From the results of full model in the TAB. 2 we observe that dummy variable related to working experience study related is statistically significant with positive effect on the probability of being skills mismatched. Strong negative effects have variables of educational mismatches and respondents that already left their first occupation. Being a Slovak by nationality is 2.227 times more likely than other nationalities to be skills mismatched controlling all other variables on average when interpreting odds ratio.

All the explanatory variables in every model are jointly highly significant despite the relatively low value of *McFadden's pseudo R²*. The results of *Hosmer-Lemeshow (H-L statistics)* and *Andrews χ^2* statistics indicate a small difference between the fitted expected values and actual values. Therefore we cannot reject that the models are providing an insufficient fit to the data.

TAB. 2: Skills mismatch determinants – full model

Predictors	Coeff.	SE	Odds	ME	SE
<i>Intercept</i>	-0.0443	(0.688)	0.957	-0.0110	(0.172)
<i>Female</i>	-0.0024	(0.123)	0.998	-0.0006	(0.031)
<i>Age</i>	0.0231	(0.019)	1.023	0.0058	(0.005)
<i>Father's education</i>	0.0023	(0.082)	1.002	0.0006	(0.020)
<i>Mother's education</i>	0.0074	(0.094)	1.007	0.0018	(0.023)
<i>Work exper. (study rel., in months)</i>	0.0074	(0.003)**	1.007	0.0018	(0.001)**
<i>Work exper. (not study rel., in months)</i>	-0.0003	(0.001)	1.000	-0.0001	(0.000)
<i>Left first employment (= 1)</i>	-0.4444	(0.225)**	0.641	-0.1109	(0.056)**
<i>Number of jobs</i>	-0.0927	(0.129)	0.912	-0.0231	(0.032)
<i>Type of contract (permanent = 1)</i>	0.0269	(0.150)	1.027	0.0067	(0.037)
<i>Horizontal job mismatch</i>	-1.2280	(0.161)***	0.293	-0.3064	(0.040)***
<i>Vertical job mismatch</i>	-1.4037	(0.271)***	0.246	-0.3502	(0.067)***
<i>Nationality (SVK = 1)</i>	0.8008	(0.274)***	2.227	0.1998	(0.068)***
<i>McFadden's R²</i>	0.0999				
<i>LR statistics</i>	179.7220 ***				
<i>Number of obs.</i>	1,298				
<i>H-L statistics (prob. χ^2)</i>	3.9351 (0.8629)				
<i>Andrews statistics (prob. χ^2)</i>	4.0388 (0.9465)				

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Own calculations in EViews 9

Skills mismatch is more probable for Slovak women than other women (see in the TAB. 3), we can also see strong negative effect of respondents that already left first

employment. Marginal effect for continuous variable *Age* measures the instantaneous rate of change – increase age by one year will produce 0.0079 increase in the probability of skills mismatch as this variable is measured in small units (4). Marginal effect for dummy explanatory variable *Horizontal job mismatch* (equals to –0.3110) measures difference in probability of being skills mismatched between graduates from UEP'S that consider their job is not related to the field of study of the programme, holding all other variables at their means (5).

TAB. 3: Skills mismatch determinants – female model

Predictors	Coeff.	SE	Odds	ME	SE
<i>Intercept</i>	0.1754	(0.910)	1.192	0.0438	(0.227)
<i>Age</i>	0.0315	(0.026)	1.032	0.0079	(0.006)
<i>Father's education</i>	-0.0770	(0.104)	0.926	-0.0192	(0.026)
<i>Mother's education</i>	0.0226	(0.121)	1.023	0.0056	(0.030)
<i>Work exper. (study rel., in months)</i>	0.0047	(0.004)	1.005	0.0012	(0.001)
<i>Work exper. (not study rel., in months)</i>	-0.0007	(0.004)	0.999	-0.0002	(0.001)
<i>Left first employment (= 1)</i>	-0.5180	(0.286)*	0.596	-0.1292	(0.071)*
<i>Number of jobs</i>	-0.0896	(0.165)	0.914	-0.0224	(0.041)
<i>Type of contract (permanent = 1)</i>	-0.1445	(0.185)	0.865	-0.0360	(0.046)
<i>Horizontal job mismatch</i>	-1.2467	(0.199)***	0.287	-0.3110	(0.050)***
<i>Vertical job mismatch</i>	-1.4926	(0.319)***	0.225	-0.3724	(0.079)***
<i>Nationality (SVK = 1)</i>	0.6864	(0.372)*	1.987	0.1712	(0.093)*
<i>McFadden's R²</i>	0.1062				
<i>LR statistics</i>	115.5706 ***				
<i>Number of obs.</i>	785				
<i>H-L statistics (prob. χ^2)</i>	3.5392 (0.8961)				
<i>Andrews statistics (prob. χ^2)</i>	7.0751 (0.7183)				

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Own calculations in EViews 9

Explanatory variables related to working experience (increasing the probability of being mismatched), educational mismatches (decreasing the probability) and Slovak nationality (increasing the probability) of the respondents are statistically significant variables in the model estimated only for men, see TAB. 4. Slovak men are more likely to be skills mismatched than women when comparing odds ratios 2.518 and 1.987.

TAB. 4: Skills mismatch determinants – male model

Predictors	Coeff.	SE	Odds	ME	SE
<i>Intercept</i>	-0.3761	(1.056)	0.687	-0.0927	(0.261)
<i>Age</i>	0.0081	(0.030)	1.008	0.0020	(0.007)
<i>Father's education</i>	0.1419	(0.140)	1.153	0.0350	(0.035)
<i>Mother's education</i>	-0.0284	(0.156)	0.972	-0.0070	(0.038)
<i>Work exper. (study rel., in months)</i>	0.0111	(0.005)**	1.011	0.0027	(0.001)**
<i>Work exper. (not study rel., in months)</i>	-0.0003	(0.001)	1.000	-0.0001	(0.000)
<i>Left first employment (= 1)</i>	-0.3545	(0.374)	0.701	-0.0874	(0.092)
<i>Number of jobs</i>	-0.0868	(0.212)	0.917	-0.0214	(0.052)
<i>Type of contract (permanent = 1)</i>	0.3386	(0.261)	1.403	0.0835	(0.064)
<i>Horizontal job mismatch</i>	-1.2338	(0.282)***	0.291	-0.3041	(0.070)***
<i>Vertical job mismatch</i>	-1.3143	(0.528)**	0.269	-0.3240	(0.131)**
<i>Nationality (SVK = 1)</i>	0.9233	(0.412)**	2.518	0.2276	(0.102)**
<i>McFadden's R²</i>	0.0966				
<i>LR statistics</i>	63.3853 ***				
<i>Number of obs.</i>	513				
<i>H-L statistics (prob. χ^2)</i>	9.1725 (0.3280)				
<i>Andrews statistics (prob. χ^2)</i>	8.7549 (0.5555)				

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Own calculations in EViews 9

Conclusion

The study determines the factors of being skills mismatched using the data of graduates from the University of Economics, Prague, within five years after graduation. The main factors of mismatching are: horizontal and vertical mismatching of the respondent, and selected early effects, such as study related working experience study, left first employment and nationality. We work on widening this study in terms of comparison of job and skills mismatching with other universities in the Czech Republic. A comparison with other countries participating in the REFLEX survey is also considered. One can also compare results with previous years in order to evaluate possible developments in time. We also plan analysing the impact of mismatches on wages.

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EFFICIENCY OF NATIONAL HEALTH SYSTEMS: DATA ENVELOPMENT ANALYSIS WITH UNOBSERVABLE MEASURES

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Keywords:

health systems – data envelopment analysis – unobservable measure – efficiency

JEL classification: C44, C61, I10

Abstract:

The objective of the paper is efficiency evaluation of national health systems of European countries. The data on national health systems comes from the European Health for All Database. The sample includes the 2011 data on 34 countries of the European WHO Region for which all input and output measures are available. Data envelopment analysis was used as a nonparametric method of efficiency evaluation. A specific DEA model, DEA with unobservable measures, was formulated.

Introduction

The objective of this paper is efficiency evaluation of national health systems of European countries. Health care is an application field with specific characteristics. For example, the final output (health) is hard to measure and hard to express in monetary values; the causality between input and output is not always certain; apart from the efficiency of the health system, the equity and moral principles have to be borne in mind. The most comprehensive attempt to evaluate performance of health systems was the World Health Report 2000 (World Health Organization, 2000). Drawing from a range of experiences and analytical tools, the Report traces the evolution of health systems, explores their diverse characteristics, and uncovers a unifying framework of shared goals and functions. Using this as a basis for analysis, the Report breaks new ground in presenting for the first time an index of national health system's attainment and an index of performance relative to potential. These measures are based on five goals: the level and distribution of health, the level and distribution of responsiveness of the system to the legitimate expectations of the population, and fairness of contribution to financing the health system.

The Report suggests that to assess relative performance requires a scale, one end of which establishes an upper limit or frontier, corresponding to the most that could be expected of a health system. This frontier represents the level of attainment which a health system might achieve, but which no country surpasses. The similar terms -

relative performance and efficiency frontier - are used by data envelopment analysis (DEA). DEA is a method of the production function estimation based on linear programming that uses quantities of inputs and outputs to calculate the relative efficiencies of units. The relative technical efficiency is defined as the ratio of the total weighted input to total weighted output or vice versa. DEA permits each unit to select its own weights. It is assumed that each unit (each country in this analysis) will select the weights that maximize its own efficiency ratio.

Both the World Health Report 2000 and DEA methodologies are able to deal with multiple inputs and outputs, offer calculation of performance scores, and estimation of frontier. These approaches differ in the possibility of country's individual weights allowed in DEA. The Report, when analysing the stewardship, emphasize the role of democratic government to select national preferences (weights) to the objectives. Therefore, the information on individual weights might be interesting.

Hollingsworth (2003) reviewed 188 papers on frontier efficiency measurement in health care. The review mainly included DEA-based methods that dominated the literature, but there was also increasing number of parametric techniques, such as stochastic frontier analysis. DEA also became popular as a method of efficiency evaluation in health care in the Czech Republic (e.g., Dlouhý, Jablonský & Novosádová, 2007; Novosádová & Dlouhý, 2007; Votápková & Šťastná, 2013).

1. Data and Methods

The data on health systems comes from the European Health for All Database. The sample includes the 2011 data on 34 countries of the European WHO Region for which all input and output measures are available. The inputs are the number of hospital beds per 100 000, number of physicians per 100 000, and number of nurses per 100 000. The outputs are the number of inpatient care discharges per 100 and number of outpatient contacts per person.

We will evaluate efficiency of health systems by DEA. The relative efficiency of the unit is defined as the ratio of its total weighted output to its total weighted input or, vice versa, as the ratio of its total weighted input to its total weighted output. DEA was developed by Charnes, Cooper, and Rhodes in 1978. Since then a great variety of DEA models with various extensions and modifications has been developed and used to great number of applications in the public and private sector (Charnes, Cooper, Lewin & Seiford, 1994; Cooper, Seiford & Zhu, 2004; Jablonský & Dlouhý, 2004).

For each unit, DEA calculates the efficiency score; determines the relative weights of inputs and outputs; and identifies peers for each unit that is not technically efficient. The peers of an inefficient unit are efficient units with similar combinations of inputs and outputs. The peers serve as benchmarks, which show potential improvements that the

inefficient unit can attain. Because the peers are real units, the efficiency improvements are attainable.

We know that hospital beds, physicians, and nurses do not represent all inputs of the health system. Health system inputs should include, for example, medical technology, drugs, administrative staff, public health professionals, etc. Similarly, the inpatient care discharges and outpatient contact do not represent all health system outputs (e.g., medical transport, health promotion, public health services). We suppose that for both health system inputs and outputs there exist unobservable measures that can have various forms, for example, a set of many moderately important indicators, missing data, non-measurable factors and others. We suggest to sum up all these factors to one unobservable input measure, to one unobservable output measure, or to both input and output unobservable measures. By an introduction of unobservable measure, we increase the number of model inputs and/or outputs. The values of newly introduced output and input measures equal to 1 for all units. Next, we define parameters $\alpha \in [0, 1]$ and $\beta \in [0, 1]$ that represent the maximum values of relative weights of unobservable output and input measures.

The output-oriented CCR model with unobserved measures (CCR/UM) is formulated:

$$\text{Minimize } \sum_{i=1}^{m+1} v_i x_{iq}$$

subject to

$$\sum_{r=1}^{s+1} u_r y_{rq} = 1;$$

$$\sum_{r=1}^{s+1} u_r y_{rq} - \sum_{i=1}^{m+1} v_i x_{ij} \leq 0 \quad j = 1, 2, \dots, n;$$

$$u_{s+1} y_{s+1,j} \leq \alpha \sum_{r=1}^{s+1} u_r y_{rj} \quad j = 1, 2, \dots, n;$$

$$v_{m+1} x_{m+1,j} \leq \beta \sum_{i=1}^{m+1} v_i x_{ij} \quad j = 1, 2, \dots, n;$$

$$u_r \geq \varepsilon \quad r = 1, 2, \dots, s+1; \quad v_i \geq \varepsilon \quad i = 1, 2, \dots, m+1;$$

$$0 \leq \alpha \leq 1; \quad 0 \leq \beta \leq 1;$$

$$y_{s+1,j} = 1 \quad j = 1, 2, \dots, n; \quad x_{m+1,j} = 1 \quad j = 1, 2, \dots, n; \quad (1)$$

where X is the matrix of inputs, Y is the matrix of outputs, u and v are the vectors of weights, α is a maximum percentage share of unobservable output measure, β is a maximum percentage share of unobservable output measure.

In case of the health system efficiency, we believe that the BCC model is better than the CCR model. One can expect a decreasing marginal effect from health inputs at high levels. The output-oriented BCC model with unobserved measures (BCC/UM) is formulated:

$$\text{Minimize } \sum_{i=1}^{m+1} v_i x_{iq} + v_0$$

subject to

$$\sum_{r=1}^{s+1} u_r y_{rq} = 1;$$

$$\sum_{r=1}^{s+1} u_r y_{rq} - \sum_{i=1}^{m+1} v_i x_{ij} - v_0 \leq 0 \quad j = 1, 2, \dots, n;$$

$$u_{s+1} y_{s+1,j} \leq \alpha \sum_{r=1}^{s+1} u_r y_{rj} \quad j = 1, 2, \dots, n;$$

$$v_{m+1} x_{m+1,j} \leq \beta \sum_{i=1}^{m+1} v_i x_{ij} \quad j = 1, 2, \dots, n;$$

$$u_r \geq \varepsilon \quad r = 1, 2, \dots, s+1; \quad v_i \geq \varepsilon \quad i = 1, 2, \dots, m+1; \quad v_0 \text{ free};$$

$$0 \leq \alpha \leq 1; \quad 0 \leq \beta \leq 1;$$

$$y_{s+1,j} = 1 \quad j = 1, 2, \dots, n; \quad x_{m+1,j} = 1 \quad j = 1, 2, \dots, n. \quad (2)$$

2. Results

The efficiency scores calculated by five different DEA models are summarized in Table 1. As we stated above, we prefer the BCC model to the CCR model, but for comparisons, the CCR efficiency scores are also included in Table 1. To better understand the role of parameters α and β we calculated the traditional BCC model without unobservable measures ($\alpha = \beta = 0$), the BCC/UM model with a 10 % share of

unobservable input and output measures ($\alpha = \beta = 0.1$), and the BCC/UM model with a 20 % share of unobservable measures ($\alpha = \beta = 0.2$).

TAB. 1: Efficiency scores

Country	CCR	CCR/UM	BCC	BCC/UM (0.1)	BCC/UM (0.2)
Armenia	0.472	0.496	0.586	0.600	0.617
Austria	0.631	0.673	1.000	1.000	1.000
Azerbaijan	0.294	0.316	0.448	0.461	0.476
Belarus	0.907	0.950	1.000	1.000	1.000
Bosnia and H.	0.677	0.690	0.677	0.691	0.706
Croatia	0.666	0.685	0.790	0.796	0.803
Czech Republic	0.634	0.669	0.982	0.983	0.983
Denmark	0.832	0.848	0.931	0.934	0.937
Estonia	0.615	0.643	0.834	0.839	0.844
Finland	0.655	0.678	0.816	0.821	0.828
France	0.748	0.772	0.915	0.918	0.920
Georgia	0.441	0.465	0.468	0.489	0.514
Germany	0.705	0.737	0.928	0.930	0.933
Hungary	0.827	0.864	1.000	1.000	1.000
Iceland	0.650	0.671	0.759	0.769	0.781
Kazakhstan	0.494	0.518	0.669	0.679	0.691
Kyrgyzstan	0.899	0.906	0.903	0.906	0.911
Latvia	0.674	0.701	0.894	0.897	0.901
Lithuania	0.667	0.702	0.946	0.948	0.949
Luxembourg	0.612	0.633	0.733	0.742	0.753
Macedonia	0.466	0.491	0.637	0.649	0.662
Moldova	0.727	0.744	0.832	0.837	0.842
Norway	0.778	0.810	1.000	1.000	1.000
Poland	0.820	0.832	0.841	0.846	0.853
Portugal	0.550	0.572	0.643	0.657	0.672
Romania	1.000	1.000	1.000	1.000	1.000
Serbia	0.562	0.586	0.761	0.768	0.776
Slovenia	0.777	0.794	0.894	0.897	0.902
Spain	0.735	0.751	0.852	0.856	0.861
Tajikistan	0.771	0.784	1.000	1.000	1.000
Turkey	1.000	1.000	1.000	1.000	1.000
Turkmenistan	0.803	0.813	0.848	0.853	0.859
Ukraine	0.720	0.755	0.924	0.926	0.928
Uzbekistan	0.762	0.787	0.949	0.950	0.951

Source: own research.

3. Discussion

The definition of unobservable measures leads to improved efficiency scores, hence the unobservable measures can be also understood as the benefit of the doubt. Interestingly, in the case of the Czech Republic, this does not help to increase the health system efficiency (the BCC model). Very different countries were identified as technically efficient: Austria, Belarus, Hungary, Norway, Romania, Tajikistan, and Turkey. However, such result is not surprising as these countries “operate” at different service levels. For example, a health system with a low (insufficient) number of physicians and high number of outpatient contacts is a perfect case of technical efficiency. The worst performing health systems are Armenia, Azerbaijan, and Georgia.

Conclusion

Data envelopment analysis was used as a nonparametric method of efficiency evaluation of national health systems. A specific DEA model, the DEA model with unobservable measures (DEA/UM), was formulated and tested on a real data (national health systems). Further research is needed to investigate the determinants of health system efficiency in more detail.

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BENEFITS WITHOUT A MOTIVATION IMPACT FOR GENERATION Y

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Keywords:

Generation Y – employee benefit – motivation – student – university

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Abstract:

The aim of this paper is to determine which benefits are considered to be less attractive, resp. inappropriate, by university students – representatives of Generation Y. Research was done among the students of two faculties of Mendel University in Brno - Faculty of Agriculture, and Faculty of Business and Economics. It can be stated that the answers of students of both faculties are very similar. From the data obtained it can be concluded that the students, except for two employee benefits, do not categorically disregard various benefits provided. Students would not expect an availability of benefits like shopping tour in abroad or Christmas box of chocolates for children. Among other benefits considered to be less attractive by representatives of Generation Y there belong scholarships for employees' children, provision of employee-stocks, contribution to clothing, and sports vouchers for swimming.

Introduction

The main objective of the survey, carried out in the period 1999-2014, was to determine the most popular employee benefits desired by students of the last year of their Master studies. This paper deals with the opposite pole of the results – the aim of this paper is to determine, which benefits are considered to be least attractive, respectively inappropriate by the representatives of Generation Y. The survey included students of two faculties of Mendel University in Brno – Faculty of Agriculture, and Faculty of Business and Economics. The aim is also to identify recent trends in the students' demands, and to find out whether there are some differences among the students from these two faculties.

1. Survey of literature

The notion of Generation Y first appeared in 1993 in the journal Advertising Age, and it referred to the generation of children born in 1985-1995 (Constantine, 2010). However, some authors shift the year of birth beyond 2000, even to 2004 (e.g. Clark, 2007; Beekman, 2011, and others). Strauss and Howe (2010) define the interval of birth using years 1982-2004. Alexander & Sysko (2012) even refer to the interval of 1982-2009.

People born in this generation like to try new challenges, overcome obstacles, and are not afraid to express their opinion. They are practical, optimistic and confident in the future and a better tomorrow (Evans, 2011; Kopecký, 2013). It is the first "global" generation communicating, discussing, and sharing information right over the internet. Generation Y has sustained access to computers and mobile phones since their youth, and they require their employers to allow the daily use of these technologies in the context of professional life, too (Stojanová, 2015; Kubátová & Kukelková, 2013; Evans, 2011; Eisner, 2005). According Kociánová (2012), the people of Generation Y should form the bulk of the working age population till 2025. Unlike their predecessors, who lived for work, for the younger generation the balance between personal and professional life is quite crucial, and they work to live.

According to many authors (DeCenzo, 1999; Dulebohn, 2009; Dvořáková, 2007) benefits represent an essential part of a functioning employee motivation program, because they have a significant impact on whether the employee will remain in the company. Attracting new employees is not only based on the provided employee benefits – there are other important characteristics of a company, e.g. a good working atmosphere, and career advancement (Backes-Gellner & Tuor 2010). Benefits, though, become an important criterion of acceptability of a job offer. Horská (2009) contends that the benefits are considered as hygiene factors (Herzberg et al., 2004). According to the author, if the benefit is withdrawn it leads to demotivation of employees. This view is supported by research of Vnoučková (2014). Benefits are also less demanding than the economic exploitation of wages, because many benefits are tax-supported (e.g. Hammermann, 2014; Macháček, 2013; Duda, 2011; Grubb and Oyer, 2008). According DeCenzo (1999), Dvořáková (2007), and Kleibl (2001), employee benefits are a part of the total remuneration, and they represent an effective investment in the staff. Employees also expect a fair administration of the benefits (Muse & Wadsworth, 2012).

2. Methodology

Research in this field is carried out continuously by the author. This paper uses data collected in the years 1999-2014. Every year, students are asked to fill-in a questionnaire with 40 proposed employee benefits that can be expected from the employers. Students of two faculties of the Mendel University in Brno (Faculty of Agriculture, and Faculty of Business and Economics) mark their interests in individual employee benefits. Students evaluate their preference of the particular benefits on a Likert-type scale of 1 (definitely yes) to 4 (definitely not), and for the purposes of this paper there are processed the results of the negative answers (benefits evaluated by 4).

Answers were summarized for the whole research period of 16 years in terms of frequency of occurrence of the particular benefit in the "bottom ten" and "bottom five" – identifying the ten resp. five least desired benefits. The summary also aimed on

identifying the possible differences of perception of the students of the two faculties related to the undesired benefits.

In order to statistically analyse the differences in the orders of preferences of employee benefits by students of the two faculties, there was used the Spearman's correlation coefficient:

$$r_s = 1 - \frac{6 \cdot \sum_{i=1}^n (x_i - y_i)^2}{n \cdot (n^2 - 1)} \quad (1)$$

n ... Number of factors

x_i ... Ranking of a particular factor among the FBE students

y_i ... Ranking of a particular factor among the FA students

Comparing the values of the Spearman's correlation coefficient provides a picture of similarity of evaluation also in terms of the least desired benefits.

3. Results and discussion

When summarizing the findings for the entire research period (16 years), it was found out that the top ten ranking of the least popular benefits among students FA and FBE actually reached an optical consensus among eight of the benefits – even though their ranking slightly differed (see Table 1).

For students of both faculties under review we noted that the order of the first two benefits that students do not want does not change over the years. "Shopping trips abroad" and "Christmas box of chocolates for children" are unpopular for both groups of students (FA and FBE students) These benefits also occupied the first two places in the rankings of the unpopularity of benefits, which was done using the averaged values of responses during the research. These benefits have also been evaluated by the students that they certainly do not want at a higher rate (in case of the "shopping trips abroad" more than 55 % of students have expressed that they definitely do not want this benefit.) For the benefit "Christmas box of chocolates for children" almost a third of respondents indicated that this benefit is certainly unnecessary.

Concerning other benefits, the students of both faculties do not considered important to include scholarships for employees' children, the possibility of rehabilitation exercise during working hours, provision of employee shares, contribution to clothing, sports vouchers for swimming, financial contribution to cultural among the offered benefits. It is important to note that these benefits are not generally evaluated as categorically negative ("definitely not"), but rather negative – the answer "definitely not" appeared only in 13 % resp. 22 % of respondents. An interesting situation can be seen in the case of the benefit "children's nurseries and kindergartens," where at the beginning of the

study in 1999-2008, this benefit traditionally appeared in the "bottom ten" undesired benefits, and even more than six times in the period it occurred among the five least favourite. Probably due to the external environment development, the problem of shortage of places in kindergartens and nurseries, this benefit is ceased to appear among the unnecessary benefits.

TAB. 1: Frequency of occurrences of the definitely not desired benefits in the whole research period

	FBE students		FA students*	
	Bottom five	Bottom ten	Bottom five	Bottom ten
Employee benefit				
Shopping tour abroad	16	16	15	15
Christmas box of chocolates for children	16	16	15	15
Rehabilitation exercise during working hours	13	16	12	15
Scholarships for children	12	16	6	11
Sports vouchers for swimming	10	14	9	13
Provision of employee stocks	4	12	1	9
Children's nurseries and kindergartens	6	10	2	8
Contribution to clothing	3	10	6	12
Children's camp	4	10	-	-
Guarantee for mortgage	0	9	-	-
Financial (material) gifts in important life jubilees	-	7	3	10
Financial contribution to cultural events	-	-	3	8

Source: Own processing * The research was not conducted at the FA in 2000, therefore the maximum possible number of occurrences is 15 in the case of this faculty.

Using the Spearman's correlation coefficient (Stávková, 2004) there was compared the ranking of employee benefits (see Table 2) according to student preferences. According to this coefficient there was examined the consensus of the ranking among the students of the Faculty of Business and Economics and the Faculty of Agriculture during the research period.

Spearman's correlation coefficient values indicate the similarity of the ranking of "definitely not" desired employee benefits belonging to the "bottom five", respectively "bottom ten". The more the rankings of students of the two faculties match, the more this ratio approaches 1, the more the it differs, the closer to -1 the coefficient gets.

The value of the Spearman's correlation coefficient in the case of the bottom five benefits is 0.85. This value represents a very close consensus in the ranking of the benefits, and we can say that students of both faculties consider the eight benefits in Table 2 equally unattractive. Despite some reduction of the coefficient value for the "bottom ten" benefits, 0.81 still represents a value very close to consensus in the ranking

of the benefits. Employers should be aware of this and not offer these benefits to university graduates.

TAB. 2: Ranking "top five" and "top ten" definitely not preferred benefits among the students of the two faculties

Employee benefit	Bottom five		Bottom ten	
	FBE	FA	FBE	FA
Shopping tour abroad	1	1	1	1
Christmas box of chocolates for children	2	2	2	2
Rehabilitation exercise during working hours	3	3	3	3
Scholarships for children	4	5	4	6
Sports vouchers for swimming	5	4	5	4
Provision of employee stocks	7	8	6	7
Children's nurseries and kindergartens	6	7	7	8
Contribution to clothing	8	5	8	5
Spearman's correlation coefficient	0.85		0.81	

Source: Own processing

Conclusion

The paper identified the employee benefits that students of two faculties of Mendel University described as unattractive from the offer of possible benefits by employers. It revealed a high level of consensus of the answers of the two student groups. Students identified two least attractive benefits – shopping trips abroad, and Christmas box of chocolates for children. Among other undesired benefits there belong scholarships for employees' children, the possibility of rehabilitation exercise during working hours, provision of employee stocks, contribution to clothing, sports vouchers for swimming, children's nurseries and kindergartens. Performed analysis can help employers in deciding, which benefits to offer in order to attract the university graduates, and which benefits do not actually represent appropriate stimuli for them.

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MACROECONOMIC DEVELOPMENT AND DEMAND SHOCKS: A CASE OF NEW EMU MEMBER STATES

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Abstract:

The project of the European Monetary Union took away a significant degree of sovereignty from member states. Forced consolidation of budgets and reduction of deficits raise the question whether in times of high unemployment these measures are still suitable or they would rather lead to a further reduction in employment. Current situation also reveals other issues, such as e.g. the impossibility of the exchange rate adjustments in boosting economic growth and competitiveness. The economic theory traditionally recommends a stimulation of aggregate demand, namely consumption and investment what should help in employment recovery. This paper will focus on analysis of the reaction of new EMU member states in case of positive demand shocks. The effects of shocks were identified by vector autoregression model.

Introduction

Recent crises emphasised asymmetries and differences in EMU countries. Persisting unequal position of individual members is particularly visible in case of small, former transition economies. However, with regards to current rates of globalisation and interdependence of individual economies, EMU accession can be highly beneficial especially for small economies. It should enable deeper and more extensive cooperation with larger and stronger economies. On the other hand, this can be limited by the fact that new members are still considered to be lacking in certain areas.

This paper will analyse the strength of countries' individual responses to demand shocks in case of selected macroeconomic variables (consumption, investment, unemployment). We will focus on these new EMU members: Latvia, Lithuania, Estonia, Slovakia and Slovenia. We would like to verify whether a common European policy might be suitable in tackling the issues, such as high unemployment or economic growth in general.

1. Literature overview and Methods

Aggregate demand shocks include consumption or preference shocks, investment demand shocks, monetary policy shocks and fiscal policy shocks. (Gambetti & Musso, 2012) Each shock has dynamic effects on output and its components. These effects are called the propagation mechanism. The effects of a shock on activity may build up over time, affecting output in the medium run. Or the effects may build up for a while and then decrease and disappear. (Blanchard & Johnson, 2013) Krugman and Wells (2009) explain how the government could intervene to avoid a temporary fall in aggregate output associated with high unemployment by using policy measures to increase aggregate demand. There has been a growing literature focusing on the fluctuation of output as a result of demand side shocks in DSGE models. In general equilibrium models, demand side shocks, such as preference shocks to consumption demand or shocks to government spending, have a strong tendency to crowd out investment. (Baxter & King, 1991; Benhabib & Wen, 2004; Wen, 2006; Leduc & Liu, 2014) Other authors study the similarity of countries' responses to shock. The analysis made by Pentecôte and Huchet- Bourdon (2012) showed that new EMU member countries remain at the EMU periphery with stronger shock asymmetries than the founder members. The similar results were also obtained by Fidrmuc and Korhonen (2003) by using VAR methods. Their findings suggest that the correlation of supply shocks differs considerably from country to country but remains usually stronger than the correlation of demand shocks calculated for accession countries and EMU. What is more, the size of the shocks was lower for the newer EMU members. Higher level of symmetry for newer member was also confirmed by the analysis of e.g. Arfa (2009). We can also find older analyses such as the one by Bayoumi and Eichengreen (1993). They tried to identify and evaluate supply and demand shocks from 1960 to 1988 in different countries in Europe (with Germany as a benchmark country) using a structural vector autoregression model. Their results show a high correlation of supply shocks but low correlation of demand shocks

To estimate the effects of demand shocks we expect that there is a long-run equilibrium relationship-cointegration between variables chosen for the model. This approach is commonly used for modelling the effects of various macroeconomic policies especially in case of shocks. For this analysis we estimated a simplified following model:

$$CY_t = A(L)Y_{t-1} + u_t \quad (1)$$

In this case, Y_t represents a $N \times 1$ vector of the following endogenous variables: aggregate demand, household consumption, private investment, unemployment, C corresponds to an $N \times N$ matrix and describes the simultaneous relations among endogenous variables of the model. $A(L)$ corresponds to a $N \times N$ polynomial with coefficients representing relationships among endogenous variables on lagged values. Lastly, u_t - a $N \times 1$ normalized vector of shocks to the model, is used to represent shocks.

If there are at least 2 endogenous variables integrated of order 1 (I(1)) mutually cointegrated, then the initial VAR model is adjusted to VEC model. This transformation is possible if we multiply the equation (1) by $1/Y_{t-1}$:

$$\Delta Y = \mu + \Pi Y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Y_{t-1} + \varepsilon_t \quad (2)$$

After the transformation, this model is able to capture short-and long-term adaptation to changes. Once estimated, the VEC model allows to determine impulse-response functions for all variables. A VEC model requires that there is at least one long-term cointegration relationship between the variables. That is why the testing of the model should start with the verification of standard conditions, i.e. stationarity, cointegration, residual autocorrelation, heteroscedasticity and normality. With respect to the scope of the paper, the next sections present only selected results of the analysis. The overall results are available upon request from the authors.

2. Results

2.1. The endogenous variables

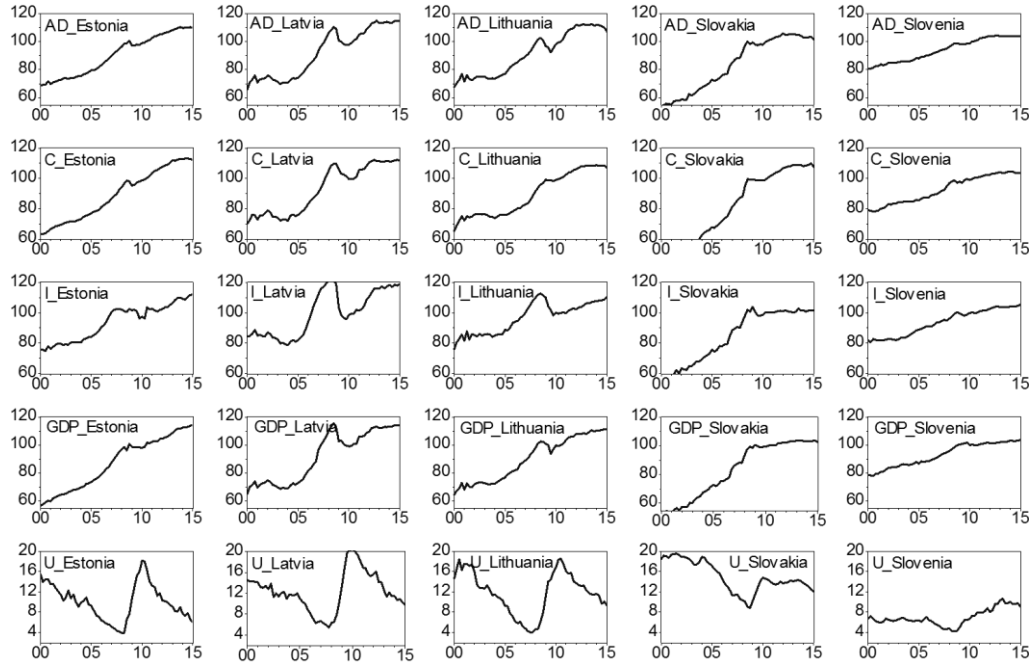
In order to compare the evolution in economies we have used quarterly data from 2000Q1- 2015Q1 (61 quarterly observations). Time series were obtained from databases of Eurostat. Data covered the evolution of the fundamental macroeconomic indicators expressed in constant prices and were seasonally adjusted in order to eliminate possible seasonal factors: aggregate demand (AD), household consumption (C), private investment (I) and unemployment (U). The evolution of variables for monitored countries in 2000-2015 is depicted on FIG.1.

For all selected variables, we can see a common characteristic, i.e. mainly an increasing trend with a less or more pronounced dip around a 2009 caused by the global crisis. For AD, C, I and GDP the fluctuations were only minimal and mostly due to crisis. We can see that the initial situation of Slovenia was slightly better than in other countries - initial levels of selected variables in 2000 for all variables were around 80% of their 2010 levels. Other countries "started" this decade at the level around 60%. The lowest initial level can be observed in case of Slovakia E.g. in case of GDP the 2000 level represented approximately 55% of the 2010 level of GDP. The periods of up and downs were the most significant Latvia and Lithuania and it can be observed for AD, C, I and GDP. These countries also marked a rather pronounced dip of GDP growth caused by the crisis but resumed their growth rates rather quickly. The most stable growth was typical for Slovenia.

In general, we can say that the evolution of investment expenditures of domestic firms was slightly less straightforward than the evolution of C. We can also observe a bit more pronounced fluctuations. In case of Slovakia or Slovenia the after-crisis period

brought about stagnation in investment expenditures, sometimes at the levels, lower to pre-crisis period.

FIG. 1: Evolution of GDP, AD, C, I and U



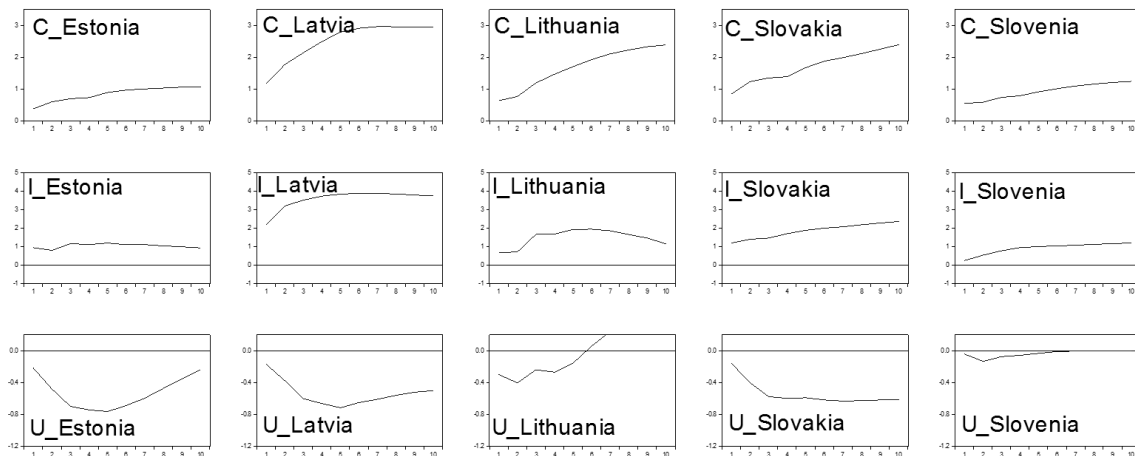
Source: Eurostat

The unemployment rate for monitored countries seems to have a strong decreasing trend reversed by the crisis. U plummeted to the almost 20 % levels in Baltic countries and Slovakia but resumed its descent again in a short time. In case of Slovakia this favourable development was postponed by several years of stagnation around 14% level of unemployment rate. Slovenia shows more stable evolution of U, with rates lower than 8% before crisis and a slight increase after 2010.

2.2. Impulse response functions

Estimated VEC model enables to analyse impulse response functions (IRF) for selected endogenous variables. The results are grouped by variables so as to be able to compare the similarities or differences in responses for each country. The estimated response of variables on AD shock is observed over the period of 10 quarters after initial shocks. In case of unexpected demand shock in the form of sudden increase of AD (e.g. policy intervention) the theory suggests the following short term behaviour of surveyed variables (with possible time lags): a rise of C, and I, and a decrease of U. Next graphs (FIG.2) depict IRF function for C, I and U for period of 2000-2015.

FIG. 2: Impulse response functions



Source: own calculations

3. Discussion

In the case of low aggregate output and falling prices the government intervention by AD oriented policy measures (e.g increase in government spending, decrease in taxes) should stimulate C. So the expected evolution of C after positive demand shock assumes the upward trend in short term. Latvia, Lithuania and Slovakia manifest the overall strong and dynamic response, permanent in the long run. The reactions in Slovenia and Estonia seem to be moderate and less dynamic.

Investigation of transmission in case of the demand shock includes also an estimation of investment responses. Here, the theory indicates that the increased demand should also encourage the investment behaviour in economy. However, the base of shock is very important. The demand shock originated in policy changes (e.g. new government investment) can generate procyclical investment movement and have strong tendency to crowd-out the investment. Generally, the investment reactions to the demand shock are positive (increase after the demand impulse). We can see that demand shock caused dynamic increase in the investment expenditures in Latvia. We can observe less dynamic reaction in case of Lithuania and Slovakia, Slovenia and mainly in Estonia.

The examination of the demand shock pass-through includes the estimations of labour market responses. Here the theory indicates that the increase of demand should firstly slow down the increase of U and later cause the unemployment rate to drop. Responses of countries with generally high level of unemployment rate (Slovakia, Lithuania, Latvia and Estonia) seems to be most dynamic and intense. In case of Slovenia we observed the least dynamic response of U. This can be attributed to overall less variable evolution of U and lower unemployment rate in Slovenia.

Conclusion

This paper was focused on the impact of the demand shock on selected macroeconomic variables (consumption, investment, unemployment) in new EMU members (Latvia, Lithuania, Estonia, Slovakia and Slovenia). We wanted to verify whether a common European policy might be suitable in tackling the issues, such as high unemployment. Summary of overall results showed that the demand stimulation had remarkable influence on the basic macroeconomic variables. The responses to the unexpected demand shock were generally dynamic and intense in Latvia, Lithuania, Slovakia, Slovenia or Estonia.

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MAXIMIZING, SATISFICING, AND CONSUMER LOYALTY

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maximizing – satisficing – consumer satisfaction – consumer loyalty

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Abstract:

Are customers who seek the best less loyal? This theoretical paper provides brief introduction into the personality trait of maximizing (the need to find the best option possible) versus satisficing (accepting “good enough” option as satisfactory), its measures and correlates. Further, mechanisms that relate maximizing trait to consumer satisfaction and loyalty are discussed and finally, the conclusion that maximizers are less loyal than satisficers is drawn and supported with arguments.

Introduction

Customer satisfaction is positively related to consumer loyalty, and consumer loyalty is in turn positively related to profitability. This link has been demonstrated, discussed and accepted in the literature to wide extent (Gronholdt, Martensen, & Kristensen, 2000; Hallowell, 2013). Although some authors warn against perceiving customer satisfaction as the ultimate goal of business operation (Bennett & Rundle-Thiele, 2004), the positive relation between satisfaction, loyalty and profitability holds in general. The goal of this paper is to provide a brief introduction into the concept of maximization and to explore how it might determine customer satisfaction. The rest of the paper is organized as follows: first different determinants of consumer satisfaction are discussed, and then maximization, its measures and behavioral implications are discussed. Later we look at how maximization might determine consumer satisfaction and loyalty. In the last part of the paper, implications for researchers and for practitioners are presented.

1. Consumer satisfaction and loyalty

Where does consumer satisfaction come from? The model that has received much attention in past decades is the expectancy disconfirmation model (Oliver, 1980). Oliver’s model proposes customer satisfaction to be determined by consumer’s expectations about the product, its actual perceived performance and disconfirmation of expectation (subjectively perceived difference between the expectation and performance). As consumer satisfaction is of key interest to both practitioners and researchers, many authors have expanded on this model by introducing new variables in

the effort to explain consumer behaviour patterns and to find ways to increase consumer satisfaction and loyalty. Findings resulting from these model iterations include the following: When performance is ambiguous, the role expectations play in determining satisfaction increases (Yi, 1993). When expectations are ambiguous, the role performance plays in determining satisfaction increases (Nyer, 1996). Not only cognitive disconfirmation, but affective disconfirmation (how the consumer expects to feel during consuming the product or service vs. how does he feel once consuming it) also determines the resulting satisfaction level (Ladhari, 2007). Encouraging consumer complaints results in greater consumer satisfaction (Nyer, 2000). Quality of consumer's interaction with frontline employee, determined by the employee's personality traits strongly influences the resulting consumer satisfaction (Ekinici & Dawes, 2009).

Consumer's satisfaction and loyalty is affected by several traits of retailer personality, namely congeniality, originality, conscientiousness and preciousness (Lombart & Louis, 2012). Here, the retailer (or brand) personality refers to brand itself, not to actual person. Brands are, in an anthropomorphic manner, ascribed „personality traits“ that refer to the set of human characteristics associated with brands (Aaker, 1997)

Individual differences in consumers' personality traits also determine the level of consumer satisfaction, as (Vázquez-Carrasco & Foxall, 2006) find in their empirical study. They show that Need for Social Affiliation is a strong determinant of active loyalty, and Need for Variety has direct effect on consumer satisfaction and loyalty.

Another personality trait that plays a role in how loyal consumers are is their tendency to maximize (Lai, 2011). In the following sections of this paper, I provide more detailed look on what maximizing is, how to understand and measure it and mainly whether and how does it relate to consumer loyalty.

2. Maximizers and satisficers

Every day, we make choices on what to buy, where to travel, who to spend our time with, what to eat, etc. Although we try to make choices that lead to our satisfaction, in most cases it is not possible to act like homo oeconomicus: investigating all available options in depth, selecting the one that turns out to be the best in the final comparison (Simon, 1955). Simon argued, that people instead tend to satisfice, selecting an option that meets the minimum level of acceptability, or put simply, the item deemed “good enough”. Building upon Simon's work and popularizing the concepts of maximizing and satisficing, (Schwartz et al., 2002) propose maximizing to be a stable personality trait. Maximizers feel the need to select the best option available, often exerting great effort to find, investigate and compare all alternatives available. Satisficers, on the other hand, aspire to select an option that is better than an certain threshold – once this option is found, other alternatives are often not investigated at all (Schwartz et al., 2002).

While for satisficers good enough is just good enough, for maximizers only the best is good enough.

To measure maximizing in people, (Schwartz et al., 2002) developed a 13-item self-report scale. The scale labels people with high scores as maximizers, and those with low scores as satisficers. It is the most used one in research up to this day, although it also received its share of criticism, mainly for its poor psychometric properties (Turner, Rim, Betz, & Nygren, 2012; Weinhardt, Morse, Chimeli, & Fisher, 2012). Also, containing items related to renting videos, driving a car or watching a TV, this scale is rather culture specific and its use outside of the US might be problematic (Nenkov, Morrin, Ward, Hulland, & Schwartz, 2008). Hence, a number of other scales and inventories have been built to measure maximization: the shortened 6-item version of the original MS (Nenkov et al., 2008), 9-item Maximizing Tendency Scale (Diab, Gillespie, & Highhouse, 2008), the Decision Making Tendency Inventory with 29 items (Misuraca, Faraci, Gangemi, Carmeci, & Miceli, 2015), the Maximization Inventory (Turner et al., 2012) containing 34 items, and the 5-item scale developed by (Lai, 2010).

As the scales available to measure maximization are so numerous, picking the one to use in one's research becomes a maximization problem of its own. It has been shown that the scales are not very strong predictor of behaviour, and that the results vary depending on what scale is used in the research (Giacopelli, Simpson, Dalal, Randolph, & Holland, 2013). Thus, when picking the scale to use, one must carefully consider which one is appropriate in terms of conceptualization and construct validity with regards to the research question at hand.

Although debated by some authors (Diab et al., 2008), maximizers, as opposed to satisficers, report in general lower levels of happiness, less optimism, less self-esteem and less life-satisfaction, while scoring higher in depression, regret and perfectionism (Schwartz et al., 2002). Maximizers are also reported to be more likely to engage in social comparison and to be more sensitive to regret (Schwartz et al., 2002).

3. Are maximizers less loyal?

Compared to satisficers, maximizers tend to spend more time elaborating on their decisions, examining more options, relying on external sources of information and seeking the opinions of others (Iyengar, Wells, & Schwartz, 2006; Parker, Bruine de Bruin, & Fischhoff, 2007; Schwartz et al., 2002). Maximizers want to pick the best option available, and each new piece of information they encounter can alter which option is deemed the best. What is more, maximizers do not stop ruminating after the decision has been made, and keep collecting information and evaluating alternatives to make sure they indeed made the best decision possible (Schwartz et al., 2002). Although maximizers in general select objectively better outcomes than satisficers, they

are subjectively less satisfied with them – they end up doing better, but feeling worse (Dar-Nimrod, Rawn, Lehman, & Schwartz, 2009; Iyengar et al., 2006; Schwartz et al., 2002).

Maximizers were shown to experience more regret and less happiness regarding their purchases and to be less satisfied with them (Schwartz et al., 2002). Additionally, maximizers are more prone to experience regret about their choices (Parker et al., 2007; Schwartz et al., 2002). As consumer satisfaction is positively related to loyalty (Gronholdt et al., 2000; Hallowell, 2013), this finding is of great importance for those interested in customer loyalty.

When making purchase decisions, satisficers tend to rely on their past decisions as cues, allowing them to save on time and effort put into the decision. If they were satisfied with a purchase previously, they find it satisfactory to simply repeat that purchase. Maximizers, though, start from scratch with each decision, minimizing the value of information resulting from their previous decisions, hoping to find the best option currently available (Carrillat, Ladik, & Legoux, 2011).

Maximizers were also shown to prefer reversible decisions over irreversible ones (Shiner, 2015; Sparks, Ehrlinger, & Eibach, 2012). Although irreversible decisions in general leave people more satisfied (Bullens, Förster, van Harreveld, & Liberman, 2012), opting for reversible decision leaves maximizers with the opportunity to change their mind once they decide another option is the optimal one. If reversible choice is presented under a time constraint, maximizers are more likely to actually change their initial choices (Chowdhury, Ratneshwar, & Mohanty, 2009). Additionally, (Sparks et al., 2012) find satisficers (but not maximizers) to engage in dissonance reduction after making a decision, resulting in satisficers being more satisfied with their choices.

Seeing that maximizers, compared to satisficers, display lower satisfaction and more regret regarding their purchases, doubt their choices more and that they tend not to let their past purchases influence new ones, we can hypothesize that consumer loyalty would be lower for maximizers compared to satisficers. In her empirical study, (Lai, 2011) shows this assumption holds. (Lai, 2011) finds that maximizers are more prone to regret, discuss their choices with others more, have more knowledge of alternatives and their ego involvement in the end product is higher. As a result, their intentions to switch service providers are intensified.

What do we learn from this? Firstly, and most importantly, maximizers are less loyal than satisficers. They feel the need to be sure they picked the best option possible. They engage in exhaustive search and discussions to assess the alternatives, and they do this anew with each decision. After making a decision, they doubt their choices and end up less satisfied, and when given the opportunity, they tend to switch their choices.

Knowing that maximizers differ from satisficers in consumer satisfaction and loyalty, implications for practice and for research can be outlined. Further research may help understand individual differences in proneness to decision change, helping practitioners in their efforts to improve customer retention rates. In research, new directions open up to investigate the impact of situational context on the decision making and post-decision processes of maximizers and satisficers.

Conclusion

This paper briefly introduced the construct of maximizing and satisficing. Important correlates as well as ways to measure the construct were described. Several mechanisms of the influence of maximizing tendency on customer satisfaction, and ultimately loyalty, were proposed and a conclusion that maximizers are less loyal is drawn.

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STRATEGIC DIMENSION OF HUMAN RESOURCES MANAGEMENT IN ENTERPRISES FOR EXAMPLE SILESIAN REGION

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Abstract:

Strategic approach to human resources management enables a consistent use of modern tools for managing human resources in an enterprise. This allows enterprises to achieve close integration of the different systems of human resources management and increase their effectiveness. Effective activity in the strategic dimension requires involvement of all entities operating in the area of the personal function, i.e. managerial staff at all levels, employees, trade unions or personal counselling companies. The aim of this paper is to identify the strategic dimension of human resources management as presented in literature on the subject. Further part presents findings of empirical studies, which enabled verification of the hypotheses and formulation of conclusions.

Introduction

Management through strategies is a philosophy of an organisation. Strategic activities are nothing else than implementation of strategic plans and the concepts contained in them. In other words, a strategy is a statement of a number of activities of an enterprise aimed at developing or maintaining competitive advantage.

A strategy of human resources management as one of functional strategies has to harmonize with the strategy of an organisation. Like other functional strategies, personnel strategies are also located in a specified hierarchy of objectives, missions and strategies of an organisation. Thus, personnel strategies have to be reflected in specific plans and personnel decisions, as they fulfil a fundamental role in an organisation's attempts to achieve specific objectives, and thus success (Listwan, 2003).

Management of human resources based on a strategy of an organisation is connected with identification and elimination of problems existing in an organisation and its environment, actions based on decisions that have a significant impact on the concept of employment and development of staff and mutual personal relations.

Actions based on specific strategies force the use of appropriate management systems. Sometimes, it will be pressure on inventiveness, invention, at other times on experience or routine.

1. Literature overview

Human resources management is an aspect that addresses how an enterprise will implement its objectives through people, strategic measures and integrated rules for the operation. It is based on three postulates (Armstrong, 2010):

- a) human resources fulfil a strategic role in ensuring success to an organisation and are one of the main sources of its competitive advantage.
- b) human resources strategies should be consistent with the economic plans of organisations,
- c) individual human resources strategies should be consistent with each other so that they strengthen each other.

A human resources management is not only strategic planning, but above all the implementation of tasks which are in line with an organisation's strategy as well as all strategic decisions and actions of HR specialists in cooperation with other managers of an organisation. Any decisions have a long-term impact on an organisation's actions and its future success.

For strategic management of human resources to be effective, a few basic principles should be taken into account (Armstrong, 2010):

- d) human resources are of significant importance for the implementation of the existing general objective,
- e) human resources are taken into account in the process of developing a strategy of an organisation,
- f) the existing effective and constant relationships ensure the inclusion of activities connected with human resources in the decision making process, at all levels of an organisation,
- g) concepts initiated in the area of human resources are connected with the needs of an organisation; human resources management is responsible for decisions and actions based on which an organisation undertakes economic activities.

A strategy-based management of human resources is a conscious choice of prospective objectives and rules for operation in the area of human resources. It reflects an organisation's plans as to how people should be managed. Consistent and integrated decisions, a clearly defined set of expected skills of human resources and a defined model for their management are necessary for an organisation to achieve an expected competitive advantage (Lipka, 2000).

According to A. Pocztowski (2008), a human resources management strategy is a consistent system of actions that involve setting long-term objectives, formulating

principles, plans and programmes focused on the creation and use of human capital of an organisation, guaranteeing it the achievement and maintenance of competitive advantage. The task of the human resources department is to make sure that people are committed, effective and constructive. It has to recognise relationships between employees and the employer, find out what motivates or demotivates employees and thus impact the success of the whole organisation (Reilly&Williams, 2009).

The implementation of a human resources strategy comprises four stages (Lipka, 2000):

- h) strategic assessment of human resources,
- i) formulation of a human resources strategy based on an organisation's strategy,
- j) definition of sub-strategies for human resources, implementation of changes in the area of human resources and their control.

In order to fulfil their role, human resources strategies should cover strategic actions of all the functions in the area of human resources management, such as: employment planning, recruitment, selection, interpersonal communication, motivation and assessment, organisational culture and labour costs. Based on the individual functions of human resources, the so-called sub-strategies are created, which have to be consistent with each other and in line with the strategy of an organisation (Lipka, 2000).

While developing a human resources strategy, one should not forget about ethical issues in the context of those involved in the matters of an organisation, i.e. employees, owners, managerial staff and local community. In the process of human resources management, of importance is the aspect of human relations, security issues, interpersonal communication, involvement and maintenance of balance between work and private life. While developing strategies, the human factor should be taken into account. Strategies should not ignore people's aspirations and needs. People whose needs have been satisfied are more motivated to work more effectively and work safer (Armstrong, 2010).

2. Methods

The findings presented in this paper were obtained during the implementation of the project entitled “New tendencies and challenges in managing SME human resources in Silesian Voivodeship.” The aim of the studies was to diagnose the state of management of human resources taking into account its impact on the functioning of enterprises operating in Silesian Voivodeship and to indicate improvement areas of the model under diagnosis. One of the specific objectives of the studies was to diagnose the state of the process of strategic management of human resources and to identify fundamental problems. In this area, the main hypothesis was formulated: The enterprises analysed do not have comprehensive strategies for management of human resources. The following detailed hypotheses were also formulated: H1. The enterprises analysed have

a development strategy in place, but operational employees are not sufficiently familiar with it is. H2. The strategy is implemented in an inappropriate way.

In order to obtain reliable results, literature studies were complemented by analysis of original data obtained in a quantitative study using a questionnaire survey with a survey questionnaire as the research tool. The questionnaire was addressed to 1000 randomly selected employees of enterprises located on the territory of Silesian Voivodeship (Poland) between February and April 2015. The survey resulted in 264 completed questionnaires, of which 221 completely and correctly completed questionnaires were accepted for further analysis.

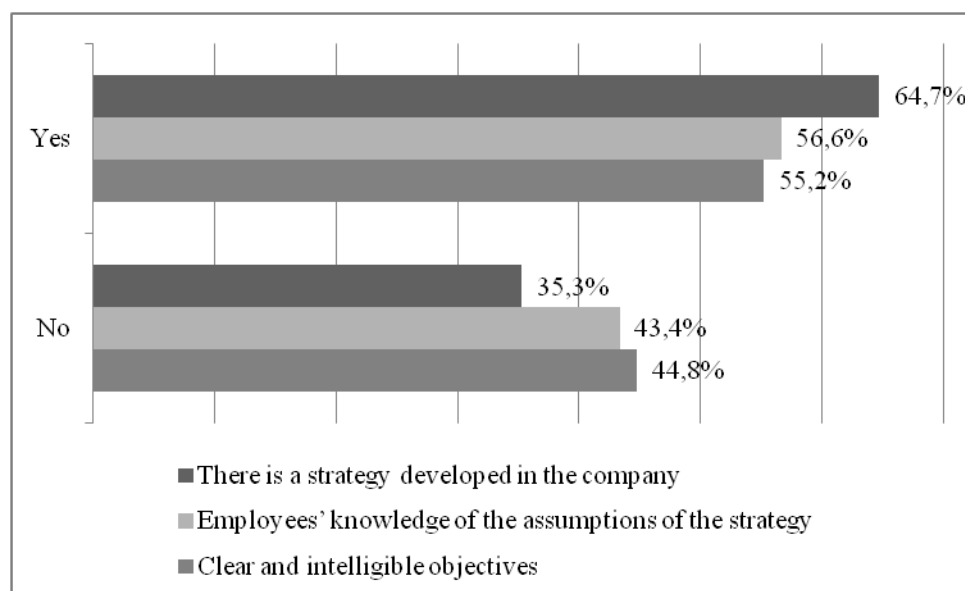
221 people participated in the survey, with females constituting 43.9% and males - 56.1%. The respondents had higher education (48.0%), secondary education (43.3%) or vocational education (8.6%). As far as the age is concerned, employees aged 36-45 (37.1%) and 26-45 (27.6%) dominated. People aged up to 25 made up 16.7%, those aged 46-55 – 10.0%, whereas those above 55 constituted 8.6%. As far as the seniority is concerned, the biggest group consisted of respondents with 11 to 20 years of work experience (34.4%) and between 5 and 10 years of work experience (33.5%). Work experience of up to 5 years was declared by 13.6% of those surveyed, 21 to 30 years of work experience - by 11.8%, whereas the rest 6.8% had over thirty-years' work experience. The respondents fulfilled operational (75.6) and managerial functions (24.4%). The employees surveyed worked in micro-enterprises, i.e. employing 0-9 people (31.2%), small enterprises, i.e. employing 10-49 people (44.8%) and in medium-sized enterprises, employing 50-249 people (24.0%). These companies operated on the regional (40.7%), domestic (33.0%), local (16.3%) and foreign markets (10.0%).

3. Results

The employees surveyed claimed that the enterprises in which they worked had a vision of future development. 24% of those surveyed confirmed that the enterprise employing them had such a vision in the form of a specific project, whereas 48.4% thought that their institution had such a vision, but these were not specific projects, but only plans that have not been fully thought out. 27.6% of respondents indicated lack of such a vision. These results correspond with those referring to the possession of strategy by the companies surveyed. In most cases, employees of the companies where the staff are familiar with the vision of the future are also aware of the existence of the strategy and know its assumptions. In turn, in those cases where there is no vision, there is also no strategy or employees are not aware of it. In 64.7% of cases, companies have a developed strategy of action, whereas in 35.3% of cases they do not have such a strategy in place (fig. 1); (143 questionnaires were accepted for further analysis, in which the respondents indicated the existence of a strategy).

Over half (55.2%) of those surveyed know the basic assumptions of the strategy developed and implemented in their companies. In the remaining 44.8% of cases, these assumptions are not known. Taking into account the division of respondents into employees fulfilling managerial and operational functions, we should notice that employees in managerial posts know the assumptions of the strategy in 87.0% of cases, whereas in 13.0% of cases they are not familiar with them. In the case of employees in operational posts, these assumptions are known to 36.5% of those surveyed, whereas 63.5% do not know them. The objectives arising from the strategy are assessed by employees as formulated in a clear and comprehensive way (55.2%), whereas the remaining 44.8% think that the objectives do not meet these criteria, and they are unclear and unintelligible.

FIG. 1: Strategy in the enterprises surveyed



Source: own

The developed strategy usually covered the period of 2-3 years (45.5%). According to 23.8% of respondents, strategies were prepared for a period shorter than 1 year, 21.7% indicated that strategies were developed for the period of around 1 year, whereas according to 9.1%, they covered a period longer than 3 years.

In the area of a strategy for human resources management, 69.9% of those surveyed indicated the existence of such a strategy, whereas the remaining 44.1% indicated its lack. Respondents working in enterprises which have developed a strategy for managing human resources, most often indicated that this strategy referred to the area of staff appraisal (83.8%), employees' development and improvement of their skills (76.3%), motivation and remuneration (72.5%) and staff selection (51.3%). Staff planning is an

area of the strategy for human resources management that was relatively least often indicated (23.8%).

Another question concerned issues connected with the implementation of a strategy, namely: do the tasks aimed at the achievement of the objectives have their addressees in the company (i.e. was the responsibility for the completion of the different tasks defined)? 57.3% of respondents gave a positive answer to this question, whereas 42.7% - a negative one.

The extent of the participation of line managers in human resources management compared with the year preceding the survey (i.e. 2014) did not change (52.0%), increased (14.0%), and decreased (12.2%). In the rest 21.7% of cases, it was difficult for respondents to give the correct answer.

4. Discussion

Half of the companies surveyed have developed a strategy of action. However, it is often informal. Similar findings were obtained by Smolarek (2008), who examined the area of strategic planning in small enterprises in Poland. Moreover, we can also see the lack of procedures connected with the implementation of the strategy. Although over half of those surveyed (55.7%) knew the basic assumptions of the strategy, this percentage is definitely too small, as these assumptions should be known by all the employees, not only part of them. What's more, employees fulfilling managerial functions were more familiar with these assumptions than employees fulfilling operational functions (hypothesis H1 was confirmed). Thus, a large percentage of respondents (44.8%) do not understand the objectives formulated, which may in turn indicate failure to properly implement the strategy. One of the basic conditions of an appropriate implementation of a strategy is to ensure that employees that will implement it understand its objectives. If employees do not understand the objectives, it is difficult for them to contribute to their achievement through appropriate performance of tasks. As pointed out by Deal & Kennedy (1982), Lachiewicz & Zakrzewska-Bielawska (2005), in order to survive every organisation has to possess and develop its own set of objectives, assumptions and principles, which impact every day behaviour of people in the workplace. This is one of the basic conditions of the functioning of an enterprise. Yet, as other studies, conducted by Smolarek & Dzieńdziora (2012) show, enterprises operate based on intuition. Although they carry out a process of planning, in the case of around half of them the strategies prove to be ineffective, which is often a result of errors in the implementation of the strategy. It is thus worth paying attention to the problems connected with the implementation of a strategy in enterprises.

Strategies in the companies surveyed usually cover the period of 2-3 years. Strategies for such a period have to be more general due to changeability of the environment, therefore a very important issue and at the same time an important condition for an

organisation to achieve its objectives is to make these strategies specific and cascade them to tasks, which have specific addressees. However, in most enterprises surveyed (57.3%) the tasks do not have their addressees. This is highly worrying, as it suggests inappropriate implementation of the strategy and may lead to failure to achieve an institution's objectives which are very important from the perspective of implementing economic goals. This confirms hypothesis H2.

Numerous authors, including D. Lewicka (2010), stress that a strategy in the area of human capital and an enterprise's strategy have to be interrelated. The companies surveyed have a separate human resources strategy within their general strategy, but this is not a comprehensive strategy covering all the areas of human resources management. Their strategies refer only to selected areas, which most often include: staff appraisal, employees' development and improvement of their skills as well as motivation and remuneration. We can see the lack of a clear strategy for human resources management that would be clear-cut and defined necessary instruments of human resources management in an enterprise. Analysis of research findings in similar areas shows that today's enterprises struggle with the problems of modern management of human capital. For instance, a report by H. Król (2007) highlights the lack of a formally written strategy for human resources management, which in many cases is a consequence of the lack of an overall strategy of an enterprise. Strategies for human resources management are very brief and rarely implemented in a systemic way.

Conclusion

For human resources management in an organisation to fulfil its strategic aspect, it should be implemented in close connection with the strategy of an enterprise. The process of human resources management has to be adjusted to the structure of an organisation, result from its objectives, so that an organisation can fully implement its strategic plans and achieve success and competitive advantage on the market. A guarantee of success is an accurately developed policy of human resources management based on earlier analyses of the existing procedures and possessed human resources.

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COMPARISONS OF COORDINATION MECHANISMS IN SUPPLY CHAINS

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Keywords:

supply chain management – coordination – games – contracts – auctions

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Abstract:

Supply chain is a decentralized system where material, financial and information flows connect economic agents. There is much inefficiency in supply chain behaviour. Recently, considerable attention of researchers is drawn to provide some incentives to adjust the relationship of supply chain agents to coordinate the supply chain, i.e., the total profit of the decentralized supply chain is equal to that achieved under a centralized system. The paper compares coordination mechanisms based on models of game theory, contracts and auctions.

Introduction

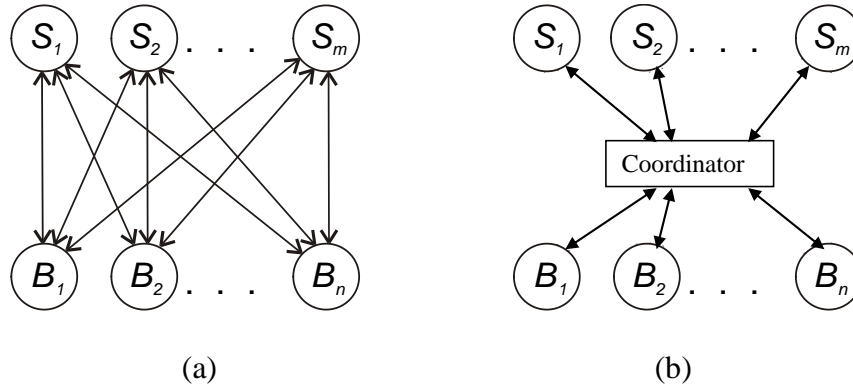
Supply chain is a decentralized system composed from layers of potential suppliers, producers, distributors, retailers and customers etc., where agents are interconnected by material, financial and information flows. A supply chain is the collection of steps that a system takes to transform raw components into the final product. There is much inefficiency in supply chain behaviour. When one or more agents of the supply chain try to optimize their own profits, system performance may be hurt. Supply chain management has generated a substantial amount of interest both by managers and by researchers. There are many concepts and strategies applied in designing and managing supply chains (Simchi-Levi, D., Kaminsky & Simchi-Levi, E., 1999), (Cachon, 2003). The expanding importance of supply chain integration presents a challenge to research to focus more attention on supply chain modelling (Tayur, Ganeshan & Magazine, 1999), (Simchi-Levi, Wu & Shen, 2004), (Snyder & Shen, 2011). The paper compares coordination mechanisms based on models of game theory, contracts and auctions.

1. Coordination problem

The most important part of managing phase is the coordination of individual activities to be optimal in terms of the whole system. Supply chains are decentralized systems. A centralized system can be taken as a benchmark. The question is: How to coordinate the decentralized supply chain to be efficient as the centralized one? The seller rarely has complete information about buyer's cost structure. However, the quantity the buyer

will purchase and therefore seller's profit depend on that cost structure. Somehow, the seller will have to take this information asymmetry into account. The numbers of sellers and buyers are denoted by m , n , respectively. The symbol S_i represents i -th seller while the symbol B_j represents j -th buyer. The seller-buyer relations in supply chain can be taken as decentralized or centralized (see Fig. 1).

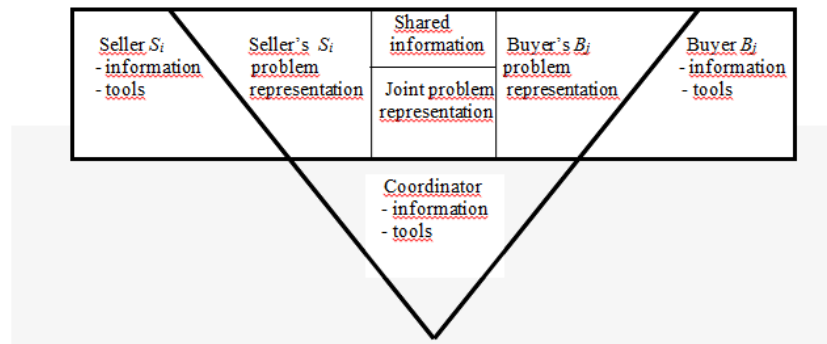
FIG. 1: Decentralized (a) and centralized (b) seller-buyer relations



Most supply networks are composed of independent agents with individual preferences. It is expected that no single agent has the power to optimize the supply network. Each agent will attempt to optimize his own preference, knowing that all of the other agents will do the same. This competitive behaviour does not lead the agents to choose policies that optimize overall supply chain performance due to supply chain externalities. The typical solution is for the agents to agree to a set of transfer payments that modifies their incentives, and hence modifies their behaviour. Coordination between sellers and buyers can be provided through information sharing (schematically see Fig. 2).

A seller S_i and a buyer B_j have information and analytical tools for their problem representations. A coordinator helps by information sharing and by formulation of a joint problem representation (Fiala, 2005).

FIG. 2: Coordination through information sharing



We compare some coordination mechanisms based on: games, contracts and auctions.

2. Game theory models

This section summarizes some of the basic non-cooperative (Cachon & Netessine, 2004) and cooperative concepts (Nagarajan & Sošić, 2008) of the game theory that are applied in coordination of supply chains. The non-cooperative theory of games is strategy oriented; it studies what one may expect the players to do. The cooperative theory is a “micro” approach in that it focuses on precise descriptions of what happens.

An n -player non-cooperative game in the normal form is a collection, where N is a set of n players; X_i , $i=1,2,\dots,n$, is a set of strategies for player i ; $\pi_i(x_1, x_2, \dots, x_n)$, $i=1,2,\dots,n$, is a pay-off function for player i , defined on a Cartesian product of n sets X_i , $i=1,2,\dots,n$.

Decisions of other players than player i are summarized by a vector

$$x_{-i} = (x_1, \dots, x_{i-1}, x_{i+1}, \dots, x_n). \quad (1)$$

A vector of decisions $(x_1^0, x_2^0, \dots, x_n^0)$ is the Nash equilibrium of the game if

$$x_i^0(x_{-i}^0) = \operatorname{argmax}_{x_i} \pi_i(x_i, x_{-i}) \quad \forall i = 1, 2, \dots, n. \quad (2)$$

The Nash equilibrium is a set of decisions from which no player can improve the value of his pay-off function by unilaterally deviating from it.

Cooperative game theory looks at the set of possible outcomes, studies what the players can achieve, what coalitions will form, how the coalitions that do form divide the outcome, and whether the outcomes are stable and robust. When modelling cooperative games is advantageous to switch from the game in normal form to the game in the characteristic function form. The characteristic function of the game with a set of n players N is such function $v(S)$ that is defined for all subsets $S \subseteq N$ (i.e. for all coalition) and assigns a value $v(S)$ with following characteristics:

$$v(\emptyset) = 0, \quad v(S_1 \cup S_2) \geq v(S_1) + v(S_2), \quad (3)$$

where S_1, S_2 are disjoint subsets of the set N .

The pair (N, v) is called a cooperative game of n players in the characteristic function form. A particular allocation policy, introduced by Shapley (1953), has been shown to possess the best properties in terms of balance and fairness. So called Shapley vector is defined as

$$h = (h_1, h_2, \dots, h_n), \quad (4)$$

where the individual components (Shapley values) indicate the mean marginal contribution of i -th player to all coalitions, which may be a member. Player contribution to the coalition S is calculated by the formula:

$$v(S) - v(S - \{i\}). \quad (5)$$

A complicating factor is that with the increasing number of n players is rapidly increasing number of coalitions and complexity of their production. Shapley value for the i -th player is calculated as a weighted sum of marginal contributions according to the formula:

$$h_i = \sum_s \left\{ \frac{(|S|-1)!(n-|S|)!}{n!} \cdot [v(S) - v(S - \{i\})] \right\}, \quad (6)$$

where the number of coalition members is marked by symbol $|S|$ and the summation runs over all coalition $i \in S$.

The ongoing actions in the supply chain are a mix of cooperative and non-cooperative behaviour of the participants. A biform game is a combination of non-cooperative and cooperative games, introduced by Brandenburger and Stuart (2007). It is a two-stage game: in the first stage, players choose their strategies in a non-cooperative way, thus forming the second stage of the game, in which the players cooperate. The biform game approach can be used for modelling general buyer-seller relationships in supply chains. First, sellers make initial proposals and take decisions. This stage is analysed using a non-cooperative game theory approach. Then, sellers negotiate with buyers. In this stage, a cooperative game theory is applied to characterize the outcome of negotiation among the players over how to distribute the total surplus. Each seller's share of the total surplus is the product of its added value and its relative negotiation power.

3. Contract models

Supply chain contracts have drawn much attention from the researchers (Cachon, 2003). A combined problem of supply chain coordination with price-dependent stochastic demand will be analysed. We define the following quantities: q buyer's total order quantity; c seller's unit production cost; p retail price. The setting can be characterized as a newsvendor problem. We will analyse the multiplicative form of price-dependent stochastic demand

$$D(p, u) = \gamma(p)u, \quad (7)$$

a function of p and u , where u is a random variable independent of p and $y(p)$ is continuous, nonnegative, twice differentiable function. The expectation of D is specified by a function $y(p)$ for any given price p :

$$E[D(p, u)] = y(p). \quad (8)$$

The expected profit for centralized solution for any output level q and price p is:

$$\begin{aligned} \pi(p, q) &= E\{p[\min(q, D(p, u))] - cq\} = E\{(p-c)q - p\max(0, q - D(p, u))\} = \\ &= (p-c)q - py(p) \int_0^{\frac{q}{y(p)}} F(u) du. \end{aligned} \quad (9)$$

The objective is to choose (p^0, q^0) to maximize the expected profit $\pi(p, q)$.

By fixing price p the problem reduces to standard newsvendor problem without pricing and the optimal level of production

$$q^0 = y(p) F^{-1}\left(\frac{p-c}{p}\right). \quad (10)$$

By substituting it into the expected profit

$$\pi(p) = y(p) \left[(p-c) F^{-1}\left(\frac{p-c}{p}\right) - p \int_0^{F^{-1}\left(\frac{p-c}{p}\right)} F(u) du \right]. \quad (11)$$

The problem is now with only one decision variable p and the optimal price p^0 can be obtained by solving

$$\frac{d\pi(p)}{dp} = 0. \quad (12)$$

The assumptions of the existence and uniqueness of the optimal solution (p^0, q^0) are concavity of deterministic part of demand function $y(p)$ and IGFR property of stochastic part of the demand function u .

The proposed contract for coordination of the decentralized supply chain is a specific buy-buck contract. The wholesale price w and the buy-buck price b are specified:

$$w = \lambda(p - c) + c, \quad b = \lambda p, \quad \text{where } 0 \leq \lambda \leq 1. \quad (13)$$

By the setting of the prices w and b the buyer's profit and the seller's profit for any chosen output level q and price p are

$$\pi_B = E \left\{ p \left[\min(q, D(p, u)) \right] - wq + b \max(0, q - D(p, u)) \right\} = (1 - \lambda) \pi, \quad (14)$$

$$\pi_S = E \left\{ (w - c)q - b \max(0, q - D(p, u)) \right\} = \lambda \pi. \quad (15)$$

From previous expressions of the buyer's profit and the seller's profit, it is clear that the buyer and the seller solve the same problem as the centralized supply chain and the sum of the buyer's profit and the seller's profit is equal to the profit of the centralized supply chain. The parameter λ characterizes a splitting of the total profit between the buyer and the seller.

4. Auction models

Combinatorial auctions are promising for supply chain analyses (Cramton, Shoham & Steinberg, 2006). We propose a complex trading model based using of iterative process for combinatorial double auctions. Let us suppose that m potential sellers S_1, S_2, \dots, S_m offer a set R of r items, $j = 1, 2, \dots, r$, to n potential buyers B_1, B_2, \dots, B_n .

A bid made by seller S_h , $h = 1, 2, \dots, m$, is defined as $b_h = \{C, c_h(C)\}$, a bid made by buyer B_i , $i = 1, 2, \dots, n$, is defined as $b_i = \{C, p_i(C)\}$, where $C \subseteq R$ is a combination of items, $c_h(C)$ is the offered price by seller S_h for the combination of items C , $p_i(C)$ is the offered price by buyer B_i for the combination of items C .

Binary variables are introduced for model formulation:

$x_i(C)$ is a binary variable specifying if the combination C is assigned to buyer B_i ,
 $y_h(C)$ is a binary variable specifying if the combination C is bought from seller S_h .

$$\sum_{i=1}^n \sum_{C \subseteq R} p_i(C) x_i(C) - \sum_{h=1}^m \sum_{C \subseteq R} c_h(C) y_h(C) \rightarrow \max$$

$$\text{subject to } \sum_{i=1}^n \sum_{C \subseteq R} x_i(C) \leq \sum_{h=1}^m \sum_{C \subseteq R} y_h(C), \quad \forall j \in R, \quad (16)$$

$$x_i(C) \in \{0, 1\}, \quad \forall C \subseteq R, \quad \forall i, \quad i = 1, 2, \dots, n,$$

$$y_h(C) \in \{0,1\}, \forall C \subseteq R, \forall h, h=1,2,\dots,m.$$

The objective function expresses the profit of the auctioneer (supply chain). The constraints ensures for buyers to purchase a required item and that the item must be offered by sellers. The formulated combinatorial double auction can be transformed to a combinatorial single-sided auction.

Multi-round iterative auctions can be taken as a solution approach. In the fundamental work Bikhchandani and Ostroy (2002) demonstrate a strong interrelationship between the iterative auctions and the primal-dual linear programming algorithms. A primal-dual linear programming algorithm can be interpreted as an auction where the dual variables represent item prices. The algorithm maintains a feasible allocation and a price set, and it terminates as the efficient allocation and competitive equilibrium prices are found. For the problem we will formulate the LP relaxation and its dual. Several auction formats based on the primal-dual approach have been proposed in the literature. Though these auctions differ in several aspects, the general scheme can be outlined as follows:

- a) Choose minimal initial prices.
- b) Announce current prices and collect bids. Bids have to be higher or equal than the prices.
- c) Compute the current dual solution by interpreting the prices as dual variables. Try to find a feasible allocation, an integer primal solution that satisfies the stopping rule. If such solution is found, stop and use it as the final allocation. Otherwise update prices and go back to b).

Conclusions

The paper proposes and compares coordination mechanisms based on game, contract and auction models. The game theory approach seems to be a basis for the other two approaches. Contracts and auctions are possible to model as specific game theory models. The proposed contract model with stochastic price-dependent demand is a generalized newsvendor model. The proposed combinatorial double auction model is binary linear programming model solved by iterative process. Biform games are promising for combination of non-cooperative and cooperative behaviour of the participants. It may form a global view of the coordination problem. Combination of these approaches can be a powerful instrument for coordination in supply chains.

Acknowledgement:

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PUBLIC SUPPORT IN THE FOOD INDUSTRY IN POLAND

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Keywords:

food industry – strippable policy (protectionism) – interventionism – direct payments – pre-accession funds

JEL classification: Q22

Abstract:

The aim of this study is to present the types and amounts of public support for the food industry in Poland as this sector is very important for food safety of the country. States help their own enterprises through numerous instruments of influence in order they can compete with the other entities on the market in particular with transnational food concerns. During the pre-accession period Poland made use of pre-accession programmes such as SAPARD, PHARE whereas after the accession of Poland to the European Union the entrepreneurs had and have the possibility to benefit from preferential loans, export subsidies, direct payments, grants for private storage, reference prices and others. The analysis of these instruments is based on examining their amount and comparing them with the similar instruments in the other European Union countries.

Introduction

The food industry enables proper functioning of both developed and developing countries therefore it is one of the most important sectors of national economy. In the functioning of the food industry the important role played the accession of Poland into the European Union in 2004 that caused the opening of Polish economy to the European Union markets. The position of Polish agriculture changed after the accession and in the common agricultural policy was determined by numerous parameters being in effect in the European Union (Czyżewski & Poczta, 2013) as well as its management with the use of instrumentation that is instruments of the market regulation, organization of its activity in time and institutions (Czyżewski & Henisz-Matuszczak, 2006). Poland's membership in the European Union enabled the Polish entrepreneurs to sell products on a wide market as well as compete with the international food concerns. It has also caused the important changes in the methods, ways and standards of production in the Polish food industry (Firlej, 2014b). The agricultural entrepreneurs have been functioning on the highly competitive market where the competition of the operating establishments is present in the all areas of production and trade proposing the best

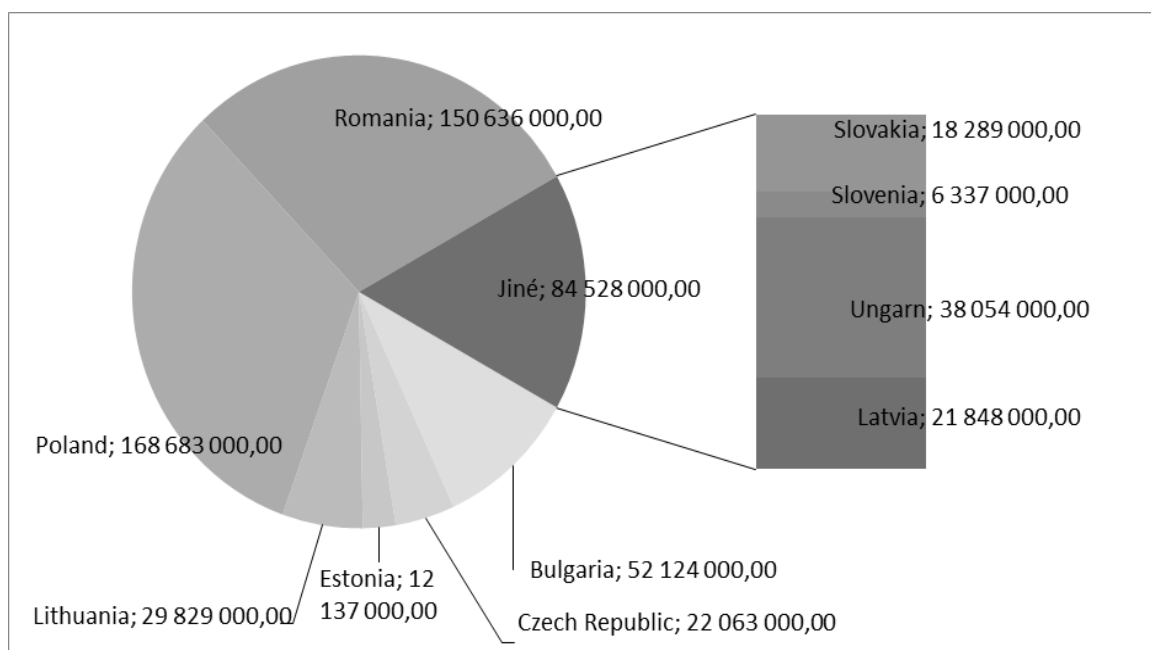
product, which is connected with its development (Firlej, 2014a). Poland received funds for these aims from the European Union programmes SAPARD and PHARE (during the pre-accession period) and from the structural funds. The public funds transfers (the European Union and domestic) to the sector allow for significant stimulation of the process of food economy modernization, improvement of its competitiveness and the quality and safety of food. The Polish entrepreneurs operating in the food industry made use of assistance financed from the European Union funds and domestic funds. At present the Polish farmers can use the following types of support: preferential loans, direct payments, operating groups creation, private storage subsidies, reference prices, support instruments of information, promotional and educational character.

1. The aim, object and methodology of the studies

The aim of this article is to present the types and amounts of public support for the food industry in Poland as this sector is very important for food safety of the country. The object of the study is the analysis of the source texts referred to support of the food industry in Poland and in the European Union. Individual countries as well as the European Union support their own enterprises in order they can compete with the other market subjects in particular with transnational food concerns. The object of the study were the funds that Poland made use of during the pre-accession period such as the SAPHARD and PHARE. After the accession of Poland to the European Union the entrepreneurs had and have the possibility to benefit from: preferential loans, export subsidies, direct payments, private storage subsidies, reference prices and the others. The analysis of these instruments is used as a methodology of the studies which is based on investigating their size and comparing them with the similar in the other European Union countries.

2. Results

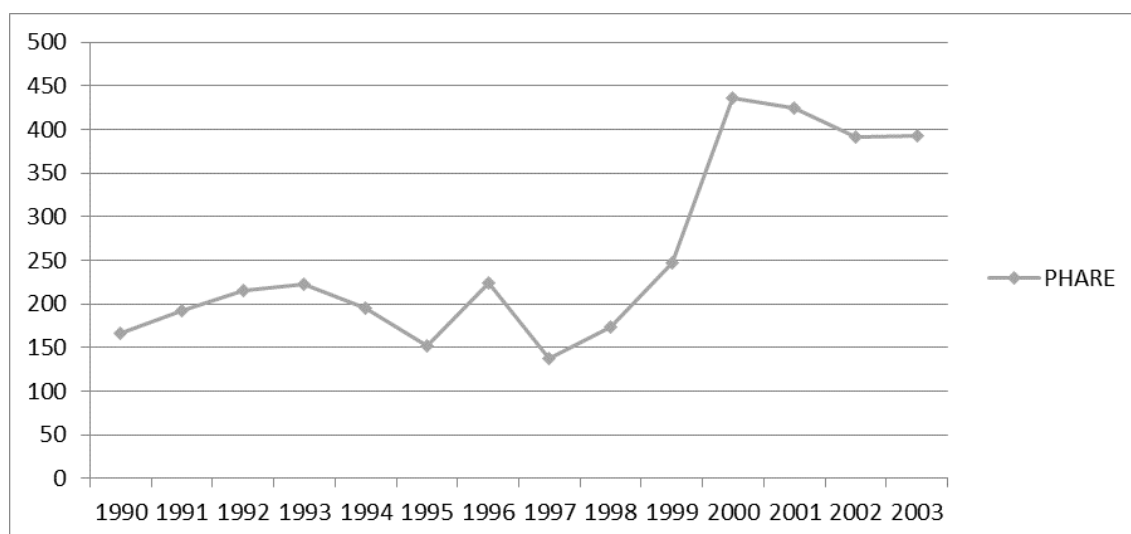
The first assistance given to Poland was aimed at adapting the country to the European Union requirements thanks to such pre-accession programmes like: Special Pre-accession Programme for Agriculture and Rural Areas Development, Poland and Hungary: Assistance for Restructuring their Economies. The realization of the European Union support in Poland can be divided into three stages: the first from 2004, the second during 2004-2006 and the third during 2007-2013. Poland used the SAPARD programme together with ten other countries. This programme was aimed at the improvement of competitiveness of the Polish entrepreneurs and adapting the facilities to sanitary, hygienic, veterinary and quality standards (Cieślewicz, 2011).

FIG. 1: Annual allocation of funds for the countries taking part in the SAPARD programme

Source: Sapard reviewimpact: Analysis of the agriculture and rural development, European Institute Foundation, 2005 r., s.12.

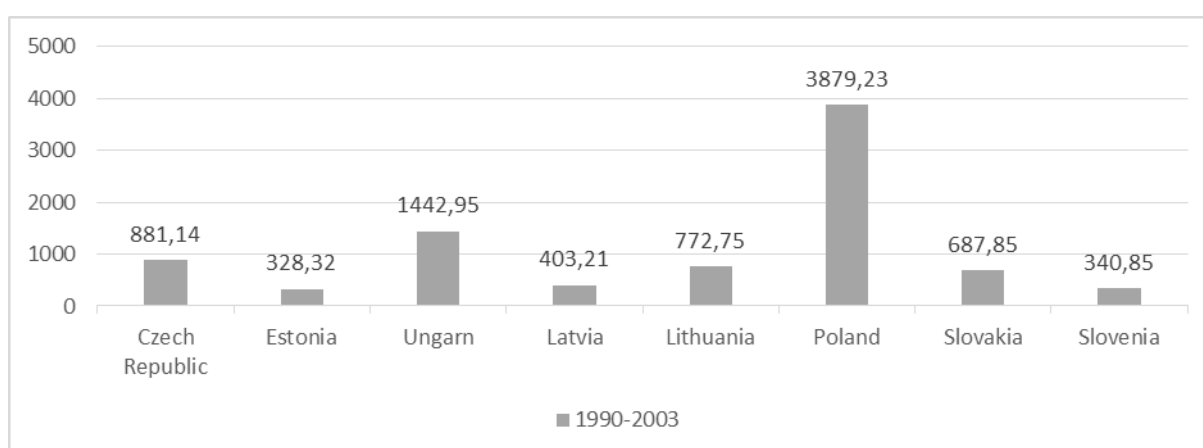
The applications for funds from the SAPARD programme in Poland terminated on the 20th of February 2004. There were submitted 27761 applications and the contracts signed for in total 4779 million zlotys. Fig.1 shows the annual allocation of funds for the countries taking part in the SAPARD programme in EUR. Annually the European Union allocated 520 million euros, and Poland received the most funds amounting to 168, 683 million euros. The second was Romania – 15, 636 million euros, and the least annual allocation of funds received Slovenia – only 6337 million euros.

Another pre-accession programme, which at first was only addressed to Poland and Hungary, was the programme ‘Poland and Hungary: Assistance for Restructuring their Economies’ PHARE. Poland used it in the years 1990-2003. The main aim of this programme was to adapt the infrastructure to the European Union members standards by increasing the mobility of investments.

FIG. 2: PHARE figures for Poland in the years 1990-2003 in millions euros

Source: Own studies on the basis of Committee for European Integration, Taking advantage of the PHARE funds.

Poland received 3,916 billion euros with the PHARE programme and since 1997-2000 there has been the rapid increase of funds from this programme (FIG.2). In the years 1990-2003 Poland received the most funds from the PHARE programme compared with the other countries that took advantage of assistance from this program (FIG. 3). After the accession to the European Union Poland had an opportunity to benefit from export subsidies which were used to 2013.

FIG. 3: PHARE figures in the eight selected countries in the years 1990-2003 in million euros

Source: own studies on the basis of Librarun The Accession Story: The EU from 15 to 25 Countries, s. 122.

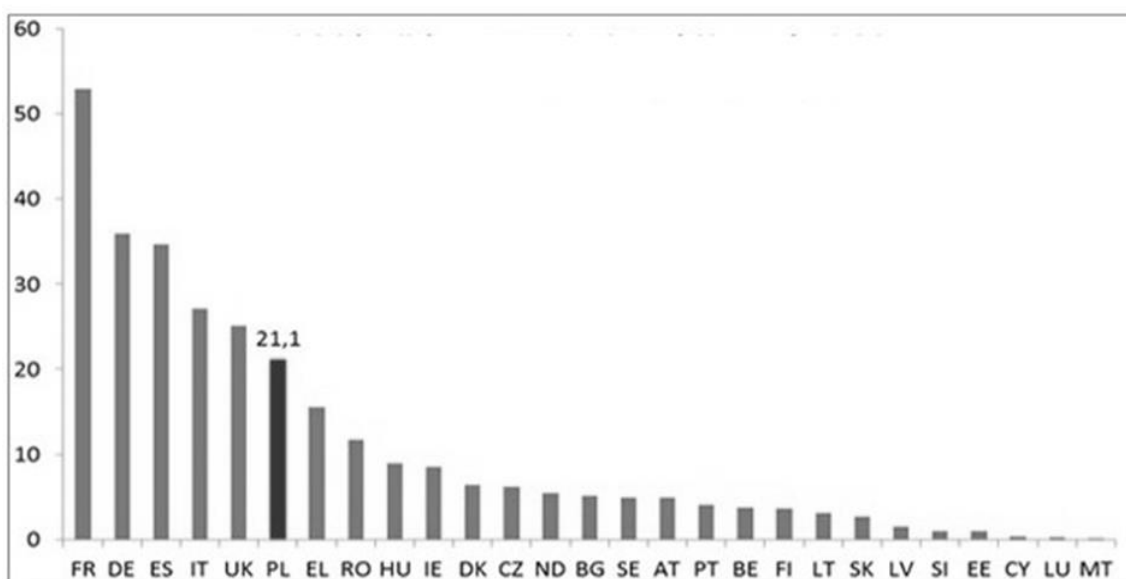
Since 2004 the Polish entrepreneurs of the food industry have received the support for export amounting to nearly 460 million euros, three times more than Lithuania

(142 million euros) and five times more than Hungary (91 million euros). The value of subsidies for export in the European Union from the year 2003 to the year 2012 decreased by about 95%. The largest subsidies during the researched years were for the dairy products.

Currently these forms of assistance are not present in the European Union countries and one of the fundamental assistance instruments within the Common Agricultural Policy is the system of direct subsidies financed from the first pillar of the Common Agricultural Policy. Since 2004 Poland has been using simplified system of direct subsidies. During the early years the level of these payments was much lower than in the other fifteen European Union countries. Only in the year 2010 it was compensated thanks to the funds from the domestic budget. In 2013 the average amount of subsidies in the European Union was 266 EUR/hectare and Poland was under this average because the amount of subsidies was 197 EUR/hectare. The largest subsidies received the farmers from Greece 544 EUR/hectare, Malta 494 EUR/hectare and the Netherlands 669 EUR/hectare, the smallest Latvia 83 EUR/hectare and Estonia 112 EUR/hectare. Fig.4 shows the division of funds within direct payments in the years 2014-2020 in the European Union countries.

In the years 2014-2020 the largest amount of funds within direct payments will receive France and Germany, the smallest Malta and Luxembourg, Poland is on the sixth position and will receive about 21,1 billion euros for direct payments.

FIG. 4: The division of funds within direct payments in the years 2014-2020 (milliard EUR, current prices)



Source: Chamber of Agriculture for Wielkopolska

Apart from direct payments new activities aiming at improvement of the situation of the Polish producers will be undertaken within PROW 2014-2020. That will be the creation of operating groups for innovations – EPI which will develop new solutions concerning new products, practices, processes, technologies, methods of organization and marketing in the agricultural, food and forest sectors. 36 904 246 euros was allocated for this purpose from the European Union funds and together with domestic funds it will amount to 57 999 730 euros. The assistance will be in a form of subsidies covering the part of the costs of classified transactions. The recipients of these activities will be the operating groups for innovation created by at least two different entities from different categories: farmers or groups of farmers, forests owners, scientists, institutes or scientific units, universities, food industry (including catering services), the entrepreneurs of the sectors acting for the benefit of food industry (for example producers of fertilizers, feed, crop protection chemicals, machines and devices for production) (Monitor Polski, 2015).

An important instrument of influence on the food industry market is the reference price. In the European Union the so called basic price for certain food industry goods is set which is a reference level for the undertaken intervention activities. The reference price is estimated as a weighted average of an agricultural and food product market price in the individual European Union countries taking into account the level of production in these countries. When the reference price falls below the basic price and there are reasons that it will remain at this level the intervention buying of products begins. TAB. 1 presents reference prices for the selected products.

TAB. 1: The reference prices of the selected products

Product	Price (in Euro)	Price (in PLN)	From	To/Untill
Wheat	101,31 EUR/t	413,89 PLN/t	1.04.2015	30.04.2015
Sugar beet	26,29 EUR/t	110,15 PLN/t	1.10.2014	30.09.2015
Skimmed dried milk	169,80 EUR/100 kg	693,67 PLN/100 kg	1.04.2015	30.04.2015
Butter in blocks	246,39 EUR/100 kg	1006,55 PLN/100 kg	1.04.2015	30.04.2015
Beef	378,33 EUR/100 kg	1589,35 PLN/100 kg	29.03.2015	5.04.2015
Mutton	659 EUR/100 kg	2761,14 PLN/100 kg	29.03.2015	5.04.2015

Source: Own studies on the basis of the data from Agro Tydzień BGŻ Bank, Nr 388 – 13 April 2015

The data presented in table 1 shows that the reference prices of such meat as beef and mutton are at the higher level than the reference price for the plant products. The highest reference price of mutton was 2761,14 PLN/100 kg, the lowest was the price of sugar beet 110,15 PLN/ton.

TAB. 2: The reference prices of livestock and meat in the selected European Union countries (30.03-5.04)

Country/type	Pigs E EUR/100 kg mps	Cattle kl. U+R+O EUR/100 kg mpc	Chicken carcasses 65% EUR/100 kg
Germany	143,93	378,37	260,00
France	134,00	376,65	220,00
The Netherlands	124,35	341,77	196,00
Denmark	129,19	382,13	254,44
Poland	143,33	317,29	129,84
The Czech Republic	138,60	326,24	180,37
Hungary	144,55	241,95	157,01
Lithuania	143,05	270,43	152,28
Slovakia	144,89	308,76	177,67
Romania	143,59	274,98	149,74
UE in average	141,22	376,09	189,07

Source: Agro Tydzień, BGŻ Bank, Nr 388, 13.04.2015, pp. 4.

The average reference price of pigs in the European Union was 141,22 euro/100 kg, the Polish price was a little higher 143,33 euro/100 kg, the highest price was in Germany and it was by 60 cents bigger than in Poland. The reference price of the cattle of class U+R+O and chicken carcasses was by 65% lower in Poland than the average price in the European Union. The lowest prices were in Romania, Slovakia and Hungary (TAB.2).

There are also the forms of special assistance in Poland such as the subsidies for private storage. This mechanism is activated periodically upon the request of a member state of the European Union by the European Commission and its aim is to stabilize the market by seasonal use of surpluses of production. The grants have an interim nature when after the determined time a product comes back on the home market of the European Union again or stable when a product under this mechanism is taken beyond the European Union borders. (The Agency of Agricultural Market, 2015). Currently two products are

supported in this way – butter and beef. An entrepreneur can apply for private storage grants for the period of 90, 120 or 150 and a rate amounts to 200 euros per ton and increases along with the time of storage. The lowest rates are for the whole or cut along bacon and begin from 210-233 euros per ton. The most the entrepreneurs will receive for the storage of ham, shoulder, loin with pork butt, pork butt, loin with or without chump – from 254-278 euros per ton. The number of realized applications from the 9th of March 2015 to the 3rd of April 2015 is presented in table 5.

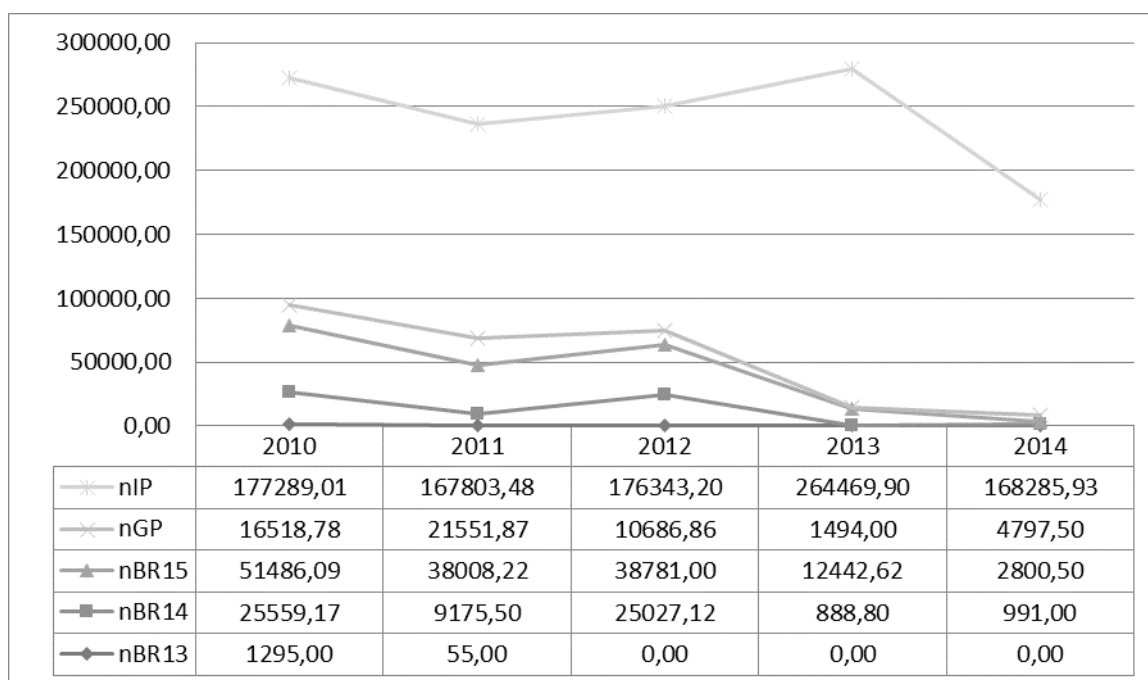
TAB. 3: The number of realized applications for private storage from the 9th of March 2015 to the 3rd of April 2015.

Member country	Number (tons)
Spain	10336
Denmark	9456
Poland	9137
Germany	6679
Italy	3630
France	2527
The Netherlands	2405
UE-28	47368

Source: AgroNews: Applications for over 47 tons of pork. European Commission will end granting subsidies soon, 2015.

The European Commission introduced the subsidies for private storage of butter and skimmed dried milk on the 4th of September because of low market price and difficult market situation of dairy products caused by the Russian embargo. On the 25th of February 2015 the European Commission extended the system of subsidies for private storage to the 30th of September 2015.

Within the domestic assistance in 2009 the Agency of Restructuring and Modernization of Agriculture made an agreement on granting preferential loans with the Bank Polskiej Spółdzielczości S.A. (Bank of Polish Cooperative Movement), the Bank Gospodarki Żywnościowej S.A. (Bank for food industry and agriculture), the Mazowiecki Bank Regionalny S.A. (Mazowiecki Regional Bank), the SGB Gospodarczy Bank Wielkopolski S.A. (Wielkopolski Commercial Bank), the ING Bank Śląski S.A., the Bank BPH S.A., the Bank Zachodni WBK S.A. and the Bank Pekao S.A.

FIG. 4: A figure of preferential loans granted in Poland in thousands PLN

Source: Own studies on the basis of Statistical Bulletin for agriculture 2013 and 2014.

Until the year 2015 the entrepreneurs could take a loan with the ARiMR interest subsidy within the following types of loans:

- nIP - this loan was granted for the realization of the investment in agriculture or processing of agricultural products and for purchasing stocks and shares,
- nGP - this loan was granted for the realization of the investment in agriculture or processing of agricultural products which allow to increase the goods offer and its better adaptation to the market requirements, improvement of production effectiveness, maintenance or improvement of the conditions in protection of environment requirements and the like,
- nBR13 - this loan could have been allocated for investments in the farms producing starch potatoes for production of starch,
- nBR14 – this loan could have been allocated for the investments in farms, special branches of agricultural production, slaughter, meat cutting and meat processing plants, storage refrigeration in freezing and storing meat and in the eggs processing plants,
- nBR15 – this loan could have been allocated for the purchasing or installation of the devices for acquiring and storage of milk, purchase of necessary machines and equipment.

The data presented in fig. 5 shows that the loan granted most often was the loan from the nIP line, during the discussed period this loan was granted 5414 times for the total sum of 954191,52 thousand zlotys. The least popular was the nBR13 loan because in the years 2010-2011 it was granted twice for 1350 thousand zlotys. During the year

2014, 789 loans were granted for the food industry for the amount of 176874,93 thousand zlotys. The loan that was granted most often was the nIP loan and 768 such loans were granted for the sum of 168 285,93 thousand zlotys.

Summary

The study gives an analysis of the support of the Polish agriculture, as agriculture is the area of politics for which the citizens of the European Union decided to share responsibility and finance it with necessary funds. The European Union became so to speak an administrator regulating the agriculture support in the individual countries on the principle of equal respect of their laws concerning the benefits from subsidizing and responsibilities in the area of food production. Analyzing the budget share of expenses allocated for agriculture in the European Union it can be noticed that it significantly decreased from 70% in the 70s to about 38% in 2015. That results from the current needs in the other fields of the European Union countries economies as well as from successively carried out reforms that effectively limited the amount of support for the food industry. It is excellent that since 2004 (up to now) these expenditures have remained at the same level.

Assessing the public support during the last 25 years in the food industry the following conclusions can be drawn:

- a) Pre-accession and after- accession periods significantly contributed to the active financial support of the Polish agriculture development as well as all the initiatives aiming at introducing innovations and improvement of the Polish agriculture competitiveness.
- b) The SAPARD programme as a pre-accession programme contributed to the improvement of the domestic entrepreneurs competitiveness, adapting the facilities to sanitary, hygiene, veterinary and quality regulations. The European Union allocated 520 million euros per year for financing this programme and Poland received the most of the funds.
- c) The programme 'Poland and Hungary: Assistance for Restructuring their Economies' PHARE, from which Poland benefited in the years 1990-2003 enabled to adapt infrastructure to the standard of the European Union members through the increase of investment mobility. Compared with the other countries Poland received the most funds from the PHARE programme as well as had the opportunity to take advantage of export subsidies which were used to 2013.
- d) The main instrument of assistance within the Common Agricultural Policy in 2015 is the system of direct subsidies financed from the first pillar of the Common Agricultural Policy. The simplified system of direct subsidies has been used in Poland since 2004 which caused that in the beginning years of the membership the level of these payments was much lower than in other fifteen European Union countries but in 2010 it was equaled.
- e) The important instruments that influence the food industry are the referential price, which is the level of reference for the undertaken intervention activities,

the other forms of special assistance such as private storage subsidies and granted by banks preferential loans.

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USING DEA FOR EVALUATION OF DEVELOPMENT OF THE DISTRICTS IN THE CZECH REPUBLIC

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Keywords:

Data envelopment analysis – Malmquist productivity index – efficiency – development

JEL classification: R11, R15, C67

Abstract:

The main aim of our contribution is to evaluate economic development of the districts in the Czech Republic during the last twelve years. To evaluate particular years and districts, the Data envelopment analysis (DEA) method was used. In order to assess the efficiency development of the districts, we decided to use Malmquist productivity index (MI). The comparison of districts efficiency with their potential development represented by Malmquist index is an additional aim of this contribution. The input data set are based on statistics periodically published by the Czech Statistical Office. The model considered five socio-economic variables: unemployment rate, criminality, average length of incapacity to work, ageing index and proportion of economically active inhabitants. From obtained results we derived several representative groups of regions from point of view of efficiency and development within selected time period.

Introduction

To analyse the economic efficiency in particular districts in our work, we have used the Data Envelopment Analysis (DEA) models. This method is advantageous because it does not require initial weights for particular criteria. In this case, the regions were assessed according to the achieved input and output so that the efficiency (the ratio of the outputs and the inputs) would be maximal. Therefore, the potential of the particular regions are respected in the maximal way, see more in section Methods.

In the paper by authors Martić and Savić (2001), the assessment of the regional performance in Serbia was conducted using the DEA Models together with discriminant analysis. The work of Xiong, Liu and Tang (2008) shows problems with the choice of criteria for the assessment made with the DEA Method in the field of regional development and the comparison with the static comparative analysis. The social-economic development in the Province of Sichuan is analysed by Li and Cheng (2010) using the DEA Method.

1. Methods, literature overview

We have evaluated the efficiency and development of 76 districts (NUTS-4, resp. LAU-1) in the Czech Republic, according to the selected criteria by the DEA method. We had to exclude the city of Prague from the model because of its exceptionality originating in the capital status and in the subsidy policy of the EU.

This method was initially proposed to evaluate the general efficiency by comparing the weighted sum of inputs and outputs. Therefore, it was necessary to suggest such indicators representing economic efficiency of the regions.

We tried to involve economic and social factors into the assessment and using the reached results, we determined representative groups of regions from the point of view of efficiency and development within the selected time period. The following data were included into the assessment: unemployment rate, criminality, average length of incapacity to work, ageing index and proportion of economically active inhabitants.

The unemployment rate (UN) is represented by so called the registered unemployment rate. This rate is derived as the ratio of the number of job applicants out of work (registered by job centres) to the number of employees plus the number of job applicants. In all cases, this is an annual moving average published by the Ministry of Labour and Social Affairs. This indicator is considered, from the point of view of DEA method, to be an input because lower values are desirable.

The criminality (CR) represents the number of crimes per 10 thousand inhabitants. The source for this statistics is the Police Headquarters of the Czech Republic. Criminality is recognized as an input too, because lower value is desirable.

The average length of incapacity to work (UNC) is represented by the number of calendar days of incapacity to work per one registered event. The information about incapacity to work (IFW) was provided by the Czech Social Security Administration. This indicator is considered as an input as well as the two previous ones.

The ageing index (AI) is a composite demographic ratio, defined as the percentage of the old age population (over 65) over the young population (under 15). It is one of the several demographic indicators (e.g. old age dependency index, average age, turnover index) that can be used to measure the rate at which a population ages. The ageing index is, however, difficult to control. For its specificity, we treated it as an uncontrollable input.

The last index is the proportion of economically active inhabitants (EA). This indicator represents the proportion of economically active inhabitants, defined as a ratio of inhabitants aged from 15 to 64 to the whole population. This indicator was considered

as an output, as from the sustainable regional development's point of view, higher values of this indicator are desirable.

The DEA models come out from Farrel's model (1957) used to measure the efficiency of the units with one input and one output which was extended by Charnes, Cooper, and Rhodes (1978) – CCR model. The CCR Models are assumed to have a constant range yield, i.e. the changes of the number of input are proportionally projected to the changes of the number of output. The use of the DEA Method is more detailed described, for example, in work of Cooper, Seiford and Tone (2007).

The DEA method is used to divide evaluated subjects (Decision Making Units - DMUs), according to expended inputs and produced outputs, into two groups – efficient and inefficient. Basic DEA models CCR and BCC are either input or output oriented. The output oriented model aims to maximize outputs without requiring a change of one or more of input values. The input oriented model tries to minimize inputs without requiring a change of one or more of output values. The CCR model has assumed that all inputs and outputs can be varied. So we have used modification of this model - CCR model with non-discretionary inputs.

The disadvantage of the DEA method, when compared with multicriteria decision making methods, is a certain limitation in terms of the number of inputs and outputs included in the model. It stands to reason that with an increase of inputs and outputs under the same number of assessed unit, the number of efficient unit increases, for more information see Dyson et al. (2001). For this reason, we involved in efficiency assessment only four inputs and one output.

In the first stage, we have considered four inputs and one output (see above). Because one of input (index of ageing) is recognized as uncontrollable, we had to use DEA model with non-discretionary inputs. We evaluated the efficiency of all districts within 12 years (2001-2012).

Furthermore we can compare their progress with Malmquist productivity index (MI). This index was in its initial formulated by the Swedish economist Sten Malmquist (1953) and further developed in the work of Färe and Grosskopf (1992). This index is a geometric mean between two consecutive periods in order to avoid an arbitrary selection among base years.

In the next stage we computed Malmquist productivity indices based on previously obtained results by DEA method.

Because we included 76 districts within 12 time periods in our model, the usage of special DEA software was necessary. The overview of DEA software support is given by Jablonský (2009). At our faculty we have only Banxia Frontier analyst at our disposal. This software can work with basic DEA models including mentioned non-

discretionary model, however does not offer calculation of MI. Calculation of MI is possible with DEAP.

2. Results and discussion

In our work, we dealt with economic efficiency on the level of districts (LAU 1). Considering the data accessibility, we assessed regions from year 2001 to year 2012. The source data are available at home.ef.jcu.cz/~ludva/research/districts/dea_4.xls.

From correlation between variables entering the DEA model we can see that the partial correlation indices were not higher than 0.436, so the requirements for building a DEA model were fulfilled.

To determine the rank of districts we calculated the arithmetic mean of efficiencies obtained for twelve assessed periods see Table 1. Among the best districts are the regions surrounding the capital: Praha-západ, Praha-východ, Mladá Boleslav, Mělník. The worst districts from the efficiency point of view are border districts (Děčín, Tachov, Teplice) and North Moravian districts (Ostrava, Frýdek-Místek, Karviná) which is not surprising. For detailed results see home.ef.jcu.cz/~ludva/research/districts/dea_4.xls.

TAB. 1: Mean efficiency for best and worst ten districts

Rank	District	Mean	Rank	District	Mean
1	Praha-západ	1.000	67	Děčín	0.799
2	Vyškov	0.995	68	Příbram	0.797
3	Třebíč	0.989	69	Tachov	0.794
4	Mladá Boleslav	0.983	70	Frýdek-Místek	0.786
5	Praha-východ	0.977	71	Břeclav	0.781
6	Jihlava	0.975	72	Teplice	0.761
7	Pelhřimov	0.974	73	Česká Lípa	0.713
8	Mělník	0.972	74	Jablonec nad Nisou	0.709
9	Cheb	0.970	75	Ostrava-město	0.706
10	Hradec Králové	0.967	76	Karviná	0.706

To evaluate the efficiency progress within the assessed time period and determine the best districts, we calculated also the geometric mean of MIs for each of the districts from MIs obtained for eleven periods (2001/2002 – 2011/2012). We used the geometric mean instead of the arithmetical because the MI is the geometrical mean between two consecutive periods. Five of ten districts with the fastest development were the districts where regional capitals are located (Brno, Olomouc, Ústí nad Labem, Ostrava and Liberec). High MI for some districts is caused by low efficiency that implies possible growth potential (Ostrava, Děčín, Bruntál).

On the contrary, in the subset containing worst ten districts, we can see mainly the districts surrounding the capital. The districts of Šumperk and Prachatice had low mean efficiency and at the same time, they did not show any progress.

The binding of the efficiency level with its development was widely explored in the next part of contribution where subsets of the best and the worst districts were extended.

We tried to create subsets with respect to the rank of particular district in efficiency and development evaluation. Four combinations may incur: low efficiency and low development, low efficiency and high development, high efficiency add low development and high efficiency and high development. The subsets for the first three combinations are given in Tables 2, 3 and 4.

Table 2 presents districts with low efficiency and low development. That means that the level of efficiency was low and remained low within the whole assessed period.

TAB. 2: Subset of districts with low efficiency and low Malmquist index

District	Mean of EF	Rank in EF	Mean of MI	Rank in MI
Louny	0.800	66	1.015	62
Šumperk	0.806	63	1.000	74
Strakonice	0.810	59	1.018	59
Prachatice	0.819	56	1.003	71
Beroun	0.849	51	1.018	58

Table 3 represents districts with low efficiency and high development. This group represents districts with the biggest improvement. This improvement was caused by the initial low efficiency. The typical examples are Karviná, Ostrava and Děčín.

TAB. 3: Subset of districts with low efficiency and high Malmquist index

District	Mean of EF	Rank in EF	Mean of MI	Rank in MI
Karviná	0.706	76	1.039	20
Ostrava-město	0.706	75	1.051	6
Jablonec nad Nisou	0.709	74	1.038	22
Teplice	0.761	72	1.043	13
Tachov	0.794	69	1.044	12
Děčín	0.799	67	1.051	7
Trutnov	0.809	61	1.038	24
Brno-město	0.809	60	1.060	3
Karlovy Vary	0.828	55	1.046	11
Bruntál	0.829	54	1.062	2
Ústí nad Labem	0.833	53	1.052	4

The last Table 4 shows the districts with low development and high efficiency. There we can see the districts which are efficient, but their growth potential has been exhausted. The largest development usually passed before the assessed period. The typical example is the district of Praha-západ which was fully efficient for all twelve years.

TAB. 4: Subset of districts with high efficiency and low Malmquist index

District	Mean of EF	Rank in EF	Mean of MI	Rank in MI
Praha-západ	1.000	1	1.003	69
Mladá Boleslav	0.983	4	1.021	52
Praha-východ	0.977	5	1.005	68
Pelhřimov	0.974	7	0.989	76
Havlíčkův Brod	0.964	11	1.014	63
Benešov	0.950	15	1.003	70

The existence of the last possible group representing districts with high average efficiency has not been proven. The intersection of respective sets was empty.

Conclusion

All 76 districts were assessed according to the following criteria: unemployment rate, criminality, average length of incapacity to work, ageing index and one output proportion of economically active inhabitants. Prague was excluded, see above. We used input oriented CCR model. The same DEA model was used for calculating efficiency in order to determine Malmquist productivity indices.

Only one district was fully efficient within the whole time period – Praha-západ. Two districts (Pelhřimov and Vyškov) were efficient nine times. On the contrary, 50 districts were inefficient for the whole period. From the point of view of the particular years, 13 districts were recognized as fully efficient in 2012 and 12 districts in 2010.

In terms of efficiency change evaluated with MI, among the best districts there were mainly districts where regional capitals are located (six of fifteen) with unexpended developing potential. Surprisingly, among best districts were not the districts of Praha-západ and Praha-východ.

In the final stage, we divided the districts into three groups according to the combination of the average efficiency and average Malmquist index (low-low, low-high, high-low). The existence of the last possible group representing districts with high average efficiency and high MI has not been proven.

The most problematic districts, regarding economy, are the regions with low efficiency and low development. These are usually neglected districts such as Šumperk and Prachatice.

The group of districts with low efficiency and high development represents districts with the biggest improvement. This improvement was caused partially by the initial low efficiency and partially by the development within the assessed period. The typical examples are Karviná, Ostrava and Děčín.

The last subset represents districts with low development and high efficiency. There, we can see districts whose growth potential has been exhausted although the mean efficiency is high. The largest development usually passed before. Typical example is the district of Praha-západ which was fully efficient for all twelve years but its average Malmquist index is low.

The greatest lack of this contribution is a certain imbalance between the number of inputs and outputs – only one output is included. Such as output could be the average salary in a particular district. However, the Czech Statistical Office recorded the average salaries at the district level only till 2005.

In further research, we would like to focus on the spatial character of the model of districts efficiency. This character was represented during the modelling process in Rost and Friebe (2013) but only via Euclidean distances. We would like to implement mutual driving distances and driving distances to the administrative centres (capital and county town).

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THE ECONOMIC SITUATION OF AGRICULTURAL HOLDINGS IN THE EUROPEAN UNION AFTER 2004

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economic situation – agriculture – Common Agriculture Policy – subsidies

JEL classification: Q12, Q18

Abstract:

The main aim of the article is to identify the economic situation of agricultural holdings in the EU (25) countries. The economic situation of agricultural holdings in the EU is much varied and depends primarily on conjectural factors, including the prices of agricultural products. Variability of incomes in the case of farms from the EU (10) (new members) was generally lower. The existing extensive system of support although stabilizes the level of income it does not eliminate a significant variability, despite an increase in the level of payments and subsidies. Farms from the new member states achieve much lower incomes on the background of agricultural holdings from old member states EU(15).

Introduction

Agriculture in the EU countries is one of the sectors covered by a high support, which in practice is carried out by the instruments of the Common Agricultural Policy (CAP). Despite of the fact, that there is the trend decline in the importance of this sector in the GDP, what is a permanent and universal phenomenon, it does not mean a weakening of its role in the economic policy. At the same time agriculture takes on added significance in the context of widely understood meanings of ensuring food security, energy and the delivery of public goods, which is also increasingly exposed in the evolution of the CAP mechanisms. As a result the increasing importance of non-production and non-food functions of agriculture. It can be stated with a high probability that agriculture increasingly is dependent on external determinants, independent of the same head of agricultural holdings. This is due to the increasing integration of the world's food markets (Rembeza, Seremak-Bulge, 2009) and in the case of EU countries, with the importance of strong institutional factor (CAP) (Giersz 2011).

The biggest EU enlargement was in 2004, the accession made 10 new member states. Moreover, in the years 2004-2012 we had to deal with not noticed previously

fluctuations in agricultural prices and the global economic crisis. There is a question about how in that period the volatility of income was shaped, taking into account the old and new member states. The main aim of the article is to identify the economic situation of agricultural holdings in the EU(25) countries.

The economic situation of agricultural holdings was considered primarily from the perspective of agricultural income. The article focuses on the main determinants shaping the phenomenon studied, ie. subsidies support income and prices of agricultural products. The analysis takes into account the aggregated data for all the EU countries (25) who are members at least since 2004, specifying the so-called the old EU member states (15) and the new EU members (10).

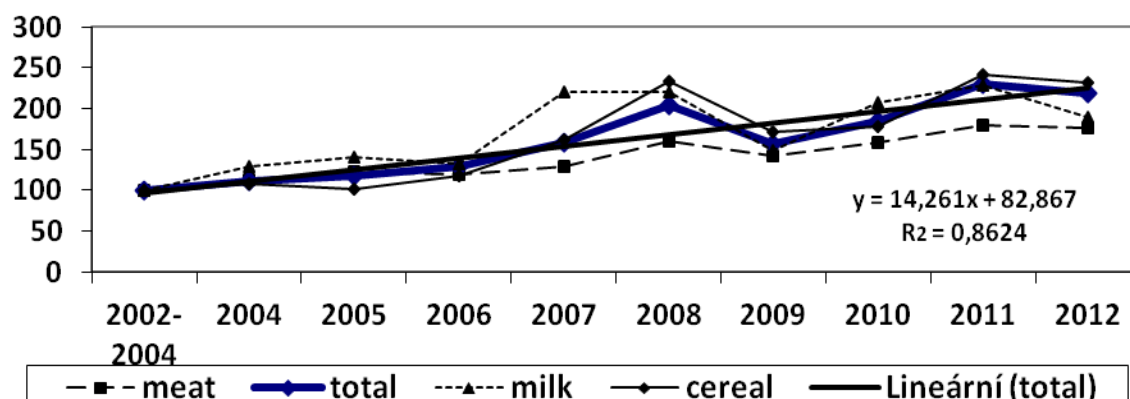
1. Research methods

The evaluation of changes in the economic situation of farms in the EU has been made by using the aggregated results within the agricultural accounting system of the EU FADN (Farm Accountancy Data Network). In the field of observation of this system there are market farms, ie. the main beneficiaries of the Common Agricultural Policy, which produce in a given region or country at least 90% of the standard value of production. Is a random selection of agricultural households, taking into account the representativeness in terms of economic strength, types and countries. The time range adopted in the analysis refers to the period 2004-2012, ie. the period covering the biggest enlargement of the EU, on the other hand it results from the availability of data. The analyzes used a comparative analysis of the studied phenomena, using means, coefficient of variation, Pearson correlation and trend equations.

2. Results

Dependence economic effects in agriculture on weather conditions, and low elasticity of agricultural production leads to greater volatility of prices than production. As a result, the sector's reactions to changes in economic conditions take place mainly by the price volatility of agricultural products and it is one of its main determinants. In the years 2004-2012 we had to deal with high volatility in agricultural commodity prices on food markets in the world (fig. 1), wherein oncan notice their increase since 2006. Ssimultaneously it has been observed cyclically repeated fluctuations around the trend line. In total during the examined period it took place upward trend when it comes to agricultural commodity prices, especially for cereals (wheat).

Until 2008, prices of agricultural products increased. Then in 2009 there was a rapid decline, then in a period 2009-2011 growth and a decline in 2012. This situation determined the general economic conditions in agriculture. Such significant fluctuations in agricultural product prices resulted, inter alia, crop failure, from speculation in these

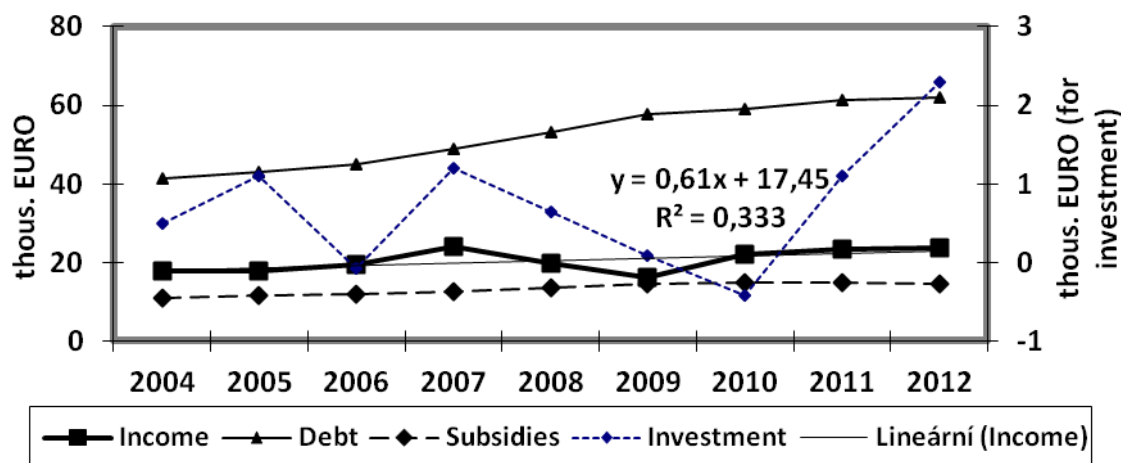
FIG. 1: The FAO index of agricultural commodity prices in the years 2004-2012

Source: based on the FAO data for the relevant years

markets, the growing demand for food, plant products increased demand for non-food purposes. It has been stated that prices of agricultural products strongly reacted to the changing of the global business outlook. It is particularly in the case of the price of wheat and oilseeds. The prices of these products react more flexibly to changes in supply-demand relationship, which makes from the other hand, that they can quickly catch up for declines (Kavallari, Fellman and Gay, 2011).

In the analyzed period it has been noted a moderately upward trend in the case of farm incomes in the EU (25). Their formation was corrected by conjunctural conditions. Confirmation of this can be relatively high coefficient of correlation (0.74) between income and the FAO index of agricultural commodity prices. The upward trend in incomes mainly resulted the improvement in relative prices in favor for agriculture, as well as direct payments and other payments that increase was especially the case of the new EU Member States (10). With high probability one can be accept that part of this increase can also be attributed to both: increased production resources and improve efficiency. Much more clear upward trend occurred for debt of agricultural holdings. In this case, the correlation with the change of the FAO index price was even higher (0.9). It is possible that the reaction of farms to changes in economic conditions is increasing, or reducing the tendency to propensity to take out loans and thus the implementation of specific terms of risk operational strategy. It is difficult to clearly determine trends for the formation of the net investment. Their level is relatively low, and there is high volatility. The correlation coefficient of the FAO index of agricultural prices is moderate (0.52), which confirms that conjectural factors have influence on the level of net investment. In addition, it is worth noting that the low level of this parameter, and even negative (in 2010) result from the relatively high level of depreciation, and this in turn with high-value of assets involved in farms in the EU countries. Consequently, it is difficult to achieve expanded reproduction of assets, especially in countries in which dominates the high intensity of agricultural production, eg. in the Netherlands.

FIG. 2: The economic situation of agricultural holdings in the EU (25) in the years 2004-2012 (data for the average agricultural holding being in the field of observation of the FADN system, in thous. Euro)



Income = income from the family farm; Net investments = gross investments - depreciation; Subsidies = subsidies for investment + operating subsidies; The debt = long-term liabilities + current liabilities

Source: own calculations based on (FADN, 2015)

It has been noticed significant differences in the economic situation of agricultural holdings between the so-called the old member states (table 1). In the case of 5 countries the average level of subsidies was higher compared to their income (with subsidies). This means that if no support under the EU then farms in these countries would achieved average a negative income. So despite the relatively long period of functioning of agriculture of those countries in the EU structures, that enabled concentration, specialization of production, technical progress, they are not able to function on its own without subsidies (Grzelak, 2013). On the other hand, it should be noted an important role of direct support in stabilizing the income situation, although failed to manage to reduce fluctuations in farm income (Phimister, Roberts and Gilbert 2004). Attention is drawn very high volatility of income and the share of subsidies in incomes in farms in Denmark, despite the relatively high efficiency and extended reproduction of fixed assets (Sobczyński, 2011). It results among other things from the fact that in agricultural production dominates pigs, which in the examined period showed a strong changes in profitability due to price fluctuations. Moreover, in this country there is a system of inheriting farms, where the successor buys the farm from the farmer, usually by the use of credit, and simultaneously family members are often classified as paid employment. Hence it limits the level of income. In turn, in agriculture of the southern variability of incomes was relatively low. This was due to the relatively greater stability of prices of fruits and vegetables, which are important in agricultural production in those countries.

TAB. 1: The mean (for the period 2004-2012) subsidies, incomes for the average agricultural holding being in the field of observation of the FADN system in the EU(25) (in thous. Euro; for the share of subsidies and coefficient of variation in%)

Countries	Subsidies	The share of subsidies in income	Income per full-time employee family member	Income	Coefficient of variation of income*
UE15					
Belgium	23,93	45,6	32,83	52,49	16,31
Denmark	34,85	650,9	6,87	5,35	673,24
Germany	33,36	97,21	24,25	34,31	23,22
Greece	6,51	49,08	12,19	13,26	8,1
Spain	8,81	37,8	21,73	23,30	12,35
France	31,57	86,67	24,99	36,43	26,91
Ireland	20,53	106,26	18,00	19,32	13,83
Italy	6,09	27,43	22,27	22,22	6,44
Luxembourg	54,11	139,29	27,33	38,84	22,42
Netherlands	17,29	40,25	29,68	42,95	32,74
Austria	20,58	78,49	18,96	26,22	12,95
Portugal	6,71	61,89	8,17	10,85	16,34
Finland	47,28	227,03	18,39	20,83	15,2
Sweden	34,49	235,05	12,80	14,67	52,12
United Kingdom	44,05	99,8	34,46	44,14	25,22
UE10					
Cyprus	5,40	58,92	8,96	9,17	25,02
Czech	69,71	234,5	13,92	29,73	46,2
Estonia	21,50	120,51	11,06	17,84	28,48
Hungary	13,63	111,79	12,83	12,19	48,32
Lithuania	9,48	74,17	8,20	12,78	32,56
Latvia	14,49	122,78	6,96	11,80	20,17
Malta	6,13	51,31	8,76	11,96	29,71
Poland	4,59	54,65	5,41	8,40	24,2
Slovakia	143,09	-	-	-27,91	-
Slovenia	7,68	129,03	3,66	5,96	22,2

*coefficient of variation = standard deviation / mean; explanations to the other categories see. fig.1

Source: own calculations based on (FADN, 2015)

While the highest income per one full-time employee member of agricultural family reported in Belgium and the UK. If however we exclude the subsidies then farms in Belgium and the Netherlands would be the most productive. This is due to intensive agricultural production, high specialization and concentration of production in these

countries. It was not without significance also specialization in the production of fruits and vegetables, and in cattle and poultry.

In the case of agricultural holdings from the new member states one has noted substantially lower levels of agricultural income (almost 3-fold) and income per employee family member as a result of lower production resources per average farm, less advanced processes of specialization, lower level of technical devices and lower subsidies. Except, in terms of incomes, there are agricultural holdings from the Czech Republic due to the high scale of production and the level of subsidies, efficiency, greater importance of leases (Davidova, Latruffe, 2007). In sum, generally one can observed in examined period higher growth of income in farms in the EU(10) than in the EU (15) (Runowski, 2014). It is worth paying attention to the negative level of income on farms in Slovakia. This is connected with the fact that the farms in this country are characterized by a relatively high costs of depreciation and wages (payment of employees) at a relatively low productivity per 1 hectare. In total only in 4 new member states, incomes were higher than the level of subsidies in the analyzed period.

Conclusion

The economic situation of agricultural holdings in the EU (25) is much varied and depends primarily on conjectural factors, including the prices of agricultural products. Variability of incomes in the case of farms from the EU (10) (new members) was generally lower. The existing extensive system of support although stabilizes the level of income it does not eliminate a significant variability, despite an increase in the level of payments and subsidies. On the other hand, their lack would cause an even greater fluctuation in income. In the analyzed period (2004-2010) among the 25 surveyed EU countries, in 9 cases the incomes were lower than the level of support, and in the following 2 cases (UK and Germany) the level of subsidies was comparable with the level of income. It means that without the CAP a significant part of agriculture in the EU would be a non-profit, and thus its products uncompetitive (in terms of price) on the global food market. On the other hand, it should be emphasized that in the examined period the incomes showed on average a moderate upward trend, simultaneously farm debt quite clearly increased, while the level of net investment generally provide extended reproduction of assets, but one has noted the high variability of this parameter.

Increasingly the agricultural incomes are shaped by subsidies. Simultaneously agricultural holdings from new member states achieve much lower incomes compare to farms from the "old" member states, which is connected with a lower scale of production, technical devices and the level of subsidies. It can be stated that due to modulation (restrictions) direct payments to larger farms, which also apply to new EU member states (10) since 2012, the income situation of agriculture in some countries, for example Slovakia, the Czech Republic may deteriorate.

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DEVELOPMENT OF SOCIAL SERVICES IN THE CZECH REPUBLIC AND THEIR REGIONAL ANALYSIS

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JEL classification: H41, H76, J11

Abstract:

This paper aims to evaluate trends associated with the development of social care at the regional level in the Czech Republic. The paper particularly focuses on the development of selected social-care services, from a quantitative point of view, for the elderly and the disabled. In relation to the development of social services in years 2007, 2010 and 2013, the results have shown a correlation in the regions of the Czech Republic, both between the number of users and the amount of expenditure on selected social-care services of a community type, and between the expenditure on selected social-care services and the population aged 65+.

Introduction

The social-service sector has changed markedly from the quantitative and qualitative perspective in the Czech Republic over the past two decades. There are currently more than 30 types of social services that are procured by providers from the citizen sector (voluntary associations, facilities of churches) and from the public sector (public-benefit corporations) (Průša, 2010). Modernisation of social services facilitates observation of trends in social-service development (Halásková, 2014, Jaroševská, 2012, Kvašňáková, 2013, Mertl, 2014, Průša, 2011). These are associated with the transformation of social services, which represent the changes to management, funding, education, and the place and form of provision of social services in terms of deinstitutionalisation (Čtvrtník & Lejsal, 2013, Průša, 2010). What is taking place is the transformation of institutionalised care into community care, a controlled closure of facilities or further limitations to bed capacity, including the cuts in government funding in institutions of social care, and in the development of community social services (Jaroševská, 2012, Kvašňáková, 2013).

This paper aims to provide an evaluation of trends related to the development of social-care services in the Czech Republic at the regional level from a quantitative perspective,

focusing on the development of selected social-care services for the elderly and the disabled in regions of the Czech Republic in years 2007, 2010 and 2013. In relation to the objective of the paper, is the research question the correlation between the number of users of and the amount of expenditure on selected social-care services, and the correlation between the expenditure on selected social-care services and the population aged 65+.

1. Methods, literature overview

Social services are a significant segment of public services, usually organised on the local level and markedly dependent on financing from public resources (Halásková, 2015). Social services are defined as a significant part of activities of the government, self-administrative bodies and non-governmental subjects, which are provided to individuals, families as well as groups of inhabitants and which contribute to tackling of social issues (Halásková, 2014, Mertl, 2014, Průša, 2011, Wildmannová, 2015). The provision of social services at the practical as well as theoretical level is a topic both Czech and foreign authors deal with. In relation to the demographic development and population ageing, attention is paid to social services for the elderly (Baldock, 1997, Lewis & West, 2014, Mertl, 2014, Průša, 2010), trends connected with the development of community social services for the elderly and the disabled (Jaroševská, 2012, Jensen & Lolle, 2013, Kvašňáková, 2013, Lewis & West, 2014, Wildmannová, 2015), to changes in connection to a more effective financing of social services (Baldock, 1997, Čtvrtník & Lejsal, 2013, Průša, 2010, Průša, 2011, Víšek & Průša, 2012), to the quality of social services (Malley & Fernández, 2010, Netten, Jones & Sandhu, 2007) and to the approaches to social-service standardisation in the Czech Republic (Halásková, 2014, Víšek & Průša, 2012).

The sample of the quantitative analysis is a set of 14 regions of the Czech Republic: PRG (the Capital City of Prague), CRB (Central-Bohemian region), SUB (South-Bohemian region), PLZ (Plzeň region), KAV (Karlovy-Vary region), ULN (Ústí-nad-Labem region), LIB (Liberec region), HRK (Hradec-Králové region), PCE (Pardubice region), VYS (Vysočina region), SUM (South-Moravian region), OLM (Olomouc region), ZLN (Zlín region) and MSR (Moravian-Silesian region).

The analysis focuses on selected social-care services, namely: community care service, personal assistance, distress care, relief services, day service centres and day care centres. The data was taken from the annual statistical report on labour and social matters of the Ministry of Labour and Social Affairs of the Czech Republic, of the Czech Statistical Office (annual report of the Czech Republic and the individual regions) for expenditure on selected social-care services and the numbers of social-care users in the regions of the Czech Republic (in years 2007, 2010 and 2013), and data from the Annual Demographic Report of the regions 2005-2014 for population aged 65+ in the regions of the Czech Republic (in years 2007, 2010 and 2013). All scales in

the scatter plots were depicted applying power scale with inversed square exponent to provide unequivocal identification of the regions in particular years (Tab.1 and 2).

TAB. 1: Summary of descriptive statistics for social-care services in the Czech Republic (2007-2013)

	Year		
	2007	2010	2013
Expenditure on social-care services (CZK in thousands)	2 083 200	3 573 028	3 948 899
Users of social care services	110 409	137 681	138 847
Population aged 65+	1 512 834	1 635 826	1 825 544

Source: ČSÚ (2015), MPSV (2014c)

TAB.2: Summary of descriptive statistics for social-care services in regions of the Czech Republic (2007-2013)

	Minimum	Maximum	Mean	Standard deviation
Expenditure on social-care services (CZK in thousands) 2007	28 035	342 664	148 800,00	95 628,454
Expenditure on social-care services (CZK in thousands) 2010	80 474	520 392	255 216,50	120 627,932
Expenditure on social-care services (CZK in thousands) 2013	89 391	663 854	282 063,43	138 716,789
Users of social care services 2007	2 422	18 861	7 886,21	5 348,562
Users of social care services 2010	3 922	18 621	9 834,50	4 507,545
Users of social care services 2013	3 708	20 498	9 917,64	4 902,516
Population aged 65+ 2007	41 038	189 524	108 059,57	48 201,501
Population aged 65+ 2010	44 261	205 890	116 844,71	52 341,621
Population aged 65+ 2013	50 442	225 042	130 396,00	57 694,651

Source: ČSÚ (2014), ČSÚ (2015), MPSV (2014c)

Statistical testing of the correlation between the number of the service users and the expenditure on selected social-care services, and the expenditure on selected social-care services and the population aged 65+ in years 2007, 2010 and 2013 was carried out using correlation analysis. This method is used to measure the strength of linear correlation between two random variables. Values range within the interval $<-1, 1>$, when the positive or negative value indicates the direction of correlation (positive in the case of correlation, negative in the case of anticorrelation) and its absolute value the strength of correlation. The more the absolute value approaches 1 (or -1 for that matter), the stronger the correlation is. One of the most frequently used calculations of correlation analysis appropriate for a given type of data is the Pearson's correlation coefficient. To express the strength of correlation, the coefficient of determination (r^2) was used, which is the squared value of the coefficient of correlation (r), expressed in per cent. The coefficient of determination also states the extent of suitability of a model.

It shows the part of Y variability which can be explained by the model (Lynch, 2013, pp. 127-134). The calculations in the following part were generated in the SPSS Statistics 21.0 software.

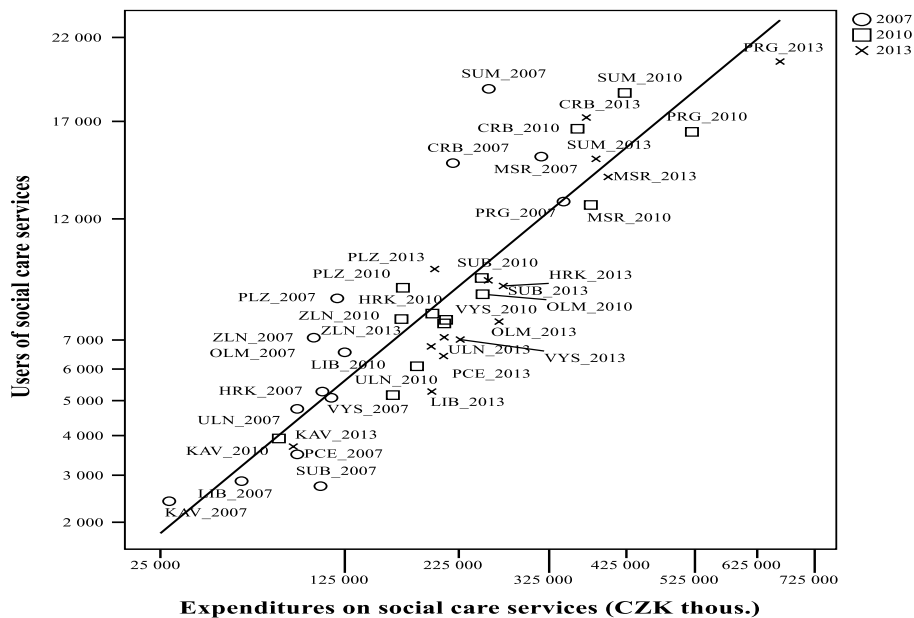
2. Results

2.1. Correlation between the number of social-care users and the expenditure on selected social services in the regions of the Czech Republic

The period 2007-2013 saw a significant rise in the number of users in the Central Bohemian and Hradec Králové regions of facilitating services, and the Capital City of Prague in facilitating services and personal assistance. Along with the provision of ambulatory and field social care, an increasing tendency is observed in the expenditure on selected social-care services in years 2007, 2010 and 2013, mainly in the Central Bohemian, Hradec Králové and South Bohemian regions, and as much as almost double the expenses on social care in the Capital City of Prague (fig. 1).

Using the Pearson correlation coefficient (r) and the coefficient of determination (r^2), the correlation between the number of social-care users and the expenditure on selected social-care services in the regions of the Czech Republic in years 2007, 2010 and 2013 is observed.

FIG. 1: Correlation between the users and the expenditure on selected social-care services in the regions of the Czech Republic



Note: Correlation is significant at the 0.01 level (2-tailed).

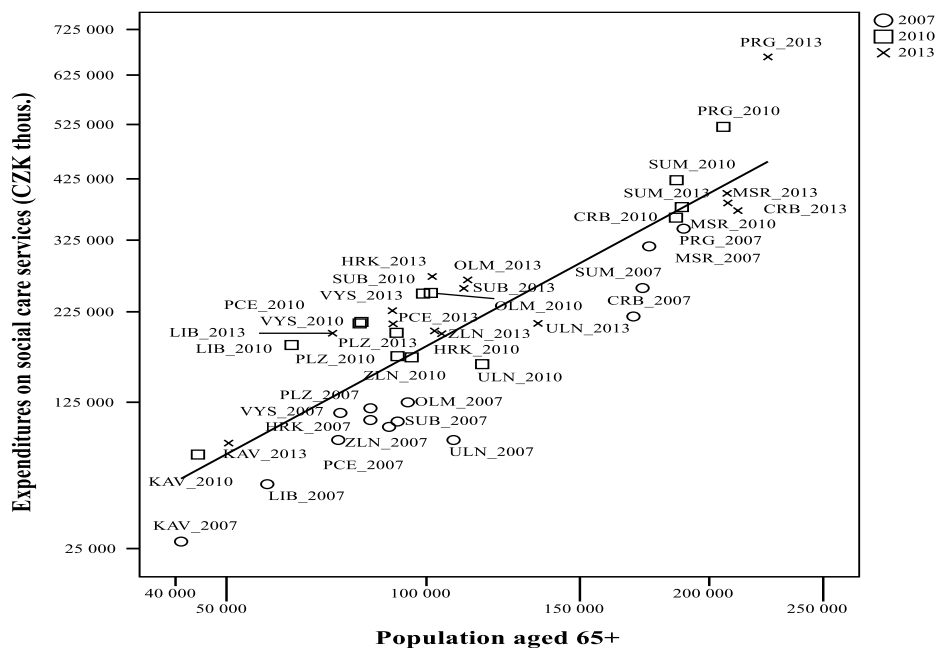
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The Pearson correlation coefficient indicated a statistically significant positive correlation between social-care users and the expenditure on selected social-care services in the Czech Republic, with the result of the Pearson correlation coefficient $r = 0.871$ ($p < 0.01$) and of the coefficient of determination $r^2 = 0.759$, i.e. 75.9% (see Figure 1). It thus applies that a higher number of users of social care is in line with higher expenditure on selected social-care services in the regions of the Czech Republic. As the coefficient of determination indicates, the mutual impact of the number of users and the volume of expenditure on selected social-care services in the regions of the Czech Republic accounted for 75.9%, whilst other factors accounted for 24.1%. These include, among others, the capacity of ambulatory care, as the users need not be permanent. Also the scope of the provided care, the number of staff and economic factors associated with the service play a role.

2.2. Correlation between the expenditure on selected social-care services and the population aged 65+ in the regions of the Czech Republic

Further, using the Pearson correlation coefficient and the coefficient of determination, the existence of a correlation between the volume of expenditure on selected social-care services and the number of people aged 65+ in the regions of the Czech Republic in years 2007, 2010 and 2013 (fig. 2) was observed.

FIG. 2: Correlation between the expenditure on selected social-care services and the population aged 65+



Note: Correlation is significant at the 0.01 level (2-tailed).

Source: own processing

The Pearson correlation coefficient proved a statistically significant positive correlation between the expenditure on selected social-care services and the number of population aged 65+ in years 2007, 2010 and 2013, with the Pearson correlation coefficient of $r = 0.872$ ($p < 0.01$) and the coefficient of determination of $r^2 = 0.760$, i.e. 76%. It thus applies that the higher the expenditure on selected social-care services is, the higher the number of population aged 65+. The coefficient of determination indicates that the mutual impact on selected social-care services and the population aged 65+ in the regions accounted for 76%, and other factors accounted for 24%. Analysis of the population age structure in the regions of the Czech Republic in 2007-2013 indicated that it was the most populous regions that had the largest population aged 65+: the Capital City of Prague, the Central Bohemian, South Moravian and Moravian-Silesian region. These regions are expected to increase the demand of the elderly citizens for social-care services, resulting in a corresponding rise in expenditure on social services for the aged.

3. Discussion

Deinstitutionalisation and transformation of social services in the Czech Republic bring about a gradual development of community social services (Jaroševská, 2012, Kvašňáková, 2013). The supply of social-care services and the numbers of users who can use these services in the regions of the Czech Republic is differentiated more markedly. In all regions, the most frequently used social-care service for the elderly and disabled is day care. Other social-care services have been gradually introduced since 2007, namely facilitating services, personal assistance and day-care centres. According to Mertl (2014), Víšek & Průša (2012) it is difficult to specify the scope of the provision of these services, as they are a reflection of a whole host of factors determining the development in the individual regions. As Čtvrtník & Lejsal (2013), Víšek & Průša (2012) argue, a systemic connection of planning, registration and financing of social services (not only in terms of the elderly and the disabled) could contribute to the development of social services. Since 2015, according to MPSV (2014a), MPSV (2014b) regional governments have been authorised to make decisions about subsidies for providers of social care, with the rate of funding of each region being defined with respect to the total volume of financial resources allocated from the national budget (tab. 3). This resulted in the stabilisation of proportions of the allocated resources and in a more consolidated interconnection of social-care financing in terms of a mid-term plan of regional social-service development. Regional governments are also obliged to define a network of social services in accordance with the needs of the population and available financial resources.

TAB. 3: The proportion of regions in the annual volume of financial resources

PRG	CRB	SUB	PLZ	KAV	ULN	LIB	HRK	PCE	VYS	SUM	OLM	ZLN	MSR
Original proportion of guided numbers (in %)													
8.41	11.21	6.48	4.83	3.17	9.44	4.10	5.16	5.26	5.12	9.11	7.63	6.61	11.42
Proportion of guided numbers for individual regions (in%) - the mean value of 2012, 2013 and 2014													
8.43	11.21	6.53	4.87	3.08	9.45	4.11	5.18	5.27	5.15	9.13	7.66	6.64	11.42

Source: MPSV (2014b, p. 31)

Follow-up research related to a more transparent financing for regions may address the evaluation of the availability and financial complexity of selected social-care services for the elderly and the disabled in the regions of the Czech Republic.

Conclusion

The social-service sector of the Czech Republic has transformed fundamentally over the past two decades. Modernisation of social services has introduced new trends associated with the development of social services, whose intensity varies across regions. Along with the development of social-care services, from the quantitative perspective, statistical testing of the correlation between the number of users of social-care services and the expenditure on selected social-care services, and the expenditure on selected social-care services and population aged 65+ in regions of the Czech Republic was carried out in 2007, 2010 and 2013. The results have proved a correlation between both the number of users and the expenditure on selected social-care services of a community type, as well as the expenditure on selected social-care services and the population aged 65+. In the following years, more transparent financing should contribute to the development of social services in the regions, which will enable stabilised financing and ensuring of objective needs of social-care users.

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THE DISPARITIES IN THE ESTABLISHMENT OF NEW SME-TYPE STATISTICAL UNITS IN THE CZECH REPUBLIC IN 2008 - 2014

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Keywords:

business – business environment – national economy – small and medium-sized enterprises

JEL classification: L25, L26, O10

Abstract:

This article deals with the analysis of development of number of statistical units of small and medium-sized enterprises in the years 2008 - 2014, which were providing business activity in the Czech Republic. The main aim is to describe the dynamics of the establishment of new small and medium-sized enterprises in relation with the new legislation which is in force since 1st January 2014. Internal resources of Czech Statistical Office were used to the analysis of the development of number of small and medium-sized enterprises, where these resources are not generally available, and therefore it can help with the clarification of the tendency of development of small and medium-sized entrepreneurship in the Czech Republic in the last six years.

Introduction

Small and medium-sized enterprises represent a significant sector of the market economy. It is an undisputable reality that the sphere of small and medium-sized entrepreneurship has the largest number of business entities (Morris & Kuratko, 2002). Every year a lot of entities launch their business. It is also an irreversible fact that a lot of business projects end in failure. In professional circles there are number of opinions referring to small and medium-sized entrepreneurship (Lukeš & Jakl 2012). Some of them say that it is not a specific phenomenon which should be a cause for special approaches in economics and management (Hisrich, 1995).

In fact, the same rules apply for small and medium-sized businesses as for any other organization, so there is no need whatever to highlight this category of firms. On the other hand, it is possible to come across the opinions saying that the sphere of small and medium-sized enterprises has a unique position in the economy of every state and therefore it is necessary to give a special attention and care to this group of business entities (Quereshi & Velde, 2008).

There are rational reasons for the permanent attention which is paid to this sector. These lie in the specific merits of SMEs and also in their disadvantages or more precisely their vulnerability (Pike, Neale, 2006). As for the merits are concerned, these are relative flexibility and the ability to respond quickly to the change of conditions (including the establishment of the firm and termination of its activity), as well as a relatively high ability to absorb workforce and the ability to fill the gap in the structure of business relationships between large enterprises (the role of subcontractor).

On the contrary, disadvantages involve more complicated, or rather costlier access to capital, information and knowledge (Otčenášková, Bureš & Brunet-Thornton, 2014), less ability to eliminate the effects of fluctuation of external influence in the early stages of their development (start) and less restraint in the release of redundant labour force (Marešová & Hálek, 2014).

That is why governments choose different forms of public support for SMEs (Petříček, 2006), including a financial support. If the rules of this support are set correctly, it does not mean favouring these business entities at the expense of others (and thus breaking the rules of the market), but just alleviating the above mentioned disadvantages.

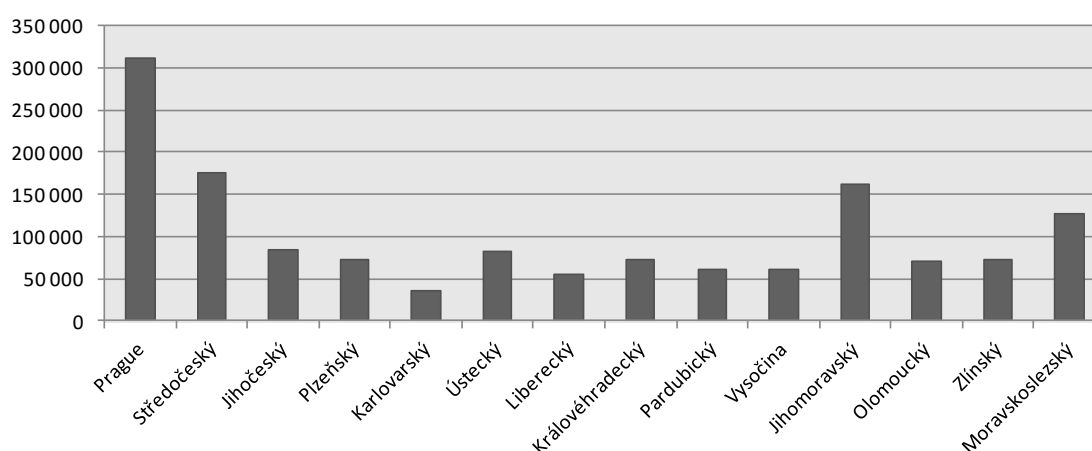
1. Methodology and Data

Internal database of Czech Statistical Office was used during the preparation of this article. The basic difference between the generally available data and the data used in this article is in the conception of so called companies reporting business activities. A business that is economically active according to the information from statistical surveys or administrative sources is considered to be an enterprise-type statistical unit. The Statistical Business Register is continually updated with data coming from commercial registers, trade licence offices and statistical sources. It is used mainly to prepare and conduct statistical surveys. Records about the number of SMEs in 2008 - 2014 were obtained thanks to Information Services Unit of the Czech Statistical Office and Business Statistics Coordination and Business Cycle Surveys Department of the Czech Statistical Office. Data are organized according to the regions of the Czech Republic, where there are 14 of them, and these data describe specific number of SMEs with the number of employees between 0 and 250. Analysed tendencies are explained based on the number of companies with business activity in each size group. The numbers of such companies are included into analysis, which do not officially declare their size in The Statistical Business Register of Czech Statistical Office and which present "not reported". It can be assumed that these companies do not communicate with Czech Statistical Office on the daily basis, where this behaviour is typical for small companies (with less than 50 employees) or even micro-companies (with less than 10 employees). The methodology used to tackle the subject has the nature of basic theoretical research which is focused on the analysis of the structure, linkages and

relations of the studied subject. From the methodology point of view trend, system and qualitative analysis is used to achieve the objective.

The regions of the Czech Republic are different in the terms of its size, and therefore also in terms of the number of inhabitants. This fact corresponds with the regional disparities among each region in terms of the number of SMEs-type statistical units. Following FIG. 1 divides regions of the Czech Republic according to the number of active SMEs at 31st December 2014.

FIG. 1: Organizational Structure of the National Economy: Small and Medium-sized Enterprises by Territory at 31 December 2014



Source: own research

From the data in the FIG. 1 is obvious that four regions in the Czech Republic (Prague, Středočeský, Jihomoravský, Moravskoslezský) have higher than 50% share on the total number of SMEs.

The highest shares both in national and also regional point of view have active business subjects with 0 employees. These entities are mostly so called self-employed persons without employees, which have been in business as natural persons. Data in TAB 1 shows that in all regions except Prague have these subjects share on the total number of SMEs companies around 60%, where this share is 47% in case of Prague.

TAB. 1: Organizational Structure of the National Economy for Small and Medium-sized Enterprises by Territory and Size of Businesses at 31st December 2014

Region	Total	Size of business (number of employees)									
		not reported	0*	1 - 5	6 - 9	10 - 19	20 - 24	25 - 49	50 - 99	100 - 199	200 - 249
Czech Republic	1 444 098	309 980	852 937	199 952	27 988	24 895	5 694	11 807	6 958	3 263	624
Prague	311 547	89 778	147 650	55 201	6 795	5 852	1 306	2 488	1 535	778	164
Středočeský	174 838	31 792	115 485	19 504	2 862	2 463	544	1 187	665	279	57
Jihočeský	84 674	16 927	52 879	10 438	1 518	1 267	326	709	405	176	29
Plzeňský	72 362	15 069	44 766	8 699	1 261	1 164	271	576	341	182	33
Karlovarský	35 474	7 712	21 250	4 618	613	600	122	290	173	80	16
Ústecký	82 979	17 043	50 173	11 230	1 524	1 399	272	671	427	205	35
Liberecký	55 393	11 229	34 836	6 511	957	878	197	406	259	105	15
Královéhradecký	72 620	13 038	47 128	8 611	1 325	1 129	268	614	332	151	24
Pardubický	61 675	10 805	39 770	7 471	1 212	1 097	255	543	336	155	31
Vysočina	60 970	11 102	39 522	7 019	1 117	943	214	529	344	152	28
Jihomoravský	161 711	33 895	95 012	23 042	3 395	3 073	715	1 406	758	342	73
Olomoucký	70 777	13 096	43 599	9 715	1 469	1 340	332	625	379	195	27
Zlínský	72 983	13 045	46 163	9 349	1 447	1 403	331	641	391	187	26
Moravskoslezský	126 095	25 449	74 704	18 544	2 493	2 287	541	1 122	613	276	66

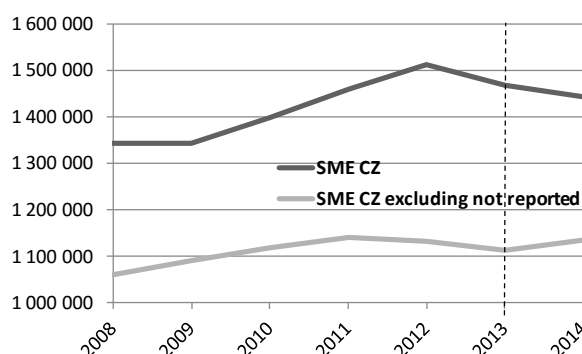
* without employees

Source: own research

2. Results and Discussion

The main aim of this article is to analyse the dynamics of establishment of new SME-sized enterprises in relation with the new legislation which is in force since 1st January 2014. As can be seen in FIG 2, in the years 2009 - 2012 was significant increase in the number of business units, where the average increase rate from national point of view was 4%. This situation changed during 2013, where the number of SMEs decreased for 2.8%, and this tendency continued also in 2014, where this number decreased for another 1.7%. Similar tendency can be seen also in the numbers of units without the group of so called "not reported". These companies had the average increase rate 2.5% between the years 2008 and 2011, where since 2011 slight decrease have begun. This decrease was for 0.7% in 2012 and for 1.7% in 2013. In the year 2014 there was again increase of SMEs companies for 1.9%.

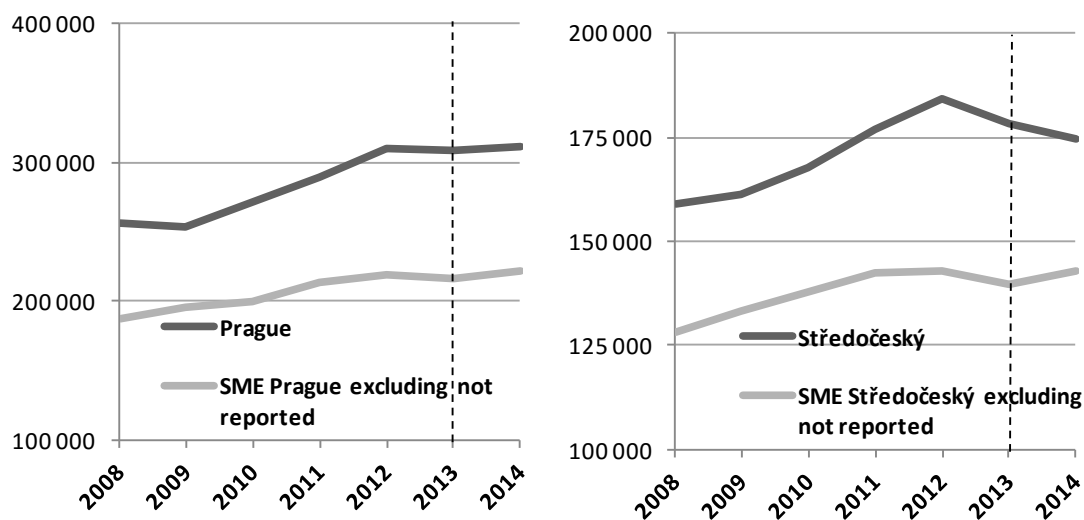
Significant change in the legislation in the business regulation has been in force since 1st January 2014, where this change has influenced the establishment of one particular type of companies. This change has opened the space for establishment of capital companies, namely limited companies, even for entrepreneurs of SME-sized companies without the necessity of owner's equity. However, the records of development of number of active business units show that there was *no increase* in number of SMEs in 2014 (FIG. 2). SMEs present 99.84% in the Czech Republic (MPO, 2015) from all business entities; therefore this partial conclusion can be formulated for active enterprises in the whole Czech Republic.

FIG. 2: The Development of Tendency of SME in the Period 2008-2014 in the Czech Republic

Source: own research

2.1. Regional Disparities in the Development of Number of Active Business Units

Tendency in the decrease of active business units since 2013 has been proofed in all regions except Prague. As is obvious from the FIG 3, the increase in the number of active business units in the region Prague was for 0.8% in 2014, while in the Středočeský region was decrease for 3.3% in 2012/2013 and for 1.9% in 2013/2014.

FIG. 3: The Development Tendency of SME in the Period 2008-2014 in regions Prague and Středočeský

Source: own research

In the following TAB. 2 is described the situation in different regions and the percentage decrease in the number of active business units. Large Jihomoravský and Moravskoslezský region presented decrease for 1.3%, respectively for 2.5% in 2014.

The smallest Karlovarský region had decrease for 4.7% in 2013 and for another 5% in 2014.

The decrease in the number of active business entities can be demonstrated also on the development of number of natural and legal persons. The decrease of natural persons presented in republic point of view 0.07% in 2013/2014, while the decrease in number of legal persons was 5.46%. Between the years 2012 and 2013 was this decrease 3.04% for natural persons and 2.28% for legal persons. That means that the number of active legal persons decreased for 7.72% between 2012 and 2014. Another interesting analysis is based on CZ-NACE, which means Classification of Economic Activities. However, because of limited extent of this article will be this analysis described in another article.

TAB. 2: The Development of SME in the Period 2012 - 2014 by regions of the Czech Republic

	2012			2013			2014
Czech Republic	1 511 417	-2,8%		1 468 776	-1,7%		1 444 098
Prague	310 680	-0,5%	↘	309 034	0,8%	↗	311 547
Středočeský	184 212	-3,3%	↘	178 204	-1,9%	↘	174 838
Jihočeský	89 269	-3,4%	↘	86 242	-1,8%	↘	84 674
Plzeňský	78 474	-4,4%	↘	75 034	-3,6%	↘	72 362
Karlovarský	39 214	-4,7%	↘	37 354	-5,0%	↘	35 474
Ústecký	89 597	-3,9%	↘	86 065	-3,6%	↘	82 979
Liberecký	59 474	-4,6%	↘	56 730	-2,4%	↘	55 393
Královéhradecký	78 086	-3,9%	↘	75 068	-3,3%	↘	72 620
Pardubický	64 474	-2,9%	↘	62 615	-1,5%	↘	61 675
Vysočina	63 791	-2,9%	↘	61 963	-1,6%	↘	60 970
Jihomoravský	168 393	-2,7%	↘	163 808	-1,3%	↘	161 711
Olomoucký	75 547	-3,5%	↘	72 913	-2,9%	↘	70 777
Zlínský	76 916	-3,3%	↘	74 400	-1,9%	↘	72 983
Moravskoslezský	133 290	-3,0%	↘	129 346	-2,5%	↘	126 095

Source: own research

Conclusion

Based on the above mentioned information is possible to make a conclusion that although the change of legislation which is in force since 1st January 2014 has created very favourable conditions for the establishment of new legal companies, namely limited companies, this change had no influence on the growth of the number of active business units during its first year of implementation. On the contrary, almost all regions of the Czech Republic reported decrease in the number of active enterprises, where this tendency had begun in the year 2013. This legislation change was meant to be very important also because of the existence of so called Action Plan for Support of

Small and Medium Entrepreneurs, which was declared by Ministry of Business and Trade, because SMEs are considered as very important employers in the national point of view. According to the survey (Eurobarometer Survey on Entrepreneurship, 2012), the Czech Republic was one of the four countries of the European Union (Latvia, Lithuania, Slovakia) which presented increase of the share of self-employed persons during the period 2004 - 2012. It is obvious that this situation changed in 2013 and it remained same till the end of 2014.

This article brings a lot of questions for future analyses. Among others, it will be interesting to analyse the reasons of decrease in the number of active business units since 2013, and, moreover, how can be this decreased stopped and the increase restored.

It is indisputable fact that small and medium enterprises have positive influence in national economy not only on employment, but also on foreign trade. Because of this these companies have a significant influence on gross domestic product as well.

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COACHING IN EDUCATION

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Abstract:

Although coaching is recording a worldwide boom and reaching into all areas of growth, in education it begins to gain ground slowly. Through coaching, a university could also save costs for students who for various reasons do not complete the study and use the contribution from the state for the education institution. Also, students wouldn't have to repeat courses so often, years or exams would be done at the first attempt. Even that would generate significant cost savings for the university. The aim of the paper is to outline the issues of coaching in education and based on the questionnaire survey confirm or disprove the hypotheses.

Introduction

The English word coach was founded in the 16th century. The first mention of coaching was recorded in the 1970s and coaching as a profession originated in the USA in the 80s, and ten years later it came to the Czech Republic. Despite its relatively short history it is very quickly gaining more and more supporters and it advocates to more and more fields. The most famous kinds of coaching include e.g. career coaching, executive coaching, business coaching, performance coaching and life coaching. Wood (2012, p. 12 - 13) refers to a number of other types of coaching, including for example: corporate coaching, financial coaching, relationship coaching, coaching of traders, gastro coaching, fitness coaching, coaching of students and others.

The results of coaching were verified worldwide, mostly in Anglo-Saxon countries, in various development programs. numbered” style only. Please do not add the third level heading.

1. Theoretical Bases

John Whitmore and Timothy Gallwey can be regarded as the founders of coaching. There are several definitions of coaching. John Whitmore (2004, p.18) defines coaching as boosting the confidence of the coached person: "The basic, although at first glance not always visible goal of coaching, regardless of the particular task or problem on

which the coaching is concerned, is to create and strengthen confidence of the coached person. If managers keep this principle in mind and act in accordance with it, their reward will come in the way of greatly improved relations as well as better employee performance. Coaching is not a process that can be taken and rigidly applied in certain situations and conditions. It is a way of managing, a way of treating people, a way of thinking, a way of life."

Conversely, Timothy Gallwey focused primarily on the potential of human beings in his definition: "Coaching helps unlock the potential of human and allows them to maximise their performance. Coaching doesn't really teach but helps one to learn." (Gallwey, 1986, p. 2). The International Coach Federation Czech Republic (hereinafter referred to as ICF), which brings together professional coaches, presents coaching as a trustworthy relationship, which helps the client to take particular steps to achieve their vision, goal or desire. (ICF, 2015). The important thing is that coaching always looks at "HOW" not "WHY".

Coaching is gaining increasing popularity as a method of personal and professional development in the adult population, but it can also be successfully applied in children, adolescents and students. Relationship and respect to each other can be applied here. Coaching also helps to improve communication between teachers and students, as well as family, friends and the wider environment.

For example Bělohlávek (2001) ranks coaching among the methods of education. Skills development is, in his opinion, the main area for the use of coaching. He describes it as the systematic development of the skills and experience of a participant, which is managed by a superior with a planned commissioning of tasks and continuous evaluation.

2. Objective and Methodology of the Paper

The paper is divided into four chapters. The first and second chapters are descriptive and include an introduction in which the author deals with the rationale of the topic, contain the definition of the purpose of the paper, methodology and literature review. The third chapter is followed by a practical part, which leads the readers into the educational issue and the current situation in the Czech Republic. The fourth chapter is aimed at the possibilities of introducing coaching at universities. This chapter is followed by a questionnaire survey which aims at verifying the knowledge of coaching and the requirements for its introduction at universities. During the investigation, three hypotheses were set:

1. At least 50% of daily and combined-study form students were briefed to the concept of coaching while studying at the faculty.

2. A minimum of 50% of daily and combined-study form students would like to introduce coaching into education.

3. A minimum of 50% of students try coaching or find further information about it.

The questionnaire survey methodology is described in the fourth chapter.

The aim of the paper is to outline the issues of coaching in education and based on the questionnaire survey confirm or disprove the hypotheses.

3. The Current Situation of Education in the Czech Republic

As mentioned above, the present time is characterised by changes and ultimately money. Universities constantly look for new ways to get the most possible candidates for study because the population curve is going to decline for several more years and private colleges and universities are on the rise. A school must be attractive, must offer new educational opportunities, modern ICT technology, foreign language teaching, etc.

Czech education is also unfortunately marked by constant change of Ministers of Education and a vague concept of education. This uncertainty is forcing schools to save and reduce their training costs and salaries for quality teachers. Also the pressure on publishing activities leads to sharp restriction on employment of professionals at work at the expense of academics. However, if a school wants to obtain as much funding from the public budgets, it currently has no other option but to focus on excellent results in the research area. All this is running in the foreground and in the background is the very educational process. Another aspect is the number of university-educated people, as the trend is to cope with the Western countries and steadily increase the numbers of students at the bachelor level of education, often at the expense of quality. Also the curriculum of courses, which are subject to the accreditation procedure, tie the hands of the universities and are not able to quickly and currently respond to the needs of the market. A broader links between universities and labour market needs and individual companies are also missing. Large firms such as Unicorn and Škoda Auto have already tackled this problem in their own way – they set up their own universities. That means the outflow of students from the traditional universities and thereby reduction of contributions to students in the overall budget. How to get out of the "vicious circle"? There are many way and one of them may be the method of coaching.

Steeg, Elk and Webbing (2015) in their work, deal with premature termination of the study. Their study is aimed at reducing the rate of premature termination of school among students aged 16 to 20. Students have received support and help with their learning activities, personal problems and work placements. They found out that one year of coaching will lead to a reduction in school failure by more than 40% compared to 17 to 10 percentage points. The second year of coaching also reduced the number of early school leavers by 1 percentage point. Furthermore, by analysing the costs and

benefits they found out that after one year of coaching, a net social gain it is likely to be generated.

Hoffman et al (2015) focused on the analysis of a total of 46 studies dealing with the coaching interaction of teachers and experience. The analysis of these studies chose 14 studies corresponding with varying levels of support. These findings are grouped in four areas: current practices and conditions; innovations in practice; relationships and stress; and local contexts and learning processes. The results highlight the need for stronger theoretical framing of the work of co-operating teachers in promoting the development of teachers and the need for education of teachers as a whole to be more proactive and responsible in the preparation of co-operating teachers.

4. Questionnaire Survey

In order to determine the current state of coaching and awareness of coaching at the University of Hradec Králové, Faculty of Informatics and Management (hereinafter UHK FIM), a questionnaire survey was carried out. The pattern of the questionnaire can be found in Appendix 1.

4.1. Methodological part of the survey

Although there are many questionnaire surveys dealing with coaching, they are mostly linked to coaching which has already happened. This research differs in that the aim of the questionnaire survey is to find out what experience and awareness of coaching students at the University of Hradec Králové, Faculty of Informatics and Management have. The questionnaire survey was conducted among third year students. The survey was conducted simultaneously at full-time and combined study form students. The aim of the research was to compare these two selective groups of students and find the differences in their theoretical and practical knowledge of coaching.

This article aims to prove or disprove the following three hypotheses:

- A) At least 50% of daily and combined-study form students were briefed to the concept of coaching while studying at the faculty.
- B) A minimum of 50% of daily and combined-study form students would like to introduce coaching into education.
- C) A minimum of 50% of students try coaching or find further information about it.

The questionnaire was distributed via addresses during an exercise (starting from 2 – 14. 11. 2015), and therefore the return was 100%. At the combined form of study 54 questionnaires were completed and at the full-time form of study it was 58

questionnaires. A total of 112 questionnaires were collected. These are students of financial management and tourism management.

The questionnaire contains a total of 11 questions. The first three questions are identification questions and relate to sex, age and occupation. The following questions are open. All charts contained in the work are the research results.

4.2. Analysis of the questionnaire survey

The question of sex was added for completeness, since the issue of coaching is not tied to gender. There are a slightly higher number of women over the number of men, which corresponds to the actual situation at FIM UHK in these fields of study.

A total of 69 women and 43 men responded to the question of sex, of which: 36 women in full-time study and 33 women in a combined study form, 22 men in full-time and 11 in a combined study form.

The second question focused on the age of students. Due to the fact that the sample included students aged 20 to 54 years, they were divided into four groups. The first group was 20-25 years, due to exclusion of full-time students. This group, however, includes also 3 students in a combined form of study.

The third question was used to differentiate students of full-time and the combined form of study. Because all the respondents were students at the FIM UHK, at every possibility there was an option for a student. 45.5% of the respondents were students at the FIM, 41.1% studied during employment, 7.1% were entrepreneurs or self-employed while studying, 6.3% of the students earns extra with part-time jobs or different types of employment agreements. 54.5% of students are therefore experienced in working life.

Another set of questions focused on awareness of coaching and counselling.

The fourth question was asked in order to investigate whether the students know that there is a counselling centre at the university and whether they use it. The responses may be an instruction to what extent to implement coaching. 48% of the students have not used the counselling centre at the university, 13% did not use it, but considering using it in the future. The surprising aspect was the finding that 18% of the students didn't know about the counselling centre at the university. In total, 79% of students don't know or are not interested in the counselling centre. The greatest utilisation of the centre was in students in the combined study form.

Only 21% of students use the counselling centre while studying at the University of Hradec Králové. A total of 21% uses it in the matters regarding the study, 15% uses it for professional development and only 7% for personal growth and 3% for communication with the group.

36 students in the combined study form know what the coaching is. This amounts to 67% of students. Regarding full-time students, only 31 students knew the contents of coaching, representing 53% of the students. Out of that 52% don't know the exact content (16 students). In the combined study form 33% (12 students) don't know the exact content.

Awareness of coaching is therefore greater in the students in the combined study form.

Regarding the question of whether they have ever met with coaching or not, 67% of students answered that they have met with coaching and 33% haven't. By analysis of 75 answers of students who know the coaching, answered that: 72% of students have acquainted themselves with coaching during the lessons at the faculty, 39% during their working lives, 19% on the internet, 6% from family and friends, 4% from the association of coaches and 6% from advertising.

The last part of the questionnaire, from questions 9, was aimed at responding to coaching and its possible application at the university.

50% of the respondents are interested in the coaching method, 11% would like to try it, 2% want to become a coach, 14% were not interested and 23% want to find out more information about it.

A total of 29% of respondents think that coaching could be useful for them, 42% of respondents said probably yes. 9% of respondents believe certainly not, 14% of respondents probably not and 6% are not sure.

27% of respondents would like coaching as a separate course, 61% would like it as part of a course. Conversely, the option of certainly not was answered by 4% respondents and 8% of the respondents don't know.

To establish an independent centre at the UHK would be preferred by 19% of the respondents, as part of the study department it would be wanted by 48% of the respondents. 18% of students do not want to introduce a coaching centre and 15% don't know.

4.3. Result of the questionnaire survey

Based on the responses, three hypotheses were confirmed:

The first hypothesis that at least 50% of full-time as well as the combined form of study students was briefed to the concept of coaching while studying at the faculty, was confirmed. 72% of the students were acquainted with the coaching during study at the faculty.

The second hypothesis is that at least 50% of full-time as well as the combined form study students would like to introduce coaching in education, was also confirmed. 27% of students would like coaching as a separate course and 61% of students would like to have coaching as a part of another course.

The third hypothesis, which says that at least 50% of the students are going to try coaching or find more information about it, was confirmed. 50% of the respondents are interested in the coaching method, 11% want to try it.

Conclusion

Although coaching is recording a worldwide boom and reaching into all areas of growth, in education it begins to gain ground slowly. It could help pupils in primary school with selecting suitable schools for future employment and also the style of teaching could change and support children's natural curiosity and the ability to ask questions. In high schools and vocational schools the method of coaching could further deepen and when deciding on future life (continuation of studies or the choice of a suitable job) it would be a great benefit for students, as well as for the employers themselves, who would save the cost of finding a suitable candidate. Finally, coaching will primarily find a place at universities. Here coaching may find application in various fields. Above all, it should be gradually abandoning the classical mentoring or tutoring and make room for coaching (in the selected areas, in most of the areas mentoring is still more suitable), the role of the coach is also important in the personal and professional growth.

Through coaching, a university could also save costs for students who for various reasons do not complete the study and use the contribution from the state for the education institution. Also, students wouldn't have to repeat courses so often, years or exams would be done at the first attempt. Even that would generate significant cost savings for the university. This gives teachers more time for publications and other activities, they can pursue education for various target groups, etc., and that again generates new revenue for university.

The aim of this paper was to focus on the awareness of coaching at the University of Hradec Králové, Faculty of Informatics and Management, where so far there is no coach and neither are there any coaching methods used.

Based on the questionnaire survey the awareness of coaching, experience and views on coaching and the possible introduction into teaching or setting up a coaching centre at FIM UHK were analysed.

Based on the questionnaire survey the aim was to confirm or refute the four hypotheses. Based on the analysis, three hypotheses were confirmed. The interest and awareness of

coaching among the students of the Faculty of Informatics and Management were therefore proved.

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BURNOUT: THE REAL THREAT NOT ONLY FOR TOP MANAGERS

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Abstract:

This paper deals with the issue of burnout. It describes the causes, course and treatment of burnout in cases of two employees holding completely different job positions. It is a comparison of two different professions, a manager and a saleswoman at a bookstore, or a subjective evaluation of their burnout experiences. Common signs have been described as follows: it is primarily a psychological condition, an exhaustion experience that was typical among employees who professionally work with people. Symptoms are mental, physical and social – total exhaustion and overall fatigue that have been caused by prolonged stress.

Introduction

The present time provides a wealth of goods and services, almost limitless job opportunities, travel opportunities and many other benefits associated with open markets and globalization. Companies are expanding into foreign markets, and become more predatory in matters of competition, since the pressure on companies has been increasing. In exchange for these benefits, people must face very strong pressure that comes along with this time. To establish visions, missions and strategies of a company, to figure out the best marketing plan, to ensure the attention of sponsors and to build a brand, to keep a product in the minds of customers or just to be able to sell well, all of this is based on the human factor.

At present, the pressure on the top management personnel has been a quite often discussed topic. The issues of stress and psychological problems caused by an excess of work have been more topical now than ever. However, the concept of occupational disease still means rather physical problems associated with performing primarily industrially oriented jobs. Now, employees face an entirely different, new kind of „disease“. Psychological problems, depression, stress, these are the terms that have been increasingly mentioned. This is current and very important threat concerning all employees. The objective of this paper is to describe the process of burnout in cases of two employees holding completely different job positions and professions.

1. Methodology, research

The concept of burnout has been most often used in connection with doctors and health care staff, top managers, etc., in short, with positions, where a person is put under a lot of pressure concerning working with people. This kind of work is hardly assessable in terms of a visible result of performed work. Within their work, employees find themselves in new non-stereotypical situations that require new and original solutions (for each patient, client or customer is an individual and requires a different approach than the other one). When working with people, it is difficult to see the results of performed work and if there is also an amount of stress and responsibility, it means a great risk for the development of burnout and other psychological problems.

The concept of burnout was introduced in the literature by Herbert Freudenberger in his article published in the „Journal of Social Issues“ in 1974, and it almost corresponded with the current concept. (Kebza, 2003, p. 6)

Freudenberger defines burnout as exhaustion, passivity and disappointment (Kebza, 2003, p. 7). Kallwass defines it in a similar manner (Kallwass, 2007, p. 123): exhaustion and depression. Koubek (2014, p. 187) defines burnout as stress without prospects for a solution that threatens especially employees who have an intensive contact with people (managers, teachers, consultants, traders, etc.).

Herbert Freudenberger presents twelve stages of burnout (Honzak, 2013, p. 28). Priess (2015, p. 25) identifies four stages – alarm stage, resistance stage, exhaustion stage and retreat stage. Kebza (2003, p. 13) also mentions four stages of burnout which are the stage of first enthusiasm, the stage of physical and mental exhaustion, then the beginnings of dehumanized perception of environment as a defense mechanism against further exhaustion and the stage of total exhaustion, negativism, apathy and indifference. The most frequently, five stages of burnout are being described, the stage of enthusiasm, stagnation, frustration, apathy and burnout (Koubek, 2014, p. 188)

The first stage is the stage of enthusiasm when an employee starts working at a new position. It may be a promotion, change of workplace, etc. Such employee is initially very enthusiastic about his newly acquired position, often voluntarily works longer to perform responsibly all tasks, and as time goes by, he is willing to sacrifice even his leisure activities for the work. Setting often unrealistic goals is another sign of the first stage of burnout. For such employee, the work becomes his whole life, it becomes his only meaning. The need of respect from others and gaining a higher position is a bright vision of the future that gives opportunities to strong rivalry. The employee in the first stage of burnout tends to feel to be indispensable at work, but also becomes a victim of fear of failure and a bad evaluation from his superior.

In the second stage, which is called the stagnation, the initial enthusiasm fades and the employee begins to realize that the set goals are not feasible, he begins to be tired from the work and so he is looking for other activities such as new leisure activities or tries to return to the old ones. Unfortunately, he is not necessarily successful. In this stage, the employee clashes with reality, which is obviously in conflict with his initial ideas. At this time, there may be the feelings of misunderstanding from colleagues as well as management, there are obstacles that are getting harder to overcome.

The third stage, also called frustration, then further develops the feelings of underestimation of accomplishment. Given the ever-increasing problems with co-workers and disgruntled clients or patients, the employee in the third stage of burnout begins to question his importance at his position. He begins to miss the point of his work, which is reflected in his unwillingness to work and perform other working tasks. The employee may begin to disregard the working time and try to find a new purpose in life, as he might do it in the first stage of enthusiasm. This behavior is reflected in workplace relationships, the employee occasionally loses his emotional control and then, even signs of physical aggression against his environment may start to occur.

The stage of apathy is the fourth stage, when the syndrome is in full swing. This stage manifests itself after the prolonged stage of frustration with a condition that the employee feels even more that his work is meaningless. He goes to work only out of necessity and any task bothers him and makes him very exhausted. Such person tends to be distracted and it gives room for mistakes. After a while, it often results in feelings of helplessness and hopelessness. The employee has no desire to continue to work and perform tasks given by superiors. Signs of indifference towards clients or business partners are frequent as well.

The last stage is the actual burnout or the stage of intervention. At this time, the employee already lacks any emotional stability, is completely exhausted and suffers from depression. In the burnout stage, it is no longer only about the problems at the working environment, even the closed ones of the employee are fully affected by his depression. The employee loses any sense of being, the ability to regenerate. The employee in the last stage of burnout suffers from sleep disorders and other physical symptoms, such as backache, migraines, circulatory disorders, high blood pressure and associated higher risk of heart attack. These people often seek solace in substance abuse, such as cigarettes and alcohol. In this stage, an intervention from outside is needed, an assistance from outside, because mental problems can be so strong that in some situations they can lead to suicidal thoughts.

Individual stages described above continuously follow each other, of course, and given that it is a long-term process, it can sometimes be difficult to tell, at what stage the sufferer may be, before he reaches a final stage of burnout.

In the next chapter, two case studies will show the process of burnout in two employees.

2. Results

Many years of work at the same company and the median age, these are the factors linking two persons who do not know each other, but have experienced burnout. A man working in top management of a large multinational company, a woman working as a saleswoman at a bookstore. These are people holding different working positions, having different lifestyles, but were linked with an equally powerful moment in the past – burnout, depression, as well as change and strength resulting from the negative experience, its successful overcome and rediscovery of the meaning of life and joy. As a part of the survey, an interview with previously prepared questions was conducted with given employees, in order to compare their answers. The actual questions were based on studies of the relevant scientific literature.

The man works as a Head of Sales and Marketing for Eastern Europe, his scope of work has included the work for the marketing department, technical support and sales of textile dyes and chemicals, price management and logistics support in the assigned region. At the time when the symptoms of burnout manifested themselves, he was forty-six years old and has been already working for the company for ten years. He had been aware of burnout as a possible threat even before it became his personal problem. From his employer, however, there was no warnings at that time. Employees of the company had the opportunity to talk about their problems with a professional.

The second person of interest worked as a saleswoman at a bookstore for seventeen years and her job was to serve customers, to work with computer and to select suppliers. The woman began to experience the symptoms of burnout and depression when she was forty-five years old. She had been aware of the existence of the syndrome and its severity as well, however she associated it primarily with health care workers. She knew, however, that the problem may not relate only to a narrow group of occupations, but it can be a real threat for all occupations without exception. Even in this case, the employer did not inform his subordinates about the syndrome and employees of the bookstore had no opportunity to talk about their problems with a professional. It is five years since the woman has left the position, after overcoming burnout she changed her job.

2.1. The emergence of burnout

Never-ending influx of negative news, lack of time for a complete solution to the problem, the constant improvisation, the suppression of self-determination, all of these are the factors considered by the interviewee as the most stressful at his job position, which is the position of top manager. The important factor is also a lack of support from superiors, which is confirmed by the interviewed woman, who sees covered-up conflicts and unresolved problems with co-workers as the biggest problem. When interviewed she stated that customer contact was not stressful for her, but there was poor communication among workers at the workplace that she blames the most (this communication was characterized by the fact that workers hardly talked to each other during working hours). This was a great pressure on her mental health, and created space for negative stressful working environment.

2.2. The physical symptoms of burnout

Any stress brings negative physical manifestations on human health, and may be a trigger for a majority of serious and less serious health problems and diseases. People are often unaware of the consequences that occupational stress may have for their physical and mental health. Therefore, they tend to relegate the issue to the background of solved work issues. The physical manifestations of a psychological problem are the last stage, the final stage of stress, depression and, of course, burnout. It may be a persistent pain, loss of appetite, abdominal discomfort, dizziness, symptoms of a variety of serious diseases, for example cardiovascular diseases or diabetes, respiratory problems and visual disturbances, sweating and shaking limbs.

The interviewed saleswoman overlooked the signs of physical and mental exhaustion and did not address the situation at all. The respondent herself described the situation when she had realized her suffering from burnout as follows: „I exactly remember the moment. I was making records of goods to my computer, and suddenly I felt like I was out of my mind, the text on the screen blurred, I was dizzy and wanted to scream, I stood there for a while and then I just left. Then I realized that I was very exhausted, but I did not think it could be a psychological problem.“

The interviewed manager, on the other hand, described the feeling of utter physical devastation, exhaustion. He demonstrates it with a noticeable weight loss (the interviewed woman stated the weight loss by as much as 12 kg), inability to concentrate, constant fatigue, sleep disturbances, the feeling of being a physical and mental wreck. These are the consequences of burnout as described by the interviewees. Both respondents show a noticeable transition from physical to mental exhaustion.

2.3. Solving the problem of burnout

In the burnout stage there no longer has been possible for the sufferers to get rid of the problem by themselves, an intervention by a professional, a psychologist or rather psychiatrist was necessary. Both interviewees attended psychotherapy sessions that helped them.

To overcome burnout was not a matter of a week or a month, it took several months to years. Thanks to intensive support and understanding from family, friends and support from employer, it took the male respondent „only“ one year to overcome the syndrome. Due to additional stress in her personal life, the female respondent was treated for two years.

2.4. Life after overcoming burnout

Despite all the difficulties and suffering, both respondents are full of joy, optimism and strength now. It shows that every problem can be solved and there is a way out of every situation.

The manager evaluates his burnout experience as follows: „I have rethought my life priorities and values, changed the approach to problem solving at work, learned how to use my vacation and leisure time intensively. I have also intensified my social contacts, I take more rest, an active recreation, I have changed my lifestyle.“

On the other hand, the interviewed saleswoman said: „My view of life, of the future, has vastly changed. I have realized that I was the driving force of my life, that I was the one who was making decisions on what to do and what not to do. I am stronger, I love myself, I do what I like, what fulfills me.“

3. Discussion

In recent years, demands related to one's own working activity have received considerable attention. The works of experts in the area have shown that highly stressogenic work is characterized by high demands on quality, responsibility and commitment of a employee while having low autonomy of work activity. The autonomy of work activity means the possibility for the employee to decide on the pace of work, its nature and conditions. Research has shown that the combination of high demands and low autonomy of work activity is a factor that plays a crucial role in the determination of health outcomes of job requirements in the sense that it is a risk factor for various diseases. (Kebza, 2003, p. 6)

The interviewed manager said that a major factor that contributed to his problem was the suppression of self-determination. Therefore, working conditions should be adjusted so that an employee could influence his working situation.

The interviewed woman blamed zero communication at the workplace as a major cause of her state of burnout. It resulted from conflicts and unresolved problems with co-workers.

Since it is very important not to suppress feelings, to talk about them, to express them, it is necessary to create a suitable environment (it can be a meeting where difficult cases at the workplace are being discussed, Balint groups, etc.). It is also possible to go to see a colleague and discuss your feelings with him. An important aspect is also a strict separation of professional life from personal life. (Dekel, 2011, p. 241)

Conclusion

The paper gives a reader insight into the issue of burnout, it warns him about it. The comparison of two different employees was performed, both in terms of job position, profession and workplace, and in terms of experienced burnout. Even though the reasons for the two were different, the consequences can be described as the same. Interviews with employees and their comparison shows that it makes sense to talk about the syndrome, to not be afraid of it, to not be afraid to communicate one's feelings. It is in the interest of all parties (employers, employees and even the whole society) to eliminate the threat of burnout as much as possible. If someone is suffering from burnout, a collaboration with professionals on given issue is very important. Such cooperation has made an improvement of the situation and resulted in return to normal life in both cases. This fact is best described by a direct quote from the interview with the female respondent: „I must add that even though it was not a good time in my life, I am grateful for that, because it made me understand, to find self-confidence and the joy of life. And that means a lot to me.”

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REGIONAL DISPARITIES IN TERMS OF GDP CREATION: CASE STUDY IN THE VISEGRAD COUNTRIES

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Abstract:

GDP is the primary source of the standard of living for the inhabitants of a region and the entire country. Several research studies confirmed that major differences between various areas in a single country are counterproductive. For this reason, we monitor the GDP in the Visegrad countries (V4) by NUTS 2 regions. With the methodology we have developed, we analyse regional differences, and based on the results, we argue that regional support is essential. Deceleration of regions is analysed using regression analysis.

Introduction

Publications on macroeconomic indicators aim to inform readers about the situation of various countries – about their competitiveness with respect to other countries or about the “prosperity” of its inhabitants. In the architecture of the financial system, the main indicators include the gross domestic product, inflation, and the rate of unemployment. This paper discusses GDP. It must be noted that a single number can distort the reader’s perception. If a country has a higher GDP than another country, can we say that the inhabitants of various region have the same standard of living? The answer is clear – not necessarily because there are disparities in each country. There are relatively poor regions (as is generally known: the eastern part of the Czech Republic as well as the eastern part of Slovakia), and there are regions that greatly contribute to the total GDP. The latter are regions with a concentration of industry where people move to find work (e.g. Prague). This introduction mentions the Czech Republic and Slovakia because they are members of the V4 group whose situation this paper describes.

The mitigation of socioeconomic differences on the regional level and improvement of their competitiveness can be considered a long-term and indispensable objective that is included in regional as well as central government policies and concepts on the national as well as international level (Poledníková & Melecký, 2013). Numerous recent studies have reported the persistence of disparities in GDP per capita or income among

European regions, despite the high degree of openness between these regions and in contradiction with the predictions of the neoclassical growth model (Gallo, 2001). The Eurostat regularly publishes data on the NUTS 2 level, which is the most frequently used category. This category is crucial because most of the countries have regional governments at this level and also because the largest volume of structural funds of the European Union is distributed on the basis of NUTS 2 level data (Kahoun, 2014). Many studies attest to a similar development of V4 countries. This is an informal group of 4 Central European countries – Slovakia, the Czech Republic, Hungary and Poland. It is a lively, informal regional structure of 4 EU and NATO member countries that are committed to the same values, have a common history, culture and geographical position. V4 is a dynamic regional group of EU member countries that creates a platform for strengthening the coordination and consultation mechanism with the objective to achieve common positions on current issues of foreign and European policy, regional development, economic and cultural cooperation (MZV, 2015).

This paper discusses whether these countries have, in addition to a common history, a comparable development of GDP countries in regions as well as in countries as a whole. Can we really say that the region where the capital city is located is the richest in terms of GDP? Are GDP values of the V4 countries comparable, or are there major variations? Based on these facts, it is interesting to analyse GDP in all NUTS 2 regions, to define the identified differences, to calculate the shares of regions in the national GDP, and to apply regression analysis. Although regional differences are frequently measured and assessed in regional analyses which are widely read by experts, a universal and comprehensive method is yet to be found. One of the reasons can be the definition of regional disparities – there is a number of different approaches, like for the regional classifications (Poledníková & Melecký, 2013). Regional differences in GDP per capita within countries are often larger than among OECD countries (OECD, 2013). Differences or inequalities are usually considered negative, i.e. they are perceived as problems that must be eliminated. On the other hand, regional disparities are natural and can represent the strengths of the region. A correct definition and perception of disparities is an important prerequisite for the choice of regional policy tools that eliminate the region's weaknesses and support its strengths (Poledníková & Melecký, 2013). Kahoun (2014) wrote that regional GDP per capita is the most commonly used indicator for the comparison of regional disparities in economic performance. Regional GDP per capita is a key indicator in the distribution of the EU structural funds. It is often mistakenly seen as an indicator of economic well-being of the regional population. However, this indicator has limitations such as the impact of commuting among regions. The question is whether the EU regional policy employs the right indicator. It is necessary to conceive the regional GDP as an indicator of economic performance in a particular territory. As regards regional disparities in wealth, the disposable income of households would be a more representative indicator.

OECD (2014) defines that regional GDP is measured according to the definition of the System of National Accounts. To make comparisons over time and across countries, it is expressed at constant prices (year 2005), using the OECD deflator and then it is converted into USD purchasing power parities to express each country's GDP in a common currency. Kahoun (2014) characterized, that the regional GDP is often used in comparison with the national level or with multinational level. In most cases the regional GDP is usually compared to average GDP per capita of the EU27 in purchasing power standard. According to the Nevima (2012), the notion of regional disparities is problematic. The question is how regions compete and whether they are economic units to which the concept of competitiveness can be meaningfully applied. The concept of regional competitiveness would seem to imply that regions are like firms or nation states and are in competition with one another. However, regions are neither like firms nor like nations. A region is not simply a scaled-up version of an individual micro firm, nor a simple aggregation of many such firms. Of course competitiveness of regions depends on fluctuation of economy and management of level of cost, as special in context of achieving "dual emphasis" (Pudło, 2014). Regions are not economic actors in the sense that firms are. They have limited direct control over the activities that take place within them, and they have a lower level of organizational identity and, arguably, of unity than firms and nation states. Rather, their economic prosperity can be significantly influenced by the macro level fiscal and monetary policies pursued by the nation state.

The purpose is to follow GDP creation in various NUTS 2 regions of V4 countries, to define differences among regions and to argue in favour of regional support. The concluding part discusses regional deceleration with the help regression analysis.

1. Methodology

To pursue our objective, it is necessary to determine the area in which regional disparities will be examined and to choose an indicator that we will measure. In this paper, we follow GDP levels in NUTS 2 regions (according to the approach defined by the European Union). We follow and quantify the variable using mathematical and statistical methods. The results contain graphs produced in MS Excel, and we also use the SAS statistical software to apply the regression method.

The paper has three related objectives: 1, Analysing GDP in all NUTS 2 regions of V4 countries and capturing regional differences. 2, Expressing the share of each region in the relevant countries. 3, Applying regression analysis in order to capture regional disparities.

Hypothesis: We assume that the highest GDP values are observed in the capitals of each V4 country. We use data for V4 countries. In general, the data can be written as GDP_j^i for each country and year, and the parameters are defined as follows:

$$i = \{CZ, HU, PL, SK\}$$

$$j = \langle 2000; 2011 \rangle \cap N$$

Moreover, we distinguish these values by parameters of regions in various countries as follows: $GDP_j^{i,k}$ where $k = \{1, 2, \dots, K_i\}$ and “ k ” is defined for the following values of “ i ”:

$$i = CZ \Rightarrow K_{CZ} = 8$$

$$i = HU \Rightarrow K_{HU} = 3$$

$$i = PL \Rightarrow K_{PL} = 6$$

$$i = SK \Rightarrow K_{SK} = 4$$

To describe the aforementioned values, we use the following characteristics of regions in Table 1.

TAB. 1: Regions

CZ1	Praha	CZ8	Moravskoslezsko	PL4	Region Północno-Zachodni
CZ2	Střední Čechy	HU1	Közép-Magyarország	PL5	Region Południowo-Zachodni
CZ3	Jihozápad	HU2	Dunántúl	PL6	Region Północny
CZ4	Severozápad	HU3	Alföld és Észak	SK1	Bratislavský kraj
CZ5	Severovýchod	PL1	Region Centralny	SK2	Západné Slovensko
CZ6	Jihovýchod	PL2	Region Południowy	SK3	Stredné Slovensko
CZ7	Střední Morava	PL3	Region Wschodni	SK4	Východné Slovensko

Source: Eurostat 2015

For each regional value, we can define the relative GDP with respect to the total GDP in that country in a given year. This way, we calculate the following value:

$$GDP\%_j^{i,k} = \frac{GDP_j^{i,k}}{GDP_j^i},$$

where $GDP_j^i = \sum_{k=1}^m GDP_j^{i,k}$ where m is the maximum value of k that is used for the given

country, i.e. the number of regional units that we follow. This way, we define relative shares of countries in the total GDP of the country. In this case, we follow the structure of GDP creation in various regions and identify the regions with the highest and lowest relative contribution to the GDP. This is defined as $\max_k GDP\%_j^{i,k}$ and $\min_k GDP\%_j^{i,k}$.

To understand the importance of the disparities, we must understand the differences between these values which we define as the GDP% interval.

$$\Delta GDP\%_j^{i,k} = \max_k GDP\%_j^{i,k} - \min_k GDP\%_j^{i,k}$$

The interval can define the differences between regions, and we can observe that disparities occur in regional development within countries. These indicators are observed over time. In addition, we also follow the standard deviation from the uniform distribution (UGDP%) – the contribution to the GDP is reduced by an equal share, specifically:

$$UGDP\%_j^{i,k} = GDP\%_j^{i,k} - \frac{100}{K_i}$$

The values represent the deficit or surplus of the regional production compared to the uniform distribution. For the analyzed time series of the GDP amount we use the linear regression analysis where the amount of GDP of each Slovak region (by NUTS 2) is the dependent variable and the time (t) is the independent variable.

2. Results

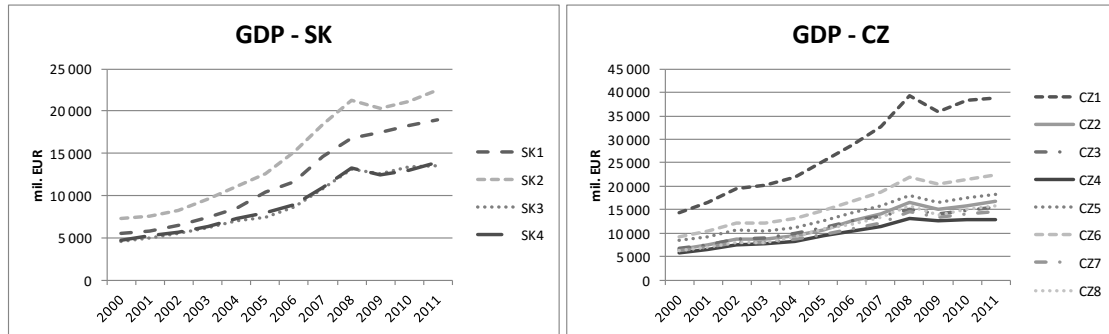
2.1. Regional disparities among V4 countries

Slovak Republic. Looking at GDP for the Slovak NUTS 2 regions, we see that Western Slovakia achieves the best results, mainly due to the concentration of industry in the western part of the country. Due to its smaller size, the Bratislava region contributes less than Western Slovakia, although the situation is very different for per capita numbers. The established hypothesis is not confirmed. In addition, we can observe an interesting fact (figure 1): In 2009, Bratislava did not experience a decrease in GDP compared to 2008, unlike all other regions. This shows a different impact that the crisis had on the regions. With the aim of promoting greater domestic and foreign investment in less developed regions with high unemployment and in the hi-tech and R&D areas, the Slovak government adopted revised guidelines for providing investment and employment incentives in 2008. Under this policy, projects with a certain minimum amount of investment in industrial production, technology centers, strategic service centres, and complex tourism centres will be eligible for assistance from the state budget. However, the success of the revised investment guidelines will depend on developing adequate infrastructure, especially a well-integrated transportation network (Bruncko, 2003). According to officials of SARIO, the Slovak Investment and Trade Development Agency, investors consider the lack of adequate infrastructure in the eastern regions a major bottleneck.

Czech Republic. Figure 1 shows that Prague is much ahead of the other regions of the Czech Republic. The crisis manifested itself in all regions. Only CZ2 and CZ5 surpassed the value of 2008 in 2011; other regions have yet to return to pre-crisis levels. The extraordinary lead of Prague in economic performance per capita is due to several key factors, namely a high rate of commuting to work, the concentration of gross value added generated by the government sector, the concentration of a major part of the services sector, a higher price level which is not reflected in the regionally different

conversions of GDP at purchasing power parity, and high compensation of employees that serves as a key for the allocation of regional gross value added in multiregional organizations (Kahoun, 2015).

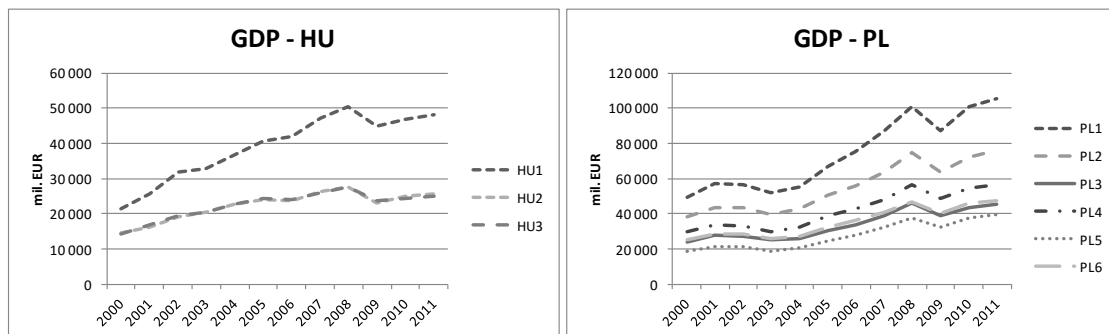
FIG. 1: GDP in Slovak regions and Czech regions



Source: own calculations according to Eurostat 2015

Hungary. In Hungary, we can clearly see that the first region is much larger than the other two. It is the Budapest region along with the middle part of Hungary. Figure 2 shows that the impact of the crisis is yet to be eliminated in these regions. From a European viewpoint, a characteristic feature of Hungary is the monocentric spatial structure. Budapest's population is 20% of the total, but its economic, cultural, intellectual and political significance is much more pronounced. In plain terms, the country consists of a single huge urban centre and its periphery. The historical roots of this dualism reach back more than one hundred years (Nagy et al., 1994).

FIG. 2: GDP in Hungarian regions and Polish regions



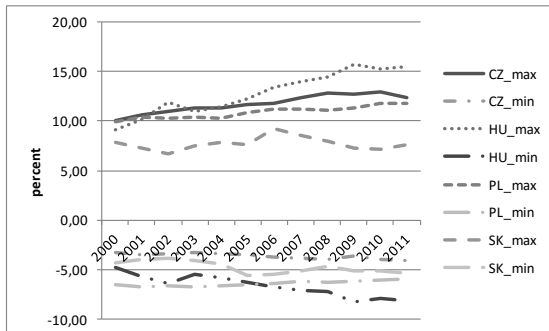
Source: own calculations according to Eurostat 2015

Poland. The development in Poland is similar. The capital city, i.e. the central region, is the largest production area. The structure of GDP creation only experiences slight changes, as shown in the following figure.

2.2. Shares of regions in each country

From the data above, we computed shares of each region in the given countries (Figure 3 and 4). Various options exist if we want to analyse GDP creation in a country. Accordingly, we decided to monitor the maximum and minimum values. We can see that in Hungary, the share of the largest region increases over time. The same is the case in Slovakia. We can see that regional disparities increase in Hungary.

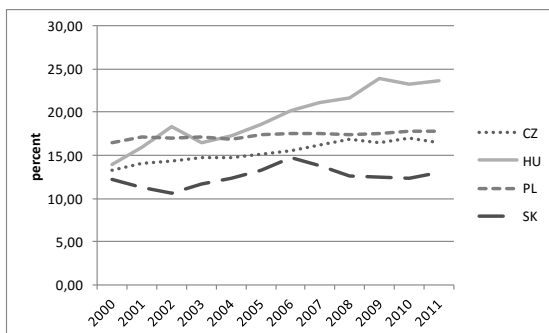
FIG. 3: Shares of total GDP per country



Source: own calculations

We can see that regional disparities in the given countries increase. Hungary witnesses the largest increase. In Poland, the difference between the maximum and the minimum is stable. In the Czech Republic, the disparity has been increasing – but only slightly compared to Hungary. In Slovakia, differences have been rising in particular since 2006, which is due to the start of automobile production in the Trnava region.

FIG. 4: Spread between max and min ratio



Source: own calculations

2.3. Regression analysis

To follow the development GDP in the relevant regions, we use regression analysis. We can see that disparities grow in each country and that the regions produce a higher GDP. In next table we show the regression coefficients for time series of each Slovak regions by NUTS 2.

TAB. 2: Regression coefficients for region SK1, SK2, SK3 and SK4

Parameter Estimates (SK1)					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	2638.07576	588.10216	4.49	0.0012
t	1	1416.89860	79.90735	17.73	<.0001

Parameter Estimates (SK2)					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	4215.07576	794.78689	5.30	0.0003
t	1	1597.74476	107.99027	14.80	<.0001

Parameter Estimates (SK3)					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	2803.19697	508.58206	5.51	0.0003
t	1	948.63636	69.10269	13.73	<.0001

Parameter Estimates (SK4)					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	1	3150.77273	446.82887	7.05	<.0001
t	1	924.80420	60.71209	15.23	<.0001

Source: own calculations

The following table 3 shows the disparities in quantitative terms for each region.

TAB. 3: Regression coefficients

Region	Annual increment	Region	Annual increment	Region	Annual increment
CZ1	2473,59	CZ8	951,59	PL4	2707,22
CZ2	1007,19	HU1	2441,58	PL5	2068,72
CZ3	845,33	HU2	960,36	PL6	2240,15
CZ4	726,24	HU3	893,63	SK1	1416,9
CZ5	977,58	PL1	5487,72	SK2	1597,74
CZ6	1302,11	PL2	3661,49	SK3	948,64
CZ7	830,37	PL3	2123,11	SK4	924,8

Source: own calculations

The results clearly show that regions need support as regards GDP creation. It is obvious that differences are on the rise. Regional convergence is also based on the support of regions and creation of jobs by creating values.

3. Discussion

Researches have been realized also in the countries, which create association of V4 - for example Nevima (2012). Bruncko (2003) in Banerjee and Jarmuzek (2009), ktorý analyzoval Slovensko found that while substantial regional disparities exist in Slovakia in terms of output per capita, these disparities had not widened during 1996–99. In his view, an initial widening of regional differences in GDP per capita could be expected during income convergence with the EU, in line with the experience of many other countries that had joined the EU earlier. Slovakia was particularly prone to such an outcome because of geographical factors that created a localized growth pole around the Bratislava region. On the other hand, the literature on economic growth suggests that regions with lower income levels should generally experience faster growth rates than

regions with higher income levels. In Poland, there the Rodríguez and Wardyn (2014) analysed to which extent the changes in market potentials in Poland have been a cause for increasing income disparities, which were observed across Polish regions from 1995 to 2008. To do so we derived and estimated a New Economy Geography Model, which relates per capita GDP growth rates to changes in market potential. The results of the crosssection estimations of the model for the period 1995-2008 and for its different subsamples point to a positive and significant effect of changing market potentials in per capita GDP growth rates. There are also research studies for the Czech Republic: Kahoun (2015), (Mikeszová & Sunega, 2008), and (Dušek & Skořepa, 2007). With respect to whether Hungary fits in the V4 group, we can name the study by Lukowics whose objective was to develop a comprehensive method of analysing regional disparities based on the notion of regional competitiveness and its closed logical system, a correctly chosen theoretical model (the pyramid model of regional competitiveness) and statistical data (Lukovics, 2014).

Building upon previous studies, the purpose was to follow GDP creation. The analysis led to the results we had expected. Obviously, the development and its pace differ from region to region. It is not true that the overall GDP unequivocally says which country is better off. It provides a biased picture. Let us take Slovakia as an example. The highest value is achieved in western Slovakia, specifically EUR 22,000 million. It is a higher value than in the region of the capital city. On the other hand, the eastern and central region both reach about EUR 12,000 million, i.e. about 50% less. If we take these values together, the total Slovak GDP distorts the idea of the economic strength of the country. There are many reasons why these values are different although V4 countries have many similar characteristics. The underdeveloped infrastructure in Slovakia is one of the problems. Look at Germany, a rich country, where water transport prevails. The speed of highway construction is slow, and there is still no plan for the construction of highways in the eastern part of Slovakia. Other regions of V4 countries face similar problems. Our results (e.g. the best numbers for Western Slovakia) confirm that infrastructure is one of the most important factors for strengthening the competitiveness of a country or region. This concerns in particular the Trnava Region where car production has taken roots, which has a positive impact on GDP growth as well as on reducing unemployment in the region.

Conclusion

In this paper, we pointed out the problems of increasing disparities between regions within the V4 countries but also in their comparison through those countries. That disparities are subsequently directly supporting just from the perspective of investors who are looking for developed areas within they intend to pursue an economic activity and therefore naturally prefer developed regions front edge. These results confirm the findings of several authors, which we discussed in the previous section. That is the role of the state and national government levels of government should provide the

motivation of businesses to create activity even in areas that are seen as marginal. Within the paper, we also pointed out that due to the volume of production, not every country is just the most important area of the capital. In case of analysis of performance in view of GDP per capita we identify a problem in terms of aggregate output in a relatively small area of the main area (around the capital city) with a relatively small population to other regions, whose are concentrated in this territory, according to official statistics. The authors Rodríguez and Wardyn (2014) expressed an interesting view: However, some scholars would argue that the “centripetal forces” would possibly lead to higher efficiency and higher output of the economy as a whole (albeit at a price of higher regional disparities). The main reason why we think regional disparities should be counterbalanced resides in the fact that under free labour mobility, those regions which are lagging behind would face a continuous shrinking of the workforce; especially highly qualified people would migrate to regions with higher wages and better living conditions. Our regression analysis reveals that uneven growth will continue. We consider this development unfortunate because with this pace and differences, it will be difficult for V4 countries to get closer to richer countries. We expect that this will result in an outflow of the workforce into richer countries or regions. The disparities between reach and poor regions will continue to deepen. Unfortunately, we are not competent to suggest economic policy improvements because the development of macroeconomic developments mainly depends on the policy makers and the leadership style. Moreover, even if politicians had an excellent remedy for the problem, the external environment of the European Union and other countries of the world can influence the situation in V4 countries. In doing so, the results are based on data up to 2011. These figures do not consider the current fluctuations in currencies and their exchange rates, which could slightly deviate the comparison between these countries; however, a comparison within the countries is not thereby affected. Also, in the above analysis, we have not dealt with the issue of differential taxation and therefore motivation of enterprises to migrate between countries, not only regions of the country. Such motivation, however, largely depends on the amount of the wage claims of labour and also legislative restrictions, especially in relation to the existence of a European trading area.

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INVENTORY CONTROL IN ONLINE STORE - THE PROBLEM OF "SHELF WARMERS"

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Abstract:

This article describes the problem of products with very low turnover in the context of electronic commerce. The factors lead to the increasing number of “shelf warmers” are described. Those factors are divided into two groups: general and those which concern mainly online stores. The problem with identification of such products is shown and proposals of inventory control indicators are given including shelf warmers indicator. The last part of the article contains the short conclusions.

Introduction

The problem of slow moving products is one of the most important aspects of inventory management. Online stores can offer huge number of items, because they do not have to have shopping areas and because of two-steps transaction process (first step - customer makes an order, second step - the order is carried out; the second step may take place after a few days). Wide assortment may lead to increasing number of "shelf warmers", therefore this is very important to identify such a products in order to inventory optimization.

I consider only the online stores which have their own warehouses. E-commerce logistics solutions such as drops hiping will not be taken into consideration. In the case of online stores which have their own warehouses, inventory control problem is one of the key issues determining the level of the company's costs, as well as its liquidity.

This analysis considers slow moving products, which can be named “shelf warmers” as they lie too long in the warehouse, therefore I will not take into account a possibility of reducing stocks by optimizing the replenishment policy.

The aim of this article is to indicate the reasons of “shelf warmers” accumulation in online store and to propose the identification method for such products. The purpose of the proposed methods is to reduce the inventory costs and therefore increasing the store profits.

The paper structure is the following. Firstly the problem of shelf warmers in online store is discussed. Then the inventory control indicators are characterized. In the last part of article short conclusions are presented.

1. The problem of „shelf warmers” in online store

In the case of online stores, there are several factors that can lead to the formation of such stocks.

1.1. The factors leading to increase the number of “shelf warmers”

The factors leading to increase the number of “shelf warmers” are divided into two classes: the first group of reasons relates to trade in general, while the second is associated with a specific e-commerce environment.

Firstly the general factors are described. The factors that are always responsible for the formation of unwanted inventory are inaccurate demand forecasts and incorrect inventory control.

The subject about demand forecasting and inventory control was analysed many decades ago, for example, Croston (1974) drew attention to the unnecessarily high stocks that result from using such inaccurate forecasts.

Sani and Kingsman (1997) looked for the best periodic inventory control and demand forecasting methods for items with very low demand. Among others they concluded that for very low demands below 20 per year, Naddor's heuristic (1980) is best both on costs and service.

Other researchers (for example Schultz (1987)) have tended to concentrate on the decision rules associated with the control of inventory for SKUs with so-called lumpy demand. Whilst forecasting methods based on Exponentially Weighted Moving Averages are satisfactory for the faster moving SKUs, it was apparent to management that some over-forecasting and corresponding over-stocking was occurring for the slower moving products [Johnston & Boylan, 1996]. The optimal control of inventory items which experience lumpy demands is very difficult task. In (Mak, Wong, & Huang, 1999) a mathematical model is developed for the determination of optimal replenishment policies for such items.

An important factor in the formation of unwanted inventory is incorrect product assortment planning (PAP) (Mantrala et al., 2009), (Mahajan & Van Ryzin, 2001). Another reason of unwanted inventory is improper pricing policy.

The second described group of factors leading to the increasing number of “shelf warmers concerns mainly electronic commerce.

The first factor concerning the environment of e-commerce is the ability to offer a large number of product items that create the so-called long tail. This is due to the three distinguishing features of electronic commerce: two-step sales (product ordered by the customer does not have to be physically available in the warehouse store), low cost of the virtual product presentation (in contrast to the traditional trade there is no limit due to the high cost of the exhibition space) and efficient search engines, allowing the customer to quickly find the desired product. In traditional retail the assortment optimization models deals with a setting in which shelf space limits total inventory and shelf space allocation determines the inventory level of each product (Kök & Fisher, 2007). In e-commerce there are many different inventory management models, that allow possessing different percentage range of assortment in stock.

Having a wide range of products in online store leads to increase of potential demand. Diverse search engine optimization allows the e-shop with a large number of product items, attract a large number of customers. However, having a long tail of product items that come from different suppliers may require ordering the slow moving items in quantity exceeding current demand, due to the minimum order quantity set by supplier.

Another factor is the lack of the need to maintain costly exhibition space at online stores. Warehousing costs, if they do not have to be stored at the exhibition areas are much lower. This may result in less pressure on the efficient inventory control.

The third factor is the large heterogeneity of online shoppers due to the absence of geographical constraints. Differentiation of customers as well as the variability information online environment may cause that even the "shelf warmer" in a few years can suddenly become a target of the customers.

The inventory level does not only decrease because of demand but it may also increase in case of returns (de Brito & Dekker, 2003). The problems of products returns in e-commerce are particularly critical due to the fact that the client does not have physical contact with the ordered product. The return policies laid out in this website should be a customer friendly (Srinivasan, Anderson & Ponnayolu, 2002). In addition, legal regulations of online stores allow customers to make returns of goods without giving a reason why they return product. In some cases, the percentage of returns can be as high as 30-40% of online store sales (Pyke, Johnson & Desmond, 2011). Frequent customer returns may therefore because of increasing number of shelf warmers.

2. Identification of "shelf warmers"

Products can be classified in many different ways in context of inventory level. Some classifications take into consideration turnover of products. Williams (1983) took into account demand type and classified products into three following categories: high sporadicity (one demand at least ten times the average weekly demand), low sporadicity

(average demand during a lead time less than 10) and no sporadicity (neither of the above).

ABC analysis can also direct managers attention for the goods which should be removed from the offer (Christopher, 1986). Managers classify their SKUs, assigning higher service-level targets to some segments than others and treating the different categories in distinct ways as far as forecasting and stock control are concerned. ABC (Pareto) type classifications are often used in practical applications. Simple SKUs classification with respect to profit triggered an immediate response with respect to 'clearing' the stock base and discarding (in the majority of cases at a discounted price) obsolete items (Syntetos, Babai, Davies & Stephenson, 2010).

In practical situations all managers too often resort to very basic inventory rules, such as the re-order point methods where the control parameters are set arbitrarily. In many cases they present no attempts had ever been made to identify obsolete items or SKUs that are very slowly moving (Syntetos, Babai, Davies & Stephenson, 2010).

Croston (1974) proposed a model in which a formula was developed for the slow moving item to make the decision whether the item should be stocked at all or not.

2.1. Measurements of stock turnover

Inventory turnover can be measured in many different ways. Only a few examples of such indicators are presented in this article (much more are presented for example in (Christopher, 1984)).

Inventory turnover, the ratio of a firm's cost of goods sold to its average inventory level, is often used to measure performance of inventory managers (Gaur, Fisher & Raman, 2005).

The indicator that measures the frozen assets in the warehouse is the average inventory indicator. If the measurement is carried out every day, the indicator shows the average daily inventory level.

$$Z = \frac{\sum_{i=1}^n Z_i}{n} \quad (1)$$

Z – average inventory level;

Z_i – inventory level in i -th period;

n – number of measurements of inventory level.

Inventory sufficiency indicator specifies the number of days on which goods stored in the warehouse are enough to meet the demand:

$$\begin{array}{l} \text{a)} \\ \text{b)} \end{array} \quad WM = \frac{M \cdot d}{S} \quad (2)$$

WM – inventory sufficiency indicator;

M – the current value of the stock of a store;

S – the total value of sales in the period;

d – number of days in the period.

2.2. *The proposal of shelf warmers indicator*

In order to determine the “shelf warmers” among set of SKUs, I propose an original indicator (proposed firstly in my PhD thesis). It should be mentioned that in the case of a small number of products the use of this type of indicator is not necessary. However, when the number of SKUs is large, for example, more than a thousand, use of such a tool allows to obtain information, very important from the optimization of inventory costs point of view - therefore I suggest applying this indicator for inventory control for online stores.

Shelf warmers indicator can be used to designate the goods most lingering in the magazine. By using the FIFO method (first in first out), the resulting high rates, indicate the goods lying in stock, rather than those that are currently high stock and are characterized by high turnover.

Formally, this indicator can be expressed as::

$$\text{c)} \quad ZM = \sum_{n=1}^N d_n \cdot I_n \quad (3)$$

where:

ZM – shelf warmers indicator;

n – delivery number;

N – number of deliveries; the last delivery takes the number 1;

d – number of days of filling the shelves by SKUs in accordance to the FIFO method;

I – amount of defaulting product.

This indicator can be calculated both in natural units, such as in monetary terms. In the second case, I will mean defaulting value of the goods.

An example

Assume that the stock has 5 pieces of goods, of which one piece comes from the previous delivery, which took place 30 days ago, and 4 pieces from the last delivery, which took place 5 days ago. For aforementioned data shelf warmers indicator value will be 50.

It can be assumed that the correct value of the index should be in range $(0, d1 \cdot I1)$, where $d1$ is the number of days elapsed from the date of last delivery, and $I1$ is the amount or value of the goods from last delivery. If the index value exceeds $d1 \cdot I1$, this means that the stock are goods from earlier than the last delivery, thus probably there is a need of changing ordering policy.

Problematic is to determine what number of days that have elapsed since the last delivery means that goods can be regarded as the shelf warmer, because it depends on many different factors like: the kind of products, phase of the product life cycle etc.

Conclusion

The numerous factors leading to increase the number of “shelf warmers” in online store presented in this article show that this problem may occur more often in e-commerce than in traditional trade. Slow moving products can increase the inventory cost in online store therefore proposed "shelf warmer" indicator seems to be a proper tool for inventory optimization which can be taken into consideration by e-commerce managers.

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DIVERSIFICATION OF THE MORTGAGE HOLDERS LOANS BORROWED IN SWISS FRANCS USING LATENT CLASS MODELS

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Abstract:

The holders of the mortgage loans borrowed in Swiss francs constitute more than 3 percent of the individual customers of banks in Poland. The objective of the research was to isolate homogeneous segments of the mortgage loan in Swiss francs holders in terms of the circumstances of making consumer decisions on the financial market. Five homogeneous groups of mortgage borrowers in Swiss francs were selected in terms of circumstances and motives behind the decisions on the financial market. This segmentation was conducted using latent class models (LCA). The research was conducted in March 2015 r., using a CAPI method on a nation-wide representative sample of mortgage loan holders of N=400, were borrowers in Swiss francs.

Introduction

The decisions of households on taking out credits are the most important among all the financial decisions that households make (Bańbuła 2006). The motives behind making these decisions play an important role (Browning and Lusardi 1996). Shefrin and Thaler (1988) proved that the financial decisions are the outcome of two sides of a personality of a consumer with different time preferences. They divided consumers into “naive” and “sophisticated,” depending on whether the consumers realized the duality of their preferences and tried to apply self-control. Kamakura (2006) moreover, proved that this division depended mainly on the subjective factors and consumer motivation.

The objective of this survey was to identify and isolate homogeneous segments of the Swiss-francs mortgage loan holders in terms of the circumstances of making consumer decisions on taking out loans in foreign currency.

So far in Poland the homogeneous groups of loan borrowers have not been identified in terms of the circumstances of making consumer decisions on the choice of the mortgage loan currency. The conclusions in this regard may serve to learn the complex social

phenomena on the financial market, to support the communication process as well as to identify the potential threat connected with credits taken out in foreign currency.

This econometric analysis was conducted using latent class models (LCA). There is little information in the Polish literature as regards the applications of latent class models, and it requires a lot of research work. The source of the empirical data was the results of independent surveys conducted on a nation-wide representative sample of Swiss-francs mortgage loan holders. The survey was conducted in March 2015 at the respondents' homes using the CAPI method—computer aided personal interviews.

1. Methods, literature overview

The division of the consumers into “naive” and “sophisticated,” which is unobservable in the view of the sociodemographic features, is possible to identify using latent class models. The survey conducted a segmentation analysis using latent class models (LCA) in the Syntax module of LatentGOLD 4.5 program (Vermunt and Magidson 2008). The latent class defines a certain abstract feature or characteristic that cannot be directly observed which, however, is a factor that diversifies each object. The examples of latent variables are: preferences, attitudes, and behavior intentions (Formann 2003).

Latent class (LC) modelling, also known as Finite Mixture Modeling, provides a powerful way of identifying latent segments (types) for which parameters in a specified model differ. Latent classes are unobservable (latent) subgroups or segments. Cases within the same latent class are homogeneous on certain criteria, while cases in different latent classes are dissimilar from each other in certain important ways. Formally, it is assumed that latent class (clusters) are represented by K distinct categories of a single nominal latent variable x , $1 \leq x \leq K$. Model is based on the same general mixture model probability structure that defines the relationships between the exogenous, latent, and response variables (Vermunt and Magidson 2008):

$$f(y_i|z_i) = \sum_{x=1}^K P(x|z_i) f(y_i|x, z_i) = \sum_{x=1}^K P(x|z_i) \prod_{h=1}^H f(y_{ih}|x, z_i) \quad (1)$$

$f(\cdot)$ density, $P(\cdot)$ probability

x – nominal latent variable, a particular latent class,

K – number of clusters (latent classes),

y_{ih} – vector of responses in set h ; H – number of sets,

z_i – exogenous variables (covariates), R – number of covariates.

Model is specified for $f(y_i|z_i)$, which is the probability density function, corresponding to a specific set of y_i values, given a particular set of z_i . Unobserved variable x (representing clusters) intervenes between y and z variables: $P(x|z_i)$, which is the probability of belonging to a certain latent class, given an individual's realized covariate

values, and $f(y_i|x, z_i)$ is the probability density of y_i , given x and z_i . Thus variable x may be influenced by z , and y may be influenced by x as well as by z (Kaplan 2003). The last part of the model formulation described in equation (1) implies that y variables belonging to different sets are assumed to be mutually independent given the latent and exogenous variables. So, each $f(y_i|z_i)$ is now an univariate probability density, and prior class membership is not affected by covariates. Equation 2 described an example of a LC model with three categorical, independent indicators ($T = 3$) is:

$$P(y_{i1} = m_1, y_{i2} = m_2, y_{i3} = m_3) = \sum_{x=1}^K P(x) \prod_{t=1}^T P(y_{it} = m_t|x) \quad (2)$$

The conditional (response) probabilities $P(y_{it} = m|x)$ are parameterized as equation (3):

$$P(y_{it} = m|x) = \frac{\exp(\eta_{m|x}^t)}{\sum_{m'=1}^{M_t} \exp(\eta_{m'|x}^t)} \quad \text{where } \eta_{m|x}^t = \beta_{m0}^t + \beta_{mx0}^t \quad (3)$$

β – model parameters

η – linear predictor

m – category of a nominal or ordinal response variable

t – indicator index

The parameters of the various types of LC models are estimated by means of Maximum Likelihood (ML). A set of indexes useful in evaluating and comparing the achieved solutions are the measures based on the value of the function of credibility which depict some of the variability still not explained by the model. These are the logarithm of the function of credibility and informative criteria (based both on the logarithm of the function of credibility as well as on its squared value) (Tofighi and Enders 2007): Akaike (AIC), Bayes' (BIC) and complying with the Akaike criterion (CAIC).

2. Results

The decision concerning the choice of the specific currency of a mortgage loan is impossible to be described by one variable. The model used 23 survey indexes which constitute the preferences and benefits connected with the choice of the specific currency of the mortgage loan. They concerned the life style, knowledge about finances, the inclination to undertake risks, the self-evaluation of the current and future economic and professional situation, the orientation on profit, the inclination to get oneself indebted and to save money, caution, the ability to plan and manage a household budget, the response to the offers of financial institutions, the attitude towards banks, the level of trust in banks and the method of reaching a decision.

TAB. 1: Selected criteria of matching the latent class models

Number of latent classes	BIC	AIC	CAIC	Classification error
1	55326,2	54846,6	55475,2	0
2	53570,4	52901,0	53778,4	0,0229
3	53036,3	52176,9	53363,3	0,0392
4	52978,1	51928,8	53354,1	0,0256
5	52978,1	51738,9	53303,1	0,0183
6	53013,8	51584,7	53457,8	0,0262
7	53162,9	51543,9	53665,9	0,0402

Source: (results of independent research)

Seven alternative models were estimated which contained from one to nine latent classes (Table 1). The choice of the number of latent classes was made by comparing the value of the BIC, CAIC measures as well as the classification error value. The lowest value of the informative criteria of BIC and CAIC as well as the classification error were reached for the model with five latent classes (Table 1). The classification error in the case of this solution was 0.0183, and in the case of a reduction or increase of latent classes the error increased.

TAB. 2: Evaluation of the selected features in each segment in relation to the average level of all mortgage borrowers

	Segment				
	Outdistanced 28%	Unquestioning 26%	Aspiring 22%	Lost 15%	Gamblers 9%
Knowledge about finances	✗	✗	✓	✗	✓
Trust	✗	✗	—	—	✓
Taking risks	✗	✓	—	✗	✓
Openness to credits	✗	—	✓	✓	—
Saving money	—	✗	✓	✗	✗
Caution	✓	✗	✓	✗	—

Source: (results of independent research)

- ✓ Above average for all the borrowers
- ✗ Below average for all the borrowers
- Similar to the average for all the borrowers

The results of the determination of the R2 five-class model differ in terms of such areas as “spontaneity/planning,” “objective regardless of the consequences” as well as “seriousness when making a decision on the currency of the credit.” The proper names

of the latent classes (segments) were defined, as well as the profiles of each segment were determined on the basis of the evaluation of the conditional probability of attributing of each of the 23 indexes to each latent class. Table 2 contains a synthetic characteristic of the segments in such aspects as caution, taking risks, financial knowledge, saving money, getting indebted and trust in banks.

Segment 1 “Outdistanced” 28%: They think about the future, try to make well-thought out decisions and consider the consequences of their decisions. They are not inclined to take risks, they are not interested in the finances, and they look for simple offers. They avoid getting indebted. They look at banks with reserve. They think that one needs to be careful in contacts with banks. They do not blame banks for the situation of CHF credit holders. In this segment, 33% of the people have houses, and 67% have apartments. 24% have a cash or installment credit and 5% have a term deposit account, and. 35% do not see any threats at the moment of taking out a mortgage loan.

Segment 2 “Unquestioning” 26%: They do not think about the future, and they frequently make decisions on the spur of the moment. When they really want something, they pursue it regardless of the consequences. They choose the financial offers which are close at hand. They are open to risks. They usually take one day at a time. They do not feel the need to be cautious when contacting banks. They do not find control over the finances important. They do not see any sense in saving money. They represent limited trust in banks, and they blame them for the situation of the CHF loan holders. In this segment, 44% of the people have houses, and 55% have apartments. 15% have a cash or installment credit, and 1% has a term deposit account. 12% do not see any threats at the moment of taking out a mortgage loan.

Segment 3 “Aspiring” 22%: They think about the future, and they like to have everything under control. They consider their financial decisions and their consequences. They look for comprehensive financial offers. They are interested in offers, and they track new offers on the market. They understand the sense of saving money, and they try to do it whenever they can. They do not avoid getting indebted. They trust banks; however, in contacts with them, they try to be cautious. 30% of the people have houses, and 73% have apartments. 28% have a cash or installment credit, 15% have a term deposit account, and 31% do not see any threats at the moment of taking out a mortgage loan.

Segment 4 “Lost” 15%: They do not think about the future, and they frequently make decisions on the spur of the moment and they do not consider the consequences of their decisions. The price is a normal criterion. They are not interested in the finances. Controlling the finances is not important for them. They spend money for the current needs. They do not fear borrowing. When they dream about something and they have the possibilities of taking out a credit, then they seize the opportunity. They trust banks, however at the same time, they claim that banks con customers into buying things. 39%

of the people have houses, and 56% have apartments. 26% have a cash or instalment credit, 2% have a term deposit account. 27% do not see any threats at the moment of taking out a mortgage loan.

Segment 5 “Gamblers” 9%: They like taking risks. They try to handle their finances as little as possible. They do not see any sense in saving money. Credits are something normal for them. When they dream about something, they readily take out credits. They do not see the need to be careful in contacts with banks. They blame them for the situation of the CHF loan holders. 42% of the people have houses and 57% have apartments. 16% have a cash or instalment credit, 9% have a term deposit account. 26% do not see any threats at the moment of taking out a mortgage loan.

3. Discussion

The borrowers of foreign currency credits constitute an almost homogeneous group in sociodemographic terms. The basic division line is the currency of the credit and looking for the optimum solution between the price of the credit and security. The dominating motive to choose a foreign currency credit was the rate of the credit installments. The foreign currency borrowers had their best economic interest in mind, and they were aware of different kinds of risks. However, too much optimism turned out to be a significant factor of the risk. The CHF borrowers evaluated low the risk of exchange rate increase and the risk connected with the global crisis on the financial markets. They frequently expected that their professional and economic situations would improve in the future. It turned out that a pro-consumption attitude was a diversifying factor.

The borrowers undertook active measures by analyzing the different kinds of risks, including the foreign currency risk, the interest rate, the situation of the household in comparison with the overall economic conditions, the risk of losing one’s job, etc. The decision to choose the currency of the credit was not rash. Almost all borrowers compared the offers of different banks, and the majority also compared the offers in PLN and in foreign currency. Eight out of ten borrowers claimed that they realized the possible influence of the currency exchange rate on the value of their obligation and the credit installment rate.

Conclusion

The latent class models enable us to identify the subtypes of the interconnected features which allow one to get to know the circumstances of the consumer decisions on the choice of the currency of a mortgage loan.

The results of the latent class models may serve to better learn the complex social phenomena on the financial market, support the communication process as well as to identify the potential threats.

The main diversification of the group of borrowers results from the attitudes towards the financial market, the perception of the potential risks at the moment of taking out a credit and in the future and the response to the offer of mortgage loans.

The typological classification revealed 5 different segments of borrowers as regards the psychographic profile, the attitudes to risk, the financial knowledge, caution.

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A REVIEW OF SOFTWARE FOR DATA ENVELOPMENT ANALYSIS MODELS

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JEL classification: C44

Abstract:

Data envelopment analysis (DEA) belongs to the topics that are discussed in professional operations research journals very frequently. It is a model class that is focused on efficiency and performance evaluation of the set of decision making units. DEA models are based on solving linear programming problems, and in order to evaluate efficiency of a particular unit one linear optimization problem must be solved. That is why decision makers need a specialized software tool that allows an efficient repeating of the optimization run because the number of units may be quite high. The paper maps the current situation in commercial and non-commercial software for analysis of efficiency using DEA models. In addition an original tool that allows solving DEA models in MS Excel environment is introduced.

Introduction

Data envelopment analysis (DEA) models are widely used as a tool for efficiency and performance evaluation of homogenous decision making units, i.e. units that produce several identical or equivalent outputs. Let us consider positive outputs, the higher values lead to higher performance of the unit under evaluation. For production of the outputs the decision making units spend several inputs that are usually minimised, i.e. their lower values lead to higher performance. Let us consider the set of homogenous units U_1, U_2, \dots, U_n that are described by r outputs and m inputs. Let us denote $X = \{x_{ij}, i = 1, 2, \dots, m, j = 1, 2, \dots, n\}$ the matrix of inputs and $Y = \{y_{kj}, k = 1, 2, \dots, r, j = 1, 2, \dots, n\}$ the matrix of outputs. In general, the measure of efficiency of the unit U_q can be expressed as the weighted sum of outputs divided by the weighted sum of inputs, i.e.

$$\frac{\sum_k u_k y_{kq}}{\sum_j v_j x_{jq}},$$

where v_j , $j = 1, 2, \dots, m$ is the weight assigned to the j -th input and u_k , $k = 1, 2, \dots, r$ is the weight of the k -th output. The evaluation of efficiency of the unit U_q by a DEA model consists in maximization of its efficiency score under the constraints that the efficiency scores of all other units cannot be greater than 1 (100 %). The weights of all inputs and outputs have to be positive in order to include all the characteristics into the model. The model is formulated as follows:

$$\begin{aligned}
 &\text{maximize} && \frac{\sum_k u_k y_{kq}}{\sum_j v_j x_{jq}} \\
 &\text{subject to} && \frac{\sum_k u_k y_{kp}}{\sum_j v_j x_{jp}} \leq 1, && p = 1, 2, \dots, n, \\
 &&& u_i \geq \varepsilon, && i = 1, 2, \dots, r, \\
 &&& v_j \geq \varepsilon, && j = 1, 2, \dots, m.
 \end{aligned} \tag{1}$$

(1) is known as primal CCR (Charnes et al., 1978) model. Model (1) is not linear in its objective function but can be easily transformed into a linear program. This transformed model has $(n + 1)$ constraints and $(m + r)$ variables. Its dual version

$$\begin{aligned}
 &\text{minimize} && \theta, \\
 &\text{subject to} && \sum_{j=1}^n \lambda_j x_{ij} \leq \theta x_{iq}, && i = 1, 2, \dots, m, \\
 &&& \sum_{j=1}^n \lambda_j y_{kj} \geq y_{kq}, && k = 1, 2, \dots, r, \\
 &&& \lambda_j \geq 0,
 \end{aligned} \tag{2}$$

where $\lambda = (\lambda_1, \lambda_2, \dots, \lambda_n)$, is the vector of weights assigned to the evaluated units, ε is an infinitesimal constant and θ is a scalar variable expressing the reduction rate of the inputs in order to reach the efficient frontier. Model (2) is called input oriented DEA model with the assumptions of constant returns to scale. Various its modification can be formulated as presented e.g. in (Zhu, 2003) and other DEA textbooks.

From the computational point of view the model (2) must be solved n -times in order to get results for all units of the given set. This is not possible without a software tool containing fast linear solver. The aim of this paper is to inform about available software tools for DEA models. Next section contain a brief information about commercial and non-commercial software tools. Section 2 introduces DEA Excel Solved developed at the Department of Econometrics, University of Economics, Prague. Final section 3

discusses and compares advantages and disadvantages of the software tools and points the further research out.

1. Software tools for DEA models

This section contains a survey of several most often commercial and non-commercial tools for solving DEA models and, in general, for efficiency and performance analysis. The presented list of software tools is not exhaustive but contains the most often applied and cited sources. Due to the limited space for this paper the text about particular tools is rather informative. Interested reads can visit the web pages that are given in parentheses). Among the most important commercial DEA software tools belong the following:

1.1. Frontier Analyst ver. 4 (www.banxia.com)

Frontier Analyst is one of the first software tools for DEA models. It is rather oriented on managerial use and is not academic research because the number of models supported is quite low. User interface is very comfortable including graphical analysis and presentation of results. Frontier Analyst allows solving problems with up to 20000 units and 32 variables (inputs + outputs). Commercial price starts at 400 GBP (limit of 75 units) and the top version (20000 units) costs 4000 GBP. Academic pricing is available.

1.2. DEA Solver Pro 12.1 (www.saitech-inc.com)

This tool was designed on the basis of the textbook (Cooper et al., 2006) and covers all models included in this textbook, i.e. much more than Frontier Analyst. Pricing does not depend on the number of units. Single user version costs 1600 USD for commercial use and half of this amount for academic use. The web page of the software does not contain detailed information but there is a link to DEA Pro Solver Newsletter where more information can be found.

1.3. PIM-DEA (www.deasoftware.co.uk)

PIM (Performance Improvement Management) is the successor of Warwick DEA software developed at the University of Warwick. It supports a really very huge number of DEA models and its modifications. Data management and user interface is on a high level and the software can be recommended for both research and managerial purposes. The price (permanent single user licence) starts at 175 GBP with the limit for 100 units and ends at approx. 1500 GBP for the version with unlimited number of units.

1.4. DEA Frontier Excel 2013 Add-In (www.deafrontier.net)

MS Excel is an ideal interface for building of end-user applications. DEA Frontier is MS Excel 2013 add-in application that does not work with internal MS Excel solver but uses open source COIN-OR CBS optimization engine (www.opensource.org). The web page of the software contains a well-arranged survey of models covered by the application including the references to the literature. Many of them are models proposed by J. Zhu that is only author of this application – see e.g. (Zhu, 2003). Add-in enables solving of unlimited models and its current commercial price is 2889 USD. A limited version of this add-in (20 units only) is free and its first version was included on CD in the book (Zhu, 2003).

1.5. MaxDEA Basic (Pro, Ultra) 6.6 (www.maxdea.cn)

MaxDEA is a Chinese product that covers a very huge variety of DEA models (especially Pro and Ultra versions). Basic version that contains a very limited number of models (but allows solving of unlimited problems) is free. MaxDEA Pro costs 2000 USD (commercial) and 800 UDSD (academic). The Ultra version differs from the Pro one by optimized design and parallel computing and is much faster.

Non-commercial DEA solvers are quite popular because they are free and often offers broader possibilities than the commercial ones. DEA Online Software (deaos.com) is an interesting project that offers online solving of selected DEA models after registration of the researcher. It offers multiplier, envelopment and additive model, super-efficiency option and Malmquist index. DEA Solver Online is an interesting project developed at the Fernuniversität Hagen, Germany - <http://www.dea.fernuni-hagen.de>. Of course, both online solvers cannot be compared with capabilities and variety of models supported by other solvers but offer a quite comfortable and user friendly environment. There is no information about restrictions of both solvers with respect to the number of units and/or variables. Open Source DEA (<http://www.opensourcedea.org>) is a project that includes the most often used DEA models (CCR, BCC, SBM, etc.). There is no restriction in the number of units or variables. OCDEA-GUI is the software with graphical users interface with an easy access to all functions of the application. OCDEA is an open source DEA library that can be used in any own user's application. DEAP 2.1 (<http://www.uq.edu.au/economics/cepa/deap.php>) is a software tool written by T. Coelli from the Centre of Efficiency and Productivity Analysis at the University of Queensland Brisbane. DEAP includes conventional CCR and BCC models with cost and allocative efficiency options, and Malmquist index. EMS – Efficiency Measurement System (<http://www.holger-scheel.de/ems>) is one of the first free DEA software tools at all. It is written by H. Scheel from the University of Dortmund, Germany. It contains quite extensive group of DEA models but it seems like the software is not further developed. Excel 97 and ASCII are only accepted data formats. PIONEER DEA Software 2.1 (<http://faculty.smu.edu/barr/pioneer>) is a very fast tool

especially designed for solving large-scale DEA problems. Introductory information about this code can be found in (Cooper et al., 2003). The web pages of the software are currently under construction and give almost no information.

All the mentioned DEA software tools cover a limited number of models (some of them a very huge number) and the users cannot add any new models or modify them. The only and easy way how to experiment with own models is write user's own code in any of the open source systems or modelling languages. Of course this way is suitable for experienced users only. Modelling languages are general tools that allow building users' own models with an interface to spreadsheets and databases that can be used for data management. Writing a DEA code in a modelling language is fast and not difficult even for beginners. For researchers it is only way how to experiment with their own models. Among the most often known modelling languages belong GAMS 24.5 (www.gams.com), MPL for Windows 5.0 (www.maximalsoftware.com), LINGO 16.0 (www.lindo.com), FICO XPRESS Optimization Suite 24.0 (www.fico.com), IBM ILOG CPLEX Optimization Studio 12.6 (http://www-03.ibm.com/software/products/en/ibmilog_cpleoptistud), AIMMS 4.11 (www.aimms.com), AMPL (www.ampl.com), and others. Most of these systems have among sample codes one or several DEA models that can be further modified according to users' preferences. Besides this, internet sources contain many free codes written in MATLAB, R and general programming languages. A powerful system of this category is FEAR – Frontier Efficiency Analysis with R. It was written by P.W. Wilson and is available at (<http://www.clemson.edu/economics/faculty/wilson/Software/FEAR/fear.html>).

2. DEA Excel Solver

This section contain a brief information about original DEA application that is designed as Excel add-in and uses internal Excel solver developed at the Department of Econometrics, University of Economics, Prague. DEA Excel Solver is a simple support tool that uses the internal MS Excel optimization solver for solving several basic DEA models. Its current version is available for MS Excel 2013. The size of problems that can be solved using this application is limited by capacity of MS Excel solver – maximum number of evaluated units is 200 and the number of inputs and outputs together cannot exceed 30. Input data set for DEA analysis can be prepared in any sheet of MS Excel file according to decision maker's preferences. Decision making units must be organized in rows and the inputs/outputs in columns of the sheet. At first the decision maker must choose a DEA model that will be used for the analysis. The application supports the following models:

- a) Conventional radial models with constant, variable, non-decreasing or non-increasing returns to scale with input or output orientation.
- b) SBM models. This group of models measures the efficiency by means of slack/surplus variables only.

- c) Models with uncontrollable inputs or outputs. In many applications some of the inputs or outputs cannot be directly controlled by decision maker. In this case the uncontrollable characteristics have to be fixed.
- d) Models with undesirable inputs or outputs. In typical cases inputs are minimized and outputs are maximized, i.e. the lower values of inputs and higher values of outputs lead to higher efficiency score of the unit under evaluation. In many cases especially the outputs can be of a reverse nature. Then they are denoted as undesirable outputs.
- e) Super-efficiency models as additional options to radial models. They allows ranking of efficient units because all of them have identical efficiency score given by conventional model.

After the selection of the model the main dialog window of the application appears. For radial models it is presented in FIG. 1. The decision maker must specify all the necessary information needed for the model selected. For radial models it is the matrix of inputs and the matrix of outputs, orientation of the model (input/output) and assumption about returns to scales (constant, variable, non-decreasing, non-increasing). Additionally the decision maker can specify if super-efficiency measure will be computed and selects the detailed or brief type of output information.

FIG. 1: DEA Excel Solver – dialog window

The dialog window titled "INPUT DATA and MODEL specification" contains the following elements:

- DMU's labels: data!\$A\$3:\$A\$17
- Inputs' labels: data!\$B\$2:\$D\$2
- Outputs' labels: data!\$F\$2:\$G\$2
- Matrix of inputs: data!\$B\$3:\$D\$17
- Matrix of outputs: data!\$F\$3:\$G\$17
- Model orientation:
 - ☒ Input-oriented
 - ☐ Output-oriented
- Frontier type:
 - ☒ CRS
 - ☐ VRS
 - ☐ NIRS
 - ☐ NDRS
- Super-efficiency: ☐
- Two-step optimization: ☐
- Results - detailed output: ☒
- Results - short output: ☒
- Solve button
- Cancel button

Source: own processing

The results of the DEA model are organized into the MS Excel sheet and contain all necessary information for further analysis, i.e. efficiency scores for all the units of the set (the efficient units are highlighted in red), target values how to improve the inputs/outputs in order to reach the efficient frontier (virtual inputs and outputs) for the units identified as inefficient, non-zero weights (λ s) and optimal values of slack/surplus variables given by model (2). More information about this application can be found in (Jablonsky, 2014).

Conclusion

DEA practitioners and researchers need a user friendly and convenient tools for solving their models. Current software market offers a broad variety of options that can satisfy almost all needs. Commercial DEA software tools is not always the best option. It is quite expensive (thousands of USD for non-academic use) and need not always cover all models that are suitable for the problem that is solved. Of course commercial software offers better user comfort and presentation of results. Non-commercial software tools that are mostly free and other fulfil all needs of the decision makers. The most flexible way how to solve DEA models is written own code in a modelling language but this option is suitable for a little more experienced users only.

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ECONOMIC IMPACT OF EVENTS IN DESTINATION

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Keywords:

event management – European Capital of Culture – destination

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Abstract:

More and more festivals are organized every year around the world, in big cities and villages alike, due to the numerous benefits they are perceived to bring at local and national levels. Festivals and events are increasingly important to the tourism industry, especially in regional areas, where the possible sources of gross regional product are more limited than in metropolitan areas. In recognition of this potential there is a need for a methodology for assessing such impacts. This paper deals with economic impacts of program of the European Capital of Culture 2015. It was conducted questionnaire survey with the sample 1880 answers. There is presented expenses of visitors of nine events included in program. Paper compares amount of expenses and theirs structure. Most money visitor spent for boarding and self-catering and accommodation.

Introduction

The European capital of culture is big project. It is composed of many bigger or smaller events that are held during the whole year and later. European capitals of culture in 2015 are Pilsen (Czech Republic) and Mons (Belgium). According to selection panel from European Commission has the capital of West Bohemia a long history and has a very rich cultural and industrial past. It is also a student city which represents a real potential for the development of the European dimension of its cultural life. Its cultural infrastructure, proximity to Germany, long-term relationship and cultural contacts with other European cities represent a good starting point (European Commission, 2009). This paper focused of economic impact of this project on destination and its stakeholders from visitors' expenditures.

European Union try to keep culture diversity of region. It is important to preserve culture habits of each country and safe nation culture to another generation. This fact is obvious in European Union which is composed of many cultures. One of initiatives is support of title of European Capitals of Culture. Over the past 30 years, the European capitals of Culture have grown into one of the most ambitious cultural projects in Europe. And they have become one of the best known and most appreciated activities of

the European Union. The original motivation of the project is still very much valid: to bring citizens of the European Union closer together. (European Commission, 2015).

Events have a temporary character. Its' ability to lure visitors is temporary too, after all they can present destination and build relationship with visitors. This ability recognized public institutions and private subjects in tourism sector. Festivals and events are options to connect sector of culture and sector of tourism. Main role plays in commercialization of culture performance by direct and indirect form. Other important role is in creation culture identity of destination (Elias-Varotsis, 2006). This paper deals particularly with economic impact of events. There are many researches, which deal with festivals and events and their impact of visitor satisfaction and loyalty (Ozdemir & Culha, 2009; Niemczyk & Seweryn, 2014; Yong-Ki et al., 2014; Vildová et al. 2015; Norazirah, Abdul & Azizah 2013). Economic impact is found out in papers of Čibinskiene and Navickas, (2012), Raabová (2010), Jackson (et al. 2005), Egresi and Kara (2014) and Hotea (2012). Literature shows that big events generate both positive and negative effects on the host community. Egresi and Kara (2014) show that tourist visiting small festivals invest money in the community. Besides buying (sometimes multiple) tickets to the shows, the great majority of respondents have accommodated in hotels and other tourist accommodations, have eaten in restaurants and shopped in local stores. However, the concluded that visitors' economic contribution was minimal.

There are three traditional models used for forecasting and evaluating economic impacts of tourism. Depending on the purposes and scale of the analysis, each is appropriate in a given context.

Cost-benefit analysis, where all social and financial costs and benefits accruing to a festival are evaluated, will be most suitable where impacts such as social or environmental issues or opportunity costs of events are of particular interest.

Computable general equilibrium models are well suited to modeling crowding out effects and structural change in the economy, including labor markets, at national or state level. However, with the availability of excess capacity within organizations or casual labor, and in the short-term context, the complexity and difficulty in applying and interpreting CGE models in a regional context may not be warranted.

Input-output models have been recommended for use in tourism impact analysis and have been widely used in regional analysis. It is used to summarize the impact of a project at a regional or community level. (Jansson et al., 2005)

Raabová (2010) created complex methodology to evaluate cultural events in terms of Czech Republic. She defines direct and indirect effects which are used in methodology. She differ economic impacts and economic benefits. Economic impact is created from economic activity from each spend crown in geographical area with no respect where

they are from. Economic benefits respect where are the money from and where are they spent. Benefits create only in special added case in sense held the event or festival. This increased activity is often result of external financial support. In order to justify the applications for financial support from public sector organizations and private sponsors, organizers of open access events and events with admission often invited to estimate the economic impact of the tourism associated with the event. However, many of these events have small budgets and do not have the qualified personnel, neither the necessary funds, to make a proper research on the economic impact of tourism. Some researchers found that festival tourists tend to stay longer and spend more on local goods and services than conventional tourists.

1. Methodology

As a research method it was conducted quantitative analysis of visitors. It was used personal interviewing with questioners. Members of questionnaires' net were chosen from students of Faculty of Economics and they were proper train in advance. Monitored events were chosen after discussion with organizers and members of tourism authority of town according to expected visit rate. They were Opening Ceremony, Festival of Lights, Liberatin Festival, Bavaria days, Parade of Giant Puppets, Festival PilsnerFest, Multigendre festival Vivid Street and Rock for People EUROPE. Character of monitored events are one-day events and multiday events. There were events with open access events and events with admission. There were conducted questionnaire survey on 9 events. There were collected 1880 completed answered questionnaires. Questionnaire included four types of questions. They asked about travel motives, economic impact (costs), satisfaction and segmenting criteria. It was used quota sampling method after residents' place of living (residents of Pilsen, residents of Pilsen region, other Czechs and foreigners). Purpose of this paper is present only part of data. It was monitored visitors' expenditures in this structure:

- a) For boarding and self-catering (food)
- b) For eating out (restaurants)
- c) For transport (train, bus, city transport)
- d) For fuels
- e) For accommodation
- f) For entrance fees
- g) For souvenirs, goods
- h) Other expenses

Expenditures were divided in two groups. Expenditures realized in Pilsen and elsewhere in the Czech Republic. It was expenditures related to visit one specific event.

TAB. 1: Sample characteristics (in %)

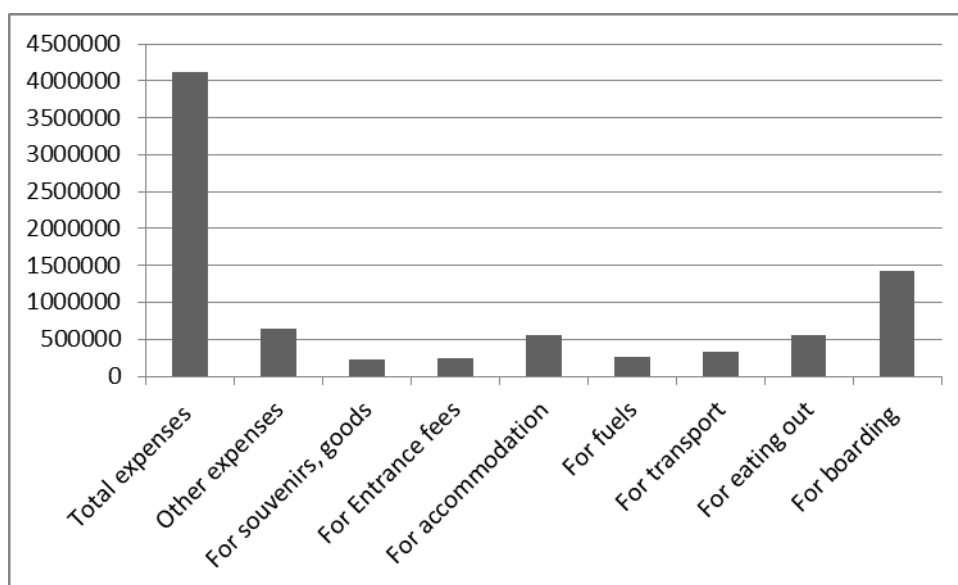
gender		age	
male	51,59%	till 15 years	0,96%
female	48,40%	15 - 29 years	47,55%
		30 - 64 years	46,97%
		over 65 years	4,52%

Source: Own research, 2015

Analysis the group of attendees at the European Capital of Culture's program, there is almost equal split between males (51,59 %) and females (48,40 %). There were relatively few older people (4,52%) and in research wasn't cover very young people attending the festival. It was asked if there were first visit of Pilsen or not. This question were answered only by nonresident respondents. 26,8 % of respondents were in Pilsen first time. Most of visitors (73,2 %) were in Pilsen once.

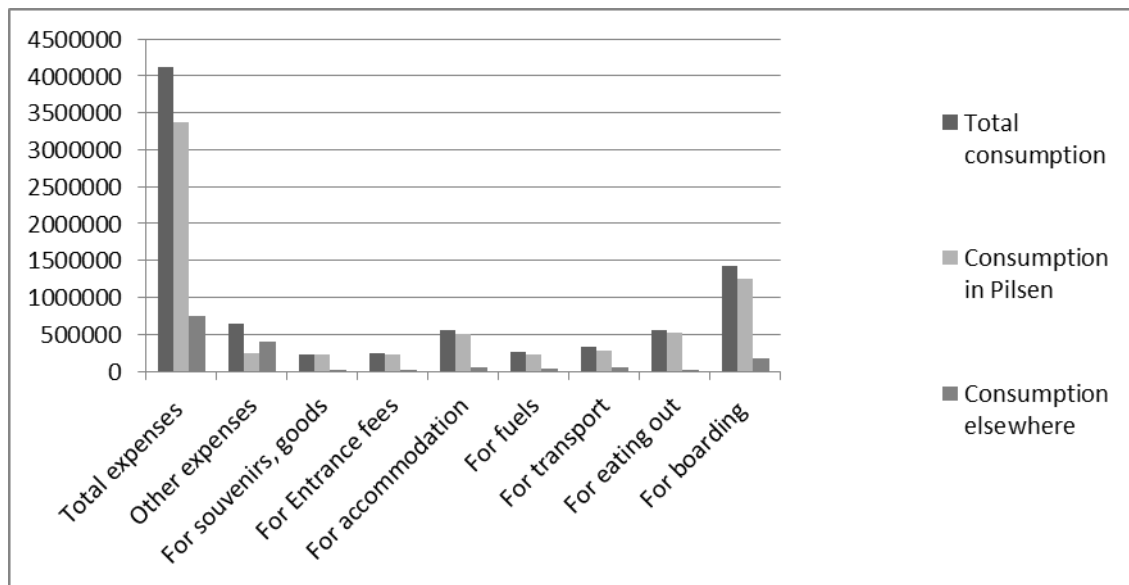
2. Results

This section represents results of research in quantitative point of view. For advanced method of analysis, it could be conducted the multiplier according input-output analysis. Total expenses of visitors with travel to event and stay here were 4 125 117 CZK. 82 % of these expenses were realized in Pilsen and 12 % were realized elsewhere in the Czech Republic.

FIG. 1: Total expenses

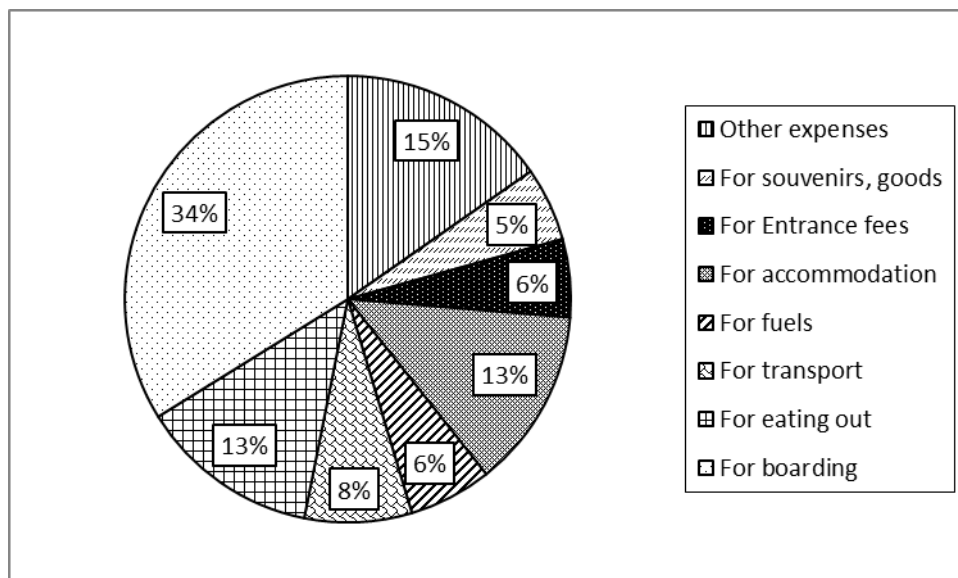
Source: Own research, 2015

As we can see form figure 2, there is bigger part expenses realized in Pilsen.

FIG. 2: Total consumption according to place of realization

Source: Own research, 2015

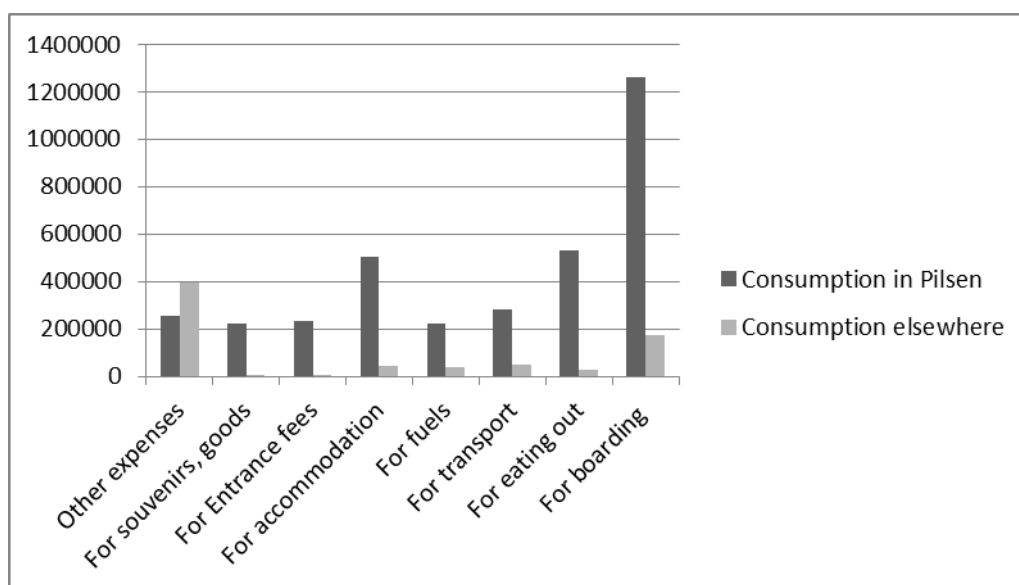
Figure 3 shows the structure of total expenses. It is clear that the biggest part of expenses was for boarding and self-catering. Only 38,6 % of expenses for eating out were spend in restaurants in general. In detail in Pilsen was 41,9 % of expenses for eating out realized in restaurants and elsewhere was only 14,4%.

FIG. 3: Structure of total expenses

Source: Own research, 2015

We compared structure of spending in Pilsen and elsewhere in Czech Republic as you can see in Figure 4. It is clear, that amount of expenses are different. Structure of expenses are also different. Biggest part of expenses in elsewhere in Czech Republic is for „Other Expenses“. Spending for boarding and accommodation are the biggest part in consumption in Pilsen.

FIG. 4: Consumption according to place of realization



Source: Own research, 2015

Conclusion

Paper deals with economic impact of events or festival on destination. Literature review shows that there are some way to measure impact of event. There are cultural, social and economic impact of these events. There are three most used way to measure economic impact of events (input-output analysis, cost-benefit analysis and computable general equilibrium model). For local government is quite difficult to use this three tools. There are the big requirement on information source in these analyses. This paper presets only partial information of big research of measuring of impact of the European Capital of Culture. Paper shows only incomes from visitors of events without comparison with cost to realized these events. But we can conclude, that there are more positive impact than negative. Because in these study isn't included creation of new working places, marketing benefits and cultural benefits.

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COST MANAGEMENT IN SMES AS A TOOL OF COMPANY PERFORMANCE INCREASING

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Abstract:

Cost management is currently considered as an important area of financial management of business subjects. The situation in small and medium-sized enterprises is not an exception. Monitoring of the corporate performance, analysis of financial, asset and income situation, assessment of achieved results, identification of opportunities and threats are part of a responsible and high-quality company management. Management of small and medium-sized enterprises is under the pressure of economic, social and political changes. The aim of this paper is to analyse the possibilities small and medium-sized enterprises in the field of cost management which will ensure the desired enterprise performance, competitiveness and the fulfilment of business objectives.

Introduction

The period of low economic growth is problematic period also for small and medium-sized enterprises in Slovakia. Measures which are the result of government interventions, affect the operation and activities of business subjects. Changes in the business and the competitive environment force the businesses to respond more flexibly to legislative, economic and political influences. Emphasis is placed on the performance enhancement, stabilization of corporate finance, securing the planned profits and achieving its objectives.

As Mrva and Stachová (2014) proved, the present economic situation in the Slovak republic as well as in other European (and not only European) countries is still not very optimistic, it has been influenced by the economic crisis and its impacts for several years. The European Union has faced really challenging economic conditions in the recent years, the sovereign debt crisis in the euro zone intensified, and the economic growth in even better performing nations was weakened and still does not reach the pre-crisis levels of economic prosperity.

As Stoličná (2012) proved, anti-crisis measures were a response to the deterioration of the development of real economy and represented counter-cyclical response to the economic crisis. The aim of measures was and is to avoid economic recession, the growth of unemployment and the effort to restore the economic growth. Anti-crisis packages are aimed to support small and medium-sized enterprises, to support science and research, maintaining employment and reducing the tax burden of employees.

Costs which are present (directly / indirectly) in all fields of corporate activities provide optimal area for the identification of hard imitable competitive advantages. Cost management is currently considered as an important area of financial management of business subjects. Costs no longer just being evaluated category creating the overall representation of company success. Classic and traditional approach is relieved by a new phase of modern approaches and trends in the management of costs it intends create not only a competitive advantage of the business subject, but also to strengthen its position and allow faster and better achievement of goals.

As Foltínová (2011) proved, the complexity of the real costs in the real process highlights the fact this is the flow variable related to the operations, business activity carried out within a specific time: it can be the overall activity of the enterprise, sub-activity or elementary operation.

The importance of this category is in practice associated with economy, efficiency, achievement of the planned results and the objectives set of business entities and creation of competitive advantages.

The necessity of acceptance of new influences in the business environment is part of responsible and “right” management. Management defined in this way reduces the risk of failure of business subjects, ensures the trouble-free and smooth operation, allows fulfilling their ambitious goals, creating new competitive advantages and achieving significant position in the global market. Business subjects are constantly dealing with the possibilities of correcting and affecting their costs by exploring different approaches to the records, analysis and control of costs, implementation of new modern methods of cost management, ability to obtain greater control on the costs which are displayed in the accounting of these subjects.

The aim of this paper is to analyse the possibilities small and medium-sized enterprises in the area of cost management which will ensure for SMEs desired performance, competitiveness and the fulfillment of business objectives. Presentation of modern methods of cost management, analysis of the attitudes small and medium enterprises to innovate in this direction. The identification of efficiency and cost control is the content focus of this paper.

The partial objectives include:

- a) to analyse the current state of the problem of costs and management of costs in the terms of small and medium-sized enterprises,
- b) to present the results of research focused on willingness to implement modern cost management methods into corporate management in selected SMEs in Slovakia,
- c) to formulate conditions for success and benefits of selected methods of cost management,
- d) to create an overview of the results identified through the use of modern management techniques which support the achievement of the required performance and maintain competitiveness in the rapidly changing business environment.

1. Methods, literature overview

In the processing of this contribution we have used selected quantitative and qualitative scientific methods. In the research were used historical methods which provide background and information resources for the development of proposals and measures in the field of cost management in small and medium-sized enterprises. Analysis of selected method of cost and possibility of their implementation in the SMEs were founded conclusions of this paper. The contribution was processed by an established methodology for creating scientific papers within the prescribed structure. As more scientific methods we have used following methods: synthesis, induction, deduction and comparison.

In the initial phase, we created the theoretical basis for the comprehensive treatment of the issue of cost management, presenting the current situation in which the SMEs are located. We monitored the behaviour and approach of selected enterprises in the case of application of modern methods of cost management in the corporate management of selected subjects. During summarization of appropriate documentation, analysis and formulation of conclusions and recommendations we have used in addition to the own output of also information and experience of domestic and foreign authors that published in this field.

A key part of the contribution represents the identification of options and approaches in cost management of SMEs in the direction of achieving the required performance and competitiveness in a rapidly changing business environment.

Costs in the concept of classical, respectively traditional theory are expressed in monetary terms of consumption elementary and optional factors and other expenses related to the activity of the enterprise. Definitions of many respected authors associate the costs primarily with internal issues of the company. They present consumption of resources (inputs) needed to ensure the planned of corporate performance.

Accounting Law defines costs as follows: the cost means a reduction in economic benefits the entity's accounting period, which can be measured reliably (Act no. 431/2002 Coll., On Accounting, as amended). As Ölvecká (2010) proved, costs expressed in monetary terms of personal and materialized labour are an important part of the economic objectives of the company, which seeks to achieve the required profit level to ensure the financial stability of the company.

As Kocmanová (2013) proved, costs generally defined as purposefully consumption of production factors. Represent a decrease (outflow) of equity. Costs may exist in the form of the loss of assets, in the form of the initial commitment, or through decrease of money. Costs are recognized as items belonging to the Income statement.

In general, costs can be defined as the monetary valuation of consumption of elementary and optional factors which business entities use to achieve its objectives, relating to ensuring of corporate performance and other activities of enterprises. In practice, companies use a lot of criteria for the cost classification. According to Teplická (2011) general classification of costs allows the company to share costs as follows:

- a) by type (cost of economic activity, the cost of financing activities, extraordinary activities costs),
- b) according to calculation formula (direct and indirect costs),
- c) by relation to the output produced (fixed and variable costs),
- d) according to the compilation (complete and incomplete costs),
- e) commitment by the production process (technology costs, operation, management costs),
- f) according to the phases of the transformation process (acquisition costs, costs of production, costs of implementation),
- g) as tax point of view (tax deductible costs and tax not recognized),
- h) according to the relation to the environment (cost of environmental protection and the costs associated with environmental degradation),
- i) as regards the quality (quality costs of prevention, assessment of quality, cost of poor quality),
- j) accordingly in relation to marketing (cost of advertising, promotion, public relations, sales promotion, market research),
- k) according to their capture (costs primary and secondary),
- l) according to time (costs of the current period and future periods),
- m) decision based (costs relevant, irrelevant, implicit, explicit),
- n) based on the efficiency (efficient, effective, non-productive),
- o) depending on future developments (planned, anticipated, strategic),
- p) the nature of business (costs of the activity, secondary activities, ancillary activities associated activities, administrative activities),
- q) according to the phases of the production process (costs pre-production phase, the production phase, the post-production stages),
- r) according to the relation of logistics activities (cost of supply, storage, transport, handling, packaging, distribution),

- s) accordingly in relation to health and safety at work (security costs, the cost of health protection at work, costs of risk assessment).

As Herzka and Kajanová (2010) proved, cost management as one of the important parts of the company management is attacked by hectic business environment changes, by various influences of the external environment, and economic, legal, demographic, political, cultural and social. Constantly ongoing monitoring and analysis of costs contribute on the effective management, uncovering reserves.

As Paškrťová (2014) proved, small and medium-sized enterprises compete hard with the strong pressure of competition in global economy changing, which is not possible to consider as the ideal environment for small and medium-sized enterprises. Small and medium-sized enterprises, due to their financial abilities and unfavourable position on the market, are not able to adapt quickly to that trend.

2. Results

Business subjects present cost reduction as a precondition for recognition of higher profits, so enhanced positive economic result. It must not however forget about quality of corporate performances and cost reduction effects on the overall condition of the company. Excessive cost reduction can negatively affect, for example, in insufficient assurance of the raw materials, in lower quality of labour, reduced quality of corporate performance, deterioration of corporate culture etc.

As Hansen and Mowen (2009) proved, effectiveness and performance of SMEs depends on their ability to manage their internal processes, and to accept and take into consideration external factors affecting their activities and results. The efficiency capture the conversion efficiency of embedded resource - the cost of benefit or the effect, so the ratio between inputs and outputs of specific entrepreneurial activity in respect of their quantity and quality. "A critical indicator of efficiency is, however, costs".

According to Serina (2006) there is a wide range of options for reducing costs, which cause an increase the efficiency of business operations. For example:

- a) use of traditional and modern methods of cost management,
- b) use of unused resources / reserves of enterprises,
- c) use of advanced concepts (outsourcing, offshoring, insourcing) which deliver improvements in cost savings and efficiency improvements,
- d) application of SAP R/3 Module - ERP (Enterprise Resources Planning), which can be used to manage all areas of the entrepreneurial subject,
- e) introduction of ISO systems - application of quality management through ISO certification aimed on customer satisfaction, costs reduction, efficiency increase and focus on long-term competitiveness,

- f) use of the phenomenon of changes - facility management aimed on effective management and integration of business support activities.

2.1. The modern methods of cost management

The modern methods which are usable by SMEs belong: Activity Based Costing, Life Cycle Costing, Target Costing, Just-In-Time.

Activity Based Costing – as Petřík (2012) proved, ABC method is a management tool that enables not only the real management, planning, control and assessment the performance and efficiency, but also effectively manage value creation. ABC method inherently belongs to calculation methods and deals with scheduling of overheads, so indirect costs to individual outputs (products and services). As Drury (2012) proved, basics of the method ABC's is two-step cost allocation, and the essence of first stage of allocation is the assignment of resources to different activities through the drivers of sources which serve as the base of the cost allocation calculation. Each activity consumes a different amount of resources (costs), so it is necessary to provide drivers of resources to allow allocate to activities relevant quantities of consumed resources. The second stage of allocation uses to allocate individual activities on specific products and services cost drivers of activities - they serve to assign the correct balance between different activities of the cost objectives.

Life Cycle Costing – as Popesko (2009) proved, the life cycle costing method is a strategic cost controlling method, which unlike to traditional calculations expands its focus from one accounting period to the entire length of the product life cycle. Method life cycle costing thanks to this also considering the costs of research and development, pre-production phase costs, costs of sales service and the additional costs associated with the termination of the production cycle.

Target Costing – as Serina and Tóth (2009) proved, the method of target costing is a strategic approach which addresses the management costs in the pre-production stages of the life cycle of products and services. This method is market and customer oriented and is based on the market price, which is determined and accepted by the market and its attributes: customer purchasing power, demand and competitors prices. By deducting the margin - required profit of producer from market price we have found the level of target costs.

Just in Time – as Serina and Tóth (2009) proved, the Just in Time method in the past was only maintaining a minimum level of inventories and currently provides a strategic approach to the cost management and streamlining of business operations, which is mainly used in ensuring of the planning, supply and production activities. This approach allows to short processes, to eliminate waste and reduce costs. The objective of Just in Time method is to eliminate activities which do not add value to the final output, this

has positively impacts shortening of the production cycle, enhancing the productivity and efficiency.

Advantages and contributions of the modern cost management methods are summarized in the Table 1.

TAB. 1: Contributions of the cost management methods

Methods	Contributions
<u>Activity Based Costing</u>	<ul style="list-style-type: none"> • exact information on the costs and profitability of products and services, • effective strategic decisions in the area of cost management, • increase overall profitability.
<u>Life Cycle Costing</u>	<ul style="list-style-type: none"> • no assessment of the costs of product only during certain periods, but their comprehensive assessment for its lifetime, • take account of the life cycle, expected sales volume and price developments as well as the estimated costs in the various stages of the life cycle, • ability to control costs associated with phases such as research and development, or discontinuation of production, which are traditionally not addressed by calculation, • more effective management and cost optimization throughout the product lifecycle.
<u>Target Costing</u>	<ul style="list-style-type: none"> • defining the optimum target price • shortening development time. • reducing costs in pre-production stages, • improve the products' characteristics, • Improvement of services • more effective production.
<u>Just-In-Time</u>	<ul style="list-style-type: none"> • saving of storage costs, handling and orders, • reduce production costs, the occurrence of rejects and maintenance work • shortening the production cycle and the acceleration of turnover • minimizing inventories, • reducing overall costs - increasing productivity and efficiency.

Source: own elaboration according to Kiselicová et al. (1997) and Lišková (2014)

2.2. The use of modern management methods in SME's in Slovakia

Based on the results of a survey conducted among business subjects operating in Slovakia, which focused on identification of level of knowledge and use of traditional and modern methods of increasing the efficiency-based cost management we can conclude that Slovak business subjects, despite strong globalization influences and internationalization, remains faithful to the more traditional approach, such as the traditional calculation methods. As Lišková (2014) proved, exactly the traditional calculation methods were identified among Slovak business subjects as most used - compared to other research method (Activity Based Costing, Target Costing, Life Cycle Costing) are used by almost half of respondents. The least known and used method of efficiency improvement is the life cycle method, which so far finds use only in 8% of Slovak businesses. The positive result is, according to the survey, 84% of Slovak entities are addressed by increasing the efficiency and cost management, which represents the potential for the application of modern methods and approaches in the

future. Half of the subjects rate their current level of effectiveness of cost management as average only. Three most common reasons of application of analysed methods designed to increase the effectiveness between interviewed Slovak business entities are necessity of cost reduction, effort to improve effectiveness of business processes and aiming to improve profitability which are identified in the survey, by more than 60% of respondents. Often motivating factor of utilization above described approaches is referred the need to increase competitiveness, particularly at present dynamic global environment. Analysis methods preferences highlighted the fact, SMEs would prefer ABC method, followed by the Target Costing method, least interest businesses have manifested to implement the method of Life Cycle Costing.

In the current business environment, the implementation and use of analysed methods of cost management importance especially at:

- a) efficiency improvement of corporate activities and processes,
- b) reducing costs,
- c) identification of reserves,
- d) process improvement,
- e) maintaining competitiveness,
- f) increasing overall profitability,
- g) increasing market share,
- h) increasing efficiency,
- i) acquisition the position of "cost leader".

2.3. Recommendations in the field of cost management in SMEs

The research results in area of acquaintance and usage of modern management methods confirmed the theories supporting the idea, cost management can: ensure the competitiveness business subjects, increase profits, increase the efficiency of business subjects, identify the "bottlenecks" in the company management, higher production capacity utilization of fixed assets, the "right" decision making in the choice of technological processes, the minimization of risks arising from the inventory management, receivable accounts and current financial assets.

Within the individual monitoring the implementation of modern management methods in small and medium-sized enterprises, we have formulated the following recommendations:

- a) cost reduction is necessary to use a number of cost breakdown (except other basic headings - supporting classification),
- b) it is necessary to thoroughly analyse the evolution of costs for each accounting period,
- c) it is necessary to implement cost controlling (in the case of medium-sized enterprises),
- d) it is necessary to promote the development of analytical records of costs and revenues,

- e) it is necessary to create space for new opportunities and the implementations of up to date modern methods of cost management,
- f) it is necessary to identify possibilities and opportunities arising from the potential cost reduction, it's evaluation and optimization.

3. Discussion

The issue of cost management is current at all periods. New ideas, thoughts and approaches depend on current changes in the external and internal environment of business subjects, on technical and technological development, on the potential of the company.

Formulated results are a suitable starting point for further research and exploration, which may be oriented to specific methodologies of implementation of modern methods of cost management, which would create a simple guide for entrepreneurs. Other possibilities of development of this topic is creating of specific models for specific industries, for group of services or other selected groups or types of business subjects.

Conclusion

Whereas the topic of cost management in small and medium-sized enterprises is facing also with lack of understanding respectively with lack of knowledge in the field, we propose to establish within structures supporting business new consultative institution (new department of current institution) which will guide and help to entrepreneurs to apply in their management of up to date methods and approaches supporting higher performance, higher profits and enhancing quality of their business activities (support of outsourced activities).

Especially in micro and small enterprises, the situation is alarming, since cost management is in the most cases "great unknown". Misunderstanding of necessity management of company activities, of cost management, of analyse achieved the results and overall business efficiency are risk factors which adversely affect overall behaviour and activities of business subjects.

Presented modern managing methods represent relatively simple and scientific insight into the opportunities that cost management allow. Every enterprise is unique, and its strategy, vision and organization of activities is necessary to analyse in specific conditions, in particular environment in interaction with the real environment. Therefore, consideration of exploitation of different methods of cost management is the sole competence of the MSP management or professional institutions cooperating with the subject.

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NON PRODUCTIVE INVESTMENTS IN FORESTS - AN EVALUATION OF RURAL DEVELOPMENT PROGRAMME 2007 - 2013 IN REGIONS

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Keywords:

Rural Development Programme – tourism – recreational function of forest – financial support – regional development

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Abstract:

This paper focuses on the implementation of support for the recreational function of forests in the area of intervention II. 2. 4. Promoting social functions of forests within Rural Development Programme in the period 2007 – 2013. Projects are evaluated by number of approved applications, their focus and volume of financial resources in each region. Analysis shows that most of projects aim at building hiking trails. The most approved applications (23 % of total amount) as well as the most funds were recorded in Královéhradecký region. More than half of the support was divided into four regions – Královéhradecký, Liberecký, Středočeský and Vysočina region. The least projects and consequently financial support were recorded in Moravskoslezský region.

Introduction

One of important non-productive functions of forest is recreational and health function. The attendance of forests is increasing every year and the impact on forests is substantial. One of the tasks of forestry policy is to create a balance between restoration, protection and care of forests and also provide the greatest degree of benefit for the population in the form of recreation. To motivate forest owners to provide non-productive functions of forest it is necessary that these activities are supported from financial resources. Public support in the field of tourism is an important indicator for the development of regions. The aim of this paper is to evaluate the subsidies provided under Axis II. 2.4. Promoting social functions of forests within Rural Development Programme 2007-2013 which are considered to support activities that enhance the public amenity value of forest contributing at the same time to the protection of soil, water and forest environment against disruptive movement of visitors in forests.

1. Methods, literature overview

According to the Act no. 289/1995 Coll., about forests, paragraph 2 b) functions of forests are divided into productive and non-productive functions. Productive functions of the forest are currently crucial functions, but in recent years it is increasingly focused on non-productive functions of forest as the area of interest.

As Matějček (2003) proved, non-productive functions of forests are positive externalities, as these are freely accessible and free resources (public goods) with benefits that forests provide to the company. Non-productive functions of forest thus ranks in the form of community services that are not implemented on the market and are not financially reimbursed to forest owner (service provider).

According to research of Šišák (2006), 90 % of visitors have associated visiting of the forest with recreational functions. Šišák (2011) also examined public opinion about the method of the covering the increased costs associated with non-productive functions of forest and it was showed that 20 % of surveyed visitors would suggested that these costs should be paid by the timber production, 5.7% of respondents said these costs should be paid by visitors themselves, but the majority (74.3%) responded that the increased costs should be covered from public budgets - municipal, regional, national or international.

According to the statement of Ministry of Agriculture (2015) the forest owner may take advantage of the direct and indirect financial support. Indirect support is given to forest owner in the form of tax credits for forests that fall into the category of protective forests and special purpose forests. Another option is to provide direct support in the form of financial support from the regions. Finance for the non-productive functions of forest may be obtained from budgets of individual regions, which have their own rules for providing subsidies. At international level in this area is also possible to draw financial resources from the European Union. During the period 2007 - 2013 one of the possibilities was to obtain financial support for the recreational function of the forest from European Agricultural Fund for Rural Development (EAFRD). Ministry of Agriculture is provided as governing body and as paying authority is established the State Agricultural Intervention Fund (SZIF).

Rural Development Programme 2007 - 2013 provided funds under four priority axes. The first axis was focused on improving the competitiveness of agriculture and forestry, the second priority axis is aimed at improving the environment and landscape. The third sector supported the quality of life in rural areas and diversification of the rural economy. In the fourth priority axis called Leader grant was provided to support the implementation of local development strategies and cooperation of local partnerships (SZIF, 2015).

This paper is focused on projects under Axis II. 2.4 Non-productive investments in forests - promoting social functions of forests which are an important tool to enhance

recreational function of forests. The goal is to keep tourists on pre-designated routes to avoid them of disrupting the environment of the forest, but also to be able to draw benefits from forests. The analysis of approved projects under the Rural Development Programme for the period 2007 - 2013 is based on the number of approved projects in each region and in terms of acquired funds. For comparison of individual regions were used simple relative indicators. Methodologically data processing is based on a database of approved applications registered by the State Agricultural Intervention Fund and the Ministry of Agriculture. Programmes SPSS and Excel were chosen for statistic evaluation.

2. Results

During programming period 2007 - 2013 totally 6 rounds of application acceptance were held in support of the Axis II 2.4.2 Non-productive Investments in forests - promoting social function of forest. Projects are focused mainly on building new hiking trails, then for building places for a rest and sitting areas for tourists.

2.1. Number of approved projects in regions

In total 141 projects were approved in 13 regions of the Czech Republic. Most applications were approved in the 19th round (39), the least while in the 6th round (7). The applications were submitted in the context of individual round unequally. Only Liberecký, Jihočeský and Vysočina region drew funds in each round. Detailed numbers of approved applications according to individual round and region are shown in the following table no. 1.

TAB. 1: Number of approved projects in each region per round

Region	3. round	6. round	9. round	13. round	17. round	19. round	Total
Jihomoravský	3	3	0	2	2	2	12
Středočeský	3	0	0	1	0	5	9
Ústecký	3	0	0	0	0	0	3
Olomoucký	3	0	0	0	0	6	9
Královéhradecký	4	0	4	4	10	11	33
Liberecký	1	1	2	2	3	3	12
Jihočeský	2	1	3	2	6	4	18
Plzeňský	0	0	0	2	1	1	4
Zlínský	1	1	0	1	2	2	7
Vysočina	4	1	2	2	2	2	13
Karlovarský	2	0	1	0	1	0	4
Pardubický	4	0	3	2	3	2	14
Moravskoslezský	0	0	1	1	0	1	3
Total	30	7	16	19	30	39	141

Source: own - based on SZIF database

At the regional assessment of the number of approved projects Královéhradecký region dominated with a total of 33 projects. Subsequent Jihočeský region had 18 successfully approved plans that focused on building hiking trails. Within Pardubický region there were approved 14 projects and in the Vysočina region there has been successfully approved 13 projects. Jihomoravský and Liberecký region had both 12 approved applications. All of these applications are focused on building hiking trails or repairing rest areas for tourists. The lowest number of approved applications for the whole period was recorded in Moravskoslezský (3), Ústecký (3) and Plzeňský (4) region.

2.2. Amount of funds for projects in region

In terms of funding a total amount of 146 210 103 CZK was allocated to projects. The most money was approved to support projects of Královéhradecký region. In the second place there was Liberecký region, although in terms of number of supported projects was in 5th place. The least financial resources were approved for projects in the Moravskoslezský region. Detailed values of the funds allocated in the individual regions are shown in Table no. 2.

TAB. 2: Amount of allocated funds in each region

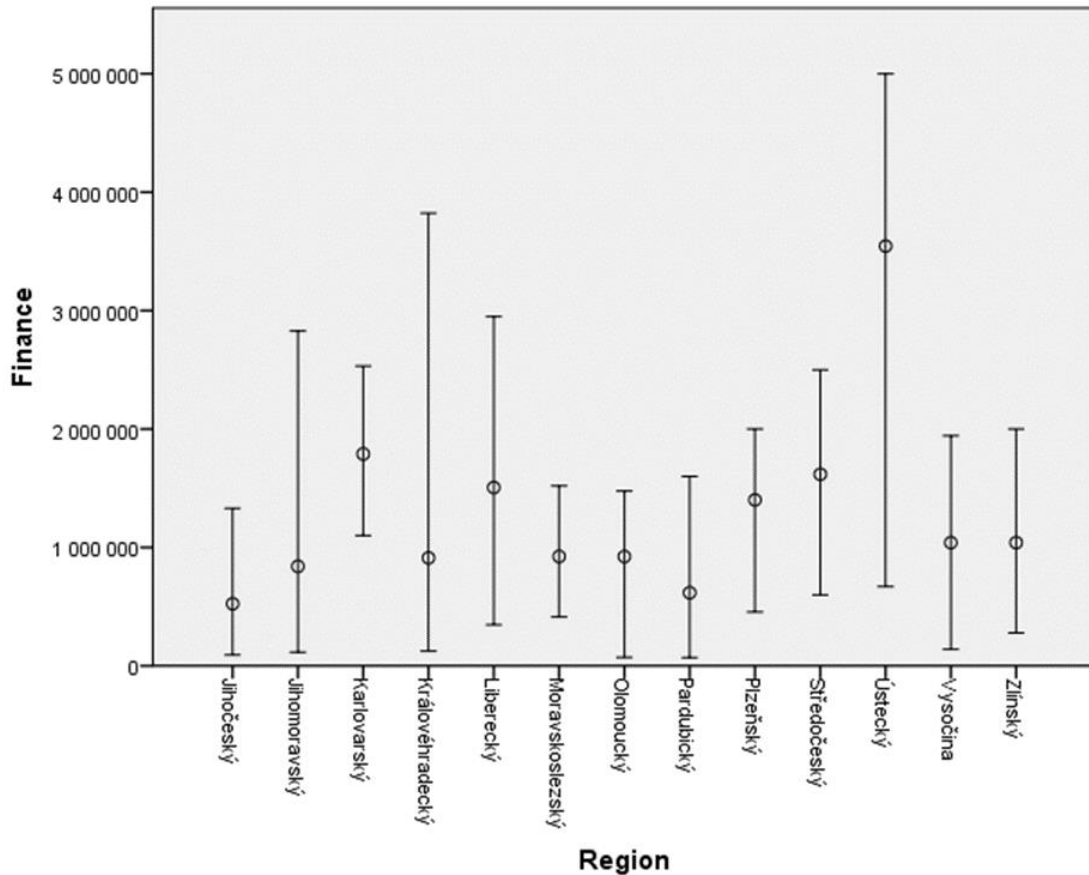
Region	Allocated funds (CZK)
Královéhradecký	30 093 347
Liberecký	18 072 736
Středočeský	14 561 019
Vysočina	13 527 889
Ústecký	10 634 970
Jihomoravský	10 085 561
Jihočeský	9 449 475
Pardubický	8 646 912
Olomoucký	8 312 221
Zlínský	7 288 826
Karlovarský	7 157 519
Plzeňský	5 607 178
Moravskoslezský	2 772 450
Total	146 210 103

Source: own - based on SZIF database

2.3. Maximum, minimum and average amount of funds per project in region

The Figure no. 1 shows allocated funds in each region. The vertical lines demonstrate the minimum and maximum amounts drawn for projects in region. And simultaneously it also shows the average amount per project. The analysis shows that Ústecký region drew high sums to projects and also the average amount is the highest there in a regional comparison.

FIG. 1: Amount of funds per project in region



Source: own

3. Discussion

It is important to realize that although some assets drawn from nature are not charged, it is more important to care them and not abuse them. Especially with the increased intensity of tourism in forests provided subsidies with direct implications to improve the recreational functions of the forest in order to maintain a sustainable balance between forests and tourism are very important for development of regions. Individual regions should therefore raise awareness of the opportunity given from European funds to draw whilst also spread the importance and necessity of provided subsidies to support recreational functions of forest among the population.

In the following period 2014 - 2020 it is again possible to use financial resources for the construction and building hiking trails, construction of facilities and equipment to eliminate the negative impact of visitors on the forest environment and building facilities to ensure the safety of forest visitors. To support the development of recreational functions of the forest is also possible to use other programs than the Rural Development Programme.

Within the research in the field of recreational functions of forests it will be necessary in the future to deal with several economic issues - to solve factors affecting the sustainability of the development of recreation in forests, quality and integration of the economic impact on regional development, as well as the mechanism of transfer costs or profits between forest owners and tourist businesses. An important area in the future will be the willingness of visitors to pay for the use of recreational facilities and services, as well as the development of guidelines, tools and training managers of forests in providing recreational functions of forests.

Conclusion

In the analysis of drawing support from the Rural Development Programme 2007 - 2013 Axis II. 2.4 Non-productive investments in forests - promoting social functions of forests in terms of recreational functions of forests in each region was found that the most projects were approved in Královéhradecký region. The number of approved applications in this region makes over 23 % of the total number of approved applications. Most of the funds was obtained for projects from Královéhradecký, Liberecký, Středočeský and Vysočina region. More than 52 % of the subsidy streamed to these four regions while the other 9 regions drew 48 % of the total. The least support for recreational function of the forest from this title was drawn by Moravskoslezský and Plzeňský region. The financial contributions were drawn under each round unequally.

Acknowledgement:

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EDUCATION IN INTERNAL COMMUNICATION AND KNOWLEDGE IMPLEMENTATION IN CORPORATE PRACTICE

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Keywords:

internal communication – education – investment – grant – corporate practice

JEL classification: M11, M12

Abstract:

Communication within corporation forms the foundation of business culture. The aim of this research is to assess the practical implementation of knowledge gained from internal communication education programs. Behavioral strategies of Czech firms were compared with multinational organizations. This research also draws the comparison between motives of companies directly financing their education and motives of companies financed from grants. Multinational organizations don't plan on implementing systematic changes in communication despite their employees suffering from higher stress levels. Czech firms do implement changes but frequently doing so in a form of internal guidelines at the expense of practical implementation. Managers who themselves didn't take part in these courses do not further implement their knowledge into practice.

Introduction

Communication within the corporation is the cornerstone of corporate culture and style of executive teams management. The coherence of external and internal communication forms the identity of any enterprise. Corporate culture has a great impact on company's values and economic prosperity. It includes shared opinions, norms, expectation, and goals. Corporate culture informs about procedures, needs, and code of standards and behavior. Culture in its significance compares with the importance of corporate structure or technologies yet most companies invest in technologies or in production processes. The interaction between employees grows distant, coordination of tasks is managed under a lot of stress or electronically which results in time losses. As Hassiba Koriche (2015) states, „The e-mail as a new emerging medium is a new type of discourse; it is a discourse that is developing its own language, a language that is suitable for the immediacy of real-time written communication. It is still developing its own systematic rules, principles and standards.“

Nowadays time has enormous value which is difficult to calculate. Time management is greatly based on the ability to communicate with colleagues, co-workers, superiors and subordinates, as well as with family. Time reserved for communication paradoxically spares time dedicated to work which creates another topic for discussion about the potential of communication competency. An essential part of managers' work is to ensure cooperation within team members and within the entire organization. One way to motivate employees is by using outer drive also known as the „carrot and stick approach“. In the organization that invests in corporate culture and has well-managed teams, employees embrace company's goals as theirs and perceive their work as a commitment to their own integrity. Supporting communication skills development of employees on all levels of organization structure is an investment, in the same time it is a hard to measure item on company's budget. Education sustainability and practical knowledge implementation were researched by Elizabeth Sidiropoulos (2013): „Examples were provided for economics and marketing to demonstrate how sustainability can be integrated by focussing on creating value for diverse groups of an organization's stakeholders.“ The aim of this contribution is to find out and assess practical implementation of knowledge gained in internal communication courses, willingness to continue in the education process and cultivate teamwork by eliminating communication barriers and time losses. To set the difference between Czech companies and multinational organizations and the difference between corporations that invest from their budget with corporations that finance education using grants.

1. Methodology

The methodology of finding the importance of optimally set communication within the company is represented by the study of several companies. Teams from researched companies were trained in the education course „Effective communication in the workplace“ to optimize work performance. Education was implemented by Centrum andragogiky s.r.o. – Andragogy Center. All courses were led with the intention to train employees to prevent conflicts, be clear in expressing themselves to avoid misunderstandings, delays and time losses. Those companies with highly positive course feedback which committed to implementing discussed communication elements into practice were chosen for the further survey. Four strictly Czech companies and four companies with international capital were chosen, half of each were direct investors and the other used grants from the European social fund. Survey was carried out by talking with contracting authorities over the phone. Contracting authorities – Executive managers were further sorted based on their at least partial or no presence at given workshops.

Within the survey following explorative questions were asked:

WHY WAS COMMUNICATION COURSE FOR THE WORKPLACE ARRANGED?
HOW WAS EVALUATED THE COURSE BENEFIT FOR COMPANY
FUNCTIONING?
WHAT FROM COURSE WAS IMPLEMENTED TO PRACTICE?
WHAT FURTHER ACTIONS ARE TAKEN FOR DEVELOPMENT OF EFFECTIVE
COMMUNICATION IN THE WORKPLACE?

2. Results

Even though communication competency is the substance of human life it does not belong to standards of primary education.

Communication skills trainers of adults encounter with multinational organizations' employees who are well linguistically equipped have a university degree and expert knowledge. On their business or manager's position with the significant need to use communication skills they either fail or are exposed to long-term stress. Targeted communication skills' growth is evident in the corporate environment of big companies with global corporate culture, but the education is not conceptual. In medium and large companies where company structure is built rather intuitively there is only minor aim to develop such competencies. The exception is programs focused on business skills where the immediate return of education expenses is expected. European social funds have an extensive impact on development programs for increasing corporate competitiveness.

It is necessary to distinguish the approach to intracompany communication based not only on the size of the company but also on the origin of the culture of the parent company. Big differences are seen in companies based in Germany, USA or France. The influence of national cultures is enormous and is reflected in employees' certainty, their professional growth support, a way of thinking, planning and in internal communication.

Internal communication has the impact on the degree of reluctance to change which is critical for implementation of communication rules. Thanks to technological development and geographical as well as cultural differences impersonal forms of communication are preferred at the workplace. More often the important components of communication which are body language and voice modulation are neglected. Thus information is deformed, the message is delivered unclear and subsequently misunderstandings arise. Let's take into account the debatable but yet not outdated Mehrabian's communication research on the influence of individual communication aspects on message perception process. The overall impression and ability to convince communication partner consists of nonverbal communication which represents 55%, voice which represents 38% and 7% is represented by speech content. In impersonal most often e-mail communication 93% of the message gets lost. Sharing via e-mail is

problematic also in terms of listing recipients, branching replies, subject's significance and setting of employees' priorities. Dealing with e-mails after unproductive meetings trying to personalize communication has become fundamental in an effective use of work time of managers on all levels. Effective communication in the workplace courses can be of significant help in removing barriers but only if implemented on all levels of corporate management. Reasons for education in intracompany communication, subsequent evaluation of courses and practical implementation of exercised communication elements were compared in Czech and multinational organizations. Compared were also motives of directly financed companies and companies funded with grants.

TAB. 1: Survey results

	Czech companies	International companies	ESF funds	Direct investment	Participation of the executive manager	No participation of the executive manager
Motive for taking part in effective communication course						
In total:	Cultivation of corporate culture – increase in team communication efficiency – stress reduction – time savings – performance enhancement – employees' motivation					
Differences:	Emphasis on corporate culture	Emphasis on stress reduction	Similar motives	Similar motives	Similar motives	Similar motives
Evaluation method of the course implementation						
In total:	Company meetings – individual meetings – company events – visuals, notice-boards					
Differences:	Diligently evaluated by 1/2	Diligently evaluated by 1/2	Almost no evaluation	Diligently evaluated by 1/2	Very diligently evaluated by the majority	Almost no evaluation
Individual implemented communication techniques						
In total:	Implementation requires longer-term solution – feedback – company events – visuals					

Differences:	Communication code and rules	Visualization and notice-boards	Similar approach	Similar approach	Have implemented or are implementing system solution	Almost no implementation
Further actions taken to improve communication effectiveness						
In total:	Internal program of rules and communication processes implementation – implementation of staff evaluation – internal communication campaigns					
Differences:	Majority sets and implements internal processes	Nobody plans systematic continuity	Majority doesn't plan systematic continuity	½ implements internal processes and rules	Similar approach – can not be determined	Similar approach – can not be determined

Source: own processing

WHY WAS COMMUNICATION COURSE FOR THE WORKPLACE ARRANGED?

Clients' motives for communication skills improvement are similar in all cases. All surveyed wanted to increase the efficiency of work processes eliminating communication barriers, stress and time losses derived from them. Czech companies are more interested in building long-term corporate identity and corporate culture. Stress at the workplace is more significantly perceived in multinational companies. Projects financed from the European social fund were supposed to be more focused on staff motivation opposed to projects directly financed which were expected to set clear communication processes.

HOW WAS EVALUATED THE COURSE BENEFIT FOR COMPANY FUNCTIONING?

The course was long-term evaluated (0,5 – 1 year after the course) by half of the surveyed managers. Almost all who invested in education process their own means and claimed to be interested in the further implementation of effective communication evaluated the course. The majority of these contracting authorities also at least partially participated in the course. In most cases, the course was evaluated purely based on personal questioning at company meetings, events, and individual meetings. Companies that were evaluating the course in large measure carry on with education and invest their own means.

WHAT FROM COURSE WAS IMPLEMENTED TO PRACTICE?

Czech companies tend to introduce knowledge from education courses to their employees using guidelines and codes. International companies prefer less systematic but specific solutions using visuals, reminders, and elimination of ineffective meetings. No distinction was found between directly and indirectly financed companies. System feedback is more problematic in multinational companies than in companies with direct management due to corporate systems. Manager's participation is crucial in order to implement the practical use of communication elements.

WHAT FURTHER ACTIONS ARE TAKEN FOR DEVELOPMENT OF EFFECTIVE COMMUNICATION IN THE WORKPLACE?

Multinational corporations aren't planning systematic changes in communication. Czech companies incline more towards introducing internal processes and increasing the efficiency of communication within company however primarily on the theoretical level. Corporations with direct investment engage more in deepening knowledge and practical implementation than corporations financed from funding programs. Nonetheless, it can't be stated that all indirectly financed projects won't further be employed as well as it is inconclusive to say that managers who didn't participate in courses have no interest in increasing efficiency of communication within their companies.

3. Discussion

Comparison between multinational corporations with clearly defined and directly communicated corporate culture, and medium or small Czech companies without strategic communication plan shows that Czech companies are more enthusiastic. Czech companies more often follow up education training with other programs and more often realize the importance of internal communication and its implications in corporate economy. Their independence is significant for marketplace sustainability. That's why they explore in great detail all opportunities to increase company processes' efficiency internal communication included. Local branches of international companies leave communication strategy up to parent corporation and don't implement communication elements trained in workshops to their systems. Introducing rules of communication processes is highly individual and depends on the personality of the given manager and his competencies and authorization. In terms of using direct financing, it is apparent that corporations using ESF funds implement knowledge into practice less often. Though this indicator isn't significant. Some funds are used effectively. On the contrary, some education programs financed with own means aren't supported by practically targeted implementation. In play comes again the individual manager, his interest in placing communication rules and his leadership style. Direct management of „carrot and stick“ approach has often the stressful effect on employees, negative influence on workplace

communication, and is a source of communication barriers, information noise, errors and time losses.

The core of effectively communicating team is respect and support of managers linked with their at least partial participation in the education event. Research definitely shows that companies whose management took part in the course are able and willing to use and deepen gained knowledge. Not a single one of surveyed companies whose management was absent at workshops implements knowledge into practice, yet it is not to say they have no interest to develop in this area.

Conclusion

Corporate culture, internal and external communication, vision and higher purpose are the motor for corporate productivity. This motor is fuelled by teamwork which core lies in internal communication and style of leadership delivered by executive managers. Building a modern corporation requires implementation of respect, elimination of stress and motivation of employees limiting error rate and time losses. Multinational corporations don't plan on systematic implementing of changes in communication although their employees experience more stress and feel pressured in their job performance and time frame. These corporations are often influenced by global intra-corporate behavior. They either have little authority or little interest to gain more authority over the execution of changes. Czech companies, on the other hand, do implement changes and are engaged in optimization and development of their competencies in communication. However due to our national culture and mentality these changes are executed in the form of internal standards, guidelines or codes at the expense of practical implementation.

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FAMILY BUSINESS – A REVIEW STUDY

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Keywords:

family business – concept – meta-analysis – evaluation

JEL classification: L2

Abstract:

Family firms are significantly important generators of national wealth, both in economic and social terms. In fact, at present they produce between 60 - 90% of GDP of the whole country. The purpose of this article is to explore the most recent research studies dealing with the family business and summarize their main findings and limitations. This is done by using a method of literature review of the available sources exploring the issue of family businesses in the acknowledged databases, a method of meta-analysis of the selected studies, and a method of comparison and evaluation of their findings.

Introduction

Family firms (FF) are the oldest and most prevalent type of firms all over the world (La Porta, Lopez-de-Silanes, & Shleifer, 1999). Current studies (Block, Miller & Wagner, 2014; Jaskiewicz, Combs & Rau, 2015; Murphy & Lambrechts, 2015; Naldi, Chirico, Kellermanns & Campopiano, 2015) indicate considerable importance of family businesses in terms of gross national product, job opportunities and wealth generation. In fact, both in the USA and Europe family businesses enormously contribute to the creation of gross domestic product (GDP). In the USA it is between 29% and 64% (Craig, Dibrell & Garrett, 2014). Generally, GDP generated by FF ranges between 60 - 90% of GDP of the whole country. In addition, 85% of all start-ups are supported by family financing (European family business, 2012). There are many definitions of family business (FB), but the most recent has been provided by an expert group of the European Commission (Family business, 2015), which is as follows:

A firm, of any size, is a family business, if:

The majority of decision-making rights is in the possession of the natural person(s) who established the firm, or in the possession of the natural person(s) who has/have acquired the share capital of the firm, or in the possession of their spouses, parents, child or children's direct heirs. The majority of decision-making rights are indirect or direct.

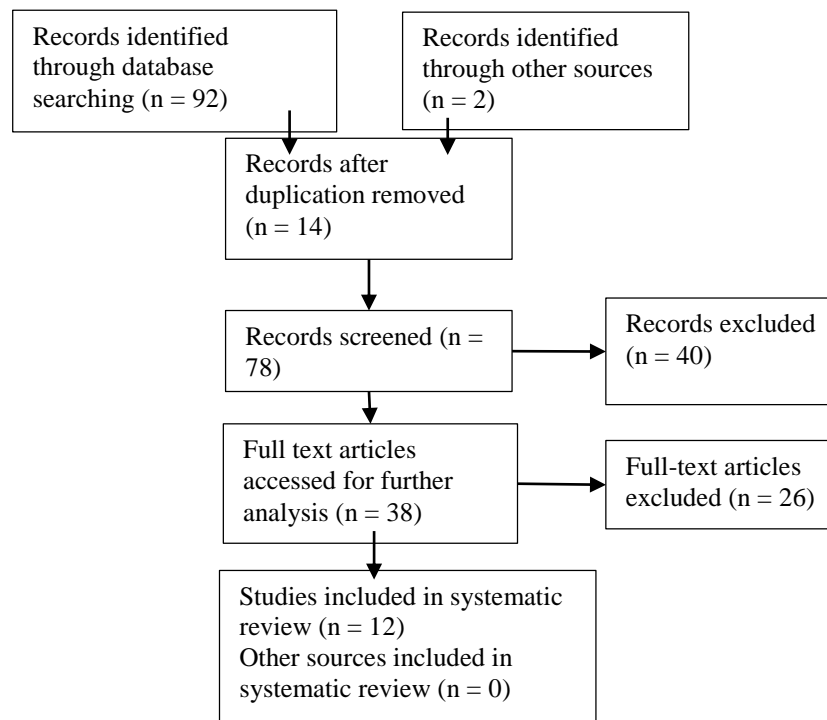
At least one representative of the family or kin is formally involved in the governance of the firm. Listed companies meet the definition of family enterprise if the person who established or acquired ~~the~~ the firm (share capital) or their families or descendants possess 25 per cent of the decision-making rights mandated by their share capital.

The purpose of this article is to explore the most recent research studies dealing with the family business and summarize their main findings and limitations.

1. Methods

The authors used a method of literature review of the available sources exploring the issue of family businesses in the acknowledged databases, a method of meta-analysis of the selected studies, and a method of comparison and evaluation of their findings. This review was done by searching databases such as Web of Science, Scopus and Springer, especially in the period from 2013 to 2015 owing to recent importance of this issue. In addition, other relevant studies were reviewed on the basis of the reference lists of the research articles from the searched databases. The selection procedure of the selected studies for the meta-analysis was performed on the basis of inclusion and exclusion criteria described below. They are divided into the following four steps: identification (identification of the key words – family business and consequently, available relevant sources); duplication check; assessment of relevancy (verification on the basis of abstracts whether the selected study corresponds to the set goal; after the exclusion of such studies, 38 sources were analysed and 26 eventually excluded); and use of available studies.

The duplication of articles were mainly found in the databases of Web of Science and Springer when compared with other, freely accessible sources. After close exploration of the abstracts, the articles that contained the key words but their findings were not aimed at the set goal were excluded. In addition, the studies outside the time span, those that comprised the same findings, or their findings were outdated were also excluded (Fig. 1).

FIG. 1: Results of the selection procedure

Source: Authors' own processing

The findings of the meta-analysis of the selected studies from the period of 2013 and 2015 are described in the following section on Results.

2. Results

Table 1 below highlights the key findings and limitations of 13 studies exploring different aspects of running the family business. Out of these studies, 12 were research study and one review study. The order of the studies is provided alphabetically according to the first author.

TAB. 1: An overview of the meta-analysis of the selected studies

Author	Title of the study	Key findings	Limitations
Bird & Wennberg (2014)	Regional influences on the prevalence of family versus non-family start-ups	The non-family start-ups are mainly influenced by economic prosperity of the region, while the family start-ups by the family embeddedness into the regional community.	The definition of family is limited to the nuclear family only; geographical limitation.

Block, Miller, & Wagner, (2014)	Bayesian methods in family business	Bayesian methods (BM) can be especially used for the explanation of the significant heterogeneity in the population of family firms.	BM can be applied only to the specific samples. In addition, there are high computational demands of the algorithm.
Cabrera-Suarez et. al. (2014)	The setting of non-financial goals in the family firm: The influence of family climate and identification	A positive family climate in terms of cohesion, open communication and intergenerational attention produces a greater identification of the family with the firm in sense of company's values.	Cross-sectional design of the study; geographical limitation; in-depth analysis on family dynamics is needed.
Carney et. al. (2013)	What do we know about private family firms? A meta-analytical review	Family firms prefer more conservative strategies, but contrary to received wisdom, this risk aversion does not hurt their performance.	More reliable and valid performance data are needed.
Campopiano, De Massis, & Chirico, (2014)	Firm philanthropy in small and medium-sized family firms: The effect of family involvement in ownership and management	Family involvement in ownership has a positive impact on the company philanthropy, however, in management it has a negative effect.	Small sample size; geographical limitation; more generalization is required.
Craig, Dibrell, & Garrett, (2014)	Examining relationships among family influence, family culture, flexible planning systems, innovativeness and firm performance	The family culture improves the ability of families to be strategically flexible and it also positively affects company innovativeness.	The use of the key informant which cannot be triangulated with other respondents; more generalization of the results is needed; only one method of the data collections was used.
Jaskiewicz, Combs, & Rau, (2015)	Entrepreneurial legacy: Toward a theory of how some family firms nurture transgenerational entrepreneurship	Entrepreneurial legacy stimulates the next-generation owners to get involved in the key activities that enhance transgenerational business.	More research is needed to generalize the findings.
Kraiczy, Hack, & Kellermanns,	New product portfolio performance in	There is a negative impact on new product portfolio performance when the	Geographical limitation; only manufacturing companies; therefore

(2014)	family firms	ratio of family members in the top management team is high.	more generalization is required.
Miralles-Marcelo, Miralles-Quiros, & Lisboa, (2014)	The impact of family control on firm performance: Evidence from Portugal and Spain	The leadership of family firms, and the firm's size and age are moderators of the relationship between family control and firm performance. In addition, family firms, particularly the smaller and older, display at least the same performance as non-family firms.	Geographical limitation; only publically traded companies; therefore more generalization is required.
Murphy, & Lambrechts, (2015)	Investigating the actual career decisions of the next generation: The impact of family business involvement	The family business involvement of the next generation not only influences but also alters the careers of the next generation.	Small sample study (only 12 subjects).
Naldi et al. (2015)	All in the family? An exploratory study of family member advisors and firm performance	Family member advisors have a positive impact on the first generation family business.	No succession planning as a control; a small sample of companies; more context needed.
Rodrigues, Borges, & Aleixo, (2014)	The importance of knowledge management in the succession process of family businesses	The key factors in the succession process are the choice of a family member and his knowledge of company business.	Empirical validation is needed.

Source: Authors' own processing

3. Discussion

The findings outlined in Table 1 above indicate a wide variety of topics connected with FB, which also confirms a growing interest in this issue worldwide (Jayram, Dixit & Motwani, 2014). The main areas of current research in the field of FB are the factors which can influence family control, culture, or performance in running family business. These factors include the following aspects: company's size, age, management, cohesion, open communication, intergenerational cooperation, entrepreneurial legacy, or embeddedness in local regional community. Particularly, the last aspect plays an important role in the development of family start-up companies. While the non-family start-ups are influenced by the regional economic prosperity, the family start-ups are

connected with the embeddedness into the regional community (Bird & Wennberg, 2014) in which the established FF also invest and are sources of employment. In addition, they seem to be more stable entities in comparison with non-family businesses as far as their financial performance is concerned (Miller & Le Breton-Miller, 2005).

Furthermore, the role of family member advisors has been explored as well, although little attention is still paid to this issue (Davis, Dibrell, Craig & Green, 2013). In fact, family member advisors can enhance stewardship behaviour towards the organization and search for innovativeness, particularly in later stages of running FB. At the beginning of FB it is advisable to employ two family member advisers at maximum and in addition, to recruit external advisors (Naldi, Chirico, Kellermanns & Campopiano, 2015). Although the family culture has a positive impact on the company's innovative performance (Craig, Dibrell & Garrett, 2014), the results of the review suggest that there should not be a high number of family members in the top management team in order to avoid a low product innovative performance and consequently, profitability. Moreover, Wagner, Block, Miller, Schwens & Xi (2015) claim that family firms in individualistic settings perform better than those in collectivist settings due to a lower level of entrenchment and nepotism. The findings also confirm the fact that FF are long term-oriented (Kraiczy, Hack & Kellermanns, 2014) and balance short-term rewards with prosperity and sustainability.

Another topic, which has not been researched in literature much so far, is the succession process, in which the right choice of successor, in most cases a family member, and possession of organization knowledge are the key indicators. The recent studies also show that entrepreneurial legacy may stimulate next generation to get involved in company's strategic activities (Jaskiewicz, Combs & Rau, 2015).

The results also reveal several limitations of the reviewed studies such as small number of respondents or a limited geographical scope of the studies, which would need further research in order to generalize the obtained findings.

Conclusion

Overall, family businesses seem to be sources of both national and regional economies. In addition, they are long-term oriented in their goals in order to produce a sustainable and profitable performance. Family firms are also assets for the regional communities in terms of solidarity, investment and employment. There are, however, specific challenging tasks family firms have to address if they want to succeed in their businesses such as family governance, transfer of organization knowledge, or succession planning.

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LEGISLATION FOR TRAINING IN PUBLIC ADMINISTRATION IN THE CZECH REPUBLIC

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JEL classification: H83, M53

Abstract:

The submitted article provides an overview of training legislation within the public administration of the Czech Republic, i.e. within state administration and local governments. The content of this article is to define public administration and compulsory training for employees of local governments (municipalities, regions) and state employees. In the second of these groups, i.e. state administration employees, major changes are underway in training. The reason for these changes is the adoption and entry into force of Act No. 234/2014 Coll., on Civil Service. The changes that this act brings to the employment of state officials include, for example, newly established preparation for service which ends in an exam. This article also includes an evaluation of an interview conducted with a state official, which reflects on the impact of the Act on Civil Service on a particular employee.

Introduction

The aim of this paper is to analyse the current state of training in public administration in the Czech Republic. Due to the fact that in particular in state administration this is a newly changing area regulated by a new law effective from 1 January 2015, this article is based primarily on Czech professional literature and Czech legal regulations. The theme this article deals with is very up-to-date and is being discussed. In addition to the analysis of professional literature, an evaluation of the interview with state administration employee will be used in order to achieve the above objective.

1. Materials and methods

This article is mainly prepared using the method analysing scientific literature (e.g. Hendrych, D. (2009) 'Správní věda – Teorie veřejné správy', Praha: Wolters Kluwer ČR, a.s., ISBN 978-80-7357-458-1) and related Czech legal regulations (Act No. 234/2014 Coll., on Civil Service). This article also evaluates the most important findings obtained on the basis of a standardized interview with a state administration

employee. This interview is targeted directly on the changes occurring in relation to the new Act on Civil Service.

2. Results

2.1. *Public administration*

Administration is generally divided into public administration used for the management of public affairs and private administration that deals with managing private affairs. Hendrych (2009, p. 15) states that “in practical terms, the difference consist both in the degree of legal boundedness, and in the aim that the private or public administration pursues”. Public administration is bound by the legal order, and in this sense, private administration is freer, as only the framework for action is set out for its bearer. As further stated by Hendrych (2009, p. 15), “a private organization determines its own goals and tasks, and the methods necessary to achieve the objectives, whereas a public organization is obliged to carry out the tasks set out in laws and other legal regulations, or on the basis of resolutions of representative bodies or higher authorities”. Public administration is divided into state administration, professional and interest groups’ administration and local governments (Durant, 2015). The next part of this article will be devoted solely to state administration and local governments. The supply of performance information is vastly increasing in most public sectors and across many different types of public organization (Nielsen, 2014). Hendrych (2012, p. 100) characterizes a state as a legal entity of public law and the most important entity of public administration. He also states that the “state carries out public administration as state administration either directly through its bodies and administrative authorities, or indirectly through other entities of public administration to which state administration powers are transferred”.

In the Czech Republic, local government is characterized directly by the Constitution of the Czech Republic, which states: “The Czech Republic shall be divided into municipalities, which shall be fundamental territorial self-governing units, and regions, which shall be superior territorial self-governing units”. (Article 99 Constitutional Act No. 1/1993 Coll., Constitution of the Czech Republic). According to data published on 15 December 2014 (CSO, Small Lexicon of Municipalities 2014), in the Czech Republic there are a total of 6 253 municipalities and 14 regions, including the City of Prague.

Assessing the effectiveness and performance of public administration has been a key concern in many countries. Nowhere is this more crucial to democracies than in the field of electoral administration (Clark, 2015).

2.2. Training of officials of territorial self-governing units

The training legislation for officials of territorial self-governing units is based on Act No. 312/2002 Coll., on officials of territorial self-governing units, and on changes to some acts, as amended (hereinafter the “Act”), and furthermore, on Decree No. 512/2002 Coll., on special professional competence of officials of territorial self-governing units, as amended. According to this Act, a territorial self-governing unit (Section 2, paragraph 1 of Act) is a “municipality, region, and, for the purposes of this Act, also the City of Prague, city, statutory city and city district of the City of Prague.” This Act specifically regulates the employment of officials of territorial self-governing units and their training. The employment itself is created on the basis of an employment contract, or on an appointment pursuant to the Labour Code.

The basic duties of an official include “enhancing his skills to the extent set out by this Act” (Section 16, paragraph 1, letter e) of the Act). The Act further states that the official is obliged to enhance his qualifications by participating in initial training, ongoing training and preparation and verification of special professional competence (see Section 18, paragraph 1 of the Act). Initial training concerns knowledge of basic public administration, information technology and basic skills and must be completed within three months from the commencement of employment by the official. Ongoing training should then aim to deepen and upgrade the education of the official through various courses.

Special professional competence is a form of training that shall be verified via an examination and proven through a certificate. Verification of special professional competence via an examination and certification is provided by the Ministry of Interior in cooperation with the relevant ministries and other central administrative authorities. Among others, the examination is organized by the Institute for Public Administration Prague (hereinafter the “Institute”), which was established as a state-funded organization by the Ministry of Interior of the Czech Republic. The examination consists of two separate parts, i.e. a written and an oral part. During each of these parts, knowledge of the general and special part shall be verified. According to the Act (Section 21, paragraph 3, of the Act) the general part includes “basic knowledge of public administration, in particular general principles of the organization and activities of public administration, knowledge of the Act on Municipalities, Act on Regions, Act on the City of Prague and the Administrative Procedure Act, and the ability to apply this knowledge. The special part includes the knowledge necessary to perform the administrative activities set out by the implementing legal regulation, particularly knowledge of the powers of local government bodies and territorial administrative authorities relating to these activities, and the capability of their application”. The examination is evaluated stating either “passed” or “failed”. If the official receives a rating of “failed”, the official shall be entitled to submit an objection against the

method of the examination committee within 15 days from the date of notification of this fact.

An official of a territorial self-governing unit shall be obliged to prove special professional competence to perform administrative activities within 18 months of the commencement of his employment. An exception from the special obligation to demonstrate professional competence is set out for officials who have been recognized as having equivalent training under Section 33 or Section 34 of the Act. This is a situation where the official holds Bachelor's or Master's degree in a programme set out by the implementing legal regulation, or who has been issued a certificate of recognition of equivalent training. A certificate of recognition of equivalent training, or part thereof, may be issued at the request of the official or territorial self-governing unit if the official received his training in another study programme than that which is determined by the implementing legal regulation, so long as it is demonstrated that the content and scope of the training are equivalent to the relevant training programme for improving qualifications. An individual who passed the officer's examination pursuant to the Act on Civil Service shall also not have to prove special professional competence from the general part.

According to the Institute for Public Administration Prague (<http://www.institutpraha.cz/>), the following applies: "If an official was graded as "failed", an official may repeat the examination twice. A repeated examination shall be held no earlier than 30 days and no later than 90 days from the date of the examination which the official failed". According to information from the Institute for Public Administration Prague (<http://www.institutpraha.cz/>), this institute annually prepares and carries out "more than 300 training events for about 10,000 officials."

2.3. Training of state employees

State employees are not obliged to take a professional competence examination within a certain time period of entering into employment. Each state employee is to fulfil initial training and then enhance their education by taking part in courses and training. However, the new Act No. 234/2014 Coll., on Civil Service also brings changes in relation the training of state employees. The Act regulates in particular the "legal relationships of state employees carrying out state administration in administrative offices" (see Section 1, paragraph 1, letter a), Act No. 234/2014 Coll.). With regard to this Act, the Czech president used his right of suspensive veto and did not sign the Act, and on 8 October 2014, he returned it to the Chamber of Deputies for reconsideration. His veto was overridden on 24 October 2014 and remained a part of the Act. This Act was published in the Collection of Acts of 6 November 2014 and came into force on 1 January 2015. There have been discussions about Civil Service in the Czech Republic for several years. The original Act on Civil Service of state employees in administrative offices, and on remuneration of these employees and other employees in administrative

offices was published in the Collection of Acts under No. 218/2002 Coll. As of 28 May 2002, it was a valid regulation whose effect has been repeatedly postponed and never fully came into effect. The new Act on Civil Service repeals it.

This Act relates to less than 85 thousand people, because according to data from the Ministry of Finance, there was a total of 95,972 employees in the organizational units of the state in 2013, i.e. without local government officials, which have been discussed above. “Because the proposed Act should not apply to courts, the State Prosecutor's Office, the Constitutional Court and the General Inspection of Security Forces, from this amount must be subtracted 9,696 court employees, 1,550 employees of the State Prosecutor's Office, 125 employees of the Constitutional Court and 60 employees of the General Inspection of Security Forces. If we subtract the above number of employees, we are left with a total of 84,541 persons to whom the Act may apply. (Explanatory Memorandum to the draft of the Act on Civil Service, p. 4).

Now state employees also work in office services for a definite or indefinite period. On the day of entering into service, the state employee takes a service oath. Among other duties prescribed by law, the state employee is now obliged to successfully pass a so-called official's examination. The new Act on Civil Service devotes “considerable attention to the prerequisites needed for state officials to perform their work, and to the hiring process of new state officials and their further training, which are to ensure a higher quality workforce and high professional level of activities carried out by state officials” (Explanatory Memorandum to the draft of the Act on Civil Service, p. 1). Complete mandatory training can thus be considered an essential tool for improving the quality and expertise of the functioning of public administration.

The official's examination consists of a general and special part. Pursuant to Section 36, paragraph 2, the general part of the official's examination is done in writing, and its purpose is to “verify whether the state employee has the necessary knowledge of the organization and activities of public administration, rights, obligations and rules of ethics of state employees, legal regulations generally impacting the activity of state administration, and European Union law” (Section 36, paragraph 2, Act No. 234/2014 Coll.). After the official successfully passes the general part, a second, so-called special part of the official's takes place orally before an examination commission. “The purpose of the special official's examination is to determine whether the state employee has the necessary knowledge and skills and is professionally ready for subsequent performance of services in the field of services to which he was assigned or appointed to a service position.” (Section 36, paragraph 3, Act No. 234/2014 Coll.). According to the wording of this Act, a general equivalent of the official's examination may be considered the general part of the examination of special professional competences of an official of a territorial self-governing unit. The government may set out further details regarding equivalence via a regulation.

In relation to the training of state employees, the Act on Civil Service discusses the improving, increasing education and individual study purposes. Improving education means “initial training, ongoing training, training of head officials and language training. Improving the education of state employees focuses on his further professional development in the field of service in which he works, including improving or acquiring language skills.” (Section 107, paragraph 1, Act No. 234/2014 Coll.). Improving education is considered performance of service, and a salary therefore pertains to it. A state employee may use 6 days of service in a calendar year for individual study purposes, and his salary is not reduced for using this time in this way. Increased education means studying at a vocational school or university, or being sent to study abroad. In such a case state employee shall be entitled to a leave with pay compensation in the amount of his average earning. Pursuant to Section 109, paragraph 5, Act on Civil Service, leave with pay does not include taking part in an admission exam, a repeat exam, graduation or a similar closing ceremony. The Act also sets out an obligation for a state employee who was permitted to increase his education to remain in service for a certain period of time after his graduation. This period corresponds to the duration of the study. For persons sent to study abroad, the employee must remain in service for a period equivalent to the costs of being sent abroad. These periods and amounts are shown in the table below and listed in Section 110, paragraph 2 of the Act on Civil Service.

TAB. 1: Relationship between costs for studying abroad and obligation to remain in service

Costs for studying abroad	Period the employee must remain in service
more than 20 thousand CZK	1 year
more than 30 thousand CZK	2 years
more than 50 thousand CZK	4 years
more than 100 thousand CZK	5 years

If the employee does not remain in service for the determined period, he shall be obliged to pay the costs for being sent to study abroad to his office.

2.4. Evaluation of interview

In connection with the newly valid and effective Act on Civil Service for the purposes of this article conducted standardized interviews with employees of the state administration. All respondents are middle-aged, higher degree (right), who are from finishing their studies employed in the public sector.

One interview was conducted in February 2015, five additional interviews were conducted in April 2015, and their aim was to find out how a new law on civil service perceived by the person who is directly concerned. Each respondent was laid a total of 14 questions relating to the current position, initial training, experience and continuing education especially with the expectations related to the civil service.

The respondent stated that she had been working for her current employer, a central state administration body, for more than 5 years as an officer dealing with the legal issues of the office, and that she was employed indefinitely. The respondent changed from the previous employer to the new employer due to organizational reasons of the original employer, wherein her position was cancelled and the employment contract terminated upon mutual agreement. The respondent has been satisfied with her present employer from the beginning, and she feels that she has job and financial security with the employer. She considers the work team as “reasonable and friendly.” After beginning work for her current employer, the respondent completed initial training ending with a brief examination. During the course of her employment, she has undergone a number of courses focused mainly on legislation in relation to contracts and the new Civil Code. The respondent learned of the new Act on Civil Service directly from a senior employee who recommended that she read this Act. The respondent and her colleagues obtained more information about changes at the office rather in an informal way within the office or from the press. There was no formal training for employees and no major changes are expected. The transition period, which will last until the end of June 2015, has thus far been peaceful. The respondent stated that she had some concerns about the official's examination, but she meets the conditions for a smooth transition from employment into service indefinitely, i.e. she has worked at an administrative office for 10 years, or at least 4 years (see Section 190, paragraph 1, letter d), Act on Civil Service). If a respondent did not meet the time prerequisite, they would be hired into service for a definite period until 30 June 2017, by which date they would have to pass the general part of the official's examination. Only then would the respondent be entitled to enter into service indefinitely.

In relation to her future service, the respondent will have to apply for being hired into such an office service. When asked what specific changes she expects with the transition from employment into service, the respondent replied that she does not specifically know and does not expect negative changes. She very positively evaluates that she expects more certainty with regard to her service. With regard to the new systematization, she expects some new internal regulations that she will be informed of by her employer. Overall, her opinion of her upcoming service is neutral.

The interview shows that the respondent is generally informed about the upcoming service relationship. Overall, she perceives it positively, but does not have a more concrete perception of it. It would be appropriate to have training about the fundamental

changes and procedures, and so to uniformly inform all of the employees of the office or offices.

The following respondent is dissatisfied at work. The reasons are mainly low salaries and individualistic team. Respondent would like to retire from employment in the private sector. The third respondent is in employment slightly unhappy, not because of the job description and employers, but because of the long driving distance (outside Prague). Since the service expects more job security. The fourth respondent is satisfied, originally employed for a definite period as a crowd for maternity leave, after the departure of one employee receives a job for an indefinite period, the service not expect anything. The fifth respondent is satisfied with the work, but is unhappy with staff. From the new Public Service Act respondent expect greater certainty, but since it does not seniority, he's a caretaker exam. The sixth respondent was initially employed at another ministry, the civil servant from finishing school does not plan to change jobs, because it suits the new Public Service Act. From the interviews it indicates that respondents are generally aware of the impending service relationship. Overall, it is viewed positively, but has no concrete idea. It would be useful to organize training courses on basic changes and practices and to inform all employees uniformly office or offices.

3. Discussion

The legislation for the obligatory training of state administration employees and territorial self-governing units has not been unified to date. Employees of territorial self-governing units, i. e. municipalities and regions, had more obligations in relation to the professional competence examination. The new legislation newly implements a so-called official's examination, but also a new distinction between state authority employees on the one hand, and municipal office and regional office employees on the other. This new distinction relates to the fact that employees of territorial self-governing units remain employees and will still be subject to the legislation of Act No. 262/2006 Coll., Labour Code. However, the service of state employees ceases to be employment under the Labour Code and is becoming a new office service pursuant to Act No. 234/2014 Coll., on Civil Service.

Conclusion

This article described the legislation of training in public administration, both in territorial self-governments and in state administration. Legal regulations were listed, according to which each of the areas of public administration will proceed. In relation to state administration, in the Czech Republic this is a completely new regulation based on the entry into force of Act No. 234/2014 Coll., on Civil Service. It is expected that on 1 July 2015, most of the current state administration employees will enter into office service. If someone does not transfer from an employment to office service, either

because they do not submit a request, or if they fail the official's examination, their definite employment shall be terminated upon the expiration of this period, but no later than by 30 June 2017. For these reasons, each new employee should be properly informed about the legislation. The same conclusions can be drawn from interviews conducted. All respondents are satisfied with the current state of the Public Service Act. The same conclusions can be drawn from interviews conducted. All respondents are satisfied with the current state of the new Act on Civil Service.

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MEASURING EMPLOYEE SATISFACTION AT PROJEKT MARKET COMPANY

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Abstract:

The main objective of this study is to emphasize the importance of employee satisfaction survey for the company as well as for an employee and measuring employee satisfaction at Projekt Market company. To achieve our objective, we should explain the concept of employee satisfaction and factors influencing it. The second half of our study introduces the research results. Our results show, that we succeeded in mapping a company with excellent HR activity. We received negative feedback only about the salary of employees.

Introduction

Our rapidly changing life requires higher adaptability level, flexibility and innovation capability from companies, because they face numerous challenges day by day to remain competitive. The proper technical equipment and carefully planned strategy is not enough, companies should hire employees, whose individual objectives match the major objectives of the company. Most of the companies are trying to employ staff we mentioned, but they often forget about the fact, that it is not enough to hire the high quality staff, but it is important to keep them on a workplace as well. The companies should treat employees as a resource and they should be managed properly similarly to other resources. Nowadays great emphasis is put on Human Resources Management. (Gyökér, 2001)

1. Methods, literature overview

The concept of job satisfaction had been defined in various different ways. Generally we can say, that most of the people associate job satisfaction with a fact, that individuals have positive feeling from their work and perform their work willingly. This feeling is influenced by many factors: working conditions, private life of individuals, social background, personal qualities and physical condition of individuals. „ Job satisfaction

is a work-related attitude, which reflects emotions, thoughts and reactions related to work.“ (Gyökér, 2001, p.54)

„Hoppock defined job satisfaction as combination of those psychological, physiological and environmental conditions according to individuals can say, that they are satisfied with their work. Locke theory is based on the emotions of individuals. He defined job satisfaction as a pleasant and positive status resulting from work experience of employees. It is clear from his definition, that satisfaction is not a variable we can assign value to, he describes it as a positive value or status. The level, where individual feels satisfied differs, not only satisfying the highest need can lead to satisfaction.” (Szilágyi, 2010, p.22, p.23.)

„More and more frequently we speak about Human Resources Management, represented by Carell, Elbert and Hatfield (2000). The Human Resources Management has dual objectives: we need to improve the success of organization and employee satisfaction at the same time.” (Szlávicz, 2010, p.7) Majority of people spend their life with work to make a living. One of the duties of any organization is to contribute to employee satisfaction. The physical and mental well-being of employees depends on their satisfaction, because satisfied employees are in better health condition. Employee satisfaction plays an important role in hiring new employees, because applicants are more attracted by those companies, where employees are satisfied. In conclusion, employee satisfaction has positive impact both on individual and organizational level, which influences the company activity. (Szlávicz, 2010)

Several theories related to employee satisfaction appeared, which are trying to explain the reason of satisfaction resp. finding the reason of individual dissatisfaction. The most important model – Herzberg's Two-Factor Theory – is based on motivational theory. According to Herzberg there are relevant differences between those indicators resulting in satisfaction and those responsible for dissatisfaction. Motivation and satisfaction are two different phenomena and they are not necessarily related. (Bakacsi, 2004)

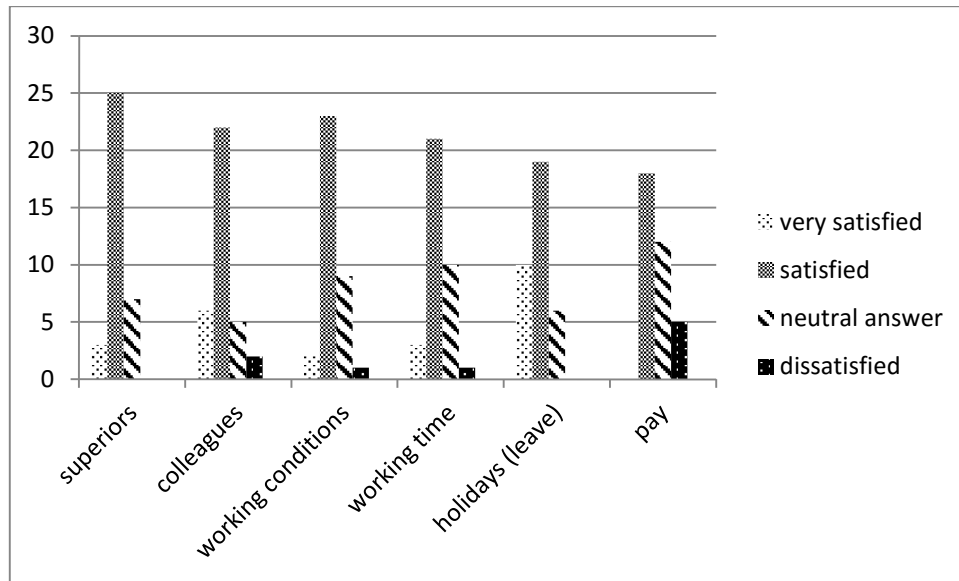
Job satisfaction depends on four relevant factors. The first is the level of work: higher position the individual has in the company, higher is the satisfaction level. The next is the service period (time spent in the company): longer the service period is, higher is the satisfaction. Job satisfaction also depends on the size of the company, because employees of smaller companies are more satisfied, than those of bigger ones. Finally, the satisfaction depends on the expectations of the individual, because everybody has its own standards. The work environment also influences the job satisfaction, performance, comfort and health of the employee. Dissatisfactory work environment results in dissatisfaction and disgust, which can influence the employee relationship with the employer. (Gyökér, 2001; Kačáni, 2004) Beside the organizational factors, demographic factors of employees also influence the job satisfaction. It is important to mention the age and career. As the surveys show, older employees are more satisfied with their job,

than the younger ones. This fact can have several reasons. We should mention that values of older employees change during the years and a possible job opportunity does not affect them in that measure as the younger ones. The qualification and gender are considered to be demographic factors. There is increasing number of university graduates on the labor market, who have certain expectations regarding the job. As the level of education has increased in different countries since the World War II, university graduates usually find a job, where they are considered to be overqualified or the task they have to master does not fit their qualification. Dissatisfaction also appears, when graduates cannot use their knowledge. Considering the question of gender, women are more limited in finding the appropriate job, but in contrary to that, they are not more dissatisfied with their job than men. Other surveys show, that women might be more dissatisfied in certain positions, but do not express their dissatisfaction in a way men do. (Berryová, 2009)

The main objective of this research is to measure employee satisfaction at Projekt Market company. The company operates as a frozen food wholesaler on the Slovak market. The main activities of the company are: fish processing, packaging, distribution of frozen and non-frozen goods. We conducted questionnaire research to confirm or refute hypotheses set at the beginning of our research. The questionnaires were distributed among 35 employees in March 2015. Our questionnaire contained 13 closed questions, 5 of them were those, where respondents had to express their opinion on a scale from 1 to 5. The first half of the questionnaire focused on measuring general satisfaction of employees. We examined how employees are satisfied with certain workplace factors as well as we had interest in the question of motivation. The respondents answered personal questions in the second half of the questionnaire. The questionnaire survey at this part proved to be effective, because ensured the anonymity of the respondents and they did not have to afraid of unpleasant consequences answering questions.

2. Results

We used different criteria to examine the factors influencing employee satisfaction. The examined factors are the following: superiors, colleagues, work conditions, working hours, holidays (leave) and pay.

FIG. 1: Factors influencing employee satisfaction (person/factor)

Source: based on own questionnaire survey

Most of the respondents are satisfied with their superiors. Superiors are considered to be those higher in rank, managers of departments first, followed by other leaders of the company and relationship with them on global level. 63% of the respondents are satisfied with their colleagues and cooperation with them. 17% are very satisfied, 14% gave neutral answer and only 6% of the respondents feel dissatisfied with their colleagues. The results show, that there is friendly atmosphere in the company. As we talk about the company with 36 employees, it is easy to know each other personally. Dissatisfaction can derive from personal conflicts. 66% of the employees are satisfied with working conditions, 25% gave neutral answer, 6% is very satisfied and 3% expressed dissatisfaction. 61% of the respondents are satisfied with the working hours, 28% cannot decide, 8% are very satisfied and 3% are dissatisfied. 53% of our respondents are satisfied with the amount of holidays (leave), 28% very satisfied and 19% cannot give a concrete answer. The employees can plan ahead their holidays and do not have to be afraid, that they will not get it. This statement can be confirmed by the fact, that nobody expressed dissatisfaction regarding the question of holidays. The last factor we examined was the wage system. More than half of the respondents are satisfied with the wage they receive for their work. Our results show, that majority of employees accept the special wage system of the company and do their best, because higher turnover and profit will benefit them. The mentioned system can result in dissatisfaction among 17% of the respondents. Those, dissatisfied with the system would rather accept an hourly wage to know how much they get for their monthly work. Further task of the respondents was to decide, whether they agree with the statements in the questionnaire or not. 63% of the respondents agreed and 6% completely agreed with the statement, that they receive enough information necessary to their work. 36% of the

respondents answered, they have a position appropriate to their qualification, the same percentage gave a neutral answer and only 3% said, they absolutely agree with the statement and work in a position that fits their qualification. This statement did not apply for 19% of the respondents and 6% found it completely false. Nowadays, majority of people do not find a job that can fit their qualification. 61% of the respondents felt the workplace atmosphere appropriate and 14% marked this statement absolutely true. It is important for everybody to feel their work appreciated. 53% of the respondents felt their work appreciated, 8% felt absolutely appreciated, 28% could not decide how true this statement was, 8% are not enough appreciated and 3% of the respondents do not feel appreciated at all. The reason of the fact can be the missing superior feedback or inappropriate communication in the company. 56% of the employees at Projekt Market feel as a useful asset of the company. Employees can feel, that they can contribute to the success of their company. The variety of work and interesting tasks contribute to employee satisfaction, because new tasks are challenging. Completing those tasks will satisfy employees. 45% of the respondents felt their work varied and interesting, 8% completely agreed with the statement, 19% did not find it valid for position they fulfill and 3% completely disagreed with this statement. Professional development is important for most of the employees during their career path. 41% of the respondents feel, they have a chance of promotion, 6% completely agreed with the statement, 31% cannot decide and 22% think, they have a chance of promotion. Different opinion respondents have about professional development and chance of promotion. Higher chance of promotion have those in administration, while drivers, storekeepers and factory workers find it more difficult to move in company hierarchy.

Conclusion with discussion

The main objective of questionnaire survey at Projekt Market company was to learn about the employee satisfaction. Questionnaires submitted by respondents served to measure their satisfaction at workplace. While examining different factors influencing employee satisfaction, we can declare that employees at Projekt Market are satisfied, but we received neutral answers as well. Neutral answers were given by employees, who cannot decide about the level of satisfaction, or they simply did not express their opinion. Specific question, where respondents gave neutral answers or did not want to express their opinion was the question regarding the pay of employees. Projekt Market applies specific pay system. To improve the situation, the owners should provide higher basic salary to decrease the level of uncertainty among their employees. Higher basic salary would also benefit the owners. In periods with higher turnover and profit the company should not pay more for employees. Our hypothesis was confirmed, because employees of Projekt Market company had different opinion about the pay system. The second reason of uncertainty was connected with performance feedback. Employees received neither positive, nor negative feedback about their work. We can declare that managers do not evaluate employees regularly. If they do evaluate them, it is not done

properly. Regular employee evaluation would be vital for both parts to tackle the existing problems. As the survey results show, poor communication should be improved as well.

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THE INFLUENCE OF HUMAN CAPITAL ON THE DEVELOPMENT OF REGIONS

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Abstract:

Poland is a highly diverse country in terms of economy and development due to its historical situation. The human capital has a significant impact on the development of individual regions. Some of them are able to attract their offer potential students, but more importantly, whether the local market can keep educated graduates, as well as attract such students from other regions by increasing their competitiveness. Regions with better working conditions, and often without academic centers in the amount ensuring the professional stability, benefit on these migrations.

Human capital

For over 70 years, the concept of human capital makes its way into our thinking about the development and economic growth in microeconomic and macroeconomic terms. It is directly connected with the development of the economy based on knowledge and skills. Human capital is treated as an extremely important factor of the regional development in EU countries. This is fully reflected in targets of the European regional policy. On the micro level: it influences the level of salaries and incomes. On the other hand, in the macroeconomic level, it stimulates the production and is responsible for the distribution of business activities in a certain area (Golejewska, 2012). In the research practice, the concept of human capital is often limited and it describes only resources of knowledge and skills acquired during the formal process of education (Herbst, 2012). This interpretation represents the effect of investments in education and training. In the wide interpretation, the subjects of study are investments, which improve the production capacity and quality of work. Although the human capital cannot be replaced and it is assigned to a specific unit, characteristics of the population and environment clearly affect its level.

For purposes of the publication, human capital is defined as “knowledge, skills and competences embodied in individuals and social relations that result in a higher productivity” (Faggian & Mccann, 2009) and we explore it in its narrow meaning.

1. The influence of human capital on the development of regions

Poland due to its historical situation is a highly diverse country in terms of economy and development. The level of a certain region is significant, because in the current economic situation, e.g. foreign investments or trade are held between regions. It happens, since formal borders between countries lost their significance. However, if we look at the coefficient of variation of per capita GDP from the EU level and the NUTS 2 classification, the differences between various regions are not so drastic, and certainly they are much smaller than, for example, in Belgium or Romania. On the other hand, there is a disturbing trend occurring in in all Europe. This trend is connected with the deepening of these differences and disparities between rich and poor regions. Less than a potential capital from a region is obtained when it is improperly managed, organized or educated. The risk of lost opportunities should also be taken into account when in similar conditions the competition obtains better results. In regions, where there are large positive migrations balances, increase the level of skills, and consequently the level of human capital, and later productivity. When the balance is negative, the region loses skilled and educated (on its cost) capital. There is also a situation, when the balance is in equilibrium, but a decrease/increase of the capital is visible: people with a great potential leave a certain region, but there is a new wave of people on their place, but with a much lower skills and capital resource. Observation and analysis of these data provides the knowledge necessary for strategic planning and programming interventions from public funds. On the other hand, it is a platform to exchange information that integrates scientific, administrative, business and social environments, which are interested in the region's development.

2. Analysis

The success of a certain region in building human capital on the basis of higher education should be verified in two aspects (Herbst, 2012). It is important whether the region is able to attract potential students by its offer, but even more important – whether the local market can keep educated graduates, as well as attract them from other regions by increasing the competitiveness. This enables to evaluate the effectiveness of a certain region in the creation of human capital and the ability of its use. This is confirmed by the fact that each year the percentage of economically active people with higher education increases.

On the basis of the following data, it is possible to distinguish several groups of regions:

- a) Regions that do not treat investment in human capital as a priority, e.g. Świętokrzyskie, Warmińsko-Mazurskie and Podkarpackie.

- b) Region that have good facilities of university education, but they cannot use it – Podlaskie and Lubelskie.
- c) Regions, where despite a modest educational base there is an inflow of human capital giving tangible economic benefits – Lubuskie and Zachodniopomorskie.
- d) Regions that equip individuals with qualifications and skills and know how to fully and consciously use these individuals in their region – Pomorskie, Dolnośląskie or Małopolskie.

2.1. University students

TAB. 1: University students

Region	University students per 10 thousands people		
	2010	2011	2012
MAŁOPOLSKIE	635	622	605
MAZOWIECKIE	614	581	589
DOLNOŚLĄSKIE	577	549	532
POMORSKIE	471	459	465
WIELKOPOLSKIE	476	462	442
LUBELSKIE	466	443	430
ŁÓDZKIE	452	427	403
PODLASKIE	441	424	391
KUJAWSKO-POMORSKIE	403	390	366
ZACHODNIOPOMORSKIE	416	392	363
ŚLĄSKIE	391	368	344
OPOLSKIE	392	375	343
PODKARPACKIE	345	333	317
WARMINSKO-MAZURSKIE	344	321	307
ŚWIĘTOKRZYSKIE	357	331	302
LUBUSKIE	258	233	208

Source: Główny Urząd Statystyczny 2015

For young people, entering for the first time on the labor market, the basic element representing the potential is education. Better educated people are perceived by employers as persons with higher qualifications or skills, so in some ways better equipped with capital.

Expenditures on university education in 2010 reached in Poland the value of 11722 million PLN and they were used for the realization of tasks aimed at, among others, raising the level and quality of education. 80.8% of this amount was spent on didactic activity, and 13.1% of this amount supported the fund of financial aid for students and doctoral students.

2.2 Migration balance

Another indicator, which allows evaluating the approach to human capital in individual regions, is a coefficient of migration balance, i.e. the balance of migration for permanent residence of population with a certain age per ten thousand people of this age.

TAB. 2: Migration balance

Region	Factor of net migration		
	2010	2011	2012
MAZOWIECKIE	31,6	34,8	32,1
POMORSKIE	15,2	15,0	14,0
MAŁOPOLSKIE	14,6	14,9	13,0
DOLNOŚLĄSKIE	8,4	8,4	9,5
WIELKOPOLSKIE	5,7	6,4	5,0
OPOLSKIE	-9,4	-8,9	-6,8
LUBUSKIE	-7,6	-9,3	-7,1
ZACHODNIOPOMORSKIE	-7,1	-7,2	-7,2
ŚLĄSKIE	-8,5	-9,8	-8,5
ŁÓDZKIE	-8,9	-9,8	-8,9
KUJAWSKO-POMORSKIE	-9,2	-8,7	-9,1
PODKARPACKIE	-13,4	-15,3	-13,5
PODLASKIE	-18,7	-21,4	-19,7
WARMIŃSKO-MAZURSKIE	-23,0	-25,3	-22,3
ŚWIĘTOKRZYSKIE	-26,9	-25,7	-24,1
LUBELSKIE	-28,6	-30,1	-30,4

Source: Główny Urząd Statystyczny 2015

The above statements in connection with each other help to distinguish academically strong regions, which cannot take advantage of the produced capital. They have

a problem with the drainage of knowledge-based economy, which is a continuous and permanent way flows to other regions with the ability to absorb this potential. Three regions: Podlaskie, Lubelskie and Łódzkie can attract students and spend specific amounts on their education. However, they cannot keep already educated graduates and they become suppliers of this capital for other regions, where employees can find better employment and life conditions. This has a later reflection in the region's economy and the level of GDP per capita. These values strongly deviate from the Polish average (e.g. Lubelskie Region only 70.3%) and also greatly understate the annual GDP growth (in 2010, the growth in Podlaskie Region was -1.4% in relation to 2010).

2.3 Gross Domestic Product

TAB. 3: Gross Domestic Product

Region	GPD per capita Poland =100 %		
	2010	2011	2012
MAZOWIECKIE	158,7	158,2	159,2
DOLNOŚLĄSKIE	112,6	114,0	113,1
WIELKOPOLSKIE	105,2	105,2	106,3
ŚLĄSKIE	106,9	107,4	105,8
POMORSKIE	96,1	95,9	97,9
ŁÓDZKIE	92,8	92,7	93,2
MAŁOPOLSKIE	87,8	88,7	88,1
ZACHODNIOPOMORSKIE	85,8	84,1	84,3
LUBUSKIE	84,7	83,2	83,1
KUJAWSKO-POMORSKIE	83,0	81,8	81,3
OPOLSKIE	82,2	81,8	80,8
ŚWIĘTOKRZYSKIE	77,4	76,2	75,0
PODLASKIE	73,1	73,0	71,7
WARMIŃSKO-MAZURSKIE	72,7	72,1	71,7
LUBELSKIE	69,2	69,7	70,3

Source: Główny Urząd Statystyczny 2015

Advantages of higher education should be considered not only as the expected increase in salary, but also the increase of unit's mobility with certain qualifications. These migrations are beneficial for regions with better working conditions, which often do not

provide academic centers in the amount ensuring the professional stability. An example can be Lubelskie Region, which has the lowest percentage of students (three times less than the statement's leaders), but its migration balance is above average and (as one of the few regions) the coefficient of this region increased by 2 percentage points in years 2011-2012. This region also has a very high employment rate for people with higher education (76.6% in 2012). In this respect, it is worse only than Mazowsze Region. The employment rate is understood as the percentage part of employed people of a certain category in the total population of a given category singled out because of the level of education. Such disproportions cause great disparities, for example, in how we perceive a "profitability" to acquire specific qualifications. Education becomes in some regions a choice, which gives an uncertain future or the necessity concerning the leaving of a certain region. This choice degrades benefits of further education.

Conclusions

One of the most important elements of regions' economy is knowledge and technological development. For the "learning region" (Florida, 2010), a driving force should be a continuous innovation and the ability to adapt in relation to changing market conditions. Qualification of expenditures on human capital by individual regions should be bear signs of consumption or waste. This is an investment in the economy, which provides the development of innovations and modern technologies in a certain area. Potential investors also pay attention to the availability of human capital as one of the most important factors when deciding on the allocation of projects. They treat it as one of the factors of competitiveness in the market. Its importance becomes greater, the lower the availability of different types of capital. Of course, the above study does not replace variables justifying posed claims, but they give a possibility for their continuation. The differentiation at every level is a resultant of historical and demographic processes, but it also shows a strong determination of certain regions in order to meet the requirements of competitiveness and economic development.

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COMPARISON OF BUSINESS SUPPORT BY THE EUROPEAN STRUCTURAL AND INVESTMENT FUNDS IN THE CZECH REPUBLIC IN THE PROGRAMMING PERIODS 2007 – 2013 AND 2014 – 2020

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project – operational program – European Structured and Investment Funds – business support

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Abstract:

This paper deals with the area of business support in the form of projects co-financed by European Structural and Investment Funds in the Czech Republic in the Programming Period 2014 – 2020 compared to support in the Programming Period 2007 – 2013. Business has been supported in both programming periods within more operational programmes, and the paper focuses on support through the following operational programmes: Enterprise and Innovation within the first programming period and Enterprise and Innovation for Competitiveness within the second one. Entrepreneurial entities received a significant source of funding for their development activities through these funds. The paper aims to compare the scope and ways of providing support through both operational programmes and to evaluate this support.

Introduction

The European Union (EU) regularly defines long-term strategic development objectives, including business support. The current EU objectives are defined in the strategic document of Europe 2020 (European Commission, 2015b), and they aim to establish smart, sustainable, and inclusive growth. The EU Regional Policy aiming to fulfil long-term strategic objectives is implemented within time-limited so-called programming periods (PPs), and it is financed with the means of the European Structural and Investment Funds (ESIF) and the Cohesion Fund (CF). Business is primarily supported by the European Regional Development Fund (ERDF). (European Commission, 2015a)

To fulfil the regional policy objectives, the EU has earmarked €351.8bn for PP 2014 – 2020 (Ministry of Regional Development CZ, 2015a, p. 4). Individual member states make partnership agreements with the EU, which define the national objectives and conditions of using the ESIF sources in individual member states (European Commission, 2015a). The Czech Republic (CZ) signed a partnership agreement with the EU on 26 August 2014 (Ministry of Regional Development CZ, 2014). On the basis of

the approved partnership agreement, the Ministry of Regional Development CZ, which is responsible for coordination, draws up methodical instructions. The partnership agreement also includes definition of the area of support in the form of thematic and regional operational programmes (OPs). The current structure of OPs is similar to that of the previous PP. Business is primarily supported by the OP Enterprise and Innovation for Competitiveness (EIC) with allocated means amounting to €4.3bn, which is managed by the Ministry of Industry and Trade CZ (Ministry of Regional Development CZ, 2015d). The situation was similar in the previous PP 2007 – 2013, where Ministry of Industry and Trade CZ was responsible for management of support within the OP of Enterprise and Innovation (EI) with allocated means of €3.1bn (Ministry of Regional Development CZ, 2007b).

Given the problems that accompanied the PP 2007 – 2013 both on the national (Brown & Zimmermannova, 2012; Ministry of Regional Development CZ, 2012; Kostalova & Tetreova, 2013; Kostalova, Tetreova & Patak, 2015) and on the international (Bachtler & Gorzelak, 2007; European Commission, 2013; Katsarova, 2013) levels, it is suitable to deal with the problems of support from ESIF in detail and to evaluate the level of support by the providers and directing of this support in both PPs. The author of this paper aims to compare business support in both PPs 2007 – 2013 and 2014 – 2020 in the area of their focus and support setup, and to assess whether the problems occurring in the previous PP are being eliminated in the PP that is starting just now.

1. Methods, literature review

Business support in both PPs through OP EI and OP EIC was compared using the current sources of information published on the ESIF web pages, processed by Ministry of Regional Development CZ, Ministry of Industry and Trade CZ, surveys conducted among project applicants and solvers (Ministry of Regional Development CZ, 2012; Kostalova, Tetreova & Patak, 2015), and on the basis of a literature review of the assessed problems.

2. Programming Period 2007 – 2013 and business support within the operational programme of Enterprise and Innovation

For the PP 2007 – 2013, the partnership agreement approves the total allocation of €26.69bn (Ministry of Regional Development CZ, 2007a) and specifies 26 OPs (Ministry of Regional Development CZ, 2007c). It defines the basic strategic objectives and specifies, within individual OPs, the priority axes and support areas. The applicants were invited through separate calls to draw up documentation and applications for provision of funds for particular projects.

As at 31 July 2015, almost 120,000 applications for support totalling €49.40bn had been filed in CZ, more than 62,000 projects totalling €26.32bn had been approved, and the

recipients had been reimbursed €19.98bn. More than 46,000 projects amounting to €13.19bn had been financially accomplished by that date. (Ministry of Regional Development CZ, 2015e) From these total figures, almost 20,000 applications amounting to €6.59bn had been filed within OP EI by 31 July 2015. As at that date, more than 12,000 projects totalling €3.46bn had been approved. The recipients had been reimbursed €2.72bn. As at 3 July 2015, the value of the financially accomplished projects had reached €2.56bn. (Ministry of Regional Development CZ, 2015e)

OP EI was focussed on increasing the competitiveness of the sector of industry and business, including small and medium-sized enterprises (SME), on support of innovations, expedited introduction of research and development outcomes into the sphere of production, on the economy growth support based on the knowledge using the capacities for introduction of new technologies and innovated products, including new information and communication technologies aiming to increase the competitiveness of the Czech economy. OP EI contained 7 priority axes dividing OP into logical units, which were further materialised through areas of intervention. The axes were as follows (Ministry of Regional Development CZ, 2017b):

- a) Establishment of companies,
- b) Development of companies,
- c) Effective energy,
- d) Innovation,
- e) Environment for enterprise and innovation,
- f) Enterprise development services,
- g) Technical assistance.

OP EI was funded by ERDF. Within the support of synergistic effects, the preferred project types included those of start-up, utilization of new financial tools, increasing capacities for industrial research and development, and strengthening infrastructure for development of human resources, which were bound to projects in the OP Research and Development for Innovations. From the territorial point of view, OP EI support was channelled into all regions of the Czech Republic, with the exception of Prague. The managing body was Ministry of Industry and Trade CZ. The mediators were CzechInvest (an investment and business development agency) and the Czech-Moravian Guarantee and Development Bank. (Ministry of Regional Development CZ, 2015c)

3. Programming Period 2014 – 2020 and business support within the Operational Programme Enterprise and Innovation for Competitiveness

The support conditions in PP 2014 – 2020 in CZ are specified in the partnership agreement. The agreement has made it possible to draw €23.98bn from ESIF (Ministry of Regional Development CZ, 2014). The agreement specifies 10 thematic OPs and 10 OPs of international cooperation (Ministry of Regional Development CZ, 2015d).

From the middle of 2015 until 27 August 2015, there were 55 calls within only four OPs, for the time being. The current data about the activity of applicants refer to 27 August 2015. By that date, the monitoring system registered 9000 users in total, and almost 2500 complete applications in the volume of €2.84bn across all OPs had been filed (Ministry of Regional Development CZ, 2015b).

Differently from the previous PP, the coordination of drawing from ESIF has been united, and both groups are uniformly methodically steered by Ministry of Regional Development CZ. The PP 2014 – 2020 support is targeted only at the areas that are in compliance with the EU thematic objectives and in which the analysis of the current status identified problems and inequalities. The business support is implemented through OP EIC. This OP is financed by ERDF, and from the territorial point of view, it is directed into all regions of CZ, excluding Prague. The mediating entity is again CzechInvest. The support is, within the OP, divided into the priority axes (Ministry of Regional Development CZ, 2015c):

- a) Promotion of research and development for innovation,
- b) Development of SMEs' entrepreneurship and competitiveness,
- c) Efficient energy management, development of energy infrastructure and renewable energy sources, support for the introduction of new technologies in the management of energy and secondary raw materials,
- d) Development of high-speed internet access networks and information and communications technologies,
- e) Technical assistance.

The current interest in OP EIC is illustrated by the information about the number of received applications within the first wave of calls. 3300 applications for support totalling €3.34bn were registered as at 6 October 2015. However, the volume of allocation within the first announced calls amounts to €0.64bn only. It means that the demand is more than five times as big as the offered allocation. (Bendl, 2015)

4. Differences in business support in Programming Periods 2007 – 2013 and 2014 – 2020

It is possible to divide the differences in business support into two areas – the general support system conditions in PP 2014 – 2020 and difference on the level of OPs focussing on business support. The differences in the general conditions should lead, in a lot of areas, to support system simplification (fewer OPs, better coordination of OPs, unified methodical rules, a unified web application for filing applications for support and project monitoring, automatic reading of public register data, solely electronic communication, handover of applications for support and monitoring of projects through a single system of MS 2014+, timely information of the schedule of calls, binding deadlines for solvers and application evaluators and monitoring reports, drawing up of binding document templates, more frequent utilization of prevention

elements, see more in Kostalova & Tetreva (2013). The differences on the level of OP EIC compared to OP EI can be summarized as follows (Ministry of Industry and Trade CZ, 2015b; 2015c):

- a) an increase in allocated funds for business support,
- b) a higher rate of co-financing by project solvers, especially in large businesses,
- c) closer direction of the support and tighter interconnection with other OPs,
- d) a greater emphasis on the support of creation of knowledge economy,
- e) a greater emphasis on transfer of technologies, support of cooperation with institutions in the area of research and development and innovation institutions, and utilization of the outcomes of the applied industrial research and development in practice,
- f) support of networking, e.g. in the form of cluster support, i.e. creation of cooperation entities that will be in the future able to generate quality outputs and to get involved in research projects on the European level,
- g) closer links to strategic documents (e.g. Research and Innovation Strategy for Smart Specialisation, or strategic documents of a territorial dimension on the level of Integrated Territorial Investments),
- h) newly introduced support of high-speed access networks to the Internet and information and communication technologies,
- i) a greater emphasis on support of innovations, both those of a technical character and those of a non-technical character increasing effectiveness,
- j) a greater emphasis on SME support,
- k) a shift from building the infrastructure to its development and effective utilization,
- l) provision of support not only in the form of grants like in the previous PP, but also using financial tools in the form of interest-free returnable loans, credits, collaterals, etc.,
- m) a greater emphasis on proper drawing and fulfilment of provision conditions of support.

Some of these changes have not been used in practice, as only the first calls have been announced and the first applications are being collected within this OP. Provided that these changes will actually be put into practice within implementation and evaluation of projects, they could bring the support applicants and project solvers significant simplification of the processes of drawing up applications and project implementation.

The principal negative aspect of the commencing PP 2014 – 2020 is, for the time being, mainly the late approval of the partnership agreement, individual OPs, and announcement of first calls as late as one and a half years after the commencement of this PP. Therefore, there is a delay and the period for which it is possible to implement projects has been significantly shortened. Moreover, within OP EIC there is another delay caused by problems with the system MS 2014+ and further specification of the support conditions and methodical instructions (Ministry of Industry and Trade CZ, 2015a). In spite of the declared effort to simplify the methodical instructions, Ministry of Regional Development CZ and Ministry of Finance CZ have already put into effect

20 methodical instructions (Ministry of Regional Development CZ, 2015a, p. 10-11). Next methodical instructions are arising on the level of OP EIC. That is why there is a question whether the methodical area will actually be simplified and whether the necessary scope of methodical instructions the applicants and solvers have to be familiar with will be smaller than in the previous PP.

A large interest among applicants in the first calls within OP EIC has proved that setting of the conditions and the focus of the first calls match the actual needs of the applicants. The applicants showed the largest interest in the support in the calls within the programmes of Energy Savings, Realty, Information and Communication Technologies, and Shared Services, and Potential (Ministry of Industry and Trade CZ, 2015a). However, the question is how much the applicants were interested in the support in the area of cooperation with research institutions, where the support conditions set in the first calls were very complicated, and so it is possible to assume that they made it impossible for businesses and cooperating research institutions to apply for the support to a required extent.

Conclusion

The business support in PP 2014 – 2020 through OP EIC is, unlike the previous PP, more directed, its available allocation is larger, and it should support another shift in development of primarily SME, interconnection of the industry with research institutions, and fulfilment of the strategic objectives on the level of CZ. On the other hand, it offers a lower rate of co-financing, mainly for large enterprises. The declared changes are bringing, and they should bring, significant simplification of both the process of drawing up applications for support and project implementation itself. The question is whether this will actually happen in practice. The principal negative aspect connected with commencement of the PP is the excessively long preparatory stage, where the first calls started to appear as late as in the middle of 2015, and commencement of the first projects is not expected until 2016. Another delay is caused by the problems connected with specification of the methodical rules and the limited functionality of the system MS 2014+. There are a large number of potential applicants for support, which was proved by the interest in business support in the first wave of calls. The question is whether it would not be more suitable, for improved smoothness of drawing, to increase the declared allocation and thus to support more applicants already within first calls to prevent the fact that the support providers will contend with the same problems with unexhausted financial means at the end of the PP, as it was in the previous PP.

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IMPACT OF CHANGES IN SICKNESS INSURANCE FOR EMPLOYMENT IN THE DISTRICTS OF THE MORAVIAN-SILESIA REGION

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Keywords:

sickness insurance – employee – Moravian-Silesian Region – temporary incapacity for work

JEL classification: E24, H75, K32

Abstract:

Reform steps in the sphere of sickness insurance and sickness benefits, especially the fact that during the temporary incapacity for work the benefits were provided only from the 22nd day, influenced the decisions of employees about their incapacity for work significantly. The aim of this paper is to give an idea of sickness insurance, especially the impact of legal regulation changes in the system of sickness benefits on employees focusing on the district of the Moravian-Silesian Region. The impact of changes in sickness insurance will be presented by selected indicators of temporary incapacity for work using regression analysis to estimate the development of individual indicators in the following years based on knowledge of the development of indicators in the years 2000-2014.

Introduction

Sickness insurance is a part of social security and its task is to insure people participating in this system by the insurance benefits at law intended social events in order to reduce or completely eliminate the effects of these events.

The aim of this paper is to give an idea of sickness insurance, especially the impact of legal regulation changes in the system of sickness benefits on employees, who represent the largest share of socially insured persons, focusing on the Moravian-Silesian Region and its districts.

1. Methods

The impact of changes in sickness insurance will be presented by selected indicators of temporary incapacity for work using regression analysis to estimate the development of individual indicators in the following years based on knowledge of the development of indicators in the years 2000-2014. The research results will be captured using trend line which will display the possible development based on the data in the districts of the

Moravian-Silesian Region in the following years. Regression equation presents an approximation of the entered values where the coefficients are determined by the method of least squares, so that the sum of squared deviations of the original values from obtained model would be minimum. The R^2 index expresses the degree of reliability of the calculated estimate of the development.

2. Sickness insurance

As a part of the reform of public finances was approved the Act no. 187/2006 Coll., on Sickness Insurance, which became effective 1 January 2009 and provides a comprehensive adjustment of the sickness insurance for all persons who are participated in this insurance (Czech Republic, 2006). Compulsory participants of the sickness insurance are employees, who receive or could receive wages or salaries from employers, regardless of the type of employment relationship, as opposed to self-employed persons whose participation in sickness insurance is voluntary (Gregorová & Galvas, 2000). Table 1 shows the sickness insurance rates of social security as per payers.

TAB. 1: Sickness insurance rates

Payer	Rate
Employee	0.0 %
Employer	2.3 %
Self-employed person	2.3 %

Source: Czech Republic (1992) + author's processing

Participation in sickness insurance commences on the date of entry into employment and expires on the date of termination of employment (Ženíšková & Přib, 2011). The law laid down the conditions for participation in the sickness insurance system together with the subsequent claim for payment of benefits, and these include the performance of gainful employment on the territory of the Czech Republic, the minimum level of agreed income that has been determined to the amount CZK 2,500 since 2012, an assessable income in an amount higher than CZK 10,000 for employees under contracts for performed work (CPW) accounted (Novotný, 2013).

Among the most significant changes related to the new legal regulation are in particular payment of refund of wages or salary during the first 14 days, payment of sickness benefits only from the 15th calendar day of incapacity for work (or from 22nd day of TIW in 2011-2013) and sickness insurance for all insured persons (other than members of the armed forces and safety brigades, persons in custody and convicted persons) is already performed only by social security administrations district offices. Another significant change occurred 1 January 2012, ever since the amendment of the Labour

Code introduced a participation in sickness insurance for employees who practise their jobs under CPW at the agreed income higher than CZK 10,000 (Hulec, 2012).

3. Impact of changes to employment

The reason for the above-described changes in sickness insurance was too high income solidarity, insufficient control mechanisms and, unfortunately, widespread abuse of the system. Although the state of health of the population demonstrably improved in the Czech Republic, there was not any reduction of incapacity for work of employees. The main indicators of the development of temporary incapacity for work include:

- a) new notified cases of TIW per 100 sickness-insured persons (SIP),
- b) number of TIW days,
- c) average duration of one case of TIW (days).

3.1. Incapacity for work in the Moravian-Silesian Region

Development of the number of cases of incapacity for work in the Moravian-Silesian Region follows the national trend, including the decline in 2004 and further significant decline in 2009. The following table shows the development of the main indicators of temporary incapacity for work in the Moravian-Silesian Region from 2000 to 2014.

TAB. 2: Main indicators of TIW in the MS Region in 2000-2014

Indicator	2000	2001	2002	2003	2004
New notified cases of TIW per 100 SIP	87.50	87.67	82.05	85.20	61.63
Number of TIW (mil. days)	14.19	14.17	13.89	14.04	11.73
Average duration of TIW (days)	32.43	32.73	34.98	34.56	40.52
Indicator	2005	2006	2007	2008	2009
New notified cases of TIW per 100 SIP	70.62	62.50	63.88	52.14	33.84
Number of TIW (mil. days)	12.33	11.84	11.74	10.55	7.68
Average duration of TIW (days)	37.34	40.43	38.72	42.43	51.47
Indicator	2010	2011	2012	2013	2014
New notified cases of TIW per 100 SIP	31.97	31.74	28.28	31.47	30.36
Number of TIW (mil. days)	7.00	6.79	6.87	7.24	7.33
Average duration of TIW (days)	48.91	49.03	51.63	50.05	52.64

Source: MLSA (2014) + CSO (2015a) + author's processing

3.2. Incapacity for work in the districts of MS Region

A similar trend of indicators of temporary incapacity for work can be seen in individual districts of the Moravian-Silesian Region. A comparison of the development of newly notified cases of incapacity for work by researched regions shows the fastest decrease of this indicator in the Bruntál district, the slowest one in the Karviná district.

TAB. 3: New cases of TIW in the districts of MS Region

District	2006	2007	2008	2009	2010	2011	2012	2013
Bruntál	59.46	60.20	49.77	30.30	26.87	25.70	23.94	27.33
Frýdek - Místek	64.80	64.80	52.79	37.10	35.71	34.26	31.16	33.19
Karviná	69.35	71.76	59.79	38.45	36.86	36.44	35.40	37.67
Nový Jičín	63.28	65.86	55.33	32.61	28.74	31.06	27.31	31.39
Opava	59.53	58.30	46.46	30.86	29.28	27.90	26.23	29.68
Ostrava - město	60.00	62.19	50.25	32.62	31.11	31.24	26.23	29.77

Source: CSO (2015b) + author's processing

The number of days of incapacity for work over the period decreased on average by 766,735 days, while the largest decrease was detected in the Bruntál district, by 58.5 %. On the other hand, the lowest decrease of this indicator was in the Nový Jičín district, by 34.2 % in 2013 compared to the beginning of the researched period. The development of the number of calendar days of TIW in the districts is shown in the following table.

TAB. 4: Number of TIW (mil. days) in the districts of MS Region

District	2006	2007	2008	2009	2010	2011	2012	2013
Bruntál	0.79	0.74	0.62	0.42	0.36	0.32	0.32	0.33
Frýdek - Místek	1.98	1.90	1.72	1.39	1.20	1.15	1.18	1.22
Karviná	2.00	1.99	1.69	1.14	1.08	1.07	1.07	1.13
Nový Jičín	1.37	1.44	1.37	0.91	0.75	0.76	0.82	0.90
Opava	1.35	1.28	1.11	0.83	0.80	0.75	0.74	0.81
Ostrava - město	4.34	4.38	4.06	3.00	2.81	2.74	2.74	2.85

Source: CSO (2015b) + author's processing

The opposite trend can be observed in the indicator of the average length of one case of TIW, which on average increased by 22.7 %. The highest value (almost 59 days) of this indicator was detected in the Nový Jičín district in 2009. Table no. 5 shows the development of duration of TIW in the districts of Moravian-Silesian Region.

TAB. 5: Duration of TIW (days) in the districts of MS Region

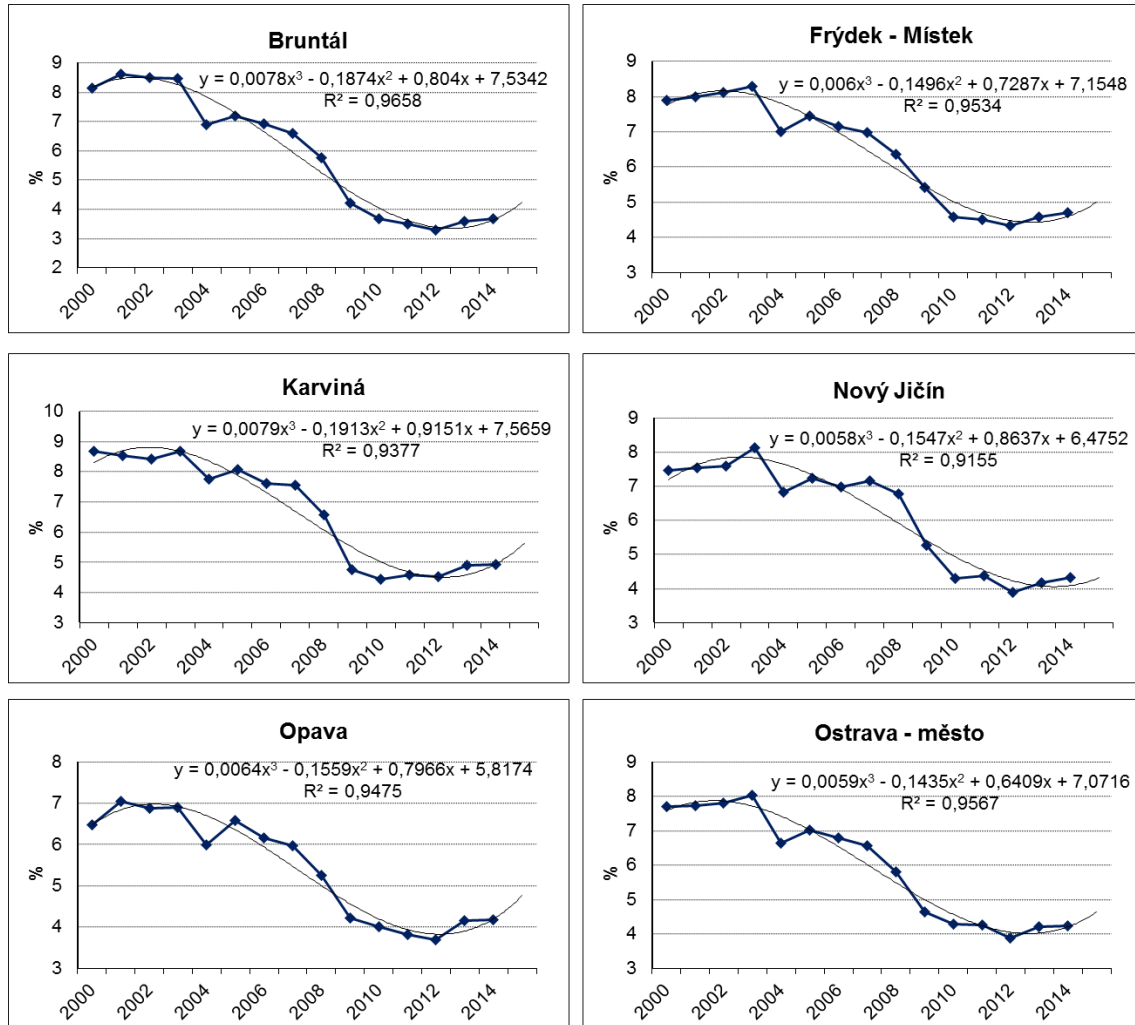
District	2006	2007	2008	2009	2010	2011	2012	2013
Bruntál	42.48	39.97	42.39	50.77	49.82	49.46	50.39	47.73
Frýdek - Místek	40.33	39.35	44.14	53.22	46.69	48.00	51.00	50.31
Karviná	40.08	38.40	40.20	45.28	44.07	45.98	46.68	47.38
Nový Jičín	40.25	39.58	44.82	58.90	54.55	51.46	52.10	48.53
Opava	37.71	37.33	41.32	50.01	50.00	50.06	51.54	51.03
Ostrava - město	41.28	38.55	42.26	51.90	50.24	49.78	54.19	51.60

Source: CSO (2015b) + author's processing

4. Results and discussion

One of the other indicators of temporary incapacity for work is the average percentage of TIW, which represent a ratio of the number of calendar days of TIW to the average number of sickness insured employees multiplied by the number of calendar days in the year. The value of the average percentage of incapacity for work has also been registered a decrease in the researched period.

FIG. 1: Average percentage of TIW in the districts of MS Region



Source: author's processing

The average percentage of TIW in the Bruntál district began to decline in 2004 (except in 2005) and the lowest value was reached in 2012. This meant that in 2005 there was more than 7 employees of 100 insured persons every day incapable of work in this district, in 2012 it was slightly below 3.5 persons. Despite a moderate increase of the indicator in the last two years it can be predicted on the basis of the development from

2000 to 2012 (with reliability of 96.6 %) that the number of incapacitated persons for work per a hundred insured persons will not significantly change in the following years.

Also in the Frýdek - Místek district there has registered a decrease of this indicator since 2005, while in 2012 it was less than 4.5 incapacitated persons for work of a hundred insured persons and in comparison with 2000 the difference amounted to almost 45 %. In the district there was a slight increase in the average percentage of TIW in recent years, but according to the results of the regression analysis this indicator should have an unchanged state.

In 2000 it was found the highest percentage of TIW in the Karviná district (8.7 %). Although there was a gradual decline to 4.5 % between 2010 and 2012, it was still the highest value of the indicator in each year in the researched regions. In the next two years we can see the increase of 0.4 percentage points.

In the first researched decade the number of incapacitated persons for work per 100 insured persons decreased from 7.5 persons (in 2000) to less than 4.5 persons in 2010 in the Nový Jičín district. The lowest number was reached in 2012, when each day less than 4 employees per hundred insured persons was incapacitated for work. In the last researched year the value of the average percentage of TIW returned to the level of 2010.

In the Opava district there was the lowest average percentage of TIW (6.5 %) at the beginning of the reporting period. The indicator was also decreased by nearly 43 % till 2012, but it was at least in comparison with other districts of MS Region. The results of the regression analysis shows (with reliability almost 95 %) that in the following years the number of incapacitated persons for work per 100 insured persons will be without significant changes despite the slight increase of the average percentage of TIW in the last two years.

The development of average percentage of TIW in Ostrava follows the trend in other districts where a significant decrease was in 2004 and the lowest values were consistently achieved in 2012.

Conclusion

Legislative changes in sickness insurance significantly influenced the behaviour of employees and their decision about temporary incapacity for work. In the Moravian-Silesian Region the number of cases of incapacity for work decreased by 64 % during the researched period. The number of days that employees are staying on TIW also decreased from 14 million days in 2000 to about 7.5 million days in 2013, thus approximately to half. The data shows that employees take the sick leave less, but they spend on it a longer time, because the average duration of one case of incapacity for work increased by 54 %.

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SUCCESS RATE OF MARKET SPECULATIONS BASED ON DETECTION OF HEAD AND SHOULDERS BOTTOM CHART PATTERN

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Keywords:

market speculations – success rate – head and shoulders chart pattern – buying signal – neckline

JEL classification: G17, C13, C58

Abstract:

Head and Shoulders Chart Pattern is one of the graphical formations signaling dramatic change of market behaviour. Its detection together with other chart patterns and technical indicators such as MACD is part of discipline known as technical analysis. In our contribution automatic detection algorithm based on nonlinear regression model is utilized. Main goal is evaluation of market speculations successfulness using detection of buying signal by confirmation of head and shoulders down pattern occurrence. Analyses of three different shares (Google Company, Telefonica Company and EUR/USD exchange rate) are performed. Results show great potential of selected business strategy, especially for short time period of holding of share (1 to 5 days).

Introduction

Head and Shoulders Chart Pattern (H&SP) also known as camel's hump is specific sequence of local maxima and minima usually comes after a long period of growth or fall and signals a fundamental change in the trend of stock market prices (Friesen, 2009; Lo, 2000; Neely, 1997; Wang, 2000). Shape of this chart pattern corresponds to left shoulder, head and right shoulder. An important characteristic of this formation is the neckline, straight line connecting the breakpoints between the head and shoulders. There are two types H&SP top and H&SP bottom in terms of head position.

The H&SP formation can be detected for different lengths of time window and for different levels of significance. It is mostly searched only on the basis of subjective visual detection in graph of security market prices; nevertheless the automatic algorithm for the detection of buying/selling signal using Head and Shoulders formation was presented in (Kotatkova Stranska, Navratil, Heckenbergerova, 2015). Detected H&SP top (bottom) is confirmed when the stock price drops below (rises above) neckline

support (resistance) by more than five percent. This breakpoint gives us the right signal to sell (buy) the shares. After chart pattern confirmation, the price is expected to move in the same direction to approximately the difference between head and neckline (Bender, 2012; Neely, 1997). In our contribution automatic detection algorithm based on nonlinear regression model is utilized.

Main goal of this paper is evaluation of market speculation successfulness using detection of buying signal by confirmation of head and shoulders down pattern occurrence. Strategy success will be described by percentage of profitable trades (success rate). Three analyses of different shares (Google Company, Telefonica Company and EUR/USD exchange rate) are performed. Results show great potential of selected business strategy for market speculations, especially for short time period of holding of share.

1. Head and Shoulders Chart Pattern

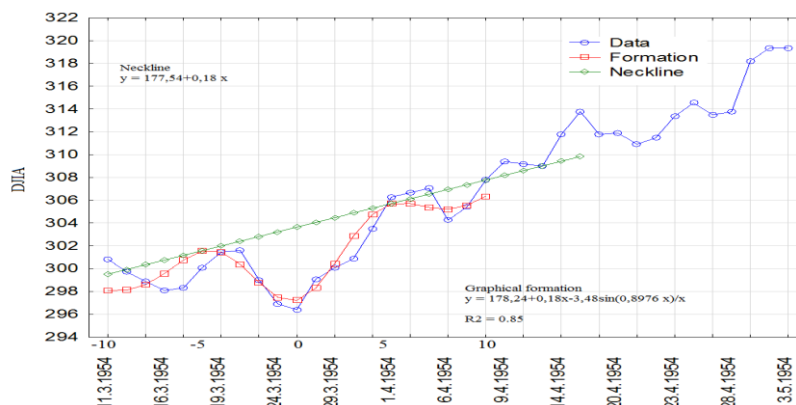
Head and Shoulders (H&SP) chart pattern, illustrated in figure FIG.1, can be described by nonlinear function:

$$f(x) = \beta_1 + \beta_2 x + \beta_3 \frac{\sin(\kappa x)}{x} \quad (1)$$

where β_1 , β_2 are parameters describing linear trend of chart pattern, β_3 parameter represents height of the head and κ parameter represent time duration H&SP. Most important characteristic, H&SP neckline, can be described by linear function:

$$p(x) = \beta_1 + \beta_2 x - 0,2172\kappa\beta_3. \quad (2)$$

FIG. 1: Detected H&SP bottom in Dow Jones Industrial Average time series in March 1954



Source: Kotatkova Stránska, Navratil, Heckenbergerova, 2015

Chart pattern β parameters are dependent on stock market prices and therefore they have to be estimated using least squares method for evaluation of linearized regression model parameters. This methodology is fully described in (Heckenbergerova, Kotatkova Stranska, Marek, 2015). Last parameter κ depends only on duration of expected

formation n and can be defined as $\kappa = \frac{6\pi}{n}$. H&SP is detected with predefined significance level given by coefficient of determination R^2 and confirmed by crossover of price and neckline. Study presented in (Kotatkova Stranska, Navratil, Heckenbergerova, 2015) shows performance of automatic H&SP detection algorithm on time series of Dow Jones Industrial Averages and proves that this algorithm can be used for market speculations.

Nevertheless buying signal given by confirmed H&SP bottom cannot be used itself as indicator of market speculation successfulness. In this contribution we decided to use simple success rate (*SSR*), defined as number of profiting trades divided by number of all trades (3), to show how market speculations based on H&SP bottom perform.

$$SSR = \frac{w}{n}, \quad (3)$$

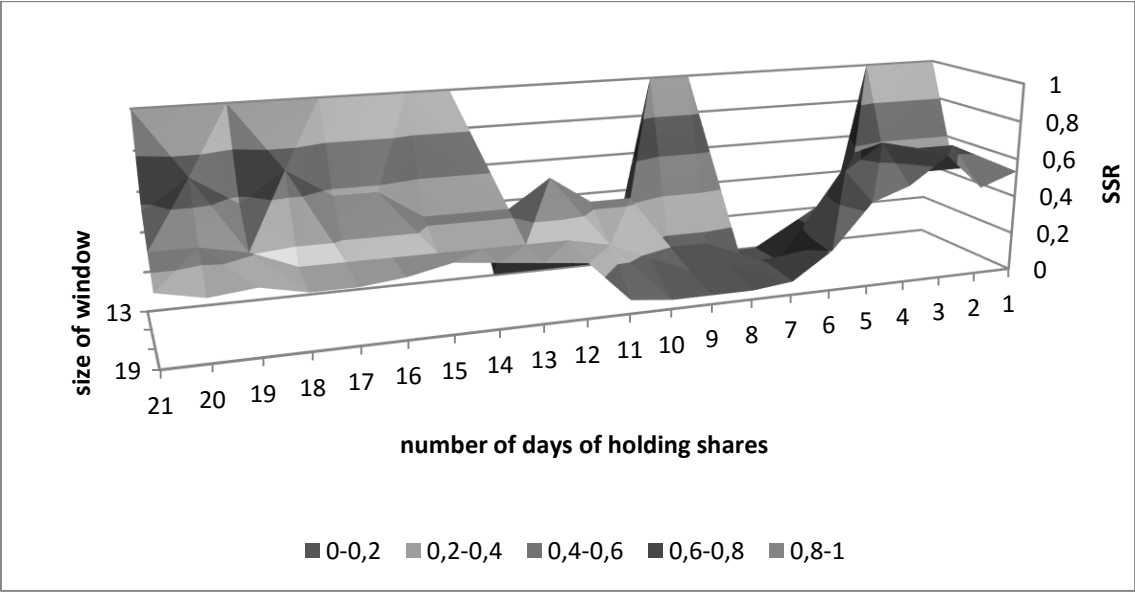
where w is number of profitable trades and n is number of all trades based on H&SP buying signal.

The *SSR* ranges from 0 (none profitable trade) to 1 (all trades were profitable). However this ratio is not very useful on its own because it does not take into account the monetary value won or lost in each trade. If the losing trades have dollar losses three-times as large as the dollar gains of the winning trades, the trader has a losing strategy. This is why we decided to supplement our validation results with percentage profit of each trade.

2. Results of H&SP analyses according to success rate

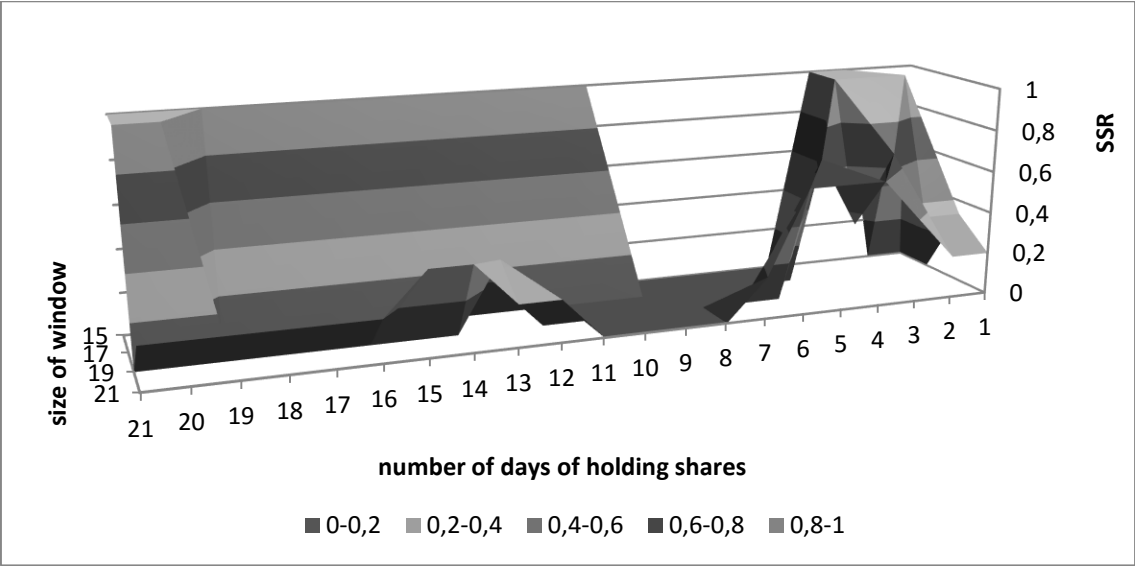
Analysis of successfulness of business strategy based on detection of buying signal from H&SP bottom was realized in time period 01.01.2006 – 30.9.2014 on these selected shares: Google Company, Telefonica Company and EUR/USD exchange rate from Forex. Area graphs FIG.2, FIG.3 and FIG.4 illustrate dependence of simple success rate, length of H&SP and length of shares holding. During analysed time period many chart patterns are detected giving us number of all trades. For each detected H&SP bottom graphical formation selling signal ranges from 1 to 21 days and number of profitable trades is marked.

FIG. 2: Evaluation of simple success rate for shares of Google Company



Source: own source

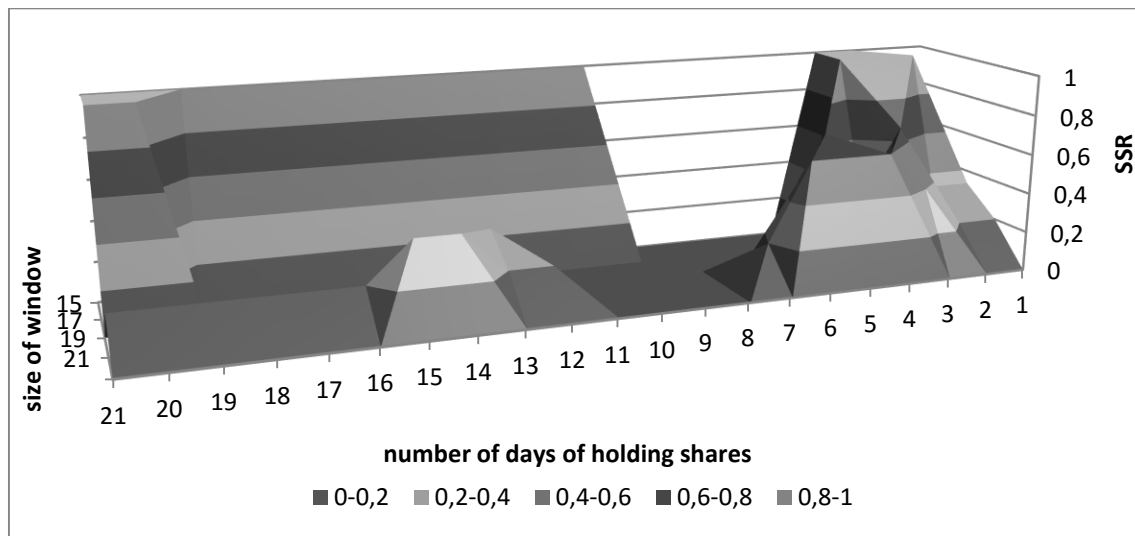
FIG. 3: Evaluation of simple success rate for shares of Telefonica Company



Source: own source

It can be easily seen that SSR has generally two local extremes. First one for short time period of holding of share (1 to 5 days) is followed by rapid fall of prices resulting in $SSR = 0$. After 10 days of holding, share prices start to slowly grow again to second local maximum (around 14th holding day). This behaviour should strongly influence market speculation strategies. We can recommend using buying signal from H&SP only for short time speculations. Holding of share for more than 5 days in majority cases ends with profitless trade.

FIG. 4: Evaluation of simple success rate for EUR/USD exchange rate



Source: own source

3. Discussion

For validation of proposed market speculation strategy we used recent data of Google and Telefonica shares from 1.1.2015 to 30.9.2015. Only two H&SP bottom were detected and confirmed in each of dataset giving us four buying signals. This confirms that occurrence of this formation is quite rare. Selling date was determined based on local maxima of simple success rate. Table TAB 1 summarizes results of our validation study. It shows that all four trades were profitable, time period of holding ranges from 1 to 3 days and percentage profit (related to buying price) is 1.43%, 2.08%, 2.9% and 4.82% respectively.

TAB. 1: Market speculation strategy validation for companies Telefonica and Google (1.1.2015 - 30.9.2015)

	Date	Number of days of holding shares	Profit *	Relative a profit [in %]
Telefonica	18.6.2015	3	0,62	4,82
	19.6.2015	2	0,38	2,90
Google	3.9.2015	1	12,49	2,08
	4.9.2015	1	8,73	1,43

*notes: Telefonica is in EUR, Google is in USD

Source: own source

Conclusions

We can conclude that market speculation strategy based on detection of Head and Shoulders Chart Pattern – bottom is very successful with no profitless trade in validation time period. Nevertheless four trades is small number to prove some global statement, therefore deeper analysis will be part of future research.

We would like to compare H&SP detection with other technical indicators as well and enlarge our simulations with other graphical formations.

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DU PONT ANALYSIS OF SELECTED AUTOMOBILE COMPANIES

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JEL Classification: G31, G32.

Abstract:

Innovative activity of the company is a key factor of competitiveness. This paper deals with the realization undemanding, but in terms of presentation of an effective methodology for calculating the parameters of intensity and extensity. The principle of this analysis is so general that it can be used also to improve interpretation of DuPont model. The methodology is used in the firms of automotive industry BMW, Renault, and Škoda auto.

Introduction

The paper deals with extending company financial analysis to include the development intensity analysis and a methodical supplement of DuPont model. The methodology used in this paper is derived from the principles of generalized procedures, originally derived for the national economy level (Solow, R., 1957). While extensive development is based on a mere extension of the scope of production using otherwise identical procedures, intensive development reflects the innovative efforts of all kinds. Therefore, it is advisable to extend the financial analysis to include the measurement of the degree of intensity of development, which will reveal how the various intensive development factors eventually contribute to the given development. It turned out that to do that, the actual profit development is insufficient, because it can also be achieved solely on an extensive basis (McConughy, D., 1998). The paper extends the financial analysis of a company to include the methodology to identify extensity and intensity, which is applicable to all types of company developments. Given that this methodology is applicable to the dynamization of any analysis having multiplicative links, it will also be used (in an appropriate modification) to the commonly used DuPont model. After introducing the theoretical background and the actual methodology of the development intensity analysis, we will also derive the manner to express the effect that each of the components affecting the development of company profitability has. The results will be applied to the analysis of the development of BMW, Škoda and Renault for the period 2000–2014. In conclusion, we will summarize the substantive and methodological findings.

1. Theoretical background

To analyse quality development at company level, it is sufficient to have time series of two of the three basic indicators, i.e. S – total revenue (sales), C – total costs and P – profit, calculated as the difference between the first two.

$$P = S - C \quad (1)$$

The quotient of these indicators defines effectiveness (Ef). Effectiveness is calculated by dividing these two variables.

$$Ef = S / C \quad (2)$$

This expression can also be modified to the form of a special two-factor production function:

$$S = Ef \cdot C \quad (3)$$

Expression (3) allows us to derive the dynamic production function that tells us the share of the cost index $I(C)$ and the effectiveness index $I(Ef)$ in the total sales index $I(S)$.

$$I(S) = I(Ef) \cdot I(C) \quad (4)$$

To calculate the shares of the influence of intensive and extensive development factors on the development of total sales, it is necessary to first calculate the logarithm of expression (4).

$$\ln I(S) = \ln I(Ef) + \ln I(C) \quad (5)$$

Expression (5) allows the derivation of the dynamic parameters of intensity and extensity, which express not only the share the effect of intensive and extensive factors, but also whether a given factor affects the increase of the product (if positive) or its decrease (if negative) (Mihola, J., Kotěšovcová J., 2013).

The dynamic parameter of intensity i is given as:

$$i = \frac{\ln I(Ef)}{|\ln I(Ef)| + |\ln I(C)|} \quad (6)$$

The dynamic parameter of intensity expresses how a change in effectiveness affects the change of sales.

The dynamic parameter of extensity e is given as:

$$e = \frac{\ln I(C)}{|\ln I(Ef)| + |\ln I(C)|} \quad (7)$$

The dynamic parameter of extensity (e) additionally expresses how much the extensive factor affects the resulting development of sales.

Considering a purely intensive development, the above expressions (6) and (7) generate the values of dynamic parameters $i = 1$ and $e = 0$. For a purely extensive development, the values generated are $i = 0$ and $e = 1$. In all other cases, this pair of dynamic parameters also provides clear information on the type of development for a partial or

overall period. The advantage of dynamic parameters of intensity and extensity is that they have no spatial limitations and allow the comparison of different companies at different times (Mihola, J., Kotěšovcová J., 2015).

2. Dynamization of DuPont analysis

The analysis aims to analyse the financial situation of a company, revealing its strengths and weaknesses, which may help to ensure its sufficient performance. Financial analysis is primarily based on accounting and financial data, depending on whether the analysis is internal or external (Almazari, A., 2012). Indicators of profitability, liquidity, turnover and activity constitute the core of the financial analysis. The basic financial analysis techniques are percentage analysis and ratio analysis. However, these tools are unable to include certain aspects that are desirable to be reflected in internal financial analysis; therefore, it is extended to include e.g. Altman analysis, DuPont analysis, analysis of working capital, sales, costs, etc. (Little, P., 2009).

The DuPont analysis is a term that refers to the decomposition of *ROE*. The DuPont diagram is a pyramid structure of ratio indicators. The DuPont analysis monitors the level and dynamics of return on equity ($ROE = P/E$), which can be broken down into three components: return on sales (P/S), total assets turnover (S/TA), debts TA/E . To determine how the development of the indicators P/S (*ROS*), S/TA and TA/E affects the development of $ROE = P/E$, the following equation is used:

$$ROE = P/E = P/S \cdot S/TA \cdot TA/E \quad (8)$$

According to this equation, we can modify the expression for the dynamic parameter concerning the expressions for:

expressing the effect of the development of P/S on ROE :

$$v\left(\frac{P}{S}\right) = \frac{\ln\left(\frac{P}{S}\right)}{|\ln\left(\frac{P}{S}\right)| + |\ln\left(\frac{S}{TA}\right)| + |\ln\left(\frac{TA}{E}\right)|} \quad (9)$$

expressing the effect of the development of S/TA on ROE :

$$v\left(\frac{S}{TA}\right) = \frac{\ln\left(\frac{S}{TA}\right)}{|\ln\left(\frac{P}{S}\right)| + |\ln\left(\frac{S}{TA}\right)| + |\ln\left(\frac{TA}{E}\right)|} \quad (10)$$

expressing the effect of the development of TA/E on ROE :

$$v\left(\frac{TA}{E}\right) = \frac{\ln\left(\frac{TA}{E}\right)}{|\ln\left(\frac{P}{S}\right)| + |\ln\left(\frac{S}{TA}\right)| + |\ln\left(\frac{TA}{E}\right)|} \quad (11)$$

The sum of the absolute values of the three effects is 100%

3. Analysis of intensity and extensity and the Du Pont analysis of BMW Group

For the application of intensive and extensive factors of the development of a company and for DuPont analysis, we have chosen the automotive industry. First, we will analyse

the example of one company. We have chosen BMW, which was founded in 1916 by the merger of two German companies and renamed one year later to Bayerische Motoren Werke (Bavarian Motor Factories). BMW started producing cars thanks to the Versailles Treaty which, in the aftermath of World War I., prohibited Germany to produce aircraft engines, which BMW specialized in. (Bmwpower). In 1994, BMW bought the Rover Group, which includes the brands Rover, MG and Land Rover.

The data for the economic analysis were drawn from the available Annual Reports for the period 2000 to 2014. All baseline and calculated analytical indicators are shown in Table 1. The baseline values for the analysis of intensity and extensity are profits (P) and sales (S), provided in EUR million. Costs (C) are calculated as the difference between sales and profits and are also provided in EUR million.

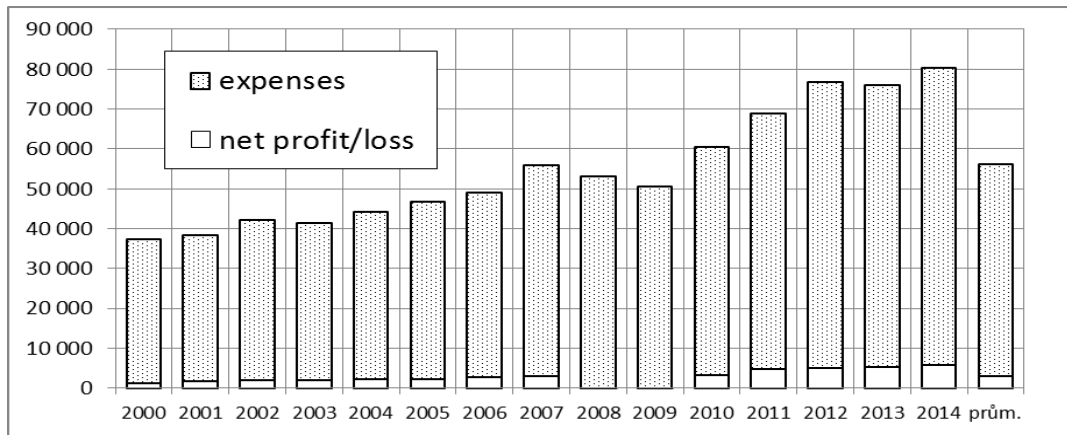
TAB. 1: Intensity and extensity of the development of BMW Group

	01/00	02/01	03/02	04/03	05/04	06/05	07/06	08/07	09/08	10/09	11/10	12/11	13/12	14/13	14/00	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
net profit/loss	1 209	1 866	2 020	1947	2222	2239	2874	3134	330	210	3234	4907	5122	5329	5817	2947
revenues \$	37 226	38 463	42 282	41525	44335	46656	48999	56018	53197	50681	60477	68821	76848	76059	80401	56054
expenses	36 017	36 597	40 262	39 578	42 113	44 417	46 125	52 884	52 867	50 471	57 243	63 914	71 726	70 730	74 584	53108
Ef	1,034	1,051	1,050	1,049	1,053	1,050	1,062	1,059	1,006	1,004	1,056	1,077	1,071	1,075	1,078	1,055
G(P)		54%	8%	-4%	14%	1%	28%	9%	-89%	-36%	1440%	52%	4%	4%	9%	12%
G(S)		3%	10%	-2%	7%	5%	5%	14%	-5%	-5%	19%	14%	12%	-1%	6%	6%
G(C)		2%	10%	-2%	6%	5%	4%	15%	0%	-5%	13%	12%	12%	-1%	5%	5%
G(Ef)		2%	0%	0%	0%	0%	1%	0%	-5%	0%	5%	2%	0%	0%	0%	0%
i		51%	-1%	-5%	5%	-4%	23%	-2%	-99%	-4%	29%	15%	-4%	21%	4%	5%
e		49%	99%	-95%	95%	96%	77%	98%	-1%	-96%	71%	85%	96%	-79%	96%	95%

Source: Company's Annual Reports and the authors' own calculations

If we compare the first and last year of the reference period 2000–2014, the following can be observed:

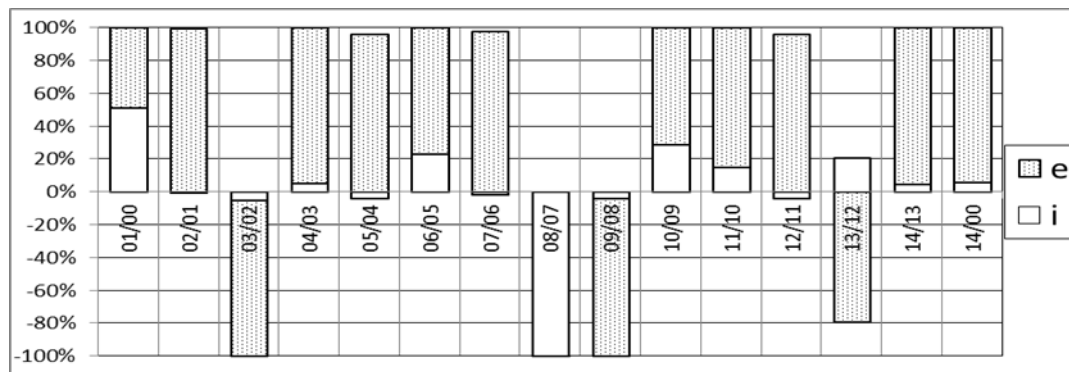
- Sales grew by 116%, up 7.73% year-on-year
- Net profit grew by 381%, up 18.74% year-on-year
- Costs grew by 107%, up 7.14% year-on-year

FIG. 1: Year-on-year development of costs, profits and sales in BMW

Source: Table 1, authors' own research

In the fifteen-year reference period, sales have an upward trend with a slight decline in 2003 and a significant slump in 2008 and 2009 and the subsequent growth with a slight decrease in 2013. These decreases in 2003, 2008 and 2009 translate into lower profits and effectiveness. Only 2013 shows an atypical situation where the sales decrease by 1%, delivering profit increase of 4%. The growth rate in this period changes to negative. The same trend can be seen in sales. Profits display a similar trend, with the exception of 2008 and 2009 with a very steep slump and profits at about 10% compared to 2007. 2013 is different from the previous years in that despite a slight decline in sales, profit grew by 4%.

Increase in sales $G(S)$ shows negative values in 2003, 2008, 2009 and 2013. According to the Annual Report, in 2003 a significant share of expenditure was spent on internal and external development of the production network, and especially the investment project of a new factory in Leipzig, Germany worth 1.3 trillion euros was launched. 2008 and 2009 are the years of the global economic crisis that affected the entire world. 2013 brought a slump in the entire automotive industry. The effectiveness is fluctuating, showing an overall increase of 4%, i.e. an average annual growth of 0.3%.

FIG. 2: Year-on-year developments in intensity and extensity in BMW

Source: Table 1, authors' own research

The dynamic parameters of intensity and extensity are shown in Figure 2. The trend in the reporting period appears to be mostly extensive. The average values for the entire period show intensive factors at 5% and extensive factors at 95%. The exception is 2001, when intensity reached 51%, and 2008, when intensity was negative at -99%. In 2001, sales and costs grew by about the same rate (2% and 3%, respectively), but profits increased by 54%, with effectiveness consequently increasing as well. This caused intensive growth of 51%. In 2002, the increase in effectiveness was zero, because profit growth $G(P)$ of 8% was accompanied by growth in sales $G(S)$ of 10% and a growth in costs $G(C)$ of also 10%. This is clearly a purely intensive development, leading to an increase in costs and sales, without at least the same increase in net profits. Increase in profits and effectiveness is reported in 2006, 2010 and 2013, with also the intensive development reaching 21–29%. In 2006, the sales grew by 5%, while the growth rate of costs by only 4%. This one-percent difference and increase in the growth rate of profits of 28% resulted in a positive intensive development of 23%. 2010 is different in the reference period in that this year saw a sharp increase in profits of 1440%, which was due to a deep slump in the previous years 2008 and 2009, when sales fell to 7–10% of average sales. Despite such high growth of profit and the pressure from the previous crisis years, intensive development in 2010 stood only at 29%. In the crisis year of 2008, sales growth decreased by -5%, costs remained unchanged, but profit growth declined by -89%, with effectiveness also decreasing by -5%. These factors resulted in a negative intensive development of -99% and negative extensive development of -1%.

The dynamic parameters are dependent on the growth rate of sales $G(S)$, the growth rate of costs $G(C)$, growth of profits $G(P)$, on their ratios and trends.

If the growth rate of sales and costs has the same or very similar trends, extensity increases.

If the growth rate of sales has a higher value than the growth rate of costs, and at the same time the growth rate of profits is higher than the growth rate of sales, intensity factors increase.

The higher growth rate of profits than the growth rate of sales, the higher the intensive factors.

4. DuPont analysis

The Du Pont analysis [2] concerns a breakdown of the ROE indicator to $ROS = P/S$, total assets turnover S/TA , and the quotient of total assets to equity, i.e. the financial leverage factor TA/E . [1] In addition, the table shows the growth rates of these indicators. Table 2, which takes the baseline values from Table 1, provides further analysis data and, in the last three lines, also the effect of the 3 monitored indicators on ROE as the top indicator. The sum of their absolute values in a given year is always 100%.

TAB. 2: DuPont analysis of the development of BMW

		01/00	02/01	03/02	04/03	05/04	06/05	07/06	08/07	09/08	10/09	11/10	12/11	13/12	14/13	14/00
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
P	1209	1866	2020	1947	2222	2239	2874	3134	330	210	3234	4907	5122	5329	5817	2831
S	37226	38463	42282	41525	44335	46656	48999	56018	53197	50681	60477	68821	76848	76059	80401	54799
TA	49340	51259	55511	61475	67415	74566	79057	88997	101086	101953	108867	123429	131850	138377	154803	92532
E	9432	10770	13871	16150	17517	16973	19130	21744	20273	19915	23100	27103	30402	35600	37437	21294
ROE=P/E	0,13	0,17	0,15	0,12	0,13	0,13	0,15	0,14	0,02	0,01	0,14	0,18	0,17	0,15	0,16	0,13
ROS=P/S	0,03	0,05	0,05	0,05	0,05	0,05	0,06	0,06	0,01	0,00	0,05	0,07	0,07	0,07	0,07	0,05
S/TA	0,75	0,75	0,76	0,68	0,66	0,63	0,62	0,63	0,53	0,50	0,56	0,56	0,58	0,55	0,52	0,59
TA/E	5,23	4,76	4,00	3,81	3,85	4,39	4,13	4,09	4,99	5,12	4,71	4,55	4,34	3,89	4,14	4,35
G(ROE)		49%	-2%	-2%	7%	-4%	22%	-5%	-89%	-33%	1191%	33%	-7%	5%	3%	-29%
G(P/S)		49%	-2%	-2%	7%	-4%	22%	-5%	-89%	-33%	1191%	33%	-7%	5%	3%	-29%
G(S/TA)		-1%	2%	-11%	-3%	-5%	-1%	2%	-16%	-6%	12%	0%	5%	-6%	-6%	14%
G(TA/E)		-9%	-16%	-5%	1%	14%	-6%	-1%	22%	3%	-8%	-3%	-5%	-10%	6%	5%
vliv(P/S)		80%	-8%	-10%	64%	-19%	74%	-65%	-85%	-83%	93%	88%	-42%	23%	21%	57%
vliv(S/TA)		-1%	7%	-64%	-26%	-22%	-3%	21%	-7%	-12%	4%	1%	28%	-27%	-38%	-26%
vliv(TA/E)		-19%	-85%	-27%	11%	59%	-23%	-13%	8%	5%	-3%	-11%	-30%	-50%	41%	-17%

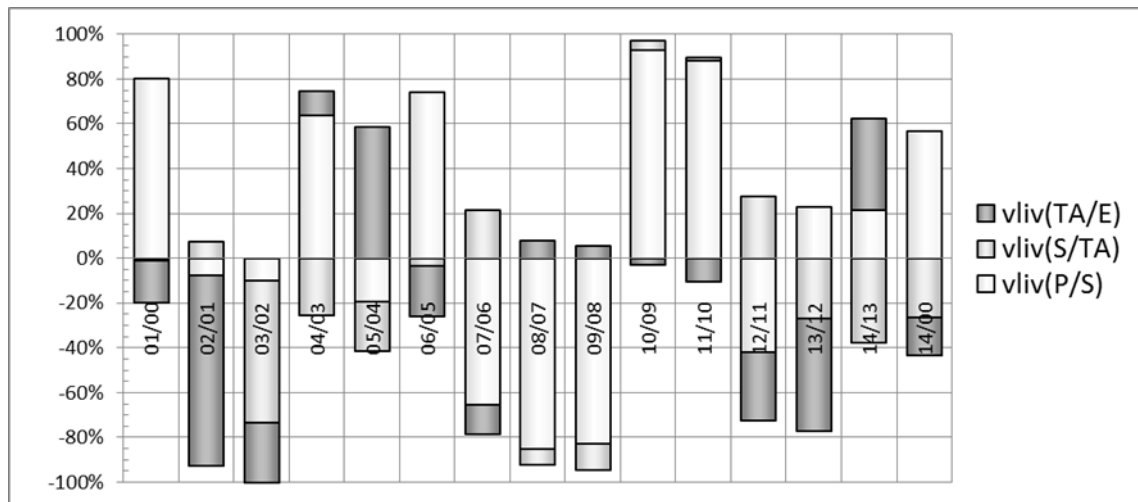
Source: Table 1, authors' own calculations

The development of ROE (P/E) has a slightly fluctuating tendency of 13–18% with a slight tendency to grow, interrupted by a decrease in 2003, a steep decline to 2% and 1% in 2008 and 2009, respectively, as a result of the global economic crisis, and a decline in 2013. The highest value of 18% was achieved in 2011. When comparing the first and last year of the reference period, the value increases by 23%. The average value is 13%.

ROS (P/S) also showed an increase from 3% to 7%, i.e. an increase of 133%. ROS is stable or increasing, with the exception of 2008 and 2009. The indicator S/TA has a decreasing trend from 0.75 to 0.52, a decrease of 31%; the average is 5%. The

financial leverage indicator TA/E represents the distribution of debt and equity. It declined continuously from 5.23 to 4.14 in 2014. The average value for the reference period was 4.35 and shows equity of 22.98% and debt of 77.02% of the total liabilities.

FIG. 3: Effect of key Du Pont analysis indicators in BMW



Source: Table 2

The development of the effect of individual components on the development of ROE is shown in Figure 3. The last column shows which indicators had effect on the decrease in ROE of -29% over the reference period from 0.17 in 2001 to 0.16 in 2014. 26% of the decrease was due to the effect of total assets turnover (S/TA), 17% was due to the effect of financial leverage factor (TA/E). 57% of the growth was due to the return on sales (P/S).

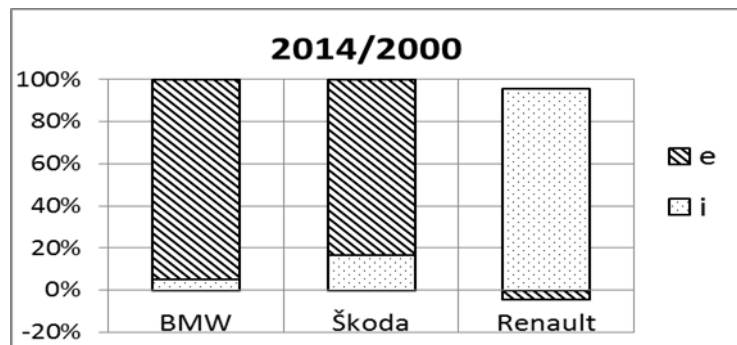
5. Comparison of the values of intensity and extensity of BMW, Renault and Škoda

To mutually compare the quality of the development of selected companies, we will use average data of intensity (i), extensity (e), the growth rate of effectiveness $G(Ef)$ and growth rate of total costs $G(C)$ for the entire reference period 2000–2014. All data are shown in the table below.

TAB. 3: Average values of intensity and extensity for the period 2000–2014

	BMW	Škoda	Renault
i	5%	17%	96%
e	95%	83%	-4%
G(Ef)	0.3%	0.9%	0.2%
G(C)	5.3%	4.7%	0.0%

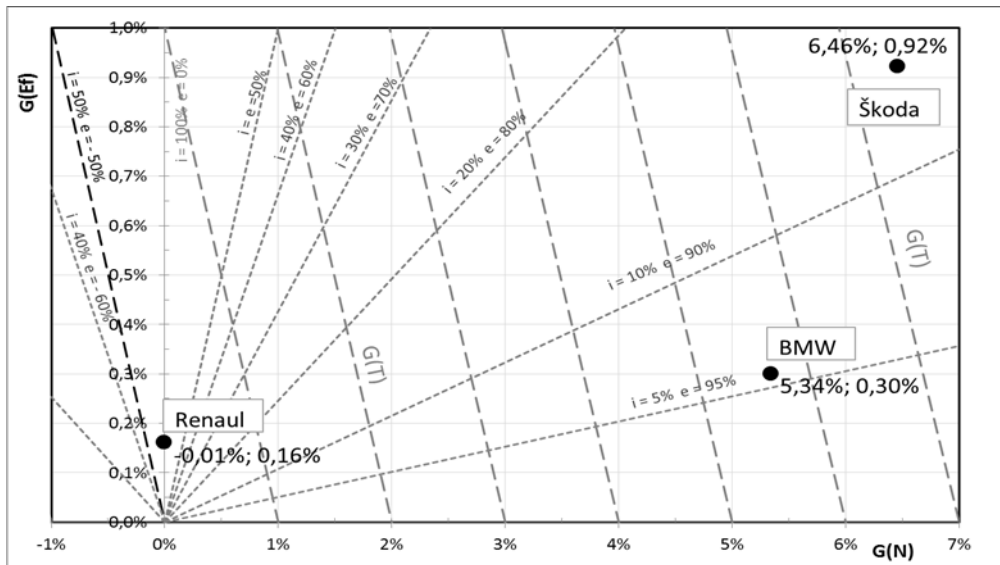
Source: Annual Reports of the selected companies, the authors' own calculations

FIG. 4: Average intensity and extensity

Source: Table 3

The graph in Figure 4, which shows the share values of intensity and extensity for the entire reference period, clearly shows that the analysed automakers are different. BMW and Škoda show a predominantly extensive development. Conversely, Renault exhibits almost purely intensive development, but with a very low product growth rate. The growth rate of effectiveness was annually only 0.16% on average, the rate of cost growth was decreasing by -0.01% and the growth rate of sales was increasing by 0.15%. On the other hand, BMW appears to be purely extensive, with an average extensity of 95% and intensity of 5%. The growth rate of costs $G(C)$ and growth rate of sales $G(S)$ show very similar values (5.34% and 5.65%, respectively). For the third company under examination, these values differ; $G(C)$ is 6.46% and $G(S)$ is 7.44%. Thus, sales are growing faster than costs, because Škoda has a higher intensity (17%) than BMW. However, the dominant development here is also extensive (87%) and intensive (13%). Predominantly intensive development is characteristic for most automakers. Although the influence of the industry and competitors create a pressure to innovate and come to market with new models, all of this was offset by the global economic crisis.

FIG. 5: A comprehensive comparison of the development of 3 automakers for the period 2000–2014



Source: authors' own calculations

5.1. Evaluation of BMW, Škoda, Renault

Figure 5 shows all the analysed companies. In terms of the growth rate of sales, Škoda placed first with 7.44% at the intensity of 13%, followed by BMW with 5.65% at the intensity of 5%. In both cases, the development is almost purely extensive. In terms of the effectiveness of the companies under examination, Škoda placed first with 0.92%, followed by BMW with 0.30% and Renault with 0.16%. Renault also achieved very low product growth of 0.15%, which is compensated by the moderate decline in costs, so this growth is due to effectiveness growth. This means that Renault achieved this development by almost purely intensive means at the intensity of 96%; however, this cannot be seen as very significant due to negligible growth rates of product, effectiveness and overall costs.

Conclusion

The paper uses two new methods to examine the development of automotive companies. The method examines intensive and extensive parameters of development of companies. This method was first developed at the national economy level; the new approach to this method also allows its use at company level. It turns out that despite the small informational and computational complexity, with the input values only being the sales and costs of the company, significant analytical conclusions can be made. The proposed parameters offer an advantage in that they can be compared in time, which also are a suitable tool for comparison. Intensity (*i*) describes the effect intensive (qualitative) factors manifested by a change in effectiveness had on the resulting trends

in sales. Extensivity (e) describes the effect of extensive development (costs) on trends in sales. As a result, company management and other entities know whether the company is developing intensively or extensively, with very low requirements on the input variables. The clear advantage of dynamic parameters of intensity and extensivity is that they have no spatial limitations and allow the comparison of different companies at different times.

The second method extends the DuPont analysis of *ROE* decomposition to include the analysis of the effect of changes of various components of this indicator (profit margin, total assets turnover and leverage factor) to the overall change in *ROE*. This extension allows us to quantify the share of the rate of growth or decline in three partial indicators so that the overall effect is 100%. Here, the indicators also reveal in more detail what is causing the changes in *ROE* over time and give information about the factors which the company should focused on if it wants to achieve the best possible values of this indicator.

Both methods were applied to analyse the quality of development in the automotive industry, first to BMW and subsequently in comparison with Renault and Škoda in the period 2000 to 2014. In the reference period, BMW and Škoda Auto showed mostly extensive development, while Renault's development was mostly intensive. When applying DuPont indicator, it showed that 26% of the *ROE* decrease of -29% over the reference period was due to total asset turnover (S/TA), and also 17% of the decrease was due to the financial leverage (TA/E). 57% of the growth was due to the return on sales (P/S). We can conclude that the biggest effect on the change in *ROE* was due to return on sales (P/S).

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POSTGRADUATE MERIT-BASED PENSION SYSTEM EXTENSION AND MACROECONOMIC FACTORS OF REGIONAL DEVELOPMENT

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JEL classification: H00, J26, H55

Abstract:

This paper deals with sustainability, equivalency and parametric settings of pension systems in broader context. It focuses on the prolonging of productive employment possibilities and the model approach to financial flows at older age improving current mechanisms. Attention is paid also to the social and regional dimension of the analysed phenomenon and intergenerational relationships. The results include suggestions for extension of current pension system enhancing the purchasing power of the elderly who remain active and its evaluation in macroeconomic and regional context.

Introduction

Pension system is a highly important entity in context of the expectations of current population, which contains the demand for secure and rich older age experience in both financial and lifestyle sense. If we try to solve the issues of the pension system – its social functions, sustainability, motivations, but also de-motivations that are with its activities connected – it is necessary to answer the research questions: What is the substance of pension system insurance? Against what risks insures or, what is an insured event in this system? Answers may vary and accordingly different are designed concepts in public finance (Rosen & Gayer, 2014). In our approach, we assume that the insured event is when a person due to the process of increasing age loses (for various reasons) the ability to raise funds to protect the dignity of their lives through productive (occupational) activities. It then follows that the main type of solidarity involved is the one between those who want and can be productively employed at an advanced age (for which the insured event occurred) and those who cannot or do not want to (because they are already exhausted in the field of employment) to raise funds through productive activities.

From this it is clear, then, that the stronger motivation we put into the system (and for all concerned) to extend the horizon and the zenith of productive employment, i.e. the

more meritocratic system; it will be more cohesive in terms of the main type of solidarity. We mean solidarity between those who have sufficient income fully deserving of generating enough funds for the main type of insurance, and those who do not, need to be addressed outside of the insurance system and other sources, e.g. in the form of single benefits paid after fulfilling certain conditions.

1. Methods, literature overview

So far there have been in the practice of social policy pursued rather mechanistic tendency to prolong the statutory retirement age (Krebs, 2015), which are in conflict with intergenerational fairness and social sustainability of the pension system. Of interest to this paper are the approaches that will allow to further increase or even slightly reduce the statutory retirement age for the current incentives for productive use of those that are still capable (Mühlpachr, 2004). It turns out that that issue has important macroeconomic context and aspects of development of regions. Productive services (Valenčík, 2014) that are directly focused on the extension of term productive use are significantly regionally bound. In addition, in a certain sense, it is true that, especially in the case of higher age pension schemes and purchasing power of the elderly are closely related to regional development (Hujo, 2014). It is not just about the various forms of postgraduate education and health care, but also e.g. spa service and a range of advanced social services. Tackling extension of the term of productive use and thus stimulate effective demand (Čadil, 2010), which is linked to the consumption of health, education and other nationally and regionally specific services, which are highly useful to maintain and renew individual human capabilities.

The main aim of our paper is to show that there is a real possibility now, without the risks and socially uncontroversial way to supplement the current system of pension insurance (Vostatek, 2015) with postgraduate merit-based extension. Which could bring the necessary motivation to extend the period of productive employment, not only for himself but also for other entities providing educational, health, but also for example the spa services they can to extend the horizon of man's productive contribution where possible. Such schemes of health services and their financing are desirable to organize on the principle of the widest possible spectrum of participants, i.e. using techniques of non-profit management, social entrepreneurship (Dohnalová & Průša, 2011), or simply try to cover the costs of health care provided through multiple sources of financing. This avoids obstacles with different initial state of health of participants, which we can expect at older age, and is not the result of individual choice (Arrow, 1963).

Additionally there could be emphasized benefits of fully merit-based system (e.g. in terms of its function in the pension system including its solidarity aspects) that allow verifying its feasibility, identifying requirements and potential problems that would bring, and then subsequently prepare a fundamental reform of the pension system. We will proceed as follows:

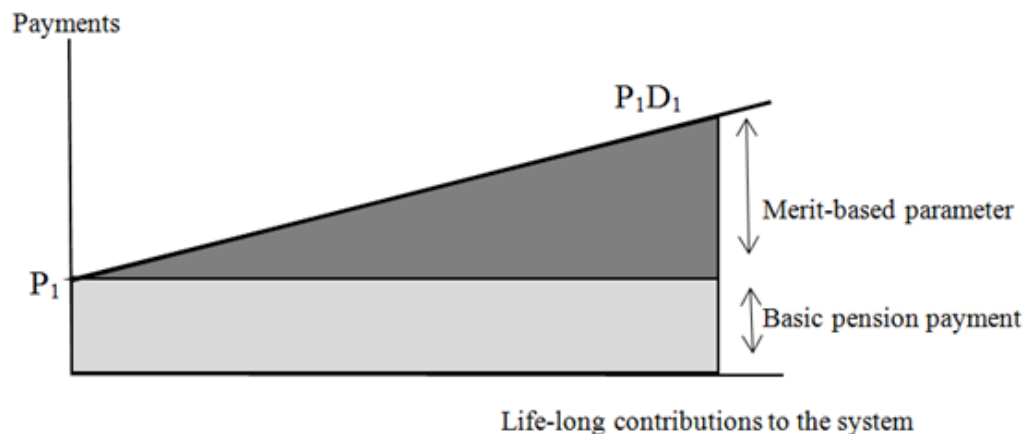
- a) Briefly introduce the basic model that is fully closed and fully merit-based pension system.
- b) We will show some of the contexts and conditions under which it can fully merit-based a fully enclosed system work.
- c) Introduce a fully merit-based model extension of the pension system, which can operate based on the current pension system, and discuss its positive impact on the macroeconomic aspects of regional development.

As for the definitions, under the pension scheme fully merit-based we understand at first approximation, one in which - to put it simply - everyone gets exactly as much has paid into the system while respecting the role of time in the changing value of money. Under the fully closed pension scheme we understand the one in which the system no money is taken out nor are fed into it. All the resources that enter the system are taken into account in the context of full merit payments or financing of a standard basic benefit. Under the pension scheme postgraduate (flexible) extension, we understand the system of pensions for those who remain productively employed even after they are legally – by statutory retirement age – entitled to retire.

2. Results

We start from the following model of fully merit and completely closed pension system:

FIG. 1: Model of a fully merit-based and fully closed pay-as-you-go pension system single basic pension payment



Source: own elaboration

The horizontal axis shows a volume of life-long payments to the system of a particular person in real values c_i (i.e. first, it is necessary to take the change of income into consideration in a more detailed model and second, money paid to the system earlier have a greater value than money paid later and last but not least, different people pay money to the system for different periods of time).

The vertical axis shows a base for calculating the pension payment. The share that the respective person can draw from the volume of money paid to the system in the current year, after subtraction of the sum, which goes to the basic pension payment. The pension itself is then calculated depending on how much money was paid to the system in the current year and the number of years for which the respective person will be receiving the pension, based on the statistically computed life expectancy, of the amount he paid to the system.

P_1 (for more see $(\alpha \times R_{2020})/L_{2020}$) is the basic pension payment. The volume of money for the basic payment is defined as a percentage of the volume of money paid to the system in the current year. The amount that is identical for every person in the system is a quotient of the volume of money for the basic payment divided by the number of people who are entitled to the payment.

P_1B_1 is a line of merit-based payments. The steeper it is, the greater the merit in the system is. If it were flat and started in P_1 , everybody would be receiving the same pension payment.

Let's assume that:

R_{2020} : Total sum of money collected for the pay-as-you-go system (1st pillar) this year (e.g. 2020).

α Coefficient defined as a percentage saying which part of **R_{2020}** goes to the basic pension payment (this basic payment will be received by everybody).

$\alpha \times R_{2020}$ Amount allocated for the basic pension payment (e.g. 30 % of what has been paid to the system in a given year).

L_{2020} Number of participants in the system in 2020 – these are only those who are retired and draw money from the system.

$$(\alpha \times R_{2020})/L_{2020} \quad (1)$$

Amount of the payment that is received by every person who started receiving pension.

$$(1 - \alpha) \times R_{2020} \quad (2)$$

Amount that will remain in the system for payment of the merit-based component.

l_i Life-long amount that the insured person who retired had paid to the system.

e_i Life expectancy of the respective person.

l_i/e_i Expression of entitlement to the amount which the person can draw from the merit-based component.

$$L/E = \sum l_i/e_i \quad (3)$$

Sum of entitlements of all the people who draw money from the merit-based component.

$$(R_{2020} - \alpha \times L_{2020})/ (L/E) \quad (4)$$

Entitlement "unit".

$$((R_{2020} - \alpha \times L_{2020})/ (L/E)) \times (l_i/e_i) \quad (5)$$

Pension that will be paid to the respective person from the merit-based component in a given year.

$$(\alpha \times R_{2020})/L_{2020} + ((R_{2020} - \alpha \times L_{2020})/ (L/E)) \times (l_i/e_i) \quad (6)$$

Total pension of a person in the system.

Note that the system is designed to be stable. Each year, divided between the insured just as much a right as much as it was in the system dissipated.

Then we can consider for example the following:

- a) The system could be configured without strictly fixed boundary retirement age.
- b) In terms of full merit should be considered a timed resolution for payments into the system (the real value of money over time).

Given that currently can enforce this system in its pure form run into all sorts of special-interest barriers and lack of readiness to understand the importance of the system thus conceived. We consider it reasonable to introduce soon a postgraduate (flexible) extension of the pension system. Mainly with it deals our paper.

3. Discussion

The mechanisms of fully functioning and fully open pension system or fully closed and fully meritocratic postgraduate (flexible) pension system extension require meeting a number of assumptions. Very important is the rational design of lifelong professional career paths, especially concerning:

- a) what role has education at all levels,
- b) what is the role of professional organizations,
- c) what possibilities superior forms of health care financing comply with such a motivation,
- d) what are the possibilities of transitions between jobs and the types of working career.

In perspective, it comes to the desire that pension system constitutes the most reliable form of savings to finance post-productive period of a person's life. Insured event in the merit pension system thus occurs in two cases. First, when someone with an increase in age loses the ability to perform productive activity, which would he otherwise have continued, and that provided enough resources for a dignified life. Second, if someone has chosen a career path that brings him sufficient satisfaction and simultaneously the system will create sufficient funds to pursue unprofitable or less employment, they crave.

Both cases can be and usually are combined in reality, respectively. none of which usually does not act in its pure form, both in terms of life experiences, as well as income: One is leaving to pursue its business, which it more fun, less burden and may also have supplemental income. Even more important is the rational design of pathways of lifelong employment, training in this art, finding a way connection "pleasant with useful", where large reserves prevail (Mihola, 2014). Productive economy based on services should be able to offer significant number of jobs that could be pursued at an older age with pleasure, improving e.g. life experience and intergenerational perspective.

The basic advantages of closed and fully merit extension of the pension system is that pension of a man while extending the productive employment increases progressively:

- a) The resources that he additionally put into the pension system.
- b) A statistically quantified shortening the average life expectancy.

In this way (with appropriate parameter settings):

- a) Would be the first pillar significantly stabilized.
- b) Will be enough of those who really will enter the postgraduate extension of the first pillar.
- c) The benefit of which will be those who do not enter into it for personal reasons, or such a career path that does not allow it.
- d) Already in so reduced form, the system will provide sufficient incentives for increasing the role of those who provide or mediate provision of productive services; especially those related to macroeconomic aspects of regional development, permitting one to be long-term mentally and physically fit.

Currently, the employees pays social insurance 6,5 % of gross wage and the employer pays 21,5 % of gross wage into a pension scheme. The employer social insurance cost is applied as a cost item of taxes on corporate income, which is not very significant, because the system that would effectively motivate them to extend the period of productive use, together with a positive tax impacts and multiplication. Now let us do a simplified calculation of how developed post-retirement amount in the event that the system will be fully enclosed and merit-based. To achieve this:

- a) We will consider how much a person has paid in the system personally and through companies, i.e. those of the estimated 28 % of his gross wage.
- b) We consider the change in life expectancy (which is a very important variable).
- c) We do not consider the effect of inflation or the change in value of funds paid in time (this aspect can be taken into account by other instruments).
- d) We do not consider possible change in gross wages.
- e) We consider the case of a man from the region with an average survival time (for women should motivating effects were due to the length of time the average life expectancy even more pronounced).

If we utilize demographic data for the Hradec Králové region (ČSÚ, 2014) – available at link in references because of length of this paper – as an empirical example of the life expectancy at specified age at selected region, we can make the following calculations in illustrative example:

The man has a gross wage of CZK 50 000. His statutory retirement age is 63 years. How will fully deserve and closed systems will increase its yearly (lifelong) pension depending on the number of years that will be active.

He works up to 64 years (1 year more): The system each month, took 28 % of the 50 000 CZK, equivalent to 14 000 CZK. According to the life expectancy tables he can draw a pension 16,76 years. His monthly income is therefore increased by 14 000: $16,76 \times 835,30 \text{ CZK}$.

He works up to 66 years (3 years more): The system every year, every month, took 28 % of CZK 50 000, which is equal to $3 \times 14 = 42\,000$ CZK. According to the life expectancy tables he can draw a pension 15,42 years. His monthly income is therefore increased by $42\,000 : 15,42 = 2\,723,70$ CZK.

This analysed trend could continue. Purely theoretically (we recognize that productive employment gets harder or can be impossible with higher age): when we imagine he is working up to 73 years (10 years more), his pension will nearly double. The system every year, every month, took 28 % of CZK 50 000, which is equal to $10 \times 14 = 140\,000$ CZK. According to the life expectancy tables he can draw a pension 10,91 years. His monthly income could therefore increase by $140\,000 : 10,91 = 12\,832,30$ CZK.

On the other hand, the current pension scheme in the first pillar motivates their participants either through the mechanisms of gradually increasing the percentage by $4 \times 1,5 \% = 6 \%$ a year when a person continues working without being retired (e.g. 900 CZK monthly at 15 000 CZK, which is an approximate pension equivalent of 50 000 CZK gross wage). Or very small increasing the percentage (0,4 %) in case of retrospectively accounting the pursued employment after being retired. However, the person keeps the money he got from a pension system ($12 \times 15\,000 = 180\,000$ CZK / year) and can utilize them. This has significant distortion power for those who will get a pension and continue working.

While in the first years the effect of currently provided pension schemes is similar to the proposed one, the longer the person can work (voluntarily), the better the results of the proposed systems are. Simultaneously, the proposed system does not force the statutory retirement age to increase and makes possible to abandon the current “endless” mechanism, rather lets the individual to decide when to leave, how long continue his working career and to what extent.

As for the very brief comparison with other pension system configurations found in the OECD countries (OECD, 2013), many of those systems like the Swedish NDC or British pension system include extended possibilities of individual pension age flexibility. Sometimes they work through social insurance approach and sometimes through additional pillars or sub-pillars based on fund financing (with strong regulation or government controlled default fund). In addition, the role of employers has been usually much stronger historically in those countries. Model discussed in this paper stays fully closed and merit-based and it aims – within its limits shown above as prerequisites – mainly to improve current Czech system of simultaneously receiving pension and wage.

Conclusion

We can summarize the achieved research results as follows:

- a) In the first years of retirement current pension system encourages the extension of the productive application very similar to the present. But with the difference that it does not cause distortions associated with a significant advantage of those who choose to simultaneously receive a pension at the same time remaining productively employed (receive wage) as opposed to those who would like to significantly increase pension by suspending retirement.
- b) Relatively strong motivation to extend the productive employment in the present system is given by the possibility of simultaneously receive full pension and wage. The precondition for this is to leave the current scheme of raising the retirement age and to determine the statutory retirement age to allow a sufficiently large number of citizens of the schemes to participate. Utilizing the techniques then strengthen the role of productive services in the region and improve budgetary constraints (effective demand) social groups that are willing to spend the money there.
- c) In the current system, we consider very problematic that it allows for an automatic increase of retirement age without further evaluation. This is due to the possibility of simultaneously receive a pension and wage highly discriminatory for each additional year, and it completely disagrees with the average in life expectancy. In our proposed system, the need for administrative raising the retirement age gets smaller without compromising the sustainability of the system.
- d) While we recognize its model character, our proposed system has important advantages. Strong motivation achieved primarily through naturally built progression rising actual retirement age (it appears from the full merit and evolution of life expectancy), which allows partial pensions by a partial postponement in order to increase future pension in percentage combination that each of his choice. This will cover the increasing demands on services for the elderly, health care (e.g. spa and wellness services etc.) in order to extend the period of productive use. There is also the possibility of a gradual increase in the number of days off work at older ages, without leading to a significant income drop. As for the solidarity aspects, in the next reform phase the taxation of pensions could be introduced, in accord with the practice of the majority of OECD countries (OECD, 2013), which increases the resources for redistribution to those who will not be able to utilize the proposed extensions.

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FACTORS AFFECTING INDIVIDUAL AND BUSINESS PERFORMANCE

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JEL classification: M10, M21

Abstract:

The paper theoretically analyses the relationship between individual and business performance and especially focuses on the factors influencing both of them. The author analyses the secondary data about individual, team and business performance as well as the factors affecting them. The analysis, synthesis, comparison and generalization have been used in order to create first drafts of performance factors maps, which will be used for further research and testing among the companies in a particular industry.

Introduction

The terminology in the field of business performance seems to be inconsistent. It is very difficult to find stable and common definition and generally usable theory. Even though there are many articles, books and other materials focusing on the business performance, its factors and indicators, the theorists and practitioners work with the term really partial or they don't work up the factors sufficiently.

1. Methods, literature overview

The aim of the paper is to analyse the relationship between individual and business performance and to focus especially on the factors influencing the individual and business performance. The paper represents the base for further research in this field of interest. Following methods have been used in the paper: the analysis, the synthesis, the comparison of the literature sources and the generalization.

The performance is the amount of work performed within a specified time unit. The performance could be defined as the ability of an employee to reach the measurable goals, and standards effectively and efficiently (Diskienė & Goštautas, 2013). In addition, business performance, especially of entrepreneurial businesses, is a multifaceted concept that is difficult to measure (Haber & Reichel, 2005, Kalleberg & Leicht, 1991, Shane & Venkataraman, 2000, in Kariv, 2008).

1.1. Individual and team performance

The term individual (or job) performance stands for the level of the performance of an individual, i.e. employee. Job performance is, in the opinion of Caillier (2010), the term used to depict how well an employee performs his or her work-related duties. Performance is important to workers and employers because it inevitably influences decisions regarding promotions, terminations, merit increases, and bonuses. Even though the individual performance seems to be the activity or process concerning only a particular employee, it's been showing that the individual performance is not a solo activity. It is, on the contrary, the result of the cooperation between the employees (individuals) and their managers. As Bain (2001) claims, the individual and the manager are a dyad, a mini-system, where the manager's behaviour is a clear predictor of the subordinate's performance. It is also well known, as author mentions, that in some areas (academics, science or creative endeavours) may be appropriate to focus on performance as a solo activity, but work in most other arenas is a team effort, so the leader has the impact on the performance of the team. According to the literature, many factors can affect the individual or job performance. Caillier (2010) created the model of factors affecting job performance. He based the job performance on three groups of factors, influenced by employee attitudes: 1. job characteristics and outcomes, 2. work environment and, 3. individual attributes, as well as control variables such as ethnicity, sex, job level, age or years in current position.

Hardly ever do the employees work solo. Most often are they the members of a workgroup or a team. It should be differentiated between the workgroup and a team in order to understand the variances in their performance. The authors Senior and Swailes (2004) analysed it and stated that the workgroups (as compared to work teams) have no need or opportunity to engage in collective work that requires collective effort, so their performance is merely the summation of each group member's individual contribution. The team performance could be defined as a set of characteristics and dispositions of the individuals, who the fulfilment of the tasks depends on. There are many important and serious individual differences among the team members so that the team performance could vary and change depending on many factors. Senior and Swailes (2004) argue that the team performance can be judged in terms of whether or not a team achieves the tasks set for it. The team performance is influenced by such factors as the team processes, the design of team members' tasks, the context in which the work takes place, the degree of identity felt by team members with the team and so on (Campion & Papper, 1996, in Senior & Swailes, 2004). Team is unlikely to function well unless its members are able to communicate effectively with one another and unless it is able to get over the interpersonal problems and conflicts which arise between individuals (Hayes, 1997, in Senior & Swailes, 2004). Furthermore, Ch. Savelsbergh, B. van der Heijden and R. Poell (2010) interviewed in total ninety team members, team leaders and team supervisors working in fifteen project teams and seven operational teams from eight Dutch organizations to identify the most frequently applied performance criteria of

the team performance and their relative importance. The respondents appeared to evaluate leadership behaviour, goal clarity, and team learning behaviours as the top three important factors. Provazník (1997, in Flešková & Dolinská, 2010) states that the work team performance is influenced by many factors, which are mostly of the subjective or objective nature (internal or external conditions). They can be introduced as follows: technical, economical and organizational conditions, social conditions, individual determinants (personal traits), situational conditions. Flešková and Dolinská (2010) consider following factors to be really important for the team performance: physical and mental determinants of the team members, professional readiness and the level of qualification.

1.2. Business performance

Business performance is a term related to a company, it represents the level of the performance of a company as a whole. Usually, it is the extent to which a company achieves the pre-defined goals. The company with a high performance is the one creating the value for all stakeholders or interested parties. Such company has a real potential to be fully competitive on the market. The factors influencing the business performance are considered to be the assumptions for a high performance. As Tay (2002) writes, in the existing literature, many factors have been hypothesized and tested for their relationships with business performance. Dragnić (2013) analysed the impact of internal and external factors on performance of fast-growing small and medium businesses and she set two dependent variables of performance/effectiveness, namely goals achievement and sales growth and the independent variables with statistically significant impact on performance (divided into two groups – internal and external factors), and those are e.g.: business entity size, life cycle stage, innovations, market, customers, sector, types of the goals or organisational feature such as autonomy, centralisation etc.

Among factors affecting a business performance, following ones can be included (based on the opinions of different authors, e.g. Dragnić, 2013; Tay, 2002; Ďurišová, 2006; etc.): business goals and business strategy, high productivity, innovative products/services and processes, good reputation and public relationships, talent management or human capital, good financial management, appropriate leadership in the company, management, organizational culture and shared values alternatively owner's/manager's personal values, organizational structure, interconnectedness, market including its size and type, company's size etc.

1.3. Linking individual and business performance

The companies which want to create a high-performance culture need to align the individual and business performance. According to Jesuthasan and Emory (2002), the companies should take the rigorous approach which consists of:

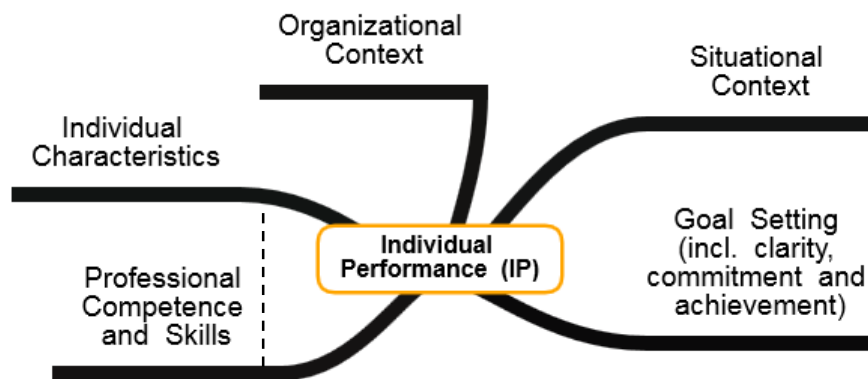
- a) Overtly linking the individual employee performance to corporate performance.
- b) Educating employees on how their actions affect customer satisfaction and the bottom line.
- c) Rewarding those who make a direct contribution to the business.
- d) Providing employees with the tools and resources that enable them to be successful.

There are some elements of people-business performance system: people systems and programs, employee behaviour, customer behaviour and business performance itself. It is clearly understandable that this is the view of balanced scorecard as the strategic system of performance measurement, created by R. Kaplan and D. Norton. Sowa et al. (2004, in Tătar, 2011) state that it's the BSC concept bridging the gap between individual and organizational performance by transforming the organization's overall goals and objectives into clear and measurable individual tasks.

2. The results and discussion about linking the individual and business performance

Based on the literature and using methods mentioned before, the first drafts of the individual and business performance factors maps have been created (Fig. 1).

FIG. 1: Individual performance factors' map



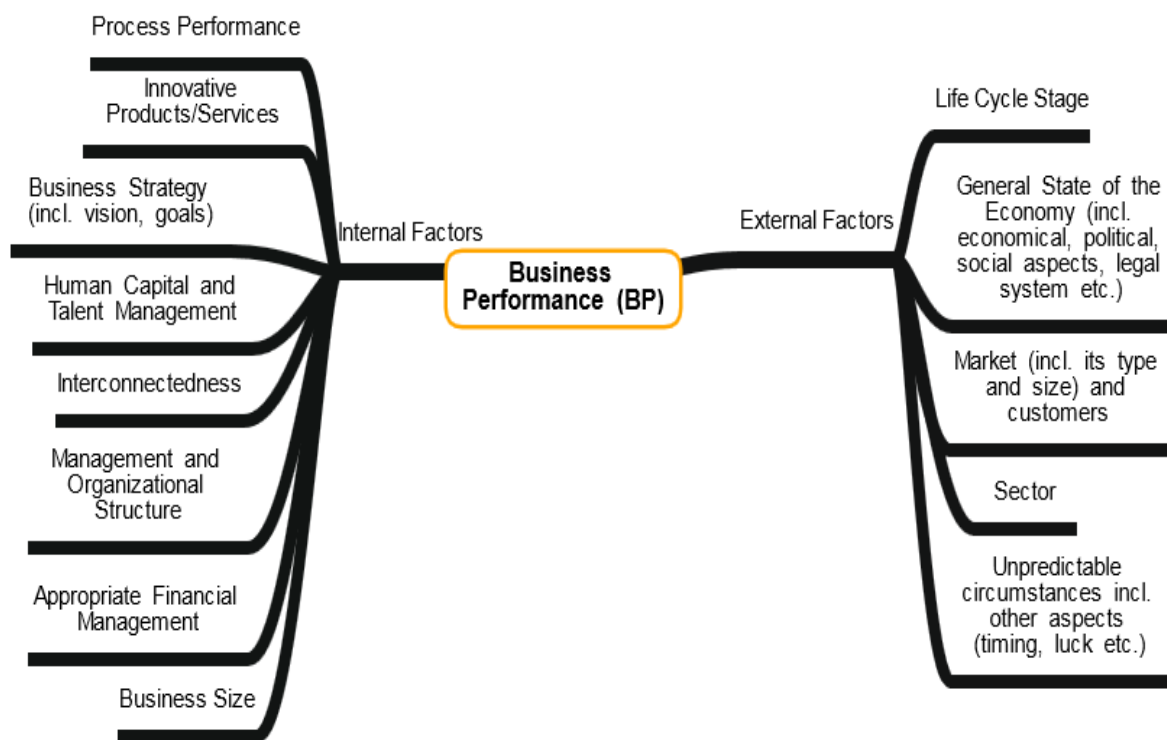
Source: Own elaboration.

Among the factors affecting the individual performance can be put as follows: individual characteristics, professional competence and skills, organizational context, situational context and goal setting. Individual characteristics are, e.g.: mental and physical condition and health, age, sex, ethnicity and personal motivation (including or created by personal values, attitudes and goals). Individual characteristics are connected (broken line in the figure) with professional competence and skills. They influence the level of the competence and skills, individual employee can reach. The organizational context consists of the leader's individual characteristics and behaviour, organizational

culture and structure (both interconnected and related with the communication across the company) and organizational surroundings and environment (incl. work conditions, reward system etc.). The situational context refers to the specific situations in the employee's work life. These situations and cases negatively or positively influence his/her job performance. The goal setting includes the goal clarity, commitment from the side of the employee and its achievement.

Business performance factors are showed in the figure 2. They are divided into two groups: internal factors, company having the control over it and, external factors, company usually having a little or no control over it.

FIG. 2: Business performance factors' map

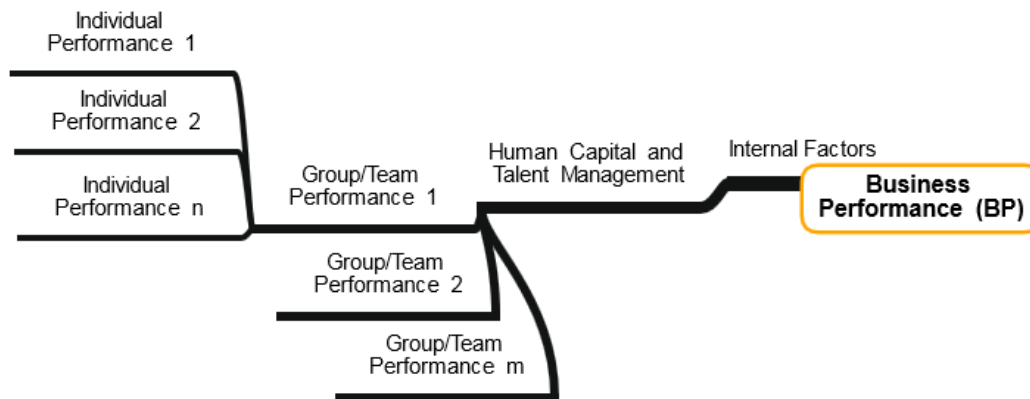


Source: Own elaboration.

As seen in the figure 2, internal factors' group consists of the factors such as process performance, financial management, human capital and talent management, business size, organizational structure and management, interconnectedness including communication and relationships across the company, business strategy as well as innovative products or services. The group of external factors includes e.g. life cycle stage, general state of economy, market and customers, sector or industry a company is operating on, and other unpredictable circumstances (such as luck or timing).

The figure 3 describes the relationship between individual, team and business performance.

FIG. 3: The relationship between individual/team and business performance



Source: Own elaboration.

The connection between all components of the performance is clearly understandable. Business performance is often measured by a set of financial and/or nonfinancial indicators, often interchanged with success and competitiveness of the company. It depends on a set of factors, while the human capital is one of them (namely internal factor). The business performance is, to a certain extent, influenced by a team performance, which is at the same time affected by the individual performances of the employees.

Conclusion

The business performance and the term performance itself have been researched for a long time. There is almost no study focusing completely on the broad list of all factors affecting the performance. In order to manage the performance of a company, the managers should be aware of the factors influencing it. More factors being considered, the better control over the performance. The proposed factors' maps will be further hypothesised and tested, by using a deeper research in particular industry/ies, and carefully revised in order to create a usable and comprehensive model of business performance so that the overall performance can be increased.

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THE COMPARISON OF RESULTS OF DIFFERENT BANKRUPTCY MODELS FOR SELECTED COMPANIES

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Keywords:

Altman Z-score – bankruptcy model – IN Model – Bankruptcy Index

JEL classification: G33, M41

Abstract:

The aim of this article is to verify the hypothesis that the application of different models on same companies provide comparable results. Specifically, this article compares results achieved by application of Altman Z-score, IN Model, and Bankruptcy Index. While first and second models are well-known, the third model is relatively new, it has been introduced by Karas and Režňáková in 2013. The results for each company have been calculated based on data available in the database Albertina. Fifteen companies from HIT cluster have been used for the analysis of the results. The most of analysed companies have comparable results for different models. More detailed analysis is described within this article.

Introduction

Different indicators and methods of financial analysis are frequently used by companies in current economic environment. Among others, there is one big category of different models, namely bankruptcy models, which has the aim to predict the possible bankruptcy. In other words, these models present warning signal for management of company about possible bankruptcy in near future. Moreover, thanks to detail analysis of each part of these models is possible to identify the most problematic area within the company.

A huge amount of these models exists, starting with Altman's Z-score from 1968. Altman himself has been improving his model in time with the aim to reflect not only current economic situation, but also different branches.

The main authors dealing with different bankruptcy models in the Czech Republic are Neumaier & Neumaierová, who created several different models, i.e. IN 95, IN 99, or IN05. The advantage of these models is that they are reflecting the specific conditions in the Czech Republic.

However, all of these above mentioned models were created before economic crisis, while there exist only few models which have been created after this crisis. One of them is so called Bankruptcy Index Karas and Režňáková (2013).

The aim of this article is to compare results of three mentioned bankruptcy models, namely Altman Z-score, IN05, and Bankruptcy Index, in the conditions of selected companies. It is expected that the results of these models should be comparable.

1. Methods, literature overview

As was mentioned above, first model used in this article is Altman Z-score. Several different variants of this model exist, while Z-score for private companies can be calculated as follows:

$$Z = 0.717T1 + 0.847T2 + 3.107T3 + 0.420T4 + 0.998T5, \quad (1)$$

where:

- a) $T1$ = (current assets – current liabilities) / total assets
- b) $T2$ = retained earnings / total assets
- c) $T3$ = earnings before interest and taxes / total assets
- d) $T4$ = book value of equity / total liabilities
- e) $T5$ = sales / total assets (Altman, & Kalotay, 2014), (Altman, 2013).

Zones of discrimination of this model are 2.9 and 1.2. If the result of Z is more than 2.9, the company is in the “safe zone” and there is no significant risk of bankruptcy. If the result is between 1.2 and 2.9, the company is in the “grey zone”, which means some risk of bankruptcy for such company and necessity to make some decisions for improving the situation. Moreover, an analysis of each T_i can reveal the most problematic indicator of such company. If the result is below 1.2, the company is in the “distress zone” and it will probably bankrupt (Altman, 1968, Altman, Yen & Zhang, 2010).

Second model, IN05, analyses the risk of the bankruptcy in the condition of the Czech Republic. It has five partial indicators within, namely:

$$IN05 = 0.13A + 0.04B + 3.97C + 0.21D + 0.09E, \quad (2)$$

where:

- a) A = total assets / liabilities
- b) B = earnings before interest and taxes / interest payable
- c) C = earnings before interest and taxes / total assets
- d) D = sales / total assets
- e) E = current assets / current liabilities

The zones of discrimination of this model are 1.6 and 0.9. In the case that the result of IN05 is higher than 1.6, the company is in the “safe zone”, it is successful company with no significant risk of bankruptcy. The explanation of the grey zone, which means the results between 0.9 and 1.6, could be formulated as company with some potential risk of bankruptcy. The result below 0.9 presents the “distress zone”, which means that such company will probably bankrupt (Neumaierová & Neumaier, 2005).

Third model is Bankruptcy Index, which was created after economic crisis. It can be calculated as follows:

$$Index = 1.841 * \frac{(X1 + 16783.91)^{0.02941} - 1}{0.02941} + 1.112 * \frac{(X2 + 1)^{-0.35627} - 1}{0.35627} + 13.55 * \frac{(X3 + 1.12)^{-2.97955} - 1}{2.97955} - 17.319 \quad (3)$$

where:

- a) X1 = value of total assets in EUR
- b) X2 = turnover of total assets
- c) X3 = ratio of quick assets and sales

There exists only one critical limit, namely the value 0. When the index is lower than 0, the company tends to bankrupt, while in the case that the index is higher than 0, the company should be financially healthy and the bankruptcy probability is very low (Karas & Režňáková, 2013).

2. Results

Following tables present the comparison of results of above mentioned models calculated for selected companies from Hradec IT Cluster. Before this comparison it is necessary to add some important notes. Firstly, these models were calculated based on generally available data either from Czech business register or from database Albertina. Secondly, Bankruptcy index was created specifically for companies from Slovakia, while they have different currency in this country. Indicator X1 presents the value of total assets in EUR, therefore the values of analysed companies had to be recalculated from Czech crowns into euro. The original model was created in 2013, therefore for this recalculation was used the official declared exchange rate from 2013.

The TAB. 1 presents comparison of results for fourteen companies in the year 2011.

TAB. 1: Results of different models for selected companies in 2011

Company	Altman Z-score		IN05		Bankruptcy Index	
	Result	Zone	Result	Zone	Result	Zone
AG COM	4.45182	safe	1.93947	safe	- 0.2797	distress
ALTEC	3.3401	safe	1.52087	grey	- 1.1205	distress
DERS	2.25890	grey	1.57081	grey	0.4016	safe
FG Forrest	2.98781	safe	1.57003	grey	- 0.6141	distress
GIST	8.29367	safe	4.29675	safe	- 0.1700	distress
ORTEX	4.00846	safe	1.71915	safe	- 0.5158	distress
T-MAPY	3.63193	safe	1.53498	grey	- 0.2232	distress
CSF	3.61618	safe	1.34116	grey	- 0.6611	distress
MF SERVIS	5.97960	safe	2.78949	safe	- 0.8817	distress
Koncept HK	11.29949	safe	8.76063	safe	- 0.8272	distress
GMC	8.39360	safe	2.65807	safe	- 0.1657	distress
Technologic Center HK	1.05895	distress	1.09781	grey	- 1.3863	distress
High School	3.68252	safe	1.87768	safe	- 0.9279	distress
UNI-EPOS	1.46302	grey	1.09263	grey	- 1.4976	distress

Source: own research

It is obvious that the results from the different models are not same not even in one case. Moreover, the differences are relatively huge in several cases, either safe – distress zone or all possible zones. Following TAB. 2 presents data from 2012.

TAB. 2: Results of different models for selected companies in 2012

Company	Altman Z-score		IN05		Bankruptcy Index	
	Result	Zone	Result	Zone	Result	Zone
AG COM	2.72246	grey	1.06727	grey	- 0.2304	distress
ALTEC	3.36781	safe	1.45873	grey	- 0.6920	distress
DERS	1.48874	distress	0.67702	distress	0.0319	safe
FG Forrest	2.62873	grey	1.15939	grey	- 0.5809	distress
GIST	5.65956	safe	2.95238	safe	- 0.1228	distress
ORTEX	3.55405	safe	1.15998	grey	- 0.1624	distress
T-MAPY	3.25615	safe	1.57611	grey	- 0.4734	distress
CSF	3.33366	safe	1.04379	grey	- 0.7039	distress
MF SERVIS	3.99703	safe	2.03485	safe	- 0.8037	distress
Koncept HK	16.2511	safe	17.164	safe	- 0.9807	distress
GMC	5.20301	safe	2.00591	safe	- 0.3617	distress
Technologic Center HK	0.71842	distress	- 0.0069	distress	- 1.4076	distress
High School	3.25406	safe	1.5471	grey	- 0.9542	distress
UNI-EPOS	-0.303	distress	- 8.6209	distress	2.1157	safe

Source: own research

It is obvious that also in the year 2012 there were huge differences. On the other hand, in the case of Technologic centre there were same results by all models. Very interesting is the situation of DERS and UNI-EPOS, where Altman Z-score and IN05 showed distress zone, while Bankruptcy index showed safe zone, where this index had a distress zone for all other companies. This extraordinary development will be discussed in the next part of this article more briefly.

TAB. 3: Results of different models for selected companies in 2013

Company	Altman Z-score		IN05		Bankruptcy Index	
	Result	Zone	Result	Zone	Result	Zone
AG COM	3.4574	safe	1.0673	grey	-0.4382	distress
ALTEC	4.2016	safe	2.1959	safe	-0.7311	distress
DERS	1.7316	distress	0.7749	distress	-0.0771	distress
FG Forrest	2.3954	grey	1.1103	grey	-0.7810	distress
GIST	9.3199	safe	4.6678	safe	-0.0697	distress
ORTEX	2.3166	grey	-3.3167	distress	-0.2061	distress
T-MAPY	3.8308	safe	-3.7010	distress	-0.4440	distress
CSF	4.3584	safe	1.3095	grey	-0.6151	distress
MF SERVIS	3.2755	safe	2.3036	safe	-1.1108	distress
Koncept HK	13.7948	safe	12.7414	safe	-0.8047	distress
GMC	5.4114	safe	2.2302	safe	-0.3863	distress
Technologic Center HK	1.0708	distress	0.8204	distress	-1.1402	distress
UNI-EPOS	0.9840	distress	2.7557	safe	-1.3724	distress

Source: own research

In the year 2013 was not possible to calculate results for High School, because there were not published data. However, it is obvious that the Bankruptcy index in this year shows distress zone for all analysed companies. It is possible to make a partial conclusion that the conditions in Slovakia are so much different than the conditions in the Czech Republic that the application of this indicator in Czech environment is not possible. Among analysed companies are such entities (for example GIST) where the current situation is extraordinary great (high net income, excellent share of liabilities and owner's equity etc.) and therefore can be expected that the future development will be also successful. However, despite this fact, Bankruptcy index presents negative result.

TAB. 4: Results of different models for selected companies in 2014

Company	Altman Z-score		IN05		Bankruptcy Index	
	Result	Zone	Result	Zone	Result	Zone
AG COM	3.3588	safe	-0.3481	distress	-0.4371	distress
ALTEC	4.9289	safe	2.5873	safe	-0.7735	distress
DERS	1.4467	distress	0.8529	distress	-0.6407	distress
FG Forrest	3.0514	safe	1.4980	grey	-0.6208	distress
GIST	6.3773	safe	3.3155	safe	-0.0331	distress
CSF	2.6059	grey	1.2124	grey	-0.7610	distress
Koncept HK	5.1445	safe	1.7480	safe	-0.9413	distress
GMC	6.1655	safe	2.3662	safe	-0.2695	distress
Technologic Center HK	4.0363	safe	1.1428	grey	-0.3963	distress
UNI-EPOS	1.8351	grey	3.2707	safe	-1.5890	distress

Source: own research

The situation in 2014 is similar as in the previous analysed years. The only difference is that more companies (ORTEX, T-MAPY, and MF SERVIS) did not present their economic results.

3. Discussion

It is of course necessary to add some information to this analysis. First of all, even authors of above mentioned models claim some rate of efficiency. Therefore it is possible that while one indicator is correct and corresponds with reality, the other one is not correct. In this point of view, it could be estimated that if two different indicators have same results, the probability of these results is higher and last indicator is incorrect one. The accuracy of different models is usually analysed not only by author themselves, but also other authors have been analysing this are, i.e. Čámská (2015), Grünwald (2001), Karas and Režňáková (2014), Kovárník and Hamplová (2014), Kovárník and Hamplová (2015), Kubíčková (2015), or Neumaierová and Neumaier (2002).

Secondly, it is important to know that authors of this article have been using only generally available data with no contacts with analysed companies. It is obvious that some requested data are specific and, moreover, the companies can have some additional information, which can change some partial indicator and, consequently, the final result as well. Additionally, data in databases had to be prepared by some physical person originally. It is of course possible that this responsible person presented incorrect information either with the aim to present incorrect data or as a mistake.

Thirdly, it is necessary to add that analysed companies are from very specific industrial sector, namely IT sector. It is of course possible that the conditions in this sector are very different from the other business sectors and therefore the final results have no significant predictive value.

Separate comment could be done to the Bankruptcy index. This index was created specifically for companies from Slovakia and from above presented tables is obvious that it has usually completely different results, mostly distress zone. On the other hand, this model was created after economic crisis, while the other analysed models are from pre-crisis period. The question is whether the different result of Bankruptcy index is because of different conditions in the Czech Republic and in Slovakia or because of different conditions before and after crisis. Moreover, this index was created in the year 2013 and indicator X1 presents the value of assets in EUR. Authors of this article used for recalculation the exchange rate from the year 2013, but this exchange rate changed significantly in the following year because of the intervention of Czech National Bank. It is obvious that different exchange rate could change not only the value of X1 indicator, but consequently the whole Bankruptcy index. Additionally, the results of this Bankruptcy index are obviously wrong in some cases. For example, company UNI-EPOS had not any revenues in the year 2012 and it presented loss, but according the Bankruptcy index was this company in safe zone, while Altman Z-score and IN05 presented distress zone for this year. But again question remains whether this obviously wrong result happened because of the different conditions in the Czech Republic and Slovakia or because of the fact that in this case model from the year 2013 has been used for analysis of results from 2012.

Conclusion

This article presents analysis and comparison of different indicators evaluating same aspect of financial health, namely three bankruptcy models (Altman Z-score, IN05, and Bankruptcy index). Selected companies are members of Hradec IT Cluster, presented information has been calculated based on the data available in the database Albertina for the period 2011 – 2014.

Analysis shows that even if Altman Z-score and IN05 have usually either same results or only one-category difference (safe zone - grey zone, or grey zone - distress zone), the third model (Bankruptcy index) has usually completely different result. There is no grey zone in this model, only safe or distress zone, but the results for the majority of companies are bad. Moreover, according to some results could be estimated that this model presents incorrect result, when, for example, it presented safe zone for company with no revenues. On the other hand, there can be some other reason for such extraordinary result, which can be found only due to deep analysis of economic situation of particular company.

However, to sum it up, it is possible to present possible explanation of different results. One of them can be accuracy of every model, where even the authors of these models admit some rate of inaccuracy; the other possible explanation can be incorrect data, where the authors of this article used generally available data for their analysis and these data can be wrong. Nevertheless, it is possible to conclude that because of different results of different models it could be recommended not use only one indicator, but evaluate one aspect of financial health with different models and compare these results in every company.

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CHANGES IN THE LEVEL OF INNOVATION IN THE ENTERPRISES IN LOWER SILESIA

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innovation – competitiveness – entrepreneurship – development

JEL classification: O100, O120, O140

Abstract:

According to the concept of the knowledge economy, factors determining the pace and level of economic development of the region is its innovation as well as the transfer and use of knowledge. Analyses innovation of enterprises of Lower Silesia in the years 2006-2013 from was based on data obtained from CSO, LDB and Reports RIS and IUS. Companies province are becoming more innovative, as evidenced by, among others, a growing number of people with higher education, as well as people employed in knowledge-based activities. Innovative solutions are primarily financed from own resources. Hard innovation were implemented the most often firm, but also increases the percentage of soft solutions in Lower Silesia. The share of revenues grows from sales of new or improved products.

Introduction

Innovation as the term was introduced for general circulation was introduced, using the media advertising various products newly-launched on the market. However, there is still no strict criteria to clarify its essence. The concept of innovation first appeared at approx. 400 year. AD in Old Latin, the Latin of the Church (*Innovatio* - renewal, change), then in the thirteenth century in French as *innovation* and Italian: in Dante - *innovare* and in Machiavelli - *innovatore* (Bal-Woźniak, 2012). In economics, however, it appeared only in 1911, thanks to Schumpeter (1939), an Austrian economist, considered the precursor of innovation theory and also its creator. He was the who first drew attention to the difference between innovation and invention, writing that "innovation is possible without everything that we associate with the invention because the invention not necessarily induce innovation". According to Schumpeter (1934), innovation is an activity characterized by mental creativity, relating to five areas:

- a) the introduction of a new product, i.e. one that is not yet on the market or products which have been given new properties;
- b) the introduction of new production methods or processes;
- c) the opening of new markets;

- d) acquiring new sources of raw materials or semi-finished products;
- e) the introduction of a new organization on an enterprise business processes.

Today, the concept of innovation has been significantly widened. Innovations identified with systematically implemented measures, which are intended to increase the efficiency of the company, concerning the use of new processes, technologies and materials as well as create new business vision and complex strategies (Kraśnicka & Ingram, 2014; Piwowar, 2015). The aim of this publication is an attempt to show the degree of innovation of Lower Silesia on the background of the country as well as show the changes that have occurred in this area in 2006-2013.

1. Methods, literature overview

The innovativeness of enterprises of Lower Silesia was based on data obtained from the publication of the Central Statistical Office (CSO), the Local Data Bank (LDB) and the report of the Regional Innovation Scoreboard (RIS) and the Innovation Union Scoreboard (IUS). The research covered the period 2006-2013.

2. Results

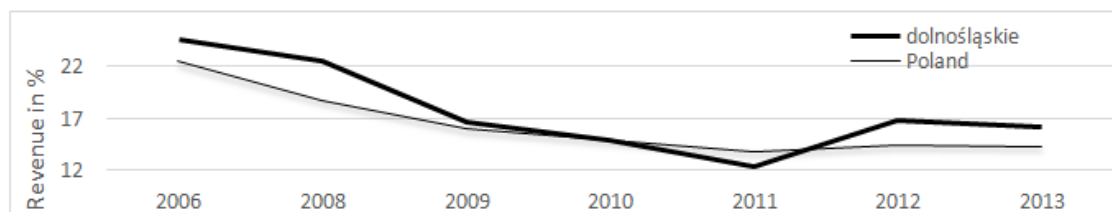
According to the concept of the knowledge economy factors that today determine the pace and level of economic development of the region is its innovation as well as the transfer and application of knowledge (Olszańska, 2012). The development of innovation and introducing new, significantly improved products, as well as modern and advanced technology provides fuller utilization of labour resources, increasing productivity as well as creating new jobs and improving the position of the region and increase the competitiveness of enterprises (Development Studies of Lower Silesia, 2012). The innovation indicators in the region are:

- participation of innovative units (entities) in the total number of enterprises and the amount of resources devoted to innovation, based on the audited company leading innovation activities;
- the number of implemented innovation and participation of revenues from sales of new or significantly improved products introduced to the market in value of total revenue.

Enterprises take innovative actions with a view to subsequent implementation of the achieved results in the form of innovation. Innovations implemented by entities identified with their growth and increased competitiveness both in terms of micro - (enterprises), meso - (regional) and macroeconomic (country). For the analysis of changes in the level of innovation, in the case of reports CSO used one of the most widely utilized for this purpose indicators, i.e. the percentage of innovation active enterprises and innovative, the number of innovation deployed by operators outlays on innovative activities and the proceeds received from the sale of new or improved products.

The test results of innovative activities indicate that in 2013 the innovative activity showed 14.3% of entities in Poland, which in Lower Silesia, this share was higher than the national average and amounted to 16.2%. The share of innovative enterprises in most of the period under review shows a downward trend, both in Poland and the region of Lower Silesia (Fig.1).

FIG. 1: The share of innovative enterprises in the total number of enterprises in Poland and Lower Silesia in 2006-2013 [%]



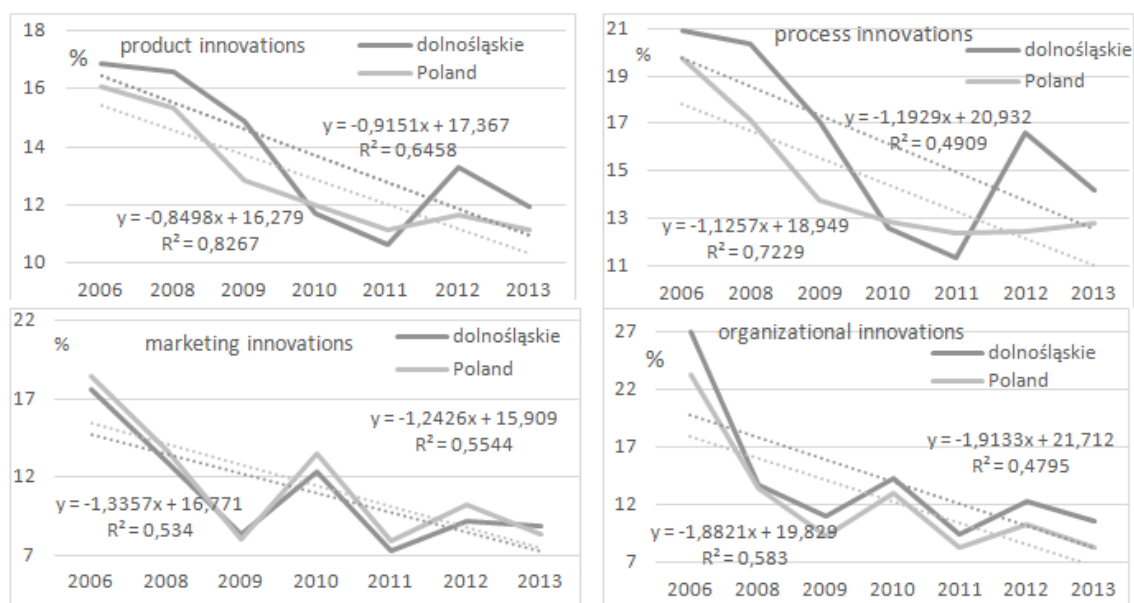
Source: own study based on CSO data

In the years 2006-2013 the share of innovation active enterprises in Poland decreased from 22.5% in 2006 to 14.3% in 2013, i.e. 8.2%, while in Lower Silesia from 24.6% in 2006 to 16.2% in 2013, i.e. by 8.4%. In the most embarrassing period Lower Silesia considered better on the background of the country. Exception was the year 2011 when the percentage of innovation active enterprises in the country was the lowest in the period considered, and was only 13.8%. In the province of Lower Silesia, this share was even lower and amounted to 12.3%. Another 2012 showed a significant increase in the proportion (over 4.5%) of innovation active enterprises in Lower Silesia and 2013 showed a slight decrease again.

Analysis of data on participation implemented by various types of innovations enterprises showed that in Lower Silesia, as well as throughout the country, in the years 2006-2013 the share of implemented solutions, both in industrial and service companies, have been volatile with a downward trend.

Effects of innovative solutions may take the form of technological innovation (hard) or non-technological (soft). Hard innovation include new or improved products or processes, while soft innovation is marketing and organizational innovations. About the technological innovation writes more Marut & Kowalski (2012) and Juszczynski & Kowalski (2013). Their task is to support and improve the effectiveness of implemented innovation as well as streamlining business operations.

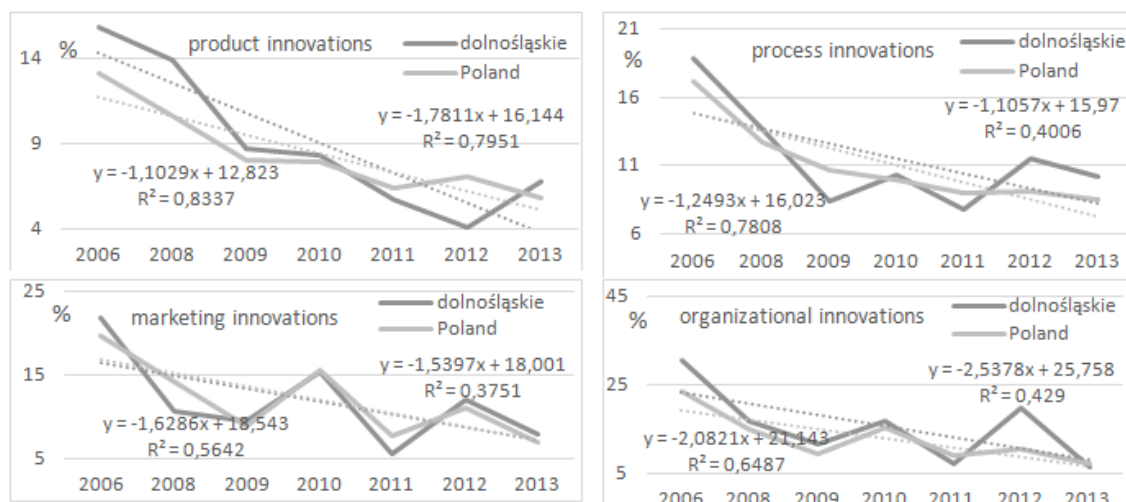
In the industrial enterprises in Lower Silesia percentage of entities implementing different types of innovation was, in mostly the period under review, higher than the average of the country (Fig. 2).

FIG. 2: The share of industrial companies implementing different types of innovation in the years 2006-2013 in Poland and in Lower Silesia [%]

Source: own study based on CSO data

The Lower Silesia the most differed from the average of the country for technological innovation. In 2013, the most enterprises have implemented process innovations (14.2%), then product innovations (less than 12%). Organizational innovations was implemented 10.6% of industrial enterprises and marketing innovations - 8.3%. However, compared to 2006 a significant decrease in the number of implemented innovative solutions was viable in the region, which in the case of technological innovation, however, was smaller than in the case of non-technological innovation. The percentage of process innovations implemented in the reporting period decreased by almost 6.7 p.p. and product by 5 p.p. In the case of marketing innovations decline was 9.3 p.p., and organizational 16.4 p.p.

Among the service companies in 2013, as in the case of manufacturing enterprises, most enterprises have implemented process innovations (10.24%), then in marketing (7.9%) and then in product - 6.75% and organizational innovations - 6.45% (Fig. 3). Also in the case of those service companies in the analyzed period, the trend of declining implemented innovations was visible. The largest decrease noted in the case of soft innovation, where in the years 2006-2013, the share of organizational innovation declined by more than 24 percentage points (from 30.6 to 6.45%), and marketing 14 p.p. (from 21.9 to 7.9%). Among the implemented technological innovation, product innovation share decreased by 9.1 p.p. (from 15.8 to 6.7%), and the process by 8.7 p.p. (18.9 to 10.2%).

FIG. 3: The share of service companies implemented various types of innovations in 2006-2013 in Poland and in Lower Silesia [%]

Source: own study based on CSO data

Expenditures on innovation activities in industrial enterprises in 2013 amounted to 20958.9 million zł, and in companies from the service sector – 11 980.9 million zł, of which in Lower Silesia was subsequently zł 3047.1 million (representing 14.5% total expenditures), and service enterprises zł 545.2 million (4.6%) (Tab.1).

In the industrial companies dominated capital expenditures, which accounted for 73.6% of all expenditure on innovation. Companies in the service sector the majority of funds allocated for investment - 42.4%, and on research and development - 23.0%. In addition, expenditures were incurred inter alia, for the purchase of software, purchase of external knowledge, training and marketing (Innovation activity in Poland, 2013).

In industrial enterprises, as well as in the service sector innovation were financed mainly from its own funds (71.1% of expenditures on innovation in industrial enterprises and 79.7% - in the service sector). A smaller share of these expenditures were industrial enterprises funds from abroad (9.1%), while in the services sector - funds from abroad and loans (by 8.3%). In the province of Lower Silesia own resources allocated to innovation were even higher and amounted sequentially 72.2% and 83%, and funds from abroad 4.7% and 15%.

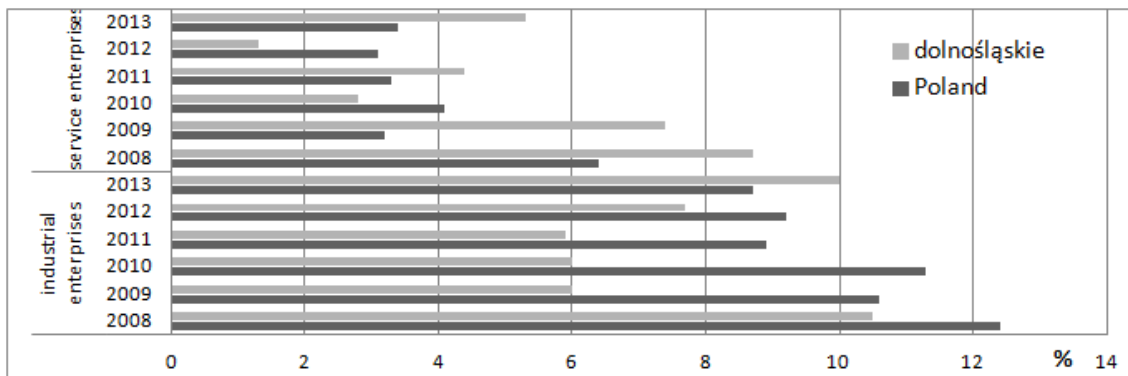
Expenditures on innovation activities in Poland, over the period, remained at a similar level in the case of industrial enterprises, while in the service sector the largest expenditures were incurred in 2012. In the province of Lower Silesia in 2013 spending on innovation in industrial enterprises as compared to 2012 nearly doubled, while in the services sector remained at a similar level as in 2010 (lack of data from 2011 and 2012 for the region of Lower Silesia).

TAB. 1: Expenditures on innovation activities of industrial and service enterprises in Poland, Lower Silesia overall and divided into by source of funds [billions zł,%]

Specification	Industrial enterprises					Service enterprises				
	2006	2009	2010	2012	2013	2006	2009	2010	2012	2013
In all [billions zł]										
Poland	17,25	22,65	23,76	21,54	20,96	8,26	8,26	10,79	15,15	11,98
Lower Silesia	1,212	1,570	1,730	1,769	3,047	0,157	0,588	0,505	b.d.	0,545
Own resources [%]										
Poland	78,2	68,4	75,2	73,7	71,1	89,0	84,2	85,7	69,6	79,7
Lower Silesia	74,6	74,7	72,7	82,6	72,2	89,3	87,7	64,0	b.d.	83,0
Budgetary measures [%]										
Poland	1,6	1,1	1,1	1,9	1,6	0,8	0,7	0,5	14,1	2,0
Lower Silesia	0,7	0,2	0,8	0,4	0,7	0,2	b.d.	b.d.	b.d.	b.d.
Funds obtained from abroad [%]										
Poland	2,1	3,2	7,9	7,2	9,1	1,1	1,0	2,5	6,3	8,3
Lower Silesia	2,6	4,9	9,7	6,2	4,7	0,2	b.d.	2,7	b.d.	15,0
Bank credits [%]										
Poland	15,0	25,7	8,8	6,6	6,9	7,2	13,8	10,5	4,8	8,3
Lower Silesia	22,1	16,9	7,8	9,0	b.d.	10,2	12,2	30,2	b.d.	b.d.

Source: own study based on CSO data, b.d. - no data

Revenues from sales of new or significantly improved products introduced to the market in 2013 in total revenues of industrial enterprises amounted to 8.7% and the service sector - 3.4%. In the province of Lower Silesia, this share was higher than the national average and amounted to 10% for industrial companies and 5.3% in the services sector (Fig. 4).

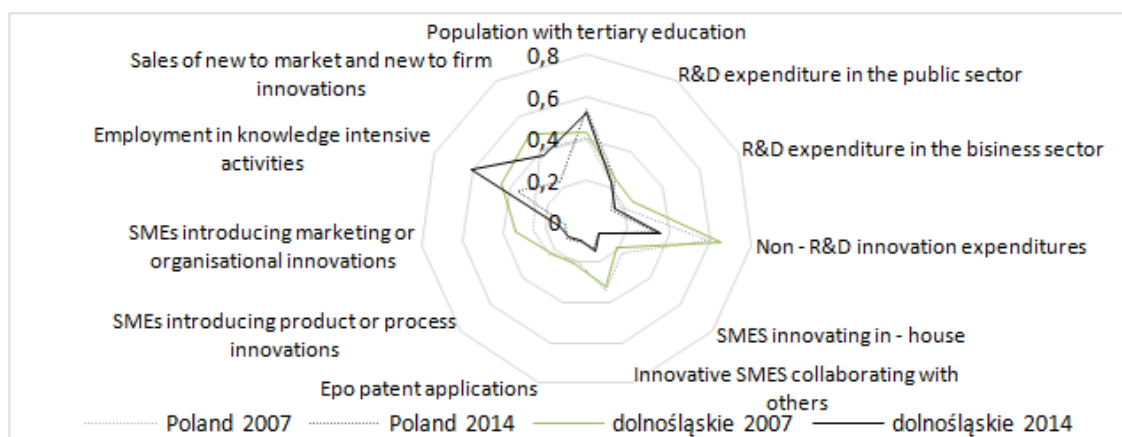
FIG. 4: Revenues from sales of new or significantly improved products in total sales revenues broken down by industrial and service sector in Poland and Lower Silesia [%]

Source: own study based on CSO, LDB data

Analysis of the data for the 2008-2012 period showed that in industrial enterprises of the Lower Silesia share of revenues from sales of new or significantly improved products in total sales was variable, while in the services sector, in the entire analysed period, was below the average of the country. Lower Silesia fell the least in the case of industrial enterprises in 2009-2011, when the share of sales revenue did not exceed 6%, while in the services sector between 2010 and 2012, when the share in the region stood at 2.5% and 1.3%.

According to the Innovation Regional Scoreboard report (RIS) on innovation index consists of many factors, which were divided into three groups (1), (Fig.5).

FIG. 5: The level of innovation of enterprises in Lower Silesia and Poland in the years 2007 and 2014 in various fields



Source: own study based on Regional Innovation Scoreboard (RIS) data

Factors favouring innovation, that is to make it the greater the chance of the emergence of innovative solutions. These include human capital (more written about this topic by A. Tarnowska (2001)), funding and support (more J. Szymańska (2006)), and quality, openness and attractiveness of the research system. The reports specified size indicator of Lower Silesia for people with higher education and the level of funding from both public and private. The data obtained show that in Lower Silesia in 2007-2013, the ratio of people with higher education increased by 0.09 (from 0.4 in 2007 to 0.52 in 2013). While decreased the ratios for the funding and support of innovative activities in both the public sources (from 0.25 in 2007 to 0.23 in 2013) and private (with 0.24 in 200. to

1 Measure the level of innovation of each region is assessed on a scale from 0 - 1 (where 1 - the highest attainable level of innovation). Depending on their level of innovation of individual European regions are divided into four groups, where the value of the index for "innovation leaders" is more than 120% of the average rate for the countries of the community; "Followers of the leaders" - 90% - 120%; "Moderate innovators" - 50% - 90% and "modest innovators" - below 50%.

0.16 in 2013). It means that during the period under review decreased amount of support from both sectors, and without adequate financial support for innovative solutions difficult.

Another factor influencing on the level of innovation is the activities of companies in the region. In the province of Lower Silesia in 6 years all indicators are responsible for the innovation activities of firms decreased. The biggest drop of indicators showing business expenditure on research and development (because as much as 0.3). This means that the Lower Silesia dropped in this case, from the group of "followers innovators" to group "moderate innovators" (down from 0.65 in 2007 to 0.36 in 2013). Reduced also the rate to the innovative activities (which fell by 0.17 and fell from the "moderate" to "modest innovators"). Decrease was also an indicator of the number of created innovation in the enterprise, as well as patent applications (in this case, the Lower Silesia embarrassing the entire period studied very poorly and was in the group of "modest innovators" like the whole country).

The third group of factors that speak of the level of innovation are the result of enterprises in the form of implemented innovative solutions and economic effects. For these indicators Lower Silesia improved only the rate of employment in a knowledge-based activities (from 0.45 in 2007 to 0.60 in 2013), while in the case of sales innovation for new businesses and market decreased the size of the index (from 0.5 in 2007 to 0.38 in 2013).

Comparing the Lower Silesia innovation enterprises to enterprises in Poland (as an average), in most indicators both in 2007 and 2014. Lower Silesia ranks above average or in the hinterland of the country. In 2014 Lower Silesia went off very well ageist the whole country especially in terms of the results, ie. sales innovation new for companies and the market (although compared to 2007 declined this against the background of the country in 2014. Indicator for the Lower Silesia province was 0.38, while the average country was at 0.23) and employment in knowledge-based areas (0.60 points in Lower Silesia, while the national average stands at 0.36 points).

Conclusion

Progressive globalization of markets with increasing intensity will force producers to undertake innovative activities. Currently, it is largely thanks to innovation, many companies still retains its position in the market. No activity in this direction, in the long term, will result in loss their position both on the regional market, but above all nationally and internationally. Analysis of these data allowed to draw the following conclusions.

Enterprises of Lower Silesia are becoming more innovative, which is evident especially after 2011, when there was an increase in the share of innovation active enterprises in the total number of enterprises, both among industrial companies and the service sector.

Enterprises in Lower Silesia, both industrial and services, usually implement technological innovations, ie. new or improved products or processes. It is also increased, although to a lesser extent, the percentage of companies implementing non-technological solutions involving innovative marketing solutions that attract consumers to buy their solutions as well as allowing for more efficient organization, then cheaper functioning of the company.

Undertakings in Lower Silesia to finance innovative actions devoted primarily funds its own. It is also growing, although to a lesser extent, the share of funds obtained from foreign sources, and in the case of service companies also bank loans. Support from the state budget for innovative solutions in the analysed period was marginal.

Grows in Lower Silesia especially after share of sales revenues 2011 of new or improved products especially in industrial enterprises.

Innovation of Lower Silesia enterprises in relation to the average of the country is at an average level, as evidenced by, among others, a growing number of people with higher education, as well as people employed in knowledge-based activities. For most indicators, which determine the innovation province is close to or above the national average. Worse, however, it falls compared to 2007 especially when it comes to investments and types of implemented solutions, which in part may be due to the economic crisis and the fear, that expenditures incurred by the company in such a difficult period for the economy, will not turn on.

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THE IMPORTANCE OF HUMAN AND INTELLECTUAL CAPITAL: EDUCATION AND HUMAN RESOURCES TRAINING IN AGRITOURISM IN WIELKOPOLSKA REGION

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Abstract:

Agritourism is a rapidly growing form of business initiative in many countries around the world. The elementary factor in the development of this form of tourism is a well-educated workforce (farmers), which has current knowledge about the preferences and expectations of agro-tourists. This knowledge demonstrates the quality of human and intellectual capital of agritourism operators. The source of knowledge on the determinants of agritourism development is school education. It includes education at secondary level (techniques of rural tourism), higher education (in tourism and recreation with a specialization in agritourism) and specialist courses and training run by the agricultural advisory centres. Studies have shown that agritourism suppliers have better than average farmer education level.

Introduction

In the dynamically changing realities of management, market operators seek solutions to ensure their survival and development. Social sciences, including economics and management, try to describe these solutions and formulate appropriate models. Not all occurrences equally submit to this modelling. Such occurrences should be the socio-economic activities of the people, the creators and participants of the organization. They describe both the theory of human capital, and this was founded on the basis of the concept of intellectual capital. In both cases, it is difficult to speak of a homogeneous conceptual apparatus and the standardized measurement methods. Meanwhile, the role of human capital and intellectual development of various fields of human activity increases. Examples of perceiving this role are knowledge-intensive sectors (IT, banking, insurance services, etc.). The role of human and intellectual capital is also being increasingly recognized in agriculture and in rural areas. The field of non-agricultural activity, the activity of agritourism in particular reflects these resources. It

includes the provision of tourism services through family farming in active farms for agritourists who have arrived for leisure.

The article has presented some elements of human resource development in agritourism activity in the region of Wielkopolska. Particular attention was paid to the formation of human resources within and beyond the education process, and the effects of improving human resources for agritourism.

1. Methods, literature overview

Source materials from the authors' own research and analysis of the literature sources were used in illustrating the effects of changes in human capital. The study results are presented in graphical and tabular form.

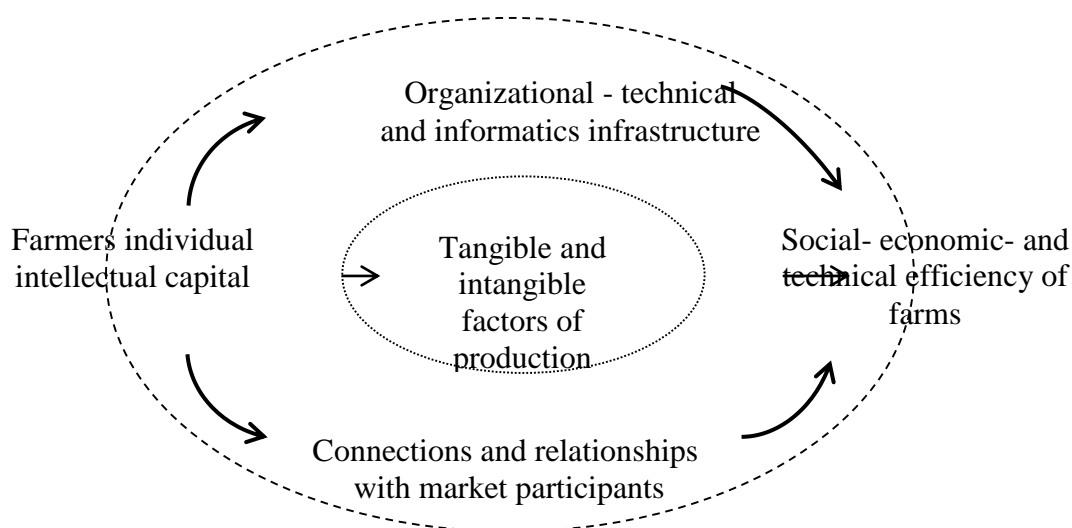
Both the study of human capital and intellectual capital, for which it is the causative factor, are not a novelty. They have been conducted for years by many prominent Polish and foreign researchers (Bartnicki, 2000; Dobija, 2003; Kosiewicz, Kicińska & Rogowski, 2006; Sveiby, 2006). They are interdisciplinary in nature and involve theorists in sociology, economics, management science and representatives of other disciplines, as well as social, economic and political practitioners.

The novelty seems to be, however, moving them to agricultural land, constituting a specific socio-cultural as well as economic and organizational area. The problem is significant, especially in such activities as tourism, which is the fulfilment of demands in the development of non-agricultural functions of agriculture and rural areas. In analyzing agritourism it is not sufficient to describe human resources only through the prism of quantitative traits such as the number of employees (Wysocki & Kołodziejczyk, 2007), age or level of formal education (Stawicka, 2006), or productivity (Gołaś & Kozera, 2008), etc. Furthermore, in the case of basing agritourism on aggregated data, alongside the many advantages, it has the disadvantage that deprives the individual characteristics and does not reach the circumstances determining the final effects of technical and economic decisions taken individually. This justifies the need for studies at a micro level, based on information coming directly from farms and from the people who operate them.

It seems that it is this last approach which is the most rational look at the realities of the contemporary perception of human activities in rural areas. Look at the functioning of agritourism operators in a market economy. Farm holdings involved in agritourism determines the effectiveness of this activity as well as the partial effectiveness of each of its components. The argument confirming this view is the increasing efficiency of pro-development activities, which can be seen in the number of agritourism farms throughout the Wielkopolska region (Jęczmyk et al., 2005; Kozera-Kowalska & Uglis, 2015). In the context of these activities the role of human capital, especially in terms of

individual skills, commitment and mode of action and a critical look at the results should be emphasized. Human capital is very broad and includes such elements as human genetics, medical conditions, attitudes, skills, experience etc. (Paluszkiewicz, 2005). Not all of these features are possible in estimating a conventional measurement. However, individual human and intellectual capital guiding agritourism are causative agents of organizational capital formation, understood as the infrastructure of technical and organizational information forming the basis of the business, and establishing and maintaining relations with the market and its participants, referred to as the capital market. The human impact on available tangible and intangible asset resources results in the end result in forms of high efficiency of operation “FIG. 1”.

FIG. 1: Individual human and intellectual capital as a factor stimulating the efficiency of farms



Source: own elaboration.

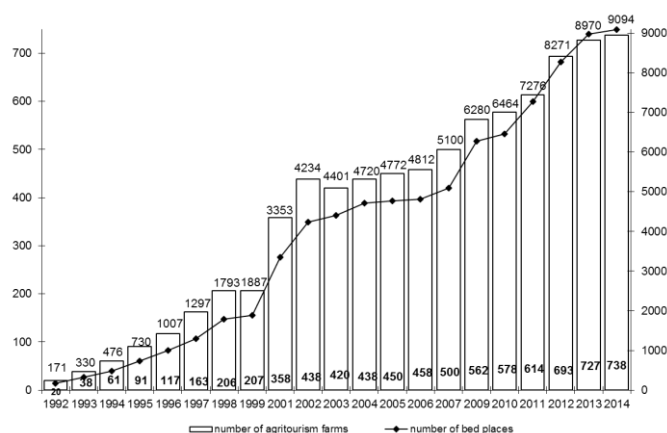
Furthermore, both the tangible that intangible effects of human impact on available resources, particularly in agritourism, are a factor in the uniqueness of the place. This applies both to its physical aspects (aesthetics of buildings and farmyard, room facilities, etc.), and an atmosphere that encourages re-using the services of the farm. In discussions on the development of non-agricultural functions of agriculture, including agritourism activities, increasingly it stresses that the quality of human capital is determined by both the ability and way of learning and access to directional education at various levels and in various forms. These findings are formulated against the disturbing results of analyzes on the level of education that is taken as the basic indicator for this issue. Addressing this among other are Wysocki & Kołodziejczak (2007), Adamowicz (2008), Czerna-Grygiel (2008), Poczta & Mrówczyńska-Kamińska (2008), Miś (2009), Mossakowska & Zawajska (2009), Kozera (2014), et al.

2. Results and Discussion

The generalized studies of the level of formal education of the Polish rural population are not optimistic. These indicate that almost 60% of the rural population have below the average education. Moreover, cited long-term forecasts predict only minor changes in this respect. This means that the Polish countryside lags significantly behind the national average, especially in the area of higher education (projected at 5% for 2030 compared to 14% among the overall population), and the significant advantage of people with primary education, compared to urban residents and Poles in total. Analysis of literature and own research (Kozera-Kowalska & Uglis, 2015) revealed that leading agritourism farmers have a better education level than the average farmer.

It should be noted that although agriculture is a sector of the economy of the least educated workforce, its level, both in terms of general and directional education (including agricultural and agritourism) is improving steadily (Kołoszko-Chomentowska, 2008). A relatively new driver of these changes is individual educational aspirations of the farmers. This applies especially to young people, who are fulfilling the need to find non-agricultural production sources of income in agriculture. These people are trying to acquire additional qualifications beyond the scope of school education. They look for them often beyond the formal education system, i.e. taking part in further training courses (e.g. information technology), retraining and other (Kozera & Grabowska-Chenczke, 20014). This process is reflected in agritourism, though just as it is diversified regionally.

Wielkopolska is an example of a region in which these processes can be observed. In this province (Uglis, 2012), as in other provinces in the country, tourism has been growing rapidly since the early 1990s “FIG. 2”. The development of agritourism confers many benefits to both the farmers in the activity and other residents of the village as well as agritourists (Ciepiela, Kur-Kowalska & Jankowska, 2015; Jęczmyk et al., 2015).

FIG. 2: The development of agritourism in Wielkopolska region between 1992-2014

Source: own elaboration based on data from the Wielkopolski Agricultural Advisory Centre in Poznan

3. School education and extracurricular personnel for agritourism business

Knowledge is the basis for the development of agritourism business in the quality of human capital represented by farmers conducting this activity. The knowledge which they engaged in this activity possess is now becoming an important factor in its success. Undoubtedly, the source of this knowledge can be assumed; however, school education is the primary source. It includes education at secondary and higher level. In an era where knowledge quickly becomes obsolete, there is a need to meet new requirements in the growing importance of gaining specialized courses and training as reported by agritourists. They must also meet the changing demands of the market.

In Poland, in the area of rural tourism, technical high schools are engaged in the training of personnel for agritourism at secondary level. This is a relatively new education profile which has been operating since 2008. The classification of occupations for vocational education in Poland provides for the possibility of training in this profession in a 4-year technical or two-year post-secondary school. There are 45 schools in the country offering such a profile of education. In order to obtain the professional title of rural tourism technician during training, the student must gain two qualifications:

- a) T.7.: tourism activities in rural areas,
- b) T.8.: conducting agritourism farm.

Graduates are fully prepared to organize and conduct agritourism, including agritourist services, thanks to such precise qualifications.

Secondary school graduates can expand their knowledge about agritourism at university level. The University of Life Sciences in Poznan has an interesting education offer in human resource training which currently offers tourism and recreation with

a specialization in agritourism. Education in this field has been conducted at the university since 1996, initially under the direction of animal husbandry, whereas since 2010 as bachelor of tourism and recreation studies with a specialization in tourism, in which more than 150 people have obtained a Bachelor's Degree.

In addition, the Wielkopolski Agricultural Advisory Centre in Poznan (WAAC) is very active in organizing various types of training courses for owners of agritourism farms and other rural residents as well as numerous agritourism associations. WAAC employees are pursuing specialized courses for people who want to start their own agritourism business on a farm, and training, among others, in marketing in rural tourism and agritourism, developing agritourism product offers, agritourists nutrition and direct sales of agricultural products from own crops. According to information obtained from WAAC, it appears that between 2010 - 2014 an average of 52 different specialized training courses (39 in 2012 and 65 in 2014) were conducted annually.

Conclusion

The strong connection between agritourism with the changing economic environment means that the results it achieved are the impact of three factors: the quality and the functioning of educational institutions (schools, universities, agricultural consulting, training and adult education etc.), individual skills in shaping and exploitation of knowledge and the skillful association gained of the intellectual capital in this way with the material resources. The interaction of these factors determines the effects of farm tourism in the final analysis, and its development and the individual level of life. These effects are consistent with the wider mission of the Tourism Development Strategy in Poland up to 2015. It is emphasized therein that tourism (*"Kierunki rozwoju turystyki"*, 2008), including agritourism, should be a synergetic area in relation to other activities and co-create the future level of national income; It is to contribute to creating a positive image of Poland; respecting the principles of sustainable development; taking care of the cultural heritage, traditions and natural wealth, and thus ensure the competitiveness of Polish regions of the country and as a whole. Implementation of the formulated objectives will be possible only in conditions of a high level of education, its wide availability and, above all, a high level of individual motivation of those involved in agritourism, their educational endeavors and aspirations. These measures should be supported at government level, among other, by creating the legal, institutional, financial and human resources for tourism development.

In conclusion, it should be emphasized that there are multiple opportunities in the Wielkopolska region to broaden and update knowledge of tourism. It is likely that the number of educated and well-trained people in the field of agritourism in the region will increase, which will contribute to raising human capital and intellectual personnel working in agritourism business.

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INFORMATIVE VALUE OF Q-TEST IN CONDITIONS OF CZECH REPUBLIC

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Keywords:

Quick test – financial stability – informative ability – prosperity – financial distress

JEL Classification: G32, M10, C38

Abstract:

Kralicek's Quick test is one of the well-known financial diagnostic tests in Europe. This model estimates the financial health of the company using the financial analysis tools with comparison with the created evaluation scale. The model was not created based on the sample of real companies and thus the author (even nobody later) has not tested complexly its informative value. That is why the quantification of informative ability of this model was stated using the tested sample of 1504 Czech companies. Even the model was not created using any statistic method (multiple discriminant analysis, logit analysis, decision trees, support vector machines, neural networks, etc.) it was found that its informative value is comparable to models based on empiric data (77.59% with the variation of one degree and up to 71.43% at the prediction of distress).

Introduction

Financial diagnostic models can be divided in the category of bankruptcy models and prosperity models. The bankruptcy models accuracy is known just during their creation using statistical methods and sample of companies for testing. The best known is Altman's Z-score (Altman, 1968), newer is for example Ahn and Kim's hybrid case-based reasoning and genetic algorithm (Ahn & Kim, 2009), the model based on the neural networks (Lee, Booth & Alam, 2005), combination of random subspace approach and binary logit model (Li, Lee, Zhou & Sun, 2011), hazard model based model (Shumway, 2001). The newest Czech models are bankruptcy index with accuracy 80.28% (Karas & Režnáková, 2014) and the model created using the sample of plastic producers and metal manufacturing companies with accuracy 90.96% (Homolka, Doležal & Novák, 2014).

Some models are specialised in companies based for example on the branch, the company size or the specific business activity. For example, the models focused on the accommodation (hotels/lodging) (Youn & Gu, 2010) (Kim, 2011), Internet companies

(Chandra, Ravi, & Bose, 2009), agriculture (Chrastinová, 1998) (Gurčík, 2002), manufacturing industry (Neumaierová, 2005), etc.

On the contrary, the prosperity models were created on the basis of logical assumptions without empiric research and these models do not have determined accuracy. For example the Grünwald's index (Grünwald & Holečková, 2007), Doucha's Balance analysis I., II., III. (Doucha, 1996), Tamari risk index (Tamari, 1966) and Index of creditworthiness (see more Zalai, 2010) are concerned. The Czech index IN99 (Neumaierová 2002), based on which the financially healthy company is the company with positive economic value added, represents the exception.

1. Kralicek's Quick test

This one-dimensional grading test was created in the year 1991 by the Austrian economist Peter Kralicek. It is mainly used in the German speaking countries under the name Quick test, Q-test or Kralicek's Fast Test. This model is different as with the increasing achieved value also the insolvency probability increases too. It uses the point evaluation (from 1 up to 5, like in the school) and is totally unique as in particular evaluated areas of the company economy (level of self-financing, duration of the debt payment, CF in % of revenues, return on assets) it does not distinguish their importance, and thus it does not assign different weights. The resulting grade is the arithmetic average of ratings achieved in particular evaluated areas $((Q_1+Q_2+Q_3+Q_4)/4)$. The company classified with the grade 1 and 2 is considered to be financially healthy, and the one with the grade 4 and 5 is pointed to the bankruptcy. See more in Tab. 1.

TAB. 1: The evaluation scale of the Kralicek's Quick test

Evaluation	Ukazatel		Evaluation scale (grades)				
			1 Very good	2 Good	3 Mid	4 Bad	5 Danger of insolvency
Revenue situation	Q ₁	Quota of equity	> 30%	> 20%	> 10%	< 10%	negative
	Q ₂	Duration of debt payment from CF	< 3 years	< 5 y.	< 12 y.	> 12 y.	> 30 y.
Financial stability	Q ₃	Cash flow in % of revenues	> 10 %	> 8 %	> 5 %	< 5 %	negative
	Q ₄	Return on assets	> 15 %	> 12 %	> 8 %	< 8 %	negative

Source: Adapted according to (Kralicek, 1993). Own interpretation.

Today the original variant of the Quick Kralicek test, as well as its modified variant, can be used. Kuběnka states (Kuběnka, 2015) that the key difference in comparison with the original variant consists in the fact that values of partial indexes (Q_1 up to Q_4) are not compared with previously determined particular values for all branches, but are compared to percentiles of branch values.

2. Methodology and results

In order to apply the Q-test on the analysed sample of companies it is necessary to calculate the values Q_1 , Q_2 , Q_3 , Q_4 stated in the Tab. 1. The used methodology of calculation is following:

- a) Quota of equity = equity/ assets
- b) Duration of debt payment from CF = foreign capital/cash flow
- c) Cash flow in % from revenues = cash flow/revenues
- d) Profitability of assets = EAT/total assets
- e) Revenues = Revenues from sold goods + Revenues from products and services
- f) CF = according to (Kislingerová & Hnilica, 2005) The economic results for the accounting period + depreciations + change of provision status.

Q-test uses grades but for the determination of the informative value capability of this model it is necessary to work with intervals. To divide the grading scale $\langle 1;5 \rangle$ in five intervals, the width 0,8 of point (grade) belongs to every interval. Then the intervals of evaluating scale are as follows:

- a) Grade 1 with interval $\langle 1;1,8 \rangle$
- b) Grade 2 with interval $\langle 1,8;2,6 \rangle$
- c) Grade 3 with interval $\langle 2,6;3,4 \rangle$
- d) Grade 4 with interval $\langle 3,4;4,2 \rangle$
- e) Grade 5 with interval $\langle 4,2;5 \rangle$

Q-test was applied on the sample of financial data (for the year 2012) of 1504 companies from the Czech Republic, from the manufacturing industry (from CZ NACE 10 to CZ NACE 33). The data were taken from the database MagnusWeb of the company Bisnode. The resulting values were compared to the financial situation of these companies at the end of the year 2013. The financial situation of company was derived from the achieved ROE level and from the verification of any symptoms of financial distress. The correct diagnostic consists in the situation when the Q-test evaluates the company with the grade 1 in the year 2012 and one year later, in 2013, $ROE > r_e$ (implicit costs of equity) and at the same time the company shows no symptoms of insolvency or negative equity. The correct diagnostic of the grade 2 is in the case when the analysed company achieves $ROE > r_f$ (risk-free rate) in one year and at the same time is shows no symptoms of distress. The correct diagnostic of the grade 3 is when $ROE_{2013} > 0\%$ (prosperity limits) is without bankruptcy symptoms. The correct diagnostic of the grade 4 is when $ROE_{2013} < 0\%$ (without symptoms of distress) and the correct diagnostic of the grade 5 is in the case when the company shows symptoms of distress. According to the Ministry of Industry and Trade (MPO, 2014) r_f 2013 is 2.26% and r_e 2013 is 12.11%. The methodology for comparison of the Q-test with the achieved ROE value in the following year is shown in the Tab. 2.

TAB. 2: Scale for evaluation of Q-test quality

t	Evaluation scale (final grade)				
	1 Very good	2 Good	3 Mid	4 Bad	5 Danger of insolvency
Interval borders	1.8	2.6	3.4	4.2	
t+1	Comparison with financial condition (t+1)				
	ROE > r_e	ROE > r_f	ROE +	ROE -	Negative equity or insolvency
ROE ₂₀₁₃	>12.11%	>2.26%	>0%	<0%	Distress symptoms*

*Distress symptom is negative equity, zero sales/no activity, insolvency, etc. Source: author

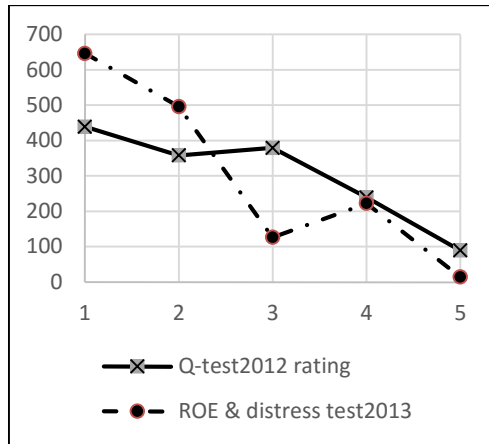
The ROE value was calculated based on financial statements (in 2013) of all companies and then compared with r_f rate (risk-free rate) and r_e rate (implicit costs of equity). The average value of ROE was 5.98% in analysed sample of companies, ROE_{max} 99.72%, ROE_{min} -346.71%, median of ROE was 9.74%, σ - standard deviation 47.46, variance of ROE 2254.42. In Tab. 3 are final frequencies of Q-test application and also results of ROE compared with r_f & r_e rates, critical limit 0% and checking symptoms of financial distress.

TAB. 3: Results of Q-test (in 2012) application and financial condition (in 2013)

Q-test ₂₀₁₂ rating	Evaluat. scale	Frequency	Percent	ROE & distress test ₂₀₁₃	Evaluat. scale	Frequency	Percent
Grade 1 <1;1.8)	Very good	439	29.19%	Grade 1. $r_e > 12.11\%$	Very good	646	42.95%
Grade 2 <1.8;2.6)	Good	358	23.80%	Grade 2. $r_f > 2.26\%$	Good	496	32.98%
Grade 3 <2.6;3.4)	Mid	379	25.20%	Grade 3 ROE > 0%	Mid	126	8.38%
Grade 4 <3.4;4.2)	Bad	239	15.89%	Grade 4. ROE < 0%	Bad	222	14.76%
Grade 5 <4.2;5>	Insolven- cy	89	5.92%	Grade 5. Distress	Insolven- cy	14	0.93%
x	x	1504	100%	x	x	1504	100%

Source: author

Comparison of Q-test and ROE classification frequency is stated in Fig. 1. There is possible to observe quite different frequencies.

FIG. 1: Classification frequency

Source: author

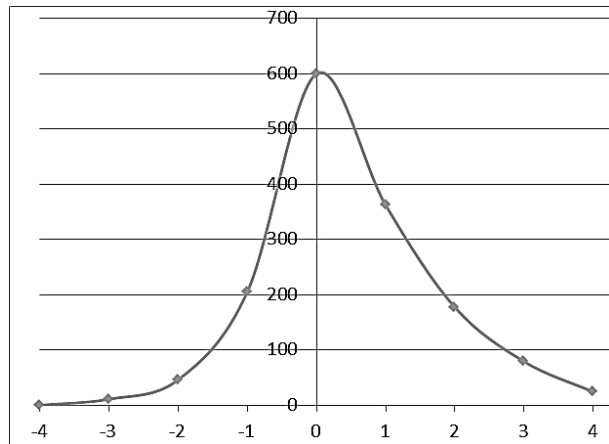
FIG. 2: Q test₂₀₁₂ vs. ROE₂₀₁₃ fault freq.

Figure 2 illustrates in graphic form the differences between Q-test grades and ROE & distress test grades. These differences take interval $\langle -4; 4 \rangle$. Zero difference means completely correct diagnosis. Higher difference means lower informative value. It is seen that frequencies are normally distributed. In Fig. 2 and also in Tab. 4 is stated that Q-test grade meets the grade of ROE & distress test absolutely in 39.89%. If we are more benevolent and accept also the variation ± 1 grade (in 5 degrees scale) informative value of Q-test is 77.59%. In this case was stated informative value of Q-test on base of deviation quantification. See more in Tab. 4.

TAB. 4: Informative value of Q-test type A - based on quantification of deviation

Q-test ₂₀₁₂ rating vs. ROE & distress test ₂₀₁₃		Deviation	Frequency	In percent	
Fact is:	4 degrees worse	-4	0	0.00%	Σ 77.59%
	3 degrees worse	-3	11	0.73%	
	2 degrees worse	-2	46	3.06%	
	1 degree worse	-1	205	13.63%	
Fact meets prediction		0	600	39.89%	
Fact is:	1 degree better	1	362	24.07%	
	2 degrees better	2	177	11.77%	
	3 degrees better	3	79	5.25%	
	4 degrees better	4	24	1.60%	

Source: author

Another way how to quantify the informative value of Q-test is to express number of consistent grades. Tab. 5 shows that Q-test predict prosperity (grade 1 if $ROE > r_e$) in 48.30 % and distress (grade 5) in 71.43%.

TAB. 5: Informative value of Q-test type B - based on no. of correctly predicted grades

Score (grade)	Condition in 2013 (frequency)	Q-test2012 grades (frequency)	Correct evaluation (in percent)
1	646	312	48.30%
2	496	161	32.46%
3	126	43	34.13%
4	222	74	33.33%
5	14	10	71.43%
Total	1504	600	39.89%

Source: author

However, this method is not suitable for comparison with other above mentioned models. This is because most of these models have three degrees (intervals) scale (e. g. Karas & Režnáková, 2014 and Homolka, Doležal & Novák, 2014).

Conclusion

There is no available information nearly for all prosperity models relating the fact how much it is possible to rely on their diagnostic results. Especially, as for the Q-test, it has not been known whether we can ultimately rely on results of its classification (for example at 99%) or, to the contrary, whether it is not reliable (the success rate of diagnostic at 10%). That is why the author aimed to quantify the reliability of this model. For this purpose the own methodology of company financial situation evaluation was created based on the achieved level of ROE and of the current analysis of bankruptcy symptoms of the company. The analysis of 1504 brought interesting results that show that the Q-test has the comparable informative value as some bankruptcy models created using the mathematic-statistical analysis based on empiric data. The informative value of the Q-test was quantified for Czech middle and large companies acting within the manufacturing industry. The question is how would be the diagnostic force of this model in testing of other branches and for example of small companies. This would be the subject of the further research.

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THE NEWEST CZECH MODELS FOR PREDICTION OF FINANCIAL CORPORATE BANKRUPT

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Keywords:

bankruptcy – prediction accuracy – P' model – Index of Karas and Režňáková

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Abstract:

Since 2005 only 2 bankrupt models have appeared in the Czech Republic and Slovak Republic that would reflect/accentuate changes in national economies after the economic crisis in 2008 and would have a clear methodology. The bankrupt index of Karas and Režňáková (BIKR) and so called P' model of authors Delina and Packová are concerned. The accuracy of BIKR model is expressed as the weighted average of sensitivity and specificity and achieves the value 91.71%. The predictive power of model P' is expressed by the bankrupt prediction accuracy 21.26% and the bankrupt prediction return of 71.84%. The performed research has shown that the P' model achieves higher model accuracy. The sample of 1220 active and 286 bankrupted companies (based on simple average of sensitivity and specificity) has achieved the accuracy of 84.46%. Undertaken research results lead to recommendation to apply the P' model in business practice.

Introduction

Even the first half of 20th century was related to the effort to find the way how, based on financial data contained in account books, to predict the company bankrupt. But until in 1968 Altman brought the first multivariate analysis (MDA) in his bankruptcy model Z score (Altman, 1968) that works with five financial ratios. In 1980 Ohlson used for the first time the logit linear probability for creation of his bankruptcy model (Ohlson, 1980). In the year 1985 the factor analysis was used in order to get independent variables for the logit model (Zavgren, 1985). Later the progress has led to methods of artificial intelligence that mainly use the neural networks (NN) for creation of prediction models since nineties of last century. Tam and Kiang (Tam, 1991), (Tam & Kiang, 1992) belong to pioneers of NN usage. Particular methods (MDA vs. Logit vs. NN) of models creation were compared many times. The results show NN as the most suitable method as proven by (Pendharkar, 2005) (Liang, 2005) (Rafiei, Manzari & Bostanian, 2011).

After the passage to the market economy (nineties 20th century) the bankrupt models also started to origin in the Czech Republic and Slovak Republic in order to predict the company bankruptcy. These models should regard the market specificity of these countries. The model (index) IN95 (Neumaierová & Neumaier, 2002) has appeared as the first one, being designed as the creditor's model, as it is mostly used for subjects in the creditor's position (banks and business partners). In 1999 the same authors brought the so-called ownership's model, named IN99. Its function consists in the prosperity prediction based on the positive economic value added (EVA). In 2001 they created the model IN01 that connected properties of both previous models, i.e. it predicts the bankruptcy as well as the prosperity. Just in the year 2005 it was updated to the version called index IN05 (Neumaierová, 2005).

Before the economic crisis two models focused on the agriculture appeared in Slovakia. It was CH-index from 1998 (Chrastinová, 1998) and G-index from 2002 (Gurčík, 2002).

After the economic crisis in 2008 only 2 bankruptcy models appeared at the territory of the Czech Republic and the Slovak Republic, i.e. P' model (Delina & Packová, 2013) and the bankruptcy Index of Karas and Režňáková (BIKR) (Karas & Režňáková, 2013). Čámská emphasizes that the application of these types of model is „user friendly as they do not require any specific mathematic and statistic knowledge of the user“ (Čámská, 2013). The authors of model BIKR determine the model accuracy 91.71% (calculated as the weighted average of sensitivity and specificity). The authors of model P' determine the bankruptcy prediction accuracy 21.26% and the bankruptcy prediction return at 71.84%.

Let's suppose that the bankruptcy model is accurate at maximum when applied in the region (country) of its origin (due to the differences of accounting methods, market environment, etc.). Let's also suppose that the market environment in the Czech Republic and the Slovak Republic is still very close. Thus we shall test just last two mentioned models (BIKR and P' model) in order to define their accuracy and to create the recommendation use in practice in the future.

1. Tested models

1.1. P' model

The authors of model Delina and Packová (2013) have got their inspiration in three existing models. The Altman Z score (purely bankruptcy model) and Index of creditworthiness belong to the most mentioned ones in the foreign literature. The third model IN05 is mainly known inland where it was created. IN05 is different as it combines the bankruptcy prediction and the prediction of economic value added.

The analyses sample of Slovak companies includes 1560 of accounting statements from the period 1993-2007. 1457 companies (93.40% of the whole sample) are the active companies and 103 are the bankrupted ones (6.60%). The authors do not show the specific branch, they only divide the sample in production companies (36.60%), business companies (25.71%) and service companies (37.69%). The authors tested following chosen models (Z score, Prosperity Index, IN05) and found that they had low prediction capability:

TAB. 1: Validation of Models - Results

	No. of bankrupt prediction	Incorrect prediction	Accuracy of bankrupt prediction	Return of bankrupt prediction
Altman	428	375	53	
		87.62%	12.38%	51.46%
Prosperity Index*	273	213	60	
		78.02%	21.98%	58.25%
IN05	521	445	76	
		85.41%	14.59%	73.79%

*made by Beerman, 1976. Source: Delina & Packová, 2013

Due to this reason Delina and Packová (2013) proposed their own bankruptcy model using the ration indexes used in analyses models (Z-score, Creditworthiness Index, IN05) and regression analysis. The so-called P' model has the following form:

$$P' = 2.86 - 0.0001278X_1 + 0.04851A_2 + 0.2136A_3 - 0.000071A_4 + 0.0001068B_1 - 0.0006116B_4 \quad (1)$$

where:

X_1 = (Financial assets – short-term liabilities) / (Operating expenses – depreciations)

A_2 = Retained Earnings / Total Assets

A_3 = Profit before interests and taxes / Total Assets

A_4 = Registred capital / (Long-term + short-term liabilities)

B_1 = Cash flow / Total liabilities

B_4 = Earnings before taxes / Total Operating Revenue

The evaluation scale does not contain the interval of non-specified values of P' model. The critical limit for the company classification is at the value 2,856. When $P' < 2.856$ the company tends to bankrupt, when $P' \geq$ the company is financially healthy and the bankruptcy probability is very low. The authors of P model present its accuracy and return of bankrupt prediction.

TAB. 2: Accuracy of P' model

	No. of bankrupt prededction	Incorrect prediction	Accuracy of bankrupt prediction	Return of bankrupt prediction
P' model	348	274	74	
		78,74%	21,26%	71,84%

Source: Delina & Packová, 2013

1.2. Bankruptcy index of Karas and Režňáková (BIKR)

This is the newest model with different structure of variables calculation. All know bankruptcy models (based on author's knowledge) use 4 ratio indexes at minimum, whereas BIKR use only two of them. The first one (X2) is the assets turnover and the second one (X3) is the ratio of quick assets and sales. In addition, it contains the variable of absolute amount (X1) that represent the value of total assets in EUR. The index authors, Karas and Režňáková (Karas & Režňáková, 2013), created the model based on the sample of 880 financially stable and 628 bankrupted companies. Data were drawn from the accounting statements from the period 2007 to 2012. All 1508 companies belonged to the processing industry, based on their business activity, (NACE rev. 2, section C: Manufacturing).

In their text the authors (Karas & Režňáková, 2013) state that the model construction is based on the connection of linear discrimination analysis and the Box-Cox transformation variables. The model is shown as follows:

$$\begin{aligned} \text{Index} = & 1.841 \cdot \frac{(X_1 + 16783.91)^{0.02941} - 1}{0.02941} + 1.112 \cdot \frac{(X_2 + 1)^{-0.35627} - 1}{0.35627} + \\ & + 13.55 \cdot \frac{(X_3 + 1.12)^{-2.97955} - 1}{2.97955} - 17.319 \end{aligned} \quad (2)$$

where:

X_1 = value of total assets (EUR)

X_2 = turnover of total assets

X_3 = quick assets a sales ratio

It can be positively considered that the evaluation scale does not include the grey zone (indecision zone) and in spite of it it achieves a very high accuracy. The division limit was determined by the 0 value. Then the company with achieved value $\text{BIKR} > 0$ should be financially healthy and with $\text{BIKR} < 0$ there should a risk of bankruptcy.

TAB. 3: Results of tested model BIKR 2013

Time	Active	Bankrupted	Total*	Error of I. kind	Error of II. kind
1	97,89	69,91	91,71	30,09	2,11
2	95,60	65,56	89,65	34,11	4,29
3	94,38	65,23	89,19	34,38	5,50
4	93,04	65,42	88,56	34,11	6,83
5	91,47	61,18	87,81	38,82	8,39

* weighted average of accuracy of active and bankrupted companies where the numbers of observation are weighted. Source: Karas & Režňáková, 2013

2. Data processing, methodology, results

2.1. Analysed set of companies and data processing

Tested group was sample of 286 bankrupt and 1220 non-bankrupt Czech companies. All of them were operating in the manufacturing industry. The non bankrupt companies were only without negative symptoms (insolvency, failure, extinction, execution, negative shareholders' capital) in the year 2012. Data source was the database of economic entities MagnusWeb of the company Bisnode. It is necessary to detail the calculation methodology. The items Balance Sheet (BS) and the items Profit / Loss Statement shall be processed as follows:

- X_1 calculation (BIKR): Total assets of EUR (Exchange rate at 27 CZK/EUR).
- X_2 calculation (BIKR): Sales are the sum of I. Sold Goods and II. Sold products and services.
- X_1 calculation (P' model): Financial property = sum of B.III. Long term financial property+ C.IV.3. Short term financial property.
- X_1 calculation (P' model): Operating expenses = sum of cost items from A. to I. (of P/L Statement)
- A_2 calculation (P' model): Retained earnings = A.3. Funds from earnings + A.4.1. Retained earnings
- A_3 calculation (P' model): Earnings before interests and taxes (EBIT) = ***EAT + Q. + S. + N.
- B_1 calculation (P' model): Cash flow calculation: *Operating profit + E. Depreciations - G. Change in reserves
- B_4 calculation (P' model): Total Operating Revenue = Revenues from no. I. to no. IV.

2.2. Methodology of predictive power expression

We can be inspire in creation of evaluation methodology of models accuracy by the father of multiple-criteria models of bankruptcy prediction, by E. Altman (1968) as well as by other actual authors, for example Berzkalne and Zelgalve (2013), Huijuan (2015).

TAB. 4: Accuracy-matrix

	Prediction	
Fact	Bankrupt	Non-Bankrupt
Bankrupt	H1	α
Non-Bankrupt	β	H2

Source: author

where:

 H_1 – number of correct predictions of future bankrupt α – Type I error is number of bankruptcy companies mistakenly classified as non-bankrupt β - Type II error is number of non-bankruptcy companies mistakenly classified as bankrupted. H_2 – number of correct predictions of future non-bankrupt

Accuracy of bankrupt prediction (in %) for bankrupt companies (so called „sensitivity”) can then be expressed as follows:

$$\text{Sensitivity (ABP)} = \frac{H_1}{H_1 + \alpha} \times 100 \quad (3)$$

Accuracy of non-bankrupt prediction (in %) for non-bankrupt companies (so called „specificity”) can then be expressed as follows:

$$\text{Specificity (ANP)} = \frac{H_2}{H_2 + \beta} \times 100 \quad (4)$$

$$\text{Total accuracy (TA)} = \frac{ABP + ANP}{2} \quad (5)$$

2.3. Results

According to construction of P' model (1) and Index of Karas and Režňáková (BIKR) were calculated the predictions of financial health for 1505 companies. Results are shown in the following table no. 5. Based on simple average of sensitivity and specificity higher prediction power has P' model.

TAB. 5: Research results

Model	Fact	Prediction		ABP	ANP	TA
		Bankrupt	Non Bankrupt			
BIKR 2013	Bankrupt	177	108	62,11%	98,44%	80,28%
	Non Bankrupt	19	1201			
P' model	Bankrupt	213	72	74,74%	94,18%	84,46%
	Non Bankrupt	71	1149			

Source: author

Conclusion

Every day many subjects need to evaluate in fast manner the financial health of business partners, loan applicants, debtors, etc. To this purpose there have been developed many failure prediction models. Above all their accuracy depends on age of model, region (country) and company sector. On this basis author posed the question which model is best suited for Czech companies in manufacturing sector.

According to formulas (3), (4) and (5) was stated final accuracy of these two newest failure prediction models for 1220 non bankrupt and 285 bankrupt companies. Research showed greater prediction power of P' model in sensitivity (74.74%) with type I error 25.26%. Conversely BIKR model is better in prediction of prosperity non-bankrupt companies. Namely BIKR specificity is 98.44% with type II error only 1.56%. Comply with (5) is BIKR total accuracy amounting to 80.28%. Total accuracy of P' model is 84.46%. That is the reason why recommend P' model for business practice in manufacturing industry in Czech Republic.

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EAST-WEST GRADIENT OF REGIONAL DIFFERENTIATION IN POLAND

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regional differentiation – regional disparities – voivodeships – Polish subregions – Poland

JEL classification: O13, R12

Abstract:

The aim of this article is to show and explain the current economic, socio-demographic and infrastructure spatial differentiation and related regional disparities in Poland at the NUTS2 level (voivodeships) and the NUTS3 level (subregions). We analyse the values of 9 indicators for these regions in terms of deviations from the median and we are trying to uncover factors affecting the observed differentiation and disparities in Poland. Expected dichotomy of Warsaw with its hinterland (and also Kraków, Łódź, Wrocław, Poznań, Gdańsk and Szczecin with its hinterlands) against the rest of the country confirmed, as well as dichotomy of voivodeships and subregions with large cities against those which have small towns. Also confirmed the east-west gradient (precisely southeast – northwest gradient) of Polish regions.

Introduction

Poland is a large and mainly plain Central European country lying on the border with Eastern and Northern Europe. It is organized into 16 voivodeships (NUTS 2). Until 1998 there were 49 voivodeships. Due to the large area of the new voivodeships and its internal heterogeneity it was still necessary to apply the subregional view, according to statistical NUTS 3 regions - subregions. Until 2015 there were 66 subregions (since 2015 there are 72). Subregions are constructed to connect several Polish districts (powiats) or are identified with the 7 districts of the largest cities.

This paper aims to uncover the current socio-geographic regional differentiation of Poland on two levels (NUTS2 and NUTS3), find the relevant regional disparities (Chapter 2), and tries to justify these differentiation and disparities from the position of social geography and on the background of the relevant literature (Chapter 3). Already at the beginning of the monitoring we assume an east-west gradient of such differentiation, respectively disparities (see Nováček, 2014) and also a significant difference between the capital and other major cities against the rest of the country.

1. Methods, literature overview

At the beginning it was necessary to select the appropriate set of indicators comprehensively characterizing the socio-economic advancement of monitored regions. Those indicators were chosen also with condition of available current data, for both monitored regional levels. Among selected are 4 indicators of regional economic level, 3 qualitative socio-demographic indicators and 2 indicators assessing the quality of technical infrastructure in the regions - TAB. 2. Experts determined values of the weights of indicators at interval of 0.5 (less important) to 1.5 (very important). These weights were consolidated and averaged into the final weights of indicators - TAB. 1. The expert group includes authors of this article and other experts from authors' departments.

Data for voivodeships and subregions were obtained on the website of the Polish Statistical Office (GUS - Główny Urząd Statystyczny, 2015). Data mostly represent the year 2014, small part of it represents 2013, only academic education is to the year 2011. The nine indicators were transferred to deviations from the median values, in the way that the median were transformed into a value of 100 and using the rule of three the values were derived deviations - TAB. 2. The values of partial indexes (economic, socio-demographic and infrastructural) originated as simple averages. In the total index were applied weights of indicators - deviations from the median value were multiplied with these weights and then averaged. Thus we proceeded at both levels - voivodeships (TAB. 2, FIG. 1) and subregions (FIG. 2). For the analysis were available cartograms showing the values of all partial indexes and individual indicators (examples in FIG. 3 and FIG. 4).

The choice of indicators was very important. Unfortunately, not all phenomenons important for understanding the regional level were able to obtain accessible and current statistics. For comparison and interpretation phase (Chapter 3), we managed to find a many papers analyzing and explaining regional diversity and disparities of Poland, from the levels of NUTS 1 (major regions), up to the level NUTS4 (districts).

2. Results

TAB. 1 shows weights of individual indicators gained an expert way. Deviations from the median of monitored indicators for the voivodeships can be found in TAB. 2, while in the last column is computed the total index of regional differentiation in which were applied the weights. The following are comments on the data at the level of voivodships and subregions, comparison of major Polish cities and their hinterlands with the rest of Poland and east-west gradient and other expressions of regional differentiation.

TAB. 1: Indicator weights for total index of regional differentiation

	Economical aggregate	Average monthly salary	Unemployment	Newly built flats	Dependency ratio	Net migration rate	Share of academically educated population	People with access to water line	Major roads and railroads density
Indicator weight	1.400	1.275	1.188	0.888	0.575	0.988	1.100	0.600	0.988

Source: Expert group processing.

Economical aggregate is a multiple of the average monthly salary and the number of economically active people. In terms of this indicator is by far the best Mazovian voivodeship with Warsaw. Low values have voivodeships without large cities in the north and southeast of Poland. Subregional level (FIG. 3) is a mosaic of diversity - urban subregions of Warsaw, Szczecin, Wrocław, Katowice, Kraków and the Tricity stand out, the worst turned out rural subregions lying in the center and north, and also at the southeastern border of Poland. The average monthly salary is included in the set of indicators to strengthen the importance of economic performance characteristics. Therefore the spatial image of this indicator values is similar. Voivodeships in southwest Poland have favourable values of unemployment. Most problematic in this regard in the centre of Poland lying Kuyavian-Pomeranian voivodeship. Subregional largest unemployment is in some subregions of inner periphery (south from Toruń and surprisingly also south from Warsaw). Satisfaction with life in the region and a higher income indirectly shows the newly built flats (per thousand inhabitants). The construction is strong in Warsaw and its suburban hinterland, also in other major cities in Poland. In voivodeships with heavy industry (Opole, Silesian) this construction is weakest - people here are accustomed to living on a previously built housing estates. The best on subregional level are subregions of big cities and their hinterlands (suburbanization). Values of partial economical index (average of previous values) are at the subregional level most favorable for Warsaw, Wrocław, Szczecin and Tricity and hinterlands of these cities. Worse it is in rural Kuyavian-Pomeranian subregions and rural subregions at the Czech, Slovak and Ukrainian border.

In big cities there is a high dependency ratio, similar to inner peripheries in middle eastern Poland. More favourable situation in this regard is in the subregions bordering with Germany, Czech Republic and Lithuania. In the case of net migration rate (per 1000 inhab., for the years 2004-2014) are the most profitable hinterlands of large cities (suburbanization), the most unprofitable is Opole and Silesian (moving to Germany, heavy industry with transformational issues) and peripheral rural subregions at east, belonging to the Subcarpathian, Lublin and also Warmian-Masurian voivodeships. High share of academically educated population has Pomerania, Lower Silesia, Lesser Poland and especially Mazovia. It is caused by the presence of large cities with large and

prominent universities. Academical education is low in rural midwestern subregions of Poland, and also at the Slovak border. Values of partial socio-demographical index reflect an east-west gradient, they are the most favourable for large cities and their hinterlands subregions.

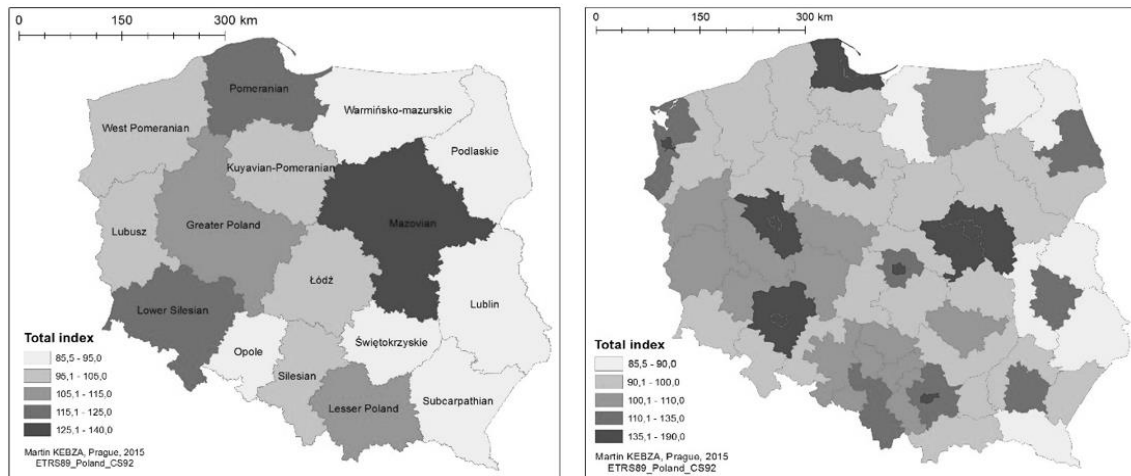
Those parts of Poland, which belonged before World War II to Germany, have a higher infrastructural facilities such as water lines. The major roads and railroads density is there still the highest, especially in Lower Silesian, Opole, Silesian voivodeships, also in the subregions around Toruń, Cracow and between Warsaw and Łódź (FIG. 4). In terms of the values of these two indicators (= partial infrastructural index) the best values have large cities and their agglomerations and subregions lying in 'Odra River Basin'. The least favourable situation in the east of Poland.

TAB. 2: Values of monitored indicators and total index of regional differentiation of polish voivodeships (2014)

NUTS 2 (Voivodeships)	Economical aggregate	Average monthly salary	Unemployment	Newly built flats	Dependency ratio	Net migration rate	Share of academically educated population	People with access to water line	Major roads and railroads density	Total index
Łódź	99.99	100.19	100.10	86.70	99.69	108.85	101.00	96.48	103.27	99.90
Mazovian	130.95	136.42	99.86	171.99	90.40	273.89	145.13	96.51	90.47	139.80
Lesser Poland	100.71	102.44	100.89	122.97	93.89	192.92	105.17	87.08	105.02	113.00
Silesian	116.55	113.53	101.91	69.31	102.27	65.93	99.67	101.21	146.03	103.20
Lublin	98.77	99.81	99.37	79.82	99.42	30.53	99.89	89.31	66.17	85.60
Subcarpathian	91.54	94.48	97.46	111.06	99.00	88.94	88.84	86.02	71.06	91.90
Podlaskie	97.60	97.74	99.90	89.87	100.35	63.27	99.11	96.91	68.28	90.50
Świętokrzyskie	93.76	95.13	98.62	78.73	100.31	50.00	100.17	92.23	94.09	89.40
Lubusz	95.69	94.84	100.47	109.88	101.50	103.98	88.79	100.51	101.57	99.00
Greater Poland	100.01	99.61	102.20	140.32	95.99	163.72	100.11	106.02	106.19	112.00
West Pomeranian	100.69	101.04	99.10	86.79	101.83	107.52	103.01	104.97	95.48	101.00
Lower Silesian	113.53	111.93	101.17	128.00	101.06	138.94	105.11	102.35	134.00	115.60
Opole	105.40	100.58	101.61	50.65	108.01	7.52	85.44	99.90	136.12	88.80
Kuyavian-Pomeranian	93.07	95.22	98.14	103.21	99.44	96.02	86.71	101.97	120.36	98.60
Pomeranian	108.57	111.07	100.64	160.48	93.09	182.74	107.42	107.67	98.43	118.80
Warmian-Masurian	91.96	93.77	97.16	80.44	102.75	34.07	86.19	100.10	87.69	85.50

Source: GUS - Główny Urząd Statystyczny (2015), own processing.

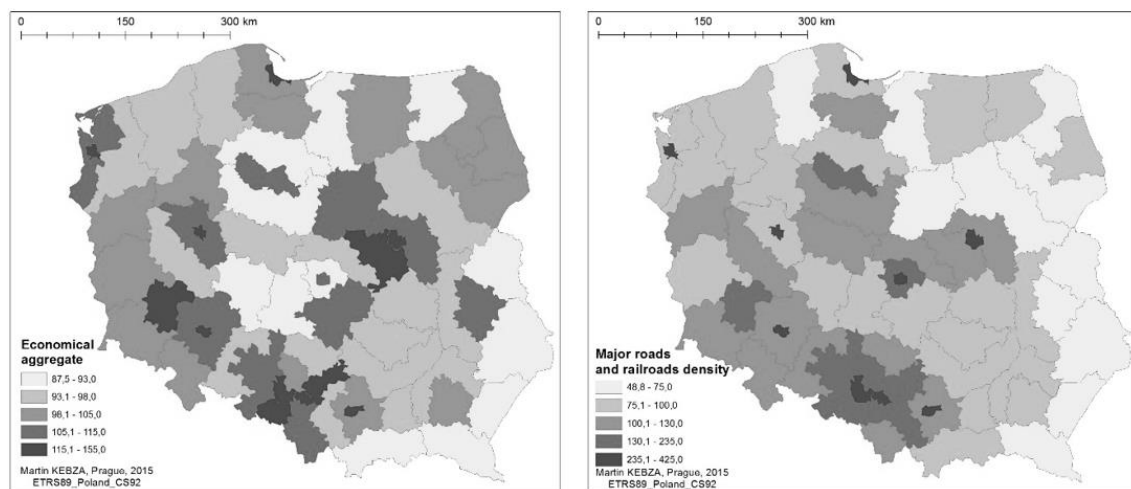
FIG. 1, 2: Total index of regional differentiation values for voivodeships (on left) and subregions (on right), 2014



Source: GUS - Główny Urząd Statystyczny (2015), own processing.

Mazovian voivodeship and in the second line Lower Silesia, Pomerania, Greater Poland and Lesser Poland are characterized by higher values of total index of regional differentiation (TAB. 2 and FIG. 1). On the opposite end of the scale there can be found voivodeships of northeast and southeast Poland, and surprisingly also Opole, which has not a big city, and is emigratory. The subregional level is more shattered (FIG. 2). Big cities appear there - Warsaw, Poznań, Wrocław and Tricity with their suburban subregions, in the second line Szczecin, Łódź and Kraków. Better situation is also in the rural subregions of Lower Silesian, Greater Poland, Silesian and Lesser Poland voivodeships, on the contrary it is in rural subregions of the east and northeast Poland.

FIG. 3, 4: Selected indicators values for subregions (2014) – economical aggregate (on left) and major roads and railroads density (on right)



Source: GUS - Główny Urząd Statystyczny (2015), own processing.

3. Discussion

East-West gradient in the environment of voivodeships and subregions applies only partially (similarly Petrakos, 2001; Zdražil, Kraftová, 2012), especially those characteristics that are linked to the former division of Poland to more developed western German part and less developed eastern Russian and Austrian-Hungarian part. The gradient is disrupted by developed agglomeration of Warsaw located in middle-east part of Poland and some regions bordering with Germany and in central Poland, which have average or low values.

Poland is a great country with large population with big, more than half a million agglomerations on the one hand and extensive peripheral territories on the other hand. The duality of developed and urbanized agglomeration regions x underdeveloped rural peripheral regions in Poland is significant. It is especially noticeable in the case of agglomerations (city + suburban hinterland) of Warsaw, Poznań, Wrocław, Tricity and Łódź, Szczecin, Kraków and Katowice. This is confirmed also by Barjak (2001) or Churski, Borowczak (2013).

Total index of regional differentiation in cartogram for subregions of Poland (FIG. 2) indicates a possible positive effect of the country border nearness with most subregions bordering with Germany, at subregions of Opole and Silesian voivodeships bordering with the Czech Republic, and also in case of Białystok, due to the Polish - Lithuanian and Polish - Belarusian relations.

Positive effects of industry is mainly applied in the territories of Poland, in which impact enterprises of modern engineering, chemical (Churski, Borowczak, 2013) and electrotechnical industry. Old industrial areas with coal mining and metallurgy in Silesia and Lesser Poland, or the textile industry around Łódź (Churski, 2005) are not doing so well. Especially human capital here has a less favourable value.

Also important are the trends in regional development. The Warsaw agglomeration with its values rather recedes from other developed regions of Poland (Zdražil, Kraftová, 2012; Churski, Borowczak, 2013). Some authors indicate a deterioration of the situation in the regions of former East Prussia, Silesia and Opole region (eg. Churski, Borowczak, 2013). Many Polish regions are losing their human capital due to migration of young people abroad. Zientara (2008) wants to convince those Poles who want to go to the West to rethink their decision and convince those Poles who are already there to return.

Conclusion

Urbanized regions are more developed than the rural regions that is natural. However, some authors point to the need for a broader concept while researching regional disparities, also including social capital (Zarycki, 2007; Zientara, 2008), which is in

rural areas at a higher level. Polish regional policy should focus on the unwanted and significant disparities between voivodeships - Churski (2005) and should promote the connection of marginalized districts and subregions with agglomerations of large cities - to create a functional relations between growing and stagnating districts and subregions (Churski, Borowczak, 2013). Special attention should be paid to industrial areas that are affected by the decline of mining and heavy industry.

Voivodeships in southwest Poland may become attractive for foreign investments due to lower labour costs, the Polish seaside is interesting for those foreign investments, for which are relevant transport costs, voivodeships bordering with Germany may support investments of German entrepreneurs from across the border - Chidlow, Salciuviene, Young (2009).

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COMPARISON OF PREDICTION ABILITY OF BANKRUPTCY MODELS IN CONDITIONS OF THE CZECH REPUBLIC

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bankruptcy models – prediction ability – prediction accuracy – failed companies

JEL classification: M21, G33

Abstract:

The aim of this paper is to verify the predictive ability of the models Z-score, Ohlson model and model IN05 in the conditions of Czech economic environment. The method is based on calculation of the models' value in the set of companies without financial problems, and in the set of companies that were forced to close down their activities. The financial data was drawn from the financial statements in the period of 2008 and 2012. The greatest reliability in the prediction of bankruptcy was found of the model IN05 which indicated problems two and three years before in 74 per cent of the cases. The least success in prediction the failure one and two years before has proven of the model Z-score. The results imply a question of suitability of this model for the current conditions of the Czech economy and encourage the efforts to create the new models.

Introduction

The economy development and the ongoing financial crisis in the last years turns the attention of the stakeholders to the of the firm's financial condition assessment and to the prediction of their future development. The research activities concentrated on the predictive models, with special attention to the bankruptcy models that should reveal early signs of future problems and give the possibility to take measures in advance and avert future problems.

New factors which has become the conditions of the firms' success (market position, customers relationships, innovation, corporate governance), has inspired the research projects oriented to the new indicators of financial condition and to its relation with the methods used to derive the bankruptcy models. The core of those considerations was to expand the indicators-predictors of that ones that allow to asses these new factors and allow their inclusion into the predicting the success of future development. These efforts led to the creation of new variants of Altman, Zmijewski and Ohlson models as well as completely new models.

In the economy of the countries transiting from a centrally planned system to market principles there are a number of factors that affect the predictive power and reliability of the models, which were constructed in different economic environment. The construction methods of the bankruptcy models as well as their verification presuppose a sufficiently volume of data of companies that are really in a situation of termination of their activities due to financial insufficiency. The conditions have been created by the law of Bankruptcy which entered into force in 2009. During next six years has been created the conditions of unambiguous identification of companies that has to close their activities. The financial data of their financial development before the failure reflect the national conditions and risks. And can be used to construct a model, which is possible to expect higher prediction ability.

Financial data of companies which have to close their activities became the base of our investigation. The aim of the first stage of the internal research project is to verify the prediction accuracy of selected models and to detect, if there are any differences between the prediction ability of foreign and domestic models and its reliability in case of failed and financial healthy companies. In this paper we present the results of comparison of the prediction ability of three bankruptcy models and reliability of them in condition of two sets of firms. The first one includes the companies forced to close their activities, the second one included the successful companies with good financial health. We wanted to find out whether the compared models predict next development of the firms in both the sets in line with their real development, i.e. whether and at what measure they predict failure in case of failed companies and whether and at what measure they predict successful development in case of healthy companies.

The paper is structured in the following sections: the chapter following the introduction summarizes the main research studies focused on the issue of the prediction of company financial situation in abroad and in the Czech Republic. In the next part will be characterized the models used to comparison and data set. In the following part the main results of the comparison will be presented and in the final part will be formulated the main conclusions and possible future research directions.

1. Methods, literature overview

1.1. Literature Review

Verification of the predictive power and accuracy of bankruptcy models created in previous periods (Z-score, Zmijevski model, Shumway model, Ohlson model and others) became the aim of many researches projects conducted in the last decade in various national conditions (Silvestri & Veltri, 2012, Wu, Gaunt & Gray, 2010, Altman, Sabato & Wilson, 2010, Zhang, Altman & Yen., 2010, Grice & Dugan, 2003, Pongsatatt, Ramage & Lawrence, 2004). These researches have proved, that the predictive ability and reliability of the models is reduced, depending on the time interval

from creation and change in conditions compared to those in which they were derived. Simultaneously were realized research projects, aiming to create a new model variants or completely new models (Altman Sabato & Wilson, 2010, Hillegeist, Keating, Cramd & Lundstedt, 2004, Ohlson, 2001). In the CEE countries the research work in this area focuses both on usability of the foreign models and on the creation of new models or verifying the former models that respect the specificities of this economies (Bielikova, Bányová & Piterková, 2014, Mašlanka, 2012, Mackevicius & Sneidere, 2010, Jansone, Nespors & Voronova, 2010, Gurčík, 2002).

In the Czech Republic have been tested and updated models older, primarily model IN of the spouses Neumaier (Neumaier & Neumaierová, 2005). Also the predictive ability of foreign models in the Czech conditions were verified and compared their predictions (Klečka & Sholleová, 2014, Divišová, 2013, Šlégr, 2013 Kalouda, 2010). The results confirmed that the prediction ability diverse depending on the branch, time period, used data. There were also conducted projects seeking to create new models reflecting the national specifics of economic environment (Režňáková & Karas, 2014).

1.2. Methodology and data description

To compare the prediction ability we used three models: model IN05 of the spouses Neumaier which reflects the Czech condition, model Z-score of Altman, which is very often used to assess the firms' financial condition, and Ohlson model for industrial companies that tries some qualitative parameters incorporate into the assessment of firms. The structure of the models is as follows:

Model IN05 includes five indicators and weights as follows:

$$\text{IN05} = 0,13 * x_1 + 0,04 * x_2 + 3,97 * x_3 + 0,21 * x_4 + 0,09 * x_5 \quad (1)$$

where: x_1 =Assets/Liabilities, x_2 =EBIT/Interests, x_3 =EBIT/Assets, x_4 =Revenues/Assets, x_5 =Current assets/ST liabilities (ST=short term liabilities=short term liabilities+short term bank loans)

Resulting value interpretation:

IN05>1,6 – good financial condition without threat of bankruptcy ,
IN05<0,9 – serious financial problems, threat of bankruptcy into two or three years,
IN05 between 0,9 and 1,6 - to assess the financial condition, „grey zone“.

Model Z-score we used in the form created in 1983 which has the structure as follows:

$$Z_0 = 0,717 * x_1 + 0,847 * x_2 + 3,107 * x_3 + 0,420 * x_4 + 0,998 * x_5 \quad (2)$$

where: x_1 = Net Working Capital / Assets, x_2 = Accumulated Earnings / Assets,
 x_3 = EBIT / Assets, x_4 = Book Value of Equity / Liabilities, x_5 = Revenues / Assets

Resulting value interpretation:

$Z_0 > 2,7$ - good financial health,

$Z_0 < 1,23$ – the firm has serious problems and are threatened of bankruptcy

Z_0 between the value of 1,23 and 2,7 - next development is uncertain, grey zone.

Ohlson's Model used for the comparison was the variant of this model constructed in 2003 for industrial firms. The reason of this selection was the structure of analysed companies. The structure and formula for the calculation is as follows:

$$Q_{(2003)} = -0,706x_1 + 2,204x_2 - 1,25x_3 + 0,455x_4 + 0,553x_5 - 3,79x_6 - 4,591x_7 + 0,157x_8 + 0,309x_9 \quad (3)$$

The indicators (x_1, \dots, x_9) which are included in the model are constructed as follows:

$x_1 = \lg \text{ Total Assets/GNP price-level index}; \quad x_2 = \text{ Total Liabilities/ Total Assets}$

$x_3 = \text{ Working Capital / Total Assets}; \quad x_4 = \text{ Current Liabilities / Current assets}$

$x_5: x_5 = 1$, if Total Liabilities > Total Assets, $x_5 = 0$, if Total Liabilities < Total Assets

$x_6 = \text{ Net Income / Total Assets};$

$x_7 = \text{ Funds provided by operations/Total Assets}$

where: *funds provided by operations = net income + depreciations/amortizations;*

$x_8: x_8 = 1$, if the sum of net income for the two previous periods is less than 0,

$x_8 = 0$, if the sum of net income for the two previous periods is more than 0;

$$x_9 = \frac{N_{it} - N_{it-1}}{|N_{it}| - |N_{it-1}|}$$

where: N_{it} is the net income for the current period and N_{it-1} is the net income for the previous period, and $|N_{it}|$ and $|N_{it-1}|$ are the absolute values of the net income for current / previous period.

The value of Q is an interim result. It must be applied in the probability calculation relationship according to formula:

$$P = \left(\frac{1}{1 + e^{-Q}} \right), \quad (4),$$

where P indicate the probability of failure in the span of (0; 1).

Resulting value interpretation:

$P < 0.45$ = low probability of bankruptcy,

$P > 0.55$ = high probability of bankruptcy,

$0.45 < P < 0.55$ = grey zone.

Data set we obtained from the annual reports and financial statements of companies presented in the insolvency register and in personal questioning of individual firms' insolvency administrators. We obtained data in total of 50 firms that have actually ceased operations due to insolvency. Then we gathered the data of a set of 50 companies of the similar industry, size and legal form, which are prosperous without financial and other problems. Data was gathered for the period of five years before the failure (2013) and for the same period in the case of successful companies. For the year prior to closing activities we have obtained data only of 35 failed companies.

To assess the prediction ability of the three models we found out the proportion of forecasts which coincided with the development of companies, i.e. positive prediction in the set of prosperous companies and negative prediction in the set of failed companies, in every period and of each model and then on the total number of companies. In the both set of firms we measure the portion only in the range of one year's assessments, not in connection with the assessment in previous years.

2. Results

2.1. Descriptive Statistics of the results

The basic statistical characteristics of the values of all three models in both the failed and stable companies are presented in the table 1.

TAB. 1: Statistical characteristics of the model values in the two set of firms

	Failed companies					Stable companies				
Years before	-1	-2	-3	-4	-5	-1	-2	-3	-4	-5
Z-score										
St.deviation	8,778	2,988	4,187	2,780	2,831	2,461	1,438	2,004	2,362	2,274
Variation	2,963	1,729	2,046	1,667	1,683	6,056	2,067	4,014	5,581	5,170
Average value	0,028	1,391	1,466	1,922	1,839	3,491	3,182	3,436	3,792	3,807
Model IN05										
St.deviation	8,676	1,469	1,969	0,703	0,670	2,328	0,839	1,049	1,061	1,061
Variation	2,946	1,212	1,403	0,838	0,818	5,419	0,703	1,100	1,125	1,125
Average value	-0,856	0,439	0,318	0,632	0,590	1,294	1,418	1,534	1,656	1,666
Ohlson model										
St.deviation	0,124	0,126	0,116	0,101	0,093	0,160	0,085	0,169	0,208	0,130
Variation	0,352	0,354	0,341	0,318	0,306	0,026	0,007	0,029	0,043	0,017
Average value	0,426	0,513	0,454	0,424	0,379	0,077	0,059	0,096	0,101	0,073

Source: own research

These characteristics allow formulate some conclusions. In both the sets of firms the models values show a decreasing trend, i.e. the prediction of success is lower approaching the terminate year. In case of failed companies the average value of Z-

score as well as IN05 decrease approaching the time of failure and quite rapidly decline in the year before the failure. The average value of Ohlson model indicates in the last year a slight reduction while in previous periods indicate increased of risk. From this can be concluded that Ohlson model predicts potential problems two years before failure, while the Model Z-score and IN05 one year before failure. In the set of stable companies we can observe the same trends, i.e. decline of the values of all the models. The average value of all the models indicates good financial health, more preciously the value at the top of the grey zone, but the assessment became in two model slightly worse in the last year: average value of Ohlson model and IN05 indicate worsening of financial stability in the last year, only the value of Z-score is rising slightly and indicates an increasing of creditworthiness.

2.2. Comparison of the prediction ability and accuracy of the models

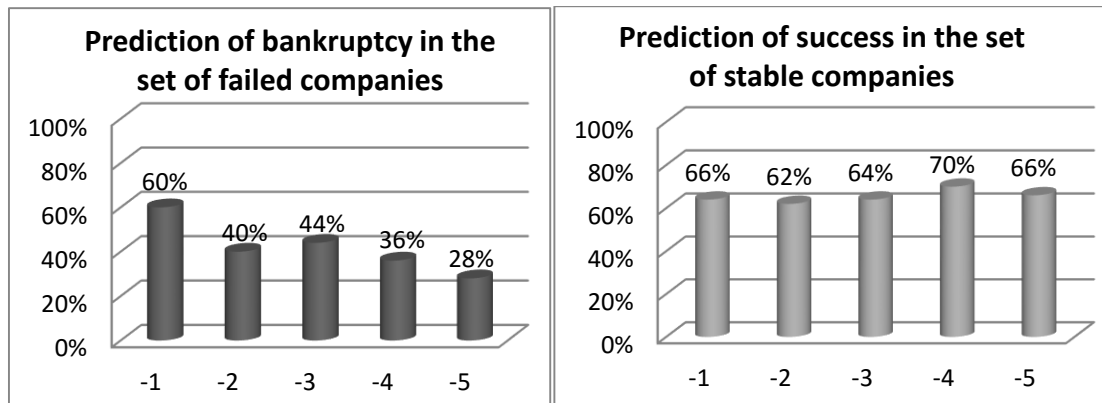
The results of the model prediction accuracy test both in the set of failed companies and in the set of stable companies are presented in the next three tables 2. - 4. and in the figures 1.- 3.

Prediction accuracy of the model Z-score in case of failed companies increase during the period and is the highest in the year before the failure. In the last year before the failure the model indicates the possibly failure in case of 60 per cent of firms. This result is only middle stage sensitivity - in the foreign studies was reach higher level of reliability. The prediction of positive development was proved in about 64 per cent of firms (from 62 to 70 per cent) in all of the analysed years - see Table 2 and Figure 1.

TAB. 2: Prediction accuracy of the model Z-score

Years before failure	Prediction of bankruptcy in the set of failed companies	Prediction of good financial condition in the set of stable companies
-1	60%	66%
-2	40%	62%
-3	44%	64%
-4	36%	70%
-5	28%	66%

Source: own research

FIG. 1: Prediction accuracy of the model Z-score

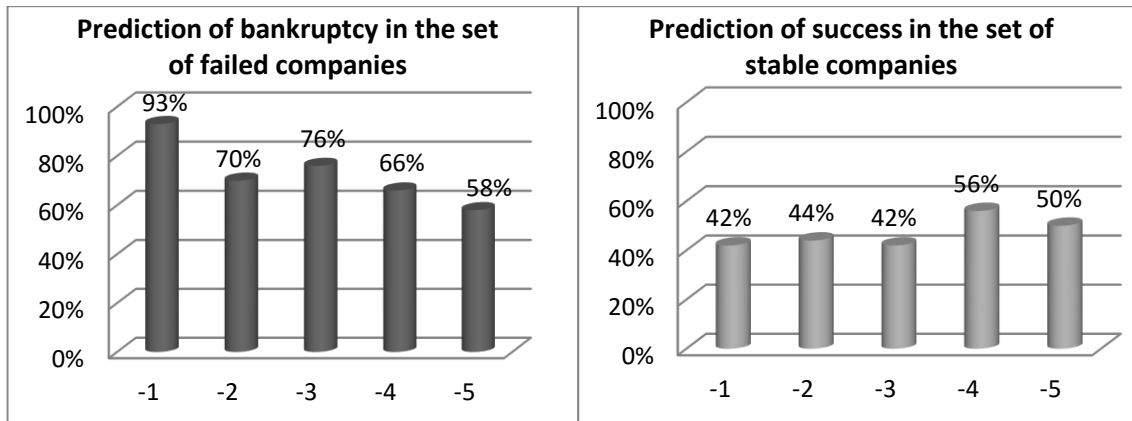
Source: own research

The prediction of IN05 model indicated the future bankruptcy correctly, in line with the future development one year before the failure in 93 per cent of companies. It is relatively higher level of reliability - verifying the model reliability made by the Neumaier spouse confirmed the reliability in 75-80 per cent. In two and more years prior to bankruptcy the correct predictions of future distress gradually increased from 58 per cent in five years to 70 per cent in two years prior to bankruptcy. In case of stable companies the prediction of successful development was confirmed in 42 per cent in the last year before. During the five years period the prediction accuracy has changed alternately between the years at around 50 per cent - see Table 3 and Figure 2.

TAB. 3: Prediction accuracy of the IN05 model

Years before failure	Prediction of bankruptcy in the set of failed companies	Prediction of good financial condition in the set of stable companies
-1	93%	42%
-2	70%	44%
-3	76%	42%
-4	66%	56%
-5	58%	50%

Source: own research

FIG. 2: Prediction accuracy of the IN05 model

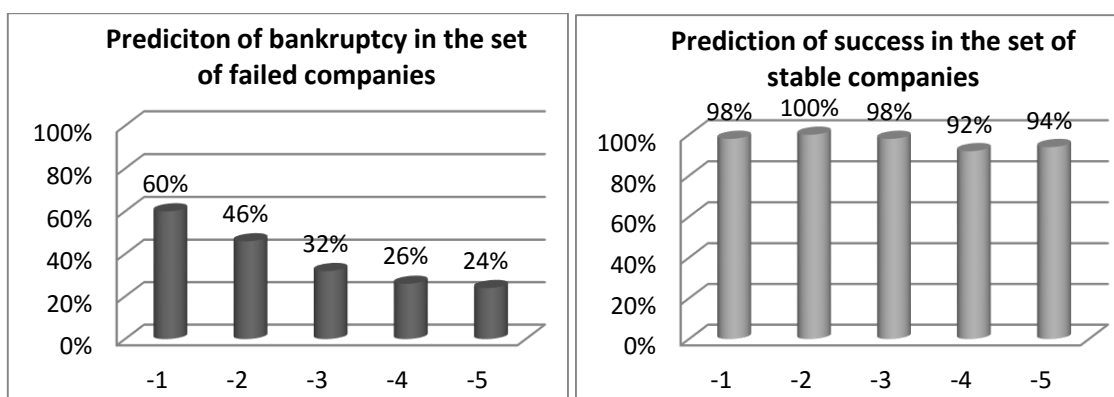
Source: own research

In case of Ohlson's model the predictions of serious financial distress in the set of failed companies increase constantly during the five years period before the failure from 24 per cent in the fifth year before the failure and reached 60 per cent in one year before. The prediction accuracy the last year before is thus on the same level as the Z-score prediction. In the set of stable companies the model predicted good financial health confirmed by the real development, in 98 percent of companies in the last year before and in 100 per cent in the two years before. In all the years it represents the highest accuracy of prediction with regard to the firms next development in comparison with the other two models - see Table 4 and Figure 3.

TAB. 4: Prediction accuracy of the Ohlson model

Years before failure	Prediction of bankruptcy in the set of failed companies	Prediction of success in the set of stable companies
-1	60%	98%
-2	46%	100%
-3	32%	98%
-4	26%	92%
-5	24%	94%

Source: own research

FIG. 3: Prediction accuracy of the Ohlson model

Source: own research

3. Discussion

Based on the results can be concluded findings as follows. The most reliable in predicting financial distress seems to be the model IN05 which detected the serious financial problems one year ahead the real failure in 93 per cent. Success in predicting bankruptcy in case of the models Z-score and Ohlson was similar. In the last year it predicted the financial difficulties in the 60 per cent of firms, two years before in 40 per cent of firms. In the prediction of successful further development and good financial health was the most reliable the Ohlson model, the prediction of which was approved almost in 100 per cent (in the span of 92 to 100 per cent). The second in the accuracy of prediction was the model Z-score, which the future successful development predicted correctly in 60 percent in the whole period. The least reliable in predicting positive developments proved the model IN05, the prediction of which was confirmed throughout the period in 45 per cent of cases (in the span of 50 to 42 percent).

Conclusion

The aim of this paper was to compare the reliability of the three selected bankruptcy models in condition of companies which had to close their activity and companies with good financial condition. The results confirm the best prediction ability and reliability of the model IN05. It proved better prediction ability in case of bankruptcy, at the lower degree in case of prediction of successful development. In case of good financial health and successful development the best prediction accuracy proved the Ohlson model. Model Z-score predicted the failure in sixty per cent of firms in the last year before, while in lower degree two or more years before. Stable financial situation indicated correctly in 66 per cent of firms. These findings allow conclude that the ability and accuracy to predict failure is higher in case of the model, which is designed and based on domestic conditions. The reason of high sensitivity in prediction of successful development in case of Ohlson model as well as the other differences in prediction

ability of all the models can be the question for next investigation as well as to analysis of the bankruptcy prediction sensitivity of different indicators.

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PREDICTORS OF FINANCIAL DISTRESS AND BANKRUPTCY MODEL CONSTRUCTION

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bankruptcy models – prediction ability – indicators – predictors of financial distress

JEL classification: M21, G33

Abstract:

The aim of this paper is to prepare the bankruptcy model construction. In the first part multivariate discriminant analysis and its possibilities in deriving predictive models are characterised. In the second part the possibly indicators/predictors of financial distress of companies which could be included in the new bankruptcy model are defined. The method is the comparison of different views on what factors affect the company's financial situation and the comparison of indicators included in the model that was constructed in the past (with special regard to the models in transition economics). The result is a collection of 39 indicators to be verified in the next stage of the research project employing the multiple discriminant analysis method to specify which of them are to be included into the new model.

Introduction

In the contemporary dynamic economic environment the prediction of the future development and the early detection of possible failure are very important for all stakeholders. The research projects aimed to verify the prediction models in various time and national conditions brought an important findings that the reliability and accuracy of the models decrease if they are used in an environment and time other than in which they was originally developed. It became an incentive to the research projects aimed to develop new models, appropriate for the time and the environment in which they are to be used. The result is a series of new models or new versions of the older models that were created for a specific locale. According to study of Čámská (2012), in Polish, Slovak, Lithuanian environment have been created bankruptcy models reflecting the specifics of transition economics. Zhang et al. (2010) presents new Altman model for the UK, Ohlson model for Iran end China, etc. In this context, the attention of researchers turned to the methodology of constructing default models.

The aim of this paper is to suggest and define proper indicators which are able to detect the signs of the failure in Czech companies at present conditions and that would have to

be included in the intended predictive/bankruptcy model. The second aim is to characterise the method based on the verification of these indicators including its assumptions and limitations. This paper is the first output of an internal research project, the aim of which is to suggest and verify new bankruptcy model. We would like to discuss our proposed set of indicators to get the feedback for improving it.

The structure of the paper is as follows: in the next chapter a literature review and the used method are described, in the third part the MDA method is characterised, in the fourth part we present a brief overview of the factors influencing the financial failure and then we compare the indicators structure of the models which were used in the Czech Republic and other CEE countries. The result is our suggestion of a set of possibly indicators for failure detection. In the last part the conclusion is presented as well as the questions for further research are formulated.

1. Literature overview, methods

The construction of a bankruptcy model involves many issues and sub-issues, needs to solve many questions. The primary problems may be questions as follows: when the company fell into the failure, what are the factors and the signs (legal regulation, real practice), when the firm is forced to close their activities. The other question is - in common with the aim to predict the failure - what factors influence the firm activities and cause the firm failure, what phenomena accompany this development a year or two (or more) years before. The character of these factors can be both financial and non-financial, both quantitative and qualitative, both external and internal. The other area of questions is the data source, which are able to provide all the appropriate data describing the firm activities. The most common source of data for this purpose is the accounting and financial statements. But this provides only financial data, which are additionally influenced by the accounting method. The sources of other data, non-financial and qualitative, are highly differentiated. A specific area is then a question concerning mathematical methods which can be used for deriving predictive models. Their classification is very varied. Dluhošová and Zmeškal (2011) distinguished GLM models (generalised linear models) and Merton model (2011), discriminant analysis and logistic regression. Klieštík and Birtus (2012) and also Darmovzal (2015) suggests to use the method of neural networks. The choice of methods used to derive the model is decisive. Karas and Režňáková (2014) pointed out that the choice of methods can affect the resulting accuracy of the model.

Till now the most often method used for construction of bankruptcy models was the multivariate discriminant analysis (MDA). However MDA has some limitations which have been found during the models verifying, it still remains the most commonly used method for deriving new models. Its use is also assumed in our project.

As a method to achieve the aim we used the description method in order to characterise the possibilities, assumptions and limitation of MDA method. To define a set of indicators that will be tested in our project, we used the method of comparison of selected bankruptcy models that have been designed for testing the companies' failure. We took into consideration the models created in the past that are often used in the practice, i.e. Altman model designed for the non-listed companies and its variant for the UK SMEs, Beaver and Taffler's model. Other models included in the comparison were those, which were created in the conditions of transition economies, namely in the Czech Republic, Slovak Republic and Poland: IN05 (CR), CH-index (SR), Gurčík index (SR) Holda index (PL) Gajdka and Stoda model (PL), Prusak model (PL), Maślanka model (PL), Model of Poznań (PL). The characteristics of these models are presented in the studies of Čámská (2012) and Andrzejewski and Maślanka (2015). Within this comparison those indicators that are the most often occurring in the models will be identified. Then they will be compared with the signs defined in the economic literature as the future bankruptcy symptoms in order to complement the set of indicators.

2. Results

2.1. Multivariate Discriminant Analysis and its limitation

The multivariate discriminant analysis (MDA) is one method of multivariate statistical analysis (MSA). The purpose of MDA is to differentiate (discriminate) objects into several classes (categories) based on the analysis of some indicators of compliance with the objects belonging to a training set. As a training set we mean in accordance with Härdle and Simar (2007) a subset of all the objects that have been in the past clearly included in any of the categories surveyed.

From other point of view, discriminant function analysis is a statistical method determining which variables discriminate between two or more naturally occurring groups. Discriminant analysis is a statistical analysis to predict a categorical dependent variable (called a grouping variable) by one or more continuous or binary independent variables (called predictor variables).

Discriminant analysis is used when groups are known a priori. As is defined in the study of Bökeoglu and Büyükoztürk (2008) each case must have a score on one or more quantitative predictor measures, and a score on a group measure. Discriminant function analysis is a classification - the act of distributing things into groups, classes or categories of the same type. Hebák et al. (2005) note that computationally, discriminant function analysis is very similar to analysis of variance (ANOVA). The basic idea underlying discriminant function analysis is to determine whether groups differ with regard to the mean of a variable, and then to use that variable to predict group membership (e.g., of new cases). In the case of a single variable, the final significance test of whether or not a variable discriminates between groups is the F test.

Usually, one includes several variables in a study in order to see which one(s) contribute to the discrimination between groups. In that case, we have a matrix of total variances and covariances; likewise, we have a matrix of pooled within-group variances and covariances. We can compare those two matrices via multivariate F tests in order to determine whether or not there are any significant differences (with regard to all variables) between groups. Huberty and Olejnik (2006) have stated that this procedure is identical to multivariate analysis of variance (MANOVA). As in MANOVA, one could first perform the multivariate test, and, if statistically significant, proceed to see which of the variables have significantly different means across the groups.

Discriminant analysis has very wide areas of application in sciences, business, education and economic studies. MDA is often used in sociology to split researched set of people into different groups. This method is also often used in biology for identifying different species of plants or animals and for their inclusion into certain categories, or in medicine for determining risk patients to certain diseases. In the banking sector, MDA is used to classify clients who ask for a loan to various classes in terms of their credit risk. In economics, the MDA method is used for many years to construct bankruptcy models.

Let us concentrate on the computational approach to MDA. Huberty (1994) defines the aim of discriminant analysis to establish a parametric based procedure, known as a linear discriminant function, with which membership of any object to one of the groups surveyed can be assessed. For discriminant function modelling, a number of methods have been established, among which Jiang et al. (2001) assigns: (Bayesian) Quadratic discriminant analysis (QDA), (Bayesian) Linear discriminant analysis (LDA), Fisher linear discriminant analysis (FLDA), Discriminant partial least squares (DPLS), Soft independent modelling of class analogies (SIMCA) and Artificial neural networks (ANN).

In the two-group case, discriminant function analysis can also be thought of as (and is analogous to) multiple regression; the two-group discriminant analysis is also called Fisher linear discriminant analysis (computationally all of these approaches are analogous). If we code the two groups in the analysis as 1 and 2, and use that variable as the dependent variable in a multiple regression analysis, then we would get results that are analogous to those we would obtain via Discriminant Analysis. In general, in the two-group case we fit a linear equation of the type:

$$Group = a + b_1 * x_1 + b_2 * x_2 + ... + b_m * x_m \quad (1)$$

where a is a constant and b_1 through b_m are regression coefficients.

The interpretation of the results of a two-group problem is straightforward and closely follows the logic of multiple regression. As proved Mardia et. al (1979) those variables

with the largest (standardized) regression coefficients are the ones that contribute most to the prediction of group membership.

When there are more than two groups, the problem is more complex as we can estimate more than one discriminant function, like the one presented above. For example, when there are three groups, we could estimate a function for discriminating between group 1 and groups 2 and 3 combined, and another function for discriminating between group 2 and group 3. When interpreting multiple discriminant functions, which arise from analyses with more than two groups and more than one variable, one would first test the different functions for statistical significance, and only consider the significant functions for further examination. Next, we would look at the standardized b coefficients for each variable for each significant function. The larger the standardized b coefficient, the larger is the respective variable's unique contribution to the discrimination specified by the respective discriminant function. In order to derive substantive "meaningful" labels for the discriminant functions, one can also examine the factor structure matrix with the correlations between the variables and the discriminant functions. Finally, we would look at the means for the significant discriminant functions in order to determine between which groups the respective functions seem to discriminate.

As states Řezanková (1997) many of analytical tools mentioned above are included in the statistical software for Sociological calculations SPSS (Statistical Package for the Social Sciences). Therefore we assume to use this tool for the analysis of the topic of our research.

2.2. Indicators - predictors of the companies' failure

The choice of indicators that indicate the future company bankrupt should be based on fundamental factors which weaken the financial position and which may lead to a situation where a company has to close down. These factors take quite specific forms in different companies, branches, national economies, at different times. They can be divided into internal and external, financial and non-financial, qualitative and quantitative. In the economic literature the symptoms of future bankruptcy are defined from various views. For example Schönfeld (2011) defines the symptoms as follows: a) a significant decline in sales, b) manufacturing to warehouse (increase in inventories of products), c) extending the period of payment of obligations, d) decreased liquidity, e) growth in the volume of overdue debts, f) unjustified increase in costs, g) decline in profitability, h) decrease of equity (loss), i) disturbances in cash flow. Also some non-financial manifestations of worsened situation are ranked: a) the departure of key executives, business partners and employees, b) lack of innovation, c) unrealistic and unaffordable long-term strategy goals, d) increasing employee turnover, e) increased number of complaints, but also the f) lack of managerial skills, g) marketing unsystematic, h) insufficiently structured processes. Another definition of symptoms of

the future financial distress symptoms Hálek carried out (2013), focusing on the cash flows and its role in the financial distress. As proved Dluhošová (2010) the factors influencing the financial situation and future financial distress can be based on the pyramidal decomposition of return on equity indicator as well. In this decomposition three main aspects of the financial situation are distinguished: financial structure (the share of liabilities, degree of indebtedness), the intensity of resource exploitation (the turnover of assets) and market assessment (the profit margin, return on sales). All these factors can be measured by the various indicators based on accounting data.

TAB. 1: The frequency of indicators in the compared models

Indicator	No	Indicator	No
<i>Efficiency</i>	13	<i>Debt coverage</i>	5
Return on Assets:	9	- Equity / Liabilities	1
- EBIT / Assets	2	- EBIT / Interests	1
- EBITDA / Assets	1	- EBITDA / interests	1
- EAT / Assets	4	- EBT / Liabilities	1
- EBT / Assets	1	- (Operating Profit+Depreciation)/ Liabilities	1
- Operating profit /Assets	1	<i>Activity (intensity of resources exploitation)</i>	7
Return on Sales	4	- (ST Liabilities / Sales) x 365	1
- EBT / Sales	2	- Inventories / Revenues	1
- Operating profit / Sales	2	- (ST Liabilities / Cost on products) x 360	2
<i>Financial structure (indetedness)</i>	9	- Revenues / Assets	1
- Equity / Liabilities	1	- Sales / Assets	1
- Assets / Liabilities	1	- Operating costs / ST Liabilities	1
- ST Liabilities /Equity	1	<i>Indicators based on CF</i>	5
- ST liabilities / Assets	1	- Cash flow / Assets	2
- Equity / Assets	1	- Cash flow / Liabilities	2
- Liabilities / Assets	3	- Operating Cash flow / Sales	1
- ST Liabilities / Liabilities	1	<i>Special indicators</i>	6
<i>Liquidity</i>	5	- Accumulated Earnings / Assets	3
- Net working capital / Assets	2	- Operating cost (without Other operating costs) / ST Liabilities (without financial liabilities and special funds)	1
- ST Assets / ST Liabilities	2	- Value added / Assets	1
- (ST Assets–Inventories) / ST Liabilities	1	- Fixed capital / Assets	1

Source: own elaboration

Note: ST = short term ; EAT = earnign after taxes; EBT = earnings before taxes; EBIT = earnings before interests and taxes; EBITDA = earnings before interests, taxes, depreciation and amortization; CF = cash flow; ST assets = current assets;

To find what indicators should be included for testing of sensitivity to future challenges we compared twelve bankruptcy models which were derived and published in three countries: Czech Republic, Poland and Slovakia. Also Altman model Z-score (model 1983) was included to this set of compared models. The structure of all these models (i.e. indicators included in the models) is listed in the Annex. In Table 1 the frequency of indicators across the compared models is presented.

In compared models the profitability indicators appeared most frequently. Profitability indicator was included in each of the model. In one model it was included in two forms. The most frequent form was the return on assets after tax (in four of twelve models). The debt indicators (indicators of financial structures) were the second largest group of indicators. Including the debt cover indicators they were used fourteen times. The activity indicators (intensity of resources exploitation) were the third largest group. It is possible to conclude, that this indicators' frequency represents the areas which result of pyramidal decomposition of return on equity indicator. The indicators describing these areas are: profitability of sales, assets turnover and leverage.

When compared these indicators with the list of symptoms of the future company's distress defined by Schönfeld (2010), we can conclude that only some symptoms are assessed (and some of them very poorly) - see Table 2.

In Table 2 symptoms of a deteriorating financial situation (as defined in the literature) are compared with indicators included in the mentioned models. The appropriateness of these indicators for identifying the symptoms was the base, on which those indicators that will be used for verification in the project were defined. This choice was subsequently supplemented by additional indicators that offer financial analysis and that extend the measurement of the symptoms. The criterion was the experience of using indicators in the analysis of financial position as well as the results of verification of the models and their importance for the financial stability. The final set of indicators that should be verified in the next stage is included in the third column of the table.

TAB. 2: The bankruptcy model indicators and the symptoms of failure

Signs	Indicators in compared models	Suggested indicators
a significant decline in sales	Assets/sales (revenues); Revenues /Assets;	Assets/sales (revenues); Revenues /Assets;
manufacturing to warehouse (increase in inventories of products)	Inventories / Revenues;	Inventories / Revenues; Inventories / Current assets; Inventories / Assets;
extending the period of payment of obligations	ST Liabilities / sales; ST Liabilities / Costs on Products; ST Liabilities/Costs on	ST Liabilities / Sales; ST Liabilities/Costs on production;

Signs	Indicators in compared models	Suggested indicators
	Inventories; EBIT / Interests; STLiabilities / Costs of goods, products and materials sold; Operating costs /ST Liabilities;	Liabilities / EAT; Liabilities / Revenues; EBIT / Liabilities;
decreased liquidity	Current assets/ ST liabilities; Current assets / Liabilities; (Current assets–inventories) / ST liabilities;	Current assets/ ST liabilities; Current assets / Liabilities; (Current assets–inventories) / ST liabilities; Receivables / Revenues; Receivables / Current Assets; ST Financial Assets / ST Liabilities; Current assets / Assets;
growth in the volume of overdue debts	ST Liabilities /Assets; Liabilities /Assets; Liabilities / Equity; ST liabilities / Equity; Assets / Liabilities;	ST Liabilities /Assets; Liabilities /Assets; Liabilities / Equity; ST liabilities / Equity; Assets / Liabilities; Assets /Equity;
unjustified increase in costs	EBT / Sales;	EBT / Sales; Operating costs / Sales;
the decline in profitability	EAT / Assets; EBIT /Assets; EBT/ Assets; EBT / Sales; Retained Earnings / Assets;	EAT / Assets; EBIT /Assets; EBT/ Assets; EBT / Sales; EAT / Equity;
decreased equity (loss),	Equity / Assets; Equity / liabilities;	Retained Earnings / Assets; Retained Earnings/Liabilities; Equity / Assets; Equity / liabilities; Equity / Fixed Assets;
disturbances in cash flow	Cash flow / Liabilities; ST Liabilitiesx365/Cash flow; Cash flow / Assets; (Operating profit+ depreciation) / Liabilities;	Cash flow / Liabilities; Cash flow / ST Liabilities; (ST Liabilitiesx365) / Cash flow; Cash flow / Assets;

Source: own elaboration

3. Discussion

The definition of a set of indicators has some limitation. The first one consists in the fact, that only financial data are presupposed for the indicators' calculation. In the new variants of the elder models the financial indicators are complemented by the other, both financial and non-financial indicators. The aim is to implement the broader conditions of firms' activities into the assessment (size, inflation, development of conditions). The

other limitation consists in the low accuracy of the accounting data in the financial statements (receivables, accounting items etc.). On the other hand the financial statements are published and easy available, they are in connection with the firms' plans and need no other calculations. The other factor that influenced our indicators and data selection is based on requirements of the methods that will be used for the verification. MDA doesn't not allow include into the assessment the other, not only financial data.

The method used to derive the set of indicators in this study (comparison of former models and its structure) is only one of many others. It does not allow more preciously assess the ability of the indicators to detect the real companies' conditions and symptoms of the failure. Analysis of the structure of previously developed models partially reproduces the conditions in which these models were derived. Which symptoms of bankruptcy and which indicators are the most sensitive to its detection is the theme of the next research studies. For our research project we suppose that these indicators reflect the present conditions of the companies enough.

The MDA method is just one of many multivariate statistical methods that can be used for the purpose of solving the problems of our research. We suppose that this method could be suitable for it.

Conclusions

The aim of this paper was to define a set of indicators which would be able to identify the signs of financial distress of the firm. To verify the predictability of these indicators will be the starting point of the construction of a predictive model, coming from the actual Czech conditions, which is the aim of the internal research project funded at VSFS. The project aims to create a model that would help managers of the company as well as business partners and other users to identify the financial stability or instability of the company and to take timely preventive measures. We use the indicators based on commonly available financial data that should not require additional calculations or specific records and are in connection with the firms' plans. The selection of indicators is determined and limited by the capabilities and limitations that bring multivariate discriminant analysis method, used for deriving default models. The main characteristics of this method were included in the paper.

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MONTE CARLO SIMULATION FOR THE AUCTIONS REVENUE ESTIMATION

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JEL classification: C63, C15, D44

Abstract:

Auctions belong to the popular forms of selling and buying when the final price is not known. Every auction has its own rules for the prices determination. The so called English auction is one of the frequently used types of auctions. It is known as an open ascending price auction and it is typical for the trading with the antiques and objects of art. For the auction mart it is good to know the estimation of the revenues. In this article the process of the revenue estimation using Monte Carlo simulation is described. The model is based on the selection of the probability distribution of the coefficient that determines the increase of the starting price into the selling price. The probability distributions were estimated according to the historical data via 3 methods and the revenues of the selected goods were computed and compared with real ones.

Introduction

Auctions are known hundred years ago when the vendors used it on the markets with slaves, women or war booty. The Babylonians auctioned wives, the ancient Greeks auctioned mine concessions and the Romans auctioned everything from war booty to debtors' property (Klemperer, 2004). The main aim is to redistribute goods or services among the buyers on the basis of the negotiations with the buyers or sellers. The minimal prices of the auctioned objects are usually known before the auction but the final prices are formed during the auctions. Every auction has its given rules that set the process of the price creation. The subjects that participate on auctions are not only buyers and sellers but also the auctioneer that wants to sell all items. In case of the antiques or objects of art the mart is the auctioneer but a lot of items is auctioned via internet (like eBay, Aukro or Amazon).

In this article only one type of the auction is analysed - the English auction. This auction is typical for the sale of the antiques, houses, second hand vehicles or objects of art. It is known as open ascending price auction (Kagel & Levin, 2002). The auctioned object has usually its starting price that is the minimal price the seller is willing to sell it. The

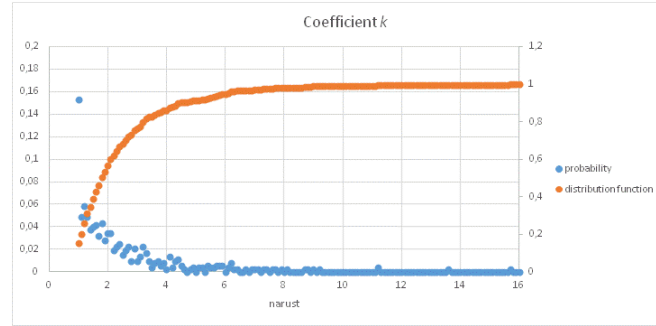
price continuously rises as the buyers express their interest (by rising up their hands or showing their number). The object is sold for the last and highest bid. As the interest of the buyers can be influenced by various factors it is not easy to estimate the final price of the product and also it is hard to define the whole revenue of the auction. The aim of this article is to find out if the Monte Carlo simulation model can be used to estimate the revenues.

1. Methods, literature overview

In analyzing auctions the researchers usually focused on questions of economic efficiency, on maximizing sellers' revenue or how auctions aggregate information (Kagel & Levin, 2002). Other possibility how to cope with the auctions is to optimize the bidding process and calculate the revenue via probability functions (David, Rogers, Schiff, Kraus & Jennings, 2007) or study the information that influence the behaviour of the buyer and the willingness to pay (Chan, Kadiyali & Park, 2007). Milgrom and Weber (1982) according to the “affiliated” information showed that the most profitable standard auction is the ascending auction (like English auction). A lot of articles analyze the situation with single-unit auctions when a single item is sold because models of auctions in which bidders bid for multiple units lead to less clear conclusions (Klemperer, 2004). Our contribution considers the English multi-item auction and the aim is to estimate the final revenues according to the starting prices and using various mathematical and statistical techniques to find the appropriate probability distribution used in the Monte Carlo simulation model.

For the model of the revenue estimation the data from the selected Pragues' mart was used (Galerie Narodni, 2015). Data from the auctions in March, May and September 2014 was analysed to estimate the coefficient indicating the rise of the price from the starting to the final one. Data from the December auction was used for the comparison of the model results with real data. During the 3 terms 530 objects were auctioned, in December it was 199 objects. For the analysis and model creation 30 of them were randomly selected.

The revenues are given by the sum of the final prices of each item. To estimate the final price we created a model where the final price is equal to the product of the starting price and the coefficient k_{ij} (for the item i and the buyer j) that sets how many times the starting price must increase to be equal to the final price of the item. Fig. 1 shows the probability and distribution function of the coefficient k taken from the real data. When we compared the shape with the basic probability distributions we decided that the Weibull probability distribution could be the proper one. The problem was how to estimate the parameters of this distribution. We tried 3 methods: Least Square Method, Maximum Likelihood Estimation and the usage of the MS Excel add-in application Crystal Ball with its Distribution fitting (Ondrackova, 2015).

FIG. 1: Probability density function and distribution function of coefficient k 

Source: Galerie Narodni, 2015

a) Least Square Method

The principle of the Least Square Method (LSM) is to calculate the square differences between the observed data and the linear or non-linear function that fits the data. The method estimates the unknown parameters of the function. According to the previous assumption we use the LSM to find the parameters of the Weibull distribution. In the first step it is necessary to modify the distribution function (1) into the form (2) (Dongfang, Jiancheng & Yongdan, 2006):

$$F(x) = 1 - e\left[\left(-\frac{x}{\beta}\right)^{\alpha}\right] \quad (1)$$

$$\ln(-\ln(1 - F(x))) = \alpha * \ln x - \alpha * \ln \beta \quad (2)$$

Afterwards we use substitution to linearize the function (2) to be able to estimate parameters α and β via LSM and Eviews software:

$$y = \ln(-\ln(1 - F(x))) \quad (3)$$

$$a = \alpha * \ln \beta \quad (4)$$

$$y = a + \alpha * \ln x \quad (5)$$

As the distribution function $F(x)$ is not know we have to use its estimation that is based on the ascending observations order. Afterwards the estimation of the distribution function is based on the median order (Dongfang, Jiancheng & Yongdan, 2006) in formula (6) where p is the order of the koeficient k of the given item and n is number of item, in this case $n=530$:

$$F_p(x) = \frac{p - 0,3}{n + 0,4} \quad (6)$$

The results of the estimation taken from Eviews are: $a = -1.744896$ and $\alpha = 1.77981$. Afterwards it is necessary to calculate the parameter β according to the equation $a = \alpha \ln \beta$. So for the coefficient k generation we can use Weibull distribution with parameters $\alpha = 1.77981$ and $\beta = 2.665478$.

b) Maximum Likelihood Method

The estimation of the Weibull distribution via the Maximal Likelihood Method is based on the estimation of the probability density function. Maximal likelihood function for the Weibull distribution is (Cohen, 1965):

$$L(k_1, k_2, \dots, k_n; \alpha, \beta) = \prod_{l=1}^n \left(\frac{\alpha}{\beta}\right) \left(\frac{k_l}{\beta}\right)^{\alpha-1} e^{-\left(\frac{k_l}{\beta}\right)^\alpha} \quad (7)$$

Maximum of the function (7) can be found by partial derivations of the logarithm of the function (7) according to the parameters α and β . Afterwards we calculated the parameters α and β using formulas (8) and (9) (Cohen, 1965):

$$\frac{\sum_{l=1}^n k_l^\alpha \ln k_l}{\sum_{l=1}^n k_l^\alpha} - \frac{1}{\alpha} - \frac{1}{n} \sum_{l=1}^n k_l = 0 \quad (8)$$

$$\beta = \frac{\sum_{l=1}^n k_l^\beta}{n} \quad (9)$$

Maximum Likelihood Methods estimated the data with the Weibull distribution with parameters $\alpha = 1.425$ and $\beta = 4.146388$.

c) Estimation using Crystal ball

The spreadsheet add-in package Crystal Ball is designed specifically for Monte Carlo simulation in MS Excel. Monte Carlo simulation is one of the simulation methods for iteratively evaluating a deterministic model using sets of random numbers as inputs. This method is often used when the model is complex, nonlinear, or involves more than just a couple of uncertain parameters (Brandimarte, 2014). Crystal Ball has its own application Distribution fitting that uses various tests to find the best distribution (Anderson-Darling, Chi-square, Kolmogorov-Smirnov). The results of the calculation are on Fig. 2. It is clear that the Lognormal distribution with the parameters $\mu = 2.36$ and $\sigma = 1.53$ is the most suitable one based on the Anderson-Darling and Kolmogorov-Smirnov tests. On the other hand Chi-square test found the Weibull distribution parameters $\alpha = 0.69664$ and $\beta = 1.12$ to be the best one.

FIG. 2: Results of Distribution fitting in Crystal Ball

Split View							521 Displayed
Ranked by: Anderson-Darling							
Distribution	A-D	A-D P-Value	K-S	K-S P-Value	Chi-Square	Chi-Square P-Value	Parameters
Lognormal	9.8939	0,000	,1243	0,000	238,5472	0,000	Location=0.00;Mean=2.36;Std. Dev.=1
Max Extreme	18,0425	0,000	,1308	0,000	564,1925	0,000	Likeliest=1.72;Scale=1.02
Logistic	25,4659	0,000	,2385	0,000	552,0415	0,000	Mean=2.05;Scale=0.91
Student's t	38,4146	---	,2167	---	473,6679	0,000	Midpoint=2.43;Scale=1.70;Deg. Freed
Normal	43,7080	0,000	,2479	0,000	636,1434	0,000	Mean=2.43;Std. Dev.=2.10
Beta	43,8503	---	,2484	---	629,8943	0,000	Minimum=-27.36;Maximum=32.23;Alp
Pareto	46,1836	---	,1509	---	260,5057	0,000	Location=1.00;Shape=1.46249
Exponential	47,4487	0,000	,3371	0,000	478,0943	0,000	Rate=0.41
Gamma	76,3010	0,000	,2855	0,000	530,7774	0,000	Location=1.00;Scale=7.39;Shape=0.1
Min Extreme	112,196	0,000	,4426	0,000	2 415,5623	0,000	Likeliest=3.83;Scale=5.27
Weibull	132,479	0,000	,1528	0,000	196,7132	0,000	Location=1.00;Scale=1.12;Shape=0.6
BetaPERT	154,289	---	,4550	---	3 582,8340	0,000	Minimum=-27.36;Likeliest=2.43;Maxim
Triangular	748,088	---	,6713	---	2 494,8038	0,000	Minimum=0.97;Likeliest=1.00;Maximu
Uniform	1 022.9	0,000	,7739	0,000	4 529,0453	0,000	Minimum=0.95;Maximum=27.74

Source: own calculations using Crystal Ball

2. Results

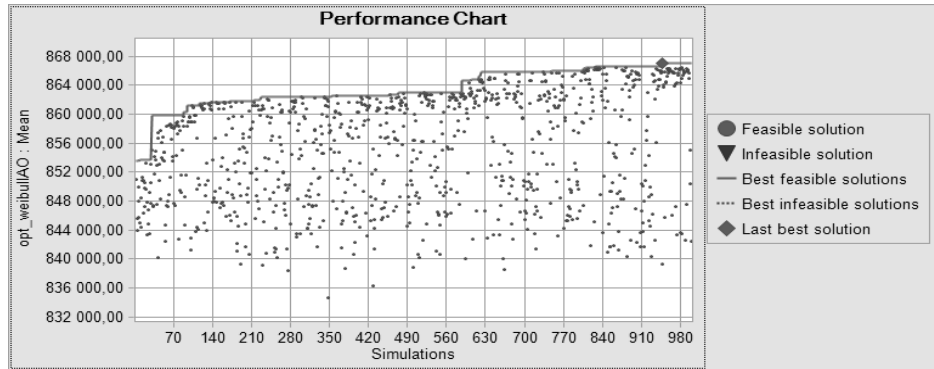
According to the results of the previous methods we tested four different probability distributions for the generation of the coefficient k . Three of them were the Weibull distributions with different parameters given by the Least Square Method, Maximum Likelihood Method and the Crystal Ball software via Chi-Square test. The last one was the Lognormal distribution as the best result obtained from the Crystal Ball on the basis of Anderson-Darling and Kolmogorov-Smirnov tests.

As the 30 auctioned objects were selected the matrix 30x30 of the final price was created so as the final price $c_{ij}=c_{0i}*k_{ij}$, where c_{ij} is the final price of the object i paid by the buyer j , c_{0i} is the starting price of the object i and k_{ij} are generated for each object i and buyer j (as each buyer is willing to pay different sum of money). To decide which buyer buys the objects the kind of the assignment mathematical model was used. We have created another matrix 30x30 with binary variables. For the definition of variables the function Define Decision in Crystal Ball was used. The scalar product of the matrices told us the final revenue. It was marked as the cell for which we were looking for the maximum – using the function Define Forecast in Crystal Ball (the maximization of the average was set). The OptQuest function in Crystal Ball needed to add the constraints of the model, here the sum of each row and column of the binary matrix must be equal to one (each object can be sold to one buyer). Afterwards 1000 simulation trials were tried. Crystal Ball provides the performance chart (Fig. 3) to see the behaviour of the model results.

Tab. 1 describes all results of all generated distributions. According to the real data for the 30 objects we know that the revenues after selling these objects were 774,000.00 CZK. The average of the Weibull distribution taken from the Crystal Ball is the closest one. When we recalculated the results taken for the case of 30 objects into the situation with 199 objects the revenues were overestimated for all the probability distributions. It

might be caused by the selection of the 30 objects (despite the fact the selection was random maybe the more expensive objects were selected) but also by the fact that the assignment problem takes only one buyer for each product and so the highest price generated for all buyers was selected as the final one.

FIG. 3: Process of the point estimation (Weibull distribution – LSM)



Source: own calculations in MS Excel and Crystal Ball

TAB. 1: Comparison of results of the simulations

	Weibull - LSM	Weibull - MLM	Lognorm - CB	Weibull - CB
Simul.time	3:13:45	3:06:37	3:32:05	3:07:39
Avg. CZK	867,105.88	1,360,703.97	830,720.71	778,852.9
st.dev. CZK	143,139.07	293,354.25	167,589.36	221,287.54
min. CZK	543,513.77	739,151.57	510,969.24	443,845.39
30% quant.	783,051.42	1,183,068.34	726,066.83	647,231.59
70% quant.	930,199.65	1,487,186.82	886,901.56	840,079.4
max. CZK	1,382,933.43	293,354.25	167,589.36	221,287.54

Source: own calculations in MS Excel and Crystal Ball

TAB. 2: Comparison of results (in CZK) for selected 30 and for all 199 objects

	Weibull - LSM	Weibull - MLM	Lognorm - CB	Weibull - CB
Median (30)	832,671.44	1,271,190.56	782,972.08	704,193.98
Avg. (30)	847,559.56	1,309,661.56	811,388.89	749,411.82
Min. (30)	516,028.86	722,308.06	514,306.70	412,169.79
Max. (30)	1,399,264.97	2,425,308.06	1,746,240.21	2,022,542.62
St.dev. (30)	138,748.11	276,665.70	157,920.69	214,542.30
Median (199)	4,179,931.96	6,496,410.56	3,982,716.08	3,677,391.39
Avg. (199)	4,205,707.87	6,522,400.59	4,010,969.86	3,728,497.64
Min. (199)	3,443,913.95	5,160,669.97	3,345,389.98	2,913,200.42
Max. (199)	5,223,309.19	8,485,214.00	5,211,507.46	5,421,121.61
St.dev. (199)	252,965.04	499,554.23	289,604.22	377,451.79

Source: own calculations in MS Excel and Crystal Ball

So we decided to use the same calculations as before but calculate the final price of each object individually: the final price of each object out of 30 is given by the product of the starting price and the coefficient k_i . The results are in Tab. 2. As the real revenue for 199 objects was 4,342,750.00 CZK the closest estimation was the one using parameters of the LSM with not so high standard deviation.

3. Discussion

For the estimation of the revenues in auctions we can find different approaches and methods based on the buyer's behaviour or accessible information. On the other hand the Monte Carlo simulation can set a frame in which the revenues should oscillate. Our analysis has shown that it is possible to use historical data to find out the probability distribution of the coefficient that describes the increase of the starting price onto the final one. The estimation for the future auction (for the same auction mart and similar objects) can be made on randomly selected object but the assignment problem might be time consumable (in Crystal Ball) and it is not necessary to assume the buyer to buy only one object. Also the assignment problem chooses the highest price generated for each buyer and so the revenues might be overestimated. The better way is to analyse the historical data and via Crystal Ball or Least Square Method find the appropriate probability distribution for the coefficient k . Afterwards generate (in Crystal Ball or in other software) the coefficient for all selling objects and using its starting price calculate the estimation of the revenues. Although the standard deviation can be high enough this kind of estimation serves for the mart as good information about the expected revenues.

Conclusions

The aim of this article was the estimation of the revenues of the English auction via Monte Carlo simulation. First the historical data were analysed and 3 method of the

estimation of the appropriate probability distribution for the coefficient k (describing the rise of the auctioned price of the object) were used. Afterwards the Monte Carlo simulation in Crystal Ball using the generation from the selected distributions was applied and the possibility of the optimization and the assignment problem in Crystal Ball was tested. The comparison with the real data showed that the assignment problem can overestimate the revenues and so the Monte Carlo simulation of the coefficient of the price growth with summarizing all the prices can be taken as suitable to give information about the revenues estimation.

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TYPES OF CONFLICTS AND MEANS OF THEIR SOLUTIONS IN VARIOUS SIZES OF COMPANIES IN THE CZECH REPUBLIC

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Keywords:

mediation – conflict – dispute – alternative dispute resolution – management

JEL classification: J50, J52, K40, M12

Abstract:

The paper identifies the most common types of conflicts and disputes in companies of various sizes in the Czech Republic. It describes internal conflicts between individual employees, groups of employees, companies and employees and companies and customers, suppliers and other parties. The paper also describes the most preferred solutions of conflicts that are mutual agreement between parties, other internal solutions such as involvement of the third party, coaching for internal conflicts and experts, coaching and litigation when companies decide to apply external solution.

Introduction

The aim of this paper is to describe types of conflicts in companies in the Czech Republic – both internal conflicts within organisations as well as disputes with external sources that companies may have. Further aim is to research means of solutions of conflicts – find and describe how companies deal with difficult situations that may encounter in their day-to-day operation. The last aim is to describe differences in conflicts and their solutions depending on the size of companies, whether small and big companies choose the same means of solutions or if there are different attitudes toward conflicts.

1. Methods, literature overview

Conflicts origin because of pure facts that each party interprets differently and/or diversity of each party involved. (Stipanowich, 2014) The bigger organisation is, the more customers and contractors has the higher risk of conflict arises. (Lawrence, 1997)

This puts management in a challenging role as they have to not only run the operation itself but also master communication, negotiation and mediation. (Gosling & Mintzberg, 2003; Striteský, 2013)

The article is based on analysis of research on use of mediation which was conducted between 15th of February 2015 till 31st of March 2015 in the Czech Republic within internationally and Czech owned companies across all industries.

The selection of respondents through sectors was carried out by a random selection of LinkedIn members who had to meet one of the three criteria in their job titles:

- 1) chief executive officers
- 2) members of top management
- 3) human resources professionals (HR Managers)

Respondents were contact directly via LinkedIn. Questionnaire were also place into LinkedIn group HR News.

Chosen method was quantitative - CAWI - Computer Assisted Web Interviewing. On-line questionnaire contained twenty-two questions about size of company, ownership (local vs. international), industry in which their company is in, demographics of company (gender, age, employees country of origin), internal process or policy for disputes, types of conflicts and means of their solution and use of mediation (internal vs. external). 7 questions were closed with only option of yes/no answers, 15 questions were open and had multiple-choice answers.

The research contains data from 188 companies from all regions in the Czech Republic, all industries, sizes and ownership – Czech-owned as well as Czech subsidies of international corporate.

The analysis was perform using the Microsoft Excel, outcomes are charts below. Data was analysed based on frequency in files – absolutely and relatively in percentage description. For each question or combination of answers to the questions in case of multiple choice answers was first found number of individual answers out of which was percentage formed related to total number.

2. Results

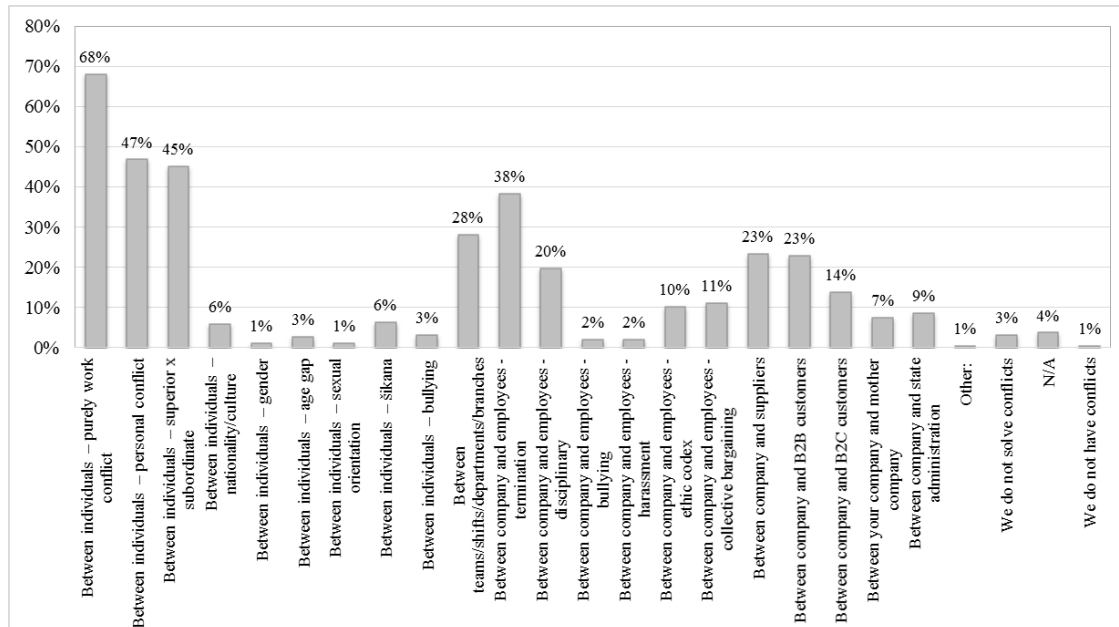
The types of conflicts can be dividing into two main groups based on research results:

1. Internal

- 1a) between individuals – purely work conflict, personal conflict, superior x subordinate, nationality/culture, gender, age gap, sexual orientation, bullying, sexual harassment.
- 1b) between teams/shifts/departments/branches
- 1c) between company and employees – termination, disciplinary, bullying, harassment, ethic codex, collective bargaining.

2. *External* – between company and suppliers, company and B2B customers, company and B2C customers, company and mother company, company and state administration.

TAB. 1: Types of conflicts in companies



Source: own research and calculations

Results showed most internal conflicts between individuals are purely work conflict (68%), followed by personal conflict between parties involved (47%), superior and subordinate (45%).

Between company and employees termination is the most common dispute (38%), disciplinary (20%) and the third most common is collective bargaining (11%).

External conflicts – equal results 23% is for suppliers and B2B customers, B2C customers tend to argue with companies 14%.

TAB. 2: Means of solutions in various sizes of companies

Conflict solution/Company size	0 – 50 empl.	51 – 100 empl.	101 - 500 empl.	501 - 1 000 empl.	1 001 - 5 000 empl.	5 001 and more empl.
Internally– participants settle conflict themselves	84%	71%	68%	71%	58%	100%
Internally – third party needed (eg. HR or senior management)	36%	59%	71%	79%	79%	60%
Internally – company ombudsman	0%	6%	7%	0%	17%	40%
Internally – employee council	2%	0%	2%	13%	17%	0%
Internally - mentoring	11%	0%	4%	13%	8%	40%
Internally – coaching	16%	0%	14%	21%	21%	40%
Externally – facilitation	0%	0%	0%	4%	13%	0%
Externally - mentoring	2%	0%	0%	8%	8%	20%
Externally – coaching	2%	0%	2%	21%	13%	40%
Externally - psychologist	2%	0%	5%	8%	4%	20%
Externally – mediation	7%	0%	0%	4%	0%	0%
Externally – expert (eg. lawyer, tax advisor)	8%	12%	14%	29%	25%	20%
Externally – arbitration	2%	6%	4%	0%	8%	0%
Externally – litigation	5%	18%	7%	17%	21%	40%

Source: own research and calculations

Results show the most preferred solution of internal conflicts is mutual agreement between conflicted parties regardless size of company. The biggest companies encourage this solution in 100%, the second highest score received the smallest companies 84%. This result suggests companies expect their employees to take responsibility for their actions, show mature behaviour and therefore solution of conflicts which they themselves started so they should be able to finish them as well. The larger companies have this trust in 100% as internal conflicts take diversions from daily operations and it costs time and money, both are sensitive issues for management. Small companies usually have family atmosphere and distortion from it breaks harmony and employees are somehow pressured by their colleagues and managers to restore it as quickly as possible.

Second most preferred solution of internal conflicts is involvement of the third party. Primarily it is direct boss or bosses of employees. If this fails, then Human Resources Manager is usually asked to step into if the matter belongs in HR category or members of senior management depending on the matter and hierarchy of the company. The last internal instance is chief executive officer, the matter yet had to be escalated before and all previous solutions failed. The highest score for internal informal mediator solution received companies employing 501 – 1000 and 1001 – 5000.

Third most preferred solution of internal conflicts is coaching – 40% in the biggest companies and 16% in the smallest companies. It shows trust in coaching as a tool from both management and employees. Coaching is a process, change management agent, long term solution for prevention of future conflicts. It should help either with behaviour or personality changes.

External solutions for the biggest companies are coaching and litigation (both 40%) followed by mentoring, psychologists and experts (all 20%). Litigation can be last instance but also demonstration of power which sometimes is important for company reputation. Yet litigation is more intrusive, time and money consuming compared to psychologist, experts and mentors.

External solutions for smallest enterprises prefer experts (8%), mediation (7%) and litigation (5%). This result suggests small companies are aware of costs, time and reputation even more so than bigger companies. Also, their position in the market is not so strong so they tend to negotiate as much as they can to reach mutual agreement.

3. Discussion

Companies employ people primarily based on their professional skills and they also try to find and keep employees who fit in their company culture. (Tsui, Egan & O'reilly, 1992) However the bigger the company is the more diverse it naturally becomes. Diversity then influences teams and companies – both positively as well as negatively. (Van Knippenberg & Schippers, 2007)

The larger company is the more experience with diversity and therefore conflicts and disputes it has. It is important for management to pay attention to this fact to reduce conflicts. (Legnerová& Fučíková, 2014)

Large companies integrate more types of solutions and use them more frequently. The research revealed company ombudsman has become a part of Czech Republic big companies and this function is used in 40% of disputes. Small companies do not have this instrument simply because they are too small to have it.

Small companies according to research put more effort to solve their disputes internally and when they have to reach for external solutions they use more experts (8%) and mediators (7%) then litigation (2%). Mediation which became part of Czech legal system in 2012 is still new and that is why it is not used more frequently. When used it reduces time and money investment significantly, parties find best possible solutions for themselves, which is often times creative. Some of the solutions would not be possible in front of the court as judges have to follow legal system. Mediation is safe, quick, behind closed doors (important in some sensitive cases) and improves relationships, very important decision-making point for management especially when companies want to cooperate in the future with other companies or their employees.

Big companies external solutions are coaching (40%), litigation (40%) and mentoring (20%) and experts (20%).

Why small and big companies differ in means of external conflict solution is be a question for further research.

Conclusion

The research in almost two hundred companies in the Czech Republic proved there are conflicts and disputes in companies. The conflicts are within organisations and also between organisations and their external counterparts – customers, suppliers, state institutions.

Research revealed there is the most preferred solution for termination of internal conflicts - mutual agreement between parties. This tendency is common for all sizes of companies. Management expects employees to be able to terminate their conflicts which they created in the first place.

When this solution fails, companies keep trying to settle conflict internally and involve third party within the company which is in the most cases either direct superior of employees, human resources manager or other members of senior management.

The third most preferred internal settlement of conflicts is coaching which is common for both large and small companies. It shows coaching is seen in general as solution tool for conflicts.

Large companies use equally to coaching company ombudsman, which is typical for only big companies, small ones do not have this instrument. Company ombudsman is used as frequently as coaching and mentoring. Other means of internal solution is employee council.

When internal solution of conflict fails, companies still try to settle conflict in peaceful ways by employing external experts, coaches. Small companies prefer experts and mediators over litigation as the last resource of their disputes while large companies use equally external coaches and litigations, second best solution for them are experts, psychologist and mentors.

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LIQUIDITY DETERMINANTS OF BANK SIZE GROUPS IN THE CZECH BANKING SECTOR

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Abstract:

The article focuses on determinants affecting the liquidity of bank size groups in the Czech banking sector. Possible factors are determined by using panel regression analyses between 2001 and 2013. As dependent variables, for higher complexity, more forms of liquidity are used – liquidity creation, outflow, net change and total reallocation. These values are calculated based on a specific method of liquidity risk measurement – gross liquidity flows. The results indicate both simultaneous impacts of some factors on the particular liquidity forms as well as isolated influence of given factors on one of the liquidity form.

Introduction

Liquidity risk has gained on importance in recent years. Before the last global crisis, the importance of this risk was mostly overlooked by both authors and regulators. For instance, the Basel frameworks did not include liquidity risk in the first or the second edition. Similarly, a number of authors studying risks in the banking business shortly before the crisis disregarded liquidity risk, such as Kuritzkes and Schuermann (2007), Crouhy, Galai and Mark (2007). After the crisis, when a number of banking systems faced liquidity problems, the situation changed and liquidity risk came into the foreground. This is evidenced by the Basel III framework, which includes a chapter on liquidity risk. It concerns the reporting of two liquidity indicators, the LCR and the NSFR (BIS, 2010). The indicators are focused on short-term (LCR) and long-term (NSFR) liquidity and synthesize within them the state and flow quantities. Some studies even highlight the need to control the liquidity risk, such as Jasiene et al. (2012).

Studies investigating the determinants of liquidity work either with financial ratios (see Bunda & Desquilbet, 2008; Vodová, 2011a, 2011b, 2012; Trenca, Petria, Mutu & Corovei, 2012) or use the method of liquidity creation based on Berger and Bouwman (2009) (e.g. Pana, Park & Query, 2010; Lakštutienė & Krušinskas, 2010; Horvath, Seidler & Weill, 2012). This paper, however, works with more forms of liquidity –

beside creation; it is outflow, net changes and total reallocation. These flows are calculated based on a method of Valla, Saes-Escorbiac and Tieset (2006). According to the present author, this method provides a comprehensive look at liquidity measurement which allows multiple points of view. This is very important, because as the global crisis showed, the banks or the whole systems had problems in creation of liquidity at that time, but also with higher outflow of it. This fact is also pointed out in studies dealing with effect of the crisis on liquidity (e.g. Geršl & Komárková, 2009; Eroglu & Eroglu, 2011). Laštůvková (2015) in her study stressed that, relationships do not necessarily only exist between liquidity creation and certain factors, but apply to liquidity outflow as well. Moreover, when evaluating the influence of one factor on the creation of liquidity, a false belief may be created that the end result of this factor's effect is the creation of liquidity. This same factor can influence the outflow of liquidity in a greater extent, and can thus lead to liquidity outflow from the system. From these reasons more forms of liquidity are used as a dependent variable.

The aim of the paper is to identify determinants influencing liquidity of the size groups of banks in the Czech banking sector using the panel regression analyses. From above mentioned reasons more dependent variables are used to represent different and more complex view on the liquidity risk.

1. Methods

To determine the factors influencing the chosen liquidity flows, panel robust regression analyses are performed. The general equation of the model is as follows:

$$\text{Liquidity (POS/NEG/NET/TOT)} = \alpha + \beta 1_{\text{inner factors}} + \beta 2_{\text{factors on banking level}} + \beta 3_{\text{Macroeconomic factors}} + \varepsilon$$

On the side of the variable being explained appear the individual calculated liquidity flows. These are the positive flow (POS) representing the creation of liquidity, the negative flow (NEG) representing the outflow of liquidity, the net changes (NET) as the difference between the above mentioned flows, and the total reallocation (TOT), which represents the activity in the system. The studied sample is the size groups of the Czech banking sector, excluding the branches of foreign banks and saving banks. Banks are divided into 3 size groups according to the total value of their assets per period, given by the ČNB methodology for every single year. The development is evaluated between the years 2001 and 2013. The individual flows and reallocation were calculated on the basis of the method created by Valla, Saes-Escorbiac and Tieset (2006). To obtain these flows, the following method of processing the value of liquid assets is used:

- a) Determining the year-on-year changes in liquid assets

$$\Delta I_{it} = I_{it} - I_{it-1} \quad (1)$$

where:

lit – the liquidity of bank i in time t , $lit-1$ – the liquidity value of bank i in time $t-1$.

b) Determining the adjusted growth rate

Relation (2) is used to determine the adjusted growth rate of liquidity in time t for each bank:

$$g_{it} = \frac{\Delta l_{it}}{(l_{it-1} + l_{it})/2} \quad (2)$$

c) Determining the liquidity flows

By aggregating the values obtained from relation (2), either positive (3) (where $git \geq 0$) or negative (4) (where $git \leq 0$) nominal flows are obtained.

$$POS^{nom}_t = \sum_{i|g_{it} \geq 0}^N g_{it} \left(\frac{(l_{it-1} + l_{it})/2}{\sum_{i=1}^N l_{it-1}} \right) \quad (3)$$

$$NEG^{nom}_t = \sum_{i|g_{it} \leq 0}^N |g_{it}| \left(\frac{(l_{it-1} + l_{it})/2}{\sum_{i=1}^N l_{it-1}} \right) \quad (4)$$

For positive flows, only positive (or zero) values of adjusted growth rate of individual banks are considered, weighted by the average share of total liquidity; for negative flows, only negative (zero) values of git are considered.

d) Calculation of the net changes

Whether a drop or a growth in liquidity of the given system occurred is determined via net liquidity flows.

$$NET^{nom}_t = POS^{nom}_t - NEG^{nom}_t \quad (5)$$

e) Determining the total reallocation

Determining the total activity in the sector in the given time period.

$$TOT^{nom}_t = POS^{nom}_t + NEG^{nom}_t - |NET^{nom}_t| \quad (6)$$

The value of liquid assets in the time period was obtained from the Bankscope database on an annual basis. The database defines liquid assets as follows:

Liquid assets = *Trading securities at FV through income*
 + *Loans and advances to banks*
 + *Reverse repos and cash collateral*
 + *Cash and due from banks*

– *Mandatory minimum reserves*

On the side of the independent variables stand the internal factors with potential influence on bank liquidity. These variables include: value of equity (EQU), value of profit, i.e. profit after taxation (PRO), net loans (LOAN), allowances for loans losses (ALL), client deposits (DEP), total assets, i.e. size of banks (TA) and financial ratio gross loans/client deposits (RATIO). Internal variables used are adjusted into annual changes.

As other possible variables are assigned variables at the level of banking sector – interest rates: long-term interest rate (L_RATE), short-term interest rate (S_RATE). Last group of variables represents macroeconomic variables: GDP (expressed as changes from the previous year) (GDP), unemployment (UNEM) and inflation (HICP, 2005 =100) (INFL). Data were obtained from Bankscope and Eurostat. The calculations were performed in Stata software.

2. Results and Discussion

The following table (TAB. 1) presents summary results for all liquidity forms. From the selected potential factors, only GDP and allowances for loans losses did not prove to be significant among the forms studied. It can be asserted from the layout of independent variables that liquidity creation is influenced the most by internal factors and factors on the level of banking sectors. On the other hand, total reallocation seems to be affected mostly by external factors.

The authors dealing with general liquidity determinants, as described above, often search for factors of liquidity creation using a method established by Berger and Bouwman (2009), such as (Hackethal, Rauch, Steffen & Tyrell, 2010; Lakštutienė & Krušinskas, 2010). The results presented in TAB. 1 for liquidity creation (1) (compiled according to the Valla, Saes-Escorbiac & Tiesset, 2006) offer similar results in, for example, deposits, where higher value of client deposits increases the value of liquidity creation, since the basic portion of client deposits consists of current accounts, which represent liquidity items for the bank. Partially identical results are also seen in case of bank rates, where the above authors present a negative relationship. Negative relationship is seen for long-term rates, but for short-term rates the relationship is the opposite, positive. Vodová (2011a), who deals with determinants of the Czech banking sector, also identifies a positive relation between liquidity (provided by financial ratios) and the bank rate. The difference in mathematical signs may be a reflection of the difference in the role of these two rates. Long-term rates represent mainly the total economic situation, while short-term rates reflect the immediate opportunities for storing or withdrawing money.

TAB. 1: Results for different forms of liquidity

	(1) POS	(2) NEG	(3) NET	(4) TOT
EQU	0.114* (1.69)	0.0913* (1.93)		0.191*** (3.36)
PRO	0.00313*** (10.54)	- 0.00543*** (- 5.73)	0.00847*** (44.15)	
LOAN	- 0.237* (- 1.90)		- 0.308*** (-5.35)	
DEP	0.187*** (2.85)			
RATIO	0.145*** (6.53)		0.135*** (10.91)	
L_RATE	- 0.0953*** (- 3.86)	0.0441*** (5.86)		
S_RATE	0.0665* (1.69)	- 0.0411*** (- 3.42)		
TA			0.445*** (7.60)	
UNEM				- 0.0284** (- 2.16)
INFL				- 0.0221*** (- 2.65)
cons	0.239*** (5.66)	0.00569 (0.53)	- 0.0816** (-2.29)	0.318*** (6.12)
No. of obs.	39	39	39	39
R ²	0.323	0.232	0.209	0.416

Source: own research

Note: * p<0.1, ** p<0.05, *** p<0.01

The model for liquidity creation also identified a positive relation for the financial ratio and profit. In the case of profit, a negative relationship could be expected, stemming from the known investment triangle, where profit (income) is a counterbalance to liquidity. On the other hand, it is not a profit (income) from a specific transaction, but the total profit of the bank achieved via overall activities. In case that the bank is successful and the profit increases, it has no problem reporting higher values of liquid assets to increase its stability. On the other hand, banks which often make losses also often have liquidity problems.

The results show a negative relation for the value of loans. Hackethal, Rauch, Steffen and Tyrell(2010), Lakštutienė and Krušinskas (2010) have determined a positive relationship in this case, though, on the other hand, in case of higher value of loans, less liquidity is created, since liquidity is being provided to the clients. Thus, even a negative relationship need not necessarily be erroneous.

The value between capital and the creation of liquidity is also a subject of a number of studies which independently examine the relationship between these variables. The studies often report a negative relationship. However, on the theoretical level, studies

speak of both negative (crowding out deposits hypothesis) and positive relationship (risk absorption theory). In the model, liquidity creation (1) has shown a positive relationship. However, in the model working with liquidity outflow (2), the value of capital, similarly to liquidity creation, has shown a positive relationship. With increase in capital, liquidity value is being both created and lost, or rather, it both outflows and forms. It even seems that the amount of creation and outflow is almost equal, since in the case of net change (3) capital has not been shown as significant. Mutual creation and outflow of liquidity may be caused by the current requirements of regulators, which lead to both higher creation of capital as well as higher liquidity requirements. A negative relationship, as evidenced by studies, can be the primary relationship also in this case and lead to higher outflow of liquidity at higher capital value. However, lower value of liquidity can be a problem from the standpoint of regulators, and may therefore again be subsequently increased.

In the case of profit and interest rates, which have also proven to be significant for both the opposite flows (1) (2) but with the opposite sign, the influence of the factor on the given variable is supported even more by the opposite form of liquidity. In other words, the higher the profit (rate) is, the higher the creation and the lower the outflow and vice versa.

For net changes (3), as the only form, the value of total assets has also proven to be significant, representing the size of the bank, with a positive effect: the higher the value of total assets, the higher the net flow. The last studied form of liquidity was total reallocation (4), where equity has proven to be significant with a positive influence, which is in accordance with the effects of capital on both liquidity creation and outflow, since in higher reallocation, higher activity in both flows can be observed. Furthermore, unemployment and inflation have proven to be significant with a negative influence, indicating that higher unemployment and higher inflation decreases the activity in the size groups studied.

Conclusion

The present article dealt with the potential determinants influencing the various forms of liquidity in bank size groups in the Czech banking sector. The results obtained show that certain factors had the same effect on multiple forms – for instance, capital had a positive influence on both liquidity creation and outflow. This identical effect of a factor has led to both creation and outflow which was almost equal in this case. In this respect, it is important to note that when searching for factors only for liquidity creation, the conclusion would be that the factor creates liquidity. However, due to the outflow of liquidity which occurs here in the same intensity, the effect on liquidity creation cancels out. Other factors, on the other hand, lead to the opposite effect on a number of forms, as seen for instance in profit. However, certain factors had an isolated effect on the chosen form, for instance size on net change or unemployment on total reallocation.

It can be summarized from the effects of these factors that some affect the given forms simultaneously, and it is the extent of the effect that is of importance, with some cancelling themselves out. Others, due to an opposite influence, increase the effect on the given forms, while others still affect certain forms in isolation. In the case of studying only the influence on liquidity creation, incomplete results may thus be obtained regarding the effects of a given factor and the final results reflected in the liquidity value.

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SUCCESSION PLANNING

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succession planning – leadership – talent management – leadership development

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Abstract:

The paper describes the approach of the succession planning in the Czech business environment. Based on the combined research, there was found out that the Czech companies develop their leaders more than the leaders' successors. The Czech company owners are aware of the necessity for developing their successors, but they do not take necessary steps to assess and develop them. In the paper, there are mentioned methods and tools that can be used for successors' development in the Czech business environment. The development methods using by multinational companies such as coaching, mentoring, active learning or participating in leadership development training could be also used for development of future leaders of the Czech family companies.

Introduction

Succession planning in family firms is becoming a hot topic for the Czech business environment. The owners of private companies established after the Velvet revolution in early 90th are in the average age of 60. They are aware of the fact that developing of their successor is a crucial issue. Based on the research provided in 2014 it was confirmed that the owners feel the urgency of developing a successor, but on the other hand, they have not started with development a potential successor yet. Based on the experience from abroad or by using methods of talent management and succession planning in Czech branches of multinational companies is possible to develop the right approach to development new leaders for the Czech family businesses. The paper suggests the ways of succession planning and development in the Czech business environment.

1. Methods, literature overview

a) Research methods

The combined research was conducted during the year 2014. The first step represented a quantitative research by structured questionnaires that were distributed through online

forms. A total of 146 respondents replied from the ranks of the top managers of companies or branches operating on the Czech market. Responses were evaluated by statistical methods using SPSS. Quantitative research was followed by qualitative research in the form of semi-structured interviews with owners of Czech family companies, general directors of Czech subsidiaries of multinational companies and personnel managers. The sample was supplemented by interviews with coaches and advisors of senior managers. The results were processed in the form of an open coding.

b) Literature overview

The topic of succession management in family companies is covered by many authors. The owners have four possible choices how to tackle the company future. The first possibility is that the company could be sold (Wennberg, 2010). The second possibility is to recruit a professional management and let them run the company. As a third possibility is the closing the company (Shepherd, 2009). This paper works with the fourth possibility; the development of a successor. Usually, the successor is a family member (Sharma, 2003).

According to the survey by Ernst and Young (EY, 2014), from the early days of the business has changed significantly in the Czech Republic. The average Czech entrepreneur is around the age of 60 years, the average length of his business is 14 years. Business time and age of entrepreneurs so they give a greater guarantee of sustainability and the tradition of the company. And also the need for succession planning.

For the preparation of future leaders, it is important to understand what features, abilities and skills in fulfilling the future successor has and how it is possible to develop them. Talent development is a multidimensional, multileveled and multi-layered process that the enterprise must implement (Haskins, 2010). The development of owners is very difficult task (Saslow, 2014). During their preparation for the peak position, it is necessary to count on the future evolution of the markets, of the company and environment. For this reason, it is necessary to develop and adapt to more and more forms of development leaders and their successors. Equally important is the time when the suitable successor has to be ready (Panda, 2015). Systems and methods of training in enterprises will change depending on the changing external environment. In the current turbulent times is needed to vote still more creative approach to the training of managers and their successors. Development of managers and successors includes multiple forms and procedures and it is a comprehensive approach to individual personalities on the managerial levels. Armstrong (2007) lists three basic approaches to the development of managers, or their successors: learning by doing, formal education and getting feedback, help, and support.

For the leaders of future, it is necessary to follow the main trends in changing environment. The main trends based on the previous research from Legnerova (2014) are turbulence and constant change, the stronger role is played by the customer, and the emerging Generation Y. It could be a new big challenge for the leaders. The development plans and training has to be adapted to the constant and quick changes in the business environment.

The structured forms for the development of managers and successors according to the methods is formal and informal approaches. As formal approaches can be described counselling, coaching, rotation, involvement in projects and comprehensive educational programs. Informal approaches are characterized in particular by the improvement and development in the context of normal business activities. The informal approach is about personal development in the form of feedback, assessment of the successes and the failures, which are used for learning lessons.

2. Results

Based on the results of the research it was found out that the enterprises with a foreign owner put greater emphasis on the development of successor of senior management than companies owned by Czech capital. 90% of respondents from companies with ownership outside of the Czech Republic said they are dedicated to the development of the successors, as opposed to 22% of Czech companies. It leads to the opportunity to strengthen the role of succession planning within the Czech business environment.

It was proven by the research that the selection of talents with the potential of development into the top level forms the base of the entire succession learning and development system. Talented workers can be chosen already in a relatively early stage in their development work. For the identification of talents and to measure their potential and motivation is the most appropriate form of development centre with a subsequent conversation about ideas of career development. As additional input may serve the output from the evaluation of the 360-degree feedback, if the candidate already holds a managerial position. In the framework of the development centre is measured the potential of the candidate. Development Centrum serves not only for identification the strengths, but it helps define the development needs, which included in the individual development plans.

For leaders is absolutely necessary the knowledge of foreign languages. Especially English becomes a global business communication language. The level of knowledge of foreign languages among executives is increasing, but still below the optimal level. For the candidates for the top position the knowledge of English is one of the key, the advantage is knowledge of another foreign language. Therefore, if a successor does not have the required level of knowledge of English or other language, one of the first development steps is language education. This form of training depends on the

capabilities of the firm and the willingness of the successor. It may be a classic courses, individual tuition or, where appropriate, the studying abroad. Language training can be linked with other forms of development, such as international rotation or involvement in the international project team, if possible in the Czech family firms.

As a more appropriate method of formal education is the development of successors the involvement in managerial or leadership education. In the framework of this comprehensive management or leadership program will get successors an overview of the techniques and methods of leadership. For the successors in family firms may be used external open courses. The advantage of the open external courses is the opportunity to share experiences and practices, the exchange of views and a comparison of the views of individual participants from various enterprises and thus the various sectors.

In formal education, it is possible to include also the development of the knowledge needed for a position on the successor. The basic knowledge of the orientation of economic statements include the company, strategic planning or the latest findings of the management styles of people.

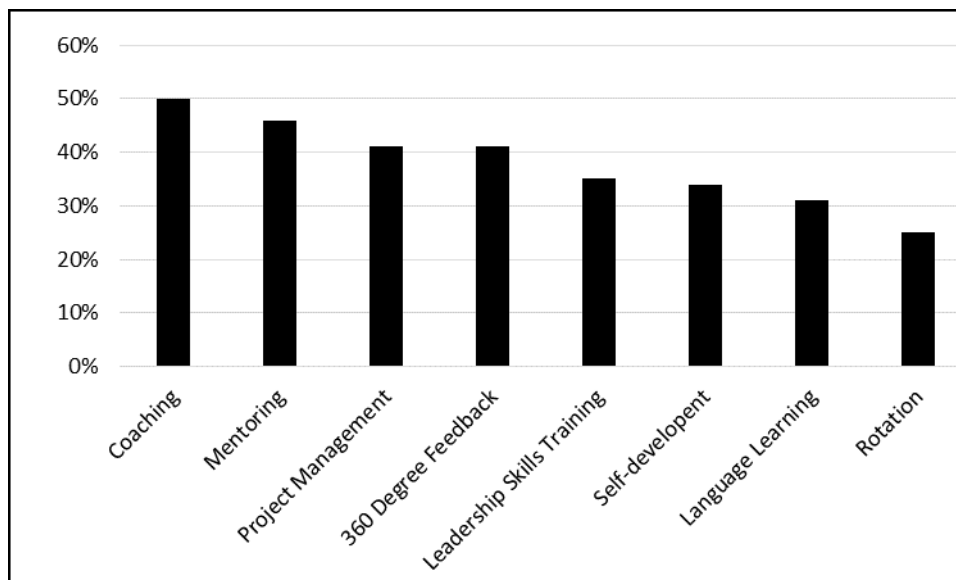
The most appropriate method of active learning may be considered rotation, involvement in projects and global teams. The rotation is important in the development of each worker, but in the developing successors then plays a key role. In business companies is generally very welcome vertical rotation, less preferred horizontal rotation. In multinational enterprises it is a general practice that the candidate for a position in senior management, i.e., at the level of the direct subordination of the General Director or Member of the Board of Directors, must pass through several different departments within the company. Usually, it is the Department of Commerce and Department of support such as financial, personnel, procurement and other support services. By spending a few years in various positions, gets an overview of the company as a whole. Very important is the practice within the department, which is in contact with the customers. This ensures that, even on the top position, the leader recognizes customer approach and business orientation towards the customer needs. Practice in internal services such as risk management is also very useful.

As the most used method in the field of succession development has been mentioned mentoring, coaching and personal development based on 360 degree feedback. In the early stage of the development of a successor there is mentoring from senior colleagues. The successor can learn from more experienced colleagues. Mentoring is built on experience, sharing knowledge, and know-how; taking the role of a mentee is more passive. In further development can be mentoring replaced by coaching, which assumes a certain amount of maturity. The motivation for coaching and active work is essential at this stage.

As an effective method of successors development is individualized forms of development based on the received feedback. The respondents marked the type of feedback that is provided by 360-degree feedback program, which involves a greater number of assessors. The successor can compare the self-assessment of the evaluation of his/her manager and colleagues. Based on this feedback is set a personalised development plan. That can be built on the development of strengths or elimination of weaknesses which are crucial for the successful role of the leader.

In the figure 1 is the results of usage developmental methods by the researched companies. Coaching is the most popular method for successors' development, rotation is used by 28 % of the companies involved in the research.

FIG. 1: Methods of successors' development



Source: Legnerová, 2014

3. Discussion

The research showed the approach to the succession development for the top positions. Based on the results there was pointed out that the Czech family companies do not put stress on succession planning in comparison with the Czech branches of multinational companies. The main reasons for this were explained by the owners as lack of the talented successors within the family or their low interest to lead the family company. The owners have to choose one of the possible scenario: selling the company, close it down or find a successor within the wider family. While the issue of leadership dedicated considerable attention, the issue of succession remains neglected. Estates deal with big corporations with more or less success. The definition of the characteristics and capabilities of the successors is just as problematic as the competency model for the leader. Each leader is unique and has specific competence, which can be partly to teach.

The successor is always compared with the outgoing leader, which cannot be "clone". The most important step for succession planning is the selection of suitable candidates. The selection of candidates should be made soon, because of leadership development is a long-term process, during which the future leader learns not only the theoretical foundations of leadership but also gaining practical experience. Prerequisites for successful development of the successors is the talent, the ability to lead; motivation and energy and time, which are successors willing to invest in their development. The early selection of the potential successor is the key. Based on the research the best method of successor selection is a development centrum. The development centrum demonstrates the strengths and weaknesses of the successor and allows to create a development plan. Creating the development plan can be based on the best practices from the multinational companies.

Conclusion

The paper summarizes the approaches to the development of successors in the Czech family companies. By the provided research were the methods of leadership development divided into three categories. The first of them recommended a total preparation for the top position of leadership development begins with the development of successors. The development of leaders represents a long-term process. At the beginning of the whole process is selecting the right talent with the potential to grow to up to the top position. The identification and development of talents are the key to ensuring a succession plan and thus the sustainability of the business. The development of successors includes a great variety of methods and forms of development, starting with the basic methods of guiding people through learning by doing to the individualized forms of work on self-development.

Based on the conducted research in the Czech-owned companies is put less stress on the development of successors than on the development of leaders. The majority of the Czech companies involved in the research do not develop the successor of company owners. The paper suggests the methods and tools that can be used by the Czech-owned companies for development the future leaders.

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ACCESSIBLE TOURISM SERVICES FOR DISABLED VISITORS IN HRADEC KRÁLOVÉ REGION

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Keywords:

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Abstract:

Accessible tourism for all is one of the most discussed topics in The European Union. The number of persons with disadvantages increases. They belong to a growing market segment also due to aging of population. The paper focuses on accessible tourism services in Hradec Králové region in terms of barrier-free possibilities to spend time here. It deals with accessible accommodation and catering facilities, barrier-free cultural and historical heritage, suitable sport and cultural activities etc.

Introduction

Tourism today is an integral part of the lifestyle of much of the society. It carries significant weight in the economies of many countries and is one of the leading elements of international trade. Moreover, it is playing an increasing role in communication and in knowledge exchange. Given its nature and its impact, tourism should be accessible to all citizens. Thanks to the universal application of the principle of equal opportunities, the guidelines and resolutions issued by international institutions, as well as the positive legislation in place in many countries, tourism is regarded as a right for all citizens and therefore needs to guarantee the elimination of barriers to enable the exercise of those rights. Tourism for all is a widespread social imperative, which should be made possible by the public authorities and by enterprises that are in some way involved in providing tourist services. Persons with disabilities or with special needs are full-fledged citizens in states, an increasingly important segment of tourism demand for the industry's business, and a factor for diversifying destinations and products in tourism development strategies (UNWTO, 2015).

They are participating more and more frequently in tourism activities as a result of their growing level of economic and social integration. However, there remain many impediments and barriers of all kinds that hinder normalized access to tourism goods and services (UNWTO, ENAT, ONCE).

1. Accessible Tourism and Disability

Accessible tourism for all is an equivalent for social tourism. Minnaert (2014) defines social tourism as tourism that specifically encourages the participation in tourism activities of people who are economically weak or otherwise disadvantaged. According to Cazes (2000) social tourism recognises the basic right of all, irrespective of their social, financial and geographical situation, to have leave from work and to have vacations. Various researchers have sought to highlight (McCabe, Johnson, 2013):

- a) the transformative social possibilities of tourism (Higgins-Desbiolles, 2006),
- b) concerns about equality of access and participation (Minnaert, Quinn, Griffen, & Stacey, 2010),
- c) the individual and social benefits that can be derived from participation by disadvantaged groups (Minnaert, Maitland, & Miller, 2009).

Accessible tourism for all is a form of tourism that involves a collaborative process among stakeholders that enables people with access requirements, including mobility, vision, hearing and cognitive dimensions of access, to function independently and with equity and dignity through the delivery of universally designed tourism products, services and environments (UNWTO, 2013).

Estimates of the potential tourism demand that persons with disabilities may constitute are usually only partial and vary greatly in terms of number of potential tourists. It is constantly increasing, due to the incorporation of improvements in infrastructures, information, facilities granted, or other determining factors. Person with disability is a multi-customer. It seems that for every person with disability, an average of 1.5 people travel as well. Orientation for accessible tourism can boost the image of the destination and it has a significant impact on reducing the seasonality of destinations. It also generates more than the average revenue resulting from conventional tourism (UNWTO, 2005).

1.1. Disabled visitors

Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments. Others who may be included in this group due to problems in accessing tourism products and services are people with temporary disabilities, people with crutches during a temporary period, the elderly, people carrying luggage, small children or people who are big or small in size or stature (UNWTO, 2013).

Persons with disabilities are possible to be identified as all persons who, owing to the environment being encountered, suffer a limitation in their relational ability and have special needs during travel, in accommodations, and other tourism services, particularly individuals with physical, sensory and intellectual disabilities or other medical conditions requiring special care, such as elderly persons and others in need of temporary assistance (UNWTO, 2005).

So disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinder their full and effective participation in society on an equal basis with others. Understanding disability as an interaction means that disability is a social construct, not an attribute of the person (UNWTO, 2013).

1.2. Aim and methodology

The scientific goal of this paper is to detect the readiness of the tourism facilities to the providing services for disabled visitors in Hradec Králové region. We were interested in adapted accommodation and catering facilities, adapted cultural and sport facilities.

When searching for the possibilities for disabled visitors, we used primary and secondary research. We focused on the documents dealing with barrier-free environment. We were also interested in databases of accommodation and catering facilities. Some information were gained from the information centres. We also used specialized web-sites, e.g. jedemetaky.cz, tourist portal of Hradec Králové region. Primary data were collected during the visit of accommodation and catering facilities, which were not defined as strictly barrier-free. We also contacted destination management organisations, municipalities and regional office. Our research was conducted in 2014.

2. Results

Hradec Králové region is situated on the North of the Czech Republic. It is also part of the country, where a lot of tourist attractions can be found, e. g. National park Krkonoše, protected landscape areas Broumovsko, Orlické Mountains, Czech Paradise, some castles and churches. Approximately 936 thousand guests visited the Hradec Králové region in 2014.

2.1. Green spaces and natural environment

In Hradec Králové region, there we can find National park Krkonoše and three protected landscape areas. In the area of National park Krkonoše there are located 700 km of tourist routes. There were created projects of barrier-free hiking – “Krkonoše without barriers” and “Krkonoše for all”. Thanks to the projects, 10 barrier-free tourist routes in this area were identified.

Some of the routes are available just with an accompaniment because of inadequate surface, some of them are partly accessible due to inadequate surface. Majority of tourist routes are not accessible for blind people, as the information brochure in Braille font is not available there. Accessible routes dispose of accessible restaurants and public hygiene facilities.

Long routes should be equipped with adapted fountains and benches, with suitable access to allow the approach of wheelchair users and those who use walking aids (UNWTO, 2013).

TAB. 1: Accessible tourist routes

Location	Number of routes	Accessibility		
		Accessibility of routes	Restaurant of refreshment	WC
Krkonoše	13	A (majority of routes) PA (2) AA (1)	A (7) PA (3)	A (1)
Czech Paradise	2	A	A	2
Orlické Mountains	3	A	A (2)	A (2)
Broumovsko	6	A	A (1)	A (1)
Kladské pomezí	2	A	A (1)	A (2)
Hradecko	3	A	---	---

Notes: A – accessible, AA – available with accompaniment, PA – partly accessible, U – unavailable

Source: Správa KRNAP (2010), Královéhradecký region (2013), S vozíkem na cestách (2008)

44 castles are located in Hradec Králové region. Just 5 of them are barrier-free. New Castle Kostelec nad Orlicí as well as Café of Castle Potštejn are barrier-free also for blind visitors.

TAB. 2: Accessible cultural and historical attractions

Name of cultural attraction	Accessibility				
	Access	Exposition	Refreshment	WC	Park
CASTLES					
Hospital Kuks	A	A		A	
New Castle Kostelec nad Orlicí	A	A (exposition) U (gallery)	A	A	
Hrádek u Nechanic	A	A (1 st route) PA (2 nd route)			
Potštejn	PA	PA	A		A
Doudleby nad Orlicí	PA			A	
CHURCHES					
Zjevení Páně, Smiřice	A			A	
Church of Brethren, Litomyšl	A			A	
Memorial, Vraclav	U			U	

Notes: A – accessible, AA – available with accompaniment, PA – partly accessible, U – unavailable

Source: Královéhradecký region (2014)

The access for disabled people should be provided at least by handrails wherever possible. The top and bottom of stairways and ramps, and the edge of individual steps, should be clearly marked with a contrasting colour. Paths and passageways should be at least 900 mm wide. Important are also ramps and door at least 750 mm wide (Office for Official Publications of the European Communities).

2.2. Cultural and sport activities

To the cultural activities belong museums, theatres, cinemas, open air museums etc. In Hradec Králové region there are located 60 museums and galleries. Only 11 of them are accessible for disabled visitors. We can find here also 5 accessible cinemas and 4 theatres.

Also Zoo Dvůr Králové dispose of barrier-free expositions, toilets, parking places and buses for safari are also accessible. From sport activities, hockey and football stadiums are accessible. More than 139 km of cycling trails are located in Hradec Králové region, from which 52 km are accessible. Barrier-free are aquaparks in Hradec Králové, Jičín, Špindlerův Mlýn, swimming pool in Náchod and outdoor pools in Náchod, Hradec Králové and in the camp Lodín.

TAB. 3: Accessible cultural and sport activities

Location	Number of museums, galleries, open air museums	Number of sport activities
Hradec Králové	3	3
Náchod	2	1
Třebechovice pod Orebem	1	---
Šestajovice	1	---
Chlumec nad Cidlinou	1	---
Kostelec nad Orlicí	1	---
Rokytnice	1	---
Častolovice	1	---
Jaroměř	---	1

Notes: A – accessible, AA – available with accompaniment, PA – partly accessible, U – unavailable
Source: Královéhradecký region (2014)

2.3. Accommodation and catering facilities

A reasonable number of rooms in an accommodation establishment should be fully accessible to a person in a wheelchair without assistance. Such rooms should be designed in such a way as to allow all users to carry out the actions of moving, grasping, locating, and communicating easily and independently. This shall apply also to bathrooms and terraces if the room is so equipped (UNWTO, 2005).

A representative number of restaurants, cafeterias, cafes and bars in the area should provide accessible facilities, which take into account ease of exterior access, furniture designed to enable their utilization by users in wheelchairs, bars at different heights, menus in Braille, accessible bathrooms, etc. (UNWTO, 2005).

The share of accessible accommodation facilities is 1.36% and the share of accessible catering facilities is 1.76%.

TAB. 4: Accessible accommodation and catering facilities

Location	Signification of accessibility	Signification of accessibility
Hradec Králové	1	1
Náchod	---	1
Jaroměř	---	1
Rychnov nad Kněžnou	2	2
Kostelec nad Orlicí	1	1
Deštné, Orlické Mountains	1	3
Vrbice	1	1
Radvanice	---	1
Meziléč	1	---
Malá Úpa	1	---
Říčky, Orlické Mountains	1	---
Broumov	1	---
Nový Bydžov	1	---
Nechanice	1	---
Rokytnice, Orlické Mountains	1	---

Notes: A – accessible, AA – available with accompaniment, PA – partly accessible, U – unavailable
Source: Královéhradecký region (2014)

4 certified barrier-free accommodation facilities are located in Hradec Králové region – hotel Studánka, hotel Panoráma, pension Pod rozhlednou and pension Podhorní Mlýn. They dispose of accessible restaurants, toilets, pool and sauna. Besides, there are 5 more accessible hotels, 4 pensions and one camp. In the region, there are located also 17 partially accessible accommodation facilities. They dispose of barrier-free rooms.

There could be found 11 barrier-free catering facilities, accessible also for persons with physical and sensory disabilities, and 76 partially accessible restaurants, cafés etc.

Discussion

Disabled visitors consider as important the barrier-free access to the accommodation and catering facilities, to cultural and sport activities etc.

We state that in Hradec Králové region, there exist good conditions for disabled visitors for hiking and cycling. They have also possibilities to visit some museums, cinemas and Zoo in Dvůr Králové.

The gap on accessible tourism market in region is lack of barrier-free accommodation and catering facilities. In researched area, there exist some certified barrier-free accommodation facilities, which is good information for disadvantaged visitors.

Problem of all facilities including accommodation, catering, cultural activities and cultural and historical attractions is ignoring of requirements of sensually disadvantaged persons.

Conclusion

Also disabled persons have the law to travel. So if tourism destinations want to improve their revenues, it is inevitable for them to pay attention on the accessible design of the catering and accommodation facilities, as well as access to the nature and cultural heritage.

We highlight importance of universal design and adequate approach of the staff. Accessibility is not a requirement exclusively for the benefit of persons with disabilities, as they are not its only beneficiaries; tourism destinations that take heed of these requirements and those that understand them as positive measures will see their product and service offerings evolve, thus facilitating the tourism experience and improving the quality of life of all their residents and visitors (UNWTO, ENAT, ONCE).

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PRODUCTIVE AND UNPRODUCTIVE ACTIVITIES IN THE EU

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Keywords:

Baumol – legislation – funds – patents – entrepreneurship

JEL classification: K90, H70

Abstract:

Inspired by William Baumol's thesis on unproductive entrepreneurship, this paper discusses three topics that may lead to the Baumolian unproductive zone. Baumol expects that the overexpansion of unproductive activities can lead to the decline of certain civilization. Rather than decline, this paper focuses on possible reasons of economic slowdown in the European Union. In our view based on Baumol ideas, among them may be expanding legislation, patent law or European funding system.

Introduction

In 1990 William Baumol published his contribution to the theory of entrepreneurship, a text titled Entrepreneurship productive, unproductive and destructive. In this text, the author explains some declines of civilisations using his extension of the entrepreneurship theory. In his point of view, civilisations may be threatened when the quantity of "unproductive" or "destructive" entrepreneurship exceeds some reasonable limit. He uses examples from the Ancient Rome, historical China or European Middle Ages. In all the dark periods of the great civilisations Baumol finds certain clues, connections.

Baumol designs his text as supplementation and complementation of the Schumpeterian theory of entrepreneurship where the entrepreneurship is viewed as the bearer of innovations. For Schumpeter (1934), it is the entrepreneur who seeks new innovative opportunities in a few areas, brings innovations. This makes his view on entrepreneurship positive. In Baumols (1990) extension to this concept, entrepreneur can look for profit-making opportunities in terms of rent-seeking. For Baumol, this type of entrepreneurship is not beneficial for the society. In his terms, such entrepreneurs may be "unproductive" or even "destructive".

The main point is that such types of entrepreneurs do not arise without external influence. Opportunities that allow excessive creation of such activities are created by legislation of particular country.

In Litzman and Kouba (2013), we further developed this idea by adding that not only entrepreneurs do “unproductive” activities. Legislation may force or at least allow the firms to do such activities as a part of their regular activities. To fulfil all the necessities required by the law, firms have to hire new employees that are working on duties that are similar to those Baumol has described.

This leads to the main research question of the paper. As we are living in the era dominated by the law and the state, one may ask whether there is something that may make us close to the state Baumol warns about. So, are we able to identify the reasons that can lead Europe into Baumol’s “destructive” area?

Naturally, this article is not intended to be alarmist, it shall anticipate neither an early decline of Euro-Atlantic civilisation, nor similar scenarios. Nevertheless, one can search for certain parallels that can lead to a slower economic growth and subsequently also a slower growth of the life standard of its inhabitants. Furthermore, however much have the stories presented by Baumol in common, it cannot be expected that the decline would be caused only by excess of unproductive activities. Nevertheless, some implications suggested by Baumol can be empirically tested, such as done e.g. by Sobel (2008).

Baumol does not directly define either unproductive or destructive activities. He only makes reference to some of them by means of mentioning historic parallels and examples. Yet we can find some common features. The most crucial is the necessity to implement certain state activities by the private or semi-private sector. If the legislation enables or directly forces such activities to thrive, Baumol’s economic slowdown can occur.

1. Legislative production

In this regard, legislation instability is an interesting problem. The European Union is an organization that, based on international agreements, has the power to adopt legislative measures and as such it is a source of legislative changes. From the language of agreements (specifically Article 288 of the Treaty on the Functioning of the European Union) it is obvious that European Union bodies have the competence to legislate - to issue regulations with direct applicability and directives which need to be applied through domestic law. These acts induce a number of legislative changes that are to be in a certain way grasped and incorporated into personal and also corporate decision-making.

In recent years, the European Union bodies adopted a number of directives that had to be transposed into law of the member states. According to the Euroskop server, 761 directives were adopted between years 2004 and 2012. (Krutílek, 2013) It should be noted that not all of the directives directly induced a legislative change. Some

legislation is in line with directives at the time of their adoption, some may be influenced by a directive in course of implementing a reform and the directive itself will not cause any extra change. Then we have to add the portion of thousands of decisions that can influence the legislation provided that a member state is their receiver.

According to the same source, 5651 regulations with direct effect were adopted between years 2004 and 2012. Domestic legislation had to be changed only in the case when it would not be in line with the regulation.

Zbíral (2011) who analyses effects of the dynamics of European legislation on domestic law works with higher numbers. According to the analysis of this author, three quarters of applicable law is formed by Community legislation. On the other hand, only less than one fifth of domestic legislation derives from EU regulations.

Let's take an example of the Czech legislative. The House of Representatives registers amendments related to the European Union only very negligently. Generally, a considerable percentage of legislative standards is marked that way, on average one quarter of parliamentary papers are marked "EU-related". As shown in Table 1, their success in the legislative process is high, which is understandable in light of the "involuntary" nature. It is a relatively large percentage within the framework of the legislation successfully adopted in the legislative process. However, it should be noted that the actual relation to EU does not mean that it is only a transposition of European legislation. In the parliamentary practice, the designation is used with a significantly broader meaning and it is rather a note for the proceedings.

TAB. 1: The number and success of submitted draft laws with marking the relation to European law

	2010-2013	2006-2010	2002-2006
Total number of draft laws	621	612	723
Adopted	338	348	492
Drafts with a relationship to the EU	168	143	206
Adopted with a relationship to the EU	138	123	190
A share of the total number of drafts	27.1%	23.4%	28.5%
Success	82.1%	86.0%	92.2%
A share of adopted laws	40.8%	35.3%	38.6%

Data source: The Chamber of Deputies of the Parliament of the Czech Republic

Thanks to a relatively general concept there is normally certain freedom in the transposition into law. In this connection it is possible to incorporate an additional condition, to tighten the interpretation or broaden the base of people affected by the regulation. In practice, such a phenomenon is called "gold-plating". (Bocci, DeVet, Pauer, 2013)

An odd but well-publicized case was the introduction of the obligation to pack certain breads (e.g. doughnuts) in terms of Decree No. 347/2002 Coll. In this case it was an exaggerated application of Directive No. 93/43/EEC that only establishes a general obligation for securing such conditions in offering for sale, to avoid harmful contamination.

High law dynamics may imply Baumol's warnings. As the problem is the implicit obligation to incorporate all the legal information into the national decision-making. Then, the large extent of changes results in the necessity to commit employees' time to this type of activities, which is leading to development of Baumol's unproductive activities.

2. Patent policy

Patent policy may be expected to be another type of possible Baumolian zone. From the economic point of view, the very existence of patents is a matter of dispute. On the one hand it serves to insuring the recovery of the costs of development and motivates the entrepreneur with an "additional bonus" in form of a temporary monopoly on the product. On the other hand, the problem is critically viewed in the creation of monopoly structures that are unfavourable to the consumer and also to the competitor who might already have had invested certain money in research and development of the same invention. Here we can see also a demotivational aspect for the entrepreneur who has to undertake the risk in development that there will be someone lodging a patent application for the same product earlier.

We use patent policies as a potential source of Baumolian "unproductive" activities. In recent years, patents were used by various firms as a tool in a series of legal actions called "patent wars". In fact, legal wars based on patent law is not anything new. In history, we are able to find dozens of such wars. Among them, the most well-known may be those with Wright brothers or Alexander Graham Bell.

The majority of contemporary legal actions took place in the US ¹ The reason for this is American patent law which is more suitable for such type of activities. Besides good transferability of patents, companies favour the rule according to which generally each party bears their own costs of the proceedings. Nevertheless, some parts of worldwide patent wars that were made by technological firms, did happen in countries of Europe.

¹ This type of entrepreneurship is popular especially in the United States due to the local set up of legal and judiciary systems. Besides good transferability of patents, the patent trolls favour the rule according to which generally each party bears their own costs of the proceedings. However, in 2014, this practice was restricted by the U.S. Supreme Court by its decision in the cause of Octane Fitness, LLC v. ICON Health& Fitness, Inc. (Sotomayor 2014)

For example, some of more significant decisions in telecommunication patent wars were reached at German and French courts.

These patent disputes generate for companies considerable costs for legal representation, expertise and others. Companies do not pride themselves on these costs, however according Decker (2012), the costs of Apple for one dispute with Motorola (that time owned by Google) were at least 32 million dollars. The same author estimates that the costs of all patent disputes in which Apple is involved, can be hundreds of millions dollars.

The situation has been complicated by existence of companies which are now entitled as patent trolls. Such companies deal with buying patent applications which they try to enforce on the products. Whatever the form in which literature emphasizes benefits for the companies buying patents also on behalf of minor inventors (Risch 2012), other authors underline the significant growth of this type of disputes in recent years and quantifies the costs of the disputes on the part of the defending companies to 29 billion dollars per year (Bessen and Meurer 2014)

Such amounts do finance law firms and thus activities that are based on rent seeking. As the rent seeking activities are expected to be unproductive in Baumols view, EU legislation should try to suppress such activities.

European Union is aware of possible troubles with patents. In new strategy Europe 2020, some new plans with patent applications were arranged. European Union wants to set a new specialised Patent Court and to create single EU Patent. (EU, 2010)

3. European funding system

European funds are a very interesting problem in light of growth. Their purpose is, inter alia, the convergence of economically less developed regions to more developed by means of a higher economic growth and a life standard growth. The contributions of the funds to the growth are often a subject of dispute. Whereas Cappelen et al. (2003) suggest generally positive outcomes, a recent study of Mohl and Hagen (2010) is more sceptical and he finds only a few funds, those related to the first objective (i.e. development of less developed regions). On the other hand, the second and the third objective lying in the transformation of regions with structural problems and in the modernisation and adaptation of teaching do not deliver growth. However, we can look at them from a different point of view. While empirical literature is able to easily measure the current GDP increase gained through implementation of a grant, to measure the long-term innovation potential is more difficult.

The fact that the subsidies granted to individual regions should contribute to the GDP growth is apparent from their nature. If we can approximate the product as a sum of

wages, it is clear that the money paid in form of subsidies shall appear in the growth of the product in the region. But it does not say anything about the long-term growth.

A long-term growth in terms of the Schumpeterian model of entrepreneurial innovations, as already mentioned, is driven by entrepreneurs. The projects funded from the European funds are connected with a certain administrative burden that needs to be dealt with. It is necessary to create a subsidy application and comply with its conditions. For these activities greater efforts are required. The quantification of persons working on the project proposal is very difficult. However, it is clear that these persons have to be taken from other economic activities. At the same time it is again appropriate to recall the thesis (Murphy, Shleifer, and Vishny 1991) that the most talented people choose the best profit-making opportunities.

It is obvious that there is a certain antagonism. If the subsidies are directed correctly, increase in the innovation capacity of the region is possible. (see e.g. Oughton et al., 2002). On the other hand, a part of the capacity is taken by administrative - in Baumol's words unproductive - activities.

Hence, the objective set in form of streamlining administrative procedures is from the point of view of this theory crucial for the innovative nature in the future. Reduction of administrative burdens for granting subsidies can partially reduce the problematic sector and contribute to future development.

Conclusion

The presented paper assesses some points inspired by William Baumol's writings. It draws attention to some bottlenecks that can occur here, especially on the side of legislation, patents and European funds.

Harmonisation of the European law using centralised legal construction has its place to make EU market the real single market as it standardises various goods and terms. Nevertheless, the production of EU legislative is almost incredibly high. The number of acts in force is twice to those that are in force in Czech Republic. (Zbírál, 2011) This makes European law hard to follow and to find the exact rights and duties and forces legal entities to hire a specialist.

Patents can be good for securing intellectual property but in practice they are often used for disputes that may turn to patent wars. This has been recently known about the telecommunication sector, but the wars are made on more fronts. From the societal point of view, such disputes cannot be viewed positively and this provides some room for the reform of the patent law. The objective is not to directly highlight in the strategic documents but there is a certain hope in the efforts to modernise intellectual property rights.

The third problem was identified in the European funds. Here, Europe 2020 sets an appropriate objective to reduce the administrative burden. In view of the generated sector focused on the mediation of the profit from subsidies we can assume that it meets the criteria which Baumol attributes to unproductive entrepreneurship. Their reduction can help innovations and the “productive” entrepreneurship.

All three points may somehow boost growth of unproductive sectors, making entrepreneurs to set new firms dealing with such topics or making existing firms to hire specialists in those areas. All the points described in the text exist, but their influence is not too strong to make the European Union decline. In past decades, countries of European Union saw significant growth and after several years of recession, they got back to “black numbers”. Nevertheless, there should always be a chance to ask whether the growth (or rather growth of living standards) could not be even faster.

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TRENDS IN THE NUMBER OF INSOLVENCY PROPOSALS

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Czech Republic – insolvency proceedings – time development – macroeconomic indicators

JEL classification: G33, M21

Abstract:

The aim of this paper is to analyze trends in the number of insolvency proposals, in the time period from 2008 to 2014. The Act No. 182/2006 Coll. on bankruptcy and its settlement methods (called as Insolvency Act) came into effect in the year 2008 which is also a beginning of the recent global economic crisis which has had undoubtedly its impact on the number of the insolvency proceedings. The development in the number of insolvency proposals will be evaluated on the national level according to individual court districts. The analysis will be based on the statistics of Expert working group on insolvency law and on values of selected macroeconomic indicators. The used methods are based on descriptive statistics.

Introduction

Default of natural and legal persons is now regulated in the Insolvency Act (No. 182/2006 Coll.) in the Czech Republic. Default or in other words bankruptcy is defined in paragraph 3 and it is enabled by the insolvency or over-indebtedness. Paragraph 4 of the Act defines four possible ways of dealing with bankruptcy – bankruptcy, reorganization, discharge of debt and special ways which are set for certain subjects and cases. With the new bankruptcy law there have been connected many expectations which all were not properly filled. Some shortcomings were due to the legislation itself, unprepared society and other due to economic situation. Unfortunately the law came into force when the last global economic crisis started. This paper is focused on the observation of trends in the number of insolvency proposals in the Czech Republic. The number of insolvency proposals is observed in the relationship with values of selected macroeconomic indicators. It should show if there are significant dependencies between number of insolvency proposals and some macroeconomic indicator.

1. Literature overview related to insolvency proceedings

Discussions about shortcomings of Insolvency Act are conducted in the point of view of law or in the view of business entities. Richter (2011) discussed that from the legal

point of view. Nowadays it seems that there is already a sufficient basis for fundamental legal review of the Act because Kislingerová, Richter and Smrčka (2013) talk even about the Insolvency Act in version 2.0. On the other hand Smrčka, Schönfeld and Ševčík (2012) emphasized with the changes especially the environment in which the business entities function.

One of the greatest hopes with the new insolvency law was put into the use of reorganization principle. The reorganization could be simply characterized that the debtor's operations are maintained and not all property is sold but only the redundant assets are sold. The possibility of reorganization has not been used very often how it is proved by Bokšová and Randáková (2012). The reasons for not using this principle are mentioned by Kislingerová, Richter and Smrčka (2013) or Smrčka, Arltová and Schönfeld (2013). The main reason against use of reorganization principle is economic situation of subjects in the decline whose competitiveness and the continued existence on the market cannot be guaranteed. Furthermore, the Czech defaulted entities enter into insolvency proceedings without almost any property proved by Kislingerová, Richter and Smrčka (2013) or Čámská (2013). The last obstacle was the legislation itself which disqualified small enterprises. The reorganization was primarily permitted for enterprises with a turnover of over 100 million CZK in the last financial year preceding the insolvency petition, or employing more than 100 employees (paragraph 316 of No. 182/2006 Coll.). Law has admitted that if in a given period of time the reorganization plan is approved by half of secured and unsecured creditors, computed according to the amount of their claims, then the size assumption is not necessary. It was almost unrealisable to approve the reorganization plan due to time pressure and the motivation of creditors. Nowadays the act contains less strict assumption (turnover over 50 million CZK and more than 50 employees).

From the economic initiative the legislative changes are possible only when there are data not supporting the status quo to remain. From the economic point of view it is analysed the length of insolvency proposals, the recovery rate of secured and unsecured creditors, transaction costs of insolvency proceedings etc. Unfortunately, the availability of data is not ideal although the insolvency register is publicly available without a charge. The insolvency register does not provide aggregated data (Kislingerová, 2012 or Kislingerová, 2013). The lack of aggregated data has led to the situation that insolvency proceedings in the Czech Republic became a research area for many experts from Czech universities.

The development of insolvency proposals was analysed by Svobodová (2013) or Paseková (2013b). Čámská (2012) tries to detect the most affected economic activities of defaulting entities. The new bankruptcy law also works with the bankruptcy of natural non-entrepreneurial persons and therefore social issues and impact on the people is also a research area, for example Paseková (2013a). Recently Smrčka with his research team tries to connect characteristics of insolvency proceedings (duration,

recovery rate, costs etc.) with the country's economic situation and the insolvency law setting which can more apply economic or social principles (Smrčka, Schönfeld & Arltová, 2014 or Smrčka, Arltová & Schönfeld 2015).

Development in the number of insolvency proposals and proceedings in the Czech Republic has been undoubtedly influenced by the country's economic situation in recent years. The aim of this paper is to connect the number of insolvency proposals with basic macroeconomic indicators using statistical methods. The first step is description of the situation. The second step is to find out the relationship among the economic situation of the Czech Republic and the number of insolvency proposals. For this purpose the regression analysis is used. Causality will be monitored at the national level. Furthermore, the dependencies are observed for insolvency proposal in total, as well as various types of suggestions for dealing with default. Insolvency proposal can be filed without a proposal, as well as a proposal for bankruptcy, reorganization or debt relief (last two as sanitation principles of resolving insolvency).

2. Development in the number of insolvency proposals

Act no. 182/2006 Coll. has been effective since January 2008 and therefore also the collection of aggregated data has started. Table 1 shows the number of insolvency proposals for the time period 2008-2014 according the types of dealing with bankruptcy. The latest official data were available only for first and second quarter of 2014 at the time of data analysis this year. As a consequence the number for whole 2014 is extrapolated by the author as double of proposals for two quarters. In the second half of 2014 there was no serious macroeconomic shock that would have affected the results. This extrapolation is also based on the assumption that the number of insolvency proposals during a year does not have any seasonality.

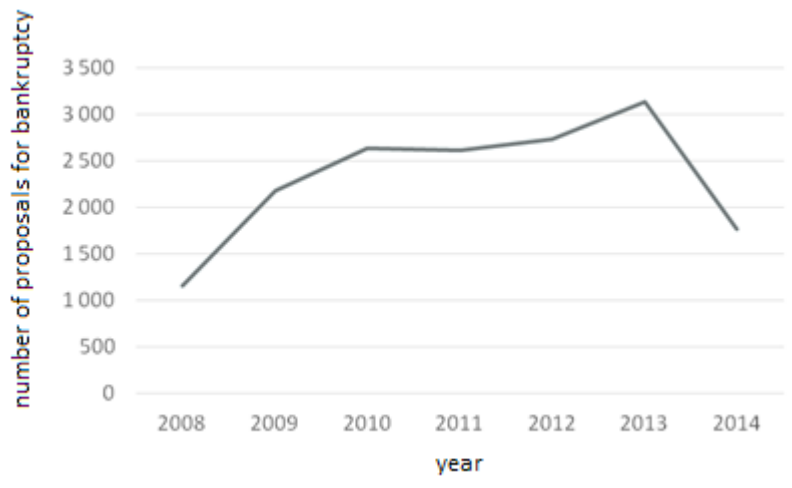
The debt relief proposals for natural entrepreneur persons outweigh among all insolvency proposals. There was not a dominance of debt reliefs in the early years 2008 and 2009. It is caused by the fact that the debt relief was the new suggestion for dealing with default. On the other hand bankruptcy and other solutions for business entities had been allowed by the previous legislation as well. The number of insolvency proposals has been rising during the analysed period but in the recent years 2013 and 2014 the trend is significantly decelerated. According to assumptions it should have even declined in 2014 because of drop in bankruptcies and cases without a proposal. Reorganization has been used marginally and therefore there would not been a serious relationship with macroeconomic development. An increasing trend in the number of reorganization is caused by greater openness to this method of settlement. Still many reorganizations are changed during the reorganization process into bankruptcies.

TAB. 1: Number of insolvency proposals

Year	Without proposals	Bankruptcy	Debt relief	Reorganizations	Total
2008	2 836	1 151	1 693	6	5 236
2009	3 462	2 180	3 744	10	9 396
2010	3 447	2 635	10 014	5	16 101
2011	3 805	2 617	18 021	23	24 466
2012	4 115	2 735	25 785	21	32 656
2013	4 243	3 140	30 213	17	37 613
2014*	3 000	1 760	30 848	32	35 640

Source: author based on statistics of expert group 22, * numbers for 2014 based on author's extrapolation

The observation of relationships in the case of the number of bankruptcies enables Figure 1. Till 2010 we see a sharp increase of the number of bankruptcies then there is a decline in growth and in 2014 we see a decline in the number of proposals.

FIG. 1: Number of proposals for bankruptcy

Source: author based on statistics of expert group 22

Trend of the number of total proposals is different than the trend of the number of proposals for bankruptcy. It is possible to forecast the time dependency. For the total proposals the linear trend has a high explanatory power. The model displayed by equation 1 has the R square 0.947. On the other hand the number of proposals for bankruptcy cannot be forecasted with linear trend. If we use parabola whose model is displayed by equation 2 the R square is 0.823. In the long term there would not be other increases in the number of proposals and therefore it needs to find out the dependency between number of proposals and explanatory macroeconomic variable.

$$\text{number of proposals} = -441.857 + 5864.321 \times \text{year} \quad (1)$$

Where year = 1 for 2008, 2 for 2009, ..., 7 for 2014

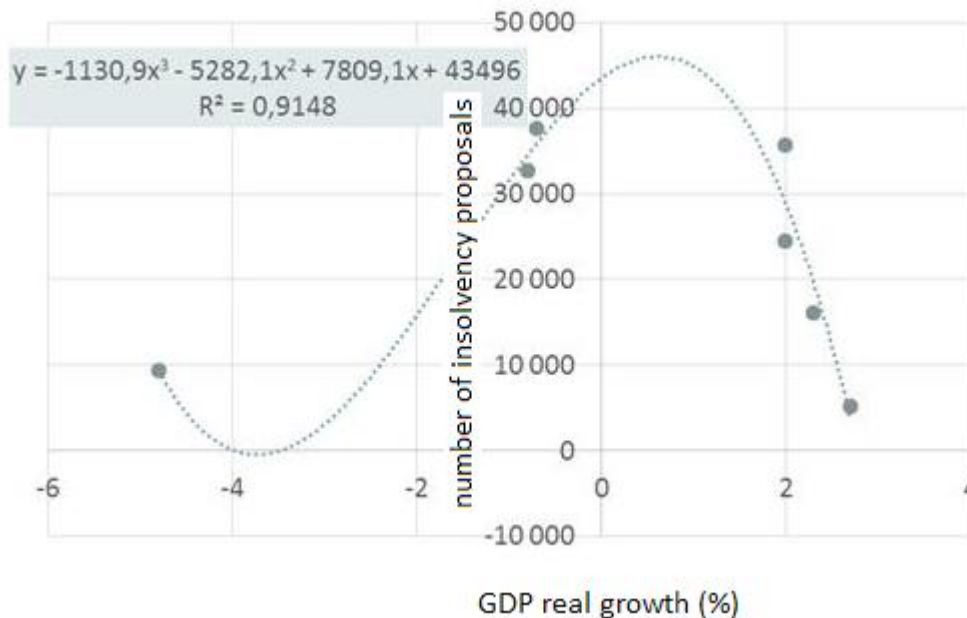
$$\text{number of proposals for bankruptcy} = 49.714 + 1282.4 \times \text{year} - 143.13 \times \text{year}^2 \quad (2)$$

Where year = 1 for 2008, 2 for 2009, ..., 7 for 2014

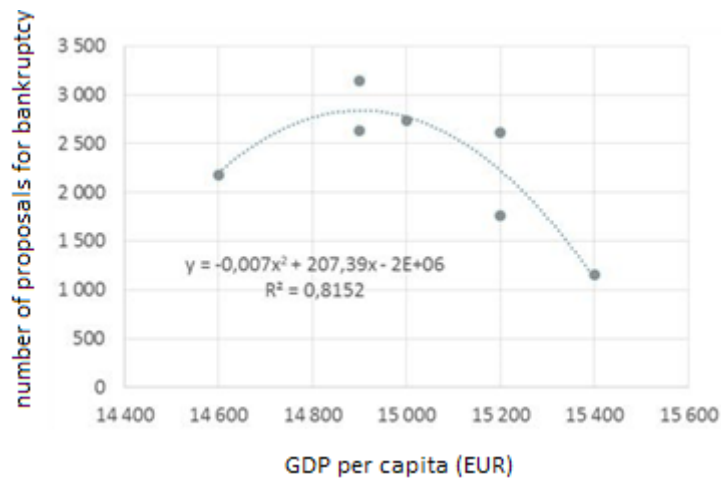
The selected macroeconomic indicators are GDP at current prices, GDP real growth, real GDP per capita, inflation, 2weeks repo rate, unemployment rate and average month salary. Variables as unemployment rate and average month salary are not suitable for explaining the proposals for bankruptcy from the economic point of view but their role is in the case of proposals for debt relief. 2 weeks repo rate announced by Czech National Bank has been analysed as totally insignificant.

Several macroeconomic variables have been used and conclusion is that the best result the variable GDP real growth has for the number of total proposals. For the number of proposals for bankruptcy it is the variable real GDP per capita. The dependencies are not only statistical significant how it is displayed by R square in figure 2 and 3 but they also have an economic justification. When the GDP grows we expect the decline of number of insolvency proposals.

FIG. 2: Dependency between number of total proposals and GDP real growth (%)



Source: author's computation

FIG. 3: Dependency between number of proposals for bankruptcy and GDP per capita (in EUR)

Source: author's computation

The explanatory variables as average month salary and average rate of unemployment could be a good predictors for the number of proposals for debt relief and the total number of proposals. The majority of total number of proposals is created by the proposals for debt relief (in 2008 32%, in 2010 62% and 2014 even 86%). Table 2 shows the output from statistical package SPSS which finds out dependency between the number of total proposals and average month salary. The statistical dependency is significant but from the economic point of view we cannot use these models. If the coefficient b1 is positive it means that higher month salary implicates higher number of insolvency proposals. The time series is short as well and the environment has been very turbulent recent years.

TAB. 2: Regression analysis – dependency between the number of proposals and average month salary

Equation	Model Summary		Parameter Estimates			
	R Square	Sig.	Constant	b1	b2	b3
Linear	.944	.000	-263754.386	11.811		
Logarithmic	.942	.000	-2845834.064	284140.471		
Inverse	.94	.000	304538.451	-6.824E9		
Quadratic	.944	.003	-74315.361	-3.936	.000	
Cubic	.944	.003	-74315.361	-3.936	.000	-454.851
Compound	.944	.000	.001	1.001		
Power	.953	.000	3.613E-69	16.584		
S	.959	.000	26.338	-399782.743		
Growth	.964	.000	-6.830	.001		
Exponential	.953	.000	.001	.001		
Logistic	.953	.000	925.027	.999		

Source: author's computation

3. Discussion

This research tested only the selected macroeconomic variables. Some variables were totally insignificant for the paper's purpose because the dependency was very low or did not exist at all. The results for these explanatory variables are not displayed in this paper. It is possible to use other variables or divide data into regional levels according to insolvency courts. This would enable a further research. It has been already mentioned that the time series is very short for the Czech Republic nowadays. Some specifics are also caused by the turbulent environment during recent years. Further research is also possible as international comparison.

Conclusion

The aim of the paper was to analyse the development in the number of insolvency proposals and proceeding in the time period 2008-2014. The analysis was carried on the national level for the Czech Republic. The aim was to identify the macroeconomic impact on the number of insolvency proposals in specific years. The total number of insolvency proposals has a significant time trend nowadays which can be modelled by linear regression function whose coefficient of determination is very high. GDP real growth and GDP per capita were suitable macroeconomic variables for the paper's purpose, specifically the total number of proposals and the number of proposals for bankruptcy. On the other hand the variable average month salary is not suitable for the paper's purpose because the explaining goes against the economic point of view.

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MARKETING CONTROLLING IN CZECH COMPANIES

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Keywords:

marketing controlling – medium-sized company – large company – primary research – marketing metrics.

JEL classification: M3

Abstract:

The aim of this empirical research was to evaluate the circumstances concerning the use of marketing controlling in practice in medium-sized and large companies with registered offices in the Czech Republic, with a focus on the different roles of marketing controlling, its organizational integration in the business and marketing metrics used for evaluating the effectiveness of marketing activities. The primary survey was conducted via an online questionnaire prepared in advance. For the purposes of the implementation of the empirical investigation a basic set was defined on the basis of registered economic subjects in the Czech Republic. The sample consisted of 400 respondents.

Introduction

Marketing controlling is a theme that has been discussed as part of economic science since the 1980s, especially in German literature. Many publications devoted to marketing controlling in companies mainly described the structure and content of the specific areas of corporate responsibility (Eschenbach, 1985). Richard Köhler (Köhler, 1993) is considered to be the pioneer of marketing controlling. He was among the first to point out the relationship between corporate accounting and marketing. Marketing controlling is a subsystem of central corporate control. Kutáč and Janovská (Kutáč & Janovská, 2012) distinguish the following subsystems of controlling in companies: cost, financial, investment, production control, purchasing control, sales and marketing controlling. If the theoretical notion that marketing controlling, with regards to the fact that it is a subsystem of corporate controlling, is focused on the marketing activities of a company, it follows a similar approach to the theory of corporate controlling. According to Meffert and Jung (Jung, 2007) consist the central function of marketing controlling in coordination of the marketing management subsystems. The main task of marketing controlling is to provide information for the process of marketing planning, decision making and control. Likewise, Schröder (Schröder, 2012) states that the role of marketing controlling is not only the actual planning or control, but that it has in the planning and control processes mainly a service function. It controls and coordinates the necessary information processes and ensures coordination of various sub-plans and control activities. Pepels (Pepels, 2003) emphasises that marketing controlling is the main role of marketing

management. According to him, this specialized marketing control increases the ability to react and adapt to a highly competitive and dynamic environment.

1. Characteristics of the primary investigation focused on the tasks, organization and marketing controlling metrics used in medium-sized Czech companies

In the preparatory phase, the authors defined the research assumptions.

- a) **Research assumption RA1** - marketing controlling in a company performs the functions ascribed to it by theory.
- b) **Research assumption RA2** - in medium-sized and large companies there is a dedicated department or person responsible for marketing controlling.
- c) **Research assumption RA3** - an important part of marketing controlling is the evaluation of selected marketing indicators.
- d) **Research assumption RA4** - the evaluation of marketing indicators is focused mainly on financial indicators, market share and customer-oriented metrics.

2. Results of the primary investigation into marketing controlling in medium-sized and large companies in the Czech Republic

The first part of the questionnaire was devoted to checking the tasks of marketing controlling to verify basic research assumption RA1.

This part of the questionnaire consisted of closed questions on usual controlling tasks which utilised a scale of six possible responses ranging from "1 - an important everyday task of marketing controlling" to "6 - is not the role of marketing controlling". The results of this investigation are presented in Table 1. The rank of the tasks of marketing controlling is also evident from the overview bar graph in Figure 1.

TAB. 1: Summary of average marks awarded by Czech companies for marketing task priorities

Tasks within marketing controlling	Average Score		Rank	
Analysis of sales	1.5	2.2	1.	Operational plan support
Analysis of costs	1.7			
Analysis of communication	1.7			
Analysis of profitability of marketing activities	1.7			
Distribution analysis	2.2			
Product analysis	2.3			
Price analysis	2.3			
Analysis of effectivity of marketing activities	2.4			
Creating a budget (planning value)	3.1			
Drawing up annual plan	3.2			
Analysis of market and its players	3.0	3.3	4.	Strategic planning support
Long term plans	3.1			
Strategy development	3.1			
Portfolio analysis e.g. BCG, GE	3.2			
Creating goals	3.3			

Situation analysis e.g. SWOT, PEST	4.0			
Reporting	1.6			
Data collection for lower operational management	2.5			
Data collection for top management	2.6	3.0	3.	Information function
Conception of Marketing Information System	3.1			
Marketing research	3.3			
Computer and Information Science	4.6			
Implementation of preventive measures	1.9			
Check the annual plan and plan comparison of the	2.2	2.5	2.	Control function
Implementation of corrective measures	2.4			
Analysis of deviations and their causes (plan x fact)	2.6			
Comparison of variations over time (fact x previous	2.6			
Control of budget and plan comparison of the	2.6			
Check strategic plans	3.1			

Source: Authors

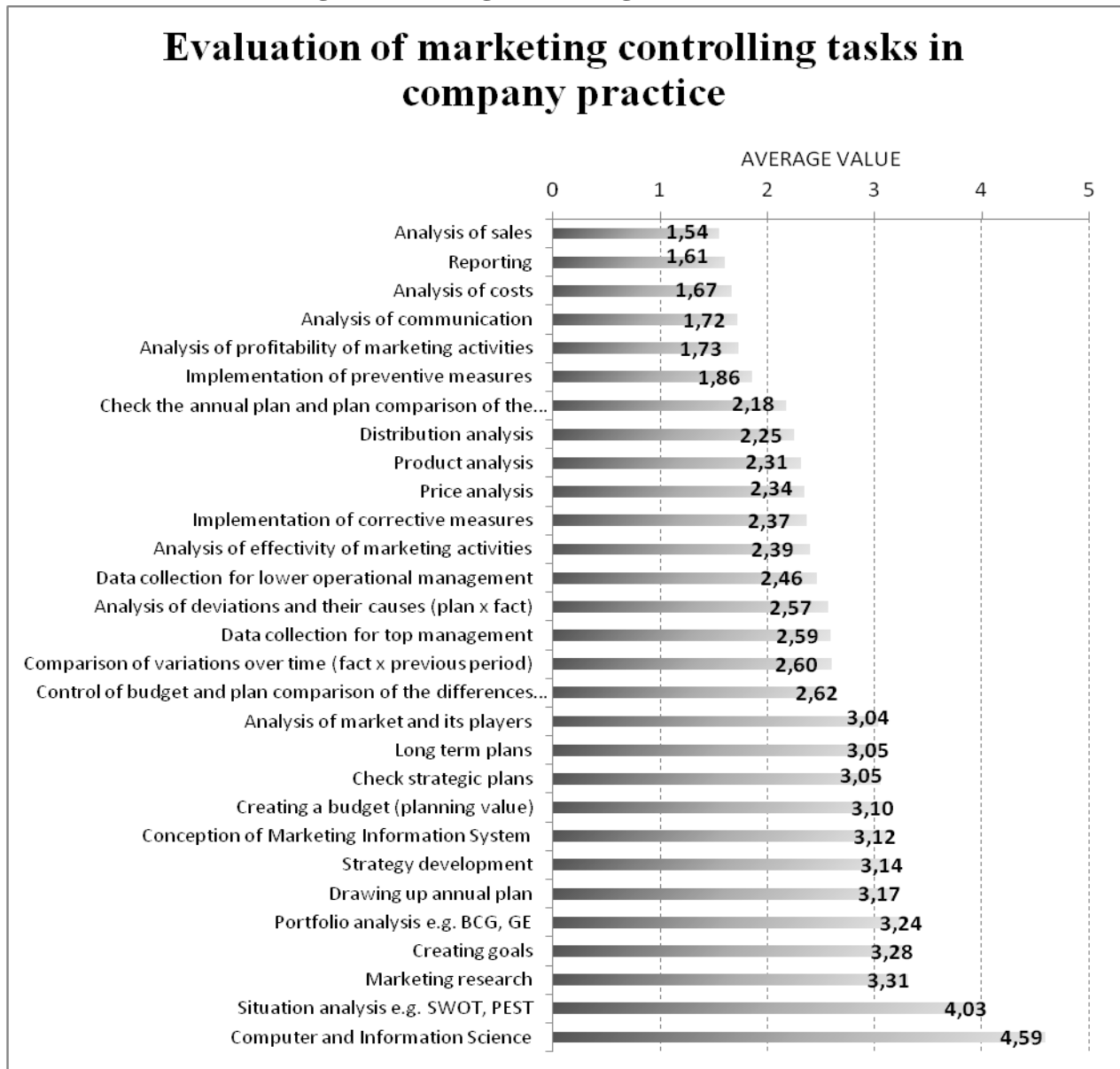
For greater clarity, the weight of each function was converted into percentage terms (see Figure 1).

FIG. 1: Weighted ranking of marketing controlling tasks in %



Source: Authors

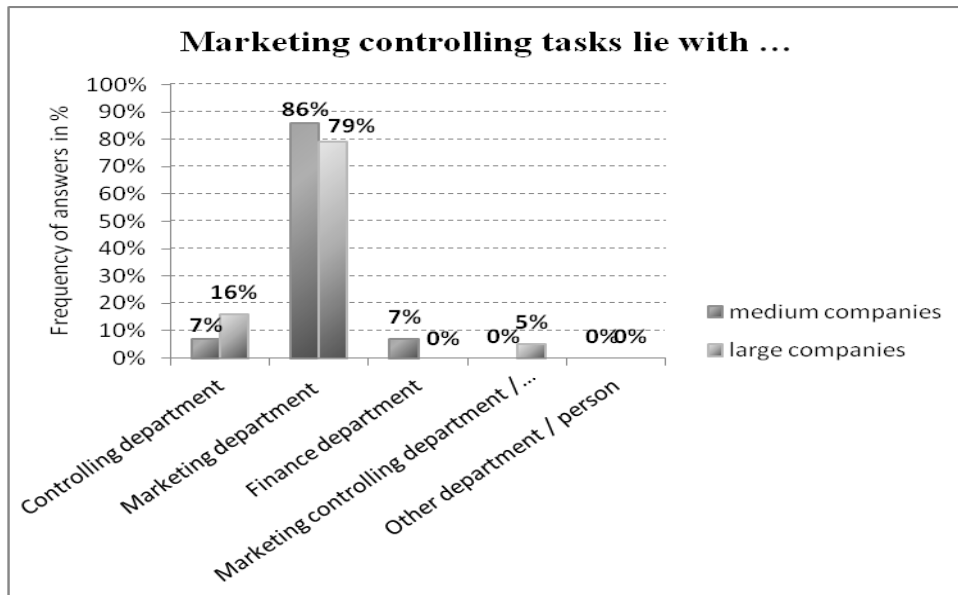
Figure 2 gives a graphical representation of the evaluation results for each task on the basis of the average mark awarded by respondents.

FIG. 2: Individual ranking of marketing controlling tasks

Source: Authors

The second part of the questionnaire was devoted to the organizational integration of marketing controlling in companies. The aim was to test the basic hypothesis RA2. The results are shown in Figures 3, 4 and 5. The investigation revealed that the role of marketing controlling in companies is delegated to the marketing department. A specialized marketing controlling department or a dedicated person as marketing "controller" only occurs in large companies (5% of respondents). In 7% of medium-sized companies the task of marketing controlling is entrusted to the financial department.

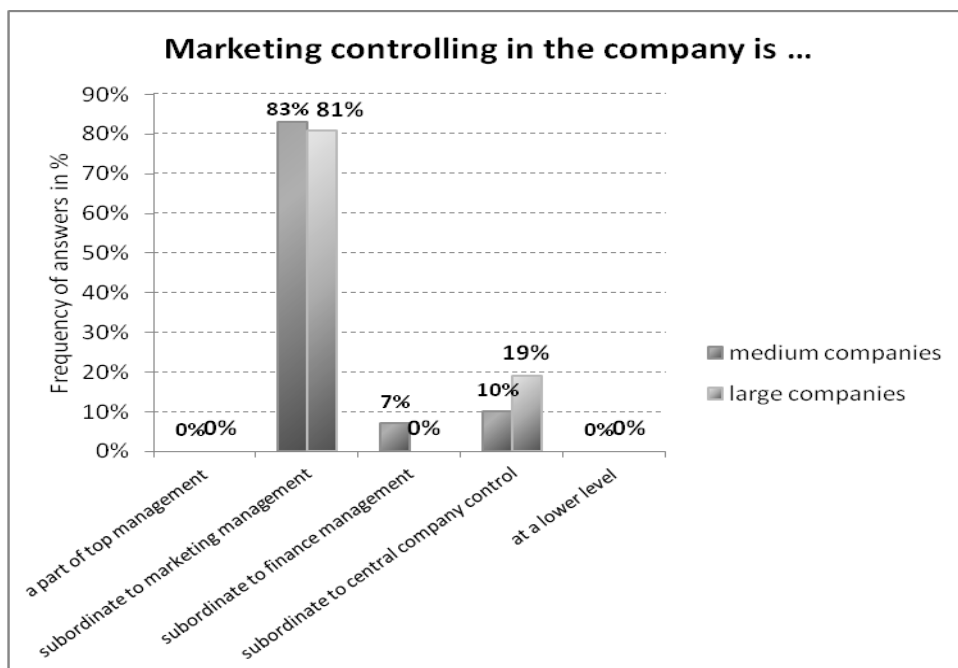
FIG. 3: Graphical representation of organizational integration of marketing controlling (I)



Source: Authors

From the research it is also clear that marketing controlling is not, in the companies that responded, associated with senior management, but rather with a second hierarchical level of the organization. For most companies marketing controlling is answerable to marketing management and there is no statistically significant difference between the frequency of responses for medium-sized and large companies.

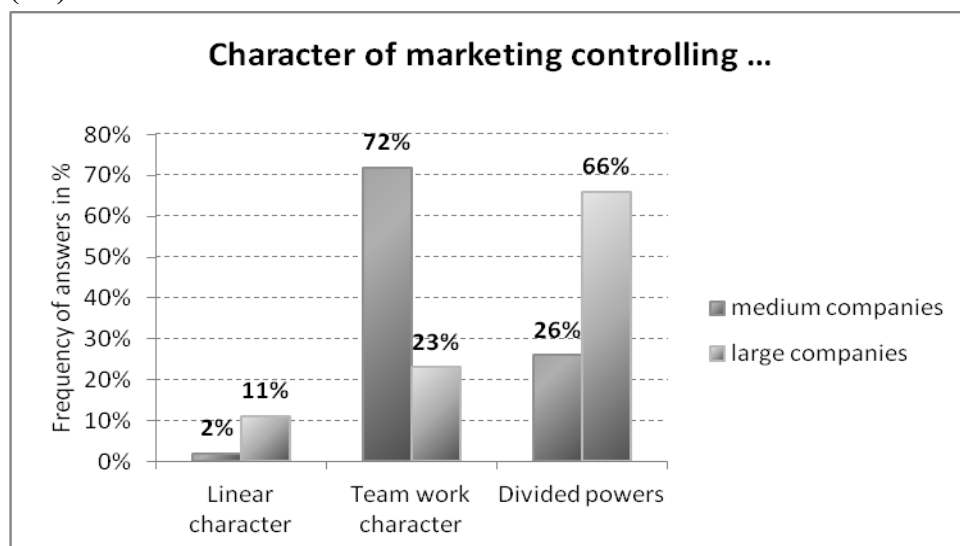
FIG. 4: Graphical representation of organizational integration of marketing controlling (II)



Source: Authors

In medium-sized companies the staff responsible for marketing controlling work in a predominantly advisory capacity. In large companies the marketing controlling department also partially delegates decision-making powers.

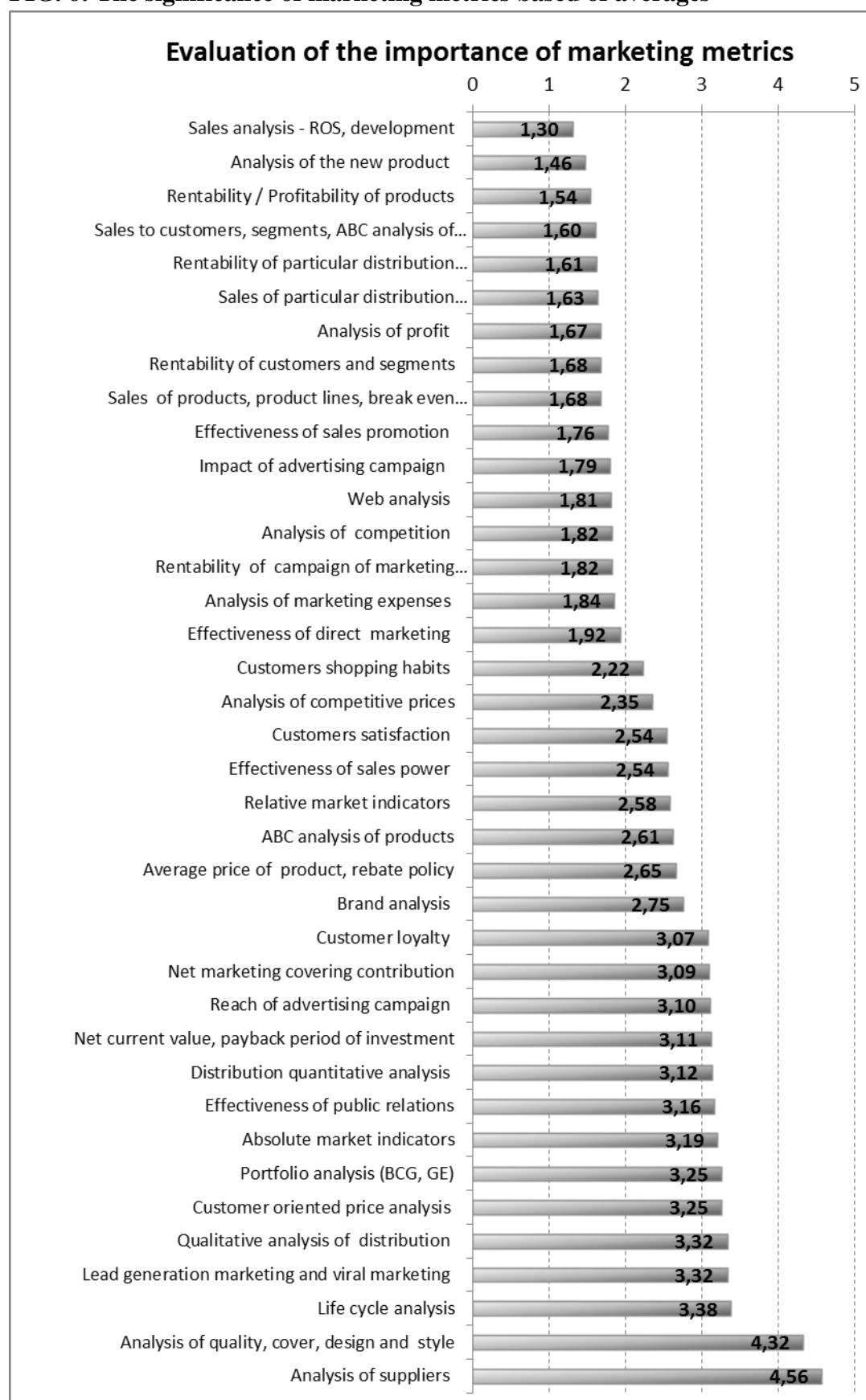
FIG. 5: Graphical representation of organizational integration of marketing controlling (III)



Source: Authors

The last part of the survey focused on identifying the extent and significance of marketing metrics used in practice in Czech companies. This part of the questionnaire consisted of closed questions on commonly used metrics utilising a scale with a range of six possible responses from "1 - it is a very important metric" to "6 - it is a meaningless, unused metric". The results of this survey are shown in Figure 6 in graphical form using the average values awarded, whereby all metrics are ranked according to their assigned importance from the most important to the least important.

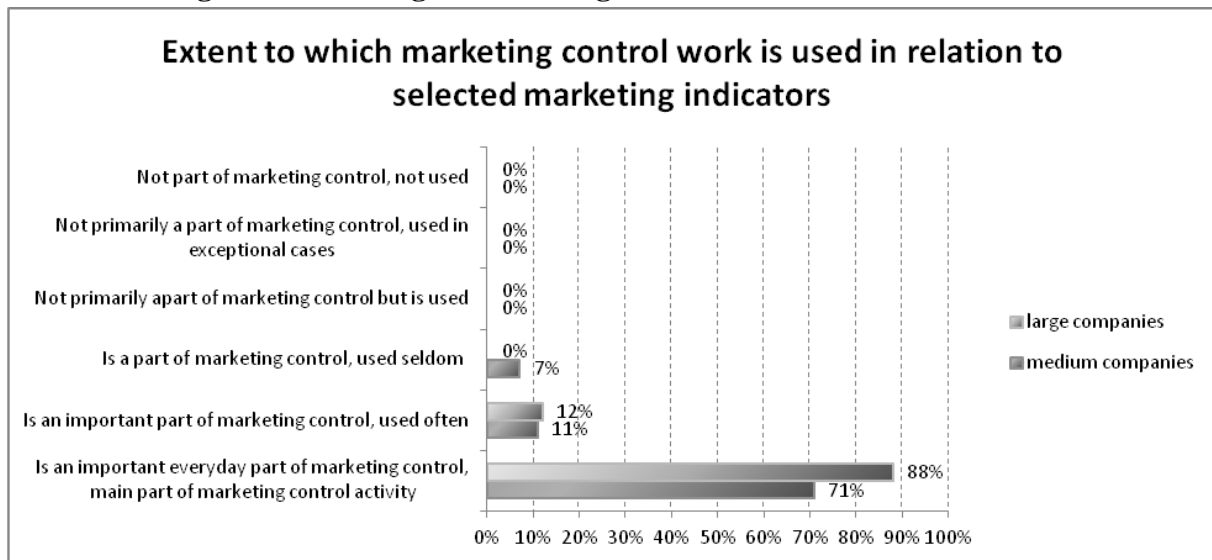
FIG. 6: The significance of marketing metrics based of averages



Source: Authors

The results from the questionnaire show that 88 % of large companies and 71% of medium-sized companies regarded the evaluation of marketing metrics as an everyday part of marketing controlling and the main focus of their work. The graph in Figure 7 shows that 7% of medium-sized companies consider the evaluation of marketing indicators to be a part of marketing controlling, however, they do not consider this activity as key or important within marketing controlling.

FIG. 7: The significance rating of marketing metrics



Source: Authors

Conclusions

It was found that the most important marketing metrics control one of the indicators used in the analysis of new product areas, the assessment of profitability and marketability. All the marketing metrics which confirmed the dependence of the response from medium-sized and large companies were always evaluated significantly for large companies. This is likely due to the fact that large companies generally have a more sophisticated system of marketing management and marketing metrics evaluation to which they pay more attention than medium-sized companies. Large firms also have higher levels of funding to invest in brand building, to support public relations, for advertising campaigns on television, radio and in print media. They are also more open to new trends. This logically increases the need for rigorously evaluating marketing related indicators.

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FATCA FROM THE US, EU AND CZECH PERSPECTIVES - GOVERNMENTS OF THE WORLD FOR TAX COMPLIANCE, UNITE!?

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Keywords:

FATCA – tax compliance – tax evasion – tax treaties – tax withholding

JEL classification: H26, K34, K42.

Abstract:

The Foreign Account Tax Compliance Act (“FATCA”) is a US federal law which shakes a myriad of public administration, business and management concepts on both sides of the Atlantic. The principal objective of this paper is to research and investigate data via the Meta-Analysis while adding critical and comparative assessment. The research includes primary and secondary sources, from the US, EU and Czech Republic, including a case study and direct field observation. This mix of processed data brings more light in this dim and underestimated arena. It seems that the governments in the EU, including the Czech, have gone too far too fast in the name of FATCA. The awareness needs to be enhanced and stakeholders must engage in an educated and open-minded dialogue about how to battle for tax compliance.

Introduction

The current society is highly marked by the massive use of information systems and information technologies (“IS/IT”) leading to a virtualization of all aspects of private and professional life (MacGregor, 2014). Within the model of entrepreneurial economy, which seems more appropriate for the current setting than the model of a managed economy, public policy should both support tax generating activities (Audretsch & Thurik, 2004) and the collection of part of their proceeds. Public policy should stimulate economic competitiveness (Mandysová, 2014) as well as law compliance and the readiness to report and pay taxes due. The failure of public policy regarding the former is discussed, namely one of the main aspects of a budget non-fulfillment problem is the issue of tax evasion (Sokolovskyi & Sokolovska, 2013). Tax compliance and tax evasion are key issues of public policies, and developed countries have been attempting, during the last two decades, to analyze relevant empirical data about it (Berná & Špalek, 2015). Game-theoretic modeling suggests that the tax pressure has two key points - the optimal tax rate (beyond this, the real tax revenues fall) and the fatal tax rate (so high, that “nobody” pays it) (Sokolovskyi & Sokolovska, 2013). Testing done via experimental series suggests that the level of the penalty potentially imposed to the detected tax

defaulter does not have any significant impact on tax compliance, unlike the level of detection probability (Berná & Špalek, 2015). Boldly, the tax compliance regarding optimal tax rate can be improved rather by an efficient audit system than by a robust sanction system. The US brought the hammer down to combat, perhaps even to prevent, tax evasion reaching annually USD 50 billion in annual losses for the US (Dhanawade, 2014). The 111th US Congress enacted public law 26 U.S.C. §§ 1471-1474 Foreign Account Tax Compliance Act (“FATCA”). It is a US federal law requiring US persons to report themselves and their accounts regardless whether they are in or outside the US territory. The leitmotif is to make it more difficult for US taxpayers to conceal their assets and transactions outside of the US territory, and so to avoid paying US federal and even state tax. These subjects are primary targets of FATCA and the positive and negative aspects of double taxation on a national level (Rosenberg, 2013), as well as an international level, are questioned and discussed. The US decided to give FATCA an international dimension, and the EU and EU member states decided to go with it. The US entered in a number of international treaties and ultimately many provisions from FATCA became “domestic” law in the entire EU and other countries. This is an extreme situation with non-standard consequences, but the awareness about FATCA is rather low, just a few articles are published on it and they often contradict each other.

The aim of this paper is to lift the veil and look from three different perspectives, and based on various sources, on the FATCA topic. The principal objective is to locate available published data, consolidate it and project it to the case study and direct field observation of status quo, and this in all three settings, i.e. in the US, in the EU and in the Czech Republic. The leitmotif is to objectively describe the FATCA and its operations, and to subjectively identify, explain and argue various discrepancies, misrepresentations and misunderstandings. A well informed balance needs to be struck between national priorities on both sides of the Atlantic and FATCA is a milestone on a long journey towards harmonization, if not unification, of public policies in the US, EU and Czech Republic.

1. Methods, literature overview

A major task in all areas of science is the development of theory and theoretical concepts, ultimately the production of cumulative knowledge (Schmidt, 2014) and to model a phenomenon at a deeper level (Heckman, 2005). All studies contain measurements or other types of inaccuracies, and these deficiencies can be tackled by combining research, academic and other findings with the authors’ own personal knowledge and praxis observation (MacGregor, 2014). The principal objective of this paper is to consolidate the information from secondary legislative and academic sources about FATCA, its application and perception, and by an investigative Meta-Analysis process to complement it by primary observations and informal interviews of a micro-sample of subjects in order to describe the basic framework and point out discrepancies generated by various perspectives. It is critical to proceed with a deep and extensive

study of academic literature about FATCA, published on both sides of the Atlantic, as well as of various statistics, such as provided by Eurostat and further published data, including legislative texts on FATCA. This secondary sources exploration needs to be complemented by direct data mining, done through a case study and direct field observation. One of the authors of this paper is a US citizen and has hands-on experience with FATCA application in the EU by various institutions regarding herself, as well as other US citizens residing in Prague. This heterogeneous conglomerate of information of a various degree of qualitative and quantitative features is predominantly exogenous, and needs to be studied and explored by an open-minded investigation. Both traditionally and conventionally, the quantitative approach and the qualitative approach are distinguished, but the opposition between them should not be exaggerated (Silverman, 2015). It is a process of searching for the essence, based on different methodological traditions (Oomsel, 2014), exploring social, economic and public policy dimensions of the FATCA phenomenon, while mining published data and investigating subjects close to one of the authors of this paper and sharing with her the experience of being a US citizen exposed to the FATCA application in the Czech Republic. The specificity of topic and resources implies the appropriateness of Meta-Analysis, which is a rigorous alternative to the casual, narrative discussions of research, it is an analysis of analyses (Glass, 1976) and is founded upon the conviction that there was discovered more than what was understood and it matches the FATCA issue (MacGregor, 2014). The Meta-Analysis in this paper rests on the exploration of already published as well as freshly generated data while involving three perspectives, the US, EU and it leads to the the description from various angles, while underlining discrepancies and inconsistencies and removing the ballast of rhetoric and to expose the attitude of the US, EU and Czech governments, academics, financial institutions and taxpayers makes the forensic multi-perspective study of FATCA with comments valuable.

2. Results and Discussion

A triad of perspectives based on primary and secondary sources regarding FATCA meanings and ramifications is illustrative. It is enlightening to expose and contrast the US, EU and Czech “versions” of FATCA. Indeed, FATCA and its regime are perceived differently and emotional statements by governments and individuals have been clashing. Has Big Brother gone too far, or is the European perception regarding global tax compliance immature? The homeland of FATCA – More sticks than carrots aka no more hide-and-seek tax games! The first decade of the new millennium brought sets of crises, and several of them originated in the US. The issue of the national debt of the US and its massive extent, beyond Maastricht criteria, are notorious. At the same time, the US is often presented as a model country regarding the enforcement of tax law and for tax collection. This can be demonstrated e.g. by the US pilot attempts to empirically analyze data on tax compliance (Berná & Špalek, 2015). By game-theoretic modeling and other methods, the US decided to pro-actively deal with the issue of the “not

accepted”, perhaps fatal, tax rate, i.e. the rate which taxpayers do not accept (Sokolovskyi & Sokolovska, 2013) and either go blatantly illegal or move their activities abroad. In both cases, the leak can often be stopped if information “from abroad” is available, and perhaps even the action beyond US borders is possible. Consequently, the mechanism of administrative trust and distrust and related strategies of private subjects on the global stage (Oomsel, 2014) needs to be matched by similarly efficient co-operation by national governments. The US government and legislature decided to take an opposite direction than the Belgian “governing without government” approach with an ad hoc coalition of the willing (Bouckaert & Brans, 2012). Instead, a radical and long-arm, perhaps intrusive, attitude prevailed and led to the world novelty, a state law reaching beyond state borders, perhaps in the name of the battle of world governments against tax evasion worldwide, or for sure against the US tax evasion.

In 2009 the FATCA bill was introduced in the US Congress by two democrat representatives and, after a rather smooth approval process, was signed into law by President Barack Obama in 2010. Firstly, FATCA requires all US persons, i.e. US citizens regardless of the place of their residence, and US residents, to report themselves and their financial accounts, both inside and outside the US, to the US Internal Revenue Service (“IRS”). Secondly, and more interestingly, FATCA requires all Foreign Financial Institutions (“FFIs”) to check their records and inform the US Treasury about suspected US persons and their assets. Let’s order third parties, often foreign, abroad, to disclose information regarding their customers, which perhaps do not pay their US tax duties, and to punish their reporting failure by withholding 30% of their income, let’s make FFIs and other states to pay the reporting costs, let’s use withholding not for tax collection but for punishment of third parties, often not American, not wanting to eagerly and at own costs work for IRS. This sounds perhaps effective, but definitely hardly desirable and acceptable on the public policy tax conceptual level (Dizdarevic, 2011) and in a global context of Western Civilization sharing the Christian tradition. Thus, it is critical to recapitulate FATCA’s main provisions which target both taxpayers and FFIs and which are centered on the following points: (1) FFIs, e.g. European Banks in the EU, must search through their databases to indentify customers which may be US persons (and thus subjects of US tax) and disclose to IRS names, addresses, accounts and transactions of such customers, see form W-8BEN; (2) Compulsory reporting of US persons having accounts with balance over USD 50 000, IRS form 8938, and understatement punished by 40% penalty, 6 years statute of limitation; (3) Increasing penalties and the creation of negative presumptions. The enactment of these key points was done by FATCA which is more a set of novelty amendments of several already existing Acts than a homogenous new Act, see Tables 1 and 2.

TAB. 1: FATCA Part I – Increased Disclosure of Beneficial Owners (prepared by authors)

Sec. 501 Reporting on certain foreign accounts	Amending the Internal Revenue Code
Sec. 1471 Withholdable payments to FFIs	30% deduction from the withhold payment to not reporting FFIs
Sec. 1472 Withholdable payments to other financial institutions	Item, 30% deduct as a tax

Source: prepared by authors

Sec. 1471 and 1472 are addressed not to (not compliant) taxpayers, but to their (accomplice) FFIs. Specifically, FATCA imposes a 30% tax on “withholding payments” to FFIs, boldly FFIs had better co-operate, report and enter into FFI agreements (Dhanawade, 2014).

TAB. 2: FATCA Part I – Under Reporting with Respect to Foreign Assets (prepared by authors)

Sec. 511 Disclosure of Information with Respect to Foreign Financial Assets.	Inserting a new Sec. 6038D – duty to report if assets over USD 50 000
Sec. 512 Penalties for Undepayments Attributable to Undisclosed Foreign Assets	Amending Sec.6662 – increase in penalty for undisclosed foreign financial asset understatements from 20% to 40%.

Source: prepared by authors

Sec. 6038 is labelled “the people problem”, requires all individuals with assets over USD 50 000 to disclose these assets in the IRS form 1040 since the 2011 income tax return (Dhanawade, 2014).

Allegedly, FATCA should primarily go after US domestic taxpayers concealing their assets abroad, rather than after US citizens residing out of the US and having their activities and assets abroad (where they probably as well pay tax) and should be an effective and efficient instrument of public policy worldwide. The official FATCA Webpage of the US government, the IRS, is conceived by clearly targeting three groups – individuals, FFIs and foreign governments, see <http://www.treasury.gov/resource-center/tax-policy/treaties/Pages/FATCA-Archive.aspx>. Well, even in the US, this statement was not unanimously shared and many aspects of FATCA became subjects of controversy, such as costs, benefits vs. cost, capital flight, relevance, fairness, extra-territoriality, discrimination, complexity, identity theft, security, etc. The FATCA reporting and withholding provisions depart from the norm of using withholding as a tax enforcement mechanism and instead use it as a coercive compliance measure (Dizdarevic, 2011). It is even suggested that FATCA brought drastic changes in the US

tax policy which is truly alarming domestically and even more internationally, vis-à-vis international financial community (Behrens, 2013). Consequently, in 2014, the Republican National Committee passed a resolution to repeal FATCA and there was filed a lawsuit against FATCA's constitutionality, especially based on the alleged violation of the Amendment IV to the US Constitution, which is part of the Bill of Rights and prohibits unreasonable searches and seizures. It was filed in the US District Court for the Southern District of Ohio, *Crawford v. US Department of Treasury*, Civil Case No. 15-250, asking for granting the motion for preliminary injunction by declaring it unconstitutional and enjoining the enforcing of international treaties about FATCA, including the Tax Compliance Act and Art. 2 of the Czech IGA, i.e. Agreement between the US and the Czech Republic to Improve International Tax Compliance with Respect to the FATCA from 4th August, 2014 ("Agreement on FATCA").

2.1. The dreamland of FATCA – the EU and Czech exaltation of FATCA – only sticks, please!

FATCA has netted a rather smooth welcome by the OECD, EU and EU member states. The shifting of the burden and working free for Big Brother, the issue of constitutionality, the mixing of tax collection and sanction mechanisms, have not been discussed. Instead, the EU and the majority of the EU member states have endorsed the US initiative, "brought" FATCA into their legal systems and even launched a discussion about using FATCA as a model to be followed domestically. The only loud criticism deals with data protection (Poptcheva, 2013) and even this is downplayed because (or perhaps despite) the Council Directive 2003/48/EC on taxation of savings income received in the form of interest payments ("Saving Directive"), Council Directive 2011/16/EU on administrative cooperation in the field of taxation ("Cooperation Directive") and primary law, i.e. TEU, TFEU and Charter, and even Art. 8 of the European Convention on Human Rights. The Cooperation Directive requires each EU member state's competent authority to automatically report to other EU member states information regarding salaries, pensions, rents, etc., but not bank accounts. Plus, the mentioned EU data protection framework implies the issue of proportionality of screened and processed. A study of EU policies and legislative measures suggests that the EU and EU member states should be rather reluctant in re the FATCA wave and not be more catholic than the Pope. However, the politics are different, for in July 2012, the governments of France, Germany, Italy, Spain and the US made a Joint Statement with the US announcing an agreement to improve tax compliance and to implement FATCA (Poptcheva, 2013). Soon after, the US managed to enter into model 1 IGAs with virtually all EU member states. This happy parade was not shared by Austria, which decided to give more value to bank secrecy and national legislation than other EU member states, and which ultimately opted for model 2 IGA as e.g. Switzerland. Nevertheless, the EU and EU member states seem determined to "reach and even exceed" the goals of FATCA and e.g. in March, 2015, the European Commission

presented a proposal for a council directive repealing the Savings Directive linked to the amendment of the Cooperative Directive. The leitmotif is to avoid double IS/IT reporting and merely follow the OECD global standards on the automatic exchange of information, developed based on FATCA. It seems nobody cares that the US government assisted by EU and national member governments force FFIs and other private and public subjects to carry costs linked to US tax collection (Behrens, 2013) while challenging the privacy of many individuals and that this is not proportionate and could be done differently, more effectively and efficiently. The EU is a high tax area, the sum of taxes and compulsory social contributions reaches 39% in the GDP-weighted average, in US it reaches only 24% (Eurostat, 2014) and the future of European policies should be focused on increasing collection efficiency instead of raising tax rates. FATCA seems alluring for this purpose and its side-effects are tolerable, are they not?

The Czech Republic matches the above EU picture, i.e. the total tax-to-GDP ratio, including social contribution, reaches 35%, and taxation on labor is the main source of revenue (51.7%), followed by consumption (33.4%) and capital (14.9%) (Eurostat, 2014). The Convention between the US and the Czech Republic for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion was signed back in 1993 ("Convention for the Avoidance of Double Taxation"). The exchange of information for tax purposes, including the exchange on an automatic basis, was set by Art. 27 of the Convention for the Avoidance of Double Taxation. This new and proactive intergovernmental approach was felt as not good enough in the light of FATCA and in 2014 a new bilateral treaty was signed between the US and the Czech Republic, the Agreement on FATCA between the US. Art. 4 of the Agreement on FATCA names steps needed to be done so as to treat FFIs from the Czech Republic as complying with, and subject to withholding under, Sec. 1471 IR code, i.e. FATCA provision about withholdable payments to FFIs. Thus, the Czech Competent Authority became the subject for the collection and transmission of all data demanded by FATCA by the operation of international law. The Czech government saw FATCA and the Agreement on FATCA as a priority needing swift transposing into domestic law and so the Act 330/2014 Coll., on exchange of information about financial accounts with the US for purposes of tax administration was enacted, taking effect in December 2014 ("Act"). The Act refers to the Agreement on FATCA, points out it is a part of the Czech legal system in Art. 1 and further describes the function of the Specialized financial office and deals with a number of substantive and procedural issues. In sum, it sets a clear compulsory mechanism how Czech "FFIs" report via data box to their tax administrator, i.e. a Czech "IRS" office, which passes the information along to the central contact authority, the Czech General finance directorate, which forwards it to the US IRS. The Act imposes the information duty to FFIs as well as subjects, individuals or entities. The official Explanatory Note to the Act, issued by the Czech Government ("Note") stresses that the tax administrator can, at his discretion, and without prior notice, punish a non-reporting and so non-complying FFI by a fine, as provided by Art. 247a of the Czech

Tax Order. The analysis of other provisions of the Act and of the Note also shows the determination of the Czech Government to meet, even exceed FATCA demands. The Note specifically states that the best option is to extend the application of the Act on FATCA itself as well as other instruments adopted by the OECD and EU in order to implement FATCA and that the automatic e-processing of information by modern IS/IT does not create any significant extra-costs, that at the most one more employee will have to be hired by the Czech IRS.

So far there is no information on how easy and low cost the application of FATCA and the Act are for the Czech state, namely the Czech IRS or to what extent the investment decisions are impacted by it. It must be emphasized that investment decisions are crucial for the performance of the economy with respect to both macro and micro perspectives (Jirásková, 2015). One can identify and interview ultimate “targets”, i.e. US citizens residing in Prague who have accounts in Czech banks with a balance over USD 1 000 but less than US 50 000 (thus under the FATCA target threshold). A sample of 10 such subjects with accounts with two of the quartet of the best known Czech banks, Česká spořitelna (“ČS”) a ČSOB, was interviewed, the yielded results are impressively disperse. ČSOB has not contacted them at all and the only manifestation of FATCA application by the ČSOB is on its information sheets regarding investment options, see <https://www.csob.cz/portal/documents/10710/545120/parametry.pdf> However, ČS takes a completely different attitude, declares its full compliance with FATCA and registration as FFI covered by IGA Model 1 under GIIN L99T2F.00037.ME.203 and truly “dogs” US citizens residing in Prague and having their accounts by ČS. Some are contacted by SMS, others by email or directly at the counter. Amusingly, one of the interviewed subjects, after having been contacted and supplying the information was contacted again and had to provide the same information again, and it seems there was confusion in the ČS dogging wave. The authors of this paper asked ČS about it and after a chaotic search for a competent person “knowing something about FATCA” were informed that ČS does not have any standard proceedings for contacting potential FATCA targets and that subjects must provide information, otherwise “ČS will denunciate them to US IRS and something bad will happen to them.” Nevertheless, it must be admitted that despite the rather confused manner of contacting subjects and comical misunderstanding of FATCA and Act operation, ČS always “wants” the same, namely the completing and signing of the IRS form W-9 form. No US citizens residing in Prague with accounts by the other two from the Czech banking quarter, Komerční banka and GE Money Bank, were identified and interviewed. Thus, their Websites are the only source of information about their attitude to FATCA and Act. According to the information provided on its own Website, Komerční banka is fully compliant with FATCA, see <http://www.kb.cz/file/en/>.

Such information was not located on the principal Website of GE Money Bank. More research needs to be done, but it seems that so far the vigorous enthusiasm of the Czech

government and other governments in the EU causes confusion on the side of FFIs in the Czech Republic and that despite the massive public policy rhetoric, there is a lack of awareness. Even worse, those fews understanding FATCA and its EU and Czech „progenies“ question the legitimacy and appropriateness of the entire mechanism.

Conclusion

The recent crisis is rather caused by failure of authorities and of enforcement than by lack of theoretical knowledge of modern economic relations and processes (Kala, 2015). Tax evasion is not a uniquely US problem and the US government is basically right to enrol OECD and governments of other states in the eternal battle for improvement of tax compliance. However, considering the necessity of the close and eager co-operation, involvement of all stakeholders, and TTIP, the current misunderstandings and mystifications are not acceptable. It is deplorable that IS/IT are blindly used in this context and that the EU and EU governments have not critically assessed FATCA, its application and related issues and costs. Certainly, FATCA is an interesting and powerful contribution, perhaps even an inspiration. However, it has not yet reached the stage of perfection and the imposition of expensive compliance programs to FFIs (Behrens, 2013) and (dis)regard of privacy (Poptcheva, 2013) raise legitimate concerns. Even more, considering the constitutional challenge on its home territory, it seems logical to subject FATCA to an intense scrutiny. EU policy and EU member states policies, including Czech, should demonstrate consistency and recognition of the rule of law along with human rights and fundamental freedoms. FATCA is a powerful hammer, but it must be operated carefully and a blind follow-up of Big Brother instructions pushes European governments and public policies on thin ice, especially considering that the ultimate beneficiary of these efforts, made by governments and subjects from the EU, is outside the EU. The OECD, EU and EU member states and the public-at-large should engage in a critical and comparative study to reach an educated decision about FATCA and the manner, nature and intensity of its application.

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USE OR NOT TO USE BITCOIN THIS IS THE QUESTION

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Abstract:

Bitcoin emerged in 2009 leading to wide discussions on a public as well as private level about its true and genuine meaning, function, purpose and future. Seven years later, Bitcoin is an undeniable opportunity and/or threat for our post-modern, global information society. The biggest challenge regarding Bitcoin is the lack of awareness about it, and its misunderstanding. In the era of IS/IT, governments are hesitant about a correct approach and appropriate policy with respect to Bitcoin, while individual businesses are faced with a critical strategic choice - to use or not to use Bitcoin. This paper explores an abundance of fresh primary data from addresses and secondary data generated by academic and professional publications. Their critical analysis satisfies the goal of this paper, to de-mystify Bitcoin and to facilitate educated decisions about it.

Introduction

A sustainable economic growth and competitive advantage are recognized macro- and micro-economic priorities, and positive and negative influences and factors regarding them are the cynosure in our post-modern global society. The robust positive factors include "bureaucracy quality", "democratic accountability", "lack of corruption" (Franců et al., 2015) and the effective and efficient use of information systems and information technology ("IS/IT") (MacGregor, 2014). When negative factors prevail, such as exponential monetary speculations (Kala, 2015), crises re-occur, such as in 2008. A partial answer for many of these undesirable factors might be the decentralization, virtualization and peer-to-peer verification, such as offered for the last several decades by the Internet and during the last seven years by the mysterious Bitcoin. The growing usage and immense public interest regarding Bitcoin has raised deep economic and societal issues (Cheah, 2015). To use or not to use the Internet is now a moot point, but what about Bitcoin? Bitcoin cannot be ignored and each and every government and individual business needs to make informed strategic decisions about it and its employment, while taking a scientific, open-minded approach.

1. Methods, literature overview

The selection of an appropriate approach endorsed by the right policy and leading to correct distribution of competencies and responsibilities is challenging on individual as well as global levels, for both private businesses and public authorities (Cvik & MacGregor, 2015). Our post-modern, global society strongly relies on IS/IT and knowledge is not only power, it is a must, especially regarding an electronic phenomenon with a potentially critical impact on business, the economy and management, such as Bitcoin. To address it, a critical comparative Meta-Analysis needs to be performed while appropriately considering and reflecting data from a large global spectrum generated by both primary and secondary sources. Firstly, this analysis must inherently include the static description and historical exposure completed by dynamic and multi-spectral exposure to many features and functions of Bitcoin. Methods should not only focus on what Bitcoin is, but as well for what it can be used and abused and how this should be done. The static and dynamic definition and functions of Bitcoin need to be methodologically established while respecting axiomatic as well argumentative features. Secondly, an analysis of various perspectives regarding Bitcoin and their consequences needs to be performed. Thereafter, it is possible to move to the climax of this paper, namely to answer the question whether Bitcoin belongs to business and economic life in 2016 and how to take advantage of it. The almost seven years of existence and operation of Bitcoin were subjects of a myriad of reactions, reflected by price variations, as well scientific, professional and laic publications with contradictory conclusions. Thus, both the primary and secondary sources, including not only articles from WoS and Scopus databases, need to be explored in order to understand Bitcoin and perspectives upon them. Considering the virtual and crypto features of Bitcoin, this massive search should be done in an open-minded manner and consider both conventional, as well as less conventional, discovery techniques. The generated data has a dramatically different weight, importance and scientific credibility and thus has to be processed forensically and through the above mentioned Meta-Analysis with the mantra that we know more than what we realize. Meta-Analysis is an analysis of analyses, processing a large collection of results from individual studies with the goal to integrate their findings (Glass, 1976). The conglomerate of secondary data can be processed in a complementary manner along with direct and indirect primary data, such as a field search regarding Bitcoin, its volume, pricing, indexing, exchange rate etc. Bitcoin is a decentralized, digital, peer-to-peer recognized and controlled crypto-currency inherently linked to the Internet, a special payment network system and software, with potential to perform many functions, legal and illegal, positive and negative. For some of them, Bitcoin is a speculative bubble following a Ponzi scheme unable to positively contribute to sustainable and fair development, while for others, Bitcoin is a trustworthy, effective and efficient instrument matching Internet decentralization and the multi-stakeholder model and a genuine model to be followed. Does Bitcoin have a Silk road or a rocky road ahead? Should it be used or rejected, regulated or remain free, purchased or spent? There are many myths and misunderstandings, a lot at stake.

2. Results

Money and currency deserve a good modern theory and practice based on actualized theories of value (Kala, 2014), the fiat money and fractional-reserve banking economy induces exponential speculation, and is hard to reconcile with sustainable development of the IS/IT global community. The virtualization and e-form should be taken advantage of on the macro- as well micro-economic level and Bitcoin could be a viable option.

In 2008, the financial crisis and other related crises shook trust globally and regarding many instruments, including monetary instruments. A particular and sui generis reaction came one year thereafter, and mathematic science attempted to prime the economic science. The mysterious developer, or group of developers, Satoshi Nakamoto, launched Bitcoin, its software and network as a digital crypto-currency platform designed to reinvent the way that money works (Bradbury, 2013). The variables of game inclinations and game theories (Johnson et al., 2014) along with investment and consumption elasticity (Kovárník & Jedlička, 2015) and many other factors and unknowns, as well as the general world setting, start to shape the destiny of such an intangible instrument, perhaps asset. However, over years, it has become obvious that Bitcoin is much more, and its many unique features make it a sui generic phenomenon. One of the unique features of Bitcoin is that it was brought "into" circulation neither by governments nor banks, instead so-called miners do it by carrying out resource-intensive IS/IT proof-of-work operations and each and every Bitcoin transaction is peer-reviewed (Johnson et al, 2014). Relationships between these miners are dynamic, they form pools to increase their chances to "mine" Bitcoin and it is suggested that larger mining pools have even a greater incentive to attack than smaller ones (Johnson et al., 2014). An additional significant feature of Bitcoin is its low cost transaction capacity (Kim, 2015) and its capacity to serve as an investment instrument. The reported data about its daily return is highly interesting. The S&P 500 Index daily return with respect to relative volatility led to the conclusion that Bitcoin volatility is internally (buyer and seller) driven (Baek & Elbeck, 2015). It is instructive to follow the exchange rate BTC v. USD while paying attention to critical external events (Tab. 1) and discrepancies between available data provided by two key online sources (Tab. 2).

TAB. 1: Bitcoin price (USD) evolution 2011-2015 with events comments

Date	1/1/2011	1/1/2012	1/1/2013	1/1/2014	1/1/2015
USD	0,3	5,27	13,30	770	316
Note	Wikileaks accepts Bitcoin	First halving of Bitcoin	Cyprus bail in, Max Price USD 1200 in 11/13 and Ulbricht arrested and Silk Road closed	Mt.Gox files for bankruptcy and False reports on Bitcoin in China	Ulbricht convicted in February 2015 Karpeles indicted in September 2015 in Japan

Source: Prepared by authors while using CoinDesk (2015) and BitCoinHelp Website

TAB. 2: Bitcoin price (USD) evolution from 1st January to 1st September 2015

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Price in USD (a)	316	227	259	247	234	224	254	282	228
Price in USD (b)	316	226	259	247	232	223	258	280	227
Difference (a) (b)	0	1	0	0	2	1	4	2	1

Source: Prepared by authors while using source Coinbase (2015), CoinDesk (2015)

Another critical feature of Bitcoin is its anonymity and linking to Internet, both the light and dark web. Along with many fair, just, legal and legitimate webs and websites relying on Bitcoin, in 2011 there emerged a website called Silk Road and serving as an online black market platform to sell drugs. In 2013, the American FBI shut down Silk Road, seized a certain amount of Bitcoins and arrested the founder of Silk Road, Ross Ulbricht from Texas. He was found guilty in a jury trial, convicted and will spend the rest of his life in US federal jails and the seized Bitcoins were sold in public auctions. It would be remiss not to mention the peer-review feature of Bitcoin linked to the peaceful cooperation and much less peaceful mining activities. Events from recent years have proved the peer-confirmation of Bitcoin transactions does not lead to legality and that people facilitating Bitcoin payment transactions are not (always) altruistic IT experts desiring to help humanity and free the world population from excessive banking transfer fees. A recently completed empirical investigation confirmed that Bitcoin prices are prone to significant speculative bubbles and stated that the fundamental value of Bitcoin is zero (Cheah, 2015). The intuitive wider concern about Bitcoin long-term viability starts to be backed by scientific data ... although this data is not conclusive.

More casuistically, until now, the identity of the Japanese fathers of Bitcoin remains unknown, while it is well known that the biggest Bitcoin exchange company, Mt. Gox, based in Tokyo, filed for bankruptcy in 2014 while admitting that 850,000 (Bit)coins worth by then approx. USD 480 million (with current rates, it would be around USD 390 million) had disappeared from its digital vaults. The intangible money, perhaps investments, truly disappeared, leaving justly furious third parties who suffered damage without any real chances to enforce compensation or recuperation. It is hardly a consolation for them to know that Mt. Gox has been operating massively until 2014 while imposing a truly low fee ranging between 0.25% and 0.60%, while other Bitcoin exchanges charge fees ranging from 0.2% to 2.0% (Kim, 2015). Similarly, charging low banking fee does not excuse a bank and bank management if money from the clients' accounts disappears. The, so-far, last act of this Bitcoin drama occurred in September 2015, when Japanese prosecutors charged the owner of Mt.Gox, Mark Karpeles born in France, with embezzlement and fraud. Ross Ulbricht, during his trial, claimed that the "bad" guy behind the Silk Road is not he but Mark Karpeles, and Karpeles promptly publicly denied the claim on social e-networks, namely Twitter.

3. Discussion

Money began as the exchange of trustworthy commodities, such as gold, and the difficulties linked to their transport and maintenance led to the emergence of fiat currency, such as dollars, which is still (at least to some extent) trustworthy and liquid, but as well it is inflationary and fragmented (Bradbury, 2013). In addition, fiat currency has been encountering ever more banking fees and regulations (Bradbury, 2013). Bitcoin is the first virtual currency that is attempting to substitute for the role of real currencies, while other virtual currencies, like game currencies, remain as auxiliary currencies that aid in transactions that real currencies cannot easily do, such as transactions within an online game (Kim, 2014). Bitcoin is a decentralized peer-to-peer crypto-currency protocol (Brandvold et al., 2015) which has served almost 70 million transactions between over 110 million accounts while total Bitcoins minted is 15 million representing almost USD 3.5 Billion (Böhme et al., 2015). Arguably, Bitcoin is more trustworthy and linked to less banking fees and regulations than a fiat currency, at the same time Bitcoin has a potential to disrupt existing payment and monetary systems (Böhme et al., 2015). Boldly, Bitcoin is an opportunity and threat for the global society.

There is "not much" under and behind Bitcoin and there is strong evidence that Bitcoin volatility is internally driven and thus the Bitcoin market is highly speculative (Baek & Elbeck, 2015). Criminal activities of key persons involved with one of the most significant Bitcoin market platforms, Silk Road of Ulbrich, and one of the most significant Bitcoin exchange and transaction centres, Mt. Gox of Karpeles, and quasi-criminal activities of many aggressive Bitcoin miners put Bitcoin in a very dark light. However, it would be superficial and populist to conclude that Bitcoin is a speculative instrument often linked to criminality, after all millions of non silk road transactions take place successfully and in other exchange centres, such as Russian BTC-e and Chinese Bten (Brandvold, 2015). Bitcoin should be assessed while considering not only national governments policies and a few abusers, but as well its millions of users, often members of the millenium generation. They seem to be rather pragmatic and interested in IS/IT as well as in sustainable development and competitiveness, and not inclined to endorse short-sighted speculations (MacGregor & Cvik, 2015) and "freeze in." Several competing virtual currencies, such as Litecoin (Böhme et al., 2015) have even more attractive features than Bitcoin and for success just miss the excitement which boosted Bitcoin. A significant volume of Bitcoin has been traded speculatively, in the hope of future appreciation, and it is unknown when the market will reach equilibrium (Kim, 2014) as well how, in the future, Bitcoin will impact various national and international regulations. It may be argued that the Bitcoin speculation extends to the micro-economic as well macro-economic level. A cyber-economy with a cyber-currency might serve as a testing laboratory for real economies with conventional monetary instruments and policies (Kim, 2014). Arguably, a Bitcoin experiment may be less costly and dangerous than doing it in the "real world". However, legal and ethical concerns and

restrictions need to be considered. Western Civilization, which is based on Christianity, rests on several doctrines such as the rule of law, human rights, and both individual and state (!) liability. A balance must be reached between the individual freedom and justice, between state and individual interests. An important step in this direction has been accomplished by the European Court of Justice ("ECJ") on 22nd October, 2015 in C-264/14 Skatteverket v. Hedqvist, where the ECJ stated, based on Directive 2006/112 on the common system of VAT, that Bitcoin is a virtual currency exchangeable with traditional currencies and that no VAT should be imposed on these exchanges. According to ECJ, "...the exchange of traditional currencies for units of the 'bitcoin' virtual currency and vice versa, ..., are transactions exempt from VAT." Hence legal transactions realized with a Bitcoin payment system are not exposed to VAT linked specially to Bitcoin as such. At the same time, illegal behaviour linked to Bitcoin falls under the hammer of the Directive 2014/57/EU on criminal sanctions for market abuse.

Conclusion

Bitcoin is a unique phenomenon with an abundance of special features and hardly ascertainable impacts. Bitcoin is a virtual currency based upon the bottom-up approach launched by individuals from the IT sphere with hard to discover enforced accountability. Bitcoin is a decentralized, private, peer-reviewed earning and payment system. Bitcoin is an online communication protocol for virtual currency usage (Böhme et al., 2015). Bitcoin is a concept, perhaps even philosophy and life style. Bitcoin has been progressively moving from the sphere of games and empirical lab experiments to the real daily life. The people behind Bitcoin, as well as the legality and legitimacy of Bitcoin and Bitcoin operations, are definitely not clear, perfect and beyond "any reasonable doubt". Interestingly, the most recent approach to Bitcoin on both sides of the Atlantic are compatible and pragmatic. The USA and the EU take Bitcoin seriously, recognize its capacity to serve as currency and apply to it law in an objective manner. Americans punish embezzlement regarding Bitcoin and Europeans perceive Bitcoin as a currency and not a commodity to which VAT should be applied and, similar to Americans, do not hesitate to address criminal abuse of Bitcoin. Let's consider the Bitcoin concept and apply to its aspects and outcomes legal frameworks and enforce relevant rules, let's take advantage of the IS/IT as well as of the global consensus while remaining vigilant and cautious. Bitcoin has a great potential for both use and abuse.

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POSSIBILITIES OF CREATING A DISTANCE MATRIX

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Floyd-Warshall algorithm – Google Distance Matrix API optimization – shortest path distance matrix

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Abstract:

The high level of competition in the postal market increases the demand for the reliability of postal services and rationalization of activities (core as well supporting) related to the process of their provision, including reducing of logistic costs and as their part transport costs, too. The reduction of transport costs the post may achieve (inter alia) by optimizing the routing of postal vehicles that are used for transporting (transit) of any postal items. The presented article deals with this possibility of optimization using the graph theory. As the first task that is needed to solve in optimizing of the postal transporting process (transit process) is to identify the shortest connection (sequence) between postal stationary equipment. Based on it, the article presents methodology of creating distance matrices and searching for the shortest path distance matrix by using already existing mathematical tools and new software tools to solve large-scale tasks referring to the optimizing of postal transporting process.

Introduction

At present, customers increase requirements on the whole process of providing of any postal services. As the part of this process is also considered the transportation of postal items. In this connection, customers pay attention to the transportation and transport efficiency, transport safety and transportation time including transporting time (transit time), too. Time of the transportation process, collecting and sorting processes of postal items all have impact on the final delivery time of postal items. The time of postal items processing in the mail sorting centres is influenced mainly by applied techniques of their processing and suitably used equipment. In the transportation process of postal items in addition to rationalization measures in the collecting process and processing operation of postal items before and after their physical transfer, the transporting process (transit process) itself may be the subject of optimizing (Kajánek, Rostašová and Bazík, 1999).

As is already known, the main task of the overall process of optimizing is to find an optimum solution that under the given conditions represents the best solution and to undertake such decisions, through which the efficiency and effectiveness of solution will be achieved (Plašil & Volek, 1988). In the concrete, one of the first task for solving in the optimization of the process of transporting is to identify the shortest possible connection (sequence). We face this task mainly in solving transport routes in connection with transport of postal items to and from mail processing and distribution centres, collecting mails from postal boxes, and final delivery of postal items to the addressee within specified delivery postal area.

1. Shortest Path Distance Matrix

The starting point in the solving of already mentioned tasks is a creating of the structure that captures paths and distances from each vertex (node) in the given graph. By accepting the principle of the shortest distance it goes on the shortest distance matrix that points out the shortest path from each vertex to each vertex in the graph matrix. In case of the postal universal service provider (the Slovak Post, plc.), the vertexes of the graph matrix represent individual stationary equipment of the postal network, starting with smaller sub offices (e.g. in the countryside or in smaller cities) through universal post offices, regional processing centres to main mail processing and distribution centres at different levels of the postal transport network. In the case of the solving task that relates to the main mail processing and distribution centres (the top-level of the postal transport network), which represents the vertexes of the matrix, finding the final solution does not represent so difficult task. In case of the Slovak Post, there are 4 main mail processing and distribution centres, namely Bratislava, Košice, Zvolen, and Žilina. Otherwise, considering stationary equipment at the lower level in the hierarchy of the postal network, the number of vertexes is increasing in the graph matrix and logically it is increasing the difficulty of the solving optimization task. Hence, this fact calls for finding reasonable and applicable solutions. One of this potential solutions as applicable methodology is presented thereafter. The methodology represents a “penetrance” of already existing mathematical tool – the Floyd-Warshall algorithm and Google Distance Matrix API.

1.1. Floyd-Warshall algorithm

There are many possibilities how to find the shortest distances between every pair of vertexes (in given graph). The Floyd-Warshall algorithm belongs also among these possible solutions for solving the all pairs shortest path problem (1962). Also it is a typical representative of an efficient algorithm that uses the methodology of dynamic programming and its main advantage is its implementation simplicity. In such a process, firstly we try to change the size of the original task and by the gradual scaling up of this task, applying results obtained by solving smaller tasks in calculation, the original problem is solved. It means that the algorithm gradually compares all possible paths identified between each pair of vertexes through the graph matrix incrementally

improving an estimation on the shortest path. At the same time all identified combination are tested. The calculation (the estimation on the shortest path) continues until the optimal solution will not be found (Gross & Yellen, 1999).

The Floyd-Warshall algorithm starts on the initialization direct distance matrix $c^0 = \{c_{ij}^0\}$, where:

- a) $c_{ii} = 0$;
- b) $c_{ij} = \infty$ if the edge $v_i - v_j$ does not exist,
 $c_{ij} = o(v_i v_j)$ – evaluation $v_i v_j$, if the edge exists.

The algorithm gradually creates for $k = 1, 2, 3 \dots n$ new matrices $c^k = \{c_{ij}^k\}$, where $c_{ij}^k = \min(c_{ij}^{k-1}, c_{ij}^{k-1} + c_{ij}^{k-1})$. The calculation process iterates until $k = n$, when the matrix created as the last – the shortest distance matrix – represents the finding of the shortest path for all (i, j) pairs of vertexes in given graph matrix for given area.

The algorithm considers the time complexity $O(n^3)$, where n is the number of vertices in the graph. If we consider the issue of optimizing of the postal transport network, its implementation simplicity may be used in the tasks referring to the delivery postal areas at the lowest level of the transport network, where it is not difficult to identify the nearest neighbouring vertex (Čorejová, Achimský, Fitzová and Kajánek, 1995).

1.2. Google Distance Matrix API

In case of large-scale tasks it increases the requirement on the size of the shortest path distance matrix, too and thereby it is need to think about the automatic data acquisition. This problem may be solved by the Google's application – "*The Distance Matrix API (Application Programming Interface)*". The application allows structured querying at the distances between vertices in given graph matrix, which exact location may be identified by using their GPS coordinates or mail addresses. The interface operates on the principle of online requests that after the calculation are sent to the provider and subsequent response is transformed as the output into the requested shortest path distance matrix. The distances between each pair of vertices may not be identical, e.g. $c_{12} \neq c_{21}$, for several reasons, such as one-way traffic, traffic prohibitions and restrictions etc.

The Distance Matrix API is provided in two versions. The first version is freeware with a relatively small limits on queries to the server; the second one is a paid version with less restrictions on its capability. Generally, there are five basic restrictions of the Google Distance Matrix API on queries:

Freeware version:

- a) the length of the URL address cannot have more than 2 thousand characters, but it is sufficient for freely available version,

- b) one query server is limited to 100 elements that corresponds to a 10x10 matrix,
- c) within 10 seconds it is not possible to send query on more than 100 elements,
- d) the 24-hour limit is 2.5 thousand elements that corresponds to a 50x50 matrix.

Paid version (Google Maps API for Business):

- e) the length of the URL address cannot have more than 2 thousand characters, but it is sufficient for freely available version,
- f) one query server is limited to 625 elements that corresponds to a 25x25 matrix,
- g) within 10 seconds it is not possible to send query on more than 1 thousand elements,
- h) the 24-hour limit is 100 thousand elements.

These restrictions are a significant problem in the practical application. For instance, if the task is dealing with 1 thousand vertexes (stationary equipment of the postal transport network), we need to create shortest path distance 1,000x1,000 matrix. This represents at least 1,000 thousand queries on the server and that is insufficient even in case of paid API version. Other problem is that the application is protected against DDoS attacks and if any user, who is sending queries on the server, is related as a potential threat, the user's limit is reduced to one query per day. In extreme cases, the application may reject queries on the server without any previous warning.

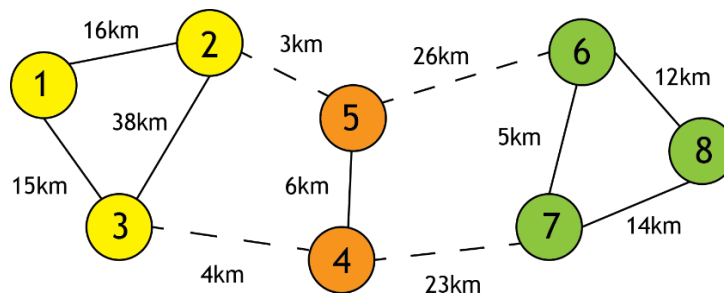
The queries may be given in more languages – except English and other word languages, as well as in Slovak. But if the requested position (e.g. city, post office etc.) is not written correctly in given language, the application does not search it correctly. Therefore, the best is to enter a position as the state, exact mail address with ZIP code or by using GPS coordinates, which is the most accurate determination of the vertex in the graph matrix. For example, the query on the determination of the shortest path distance matrix may have the following form:
[https://maps.googleapis.com/maps/api/distancematrix/
 json?origins=Vancouver+BC/Seattle&destinations=San+Francisco/Victoria+BC&mo
 de=bicycling&language=fr-FR&key=API_KEY](https://maps.googleapis.com/maps/api/distancematrix/json?origins=Vancouver+BC/Seattle&destinations=San+Francisco/Victoria+BC&mode=bicycling&language=fr-FR&key=API_KEY).

As a huge advantage of the application may be considered its modification – it allows setting of a pedestrian route “walking” (utilizable in case of searching of the shortest distance path at the lowest level of the postal transport network – as the stationary equipment are considered the post offices that ensure the final delivery of postal items via postmen) and the distances between stationary equipment will be quantify based on a pedestrian route, not based on a road network. The resultant output of the query can be in the *JSON format* (recommend format) or in the *xml. format*. The automatic data acquisition is possible using simple scripts written in *Microsoft VBA* and the output is saved directly into *Microsoft Excel*.

2. Linking direct distance matrix graphs using the Floyd-Warshall algorithm

It has been noted that in creating the shortest path distance matrices, the limit on the final number of assumed vertexes (the limit on the number of stationary equipment of the postal transport network that are considered as vertexes in a created matrix) that is the maximal capacity of the paid version of the Google Distance Matrix API (business version), is seems to be a problem. One of the possibilities, how to avoid this restriction is to solve these large-scale tasks partially. For instance, the 100x100 matrix (this represents 10 thousand queries) we divide into two areas (matrices of 50x50; 2.5 thousand queries), which are then in solving linked using the Floyd-Warshall algorithm. The principle of linking of the matrices is depicted in the following figure (Fig. 1). In the figure it is presented the possibility of linking of two separate areas (distance matrices). The first area consists of vertices No. 1, 2, and 3, the second area consists of vertices No. 6, 7, and 8. The vertices No. 4 and 5 represents auxiliary vertices that help to link two separate matrices and thereby are seem as marginal points of an ideal connection, e.g. crossroads, exits to highway etc. Their exact geographical location and distances between the vertexes (between the stationary equipment at the first level of the postal transport network) are gain through Google application.

FIG. 1: Linking the shortest path distance graph matrices



Source: Authors

Using the Google Distance Matrix API, we get two matrices of assumed areas and each of matrix / area includes the auxiliary vertices No. 4 and 5, too. The tabular processing of depicted graphs above is presented in the following figure (Fig. 2).

FIG. 2: Shortest Path Distance Matrices of both assumed areas

C_{ij}	1	2	3	4	5
1	0	16	15	19	19
2	16	0	13	9	3
3	15	13	0	4	10
4	19	9	4	0	6
5	19	3	10	6	0

↔

C_{ij}	4	5	6	7	8
4	0	6	28	23	37
5	6	0	26	29	38
6	28	26	0	5	12
7	23	29	5	0	14
8	37	38	12	14	0

Source: Authors

By linking of previously separate distance matrices (each depicted the assumed area), using the principle of the Floyd-Warshall algorithm, we get the initialization distance matrix (Fig. 3) that is needed for calculation the final shortest path distance matrix.

FIG. 3: Distance Matrix of merged areas

c_{ij}	1	2	3	4	5	6	7	8
1	0	16	15	19	19	1,000	1,000	1,000
2	16	0	13	9	3	1,000	1,000	1,000
3	15	13	0	4	10	1,000	1,000	1,000
4	19	9	4	0	6	28	23	37
5	19	3	10	6	0	26	29	38
6	1,000	1,000	1,000	28	26	0	5	12
7	1,000	1,000	1,000	23	29	5	0	14
8	1,000	1,000	1,000	37	38	12	14	0

Source: Authors

The Floyd-Warshall algorithm gradually generates for $k = 1, 2, 3 \dots 8$ new matrices $c^k = \{c_{ij}^k\}$, where $c_{ij}^k = \min(c_{ij}^{k-1}, c_{ij}^{k-1} + c_{ij}^{k-1})$. The last iteration represents the distance matrix created as at last in the row, which at the same time represents the shortest distance path matrix in the graph of given merged area. It is important to note, that in this simulation, all assumed elements of matrix has the equal importance. But in real conditions – in real process of optimizing of the postal transport network (within the current draft network optimization) we must consider different importance (expressed by application of weight criteria), which is determined by the volume of mail flows (Kramárová & Klieštík, 2012).

FIG. 4: Calculated the shortest path distance matrix

c_{ij}	1	2	3	4	5	6	7	8
1	0	16	15	19	19	45	42	56
2	16	0	13	9	3	29	32	41
3	15	13	0	4	10	32	27	41
4	19	9	4	0	6	28	23	37
5	19	3	10	6	0	26	29	38
6	45	29	32	28	26	0	5	12
7	42	32	27	23	29	5	0	14
8	56	41	41	37	38	12	14	0

Source: Authors

Conclusion

Creating the shortest path distance matrix is an important part of the transporting network optimization. The postal transport network including transporting (transit)

network of the provider of the universal postal services has a given hierarchical structure that has been determined mainly by its history, geographical characteristics of the served territory, by technological processes of collecting, sorting and processing of postal items, as well as by existing technology as a supporting element of the overall processes. Therefore, if the optimizing of postal transport network is the core of the interest, it can be undertaken at several levels of the postal network. This is closely related to the selection of appropriate algorithms for solving a given optimizing task at assumed level of the postal network. The article presented the methodology of optimizing of the postal transport network at its specified level by using the Google Distance Matrix API. Accepting its restrictions on the number of vertices and thereby the necessity to divide analysed area into more separate areas that are connected with common marginal points, authors also presented how the Floyd-Warshall algorithm may be applied in searching the shortest path distance by successive linking of individual matrices into one resulting matrix – so called initialization distance matrix that is the starting point for identification the shortest path distance between the vertexes, it means between the assumed stationary equipment and assumed postal transportation network's level.

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MARKET EFFICIENCY HYPOTHESIS IN THE TIME SERIES OF CZK/EUR

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C-CAPM – covariance – risk aversion

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Abstract:

We are interested in the spot exchange rate movement factors. In this article we introduce standard development in the economics of exchange rates. It starts in the law of one price and in the interest rates parity, then we deduce the Fama's regression. From this point of knowledge we utilize the C-CAPM solution to find all the factors influencing the relative change in the spot exchange rate.

In the practical part we have tested involvement of the presented factors on the empirical time series sample of the Czech economy. The statistical significant feature is achieved just for one factor known from the Fama's regression. The other newly found seems statistical insignificant. More we discuss the solution in context of the Czech economy and in the context of the economic crisis in the centre of our time horizon.

Introduction

Forward rate as unbiased predictor of the future spot exchange rate is a stressed topic to be discussed for many years. It is because this theory is integrating the interest rate parity theory and it operates within the foreign exchange market equilibrium. We really do analyze the deviations from the mentioned equilibrium which appear randomly by coincidence. These deviations, which are empirically observed, are reasons for the solution uses equity market or the transaction costs interaction. In this article we analyze the C-CAPM conclusion to the foreign stock Exchange market. This theory is able to explain the existing deviations which are empirically observed and hence statistically tested.

1. Methods, Literature overview

This article is built on the few approaches. First of them is an economic concept of the market equilibrium for the FOREX market. We assume the FOREX market equilibrium which follows few building blocks of the economics of the exchange rates. These are the law of one price, (un)covered interest rates parity, Fama's regression, etc. The second approach is the statistical analysis of the time series. We have to be able to confirm our theoretical conclusions with empirical observations.

Basically we deduce our conclusion from Fama's regression (Fama, 1976). This approach enables us to specify the risk premium of the FOREX market. More we deduce from solution of the equity puzzle in Wickens (Wickens, 2012). Here we are able to define the structure of the FOREX risk premium through the existence of the stochastic discount factor. But more due to the covariance between the stochastic discount factor and the exchange rate evolution, and the evolution of inflation rate. This is more in detail explained in Cochrane (Cochrane, 2009) or in Cuthbertson (Cuthbertson, 2005) or Shreve (Shreve, 2004). Unexplained deviations are assigned to level of the transaction costs.

2. Risk Premium in the FOREX market

The theory explains the present forward rate as an unbiased predictor of the future spot exchange rate. When we assume the rational expectations model, we deduce the disparities not to be serially correlated. In the other words these deviations follow the stochastic process, which is independent and identically distributed process (i.i.d.). This stochastic process is called „the white noise“. Many empirical studies provide a solution that there is an unexplainable risk premium. We started with the formula (1) which is deducted from the law of one price and which corresponds to the uncovered interest rates parity.

$$\frac{E_t(S_{t+k})}{S_t} = \frac{1 + i_{t+1}^D}{1 + i_{t+1}^F} \quad (1)$$

Logarithmic transformation and involvement of the forward rate provide the following formula.

$$E_t(s_{t+k}) - s_t = i_{t+1}^D - i_{t+1}^F \quad (2)$$

Fama's test then correspond to the regression described with the formula (3).

$$\Delta s_{t+k} = a_0 + a_1(f_{t+k} - s_t) + \eta_t \quad (3)$$

The probability limit of the previous linear parameter is:

$$a_1 = \frac{\text{cov}(\Delta s_{t+k}, f_{t+k} - s_t)}{\text{var}(f_{t+k} - s_t)} \quad (4)$$

Due to Wickens (2012), who assume the time series of Forex variables to follow the logarithmic – normal probabilistic distribution, we deduce alternative view for the risk

premium of the FOREX market. In the conclusions of the C-CAPM we modify the premium into the formula (5).

$$E_t(\Delta s_{t+1} - i_{t+1}^D - i_{t+1}^F) + \frac{1}{2}V_t(\Delta s_{t+1}) = \sigma_t \text{cov}_t(\Delta c_{t+1}, \Delta s_{t+1}) + \text{cov}_t(\pi_{t+1}, \Delta c_{t+1}) \quad (5)$$

From the previous we conclude that the FOREX risk premium (first part on the left hand side) consists of two factors (the right hand side). These are the covariance between the relative change in the consumption and the relative change in the spot exchange rate and the covariance between the expected inflation rate and the relative change in the spot exchange rate. The first factor is also multiplied with the coefficient of the relative risk aversion.

3. Data

In this contribution we verify the formula no. 5 on the data sample of the variables from the Czech economy. The spot Exchange rate and forward rate are gained from the statistical database of the Czech national bank. The consumption aggregate is gained from the statistical database of the Ministry of finance of the Czech Republic and the CPI index is gained from the database of the Czech statistical office. All presented variables are measured quarterly from the 2001q2 to 2014q4 according to the available dataset. These variables are according to economic meaning being transformed into natural logarithms. All the covariances were calculated in the MS excel software and the whole analysis is made in the Eviews software. The data variables are measured quarterly because mainly consumption as the other parts of GDP are measured only quarterly. More the financial variables are quarter averages in order to achieve comparability. The financial variables dependence to real sector economy is very difficult. The real economy variables develop themselves in the smooth way but the financial variable evolution is not gradual.

4. Analysis

As we described, we have tested the formula no. 5. In the Eviews software we achieved following coefficients (equation No. 6). We have used the forward rate logarithms instead of the interest rates. To be sure we used the difference between the forward rate and the expected spot exchange rate in the future according to forward contract period prediction. This is because the Czech economy is the small open economy and the Eurozone itself is very „strange“ currency zone. Presented substitution is arguable even from the theoretical point of view.

We produced this type of relationship

$$E_t(\Delta s_{t+1}) = -0,33f_t - 46,31\text{cov}_t(\Delta c_{t+1}, \Delta s_{t+1}) + -40,017\text{cov}_t(\pi_{t+1}, \Delta c_{t+1}) \quad (6)$$

All the presented coefficients of the covariances are rejected according to p-values of the model. Only the forward rate involvement is verified, but the direction of the dependence is opposite than expected. This result means falsification of the theoretical conclusions of the model. Moreover the values of coefficients do not belong to C-CAPM theoretical conclusions.

The reason is that we have expected the unit value of the forward rate parameter and the unit value of covariance between the expected rate of inflation and the relative change in the consumption. More the coefficient of relative risk aversion very differs through time. Its value is estimated at the value of minus 46.31. This is much higher but with the correct direction of dependence. We achieved the suitable Durbin –Watson statistics at the value of 1,815. There is suitable value of the autocorrelation and partial autocorrelation function, but the residuals do not follow the normal distribution, although we assumed the log-normal distributions which should have fit.

5. Discussion

We have rejected our hypothesis about the influence of the consumption, the inflation rate and the relative risk aversion to the expected change in spot Exchange rate. We assumed the conclusions of the C-CAPM model, which is built as the representative agent model which is behavioral. This is said in contrary with ordinary CAPM model which is derived from the market equilibrium, from the efficiency portfolio set. The relative risk aversion coefficient in this model differs through time, which is an advantage for the C-CAPM.

In future we should take into account the relative risk aversion coefficient estimation. It is very difficult to measure, we should find an optimal approximation for this. More we in the small open economy have to think about the value of the transaction costs which is much higher and which evolves the variables a lot.

When we take into account the crisis period for the last six years we achieved worse conclusions. We even were not able to confirm the influence of the forward rate as a predictor for the future spot Exchange rate.

When we exclude just pre crisis period we have confirmed the presented solutions in the stronger way. The coefficient of the forward rate (the value -0.35) is statistically confirmed. The other coefficient are rejected. Need to say that the coefficient of risk aversion (the value -20.99) is more optimal in the pre-crisis period.

Conclusion

We present our research which is interested in the description of factors which influence the percentage change of the expected spot Exchange rate. We assumed the rational expectations, the logarithmic normal distribution of variables. Our conclusions are made on the basis of the C-CAPM model, which is the model of representative agent. This model basis starts in the law of one price and in the (un)covered interest rates parity theory. All together as the first step tested in this field of research is the very famous Fama's regression.

We more deduced as the result of C-CAPM the factors influencing the expected change in the spot exchange rate. These factors are the previous forward rate, the relative risk aversion coefficient and the covariance between the spot Exchange rate and the relative change in the consumption. Next factor is the covariance between the rate of inflation and the relative change in the consumption, which measures the nominal influence.

In order to make this analysis more sophisticated we divide the time horizon into two periods according to world economic crisis in the year 2008.

We confirmed only the involvement of the forward rate, not the others variable. This conclusion was strengthened in the pre-crisis period but qualitatively it has not changed. We explained the rejection with the small economy assumption for the Czech economy and with the existence of the transaction costs and the time variability of the relative risk aversion. More research is made in the pricing to the market theory influencing the Exchange rate etc.

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COMMERCIALISATION AS A FACTOR OF MOUNTAINOUS AREAS DEVELOPMENT

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Keywords:

commercialisation – commercial expeditions – mountainous areas

JEL classification: Q56, Z32

Abstract:

The article raises the issue of commercialisation which has affected mountainous areas. It presents the opinions on commercial expeditions of Polish Himalayan mountaineers gathered in interviews with them. Selected mountainous areas were characterised in terms of tourist infrastructure development and organisation of mountain expeditions. Aconcagua peak is an example where a dynamic development of services and tourist infrastructure development is observed together with a clear systematic increase in prices of mountaineering permits.

Introduction

The organisation of commercial expeditions started in the 1980s in the US. Then David Breashers achieved renown for leading businessman Richard Bass onto the highest peak of the Earth in 1985. This was a turning point in the history of Himalayan expeditions, which inspired many Himalayan mountaineers. They saw potential financial benefits from organising expeditions and leading clients onto various peaks of the world. Such a big number of climbers and tourists resulted in building tourist infrastructure facilities in mountainous areas. In numerous countries guide agencies and associations for the organisation of mountain expeditions started to appear.

1. Methods, literature overview

The issues of high mountains have frequently been discussed in literature, however mainly within the scope of interest of earth studies. The impact of tourist activity on various components of the natural environment was mainly studied in naturally diverse areas (including Byers, 2005, Byers, 2009, Cunha, 2010, Edwards, 1977, Farrell & Jeffrey, 2001, Karan, 1985, Marek & Zienkiewicz, 2013, Stevens, 2003).

An important issue on the highest peaks was presented by Apollo who attributed pollution of the natural environment with wastes and faeces to tourist activity (2010, 2011, 2014). Mountain trails, especially in the area of Mount Everest are analysed too. Changes resulting from tourist activity are often visible on them. Research indicates correlation between tourists and trail degradation (Nepal & Nepal 2003, Nepal 2003).

Literature in the scope of medical sciences is also rich. The impact of altitude above the sea level on human organism has been studied frequently. The studies gave grounds for analyses of the causes and effects of the acute mountain sickness (AMS).

The problem of high mountain expeditions in sociological scope is covered by many publications. Motives of climbing and high mountain tourism were analysed among others by Taher and Jamal, 2012, or Domicelj, 2003. The least interest has been given to the aspects directly related to tourist infrastructure development and diversity of tourist activity in the area of mountain massifs. These issues were raised by Łojek, 2008, Marek, 2012 and others.

In this publication, interviews were used as one of the methods. These were carried out among Polish Himalayan mountaineers in order to find out their opinions on commercial expeditions.

2. Commercialisation according to Himalayan mountaineers

Commercialisation has become very desirable in view of the economic development of regions. It has contributed to raising the standard of living of local population and has driven economy (jobs in new accommodation, catering, transport facilities). However, commercialisation has had a negative effect on mountainous environment by too drastic interference of technical infrastructure in the natural environment. Commercialisation is also related to a sociological background as expedition groups often include participants lacking appropriate skills, preparation and knowledge, which increases the number of accidents.

Most Polish mountaineers have negative opinions about the phenomenon of commercial high mountain expeditions. According to Andrzej Zawada “Commercial expeditions during which organisers lead clients onto Everest for money have become a new phenomenon. I would like to know what the proportion there is of high motives and plain snobbery. Can one be satisfied with climbing Everest as merely a passive client, being given oxygen by an accompanying assistant? Those are not mountain people, they are not happy with the very presence in the mountains. They want everything at once and take shortcuts. They are ready to pay any sum to facilitate and guarantee the ascent. And this is impossible, hence they sometimes pay for their ambitions and naïve notions with their own life.” (Matuszewska 2003). Piotr Pustelnik claimed that „commercial expeditions (...) have shown that without experience but with organisational skills one can afford the Himalayas, providing they have money and someone to go with. The degree of self-reliance of participants is inversely proportional to the degree of commercialisation. The more commercial an expedition the lower the self-reliance of the participants. The more self-reliant the expedition, the less commercial it is” (Interview with Piotr Pustelnik, Łódź, 1 December 2006). According to mountaineer Marek Głogoczowski commercial expeditions are a natural consequence of civilisation development: “The client demands so they have to try hard. A bit like prostitution. Some things are done for love and some for money” (Interview with Marek Głogoczowski, Słupsk, 4 February 2007.)

Few Polish mountaineers have positive opinions about this phenomenon which has functioned on the Polish market for a few years. “This is a trend like in everything else. There is commercial diving and if someone has got the money, is fit and does not want to go all the way from the beginning to the end and does not want to call himself a great Himalayan mountaineer, then fine, let them go. It should only be emphasised that it is not great Himalayan

mountaineering – just treading the beaten track” (Interview with Joanna Piotrowicz, Konradów, 24 October 2006). Krzysztof Wielicki is of a similar opinion. He believes that commercial expeditions do not make history of mountaineering. They enhance personal experience, at the very most. “A Kowalski or Brown is glad to have climbed Mount Everest. It cannot be forbidden. It is as if only professional anglers were allowed to go fishing” (Kamrowska, 2003).

3. Commercialisation of selected mountainous areas

The dynamically developing tourist and climbing activity in the area of Aconcagua Massif has brought about a network of institutions specialising in organising expeditions and services for mountaineers and tourists. These are private agencies which offer complex services to individual tourists as well as organised groups in the scope of transport, accommodation, catering, guiding, assistance in obtaining permits, expedition equipment rental (tents, heaters, clothes, crampons, ice axes, trekking poles etc.), porter services to altitude camps, etc. Commercialisation is visible especially on peaks which belong to the so-called Seven Summits. In the mountainous areas of Aconcagua, Mount Blanc and Mount Everest, infrastructure is adapted to satisfy the most demanding clients. For example, the Aconcagua Provincial Park area is served by 18 mountain agencies, of which as many as 16 occupy the main camp Plaza de Mulas (table 1).

TAB. 1: Operations of mountain agencies in Aconcagua Provincial Park area

No.	Mountain agency	Confluencia	Plaza de Mulas	Plaza Argentina	number			
					porters, drovers	rental	camp service	porters
1	Aconcagua Expeditions				13	2	16	12
2	Aconcagua Express S.A.				6	0	2	1
3	Aconcagua Trek and Puquios				6	0	2	0
4	Andesport				1	0	4	0
5	Turismo Aymara				12	1	12	21
6	Base Camp Travel & Adventure				1	0	2	1
7	Cumbres Argentinas (Summit Argentinas)				1	1		0
8	Daniel Lopez Expeditions				0	1	1	2
9	Juan Herrera Expediciones & Trekking				0	2	2	1
10	Geotrek				0	1		3
11	Viajes Ghisolfi (Azimut 360 Travel)				0	2	3	1
12	Fernando Grajales S.A.				13	3	9	12
13	Inka Expediciones				0	1	2	0
14	Lanko Altas Montañas				4	2	6	3
15	Mallku Expediciones				2	1	1	2
16	Mdq Expediciones By Nuestra Tierra				0	0		0
17	Pared Sur (South Wall)				1	1	1	0
18	Xperience Aconcagua				0	0		0

Source: Marek, 2012.

Fees and permits have been introduced for climbers and trekkers in the Aconcagua Massif area. They depend on the type of mountain activity and duration of stay (table 2).

TAB. 2: Fees for permits for mountain activity in Aconcagua Massif

Type of mountain activity	Length of stay (days)	Price in UD dollars								
		Season 2007/2008			Season 2011/2012			Season 2015/2016		
		low	medium	high	low	medium	high	low	medium	high
Climbing	20	85	175	250	300	550	700	582	582	800
Long trekking	7	38	38	50	165	165	200	204	204	233
Short trekking	3	25	25	38	95	95	103	102	102	116

Low season: 15-30 November and 21 February - 15 March, medium season: 1-14 December and 1-20 February, high season: 15 December - 31 January.

Source: Own study on the basis of Marek, 2012, <http://www.aconcaguaexpeditions.com> (10.11.2015)

On the basis of the field research performed by the author during the expedition to the Aconcagua peak at the turn of January and February 2008, 240 small tents and 87 large tents were observed. Large tents function as warehouses of equipment, kitchens, canteens as well as accommodation for organised groups. The permanent objects of the Plaza de Mulas main camp include: a medical point, rangers point and a 20-bed mountain hotel Refugio Plaza de Mulas (Łojek, 2008).

As for Mont Blanc Massif there are no legal regulations concerning the mountaineering, trekking and tourist activity. This area can be seen as adequately developed in terms of accommodation. In the French and Italian parts of the Massif there are 26 mountain hotels including shelters which provide emergency accommodation in case of weather break. The sub-mountainous area is linked with many mountain railway routes which facilitates area exploration. Very intense mountaineering and tourist activity has brought about the establishment of numerous mountain agencies located in villages adjacent to the Massif. They offer complex services in the scope of guiding, transport, mountain equipment rental etc. A lack of statistics makes it very difficult to estimate the number of people visiting the Massif.

Mount Everest peak, due to its location, still has difficult access. However, numerous firms and agencies have contributed to the improvement of the most difficult fragments of the mountain. Ladders and ropes have been installed on the glacier to aid passage and improve safety. The landscape of Mount Everest is being increasingly transformed, not only due to the use of artificial support in glacier crevasses but also in higher parts. A significant and growing problem of the recent several years is the pollution of the environment by many expeditions, which various ecological organisations are trying to tackle. At the mountain foot there is a camp occupied sometimes by several thousand people daily. Several tens of mountain agencies were established in Nepal offering services to tourists.

Conclusion

The intensification of tourist activity has been very noticeable on peaks which belong to the so-called Seven Summits. The interest in mountain expeditions has contributed to the establishing of appropriate accommodation and communication infrastructure, which has led to negative

changes in the mountainous landscape. In many areas the destructive impact of expeditions on the natural environment can be seen (solid and liquid waste, treading on vegetation). The participants of commercial expeditions are often inexperienced, lacking the ability to use equipment, foresee danger and unfamiliar with the terrain. Such a situation poses a threat to other people undertaking mountain activity. Another negative aspect of commercialisation are high prices for services related to organisation of expeditions or stay. An advantage of commercial activity is sometimes an improvement of the economic situation of the inhabitants of nearby villages and an inflow of money to stage budget or various institutions. The interest in the mountains has contributed to the establishment of numerous mountain firms and agencies in different parts of the world which organise expeditions for fees.

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BUSINESS EFFICIENCY AND SUSTAINABILITY IN TOURISM

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Abstract:

This article solves issues of efficiency and sustainability of tourism businesses. It follows already published studies and verified efficiency and stability indicators that have already been proven useful in tourism. This article continues in search of said issues looking up new convenient indicators for tourism business sustainability measurement in correlation to efficiency. It establishes new scales located deeper within issues of performance efficiency, sustainability and stability. On a base of already existing research there are presented solutions as complex analysis of efficiency, sustainability and stability in relation to a customer and his consumption of local tourism in Czech Republic.

Introduction

„Issue of business efficiency and sustainability in respective industry can be observed from several perspectives, however it is always important to consider specific conditions – respective industry specifics. (Mareš, 2015)“. Regarding general interpretation of the efficiency measurement there can be discovered development meaning deviation from traditional efficiency measurement that is solely based on traditional proportionality indicators leading to business assessment by one figure. That used to be commonly summarising indicators attributing weight (often given by industry) to individual comparative indicators. In such a stage of efficiency measurement development there can be found attempt to interpret analysis results of the specific business towards respective industry. However within each stage of business efficiency measurement there was always, or at some specific efficiency measurement scales, reference to representatives of industry.

This article follows already published research results of stability from the point of customer's view, especially of (Mareš, 2013), in which the tourism stability measurement from the point of customer's view (differentiation of essential and non-essential consumption expenses including traveling expenses) and of (Mareš, 2012b), in which the sensitivity analysis was done as per consumption expenses in relation to net

income. As regards efficiency article follows trends in efficiency measurement of authors (Neumaierová and Neumaier, 2004), who already consider business efficiency as per pyramid of financial indicators known as INFA and takes account of trends applied abroad. Usage of combination of financial and non-financial indicators follows authors (Kaplan and Norton 2002), who also constitutes indicator pyramid, however with combination of financial and non-financial indicators. Article contributes to this issue going further above said facts, proposes special scales of sustainability and efficiency in tourism and it tests their information capability on a base of statistic data. That means it follows issue of customer's stability in demand for services in tourism, see (Mareš, 2013) and (Mareš, 2012b) and it reflects customers' behaving on stability and efficiency of tourism using findings from efficiency field, see (Mareš, 2015).

1. Methods, literature overview

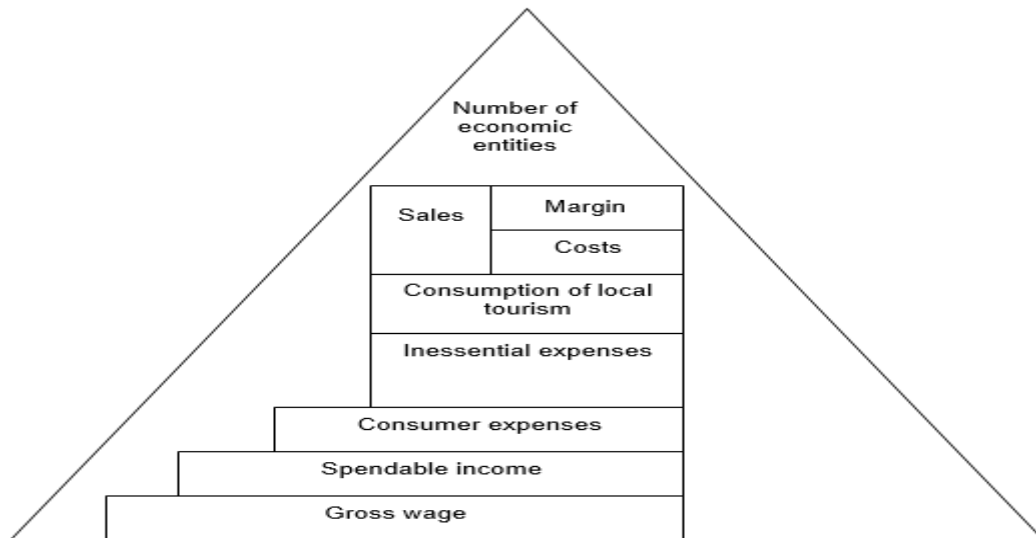
Within general understanding we may consider efficiency as a scale directly or indirectly mediating information on return of funds invested in business. That implies that the matter is to find out what can be our future efficiency and whether we can sustain such efficiency even in future. To get such estimation we have to proceed from past development giving idea on sustainability of our business and at the same time it provides us information on suitability of entry to the respective industry. We come out of the stability matter (Mareš, 2015). Stability matter can be considered through lifetime of respective organisation that can be predetermined by "withdrawal" of companies from respective industry or by number of new registrations (Activities of travel agencies, offices and other booking and related services). As regard tourism industry we can expect considerable periodicity, i.e. dependency on clients' life standard level and inessentiality of spending on tourism.

(Mareš, 2015) posited that „there was stability indicator “number of newly registered travel agencies (Activities of travel agencies, offices and other booking and related services) - proved as sufficient indicator of tourism industry stability reflecting external impacts on that industry – analysis of financial and economic crises impact on number of travel agencies in CR and Germany.“

However stability indicator should be measured against efficiency scale but in fact the businesses efficiency has been already searched in (Mareš, 2015), wherein there is already delimited convenient scale for businesses efficiency measurement. Therefore this article is focused on efficiency measurement in direct relation to the market – customer and will directly reflect tourism market situation. Therefore this indicator shall be sustainability indicator directly related to the core of business, it shall follow the market development and there shall be eliminated so called interfering factors without direct connection to the market situation for example investment policy of the company.

On a basis of empiric research that I have done in tourism industry and customers' behaviour see (Mareš, 2015) and (Mareš, 2013) and (Mareš, 2012b) and (Mareš, 2012a) we can deduce pyramid of efficiency and sustainability in tourism industry.

FIG. 1: Pyramid of efficiency and sustainability in tourism



Source: own workout

2. Results

As far as we wish to search tourism sustainability and efficiency from the efficiency viewpoint – sales, margin and sustainability in market, then the appropriate criterion is the number of registered entities in tourism industry and consumption of local tourism in CR. (Activities of travel agencies, offices and other booking and related services) The local tourism). „(Czech Statistical Office, 2015) represents tourism of residents in the territory of Czech Republic. However the consumption of local tourism needs to be understood in a wider extent. It includes consumption of residents within local trips as well as part of consumption related to trips abroad while such consumption is realised in CR (e.g. travel agency margin from arrangement a trip abroad).“

Therefore we can expect strong relationship between consumption of local tourism and number of registered entities (Activities of travel agencies, offices and other booking and related services) in a business registry.

TAB. 1: Tourism sustainability on local consumption

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Activities of travel agencies, offices and other booking and related services	10195	10499	10785	11086	11298	11419	11473	11525	11682	11820
Local tourism consumption in CR in CZK mio	87433	93667	97406	98884	104821	107825	104116	100536	94002	92578

Source: Elaborated on a basis of (Czech Statistical Office, 2012) and (Czech Statistical Office, 2013)

Note: As regards activities of travel agencies and other booking and related services there were not available at time of writing data for 2013, 2014. At local tourism consumption in CR there was not available year 2014 and for the year 2013 there were available preliminary data and the year 2012 has been established on semi-final data.

In case of above stated data we can expect due to economic base linear correlation. For linear correlation calculation we can carry out correlation analysis. „Correlation analysis aim is in research of linear correlation between variables in case that it makes sense to set order. Correlation intensity is assessed on a base of the correlation coefficient that is number within a range $<-1;1>$. Value 0 means linear independence, value 1 full direct dependence (one variable is linear combination of the other) and a value -1 means indirect correlation. Positive values mean positive correlation (with growing value or order of one variable there are growing values or order of the second variable), negative values mean negative correlation (with growing value or order of one variable there are decreasing values of order of the second variable). Correlation coefficient expresses intensity of mutual correlation. In case of quantitative variables there is used Pearson's Correlation Coefficient as has been shown (Řezanková and Löster, 2009)“

FIG. 2: Pearson's Correlation Coefficient

$$r = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}}$$

Source: (Škaloudová, 2015)

„(Škaloudová, 2015) posited that summations of squares in denominator are n-1 multiple of selective dispersion. Therefore there is frequently used correlation coefficient in more simple expression“:

FIG. 3: Simple expression

$$r = \frac{S_{xy}}{S_x S_y}$$

Source: (Škaloudová, 2015)

(Škaloudová, 2015) posited that correct correlation coefficient interpretation presumes that both variables are coincidental quantities having common two-dimensional division. Then zero correlation coefficient means that the variables are independent. If the two-dimensional normality assumption is not complied then there cannot be other conclusion than the quantities are not correlated.

In our case for following linear correlation between local tourism consumption in CR and number of travel agencies, offices and other booking and related services there is:

FIG. 4: Pearson's Correlation Coefficient - tourism

$$r = \frac{\sum_{i=1}^n (\text{con}_i - \overline{\text{spo}})(\text{sum}_i - \overline{\text{sum}})}{\sqrt{\sum_{i=1}^n (\text{con}_i - \overline{\text{con}})^2 \sum_{i=1}^n (\text{sum}_i - \overline{\text{sum}})^2}}$$

Source: own workout based on (Škaloudová, 2015)

Wherein:

r – Pearson's Correlation Coefficient

con – consumption of local tourism in ČR

sum – activities of travel agencies, offices and other booking and related services:

TAB. 2: Sustainability of travel agencies in relation to local consumption

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Activities of travel agencies	2096	2174	2233	2281	2286	2258	2191	2167	2153	2130
Local tourism consumption in CR in CZK mio	87433	93667	97406	98884	104821	107825	104116	100536	94002	92578

Source: own workout based on elaborated on a basis of (Czech Statistical Office, 2012) and (Czech Statistical Office, 2013)

Note: Regarding travel agencies, offices and other booking and related services there were not available years 2013, 2014 at a time of this article writing. As regards local tourism consumption in CR there was not available year 2014 and for the year 2013 there were available preliminary data and the year 2012 has been established on semi-final data.

Domestic tourism consumption in CR can be also measured as per subgroup of enterprises in tourism industry see quantity sum - activities of travel agencies, offices and other booking and related services. Such subgroup is represented by travel agencies. Then the formula of the Pearson's Correlation Coefficient would be amended as follows.

FIG. 5: Pearson's Correlation Coefficient - travel agencies

$$r = \frac{\sum_{i=1}^n (\text{con}_i - \overline{\text{con}})(\text{TA}_i - \overline{\text{TA}})}{\sqrt{\sum_{i=1}^n (\text{con}_i - \overline{\text{con}})^2 \sum_{i=1}^n (\text{TA}_i - \overline{\text{TA}})^2}}$$

Source: own workout based on (Škaloudová, 2015)

Wherein:

r – Pearson's Correlation Coefficient

con - consumption of local tourism in ČR

TA – activities of travel agencies

TAB. 3: Tourism sustainability in dependence on margins

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Activities of travel agencies, offices and other booking and related services	10195	10499	10785	11086	11298	11419	11473	11525	11682	11820
Travel Agency services corresponding to margins of travel agencies, offices and guides in CZK mio	5361	5571	5592	5716	6704	7354	6396	6092	5134	5495

Source: worked out on a base of (Czech Statistical Office, 2012) and (Czech Statistical Office, 2013)

Note: Regarding travel agencies, offices and other booking and related services there were not available years 2013, 2014 at a time of this article writing. As regards local tourism consumption in CR there was not available year 2014 and for the year 2013 there were available preliminary data and the year 2012 has been established on semi-final data.

In our model we shall proceed from sustainability in already established tourism market. Therefore we shall not consider market sustainability from the viewpoint of newly coming entrepreneur wishing to start tourism business however from a viewpoint of already established company. Thus the margin is x , i.e. independent variable, that shall explain conducting of dependent variable Y , i.e. number of registered entities in the market. That means that in case of decreasing margin there shall be coming to a withdrawal of entities from the market and to decreasing number of registered entities in respective industry.

FIG. 6: Pearson's Correlation Coefficient - margin in industry

$$r = \frac{\sum_{i=1}^n (m_i - \bar{m})(sum_i - \overline{sum})}{\sqrt{\sum_{i=1}^n (m_i - \bar{m})^2 \sum_{i=1}^n (sum_i - \overline{sum})^2}}$$

Source: own workout based on (Škaloudová, 2015)

Wherein:

r – Pearson's Correlation Coefficient

m - margin in tourism industry in CR

sum - activities of travel agencies, offices and other booking and related services

Pearson's Correlation Coefficient - tourism amounts to 0,456. Correlation Coefficient - tourism explains that business sustainability in tourism is affected from 45,6 % by local tourism consumption in CR (unexplained part of variability i.e. 54,4 is caused by other factor most likely by strong competition and market structure). This case means positive correlation (with increasing value or their order of one variable there are increasing values or their order of the second variable, see (Řezanková and Löster, 2009)). We can also come to a conclusion that the non-zero value, see (Škaloudová, 2015), means that the quantities are dependent. Nevertheless we cannot talk about dominant dependency due to the fact that the quantity reached only value of 45,6 %. Therefore we may come to a conclusion that there is dominant influence of other quantity or quantities that should be discovered by further research.

Pearson's Correlation Coefficient – travel agencies is at 0,767. Correlation Coefficient – travel agencies explains that the travel agency sustainability is influenced from 76,7 % by local tourism consumption in CR (unexplained part of variability i.e. 23,3 % is caused as well by other factor most likely by a strong competition and market structure). Even this case means positive correlation (with increasing value or their order of one variable there are increasing values or their order of the second variable, see (Řezanková and Löster, 2009)). We can also come to a conclusion that the non-zero value, see (Škaloudová, 2015), means that the quantities are dependent and due to quantity dimension we can talk about dominant dependency as the quantity reached to 76,7 %. Therefore there can be assumed dominant effect of this quantity on travel agency sustainability and other quantities or quantity would be of minority share on travel agency sustainability.

Pearson's Correlation Coefficient - margin in industry is at 0,273. Correlation Coefficient - margin in industry explains that the business sustainability is influenced in 27,3 % by margin (unexplained part of variability i.e. 72,7 % is caused by other factors). This case means positive correlation (with increasing value or their order of one variable there are increasing values or their order of the second variable, see (Řezanková and Löster, 2009)). We can also come to a conclusion that the non-zero value, see (Škaloudová, 2015), means that the quantities are dependent. Nevertheless we cannot talk about dominant dependency due to the fact that the quantity reached only value of 27,3 % Therefore we may come to a conclusion that there is dominant influence of other quantity or quantities that should be discovered by further research.

3. Discussion

On a base of already existing research there are presented solutions as complex analysis of efficiency, sustainability and stability in relation to a customer and his consumption of local tourism in Czech Republic. Furthermore the article on a base of statistic data and statistical analysis checks up complexity of submitted pyramid of tourism efficiency and sustainability that was formulated on a base of previous research. Within the first part there is specified scientific cognition background and empirical studies of the author. Next part already analysis and submits applicable indicators for tourism business efficiency and sustainability measurement. In methodical part of the article there are analysed applicable scales for efficiency and sustainability as well as there is selected proper statistic method for examination of causal relations between business efficiency and sustainability so that it may come to finding relation between efficiency and sustainability. Selected statistic method is converted into a prime economic analysis and there are assigned independent variables and dependent variables to individual economic quantities within a group of local tourism consumption (efficiency indicator) and number of registered tour operators, travel agencies, offices and other booking and related services (sustainability indicator). Furthermore there is analysed tourism sub-industry that means number of registered travel agencies-activities of travel agency, offices and other booking and related services (respective market sustainability indicator) and consumption of tourism in CR (performance indicator). Next the article comes to the top of pyramid and there is analysed relation between economic subject number (sustainability indicator) and margin (performance indicator). Following part confirms or disproves dependency of individual factors within the pyramid of tourism efficiency and sustainability

In next research it could be appropriate to focus on competition typology with selection of specific competing groups and entity types with narrower economic specialisation.

Conclusion

There was verified efficiency and sustainability pyramid in tourism with conclusion that the local tourism consumption – sales in tourism have a strong influence on travel agencies sustainability. The correlation between consumption and sustainability in the travel agency market was dominant (factor 76,6%), therefore we may assume that the number of registered travel agencies represents proper scale along with efficiency scale – consumption of local tourism.

However if we focus on sustainability of tourism as a whole in relation to consumption there are not still reached such values and there is a significant space for further research e.g. strength of competition in tourism industry and impact of competition on market sustainability.

Research did not also come to convincing results in a field of margin (efficiency indicator) and number of registered entities (sustainability indicator) with correlation only at 27,3 %. Margin has been examined from the viewpoint of established entities in market but not from potential entry in the market (unexplained part of 72,7 % could have been caused by strong competition and market type, as well as there can be influence of huge variety of diverse entities in tourism.

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RETAIL TRADE SUSTAINABILITY AND PERFORMANCE

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Keywords:

sustainability – performance – retail

JEL classification: M2, J1, L2

Abstract:

This article deals with performance and sustainability in retail trade and it looks for their appropriate measurement. Every business is particular and that's why every type of business should have its own measurement of performance and stability. Suitable indicators of performance and stability for retail trade are confirmed according to a research and verification of proposed measurement. The indicators are connected to consumption expenditure which is directly projected into sales retail trade.

Introduction

Every retail trade businessman, bank or other organisation which does business or grants money, invests or enters the given sector has to be sure about performance and stability of the given sector. This article focuses on performance and stability of retail trade because entering to this sector may result in certain business with regard to frequency of dispensable and indispensable consumption expenditure. The article analyses an influence of costumer behaviour through consumption expenditure on retail trade sales. It is based on the character of consumption expenditure, its structure and an overall change of the last years, see (Mareš, 2015a) and see (Mareš, 2012). The author tries to find his own measurement that would be applicable for retail trade and that would combine internal and external factors. For monitoring of the given relations he defines key factors which determine retail trade business performance. (Mareš, 2015b) posited that “It is possible to see the issues of analysis of performance and stability of enterprises from several points of view, however, it is necessary to do so from a perspective of a user of the given analysis and according to intended goals of the analysis. Available data are an essential factor which influences results of the performance and stability.”

1. Methods, literature overview

The article follows up author's previous research which was based on well-founded and statistically ascertained facts. The article shifts this knowledge to an actual application

in the retail trade so that it would be beneficial for further scientific as well as managerial use.

- a) Performance issues – the author was inspired by the performance issues and he adapted an idea for retail trade of the authors (Kaplan & Norton, 2002) who let the external measurement penetrate the internal one.
- b) Choice of suitable indicators – The choice of suitable indicators for retail trade is based on previous research and statistical ascertainment of the author in particular (Mareš, 2012). The research concerned consumption expenditure, its structure and division into dispensable and indispensable expenditure and its sensitivity analysis. The article also proceeds from (Mareš, 2015a) where the author dealt with the issues of consumption expenditure and its effect on financial plan and a suitable model setting for a prediction of a future development of an enterprise. The author also used a research (Mareš, 2015b) where the stability of tourist industry enterprises was assessed using market lifetime measurement in the Czech Republic and Germany.
- c) External factors – to measure external factors, findings of effects of financial crisis to economics of the Czech Republic were used; author: (Řezábek, 2009).
- d) Hypotheses verification – The verification of the hypotheses themselves was based on statistical data in a sufficient time limit zone for hypotheses verification (Czech Statistical Office, 2014a), (Czech Statistical Office, 2010a), (Czech Statistical Office, 2014b) and (Czech Statistical Office, 2010b)
- e) Hypotheses evaluation – The evaluation of the hypotheses was based on a selected suitable statistical apparatus of the following authors (Řezanková & Löster, 2009) and (Škaloudová, 2015)

2. Results

If we want to study the retail trade performance in the relation to the customer, we have to consider his/her consumption expenditure which directly affects the sales. We can consider the sales to be suitable performance measurement because they are not affected either by tax issues or by expenses and they are directly connected to consumption expenditure. For example, net profit as (Mareš, 2015) proved “can be affected e.g. by an investment policy of an enterprise which doesn’t have to be related to the immediate market course” and further as (Mareš, 2015) proved: “Considering the limiting factors of indicators that are based on the results of earning after taxes, a shift towards indicators - which will be directly related to the business core and thus will follow up the market course which means that so called disruptive factors will be eliminated - is to be expected.”

Based on the above mentioned we can thus assume that there is a high dependence of household consumption expenditure and retail trade sales.

2.1. Retail performance

We will assume that: Sales will be connected to consumption expenditure

TAB. 1: Sales and consumption expenditure development

Year	2005	2006	2007	2008	2009	2010	2011	2012
Sales in retail trade, except of motor vehicles and motorcycles	777922	834196	903232	940001	898062	897126	922962	932166
A. Consumption expenditure (CZK)	91085	97342	104017	112256	91085	116244	117882	118819

Source: own workout based on elaborated on a basis of (Czech Statistical Office, 2014a), (Czech Statistical Office, 2010a), (Czech Statistical Office, 2014b) and (Czech Statistical Office, 2010b).

Note: Retail trade sales (legal and natural persons), except for motor vehicles the years 2014 and 2013 were not available. Consumption expenditure (CZK) for the year 2014 was not available.

In case of above stated data we can expect due to economic base linear correlation. For linear correlation calculation we can carry out correlation analysis. „Correlation analysis aim is in research of linear correlation between variables in case that it makes sense to set order. Correlation intensity is assessed on a base of the correlation coefficient that is number within a range $<-1;1>$. Value 0 means linear independence, value 1 full direct dependence (one variable is linear combination of the other) and a value -1 means indirect correlation. Positive values mean positive correlation (with growing value or order of one variable there are growing values or order of the second variable), negative values mean negative correlation (with growing value or order of one variable there are decreasing values of order of the second variable). Correlation coefficient expresses intensity of mutual correlation. In case of quantitative variables there is used Pearson's Correlation Coefficient as has been shown (Řezanková & Löster, 2009)“

FIG. 1: Pearson's Correlation Coefficient

$$r = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}}$$

Source: (Škaloudová, 2015)

We can alter the above given formula to study linear dependence of consumption expenditure and sales like this:

FIG. 2: Pearson's Correlation Coefficient – retail trade

$$r = \frac{\sum_{i=1}^n (ce_i - \overline{ce})(SA_i - \overline{SA})}{\sqrt{\sum_{i=1}^n (ce_i - \overline{ce})^2 \sum_{i=1}^n (SA_i - \overline{SA})^2}}$$

Source: own workout based on (Škaloudová, 2015)

Wherein:

r – Pearson's Correlation Coefficient

ce – consumption expenditure in ČR

SA – Sales in retail trade, except of motor vehicles and motorcycles

Pearson's Correlation Coefficient – retail trade amounts to 0.7307. Pearson's Correlation Coefficient – retail trade says that the sales in retail trade, except of motor vehicles and motorcycles, are influenced to the extent of 73.07% by consumption expenditure of the households in the Czech Republic (the unexplained part of the variability, i.e. 26.93 is caused by other factors, probably by high competition on the market or other effect, e.g. crisis, see below). The case here is a positive correlation with rising values or their order. Values of one variable rise, the order respectively, values of the other variable see (Řezanková & Löster, 2009). We can also conclude that nonzero value see (Škaloudová, 2015) shows that the quantities are interdependent. This interdependence can also be called dominant when the quantity reaches the value of 73.07%. The rest of 26.93% can be seen as unimportant.

2.2. *Stability of the retail trade and its customers*

If we are interested in the stability of the sector, we should particularly focus on factors such as dynamics of the sector, trends in the sector, constancy, volatility or things that change the sector. As this article is limited, we won't focus but on the constancy – stability of the sector which will be measured by a year-on-year change of the sales and consumption expenditure.

TAB. 2: Stability of the retail trade

Year	2005	2006	2007	2008	2009	2010	2011	2012
Sales in retail trade, except of motor vehicles and motorcycles	777922	834196	903232	940001	898062	897126	922962	932166
Year comparison	2006/2005	2007/2006	2008/2007	2009/2008	2010/2009	2011/2010	2012/2011	
Percentage change ((year/year t-1)-1x100))	7.2339 %	8.2 %	4.07 %	-4.46 %	-0.1 %	2.88 %	0.997 %	

Source: own workout based on elaborated on a basis of (Czech Statistical Office, 2014a), (Czech Statistical Office, 2010a), (Czech Statistical Office, 2014b) and (Czech Statistical Office, 2010b).

What we can see from the above given table is that the sales growth slew down and there was a significant fall if we compare the years 2008 and 2009. This fall slew down during the years 2009/2010, followed by growth. As (Řežábek, 2009) found “in summer 2007, a chain crisis on financial markets in the USA started. The first phase of the transmission of this crisis to the Czech Republic came in the period of August 2007 - September 2008 but with minimal effect on the Czech economy. The second phase came in the period of September - November 2008 and it affected the Czech financial system in the sense of “regional decline of trust”. However, The transmission of the crises from the financial sector abroad to the actual economy abroad affects and will affect the actual economy of the Czech Republic. The growth of the Czech economy slew down up until the 3Q of 2008 and in 4Q of 2008 there was a considerable turn, the preliminary growth was according to Czech Statistical Office only 1.0%”

We can assume from the above stated that the fall was most probably caused by the crisis in the Czech Republic which affected the decline of the sales in 2007 and 2008. However, the most considerable effect is seen in the years 2009 and 2008. We can then postulate that even though the consumption expenditure, which is an indispensable part of common expenses of inhabitants, is quite important, this sector is highly sensitive to macroeconomic fluctuations which can be transmitted from abroad to our country. We can thus postulate that the sector as a whole is stable except for the time when important turns in macroeconomics take place.

Concerning consumption expenditure stability, we can state that the development of sales copies the development of consumption expenditure but between the years 2008 and 2009 and 2009/2010 there are strong disproportions which are caused by the crisis and probably by the fear of the increase of the prices which were followed by the increase of the trust in the economy.

TAB. 3: Stability of consumption expenditure

Year	2005	2006	2007	2008	2009	2010	2011	2012
A. Consumption expenditure (CZK)	91085	97342	104017	112256	91085	116244	117882	118819
Year comparison	2006/2005	2007/2006	2008/2007	2009/2008	2010/2009	2011/2010	2012/2011	
Percentage change ((year/year t- 1)-1x100))	6.869 %	6.8 %	7.9 %	-18.9 %	27.62 %	1.41 %	0.795 %	

Source: own workout based on elaborated on a basis of (Czech Statistical Office, 2014a), (Czech Statistical Office, 2010a), (Czech Statistical Office, 2014b) and (Czech Statistical Office, 2010b).

3. Discussion

The issues of the performance moves from general measurement that is generally applicable – the so called constructional market see (Kaplan & Norton, 2002) – to actual measurement appropriate for the given market – sector – enterprise. The sales which are not affected by other factors can be considered the most accessible as well as convenient measurement. To know the customer and his/her sector well, see the research (Mareš, 2012), and the sensitivity to changes of the given customer, see the research (Mareš, 2015a), will be the most essential for the future development and prediction of the sector. If possible, it is important to use even measurement which will be compatible on various markets, see (Mareš, 2015a). The following research will focus on statistical analysis of hard factors and soft factors and their combinations.

Conclusion

On the basis of statistical data and their verification, an appropriate indicator of the retail trade performance that has a direct connection to the market – customer - was chosen and verified. This performance indicator shows a 73.7% dependence on consumption expenditure and that's the reason why we can consider it a sufficient indicator for performance measurement with a direct connection to the market – customer, even though the sector was affected by a crisis, mainly in the period of 2008-2009. Stability of the retail trade and its customers was studied too, by way of year-on-year comparison. It was concluded that the given sector is stable as a whole except for the time when important changes in macroeconomics take place. As far as customers are concerned, there were significant disproportions in their expenses. These disproportions might be caused by the crisis and the fear of the increase of the prices which were followed by the increase of the trust in the economy.

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PERSONNEL DEPARTMENT AS A STRATEGIC PARTNER IN THE ORGANIZATION WITHIN THE TERRITORIAL SELF-GOVERNMENT

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Abstract:

The traditional understanding of personnel departments roles in government managing should subside new trends, which results from social development. One of them is the strategic understanding of the activities of these bodies that pass from the service to the partnership. The professional public, however, points to the lack of absorption of this understanding into practice in organizations. The present paper analyzes the role of a strategic partner of municipal authorities personnel departments in Slovakia. The result of the analysis is the finding that the strategic position is weak, inactive, and underestimated in these entities.

Introduction

In the scientific sphere still prevalent the view that in the human resource management of local government dominates the traditional approach to its management, based largely on administrative personnel activities. These approaches, however, should slowly subside to new trends and challenges that result from the overall society development. Logical theme also in public administration becomes a development and management organizations that are more focusing on the customer. Also all activities in the field of human resources must be strictly predefined according to the criteria of the customer. This view represents a synergy of top management and personnel clerks, which become partners. From the service to the partnership must lead way of personnel departments.

The present contribution deals with the understanding of human resource management as a strategic partner and verifies this position in terms of self-government in Slovakia. It is part of a broader survey focused on new trends and challenges in human resources management in term of self-government.

1. Methodology, research

In the scientific literature we are constantly confronted with the views of the needfulness and necessity of strategic focus of the human resources management and the transition from operational to strategic approach. Other so-called transitions from a certain well-established procedure to the new are, according to Ulrich “transition from qualitative to quantitative, from oversight to partnership, from short to long term, from the administrative to consultative, from focusing on internal issues to focusing on external affairs and customers, from reactive to a proactive, from a focus on activities to focus on solutions”. (Ulrich, 2009).

These transitions have been described in many publications on human resources management written by domestic authors such as Kachaňáková (2011), Joniaková & Blštáková (2013), Jankelová (2015), Blštáková (2015), but also czech authors of which we would like to note Dvořáková (2012), Koubek (2007), Stýblo (2008), as well as other foreign artists, among them Foot & Hook (2005), Ulrich (2009), Snell & Bohlander (2012), Werner & Desimone (2011) and, of course, many others that appeal to new trends in personnel management. We agree and incline to that view, but as states Ulrich, the above passages could be in some sort a simplification essence of human resource management in the organization, so it is essential their holistic understanding, factored into the so-called model of mixed roles, created and presented by named author (Ulrich, 2009). In terms of this model are in the following figure 1 shown the four key roles that HR professionals must fulfil to become their partnership in the organization true. To understand and apply that model for public sector organizations, it is important to consider three fundamental aspects and benefits in the form of a certain result, respectively benefit, visual feedback associated with a given role and activities that need to be implemented to fulfil the role. (Ulrich, 2009). All these aspects are expressed by the author for each role.

The survey aimed at understanding the extent to which personnel departments are a strategic partner in the organization of local governments, issued from the above model of mixed roles of human resources management. Sample survey for the needs of our survey on the issue of staffing trends in local government consisted of 47 subjects. It was the five autonomous regions and 42 cities. The subjects were selected based on the fulfilment of pre-selected criteria of belonging to the local government as well as on their willingness to provide information about research problems. Primary data was obtained using a structured questionnaire, which was sent to respondents - head of personnel departments, or authorized personnel through email communication. In some cases, it was allowed to complete the answer through controlled interviews with personnel managers. Response rate was 75%. For municipality level, we have chosen for the survey cities with populations over ten thousandth, reason was the fact that in smaller bodies of municipal self-government is, in our opinion personnel activity focused primarily on traditional personnel administration and information on new trends

in human resources management, which should reflect a higher degree of their quality would not be relevant. The analysis conducted using that model, was realised so that respondents answered 10 questions that characterize the essence of the role of a strategic partner. For each question, respectively claim, respondent noted down the number of points at its discretion from 1 to 5 (where 1 is low and 5 score rating is high). The result was therefore 47 tables filled with ten questions. The lower is the number, the quality of the particular personal work, respectively roles as a whole is lower. If each authority to judge all claims with five points (i.e. as a highly significant), then the result was 50 points. Author of the model shows that the total number of points, exceeding the number 40 in each role can be considered as highly suggestive of a high quality of services that human resources management department provides to the authority. The total number of points less than 23 points indicates that the activities of the personnel department within the roles are perceived as low quality and irrelevant.

2. Outcomes

Before we present the results of a survey within the role of a strategic partner, we would like to point to the fact that the mere inclusion of personnel departments indicates their specific status in the organization. The organizational structure of the municipal level is not fixed and each office independently decides on its organizational structure and within it on the integrating of its personnel department. The status of the personnel department with the competent authority in this respect would not be significant. However, in our view, it indicates a certain status of the group activities in the management of the organization as a whole. Personnel processes have connections to the entire management system, hence its inclusion in the organizational structure is an important indicator of management quality and its innovation efforts.

In the survey sample, we therefore investigated the inclusion of personnel departments within the organizational structure. In self-governing regions are the personnel departments included to the director office department as a personnel department, human resource management payroll and remuneration. At the head of the department is a manager, who manages three to five staff - officers with defined functions - HR, official of labour and wages, professional official for personnel and educational activities and so on. Scope of employment these departments is common personnel administration, associated with employment, remuneration and training. (Kazanský, 2009) Human resources management departments have not within the self-governing regions offices an adequate position they deserve, precisely because of the need for a shift their management from the operational to the strategic management. There are not within the middle management of the offices created units that should such matters provide comprehensive organization-wide. Recruiters are focused mainly on routine personnel administration, which implement officials - personnel officers led by the head of the department, which is not part of senior management of the office.

On the other hand, in some places is status of personnel departments in their management system actually growing. We assume that it is in the case of such offices where human resources and payroll are integrated directly under the section of the top management.

The existence and integration of the personnel department reflects the certain meaning, which maintains this section in the organization. It is not authoritative indicator indicative of its strategic orientation. For a deeper look into this position, we have used the above methodology. The results are summarized in Table 1.

TAB. 1: Evaluation results for the role of a strategic partner structured to Self-Governing Regions and towns

Strategic partner		
Question	Points - average	
	Self-Governing Regions	Towns
1. Helps Personnel department undertake tasks of the whole Authority?	4	3.1
5. Participates Personnel department in the process of defining strategies of the Authority?	2	1.4
9. Ensures Personnel department linking HR strategies with the strategy of the Authority as a whole?	1	1
13. What is your view on the effectiveness of the Personnel department? Is it effective if it is able to assist in implementing the strategy?	1.4	1.2
17. Do you consider respectively perceive the formation of the Personnel department as a strategic partner in the management of the Authority?	1	1
21. Does the Personnel department dedicate most of the time to solving of strategic issues?	1	1
25. Does the Personnel department active participate in the planning the activities of the Authority?	2	1.7
29. Is the aim of the Personnel department the interconnection and compliance strategies of the whole Authority?	1	1
33. Does the Personnel department create processes and programs that connect staffing strategy with the implementation of the Authorities' strategy?	3.8	3.1
37. Does the credibility of the Personnel department stem from assistance in fulfilment of the strategic objectives of the Authority?	1	1
Total	18.2	15.5

Source: own processing according to: Ulrich, 2009

The lower the number is, the more is the quality of personnel work within the role of strategic partner below. The highest value that could be obtained, was 50 points. The 40 points upwards is considered as excellent. Limit 23 points down as unfavorable.

The obtained data clearly point to the fact that in most organizations we are meeting the faint or inactive action of the personnel department in the strategic management of such organizations. In the surveyed authorities was this trend confirmed, with much greater values in towns compared to higher territorial units. In the towns is not the strategic role of personnel department dominant, what means that HR professionals are not perceived as a strategic partner. The consequences may occur in the process of implementing the strategy of the Authority, when personnel practices help fulfill its objectives. However, the question is whether, even in higher territorial unit, is not this declaration about being a strategic partner, only formal. Many offices produce or can develop more strategies than they need, respectively how many can realistically manage. There are developed an extensive documents, but always with so many ideas inside them, ideas that will eventually disappear and not implemented. Even in our sample of offices, we found, that HR professionals do not view themselves in the role of an active strategic partner, but only as a specific mediator of implementing the strategies of the authority to the personnel programs. The question whether the credibility of the personnel department arises from assistance in meeting the strategic objectives of the Authority responded completely insignificant, therefore their attitude towards the importance of his own department is in totally different area. Apparently in personnel administration.

3. Discussion

Within surveyed self-government offices it was found the status of personnel departments mainly at the level of the personnel administration. Professional community highlights the need for greater ambition of these bodies that are visible mainly in the business sector where the departments of human resources management becomes a strategic partner management organizations and thereby facilitates their proactive management. Our research is a pilot in this area, because in view of the tradition and practice of management in public administration organizations, was not yet on the possibilities of implementing the new role of personnel departments considered. Due to a societal developments and new trends related thereto, they are however necessary.

Conclusion

Human resource management is currently an area subject to major changes in the context of overall social development. In response to changes in the strategic partnership personnel departments that are involved in the formation of organizations able meeting the necessary strategic objectives. When HR professionals operate as strategic partners, cooperate with line managers to implement a management process

that creates such an organization to meet the requirements of all stakeholders. However, the results point to the fact that the role of a strategic partner in the authorities of local government is at a low level and it is therefore necessary in this area to develop the necessary activities to increase its importance.

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THE EMPHASIS ON MANAGERIAL COMPETENCIES IN THE FIELD OF OCCUPATIONAL HEALTH AND SAFETY AS A NEW TREND IN PERSONNEL MANAGEMENT

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Keywords:

occupational health and safety – manager – competency – work-related stress – syndrome – work injuries

JEL classification: I15, I130

Abstract:

The current situation in personnel marketing and personnel management is characterized by high incidents of syndromes and work related injuries. Based on the statistics EU acceded to the formation of new requirements management competencies in the field of occupational health and safety under the influence of these phenomena. Contribution characterizes occupational health and safety management competencies within the purview of the new European principles and standards in this area and presents selected results from the survey, which was conducted as part of a personnel audit companies operating in Slovakia. The contribution is output solutions of grant tasks VEGA No.1 / 0662/15 - Economic and social tools as a factor for job creation in companies.

Introduction

In present many employees suffer from syndromes and work related injuries caused by stress. According to the International Labour Organization (ILO, 2007), some two million people worldwide die every year from work-related accidents and diseases. An estimated 160 million people suffer from work-related diseases and there are an estimated 270 million fatal and non-fatal work-related accidents per year. The economic cost of these injuries and deaths are colossal at individual, enterprise and societal levels inhibiting economic growth and affecting the competitiveness of businesses.

Work-related psychosocial risk factors and stress, together with their associated negative health and business outcomes also affect a remarkable number of European workplaces (EU-OSHA, 2014). Significant changes affecting workplaces over the last several decades and resulting in new occupational safety and health (OSH) challenges include global socio-political developments such as increasing globalisation and the establishment of a free market, advances in information and communication technology,

new types of contractual and working time arrangements as well as significant demographic changes.

Working life is affected by the general acceleration of the pace of life, contributing to work intensification, constant time pressure, multitasking and the need to learn new things just to maintain the status quo. In addition to these structural and long-term changes, the current economic crisis is placing increasing pressure on both employers and workers to remain competitive. Many of these changes provide opportunities for development; nevertheless, when poorly managed, they may increase psychosocial risks and result in negative health and safety outcomes.

1. Psychosocial factors and stress at work as the cause of syndromes and injuries

Psychosocial risk factors are more difficult to manage than 'traditional' OSH risks. But managers have a legal responsibility to reduce risks to workers' health and safety stemming from the Framework Directive, and this also includes psychosocial risks.

Exposure to psychosocial risks can lead to stress among employees, resulting in poor performance and, when prolonged, serious health problems. According to the European Agency for Safety and Health at Work (EU-OSHA, 2014), work-related stress is experienced 'when the demands of the work environment exceed the workers' ability to cope with (or control) them'. Closely linked to work-related stress is the concept of job strain, which, like work-related stress, is characterised by working conditions in which workers face high demands, but have little control or influence over their work environments.

Prolonged exposure to psychosocial hazards has been shown to be associated with a wide range of mental and physical health outcomes, including anxiety, depression, suicide attempts, sleep problems, back pain, chronic fatigue, digestive problems, autoimmune disease, poor immune function, cardiovascular disease, high blood pressure and peptic ulcers (EU-OSHA, 2014).

At the organisational level, the financial implications of work-related stress and psychosocial risks are associated with deterioration of productivity, higher levels of absenteeism and employee turnover. In the United Kingdom, in 2011/12, work-related stress caused workers to lose 10.4 million working days, and workers were absent for on average 24 days (HSE, 2014).

That is the main reason managers need to have enough knowledge about psychosocial risk factors, work-related stress, causes of stress, they need to know stress symptoms and consequences of stress on employee's health and safety. Work-related stress according to WHO (2005) has the potential to negatively affect an individual's psychological and physical health, as well as an organisation's effectiveness. Therefore,

it is recognized world-wide as a major challenge to workers' health and the health of their organizations.

In the European Working Conditions Survey (Eurofound, 2014), around 45 % of workers reported having experienced, during the previous three years, some type of organisational change affecting their work environment, and 62 % reported working to tight deadlines. Managers are also aware of this issue, with the European Survey of Enterprises on New and Emerging Risks (ESENER; in EU-OSHA, 2014) finding that 79 % of European managers are concerned about stress in their workplaces.

Work-related stress is the response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities and which challenge their ability to cope. Stress occurs in a wide range of work circumstances but is often made worse when employees feel they have little support from supervisors and colleagues and where they have little control over work or how they can cope with its demands and pressures. When that pressure becomes excessive or otherwise unmanageable it leads to stress. Stress can damage your workers' health and your business performance (EU-OSHA, 2014).

2. Causes of stress and stress symptoms at workplace

Poor work organization that is the way we design jobs and work systems, and the way we manage them, can cause work stress. Excessive and otherwise unmanageable demands and pressures can be caused by poor work design, poor management and unsatisfactory working conditions. Similarly, these things can result in workers not receiving sufficient support from others or not having enough control over their work and its pressures.

Research findings show (Szarková, 2010) that the most stressful type of work is that which values excessive demands and pressures that are not matched to workers' knowledge and abilities, where there is little opportunity to exercise any choice or control, and where there is little support from others. The more the demands and pressures of work are matched to the knowledge and abilities of workers, the less likely they are to experience work stress. The more support workers receive from others at work, or in relation to work, the less likely they are to experience work stress. The more control workers have over their work and the way they do it and the more they participate in decisions that concern their jobs, the less likely they are to experience work stress. Most of the causes of work stress concern the way work is designed and the way in which organizations are managed. Because these aspects of work have the potential for causing harm, they are called 'stress-related hazards'.

Stress affects different people in different ways. The experience of work stress can cause unusual and dysfunctional behaviour at work and contribute to poor physical and

mental health. In extreme cases, long-term stress or traumatic events at work may lead to psychological problems and be conducive to psychiatric disorders resulting in absence from work and preventing the worker from being able to work again. Main stress warning signs and symptoms divided to cognitive, physical, emotional and behavioral symptoms. Inadequate coping with stress can cause mental imbalance and can also induce mental and psychosomatic disorders (Szarková, 2010).

3. The consequences of stress: Chronic fatigue syndrome (CFS) and Burnout syndrome

As a psychological result of long-standing and unmanaged stress continuation at workplace can occur specific syndromes - chronic fatigue syndrome or burn-out syndrome. Stress that developed into a stage similar to tiredness is called the chronic fatigue syndrome - CFS. CFS is much more serious and dangerous than chronic fatigue. Criteria for its identification are: fatigue goes on for at least 6 months, amount of physical activity decreases by at least 50%. CFS is defined as a functional mental change and a consequence of long-standing stress which resulted in failure of one's own personality regulation mechanism. It is based on complex destruction and disruption of one's own self-regulation "command" and volitional and motivational system.

CFS symptoms are: reduced motoric abilities (painful movement), emotional unsteadiness, inclination to depression, loss of interest in oneself and the environment, changes in personality self-regulation mechanisms (people are not able to command), their value system changes and they are not able to change their mental and physical condition. This condition can be improved by treatment. The CFS diagnosis often excludes employees from the working process for up to two years and, thus, prevention is very important.

Burnout syndrome is also a consequence of long-standing and unmanaged stress. It is a state of physical, emotional and mental fatigue and continuation of long-standing stress in the social sphere. People who suffer from burnout syndrome feel hopeless, ostracized, useless and feel they lack courage and creativity. Burnout syndrome is a warning that environment needs to be changed, stressful factors should be eliminated and targeted relaxation should help restore mental energy.

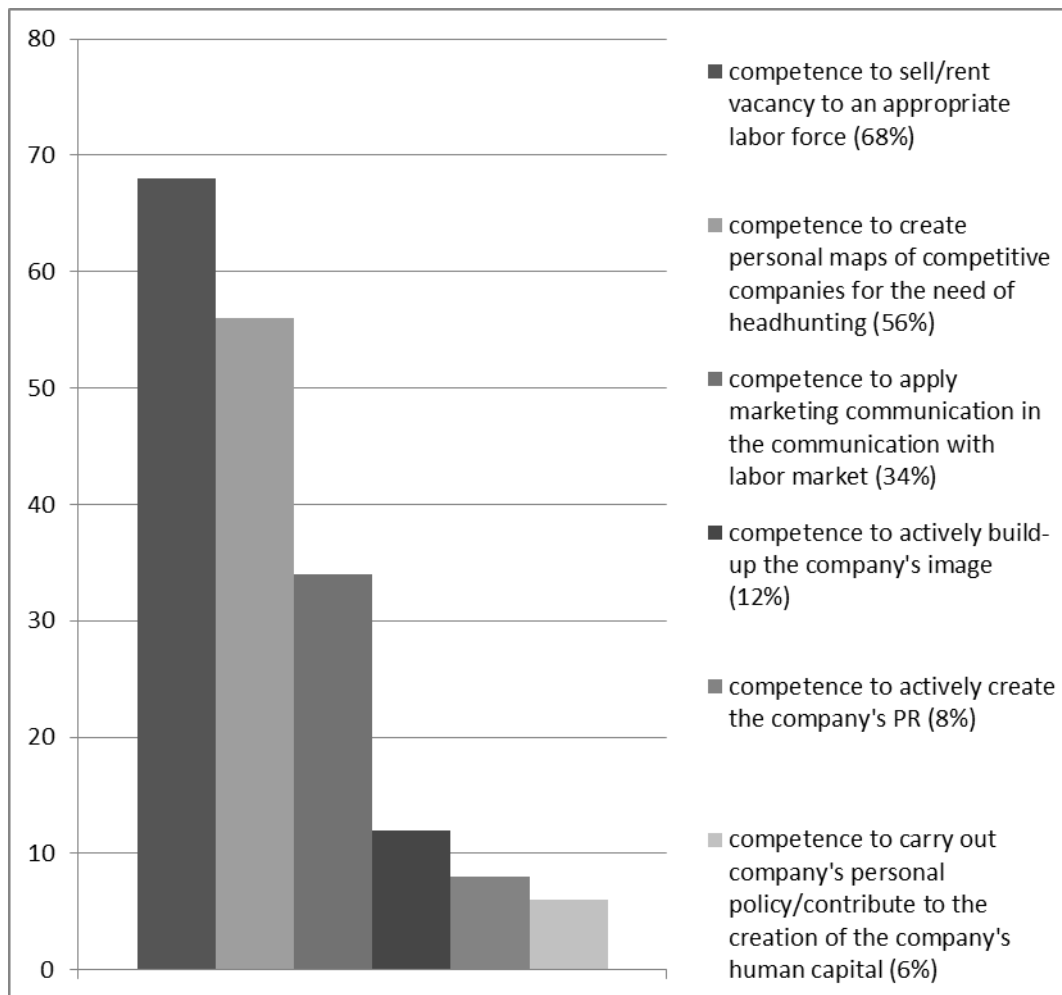
Experts claim that burnout syndrome can affect especially those employees who take their profession too seriously (they live just for their work, they put a lot of ideas and energy into it, but their employer does not reward them in return, he does not give them any feedback or evaluation) (Szarková, 2010).

4. Manager competencies in the field of occupational health and safety

To achieve all important goals of the company the manager must be competent in a range of people management skills. One of the objectives of the research was to find

out which competencies are perceived by the managements of the companies operating in Slovakia (Fig.1). Analysis of the results showed that respondents perceive the mentioned competences as competences that are part of personal marketing and at the same time they are considered as key competences in the area of personal marketing. On the basis of the gained data from the research the following key competences may be distinguished| on: competence to sell/rent vacancy to the appropriate labor force (68%), competence to create personal maps of competitive companies for the needs of headhunting (56%), competence of applying marketing communication in the communication with the labor market (34%), competence to actively contribute to building-up the company's image (12%), competence to actively contribute in the creation of the company's PR (8%), competence to carry out the company's personal policy and participate on the creation of the company's human capital (6%).

FIG. 1: Competencies perceived by the companies' managements



Source: own elaboration – see Monograph (Szarková, M., Andrejčák, M. & Matkovčíková, N., 2014)

One of the most important skills in the field of occupational health and safety is the prevention and management workplace stress. Managers need to know basic characteristics of stress, and also understand what skills, abilities and behaviours are necessary to implement the Management Standards and manage employees in a way that minimises work-related stress. In recent years, much research has occurred to identify management competencies in preventing and dealing with work related stress. Most of the competencies would be regarded as "common sense", however the challenge is practising these on a daily basis in an often demanding work environment. The key management competencies for preventing and reducing workplace stress are: being respectful and responsible, managing emotions and having integrity, managing individuals in the team, managing and communicating existing and future work, reasoning through and managing difficult situations at workplace (CIPD, 2009).

Conclusions

The current situation in many companies shows that work-related injuries and accident are rising. A new trend in personnel management is becoming more frequent occurrence of mentioned syndromes that arise due to the action of stress at work. Work-related stress is a real challenge for managers and their employees. It is important that the workplace is being continuously monitored for stress problems. Further, it is not only important to identify stress problems and to deal with them but to promote healthy work and reduce harmful aspects of work as a main task of manager. Mental health problems and other stress-related disorders are recognized to be among the leading causes of early retirement from work, high absence rates, overall health impairment, and low organizational productivity. Stress management competencies and good work organization are the best forms of stress prevention because the results of stress syndromes are work-related injuries. That is the reason why are managerial competencies in the field of occupational health and safety very important for companies. Managers used to have the appropriate skills, abilities and behaviors to manage employee stress effectively and to implement the EU Management Standards.

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MANAGERIAL CAREER - TARGETED EFFECT OF CAREER MOVEMENT

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Keywords:

career – career movement – organisational structure – career preferences – career path

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Abstract:

Despite the fact that the professional career of successful individuals is decisive for the competitiveness of business as well as non-business entities, managerial career can be considered to be more prestigious not only from the view of individuals but also from that of society. This fact is reflected also in the interest of individuals, namely that their ambition in the career movement is rising to a managerial position, not only because of a higher remuneration but also to achieve a higher societal level, attain authority and power. From the perspective of an individual but also from that of certain societal perception, managerial career is evaluated as the result of successful career movement.

Introduction

The starting-point of career changes is the division of labour and system of organizational arrangement within an organization. The size of organisation and type of its decisive activity affects its specific type of organisational structure. Possibilities of vertical or horizontal career movement are influenced by a high organisational structure on the one hand and the flat organisational structure on the other hand. The idea of career growth is understood by numerous individuals in connection with assuming a leading position on the line or middle level of management, at least. In many cases, this brings serious problems namely in small and medium-sized enterprises, as well as in organisations with the flat organizational structure, in which it is not possible to satisfy the ambitions of individuals. For employees who cannot be promoted, there should be prepared proposals for the so-called second career plan, as well as the alternative based on the extension of professional competence. This is expressed by the career dynamics.

Under current conditions of evaluating career changes, we can describe three main lines of career development:

- a) professional career – the basis of this career is the building of the second hierarchy with specific titles, tasks, degrees, and statutory symbols. This group of employees is equally important for an organization as those who perform

managerial career. They are often key employees in the organization, who perform creative, systemic, and scientific and innovative tasks.

- b) managerial career – represents a vertical ascent in the organization hierarchy and often is the path. Leading positions bring the increase in duties and responsibilities, the pressure on knowledge, specific skills and abilities, which are connected with the rise of incomes and social status of an individual.
- c) project orientation in career – as a result of the changes in traditional hierarchy structures of enterprises to flat organisational structures, the management systems come to be simplified, which in turn results in decreasing the number of management levels. An alternative solution path is project management, where each project has its own management, and so it is possible to provide authority to several employees and responsibility for the results achieved in the project solution. The work on project is often connected also with taking over various project functions, which have their own hierarchy beside the managerial function. In this way, employees can acquire more power and responsibility without the vertical ascent. It is often referred to as horizontal career.

Results of research achieved under research project KEGA No. 006EU-4/2013 – demonstrate that managerial career is perceived as the result of a successful career movement, and it is the ambition of many individuals to fulfil this vision as soon as possible. Partial results achieved will be presented in this paper.

1. Methodology and the Review of Literature

Career is important not only in the process of self-actualization of an individual, but the growth of career is accompanied with the achievement of more significant work positions and the individual's shift to higher societal strata. Achieving career aspirations and aims is the way that starts from the moment of selecting school and lifelong acquisition of knowledge, skills and experience.

The research of respondents' opinions of managerial career was very extensive; for this reason, we focus only on its partial presentation. The empirical part of the paper focuses on respondents' opinions of their ambitions to achieve the managerial job position.

Respondents were human resources with complete secondary education completed with maturita (approximately, equivalent to GCSE) examination and university education (of all the three cycles).

The research was carried out by means of the interview method and questionnaire method in 267 respondents, of them 155 employees in non-managerial job positions and 112 managers. In terms of the number of employees, enterprises were represented as follows:

- a) respondents from small enterprises – 52 respondents;
- b) respondents from medium-sized enterprises – 80 respondents;
- c) respondents from large enterprises – 135 respondents.

Career is a notion of an individual's future from working, material, and psychic aspects. Apart from the psychic aspect, there is also a sociology dimension of career (Bednárík, 2009, p. 70). A classical sociological definition of career is the opinion of Z. Bauman, according to whom a specific core of the concept of career is the relocation of individuals from lower social positions to higher positions (Bauman, 1967, p. 9). However, to delimitate the concept of career it is not enough to characterise it via the type of vertical social mobility. Therefore, Z. Bauman supplements: career and career advancements mean acquiring a new, higher qualification, which requires an increasingly deeper study and greater efforts (Bauman, 1967, p. 111). F. Bělohávek defines career as the path of life, in particular, professional one, in which one acquires new experience and implements their personal potential (Bělohávek, 1994, p. 11). This approach to understanding the concept of career has a wider sense: it involves the preparation for employment and the development of qualification as a life-long process and does not contain only the course of work activities. Career involves also a set of stagnations or declines. In the course of career occur shifts. All the changes in job position are denoted as career movement. Man changes one's position, employer, moves to a higher or lower position in the enterprise; from one area to another one, e.g. from manufacturing to marketing. Career study requires the mapping and classification of these shifts, which represent career movement. A set of career movements expresses the career dynamics. Career is not connected only with the advancement in functions; an individual can perform professional activity for a longer time in the same or in some other employer entity, where the individual develops and acquires new skills, knowledge and increases their qualifications. Therefore, there are several career types:

The most appropriate expression of basic career types is as follows:

- a) Expert type, in which an individual selects their employment for a lifetime, and the aim is to be a professionally competent and recognised expert.
- b) Linear type, typical of dependent job and for individuals who do not want to do business of their own; within a selected organization they are trying to achieve higher positions and remuneration in the form of salary.
- c) Spiral type, in which the direction of career movement does not change; individuals remains in their fields, but after some time they pass to some other workplace, usually better paid and connected with a higher rate of influence.
- d) Transitional type, in which individuals prefer flexibility and adjust to new opportunities. They often change their employment, employers, acquire new experience and are able to perform various activities (Lepeňová & Hargašová, 2012, p. 9).

In view of the uncertainty and instability situation on the labour market majority of persons may be expected to be obliged to change employment and employees, redirecting the career movement into other areas than those originally planned. In the future, individuals will have to change their employers several times in the course of

their lifetime and also change their qualifications and re-qualify for the performance of new jobs.

2. Results

Although a lot of individuals do not participate in a specific kind of education in accordance with acquiring knowledge and skills for the managerial career, many of them find the performance of managerial career interesting in terms of desire for power and authority, due to better remuneration, higher societal status and feelings of recognition, as well as owing to acquiring reputation and satisfying their need to excel.

TAB. 1: Evaluation of stimuli of managerial career

Stimuli for managerial career	Absolute numbers of respondents
Desire for power and authority	44
Ability to achieve results through people	61
Better remuneration (salary)	86
Higher societal status	63
Recognition and high reputation, satisfying the need for excel	13

Source: results of own empirical research

Research results show that the intent of acquiring the managerial position is better remuneration (in salary). Almost the same number of respondents indicates the incentive for acquiring the managerial position, their ambition to achieve results by means of coordinated efforts of several individuals who take part in work activities (61) as well as the desire for better social status (63). From the total number of respondents (267), 169 of them indicated that they were interested in becoming managers and the remainder of 98 interrogated were not interested in becoming managers and their career ambition was to perform Professional career. Achievements in Professional career were often connected also with the participation in solving several projects. Rate of success in solving projects shifts members of research teams to higher Professional level and provides them recognition of their co-workers and managers.

Although the statistical population consisted from 112 respondents, those who currently occupy managerial position, statistical population Table 2 of the statistical set accounted for 135 respondents, since not only their current managerial positions were taken into consideration but also all managerial positions acquired for the first time at a certain age interval. The difference indicates that 23 respondents no longer perform managerial activity in a given period but they used to perform it in the past.

TAB. 2: Age at the time of acquiring managerial position for the first time in %

Difference in age at the time of attaining Managerial position	25-32	33-40	41-48	49-56	57-65	66+ years
Completed education						
Vocational school completed with maturita	32.4%	38.2%	23.5%	5.9%	0.0%	0.0%
School of General education with maturita (equivalent to GCSE)	40.0%	20.0%	40.0%	0.0%	0.0%	0.0%
Follow-up study	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%
Tertiary education – Humanities field of study	44.4%	55.6%	0.0%	0.0%	0.0%	0.0%
Tertiary education Social Sciences field of study	66.7%	20.8%	12.5%	0.0%	0.0%	0.0%
Tertiary education – Natural sciences field of study	50.0%	33.3%	16.7%	0.0%	0.0%	0.0%
Tertiary education – Technology field of study	50.0%	35.4%	0.0%	14.6%	0.0%	0.0%

Source: results of own empirical research

There is a current trend (Tab. 2), that managerial positions are filled with persons at the age between 25 to 32 years. From the respondents addressed, 65 respondents in this age interval acquired managerial positions. A higher percentage of the age bracket of 33 – 40 years represents only graduates from vocational schools and tertiary education – humanities fields of study, where the total number of respondents who acquired a managerial position during this age interval is 46. At the age of 41 to 56 years, 24 respondents gained the managerial position and in higher age categories there were no longer respondents who would occupy the managerial position for the second time.

The aim of gaining the managerial career is not only better remuneration and professional prestige but also acquiring a social position.

3. Discussion

The performance of managerial position should be the climax of one's life-long career after achieving necessary professional knowledge, skills, but mainly also after acquiring experience and achieving social maturity. When starting from specific stages of career development, then:

- a) Preparation – is connected with the clarification of interests and abilities for future profession; choice of education;
- b) Development – searching for a new employment, taking a competitive selection procedure and the selection of an employer or starting one's own business. The employee tests his/her skills in their employment, form their attitudes to the team, work and their aspirations to be efficient in a given enterprise. They may also attain negative experience in the work process, which can later appear in their later lives;
- c) Climax – the stage of the highest performance, when the employee is entrusted the most important tasks. At this stage, an individual can work not only as a key employee but also as a coach as well as a manager. This is also the period of the greatest changes and financial demands in the employee's family, which may make the employee make re-evaluate the direction of their career;
- d) Attenuation – later years in one's career when the employee's work performance is gradually decreasing and the employee is preparing for retirement.

A mass acquisition of managerial positions between 25-32 years of life which may be identified with the period of development, in which also the first years of the following interval may be included (33-40), cannot be seen as favourable. On the contrary, the age that can be included in the period of climax (41-56), when individuals can be expected to have developed complex personality properties, i.e. professional as well as emotional maturity, is connected with a low rate of acquiring managerial positions, with the exception schools of general education with maturita (GCSE), where the course of winning managerial positions is slower. Therefore, it is becoming a current practice these days for young managers to receive their education directly during the performance of their managerial position, namely, frequently with smaller or larger mistakes (Szarková, Andrejčák & Matkovčíková, 2014, p.140) leading to corresponding consequences for the development of the entity they manage.

Conclusion

The current period brings new employments, new work roles, but also different work expectations, as well as various views of one's own career. Career is perceived as the development of work situation, running across one's work life, which is purposefully supplemented with continuous lifelong education.

In the Slovak Republic, a higher social recognition and assessment of work career is connected with the advancement career. Individuals who gradually attain higher positions are considered to be successful, or even if they are appointed to the positions

with important powers at the very beginning of their careers and these positions are connected with the decision-making possibilities. Managerial career is considered to be more attractive by respondents than becoming a renowned expert in a particular field. The focus of interest in managerial career is better remuneration, as admitted by 32.2% of respondents, higher societal status – 23.59% of respondents and the desire for power and authority – 16.48% of respondents.

It is, however, debatable whether the acquisition of managerial positions at such an early age, as the analyses indicate and to such an extent, is really significant for individual enterprises, regions, and the state.

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IT PROJECT TEAM PERFORMANCE AND PROBLEM SOLVING AFFECTED BY SOCIAL NETWORK POSITION

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Keywords:

project – team – social network analysis – problem – personnel

JEL classification: M14, M15

Abstract:

Focus of the article is to present results of a survey performed in a company. Firstly we introduce reader to Social Network Analysis and its tools, methods and goals. Secondly we review relevant information sources and finally there is presentation of the survey focused on social network within the company. Results showed that there is group of contractors with limited access to information from the rest of the company. IT project team of the company had difficulties with delivering product caused by a combination of bad project management, incomplete analysis of all necessary processes supported by developed system. Some of these problems were discovered by accident because of informal connections of IT project team members and stakeholders.

Introduction

The focus of Social Network Analysis (SNA) is to reveal and describe the relations among individuals, teams, organizations, and resources (we can use nodes to represent them) using various tools (e.g. sociogram, matrix and metric). Sociogram represents the relations between nodes and their structure. Edges are used to illustrate the relevant links among nodes (mostly in the form of lines or curves).

The separation of the form and content of the communication (Nadel, 1957) provided opportunity to identify and to compare the structure of the various social groups, and to prepare models of their relations based on mathematical analysis of the networks.

Mitschell clarifies the nature of the relations among persons or groups of people and the nature of such interactions (Mitschell, 1969). It's based on a Barn's approach to the description of the social networks and groups of interpersonal relations. Communication which is involving the transmission and transformation of information among group members, enacting social standards and supporting the achievements of agreements, has been identified as one of the basic constructive elements of the social network analysis.

Another focus is the monitoring of information flows, movement of goods, resources and services within the network (Scott, 2002).

In each relationship a number of parameters can be observed, from which one of the elementary are:

- a) Centrality measure how important is a node inside a network.
- b) Durability expressing resistance of relations of the each individual.
- c) Intensity reflecting the strength of the relationship and the resulting consequences.
- d) Reciprocity describing the relationship in terms of balance, whether there are similar or the same relationships between two persons or if it is a one-sided relationship that is not reciprocated by the other person.

According to these metrics it is possible to describe individual relationships and to draw conclusions. Based on these findings, we are proposing a revision of the usual but insufficient selective processes and compilation of the project teams.

1. Methods, literature overview

Benefits of analysing social and strategic networks inside and outside a company are wildly discussed in (Eckenhof, 2011).

Study (Lin & Tan, 2014) showed among other results that the positive relations between the organizational members' interrelationships and their performance, and that individual with higher centrality in the organization work more efficiently. Cross efficiency and network centrality appear to be lowly correlated.

Study (Carboni & Ehrlich, 2013) shows that individuals close to the core of a team outperformed more peripheral individuals, but only to the extent that teams were high-performing or had been together longer as a team. The article also concludes with a general discussion of the implications for HR (Human Resources) theory and practices targeted at improving individual performance outcomes.

The effect of team structures on software development team performance are affected by core communicators (Licorish & MacDonell, 2013). They work as gatekeepers of their teams' knowledge, and the performance of these members was correlated with their teams' success. Licorish and MacDonell (2014) found that core developers' attitudes and knowledge sharing behaviors were linked to their involvement in actual software development and the demands of their wider project teams. The main result of this research is that developers will probably benefit from easy information flow, better communication, asked questions and challenge of ideas.

The study (Mehra, Smith, Dixon & Robertson, 2006) failed to find support for the idea that the more leadership is distributed across the members of a sales teams the better the

team's performance. Decentralization of the leadership network was not significantly related to superior team performance. But they did find support for the idea that certain kinds of decentralized leadership structures are associated with better team performance than others. The study suggests that distributed leadership structures can differ with regard to important structural characteristics, and these differences can have important implications for team performance.

Yang and Tang (2004) discusses the relationship between team structure and information system development team performance using a social network approach. Based on their empirical evidence collected from 25 teams in a system analysis and design course, they found that group cohesion was positively related to overall performance, also group characteristics, e.g. cohesion and conflict, fluctuated in different phases, but in later stages, much less cohesion occurred and the advice network seemed to be very important. Other result was that group structures seemed to be a critical factor for good performance. On the other hand there are newer studies which confirms that social network topology is a valuable predictor of team performance and confirms that, like so many other social network measures, group cohesion and team performance share an inverse 'U' shaped relationship, not strictly a positive one as previously posited (Wise, 2014).

The important part of overall project performance is knowledge management. In case the project has well managed processes how to keep, store, transform and also find previous information/knowledge then there is better chance that the teams' members don't need to reinvent known solutions. Also to a well-connected team to the rest of the company there is better chance to find solution not inside knowledge management system but just contacting right person and ask about the problem and its known solution.

We can use several approaches to identify and also reach normally unreachable sources information by specialized social networks (Fazel-Zarandi & Fox, 2013) to evaluate people's profiles and also judgment.

2. Research

In July and August 2014 a research took place in an insurance company reseller focused on identification of communication flows in the company, what are the weak and strong sides of the current state and what should be changed. As by-product we used the gathered data, with consent of company management, to analyse IT projects and ways how communication (position of team members inside company's social network), correlate with performance of selected projects.

Main inputs of information used for mapping and analysis the network were e-mails, companies' internal web portal with boards, instant messaging, and document

management system content (information about attendance of meetings etc.), additional information were gathered by interviews with selected employees (9 interviews) focused on how they gather information, how they search for people with required knowledge or experience.

3. Results

Main metrics values of evaluated network are described in Table 1.

TAB. 1: Main metrics of evaluated network

Graph Metric	Value
Vertices	281
Unique Edges	4171
Maximum Degree	163

Source: authors

According to these metrics there are 281 employees in the company (both full-time and part-time), they have 4171 connections in total and person with most connection has direct connection to 163 other employees (these numbers are related to undirected graph and all connections are symmetrical i.e. that communication works both ways). The company has not marginal rate of independent contractors with just a few links with other employees.

The IT team members were interviewed as well as two other employees with high intensity and number of connections. Focus of the interview was mainly what problems of IT project they experienced and how they overcome them. Results of recorded problems are shown in Table 2.

TAB. 2: Main problems of projects in one year (07-2013 to 06-2014)

ID	Problem description	Problem seriousness	Real impact on project	Solution
1	System design is not in user friendly	4	2	Meeting with stakeholders (users of the system)
2	System design fails to easily support one of the most important process in the company	5	4	Meeting with designer, analytics and stakeholders. Change of project plans and functionality (wrong analysis and record of requests from users)
3	Team cooperation with one employee was difficult	5	2	Letting go the team member and hiring new one
4	Technical problem with a server	2	1	Outside of company handled the repairs in 2 days

Source: authors

Scale of seriousness and impact was set as 1 lowest and 5 highest level of threat of complication. Problems of projects evaluated (scored) as 5 were situation when whole

project was considered as problematic and there were escape plans how to stop the project, stop funding and deliver the product by another way or at least another team. Real impact of the problem is evaluation after 6 months since the problem has occurred and when the employees and management were able to look back and express real damage, costs and delays caused by the problem. In case the impact was bigger loss then 1 million Czech crowns (CZK) as additional expenses or delay of the projects' product for more than one month the score will be 5. In case the impact was less significant they evaluated it with lower score. Up to 3 days delay and insignificant expenses (less than 25 000 CZK) are scored as 1.

From the results of the survey and interviews we were able to identify 4 major problems of the project during one year. The least significant was connected with technology and solved in 48 hours (ID 4). Second less important (ID 1), according to evaluation, was connected with user experience and source of early warning was a lunch of a developer with a friend from sales when the developer showed him how the design looks like. From the feedback the changes in the design were triggered and impact of the problem was significantly reduced. Problem with one of the most important processes not included to the new system design was discovered four months before the system should have been launched (ID 2). Last significant problem connected with evaluated project was with attitude and work performance of one of the team members (ID 3). After discussion management decided to let the employee go and hire new one. This solution turn out as right because new employee was able to deliver on time with good code quality and also solved all previous problems.

4. Discussion

On one hand it is obvious, from described situation, that the company has several problems connected with project management, analysis and quality control. On the other hand the problems and consequences were eased by good informal communication between project team members and stakeholders (ID 1) and also with management and leader of the team (ID 3). With proper implementation and higher maturity of the IT project some of the problems shouldn't occur in the future.

Conclusion

The article summarized Social Network Analysis and current research connected with performance of teams, team member's positions inside the network and related benefits.

Analysis performed in 2014 at a company found that major problems caused mainly by immature project environment and problems connected with quality control (the analysis of processes at company) were eased by good connections of the team members with the rest of the company. This connection helped with discovering major

flaws of the developed systems. Without early warning the company could have expected major delay or problems with new system adoption.

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DYNAMIC PARAMETERS OF INTENSITY AND EXTENSITY AS ALTERNATIVE METHODS TO GROWTH ACCOUNTING

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Abstract:

The article introduces so called dynamic parameters of intensity and extensity as alternative methods of growth accounting. The parameters are able to count share of change of total factor productivity or total input factor on GDP change. The essence of parameters is explained on the example counting the share of change price (as intensive factor) and quantity (as extensive factor) on change of total revenue. The value of parameters are then compared with values of growth accounting in situation when it tries to express the share of intensive factors and it is shown that our parameters gives more logic results.

Introduction

Growth accounting has been used for more than 50 years to describe the impact of changes in labour, capital assets and technological progress on the change in GDP. Notwithstanding the long-term usage, the growth accounting equations suffer from certain deficiencies. The paper will thus present a method that can be used as an alternative to growth accounting and we will explain interpretation benefits of this method compared to growth accounting. For illustration purposes we will apply different methods to calculate the impact of change in price and the impact of change in quantity on the change in total income. One method will be based on the growth accounting methodology, the other one is our original contribution.

1. Methods, literature overview

In its primary approach, growth accounting is based on additive weighted aggregation of labour and capital (for more details see Helísek, 2002):

$$Y = MPP_K \cdot K + MPP_L \cdot L \quad (1)$$

where: $Y = \text{GDP}$, MPP_k , MPP_l = marginal product of capital/labour, K and L = quantity of labour

This statement can be adjusted to a relation of growth rates, which forms a basis for the growth accounting equation (so far excluding the technological progress growth rate $G(\text{TFP})$):

$$G(Y) = \alpha \cdot G(L) + (1 - \alpha) \cdot G(K) \quad (2)$$

where $G(Y)$ is grow rate GDP, $G(L)$ is grow rate labor, $G(K)$ is grow rate capital, weights in case of constant revenues are as follows:

$$\alpha = \frac{L \cdot \text{MPP}_L}{Y} \quad (3)$$

$$1 - \alpha = \frac{K \cdot \text{MPP}_K}{Y} \quad (4)$$

Weights in this case fulfil too many tasks. For example, they solve differences in units of measurement and ensure summability of the different factors and the valuations thereof. Statement (2) generates linear isoquants of constant Y , i.e. isoquants intersecting the axes, which represent the quantity of labour and the quantity of capital. On these axes the quantity of a specific input is zero. Because a real economy cannot be functional either with a zero K or a zero L , growth accounting must respond to this fact with additional variable weights for every country and year.

Another problem associated with growth accounting consists in its approximate results, which can be accepted for low growth rates up to 5 % only. This can be proved by deriving the growth accounting method from a multiplicative relation ($I(Y) = I(\text{TFP})$).

$$I(L)^\alpha \cdot I(K)^{(1 - \alpha)}. \quad (5)$$

Taking logarithms of this statement and implementing growth rates we obtain:

$$\ln[G(Y) + 1] = \ln[G(\text{TFP}) + 1] + \alpha \cdot \ln[G(L) + 1] + (1 - \alpha) \cdot \ln[G(K) + 1] \quad (6)$$

For low growth rates up to $\pm 5\%$, the following statement will be valid with sufficient accuracy for any variable A more details on this accuracy see Hájek and Mihola (2009, pp. 741–743)

$$\ln[G(A) + 1] \approx G(A). \quad (7)$$

Using this approximate relation statement (6) can be adjusted to

$$G(Y) = G(\text{TFP}) + \alpha \cdot G(L) + (1 - \alpha) \cdot G(K), \quad (8)$$

i.e. a classical growth accounting equation,. The key resource of the inaccuracy is the fact that growth accounting basically ignores the multiplicative part (i.e. statement

$G(TFP).G(TIF)$) of the accurate relation of GDP growth rates, aggregate factor productivity and aggregate input factor (TIF is aggregate input factor):

$$G(Y)=G(TFP)+G(TIF)+G(TFP).G(TIF). \quad (9)$$

Let us just remind that statement (9) is based on the GDP equation as a product of aggregate factor productivity and aggregate input factor:

$$Y = TFP \cdot TIF. \quad (10)$$

After having dynamised the equation by growth rates we get statement (9). If we want to express the impact ratio of the intensive factors if, we can (as e.g. Baran 2013) divide statement (8) by the product growth rate $G(Y)$. For the impact ratio of the intensive factors we thus get the following statement:

$$i_f = G(TFP)/G(Y) \quad (11)$$

A disadvantage of statement (11), which can be multiplied by 100 to get a percentage value, consists in the fact that applied to all the possible development types the statement does not always produce meaningful values. When expressed as a percentage, statement (20) provides values within an interval from $-\infty$ to $+\infty$. This can be proved in an analogous task, which examines the impact of the change in price (de facto an intensive coefficient analogous to TFP) and the impact of the change in quantity (de facto an extensive coefficient analogous to TIF) on the change in total revenues. If we apply the growth accounting methodology, the impact of the change in price (P) on the change in TR will be, in % :

$$v_{ga}(P) = 100 \cdot G(P)/G(TR) \quad (12)$$

Statement (12) corresponds to the logic of (11). By analogy, the impact of change in quantity (Q') on the change in TR according to the growth accounting methodology will be, in %:

$$v_{ga}(Q) = 100 \cdot G(Q)/G(TR) \quad (13)$$

The “ga” index in (12) and (13) means that the impact calculation is based on the growth accounting methodology. However, the impact of changes in price and quantity on the change in total income can be calculated also by another approach, namely using statements (14) and (15). The impact of the change in price (P) is as follows:

$$v(P) = 100 \cdot \frac{\ln I(P)}{|\ln I(P)| + |\ln I(Q)|} \quad (14)$$

By analogy, the impact of quantity (Q) shall be:

$$v(Q) = 100 \cdot \frac{\ln I(Q)}{|\ln I(P)| + |\ln I(Q)|} \quad (15)$$

Statements (14) and (15) produce more meaningful results. Their values range from minus 100 to plus 100, the sum of absolute values of the statements is always 100. They can be interpreted as statements expressing the percentage, in which growth (in case of a positive value of (14) or (15)) or decrease (in case of a negative value of (14) or (15)) of the price (statement (14)) or the quantity (statement (15)) contribute to the change in total revenues.

A quantification of the impact of the change in TFP and TIF on the change in the output may apply coefficients analogous to coefficients (14) and (15), specifically, the so-called dynamic parameter of intensity and the dynamic parameter of extensity (for more details see Cyhelský, Mihola and Wawrosz 2012; Mihola and Wawrosz, 2014; Kotěšovcová, Mihola and Wawrosz, 2015). The dynamic parameter of intensity calculates the share of a change in intensive factors (TFP) in a change in GDP:

$$i = \frac{\ln I(TFP)}{|\ln I(TFP)| + |\ln I(TIF)|} \quad (16)$$

The dynamic parameter of extensity calculates the same for a change in extensive factors (TIF):

$$e = \frac{\ln I(TIF)}{|\ln I(TFP)| + |\ln I(TIF)|} \quad (17)$$

2. Results

Let us see Table 1, which analyses approaches leading to doubling, stagnation or decrease to one half of the initial revenues. The Table states calculation of the impact of changes in price and quantity on the given change in total revenues both are using statements (12) and (13) and statements (14) and (15).

As it is shown in the table 1 results coincide only for developments depending on the revenues growth, i.e. either the growth of sales revenues is influenced by prices only, $v(P) = 100\%$ and $v(Q) = 0\%$, or the growth of sales revenues is influenced by the sold quantity only, $v(P) = 0\%$ and $v(Q) = 100\%$. Other developments show considerable differences. Statements (12) and (13) do not differentiate growths or decreases at all. For equal factors our statements (14) and (15) produce $v(p) = 50\%$ and $v(Q) = 50\%$, while statements (12) and (13) produce equal positive values $v(P) = 41\%$ and $v(Q) = 41\%$, however, illogically different from 50 %. The situation is similar for identical

TAB. 1: Impact of changes in price and quantity on the change of total revenues

basic development						dynamics			Impact ratios of P and Q'			
initial year			following year			growth rates (%)			Using (12) and (13)		Using (14) and (15)	
Q'0	P0	TR0	Q'1	P1	TR1	G(Q')	G(P)	G(Tr)	v(P)	v(Q')	v(P)	v(Q')
2	2	4	2,83	2,83	8	41%	41%	100%	41%	41%	50%	50%
2	2	4	2	4	8	0%	100%	100%	100%	0%	100%	0%
2	2	4	1	8	8	-50%	300%	100%	300%	-50%	67%	-33%
2	2	4	1	4	4	-50%	100%	0%	$\infty\%$	$\infty\%$	50%	-50%
2	2	4	0,5	2	1	-75%	0%	-75%	0%	100%	0%	-100%
2	2	4	1	1	1	-50%	-50%	-75%	67%	67%	-50%	-50%
2	2	4	2	0,5	1	0%	-75%	-75%	100%	0%	-100%	0%
2	2	4	4	1	4	100%	-50%	0%	$\infty\%$	$\infty\%$	-50%	50%
2	2	4	8	1	8	300%	-50%	100%	-50%	300%	-33%	67%
2	2	4	4	2	8	100%	0%	100%	0%	100%	0%	100%

Source: own calculation

impacts of both factors on the decrease in sales revenues, i.e. for both equal factors our statements (14) and (15) produce logical values $v(P) = -50\%$ and $v(Q) = -50\%$, while statements (12) and (13) produce positive values again, however, $v(P) = 67\%$ and $v(Q') = 67\%$. Considerable differences are shown for partially compensatory increases in sales revenues. If, for example, prices increase from 2 to 8, i.e. by 300 %, for a sold quantity decreasing from 2 to 1, i.e. by -50 %, statements (14) and (15) result in $v(p) = 66\%$ and $v(Q) = -33\%$, while statements (12) and (13) produce values of $v(P) = 300\%$ and $v(Q) = -50\%$ (i.e. values that cannot be interpreted as that 300 % has caused growth and 200 % has caused decrease, which results in 100 = growth of sales revenues). A similar situation is found for an increase in the quantity sold by 300 %, compensated by a decrease in prices to one half. Results for impact ratios according to statements (12) and (13) are totally unacceptable upon a compensatory stagnation of sales revenues. If the growth fully compensates the quantity sold, impact ratios based on statements (14) and (15) are $v(P) = 50\%$ and $v(Q') = -50\%$, while for statements (12) and (13) $v(P) = \infty\%$ and $v(Q) = \infty\%$. Similarly, if a price decrease fully compensates a decrease in the quantity sold, the impact ratios obtained by statements (14) and (15) are $v(p) = -50\%$ a $v(Q) = 50\%$, while statements (12) and (13) again produce $v(P) = \infty\%$ and $v(Q) = \infty\%$.

If we return to the calculation of intensive factors impact ratio based on statement (11) and on the dynamic intensity parameter (statement (16)), we will find significant differences again. We presume that our newly introduced statement (14) obtains more logical values. This is clearly evidenced by Tables 2 and 3. Table 2 calculates both an intensive factor impact based on statement (11) and dynamic parameters of intensity (i) – statement (15) and extensity (e) – statement (16) for situations, where TFP and TIF growth or decrease rates are always equal. These situations may be described as

TAB. 2: Comparisons of values obtained by statement (11) and by the dynamic parameter of intensity and extensity in situations when the change in intensive factors equals the change of extensive factors.

intensive-extensive growth						intensive-extensive decrease					
G(TFP)	G(TIF)	G(Y)	Impact of intensive factors based on (11)	i	e	G(TFP)	G(TIF)	G(Y)	Impact of intensive factors based on (11)	i	e
1%	1%	2%	50%	50%	50%	-1%	-1%	-2%	50%	-50%	-50%
2%	2%	4%	50%	50%	50%	-2%	-2%	-4%	51%	-50%	-50%
3%	3%	6%	49%	50%	50%	-3%	-3%	-6%	51%	-50%	-50%
4%	4%	8%	49%	50%	50%	-4%	-4%	-8%	51%	-50%	-50%
5%	5%	10%	49%	50%	50%	-5%	-5%	-10%	51%	-50%	-50%
6%	6%	12%	49%	50%	50%	-6%	-6%	-12%	52%	-50%	-50%
7%	7%	14%	48%	50%	50%	-7%	-7%	-14%	52%	-50%	-50%
8%	8%	17%	48%	50%	50%	-8%	-8%	-15%	52%	-50%	-50%
9%	9%	19%	48%	50%	50%	-9%	-9%	-17%	52%	-50%	-50%
10%	10%	21%	48%	50%	50%	-10%	-10%	-19%	53%	-50%	-50%
11%	11%	23%	47%	50%	50%	-11%	-11%	-21%	53%	-50%	-50%
12%	12%	25%	47%	50%	50%	-12%	-12%	-23%	53%	-50%	-50%
13%	13%	28%	47%	50%	50%	-13%	-13%	-24%	53%	-50%	-50%
14%	14%	30%	47%	50%	50%	-14%	-14%	-26%	54%	-50%	-50%
15%	15%	32%	47%	50%	50%	-15%	-15%	-28%	54%	-50%	-50%
16%	16%	35%	46%	50%	50%	-16%	-16%	-29%	54%	-50%	-50%
17%	17%	37%	46%	50%	50%	-17%	-17%	-31%	55%	-50%	-50%
18%	18%	39%	46%	50%	50%	-18%	-18%	-33%	55%	-50%	-50%
19%	19%	42%	46%	50%	50%	-19%	-19%	-34%	55%	-50%	-50%
20%	20%	44%	45%	50%	50%	-20%	-20%	-36%	56%	-50%	-50%

Source: own calculation

intensive-extensive growth or intensive-extensive decrease. The dynamic intensity parameter in the given situations reaches consistently the value of 50 % for TFP growth

and -50 % for TFP decrease. The same values are obtained for the dynamic parameter of extensity. These values may be interpreted as that intensive and extensive factors, respectively, contribute to by 50 % to the GDP growth (positive value of parameters i or e), or by 50 % to the GDP decrease (negative value of parameters i or e). However, values obtained by statement (11) differ for the equal rates G(TFP) and G(TIF), therefore they are difficult to interpret.

Table 3 compares impacts of intensive factors according to statement (11) and of dynamic parameters of intensity (i) – statement (15) and extensity (e) – statement (16) for situations when the rate of growth or decrease of TFP is compensated by the rate of growth or decrease of TIF, therefore the resulting product does not change. These situations can be described as an intensive-extensive compensation or extensive-

intensive compensation (the factor with growth impacts is stated first, follows by the decrease factor). Dynamic parameters of intensity or extensity again consistently produce the value of 50 % for growth impacts or -50 % for decrease impacts. However, values based on statement (11) are almost uninterpretable.

TAB. 3: Comparisons of values obtained by statement (11) and by the dynamic parameter of intensity and extensity when the changes in intensive factors and extensive factors mutually compensate

intensive-extensive compensation		extensive-intensive compensation										
G(TFP)	G(TIF)	G(Y)	Impact of intensive factors based on (11)	i	e	G(TFP)	G(TIF)	G(Y)	Impact of intensive factors based on (11)	i	e	
1%	-1%	0 %	-10000%	50%	-50%	-1%	1%	0 %	10000%	-50%	50%	
2%	-2%		-5000%	50%	-50%	-2%	2%		5000%	-50%	50%	
3%	-3%		-3333%	50%	-50%	-3%	3%		3333%	-50%	50%	
4%	-4%		-2500%	50%	-50%	-4%	4%		2500%	-50%	50%	
5%	-5%		-2000%	50%	-50%	-5%	5%		2000%	-50%	50%	
6%	-6%		-1667%	50%	-50%	-6%	6%		1667%	-50%	50%	
7%	-7%		-1429%	50%	-50%	-7%	7%		1429%	-50%	50%	
8%	-8%		-1250%	50%	-50%	-8%	8%		1250%	-50%	50%	
9%	-9%		-1111%	50%	-50%	-9%	9%		1111%	-50%	50%	
10%	-10%		-1000%	50%	-50%	-10%	10%		1000%	-50%	50%	
11%	-11%		-909%	50%	-50%	-11%	11%		909%	-50%	50%	
12%	-12%		-833%	50%	-50%	-12%	12%		833%	-50%	50%	
13%	-13%		-769%	50%	-50%	-13%	13%		769%	-50%	50%	
14%	-14%		-714%	50%	-50%	-14%	14%		714%	-50%	50%	
15%	-15%		-667%	50%	-50%	-15%	15%		667%	-50%	50%	
16%	-16%		-625%	50%	-50%	-16%	16%		625%	-50%	50%	
17%	-17%		-588%	50%	-50%	-17%	17%		588%	-50%	50%	
18%	-18%		-556%	50%	-50%	-18%	18%		556%	-50%	50%	
19%	-19%		-526%	50%	-50%	-19%	19%		526%	-50%	50%	
20%	-20%		-500%	50%	-50%	-20%	20%		500%	-50%	50%	

Source: own calculation

Conclusion

Growth accounting is able to factor a GDP change and determine the share of technological progress and of changes in inputs and outputs in this change (e.g. if GDP increases by 3 % p.a., growth accounting is able to calculate that technological progress has contributed to this change with 1,6 %, change in labour has contributed with 0,6 % and change in capital assets with 0,8 %). However, growth accounting shows problems when calculating impact ratios of qualitative and quantitative factors. Coefficients used by growth accounting do not obtain meaningfully interpretable results. Therefore dynamic parameters of intensity and extensity have been developed to outweigh the

mentioned deficiency. The paper compares these parameters with coefficients applied by growth accounting and the comparison clearly shows advantages of the presented parameters.

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ECONOMIC SUPPORT OF THE DEVELOPMENT OF THE AGRICULTURE IN SLOVAKIA

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Common agricultural policy - European Union – agriculture - development

Abstract:

Common agricultural policy represents the important part of economic policies of the European Union. Within the frame of common agricultural policy the European Union puts the accent on the increase of productivity of agriculture by the technical progress, on food safety, self-sufficiency and on the support of export. In the interest of intensification of the development of the agricultural policy the EU takes various economic measures supporting the development of agricultural production and employment in this area. The scientific study analyses the economic instruments of the development of agriculture in Slovakia with regard to the support of farmers in Slovakia and it points out the effectiveness of introduced economic instruments. In providing the non-refundable economic support several requirements are taken into account, i.e. environment protection, good living conditions for animals and food safety.

Introduction

In 2012 fifty years have passed from the establishment of common agricultural policy of the Member States, which can be described as having three dimensions: market support, income support and rural development. Common Agricultural Policy remains the only policy of the EU with the common European framework and the policy where the majority of the volume of public expenditure does not come from the national or regional budgets, but from the EU budget. It has to be noted that the Common Agricultural Policy represents about 40% of the EU budget. Finally, as a share of the budget, the budget of the CAP has decreased very sharply over the past 30 years, from almost 75% to around 40% (European Commission, 2013). In pursuing the goals of the Union the fact that the agriculture is the area which is closely interconnected with the economy of the Member States of the EU is taken into account, as well as the fact, that it represents the activity performed in the areas with structural and natural differences. European agricultural policy is determined at the EU level by the governments of Member States and operated by the Member States.

1. Methods

In this scientific thesis we have focused on the examining the relationships and factors that have influence over the agricultural policy in Slovakia. In handling the subject matter of this thesis we have focused mainly on the currently applicable legislation of the EU, from the Reports on the granted state aid, as well as from the updated documents regulated the new forms of economic aid for farmers in Slovakia.

2. Results

The aims of Common Agricultural Policy is to increase the productivity of agriculture by supporting the technical progress and ensuring the rational development of the agricultural production and optimal using the production factors, especially the labour force, and thus to ensure fair standard of living of farmers, especially by increasing the individual earnings of persons working in the agricultural sector, to stabilize markets, to ensure the availability of supplies and deliveries to consumers for reasonable prices (article 39 TFEU). The European Union in the interest of pursuing the goals of Common Agricultural Policy through the European Agricultural Guarantee Fund (primarily finances direct payments to farmers and measures to regulate agricultural markets) and the European Agricultural Fund for Rural Development (EAFRD) (co-finances the rural development programs of the Member States) supports the development of agricultural activities, as well as the development of disadvantaged regions in the mountain areas. To this end the EU takes economic measures that are applied by all Member States in order to ensure proper functioning of the EU internal market. The agriculture and fisheries policy is regulated in articles 38 to 44 of the Treaty of the Functioning of the European Union. In addition to the provisions in the primary law this area is also regulated by the large number of legal acts of secondary legislation. The key one is the Regulation (EU) No 1306/2013 of the European Parliament and of the Council of 17 December 2013 on the financing, management and monitoring of the common agricultural policy and repealing Council Regulations (EEC) No 352/78, (EC) No 165/94, (EC) No 2799/98, (EC) No 814/2000, (EC) No 1290/2005 and (EC) No 485/2008 (OJ EU L 347, 20.12.2013, p. 549–607).

The provision of non-repayable financial contributions is realized in accordance with the Union rules, including the rules on state aid. However, the applicants for aid have to respect the necessary requirement within the framework of their economic activities, namely that they farm the land and that they fulfill the criteria of compliance with the environment protection, good living conditions of animals and food security. General conditions of providing the state aid are regulated in the Treaty on the functioning of the European Union (TFEU). Article 107(1) TFEU defines State aid as any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favoring certain undertakings or the production of certain goods in so far as it affects trade between Member States. An entity, which is

granted the state aid at the same time, obtains the advantage. The state aid within the meaning of Article 107(1) of the TFEU is, in principle, prohibited (OJ EU C 83, 30.3.2010). The EU policy in respect of State aids seeks to ensure a well-functioning internal market.

In principle it is the financial means from the public budgets of public authorities that are granted to financial entities. The provisions of article 107(2) and 107(3) TFEU stipulate the exemptions from the provision of state aid under special circumstances, i.e. there are certain cases where the state aid cannot be considered as being in accordance with the internal market. The application of the general State aid rules (Articles 107 to 109 TFEU) to the agricultural sector is limited by Article 42 TFEU. In principle granting aid for the protection of enterprises handicapped by structural or natural conditions within the framework of economic development programs is regulated by the EU primary law (OJ EU L C 83, 30.3.2010).

State aid rules in the agricultural sector are based on three different principles (European Commission, 2015):

- a) They follow the general principles of the EU competition policy,
- b) They have to be coherent and consistent with the EU's common agricultural and rural development policies,
- c) The new rules take into account the EU's international commitments.

In addition to EU primary law the Common Agricultural Policy is also regulated by the Commission Regulation (EU) No 702/2014 of 25 June 2014 declaring certain categories of aid in the agricultural and forestry sectors and in rural areas compatible with the internal market in application of articles 107 and 108 of the Treaty on the Functioning of the European Union (OJ EU L 193, 1.7. 2014).

According to this regulation the non-repayable financial means can be granted for the following categories of aid:

- a) Aid in favor of SMEs active in primary agricultural production, the processing of agricultural products and the marketing of agricultural products
- b) Aid for investments in favor of conservation of cultural and natural heritage located on agricultural holdings
- c) Aid for research and development in the agricultural and forestry sectors
- d) Aid for afforestation and the creation of woodland
- e) Aids in favor of SMEs in Rural Areas co-financed by the EAFRD or granted as additional national financing to such co-financed measures.

In addition to this regulation, the Council Regulation (EU) No 733/2013 of July 22, 2013 amending Regulation (EC) No 994/98 on the application of Articles 92 and 93 of the Treaty establishing the European Community to certain categories of horizontal State aid also regulates the new categories of aid in the field of agriculture and forestry,

i.e. the aid aimed at protecting cultural heritage, at recovering damages caused by natural disasters and the aid in favor of forestry. These kinds of aid can be under certain circumstances exempted from the notification requirement under the Article 108(3) TFEU (OJ EU L 204, 31.7. 2013). Among exemptions from the general notification requirement ranks the individual aid granted on the basis of valid and effective schemes of minimum aid. Such form of aid is granted most frequently in Slovakia. In these cases it is possible to provide aid without its prior notification to the European Commission, however, all requirements stipulated by the Law on State Aid and respective legislation of the European Union have to be complied with.

As Nováčková (2012) proved, “in the interests of the support of small and medium-sized entrepreneurship development according to the valid EU legislation, the aid *de minimis* is provided in Slovakia by means of indirect aid from the Structural Funds and from the funds from the state budget. This form of aid is focused on regional development, on the help of small and medium-sized entrepreneurship, as well as on the support of the participation of Slovak producers at the exhibitions in foreign countries and on Slovak industry promotion in foreign countries.”

2.1. Providing of state aid in the field of agriculture

One of the obligations of the Member States is to submit regular reports on granted state aid for the respective calendar year. Ministry of Finance of the Slovak Republic is responsible for the coordination of state aid policy in Slovakia. It handles the reports on the basis of information and materials submitted by other state authorities. The content of the reports is reflected by the fields of economy, where the state aid from public sources is granted, i.e. direct or indirect form of state aid. Reports include factual information about the granted state aid and they include main tendencies in providing the state aid. We have focused our investigation on state aid according to the schemes of aid in the field of agriculture (2010-2014). Aid scheme means any act on the basis of which, without further implementing measures being required, individual aid awards may be made to undertakings defined within the act in a general and abstract manner and any act on the basis of which aid which is not linked to a specific project may be granted to one or several undertakings for an indefinite period of time and for an indefinite amount (OJ EU L 193, 1.7. 2014).

TAB. 1: Granted state aid according to schemes

Period	Amount of granted aid	Number of recipients of aid
2011	27,74 mil. EUR	522
2012	28,58 mil. EUR	4 373
2013	25,75 mil. EUR	5060
2014	13,40 mil. EUR	3771

Source: Ministry of Finance of the Slovak Republic: Report on state aid 2012, 2013, 2014, 2015

State aid was granted in the form of grants for following purposes:

- a) to ensure the participation of farmers and growers at exhibitions,
- b) to establish and run studbook and breed evidence
- c) to support agricultural primary production
- d) to achieve and maintain ecologic stability, favorable environment and to remove the consequences of disasters, etc.

Given factors show that the development of agricultural policy is supported from the non-repayable financial means on the basis of state aid schemes having the clearly defined purpose.

Ministry of Agriculture and Rural Development of the Slovak Republic through the state aid schemas granted following volumes of state aid in the period of years 2011 - 2014. Certain amount of financial means was granted from the financial means of the European Union. In this connection we would like to point out the significant fact, that the economic effects of the aid are not changed following the fact whether the aid is partially financed from the EU funds or exclusively from the financial means of the Member States. Member States should contribute to the more effective use of public finances and apply principles of equal treatment and effective monitoring.

TAB. 2: State aid granted by the Ministry of Agriculture and Rural Development

Period	Amount of granted aid	Number of entitled recipients of state aid	Regions with the highest proportion of state aid
2011	40,74 mil. EUR 27,42 mil. EUR was granted from the EU funds	560	Žilina, Nitra and Trnava region
2012	60,05 mil. EUR 39,47 mil. EUR was granted from the EU funds	4 520	Banská Bystrica, Žilina and Prešov region
2013	46,20 mil. EUR 22,98 mil. EUR was granted from the EU funds	5 244	Banská Bystrica, Prešov and Nitra region
2014	89,36 mil. EUR 70,57 mil. EUR was granted from the EU funds	3 968	Prešov, Banská Bystrica and Košice region

Source: Ministry of Finance of the Slovak Republic: Report on state aid 2012, 2013, 2015; Government office of the Slovak Republic: Report on state aid granted by the SR 2015.

State aid was granted for following purposes:

- a) training and advice for foresters, including the training how to develop projects for the expert forestry,
- b) participation of farmers and growers at exhibitions,
- c) employment of disadvantaged or largely disadvantaged workers,
- d) support of agricultural primary production (grants for payment of part of excise duty from mineral oils),
- e) presentation of products of agricultural production in exhibitions.
- f) In general it is possible to state, that the granting of state aid in the field of agriculture and rural development in Slovakia in the year 2014 was mainly focused on:
 - g) co-financing of projects of rural development programme,
 - h) increasing of competitiveness of agricultural primary production,
 - i) reduction of unemployment through the employment of disadvantaged or largely disadvantaged workers in the agricultural primary production,
 - j) diversification of activities in rural areas by promoting non-agricultural activities,
 - k) increasing of employment in rural areas,
 - l) support of research, development and innovations.

The effectiveness of granted aid is reflected in the reduction of unemployment, through the employment of disadvantaged persons or of unemployed persons registered in the employment agencies in the agricultural primary production, in creating the subcontracting relations and in strengthening the competitiveness of agricultural production. The state aid granted in the field of livestock in 2014 helped to support the breeding of livestock and purposeful reproduction of livestock through the control of utility, testing of livestock and breeding. Within the framework of co-financing of project of rural development program also projects aimed at regional development within the framework of program LEADER were granted aid. The increase of number of involved entities creates the favorable conditions for the future development of microregions. The effectiveness of granted financial means for these measures can only be examined in the long term.

2.2 New economic measures aimed at development of agricultural policy

Measures aimed at support of young and small farmers have been introduced in Slovakia by approving the Program of Rural Development 2014-2020. These measures have the potential to bring recovery for the Slovak agriculture. The Slovak Government at its session on November 26, 2014 discussed and approved the Strategy for the Support of Small, Young and Family Farmers and approved the procedures applicable for granting aid (Government Office of the Slovak Republic, 2014). The aid can be granted to start making entrepreneurial activities in agriculture, i.e. to establish a

business activity and to ensure basic equipment and to realize entrepreneurial activities. The amount of such financial assistance can reach maximum 40 000 EUR.

Unemployment is a macroeconomic problem and at present it is considered to be one of the most serious problems of the economic and social policy of Slovakia. The unemployment as the accompanying phenomenon resulted from the decreased performance of economy at the beginning of the year 1989 a persists up to now. Regional polarization is also significant at present (Stoličná, 2012).

In agriculture it is necessary to create 'flexible firm' in which organizations combine a mix of numerical flexibility: the seasonal work, contracting workers, as well as the flexible remuneration which are an answer to changing market circumstances (Bajžíková, Šajgalíková & Wojčák, 2011).

State aid can be granted for the support of employment, within the framework of the Scheme of State Aid for the Support of Employment of Disabled or Largely Disabled Persons it is possible to grant aid to the agricultural primary producer, i.e. livestock breeder or cultivator of agricultural plants, who is performing his/her activities and is domiciled in Slovakia.

The support of training and employment of disabled and handicapped persons represents the primary goal of economic and social policies of the Union and its Member States. The main measurable indicator to evaluate the effectiveness of granted non-payable aid is the number of actually created new jobs. Creating the new jobs has the impacts on the reduction of volume of paid unemployment allowances, social security and employment assurance payments, payments of health insurance, imposing taxes on natural persons as well as on the increase of standard of living of the population.

Aid to support the employment can be provided under certain requirements, i.e. aid can be granted to company or economic entity which employs person who:

- a) during previous six months did not have regularly paid job; or is of the age of 15 to 24 years,
- b) did not acquire secondary or skilled education or a person who finished the compulsory school attendance less than two years ago and who did not get his/her first regular paid employment yet,
- c) is older than 50 years of age or lives alone with one or more dependent persons.

The granted aid covers costs of salaries up to the 50 % including the contributions to social and health insurance, for the period of maximum 12 months in case of disabled person and 24 months in case of largely disabled person.

In the interest of the development of agricultural businesses and entrepreneurial activities can the entities, which are aiming their activities at agricultural production, be

granted the non-repayable financial means for the implementation of their business plans. The applicant has to prove the adequate skills and abilities (minimum secondary education in the field of agriculture or food industry or minimum 2 years or praxis in the agriculture and the completion of accredited consultancy course (program) aimed at doing business in agriculture. At the same time the entitled business entity can be granted non-repayable financial means for the development of his/her business activities to cover costs connected with the realization of his/her business plan in the field of livestock production and specialized plant production. Particular attention is devoted for example to projects which would in their business plan indicate the aim to increase the proportion of agricultural production at the market as well as the plan to involve non-used farms.

The decision of the EU to support an agriculture sector has been essential and it is supported also by the fact that not many SMEs focused on farming applied for or were recipients of the capital allocated via bank loans e.g. “CSOB distributed in Slovakia to SMEs, EU loans in the following sectors: 35 % of loans into retail and wholesale business, 21% of loan for service business, 17% - construction business, 6% - steel and metal production, 4% -hotel and restaurant services and catering, 13% production of wooden furniture” (Saxunová, 2015).

In general the support for developing the business friendly environment is inevitable. Even in the sector of agriculture the crucial role plays small and medium sized enterprises (SMEs). SMEs play a key role for the Slovak economy. They constitute of more than 99% of the total number of businesses. They are a crucial employer within the whole economy (Mrva & Stachová, 2013).

Conclusion

The goal of measures aiming at granting non-repayable financial means is to remedy the market failures and to address problems related to the cohesion in various areas with the aim to support the development of agricultural production, sustainable development and employment. In principle the aid granted in the field of agriculture should serve the common interest, it should have the clear incentive effect, it should be appropriate and adequate, and it should not have the adverse effects on the trading conditions to an extent contrary to the common interests of the EU. State aid performance is highly dependent on the cooperation of the Member States. Therefore, the Member States should take all necessary measures to ensure compliance with EU law and in order to provide for legal certainty. Granted non-repayable aid respects common principles that ensure that the aid serves the purpose of common interest, has a clear incentive effect, is appropriate and proportionate, and is fully transparent. Policy must therefore be set at the European level to ensure fair conditions for everyone.

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SOUTH ASIAN COUNTRIES ON THE WORLD SUGAR MARKET

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Abstract:

The article makes an attempt at identifying, describing, and assessing the key drivers of sugar production and their future prospects for the countries representing the region: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. This is achieved by contrasting sugar production (response variable) with a number of predictor variables using simple linear and stepwise multiple regression method and data series for the period 1961-2013 (for most variables). The analysis shows that in majority of examined countries sugar production is determined by the production of sugar cane, sugar consumption, and country's population, each of them generally explaining about 90 per cent of variation in the response variable.

Introduction

Sugar cane is especially important in South Asia, being relatively cheap source of calories, as well as part of ostensibly limited food basket, typically consisting of rice, wheat, potato, and insufficient quantities of meat and fish (Joshi et al., 2007). At the same time, the region being composed of some of the most densely populated countries in the world, with forecasted population growth putting more and more pressure on already stretched agricultural sectors and economies, demands that the most important drivers of sugar production be identified and properly explained. The paper thus delves into decades of data of countries representing the region and makes an attempt at revealing and explaining those drivers while offering advice on achieving a more efficient and balanced sugar production and cane growing.

1. Methods, literature overview

Sugar production was first industrialized in Asia with arrival of European colonial powers in the early nineteenth century. The crop was not a novelty as its production was deeply embedded in a number of major, rural Asian economies which knew sugar for thousands of years and today host some of the world's largest producers (Bosma, 2013). India did not indulge in sugar production until 1923, with less than 30 plants at the time (FAO, 1997), yet it managed to quickly expand its production to 1 million tonne level in

only 12 years. Since the country was not affected by the World War II, sugar production continued to grow and reached 3 million tonnes by 1963, and then 20 million in 2000 (Sergey et al., 2004). Simultaneously, its per capita consumption was also on the rise, from around 5 kg during the 1960s to almost 21 kg in 2013. Historical consumption levels are much similar for Afghanistan, Pakistan, and Sri Lanka although they are a bit higher today, with exception of Afghanistan (8 kg, 26 kg, and 27 kg, respectively). On the other end of the spectrum, Bangladesh and Nepal remain sugar-abstainers with consumption levels during the 1960s below 2 kg per capita, and today hovering around the 5 kg mark. In spite of its impressive growth Indian sugar industry still processes about a fifth (22%) of its cane into traditional sugar, gur and khandsari (USDA, 2014). This sugar, consumed primarily by rural population, is considered an inefficient use of sugar cane with its current 6-7% sugar recovery rate (percentage of sugar obtained from sugar cane) (FAO, 1997). The situation has substantially improved since the 1990s when traditional sugar accounted for nearly a third of all sugar produced, and especially since the 1970s when about half of all cane went into production of gur and khandsari (Sergey et al., 2004). Another issue with tradition sugar is the lack of taxation and relatively loose regulation of it, which gives it an upper hand in the overall sugar market. In contrast, modern sugar industry regulation goes beyond the quantities to be produced every year, and throughout decades covered how much of it is producer allowed to sell, the distance between the mills, the specific region from which a particular mill can procure cane, and the price it has to pay for it (Reddy, 2011). Now Indian states are buying sugar at market rates and selling it at subsidized prices, with the federal government reimbursing the states for the cost (approximately \$1 billion a year). This in turn allowed cane mills to achieve better profits and settle their payments arrears with cane growers (PRS Legislative Research, 2012; Roy and Biman, 2013). This may be observed in the periodic production expansions (2007) and contractions (2004, 2005, and 2009) in India, for example, typically leading to market distortions and readjustments in acreage and again in prices in the following years. Similar phenomenon can be also seen in Pakistan. The article acknowledges a number of limitations which may impair study's accuracy, including: (1) data availability for certain countries (Bhutan and Maldives in particular), (2) inability to account for all drivers, such as various cane development programs, fluctuations in prices of gur and khandsari, and weather conditions as a key short-term driver (Gudoshnikov et al., 2004), (3) the fact that sugar production depends not only on area under sugar cane but also on how much of it is in its first year of growth (Svatos et al., 2013), (4) reliability of linear regression and its output, and (5) inclusion of only the most important aspects of statistical output (N, Pearson correlation, Adjusted R square, ANOVA F, Beta, and 95.0% confidence interval for Beta).

South Asian Association for Regional Cooperation (SAARC) and the World Bank, both list Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka as a group of South Asian countries (WB, 2015a; WB, 2015b; SAARC, 2015). The

article uses the aforementioned list and does not account for other potential candidates on the grounds that India and Pakistan alone account for roughly 99% of all sugar production and 95% of all sugar consumption within the region. The analyses relies on 12 unique indicators, six of which are also measured with a delay of one production cycle (one calendar year), for a total of 18 predictor variables. They have been selected out of approximately 45 plausible indicators available through FAO and the World Bank databases, on the basis of data availability, prior literature review of cane growing and sugar production systems within the region, and the common sense of using them. Shortlisted indicators were then subjected to linear regression in order to identify any significant predictors and their correlation with the response variable, resulting in 12 currently used indicators. For readability purposes, only variables which are statistically significant (Pearson correlation, ANOVA, and Beta significance levels all at <0.05 level) are reported in the results section. Furthermore, only variables with Adjusted R square value of at least 0.2 are showed as majority of remaining indicators have values substantially below this level and as such are insignificant predictors. The Yield indicator is excluded as well due to inconclusive results for virtually all of the countries, even though it is significant predictor and has the Adjusted R square value >0.2 . Delayed variables are reported instead of their original versions if they prove to be better predictors. Results obtained through simple linear regression are presented first, covering each independent variable for each of the sugar-producing countries. Linear regression relies on the historical relationship between the predictor and response variables to describe the linear dependence of one variable on another and predict the future values of the response variable, assuming that relationships between variables are straight-line relationships (Yan and Su, 2009). A smaller set of four indicators, thought to be the most significant predictors of sugar production, is then used to conduct the stepwise multiple regression analysis, results of which are laid down next. Stepwise regression is a semi-automated process of creating a model by successively adding or removing variables, based only on t-statistics of their estimated coefficients, and is generally considered a superior option to standard multiple regression. In this case, Durbin-Watson statistic and VIF values are added to assure that assumption for this method are followed. For this method, Cane production, for example, is used as it is a function of Area harvested and Yield indicators. Similarly, Country consumption is a reflection of Country population indicator as South Asian countries consume virtually all domestically produced sugar. Stock variation, as the third variable, shows whether particular country has increased or decreased its stocks and as such can influence whether more or less sugar is produced in the following year. Country population indicator (although already represented by Country consumption) is included as some of the countries tend not to process all of their sugar crops but rather use them in alternative ways. Simple log linear results for India and Pakistan are included as well, normalizing the residuals and linearizing any non-linearity. The method expresses relationships between variables in percentage form (for easier results interpretation). Demand forecast for the entire region is presented using two scenarios: Scenario

A, which takes into account projected population growth until 2050 and assumes unchanged sugar consumption level as of 2013, and Scenario B, which takes the extrapolated values of sugar consumption per capita and multiplies the figures with projected population until 2050.

2. Results and Discussion

Similarly to Afghanistan, only two predictor variables for Bangladesh were significant enough to be included, both with relatively low Adjusted R square values although without unusual negative correlation. Most intriguing in this case is the low predicted increase in sugar production with every additional hectare (less than 2 tonnes) and each additional tonne of sugar cane (less than 30 kg). These predictions are not as unusual once the historical levels of less than 1 tonne of sugar per hectare of sugar cane and 2.3% sugar recovery rate are considered (period 2004-2013), pointing out to production inefficiencies as well as alternative uses of sugar cane. India as South Asia's largest sugar producer shows almost perfect correlation for a majority of tested predictor variables, most of which explain 80% of variation or more. Unlike Bangladesh, this country processes almost all of its sugar cane into sugar and also achieves a much better yield (5 tonnes per hectare) than Bangladesh. When this figure is compared to Beta value of the Area harvested (9.21), it reveals just how off the prediction is from reality. Same may be said of Cane production, although to a lesser degree (9.7% sugar recovery rate compared to a 10-year 7.5% mark). Sugar trade balance reveals another confusing result as it predicts a 3.3 tonne increase for every one tonne change in trade balance. Country consumption indicator, on the other hand, predicts a 1.5% increase in production over previous year's consumed amount and also a 31 kg rise for every additional person (Country population indicator). Furthermore, GDP indicator shows a 12 tonne increase in sugar production with every \$1 million rise in country's GDP, while GDP per capita predicts a 16 thousand tonne increase with every \$1 dollar rise. Similarly, World production and Consumption indicators both predict a rise in sugar production in a 0.21-0.26 tonne range for every one tonne increase, while Raw sugar price predicts a questionable 700,000 tonne increase with every 1 US cent rise in the world sugar price (uncertainty of which may be seen in the 284,000-1,103,000 confidence interval for B). In case of Nepal, a country with low sugar recovery rate and cane yield, only two tonnes of sugar for every additional hectare of sugar cane (Area harvested) and 4.3% sugar recovery rate (Cane production), are not unusual predictions. Predicted one tonne increase with every tonne consumed (Country consumption indicator) seems plausible as well, just like the expected increase in population by one person leading to 7 kg higher production. Sugar trade balance indicator, on the other hand, predicts a decline in sugar production by almost a tonne for every one tonne increase. GDP predicts a 7 tonne increase in sugar production with every \$1 million rise in country's gross domestic product, while GDP per capita shows a rise in sugar production by 216 tonnes for every \$1 increase. World production and Consumption

affect country's sugar production only marginally, with every tonne increase in either of them predicted to lead to only 1 kg rise in Nepal's sugar production. Cane production explains the variability in sugar production in Pakistan the best, however, the predicted increase of 108 kg of sugar for every additional tonne of sugar cane is, just like in the case of India, unrealistic considering historical average of just 75 kg. Same applies to Area harvested with its 6.7 tonne prediction, when in fact a ten-year average shows only 3.9 tonnes. On the other hand, Country consumption predicts fairly well that every additional tonne consumed leads to roughly the same amount of sugar being produced, while according to Country population indicator, each additional person leads to an estimated 34 kg increase. GDP indicator predicts a rather high increase in production of about 22 tonnes with every \$1 million rise, while GDP per capita suggest a 4,500 tonnes increase with every \$1 move. World production and Consumption are both predicted to contribute only marginally (4.2-5.3%) to sugar production, with Raw sugar price predicted to increase production by 100,000 tonnes with every 1 US cent rise in the world sugar price. Sri Lanka shows predictions for Area harvested and Cane production much similar to its historical figures. Increase in sugar consumption is not predicted to lead to sufficient sugar production, which is valid considering that over 90% of sugar is imported. It is interesting to note though the unusually low Country population prediction of only 5 kg increase with every new person born, especially considering that Sri Lanka has the highest per capita sugar consumption in the group. Sugar trade balance, like in the case of Nepal, predicts a decline in sugar production by 60 kg with every one tonne increase. World production and Consumption again have only marginal effect on sugar production in Sri Lanka (less than 1 kg per tonne of world sugar produced/consumed). Log linear results highlight the inflated predictions and potential flaws in the method. Area harvested, for example, predicts a 3% increase in sugar production for both countries with every 1% rise in area under cane. Same is valid for Cane production with its 1.9-2.6% predictions and Yield indicator which was not even included due to its erroneous results. Another one is the Raw sugar price, generally predicting that should the world market price of sugar double, the production of sugar in India and Pakistan would increase by 41% and 34%, respectively. Such distorted increases are physically improbable and as such can only be explained by the extreme volatility in sugar production within these countries (up to 40%). Country consumption, on the other hand, predicts as expected that every 1% increase in sugar consumption would be followed by approximately the same rise in production. GDP and GDP per capita predict 0.6-0.8% increase, and just like the Country population indicator with its 2.4% estimate, point out to the growing per capita sugar consumption within the region. The same may be said of World production and Consumption indicators, predicting double and triple increases compared to world benchmarks. Stepwise multiple regression analysis shows no surprise as for four out of six countries Cane production was the single most important indicator, explaining well above 80% of variation in the response variable. The model included Country population indicator for the remaining two countries (Afghanistan and Bangladesh), explaining only around 40% of variation

in each case. Predicted increases in sugar production for every additional tonne of sugar cane remain more or less unchanged, compared to simple linear regression output. It nevertheless remains true, and has to be kept in mind at all times, that population is the sole driver of sugar production, which is reflected in sugar consumption, and consequently cane production. Under scenario A, the region would have to increase production by roughly 32%, or by a whopping 113% under scenario B. This translates to roughly 46% needed increase in land area under cane for the first, and 136% for the second scenario. Whether the region is able to afford to allocate that much more land over the next four decades or will have to revert to importing the needed sugar is yet to be seen.

Conclusion

Analysis showed that within most of the examined countries sugar production is determined by the production of sugar cane, sugar consumption, and country's population, each of which generally explains around 90% of variation in the response variable. Country's population remains the single most important determinant, as overwhelming portion of cane is processed and used for human consumption. Reported anomalies within the results, concerning indicators such as Area harvested, Cane production, and Yield, can be explained by high volatility in sugar production and rapid growth of sugar industry within the region. Sugar demand is bound to continue its upward trend but the question is whether South Asian nations will emerge as countries self-sufficient in sugar or import-dependent in the coming decades.

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REAL EXCHANGE RATES, CURRENT ACCOUNTS AND COMPETITIVENESS ISSUES IN PIGS COUNTRIES

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JEL classification: C32, F32, F41

Abstract:

Asynchronous current account trends between North and South of the Euro Area were accompanied by significant appreciations of real exchange rate in the periphery economies originating in the strong asymmetric shifts in consumer prices and unit labor costs. As a result, the issue is whether the real exchange rate is a significant driver of persisting current account imbalances in the Euro Area. From estimated VAR model we calculate responses of the current account to the real exchange rate (CPI and ULC based) shock. Our results revealed differences in response patterns of current accounts to the unexpected real exchange rate shocks between selected periphery and core Euro Area member countries.

Introduction

Euro Area member countries are still suffering from negative effects of the crisis period. Increasing economic imbalances have become obvious in the Euro Area since the start of the monetary union. Differentials in productivity, inflation and unit labour costs were indeed very persistent (Comunale and Hessel, 2014). Economic and debt crisis highlighted their existence and inappropriate economic policy mix has even intensified their negative implications. Economic imbalances are obvious not only among different countries (e.g. rising disparities between core and periphery) but also within particular member countries of the Euro Area (Gruber and Kamin, 2005). In addition, we can observe clear contagion effect among the European Union member countries. Disturbances and distortions are fairly transmitted on both intra-country and cross-country levels (Berger and Nitsch, 2010).

Exposure of countries to negative implications of exchange rate volatility (Stavárek, 2011) represents one of areas of empirical investigations related to the fixed versus flexible exchange rate dilemma (Calvo and Reinhart, 2002). Analysis of various aspects of exchange rate shift and its influence on macroeconomic performance provides

information on cross-country expenditure shifting/switching effects. The lack of nominal exchange rate flexibility in the monetary union induces the growing divergence of trade performance among the member countries with different income levels per capita (Chen, Milesi-Ferretti and Tressel, 2012). Fixed nominal exchange rate triggers real exchange rate adjustments through relative price and unit labor costs levels alone, which can be difficult in the presence of rigidities in national goods and services markets (Berger and Nitsch, 2010).

Investigation of relative changes in real exchange rates and associated adjustments in current accounts reveals causal relationship between real exchange rate and international competitiveness (Rusek, 2013). Shifts in competitiveness associated with real exchange rate movements correspond to changes in relative prices and unit labor costs. Real exchange rate appreciation makes domestic goods less competitive because their prices increase more than foreign prices. As a result, real exchange rate appreciation and subsequent decrease in foreign competitiveness of domestic goods on foreign as well as domestic markets shifts expenditures from domestic goods to goods produced abroad (Mirdala, 2013a). Negative effect of the real exchange rate appreciation on the current account is significantly determined not only by a shift in demand preferences but also by the ability of domestic economy to shift unused production capacities to more perspective areas with high growth perspectives (Chinn, 2005).

The establishment of the Euro Area and introduction of the euro represent a crucial milestone in the ongoing discussions highlighting positive and negative implications of the nominal exchange rate inflexibility (Bayoumi, Harmsen and Turunen, 2011). Although the contemporary evidence on empirical validity of causal relationship between the real exchange rate and the current account seems to be limited (Arghyrou and Chortareas, 2008), we emphasize challenges addressed to the phenomenon of internal devaluation (Armington and Baccaro, 2012) and wide range of its direct and indirect effects in the Euro Area member countries.

While internal devaluation in countries with nominal exchange rate anchor may improve price competitiveness and boost both internal and external demand, risk of deflationary pressures substantially reduce vital growth incentives (Hetzel, 2015). Moreover, ECB by inflating its monetary base fueled by another wave of quantitative easing does not primarily follow idea of economic recovery (Christensen and Gillan, 2015). Low interest rate environment may be followed by euro depreciation improving competitiveness of European producers on the foreign markets. However, as the most of transactions on the EU single market are conducted in euro among its member countries, Euro Area seeks common reasonable automatic mechanisms that would help to improve its internal competitiveness (Peersman, 2011).

Economic crisis intensified demand driven redistributive effects that induced diverse and spurious effects on current account adjustments. While current accounts temporarily deteriorated (with quite different intensity in each particular economy) at the beginning of the crisis period (Kang and Shambaugh, 2013), at the later stages we have observed a positive trend (either improvement or stable outlook) in almost all Euro area member countries reflecting intensified redistributive effects of the crisis on the cross-country expenditure shifting (Gaulier and Vicard, 2012). However, existing nexus between surpluses in the core with deficits in the periphery addresses issues in both trade and financial linkages (Hobza and Zeugner, 2014). While current accounts between North and South of the Euro Area do not necessarily have to be balanced, existence of large and persisting bilateral current account imbalances may induce policy tensions or rigidities (Berger and Nitsch, 2012). Euro area is in a vicious circle and economic policy of European Union faces a real challenge.

Intra-Eurozone current account imbalances among countries with different income levels per capita fuel discussions on competitiveness channels under common currency (Belke and Dreger, 2011). Disinflation followed by deflationary pressures induced shifts in competitiveness associated with real exchange rate adjustments through relative price levels. While external imbalances in countries on the periphery of the Euro Area were mainly driven by domestic demand boom fueled by increasing financial integration (Chen, Milesi-Ferretti and Tressel, 2012), the role of changes in the competitiveness of the Euro Area core countries may be disputable. As a result, limited effectiveness of internal devaluation in reducing current account imbalances in the Euro Area could be expected (Sanchez and Varoudakis, 2013). However, asynchronous current account trends between North and South of the Euro Area were accompanied by significant appreciations of real exchange rate in the periphery economies originating in the strong shifts in consumer prices and unit labor costs in these countries relative to the countries of the Euro Area core (Holinski, Kool and Muysken, 2012). As a result, the issue is whether the real exchange rate is a significant driver of persisting current account imbalances in the Euro Area (Lane and Milesi-Ferretti, 2002).

In the paper we examine competitiveness issues associated with current account development in PIGS countries. Our main objective is to examine effects of the unexpected shifts in real effective exchange rates (REER) and associated current account adjustments in the selected core and periphery countries of the Euro Area. We employ VAR methodology to analyze responsiveness of current account to the real exchange rate (REER calculated on CPI and ULC base) shock. Possible implications of the crisis period will be considered by the comparison of estimated results for two models estimated for each individual country for two subsequent periods 2000-2007 (pre-crisis period) and 2000-2014 (extended period). In both models for each country we alternate both CPI and ULC based REER. We suggest that a comparison of the results for models with different time period is crucial to understand redistributive

effects and competitiveness issues associated with real exchange rates shifts induced by different dynamics in the consumer prices and unit labor costs movements between the core and periphery of the Euro Area.

Following the introduction, we provide brief overview of the literature examining the problem of external intra-Eurozone imbalances in the Euro area member countries in Section 2. While the recent empirical literature provides lot of evidence about the effects of real exchange rates shifts on current accounts, conclusion are quite different according to the relative importance of changes in competitiveness and its role in triggering intra-Eurozone current account imbalances. In Section 3 we provide a brief overview of the VAR model (recursive Cholesky decomposition is employed to identify structural shocks) that was employed to examine responsiveness of current accounts to the positive one standard deviation real exchange rates shocks in the selected Euro Area member countries. In Section 4 we discuss the main results.

1. Overview of the Literature

Bussiere, Fratzscher and Muller (2004) analyzed the current account determination in 33 countries employing an intertemporal approach via regression analysis considering effects of fiscal stance of government as well as real exchange rate deviations. Authors suggest that current account balances of countries included in the model are close to their structural current account positions confirming a validity of the intertemporal approach. Arghyrou and Chortareas (2008) investigated dynamics of current account adjustments and the role of real exchange rates in the current account determination in the EMU. Despite a limited evidence of most theoretical models in explaining causal relationship between real exchange rates and the current account, authors confirmed above relationship with significant validity and subject to non-linear effects. Lee a Chinn (Lee a Chinn, 2006) analyzed implications of real exchange rate fluctuations on the current account development in 7 most developed industrial countries. Authors suggest that while the variation in the current account is mostly determined by temporary shocks, permanent shocks seem to be much more crucial in explaining the variation in the real exchange rate. At the same time, their results confirmed validity of the intertemporal opened economy model. Sek a Chuah (Sek a Chuah, 2011) explored causality between the exchange rate changes and the current account adjustments in 6 Asian countries. Authors surprisingly conclude that the current account did not change much expected after the crisis. They suggest it is due to adjustments that authorities made in countries' financial policies to reduce the excessive exchange rates volatility. Obstfeld a Rogoff (Obstfeld a Rogoff, 2005) focused their investigation on estimation of effects of global current account imbalances reduction on exchange rates (USD, EUR and Asian currencies) equilibrium path in the model with alternative scenarios. Gruber and Kamin (2005) estimated panel regression models employing data for 61 countries to observe the current account determination. However, their results did not provide supportive evidence for large U.S. deficits nor large Asian surpluses.

2. Econometric Model

We employ a VAR methodology to analyze effects of real exchange rate shifts on current account adjustments in the selected Euro Area member countries. Cholesky decomposition of variance-covariance matrix of reduced-form VAR residuals is implemented to estimate effects of real exchange rate appreciation on the current accounts deterioration.

True model is represented by the following infinite moving average representation:

$$X_t = A_0 \varepsilon_t + A_1 \varepsilon_{t-1} + A_2 \varepsilon_{t-2} + \dots = \sum_{i=0}^{\infty} A_i \varepsilon_{t-i} = \sum_{i=0}^{\infty} A_i L^i \varepsilon_t = A(L) \varepsilon_t \quad (1)$$

where X_t represents $n \times 1$ a vector including endogenous variables of the model, $A(L)$ is a $n \times n$ polynomial consisting of the matrices of coefficients to be estimated in the lag operator L representing the relationship among variables on the lagged values, ε_t is $n \times 1$ vector of identically normally distributed, serially uncorrelated and mutually orthogonal errors (white noise disturbances that represent the unexplained movements in the variables, reflecting the influence of exogenous shocks):

$$E(\varepsilon_t) = 0, \quad E(\varepsilon_t \varepsilon_s') = \Sigma_\varepsilon = I, \quad E(\varepsilon_t \varepsilon_s') = [0] \quad \forall t \neq s \quad (2)$$

Vector X_t consists of six endogenous variables - real output ($y_{r,t}$), money supply (m_t), core inflation (p_t), short-term nominal interest rates ($ir_{n,t}$), real exchange rate ($er_{r,t}$) and current account (cu_t). In the six-variable VAR model ($X_t = [y_{r,t}, m_t, p_t, ir_{n,t}, er_{r,t}, cu_t]'$) we assume six exogenous shocks that contemporaneously affects endogenous variables - demand shock ($\varepsilon_{y,t}$), nominal shock ($\varepsilon_{m,t}$), inflation shock ($\varepsilon_{p,t}$), monetary policy shock ($\varepsilon_{ir_{n,t}}$), exchange rate shock ($\varepsilon_{er_{r,t}}$) and current account shock ($\varepsilon_{cu_{n,t}}$).

Structural exogenous shocks from equation (1) are not directly recoverable due to the complexity of information included in true form VAR residuals. As a result, structural shocks cannot be correctly identified. It is then necessary to transform true model into following reduced form

$$X_t = C(L)Y_{t-1} + e_t \quad (3)$$

where $C(L)$ is the polynomial of matrices with coefficients representing the relationship among variables on lagged values and e_t is a $n \times 1$ vector of normally distributed errors (shocks in reduced form) that are serially uncorrelated but not necessarily orthogonal:

$$E(e_t) = 0, \quad \Sigma_u = E(e_t e_t') = A_0 E(e_t e_t') A_0' = A_0 A_0', \quad E(e_t e_s') = [0] \quad \forall t \neq s \quad (4)$$

Relationship between reduced-form VAR residuals (e_t) and structural shocks (ε_t) can be expressed as follows:

$$e_t = A_0 \varepsilon_t \quad (5)$$

As we have already noted at the beginning of the section we implement a Cholesky identification scheme to correctly identify structural shocks. In order to identify our model there must be exactly $n^2 - [(n^2 - n)/2]$ relationships among endogenous variables of the model, where n represents a number of variables. We have to impose $(n^2 - n)/2$ restrictions on the matrix A_0 based on the Cholesky decomposition of the reduced-form VAR residual matrix that define matrix A_0 as a lower triangular matrix. The lower triangularity of A_0 (all elements above the diagonal are zero) implies a recursive scheme (structural shocks are identified through reduced-form VAR residuals) among variables (the Wald chain scheme) that has clear economic implications and has to be empirically tested as any other relationship. Identification scheme of the matrix A_0 implies that particular contemporaneous interactions between some exogenous shocks and some endogenous variables are restricted reflecting causal (distribution) chain of interaction transmission. It is clear that the Wald causal chain is incorporated via convenient ordering of variables.

Considering lower triangularity of a matrix A_0 the equation (5) can be rewritten:

$$\begin{bmatrix} e_{y,t} \\ e_{m,t} \\ e_{p,t} \\ e_{ir,t} \\ e_{er,t} \\ e_{cu,t} \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ a_{21} & 1 & 0 & 0 & 0 & 0 \\ a_{31} & a_{32} & 1 & 0 & 0 & 0 \\ a_{41} & a_{42} & a_{43} & 1 & 0 & 0 \\ a_{51} & a_{52} & a_{53} & a_{54} & 1 & 0 \\ a_{61} & a_{62} & a_{63} & a_{64} & a_{65} & 1 \end{bmatrix} \begin{bmatrix} \varepsilon_{y,t} \\ \varepsilon_{m,t} \\ \varepsilon_{p,t} \\ \varepsilon_{ir,t} \\ \varepsilon_{er,t} \\ \varepsilon_{cu,t} \end{bmatrix} \quad (6)$$

Correct identification of exogenous structural shocks reflecting Cholesky ordering of variables denotes following assumptions:

- Real output doesn't contemporaneously respond to the shock from any other endogenous variable of the model.
- Money supply doesn't contemporaneously respond to inflation, interest rates, exchange rate and current account shocks, while it is contemporaneously affected only by the real output shock.
- Inflation doesn't contemporaneously respond to interest rates, exchange rate and current account shocks, while it is contemporaneously affected by real output and money supply shocks.

- d) Interest rates don't contemporaneously respond to exchange rate and current account shocks, while it is contemporaneously affected by real output, money supply and inflation shocks.
- e) Exchange rate doesn't contemporaneously respond to the current account shock, while it is contemporaneously affected by real output, money supply, inflation and interest rates shocks.
- f) Current account is contemporaneously affected by shocks from all of endogenous variables of the model.

After initial period variables may interact freely without any restrictions. Estimated VAR model is used to compute impulse response functions to analyze responses of the current account to the positive one standard deviation real exchange rate shock in the selected Euro Area member countries. To check the robustness of empirical results we estimate the model considering different ordering of the endogenous variables in models with time series for two different periods (pre-crisis period - model A (2000M1-2007M12) and extended period - model B (2000M1-2014M12)).

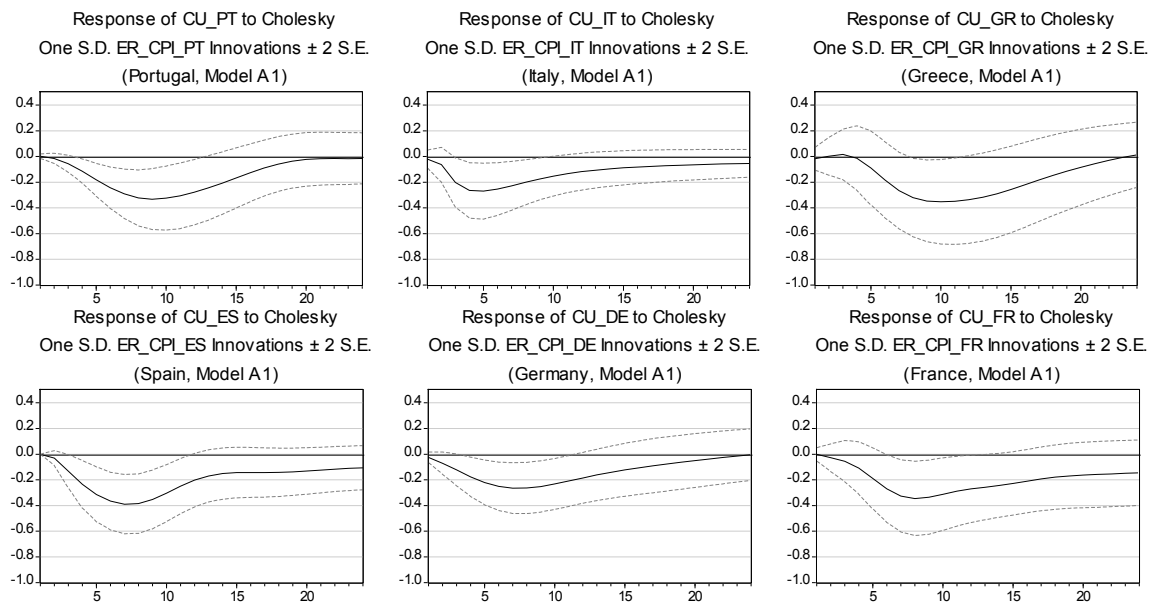
3. Data and Results

To estimate effects of real exchange rates shifts on current accounts in the selected Euro Area member countries we employ monthly data for two periods - 2000M1-2007M12 (model A) consisting of 96 observations and 2000M1-2014M12 (model B) consisting of 180 observations for six endogenous variables - real output (nominal industrial production deflated by GDP deflator), money supply (monetary aggregate M2), inflation (core inflation), long-term interest rates (long-term interest rates of government bonds with ten years maturity), real exchange rate (both CPI and ULC deflated nominal effective exchange rate) and current account of the balance of payment.

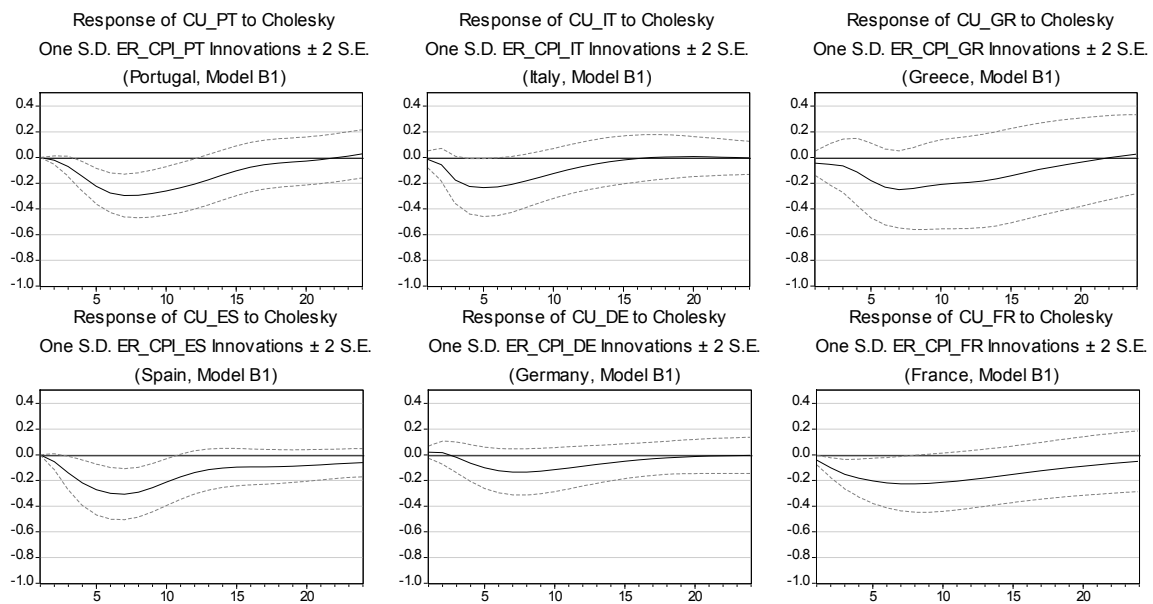
Effects of real exchange rate shifts on current account adjustments in the selected Euro Area member countries are examined from estimated responsiveness of current accounts to the positive (appreciation) one standard deviation real exchange rate shock employing monthly data for two subsequent periods 2000-2007 (model A) and 2000-2014 (model B). Results seem to be sensitive to overall performance of the countries considering differences in the response patterns of the current accounts between core and periphery of the Euro Area. While current accounts in the group of periphery countries seem to be more responsive to the REER shocks revealing more dynamic cross-country expenditure shifting effects, current accounts in the core countries seem to be less vulnerable to the shifts in competitiveness associated with real exchange rate appreciation. In the Figure 1 we summarize results of impulse-response functions of current accounts to positive (appreciation) real effective exchange rate (CPI based) shocks in the model with time series for the pre-crisis period (model A1) and extended period (Model B1) in the selected Euro Area member countries.

FIG. 1: Responses of Current Account to REER (CPI based) Shocks

(Model A1)



(Model B1)



Note: Curves represent responses of current account (CU) to the positive (appreciation) one standard deviation real effective exchange rate (CPI based) shock in the selected Euro Area member countries.

Source: Author's calculation.

Estimated responsiveness of current accounts to the Cholesky positive one standard deviation REER shock (appreciation of the CPI based real exchange rate) revealed interesting implications of a reduced price-determined competitiveness in the selected

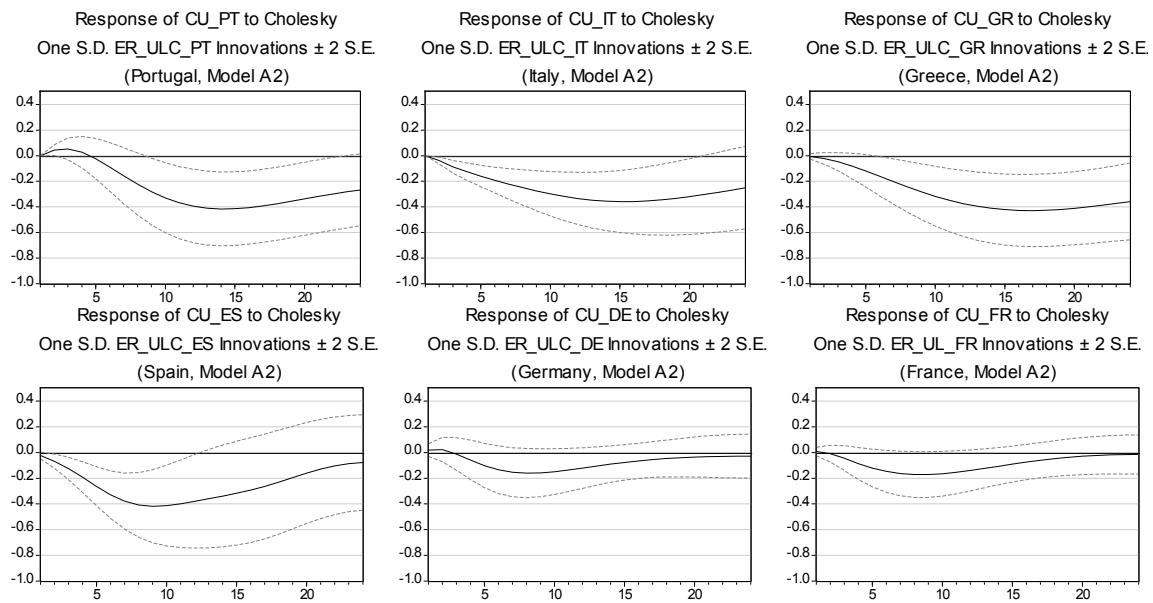
Euro Area member countries during the pre-crisis period. Unexpected shift (increase) of REER was followed by the current account deterioration in each individual country. Negative effect of the shock culminated within the sixth and twelfth month since the shock followed by a converging trend in the current account to its pre-shock equilibrium. Exchange rate shock seems to be neutral in the long run in determination of the current account. Moreover, we have examined just minor differences in the response pattern of current accounts between the core and periphery of the Euro Area. We suggest that generally higher dynamics in the price level in the South of the Euro Area contributed to the reduction in the competitiveness of the periphery countries. However, similarity of the responsiveness of current accounts between core and periphery countries indicates that changes in competitiveness measured by real exchange rates (CPI based) played a less important role in explaining considerable asynchronous trend in current accounts between North and South of the Euro Area. It seems that demand shocks contributed more to the current account imbalances in the periphery of the Euro Area (considering large current account deficits in the pre-crisis period) than in the core countries as suggested by (Sanchez and Varoudakis, 2013).

Crisis period affected responsiveness of current accounts to the positive real exchange rate (CPI based) shock in both groups of countries as it has revealed some differences in its key characteristics. While the loading phase of the current account responses to the real exchange rate (CPI based) shock was quite similar to the results from the pre-crisis period (effect of the shock culminated within one year since the shock), the overall durability and intensity of the current account deterioration seems to be reduced in all countries. While the overall exposure of current accounts to the exchange rate shock decreased in both core and periphery countries of the Euro Area, core countries experienced less dynamic deterioration in their current accounts that makes them less vulnerable to the price related drop in competitiveness induced by real exchange rate appreciation.

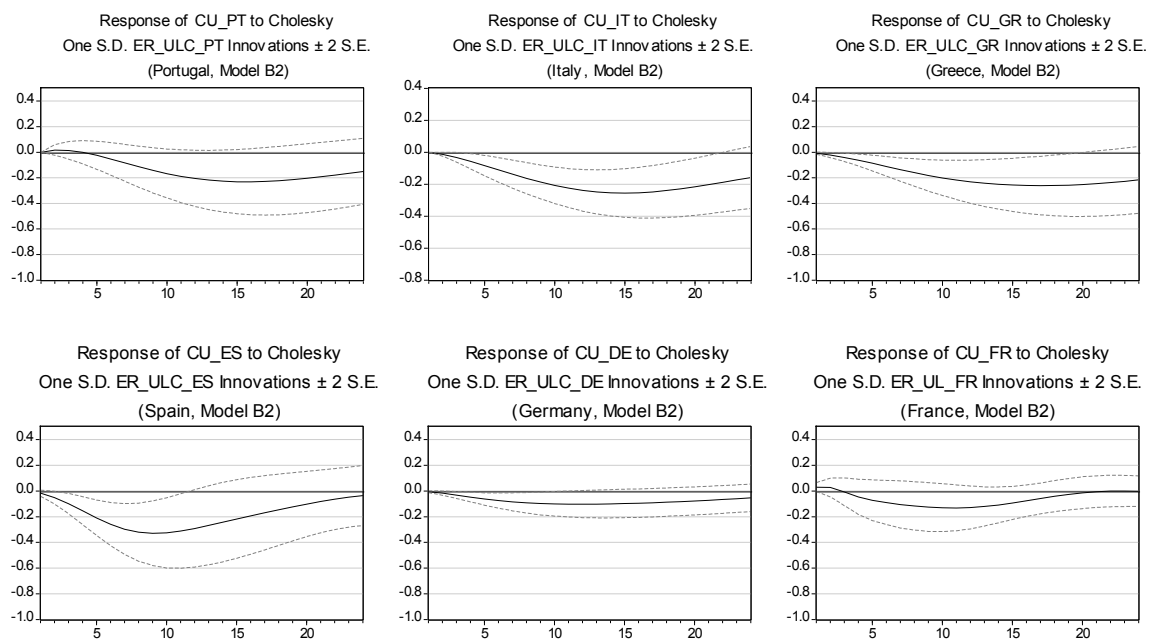
In the Figure 2 we summarize results of impulse-response functions of current accounts to negative (depreciation) real effective exchange rate (ULC based) shocks in the model with time series for the pre-crisis period (model A2) and extended period (Model B2) in the selected Euro Area member countries.

FIG. 2: Responses of Current Account to REER (ULC based)

(Model A2)



(Model B2)



Note: Curves represent responses of current account (CU) to the positive (appreciation) one standard deviation real effective exchange rate (CPI based) shock in the selected Euro Area member countries.

Source: Author's calculation.

Estimated responsiveness of current accounts to the Cholesky positive one standard deviation REER shock (appreciation of the ULC based real exchange rate) revealed

interesting implications of a reduced labor costs-determined competitiveness in the selected Euro Area member countries during the pre-crisis period. Unexpected shift (increase) of REER was followed by the current account deterioration in all country. However, our results indicate significant differences in the current account response patterns between the core and periphery of the Euro Area (as well as considering our results for CPI based real exchange rate shocks). Loading phase of the drop in the current accounts in the periphery countries increased that is why the negative effect of the shock culminated within ninth and eighteenth month since the shock. The overall dynamics as well as durability in the current account responsiveness also increased in this group of countries. On the other hand, the core countries seems to be less vulnerable to the drop in labor costs-determined competitiveness as their current account deteriorated with clearly reduced dynamics after the positive real exchange rate shock. The overall durability of the current account convergence to its pre shock equilibrium was also much reduced in the core of the Euro Area.

Crisis period affected responsiveness of current accounts to the positive exchange rate (ULC based) shock in both core and periphery of countries. Generally, the overall vulnerability of current accounts to the drop in labor costs-determined competitiveness decreased in selected Euro Area countries. Reduced dynamics and durability of the current account deterioration in both groups of countries indicate less important role of the labor costs related determinants of competitiveness especially in countries that experienced just a minor improvement in their external imbalances (Italy). However, reduced vulnerability of current accounts to the labor costs-determined competitiveness in countries that experienced a significant improvement in their external imbalances (Portugal, Greece and Spain) indicates that internal (labor costs-driven) devaluation and related improvement in competitiveness does not represent a convenient vehicle for reducing their external imbalances.

Conclusion

Examination of the effects associated with changes in price and costs-determined competitiveness on current account deficits in the selected Euro Area member countries revealed interesting implications of existing differences in performance between the core and periphery on the external intra-Eurozone imbalances. Our results indicate that current accounts in the periphery countries was more vulnerable the exchange rate (both CPI and ULC based) shocks than in the core countries. However, differences are more significant in case of costs-determined changes in competitiveness induced by unexpected real exchange rate shifts. While competitiveness issues (higher dynamics of prices and labor costs) in the periphery countries can explain a significant deterioration in the external imbalances of the periphery countries during the pre-crisis period, decreased vulnerability of current accounts to the real exchange rate shocks during the crisis period reduces applicability of internal devaluation as a convenient vehicle for a reduction in external imbalances in these countries.

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GENDER DIFFERENCES IN FINANCIAL BEHAVIOUR: EVIDENCE FROM THE EUROBAROMETER 76.1

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Keywords:

portfolio – gender – financial behaviour

JEL classification: D14, G11, J16

Abstract:

This article provides a brief analysis of financial behaviour among women and men in terms of building a financial portfolio. It is commonly known that women tend to be more risk averse than men while men are more active in stock market operation than women. Financial literacy might be one aspect of the differences; on the other hand, overconfidence is a strong issue in financial behaviour. Our data analysis is based on the Eurobarometer sample of 2011, which reflects upon customer behaviour and experience in financial services.

Introduction

Customers often look for the best solution to their financial needs. Financial providers like banks often provide them with solutions which are already worked out in the form of financial portfolios. Creating a financial portfolio requires planning, goal orientation and the process of finding the best combination of products. These steps together contribute to profit maximization by lowering the risk, achieving goals and meeting the needs of the client (Ryan, 2009).

In literature we can find authors who support the idea of risk aversion among women (Charness & Gneezy, 2012; Halko, Kaustia, & Alanko, 2012). Barber and Odean (1999, 2001) discuss that risk-taking is often linked to overconfidence that is typical of men, especially of the single ones. Besides, they also suggest that men trade more than women and women prefer less risky portfolios. Concerning investments, more women appear to be risk-averse than men (Charness & Gneezy, 2012). Explanations concerning the causes of the different financial behavior between women and men can be seen in works from Ozmete and Hira (2011) and Kaur and Vohra (2012). In her analyses Martenson (2008) found several gender specific stereotypes in the aspect of financial investments. These stereotypes are related to financial literacy, profit orientation and lower self-confidence among women. Yet, by grouping the respondents in light of the

way they perceive and treat information, only a small difference can be discovered between women and men.

The findings of Dwyer (2002) and Booth and Nolen (2012) support that gender does not influence decision making and risk-taking significantly. Instead, the knowledge of financial investment is more crucial while social learning also plays a role in decision making. The level of financial literacy in Slovakia in 2007 was 0.56, which represents an average knowledge of personal financial issues. The last observation was made by Foundation Partners with the cooperation of Focus Agency in 2013 and respondents achieved the result of 0.625 (Partnersgroup, 2012, 2013). Decisions concerning taking more or less risk is related to the knowledge of financial investment rather than to the client's gender (Martenson, 2008; Dwyer, Gilkeson, & List, 2002), financial self-esteem (Montford & Goldsmith, 2015), personality (Filbeck, Hatfield, & Horvath, 2005), emotions (Loewenstein, 2000), overconfidence or marital status (Barber & Odean, 1999, 2001).

1. Methods

We have used the Eurobarometer survey data (European Commission, 2014) for finding the evidence of gender differences in financial behaviour. The resource of primary data for the statistical analysis is the Eurobarometer dataset 76.1. 26.856 citizens in the 27 countries of the European Union were interviewed in 2011. Selection is based on random (probability) sampling. Dataset is available online by GESIS through the DBK data catalogue.

For measuring intensity and linear dependence among the statistical variables we have used statistical correlations. Statistical correlations can describe whether the relationship is positive or negative and they also reflect upon the strength of this relationship (Fotr & Hnilica, 2014). We assume a linear relationship among the selected variables analysed by Spearman's correlation coefficient (Pacaková, 2009). This value is calculated from sample of size n , where the raw data are converted to ranks x_i , y_i and then this coefficient is computed from:

$$\rho = 1 - \frac{6 \sum_{i=1}^n d_i^2}{n(n^2 - 1)}$$

where $d_i = x_i - y_i$, is the difference between ranks.

The different results of Spearman's correlation coefficient among the selected pair of variables are categorized into the following groups. Each category describes the intensity of the relationship, which is detected between two analysed variables:

- a) $0 \leq |\rho| \leq 0,3$ correlation does not exist
- b) $0,3 < |\rho| \leq 0,5$ minimal correlation
- c) $0,5 < |\rho| \leq 1$ significant correlation exists

2. Results

The sample concerns 12.332 (45.9%) male participants and 14.524 (54,1%) female participants. For our analyses, we have used marital status as a variable, too. Correlation analysis monitors relations between variables, which describe the respondents (marital status, gender), and answers different kinds of questions regarding financial products.

The results show that there are not any significant correlations between gender and the different kinds of financial products. Each Spearman's rho was around value 0, which indicates that no correlation exists. A similar result can be seen in case of analysing the relationships between the respondents' marital status and the different kinds of financial services. Correlation coefficients were also around 0, but some financial services (e.g. mortgage, credit cards or life insurance) have an absolute value of Spearman's rho above 0.1. These values may signify minimal relationship between marital status and the above mentioned financial services. The results of the correlation analysis indicate that financial services were statistically significant at two-tailed significance level of 0.05. We have analysed product purchases in the last 5 years (TAB 1), product recommendation, product comparison and the way of purchasing a product. None of them have support a relationship between gender and marital status.

TAB. 1: Product purchase in light of gender and marital status within the last 5 years

Spearman's rho		Bank account	Mortgage	Credit card	Personal loan	Shares or bonds	Investment fund	Life insurance	Other insurance
GENDER	Correlation Coefficient	-,010	-,017**	-,027**	-,004	-,062**	-,044**	-,012	-,047**
	Sig. (2-tailed)	,118	,009	,000	,527	,000	,000	,075	,000
	N	23648	23648	23648	23648	23648	23648	23648	23648
MARITAL STATUS	Correlation Coefficient	,099**	-,067**	,014*	-,028**	-,033**	-,024**	-,024**	-,043**
	Sig. (2-tailed)	,000	,000	,034	,000	,000	,000	,000	,000
	N	23623	23623	23623	23623	23623	23623	23623	23623

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Source: by Authors based on data from European Commission (2014)

3. Discussion

Our results suggest that there is no relationship between clients' gender and marital status in terms of purchasing financial products. This statement is also supported by Martenson, (2008), while it contradicts the findings of Barber and Odean (1999, 2001). This finding may support the results of other authors arguing that financial decisions can rather be seen through financial knowledge, personality, financial self-esteem, overconfidence, marital status or emotions (Dwyer, Gilkeson & List, 2002; Booth & Nolen, 2012; Montford & Goldsmith, 2015; Filbeck, Hatfield, & Horvath, 2005; Barber & Odean, 1999, 2001, Loewenstein, 2000). Yet, this statement should be considered an assumption because the Eurobarometer dataset does not include this kind of information. We are aware of the limitations of our research and future research on gender differences regarding financial behaviour is needed.

Conclusion

The aim of this article is to analyse the data of Eurobarometer 76.1 (2011). Our interest concerns gender differences in light of purchasing a financial product and the question of whether marital status influences the decision making. However, our findings do not support the common presumption that gender or marital status influences clients while selecting a product. We are aware of the limitation of the data we have used in our research.

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THE USE OF SOCIAL NETWORKS BY CONSULTANTS FROM PERSONNEL AGENCIES IN THE PROCESS OF EXECUTIVE SEARCH

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Keywords:

executive search method – social network – employee recruitment – direct search

JEL classification: M12

Abstract:

The article deals with a highly effective method of Executive Search, which is widely used in filling the main work position in the organisation, so that as much as possible avoid the risk of adopting inappropriate employee. The most important goal of this document is to point out the role that social network play in the current process of direct search from the Czech HR consultants view and from own research data to show how the selected social networks are utilized and answer to questions like what are the Czech HR consultants experience with them, what benefits they bring and what role these social networks will play in the future. Therefore, this work is focused on which social networks are used, what experience with them have recruiters and what percentage of personnel agency actually uses the help of social networks.

Introduction

The direct search on an exclusive basis is the most thoughtful method of hiring new employees for the key positions. This sophisticated technique focuses on the offering the best possible employee and especially due to the fact that it not only focus on the unemployed but it looking even among workers who perform the necessary work for another employer. The label for this method around the world and in our country is known as "executive search" and less formally as "headhunting" and it is used most in the western countries for several decades. (Armstrong, 2002)

This technique first appeared in the Czech Republic about 20 years ago and since then it has been building among experts a great position, but outside this technique is not very well known. The advent of social networks should in no way not be ignored in the field of personnel management. (Mohelská, 2011)

The Internet very quickly came into everyday life and became an integral part of today's population and brought a very popular feature, which is the search. Thanks to the Internet, people can use from both local and global search engines that seek necessary

information across the network available websites. (Mohelská, 2013) They can also use the so-called specialised search engines that are looking for a specific group of websites. Social networking has also become a certain type of successful search engine. Here we can find a mix of different information.

An integral part of the direct search method is very important to suitable identify candidates to each position, which should be filled. Therefore, the question arises whether consultants of Personnel agencies rely only on their own contacts or they include promoting current trends that the Internet offers.

1. Direct search in the Czech Republic

The method of direct search is developing in our country since the 1980's and in early 90's Czech society has undergone a big change in a relatively short time, where people had to accept their new roles in the new environment of a market economy and over time, our economy has become economics so-called developed. With the advent of the market economy in our country began to discover a new generation of managers who possess the necessary knowledge, skills and experience to work with international markets and to transform the management of native Czech firms to adapt to new conditions. (Dvořáková, 2007), (Kociánová, 2010)

With these changes was also changed the attitude to human resources and we gradually took over the trends from western economies. As a result there began to develop services related to human resources consulting companies, which include also direct search.

Among the first Czech companies, which began to deal with these services include Hofirek Consulting Company (1990). Along with this firm entered the Czechoslovakian market two foreign companies namely Spencer Stuart (1991) and the Accord Group (1992). Currently on the market, several firms offer direct search services. Apart from these firms who specialize only in direct search in the market there are companies that are using direct search for expanding its portfolio of offered services.

2. Research's Objective and Methodology

The aim of this document is also to analyze the usage of selected social networks in the process of direct search in the Czech Republic. For this analysis, we chose self-questionnaire, mainly because there are very few reliable sources and information related to this issue. This survey was conducted in 2014 with employees of the personnel agencies. After studying the available literature, we concluded that the mentioned tools are used mostly just for direct search. But which specific networks are used? To this question and many others we were looking for an answer, along with personnel consultants who dealt with direct search. But there is present only a small part of the results of the survey, due to the capacity of this document.

The main purpose of this aforementioned survey, was to verify this following hypothesis:

H0: The number of consultant who use the specific social network LinkedIn is considerably higher than the number of consultants which use other social networks included in the survey.

To this survey, we included these following social networks: LinkedIn, Facebook, Google+, MySpace, Plaxo, Viadeo, XING and Twitter. Among the professional social networks has sovereign status undoubtedly network LinkedIn so its inclusion in this research is entirely logical. Also a significant positions in the network have Facebook, Google+, My Space and Twitter so we also included them into research. Despite that the location of the survey is situated into Czech Republic, we have not chosen any local network (such as spoluzaci.cz and Lide.cz) because in human resources the local network do not play any role.

Addressing respondents were selected based on electronic list of personnel agencies. Due to the fact that none of the reports were complete, we had to choose a combination of multiple lists to not miss any significant company.

The first resource that we chose to research is a portal that serves mainly to foreigners living in the Czech Republic and the international business community and it was the portal Expats.cz.

The questionnaire was drawn up to collect answers to prepared questions and was served in an electronic form. In creating the questionnaire, we used an online tool the company Click4Survey Ltd. (2014), which is available on their website.

3. Results and Discussion

Depending on the nature of individual questions, respondents could choose from all selected social networks for this research and also in one question they had an opportunity to state some other social networks.

What social networks thus consultants use in direct search? In this case, each respondent stated a social network LinkedIn. Others were then selected in much smaller numbers. Twelve respondents use Facebook, XING nine, seven Google+. Very few used Plaxo and Twitter and even MySpace and Network Viadeo not used at all. The consultants had also the opportunity to mention the other networks, but none of them availed this option.

TAB. 1: Use of individual networks (in %)

Facebook	36,4
Google+	21,2
LinkedIn	100,0
My Space	0,0
Plaxo	9,1
Twitter	6,1
Viadeo	0,0
XING	27,3

Source: own, Taborsky (2013)

The high status of LinkedIn among the addressed respondents is unshakable - all of them said that they knew this network and also used it. Of those who knew Facebook used it in direct search just 39% and Google + 26%. The social networks Plaxo and Xing are not so much known but in the comparison of use/knowledge are in the similar positions - Plaxo used 33% of the consultant who knew this network and Xing even 56%. This result was a big surprise for the authors of this document. Due to this was found that in questions where there were only the possibilities of "LinkedIn, Facebook, Google+, Twitter" would be more appropriate to replace the answer Twitter to Xing.

The hypothesis that should verify that a social network LinkedIn used larger number of respondents than the other networks was confirmed. To prove this hypothesis was also used static analysis and specifically McNemar's test with a significance level of 5%. This test also confirmed that the number of consultants using LinkedIn and the number of consultants using Facebook, were statistically significantly different. Because of the Facebook after LinkedIn was the second most used social networks, we can confidently say that LinkedIn used a statistically significantly greater number of respondents than all other networks included in the survey.

Conclusion

This research confirmed that the method of direct search is gradually changing and responding to current trends, which include the development and implementation of social networks. Social networks are not for any of the respondent a substitute for direct search process, but just another available tool, which is very helpful. The main reason for this is that the real added value of the consultants are mainly in the proper evaluation of the candidate's and the correct estimate of their future success in the organization. LinkedIn and other similar networks are just supportive tools and therefore certainly not the only source of information on potential employees.

The survey well points out that social networks are a source for finding suitable candidates, albeit in a limited extent. Each of the respondents said that with using social

networking has found at least one candidate. Some of them were elected as the best choice, and were chosen for the job. This fact has experienced at least 90% of the respondents.

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MAINTENANCE OBLIGATIONS OF PARENTS TO CHILDREN, AND ITS LEGAL AND ECONOMIC ASPECTS

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Abstract:

This paper aims to map out the theoretical and practical implications of the legislation determining the maintenance for minor children after the effective date of the New Civil Code. It deals with issues of justified needs of minors in the spectrum of the economic aspects of the current trend in prices and comparing the current practice of the Czech Republic courts.

The last part of the paper is devoted to the Czech economy and the economic impacts on the family budget as well as possible forecasts of further development.

Introduction - The notion of maintenance obligation of parents to children

A family has always been an important part of the social system, it fulfils important irreplaceable functions - biological, economic, socialisation and emotional. Maintenance is therefore a manifestation of the economic function of a family.

The institute of maintenance is one of the fundamental institutions of family law. The legislation in force defines maintenance as rightful share of a child for the provision of funds for their maintenance. Entitlement to maintenance lasts until children are able to maintain themselves.

In law we cannot find a specific definition of maintenance, we meet with the concept of maintenance obligation, which means securing and payment of personal needs among persons, who have kinship or a similar relationship between each other. The new Civil Code understands the maintenance in the broad sense as not only the food itself but also satisfaction of all necessary needs of a minor or major child. This covers in particular the satisfaction of cultural, sport, recreational and other needs.

1. Modification of the maintenance obligation in the legislation

The basic source of legislation modification of family law is the Charter of Fundamental Rights and Freedoms, which enshrines the legal protection of parenthood and the family, provides special protection to children and adolescents, and special care and protection to pregnant women. Before the law, children born within marriage and out of wedlock are equal.

Another important source is the Convention on the Rights of a Child, in our country published under no. 104/1991 Coll.

By the effectiveness of the new Civil Code no. 89/2012 Coll., the Family Act no. 91/1998 Coll. lost its effectiveness. Legislation modification of family law is therefore incorporated into the new Civil Code.

Regarding the new legislation of family law, specifically the issue of maintenance, with the effect of the new Civil Code, a fundamental change occurred in the issue of estimated revenue of a parent, who is mandatory to pay the maintenance, in a situation where the parent does not sufficiently prove their income and fails to submit the requested documents properly to the court to examine their income. These issues concern, of course, also the parents who are engaged in private business.

In this case, the law is that the income of the person is 25 times amount of the subsistence minimum.

Although the original family law also knew the so-called fiction of income of such a parent, compared to the original law, where the amount originally foreseen is doubled.

2. Terms and conditions relating to the maintenance obligation of parents to children

Maintenance obligation of parents to children is the most important and the most significant type of maintenance obligations, the law ranks this obligation in first place among other kinds of maintenance obligations.

The right to maintenance of a minor child arises at birth. The law does not distinguish whether it is maintenance provided to a minor child, or major child. By reaching full legal capacity, however, there have been a few changes made, in the terms of both substantive law and procedural law.

In terms of substantive law, by reaching full legal capacity the provisions under which the court is ex officio obliged to provide maintenance obligation to minors cease to apply, with a fully legally competent child the maintenance can be approved only from the date of the commencement of proceedings on maintenance.

In terms of procedural law, the essential fact is that to begin proceedings for maintenance, mostly in terms of increasing maintenance for a legally competent child, is only possible by the draft of this child. Therefore in these proceedings the legally competent child cannot be represented by a parents as before, but they submit a draft to the competent court separately to initiate the proceedings with a specific complaint petition. In these contentious proceedings the court is bound by the draft, it does not proceed on its own, as in the case of minors, and therefore cannot admit more maintenance than it is indicated in the order sought.

With regard to the legal criteria for the calculation of maintenance, it remained unchanged, i.e. legitimate needs of the creditor and their financial circumstances and abilities, possibilities and property situation of the debtor are decisive to specify the range of maintenance.

In evaluating the abilities, possibilities and property situation of a liable parent it is necessary to examine whether the liable parent has not surrendered a better job or employment without an important reason.

In determining the amount of maintenance courts are based on the so-called helpful tables that are not generally binding. The amount of maintenance is in the range of 15-20% of net income of a liable parent, depending on the number of maintenance obligations, together with the statutory criteria mentioned above.

Then, we can meet with substantially different decisions across Czech district courts. It is no exception that for the same earnings ratios of a liable parent, there are resolutions issued that, with regard to the amount of maintenance, differ by several thousand of CZK.

Due to the theoretical principle that the law has to be predictable for citizens, there is no doubt that with the various decisions of the district courts, not much can be said about the predictability of the amount of maintenance.

Different practice on the amount of maintenance is apparent from the practice of the appealing courts, which is a known situation, and also of course it is based on an individual assessment of the particular case of the particular judge.

2.1. Tables for the calculation of maintenance

The tables were introduced six years ago by the Ministry of Justice under the leadership of Minister Kovářová as recommended materials for parents and for courts in their decision-making. (See tab. 1.)

TAB. 1: Tables for the calculation of maintenance from the Ministry of Justice

Age of the child	Part of the wage attributable to maintenance
0–5 years	9–13 percent
6–9 years	11–15 percent
10–14 years	14–18 percent
15–17 years	17–21 percent
18 and more years	20–24 percent

Source: Czech Republic Ministry of Justice

However, the tables in principle are currently not in use. Some parents argue with them as proof, however, for courts this document is not binding and generally they are not governed by it.

In Q2 2015 the average gross monthly nominal wage per FTE employee in the national economy increased by 3.4% compared to the corresponding period of the previous year. In real terms it grew by 2.7%. The median wage was CZK 22 230. (Czech Statistical Office, 2015)

In the long term, according to analysts, the growth of wages should continue. At the same time, however, most people do not earn the average wage.

When determining maintenance, the net wage is not important but disposable income is. I.e. how much is left to the mandatory parent from the net wage after the deduction of eligible costs (i.e. the cost of housing, job...).

When determining the amount of the average maintenance, it is important that most parents do not have only one mandatory obligation, but two or more.

3. The economic situation and the consequences of divorce in the Czech Republic

Divorce has major economic impacts on the living situation of members of the original family. Based on international researches it can be demonstrated that after divorce economic situation for the divorced persons worsen. Because of the lack of availability of representative data, there are only very few studies devoted to the economic consequences of divorces in the Czech Republic. According to the Czech government and the Czech Statistical Office, the Czech Republic with a divorce rate of (49.6%) and the number of divorced partners (approximately 10% of the population older than

15 years) ranks among the top countries within the EU. (Government of the Czech Republic, 2015)

One exception is (Šatava, 2013), who estimated the impact of a potential divorce on revenue of currently married men and women in retirement. It shows the considerable impact of divorce on income between men and women in retirement, due to a potential divorce and the subsequent non-sharing of pensions. Women in the event of a potential divorce on average lose monthly income in retirement corresponding to 7.1% of their monthly retirement pension; men, on the contrary, on average receive a monthly retirement income of 2.9% of their monthly pension. (Šatlava, Jánský, 2015)

Based on the results of the Living Conditions Survey 2014 conducted by the Czech Statistical Office, which reflects the situation in 2013 and at the time of investigation, i.e. In the spring of 2014, we can say that the nominal household income in 2013 same as in the previous year grew and for the first time since 2009 real income significantly increased year-on-year (by 1.0 percentage points), their fair value reached the level of 2008. Average net annual household income per capita in 2013 amounted to 153.3 thousand CZK. The net annual household income of employees with higher education in 2013 amounted to 180.8 thousands CZK per person, i.e. an increase of 4,289 CZK (i.e. 2.4%) compared to the previous year. An increase was also recorded in the household income of employees with lower education, which on average amounted to 135.9 thousands CZK net value per person per year, i.e. By 4.3% more than in 2012. Most notably, however, was the increased income for self-employed (by 4.9%). The amount of their net annual income per capita amounted to 170.3 thousands CZK. Nominally the income of the self-employed rose for the second year, an annual increase in real terms was recorded for the first time since 2008. The slowest growth was monitored in the average net annual household income of non-working pensioners, i.e. by 0.6 pp. The income in these households increased from 138.3 thousands CZK per person in 2012 to 139.2 thousands CZK in 2013. (Czech Statistical Office, 2015)

The number of people living in households with incomes below the poverty line has long been at the level of 9% to 10%, and even 2014 does not deviate from this interval. In the long term the most vulnerable groups are the unemployed, single-parent families and families with three or more children. The proportion of people whose predominant economic activity during 2013 was unemployment and who were at risk of income poverty, reached almost half (47.8%) in 2014. More than a third of people from single-parent families with children were at the risk of income poverty (35.9%) and almost a quarter of those from families with three and more children (24.0%). (Czech Statistical Office, 2015)

Table 2 gives data for household groups, which are comparable in long time series (with Microcensus income surveys). It offers a look at changes in household structures, their demographic characteristics and incomes. (Czech Statistical Office, 2015)

TAB. 2: Households by activity status of head of household in 2014

Households, total	Employee s, total	incl.		Self- employed	Pensioners, total	incl.		Unemplo yed	Other households		
		employees, lower education	employees, higher education			with working person s	without working persons				
4 304 496	2 059 221	874 872	1 184 349	537 121	1 471 779	168 902	1 302 876	183 867	52 509	Number of households	abs.
100,0	47,8	20,3	27,5	12,5	34,2	3,9	30,3	4,3	1,2		%
10 315 419	5 650 111	2 479 351	3 170 760	1 579 391	2 476 954	500 380	1 976 575	489 584	119 378	Number of persons	abs.
100,0	54,8	24,0	30,7	15,3	24,0	4,9	19,2	4,7	1,2		%
										Per household averages:	
2,40	2,74	2,83	2,68	2,94	1,68	2,96	1,52	2,66	2,27	Members	
1,07	1,64	1,70	1,59	1,77	0,14	1,25	0,00	0,35	0,10	working persons	
0,19	0,06	0,04	0,07	1,24	0,02	0,15	0,00	0,03	0,02	incl. self-employed	
0,54	0,76	0,70	0,80	0,86	0,05	0,18	0,03	0,90	0,89	dependent children	
0,07	0,11	0,08	0,13	0,08	0,00	0,00	0,00	0,09	0,28	incl.	less than 3
0,09	0,12	0,10	0,13	0,15	0,00	0,01	0,00	0,15	0,20		3-5
0,10	0,14	0,13	0,15	0,16	0,01	0,05	0,01	0,23	0,16		6-9
0,13	0,18	0,19	0,17	0,20	0,01	0,04	0,01	0,25	0,17		10-15
0,15	0,21	0,20	0,22	0,27	0,03	0,08	0,01	0,18	0,08		16 or more
0,13	0,10	0,15	0,06	0,08	0,05	0,07	0,04	1,18	0,16	unemployed	
0,57	0,13	0,18	0,09	0,13	1,43	1,45	1,43	0,13	0,04	non-working pensioners	
0,06	0,08	0,07	0,09	0,07	0,00	0,00	0,00	0,09	0,37	persons on maternity leave	
0,03	0,03	0,03	0,05	0,03	0,01	0,01	0,02	0,01	0,71	other members	
1,91	2,12	2,20	2,07	2,25	1,47	2,36	1,36	2,04	1,73	Equivalencies	OECD scale
1,63	1,77	1,83	1,73	1,86	1,34	1,97	1,26	1,70	1,48		OECD modified scale
										INCOME (%):	
100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	Gross money income	
										Contributions to mandatory social	
6,5	9,3	9,1	9,5	2,5	1,4	5,2	0,2	4,2	1,4	security schemes	
7,4	8,9	6,7	10,2	10,0	1,3	5,0	0,2	2,1	2,9	Income tax	
-0,3	-0,2	-0,4	-0,2	-0,5	-0,1	-0,2	0,0	-0,7	-0,2	Tax bonus	
86,4	82,0	84,5	80,5	88,1	97,4	90,0	99,7	94,4	95,9	Net money income	
										Gross money income=100 %:	
59,7	86,4	83,8	87,8	22,9	12,9	47,8	1,9	39,8	15,2	income from employment	
13,4	3,0	2,6	3,2	66,2	2,2	7,3	0,5	3,1	4,5	income from self-employment	
23,8	8,1	11,3	6,3	7,4	82,4	43,1	94,9	49,8	39,0	social income	
3,1	2,6	2,3	2,7	3,5	2,5	1,8	2,7	7,3	41,3	other income	
183 736	23 237	14 736	8 501	16 330	48 167	771	47 396	81 272	14 731	Households with income ¹⁾	abs.
4,3	1,1	1,7	0,7	3,0	3,3	0,5	3,6	44,2	28,1	below subsistence minimum	%

Source: Czech Statistical Office, 2015

Conclusion

Although parents and children make up three-fifths of the population in the Czech Republic, the Czech government doesn't pay much attention to them. If we want to maintain competitiveness after the divorce of both spouses, we need to promote changes in the division of labour within the family and make pre-school care available, promoting flexible forms of work, promoting the involvement of men in child care, changes in the system of social benefits and tax rebates and more.

It is also necessary to pay attention and make efforts to improve the economic situation immediately after a divorce. It is necessary to support the economically weaker (ex)spouse. According to the Czech Statistical Office in most cases they are women. It is necessary to secure alternative maintenance, social housing for divorced spouses, joint pension scheme of both spouse. Finally, to increase the availability and quality of data for the bases. The government should promote the creation of documentation for decision-making regarding support of the divorced couple. (Šatlava, 2015)

Another area that could improve the current situation is the availability of administrative databases and the possibility of connection and information on the sub-characteristics of the divorced (information about the use of time, maintenance, monitoring the divorced after another marriage). (Šatlava, 2015)

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PERSONNEL MARKETING AT COMPANIES IN THE LIBEREC REGION

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Keywords:

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Abstract:

The main subject of this article is personnel marketing and its practical application in companies in the Liberec Region. Quantitative research was used to determine whether human resources experts use the concept of personnel marketing in practice and how they understand the term ‘personnel marketing’ itself. Personnel marketing is presented in this article as a tool for generating a competitive advantage, a resource that encompasses both personnel and marketing activities.

JEL classification: M31, M51, J21

Introduction

Today’s business environment is quickly changing, and the labour market is also undergoing a simultaneous transformation (Wahba & Elamnadily, 2015), (Dew-Becker & Gordon, 2012), (Gaddam, 2008). A company’s success and ability to compete depends on more than just a product that satisfies the needs of the customer; the way the firm behaves in the role of employer also plays a key role, since excellent and qualified workers are the most valuable asset the firm possesses and can evaluate. It is qualified and promising employees who can help a company survive a difficult period and contribute to its economic growth.

This work addresses personnel marketing, the aim of which, according to Wimmers (2009) is both to ‘build a positive influence on everyone who is or could be interested in the organisation and especially to promote the attractiveness of the organisation for ambitious and motivated future employees, as they are the key to the organisation’s sustainability’. Personnel marketing is a relatively new field that utilises marketing principles in human resources. In his publication, Koubek (2010) defines personnel marketing as follows: ‘Personnel marketing is the use of a marketing approach to human resources, especially in an attempt to shape and maintain the organisation’s necessary workforce. This approach is based on creating a solid employment reputation for the firm and also on conducting research on the labour market. In other words, personnel marketing involves drawing attention to the employment quality of the organisation’.

The article presents part of a quantitative survey conducted for the purpose of assessing the extent to which personnel marketing is used by firms in the Liberec Region. The research was focussed on identifying the key factors influencing the successful use of personnel marketing in companies and on defining the attributes which, from the employer's perspective, create value for the business.

The article aims to clarify whether the term personnel marketing is used in company practice (by businesses in the Liberec Region) and how the term is perceived by HR experts, including with what exactly these professionals associate the idea of personnel marketing.

1. Methodology

Personnel marketing is a current and quickly developing field, though one unfortunately lacking data from primary research. This situation was precisely the motivation for undertaking the aforementioned quantitative survey.

A quantitative survey was chosen to meet the aim of the primary research due to its ability to obtain measurable numerical data. Due to its direct nature as well as low financial and time demands, data was collected by means of an online survey using CAWI (Computer-Assisted Web Interviewing). Information was obtained from respondents by means of an email link to the survey on the SurveyMonkey website. Before the email was actually sent (containing the link to the survey), all respondents were contacted by phone and asked to fill out the survey.

The tool employed for the collection of primary data was a structured survey divided into 5 parts and containing 19 questions. Respondents filled in identification information in the first part. In the second part they answered questions concerning the use of personnel marketing in company practice. The third separate part of the survey addressed recruitment as an important area of personnel marketing. The fourth part dealt with employee satisfaction, employer reputation and support for personnel marketing from company management. The fifth part of the survey was devoted to social media. Respondents were offered the possibility of obtaining the results of the survey as motivation for sending back the completed survey.

The basic sample group was composed of businesses ranking among the largest employers of the Liberec Region. These were chosen using the strategic document of the City of Liberec entitled 'Strategic Analysis for the Development Area of the Economy, the Business Environment and the Labour Market' and the Labour Office document entitled "Largest Employers of the Liberec Region". Top HR management from a total of 84 of these firms was addressed.

Data was collected in May and June 2015 and was subsequently coded and processed using specialised mathematical statistics software ('R'). The statistical analysis involved

the processing of nominal variables, and these were used in the Pearson test to determine whether there was a statistically significant difference among a pair of individual categories of variables at a given level of statistical significance α . Tested hypothesis H_0 : $p_1 = p_2$ (frequency of the occurrence of phenomenon 1 = frequency of the occurrence of phenomenon 2) and alternative hypothesis H_A : $p_1 \neq p_2$. Ordinal and cardinal variables were also processed. In the analysis of the cardinal variables, basic descriptive statistics were first made with the calculation of the basic parameters of location and dispersion. The basic assumptions of homogeneity and normality were then verified. If these were satisfied, the relationships between individual sets were examined. A company's use of the term personnel marketing was tested, and the activity with which personnel marketing is associated in relation to company size was explored. This involved the rejection or non-rejection of the null hypothesis H_0 using a set of T-Tests. In the case normality was rejected by the Shapiro test with a disruption of significance, the non-parametric Wilcoxon test was used. The entire study works with a level of significance of $\alpha = 0.05$.

2. Results

The subject of this article is personnel marketing and its application in company practice. Do human resources experts work with the term personnel marketing? Is there a difference in the way the term personnel marketing is used among firms with 50-249 employees and those with 250+ employees? And if there is, with what, according to them, is the term personnel marketing related – with recruiting and selecting employees, with hiring and integrating new employees, with the stabilisation of the existing workforce, with acquiring key employees or with building the employer's brand?

A total of 84 firms – human resources experts from the Liberec Region – were addressed, and 58 completed surveys were returned: 19 from companies with 50-249 employees (32.8%) and 39 from companies with 250+ employees (67.2%).

A yes/no question was used to determine whether human resources experts work with the term personnel marketing in practice, and 43 respondents answered the question. A total of 65.1% of respondents stated that they work with the term personnel marketing in their work, while the remaining 34.9% stated that they do not. The analysis showed that the difference in the representation of 'yes' and 'no' answers from respondents on the whole was on the border of statistical significance (p value ≤ 0.0474).

With regard to the composition of responses in connection with the size of companies, the situation is somewhat different. A total of 76.7% of companies with 250+ employees answered 'yes' (23.3% 'no'), while only 38.5% of firms with 50-249 employees responded in the positive (61.5% negative).

A multiple choice question was asked to determine how human resources experts perceive the term personnel marketing and with what they associate it (with which HR activity). For each question, the respondents expressed the extent to which they agreed with the statement, with 1 indicating total agreement and 6 meaning total disagreement. The statistical evaluation also aimed to determine whether the differences between large companies (250+ employees) and medium-sized companies (50-249 employees) are statistically significant (see Tab. 1).

TAB. 1: Auxiliary calculations for the perception of the term personnel marketing (cardinal variables)

Point	Company size	Amount of data	\bar{x}	sd	$\bar{x} - t \frac{s}{\sqrt{n}}$	$\bar{x} + t \frac{s}{\sqrt{n}}$	Median	Min	Max
B5.1	medium	12	1,8	1,215	1,0	2,5	1	1	5
	large	30	1,3	1,028	0,9	1,7	1	1	6
B5.2	medium	11	2,0	0,775	1,5	2,5	2	1	3
	large	30	1,8	1,234	1,4	2,3	1	1	6
B5.3	medium	12	2,2	1,586	1,2	3,2	1,5	1	6
	large	29	1,9	1,223	1,5	2,4	1	1	6
B5.4	medium	12	2,0	1,206	1,2	2,8	2	1	5
	large	30	1,4	1,006	1,1	1,8	1	1	6
B5.5	medium	11	2,1	0,944	1,5	2,7	2	1	3
	large	31	1,5	0,925	1,1	1,8	1	1	5

Source: (own results)

Tab. 2 shows the p-values for the conclusions of the non-parametric Wilcoxon test of the agreement of mean values for individual responses and company size.

TAB. 2: P – value

Point	Company size	p-value of Wilcoxon test of mean values
B5.1	medium	0,068
	large	
B5.2	medium	0,267
	large	
B5.3	medium	0,792
	large	
B5.4	medium	0,047
	large	
B5.5	medium	0,023
	large	

Source: (own results)

The analysis showed that there is no statistically significant difference in the mean value (Tab. 2) of the evaluation of the following responses in determining the extent of agreement with what respondents believe the term personnel marketing is associated: 'B5.1: With recruiting and selecting employees', 'B5.2: With hiring and integrating new employees', and B5.3: With the stabilisation of the existing workforce' among respondents from companies of various sizes.

The situation is statistically uncertain for the response 'B5.4: With acquiring key employees'. Due to the low amount of data it is more appropriate to accept the conservative conclusion that a statistically significant difference was not demonstrated in the mean values of the evaluation of the connection of this response with the term personnel marketing among respondents from companies of various sizes.

It was shown with the response 'B5.5: With building the employer's brand' that the medium value of the evaluation of the connection of this answer with the term personnel marketing differs with statistical significance between respondents from companies of various sizes. Respondents from companies with 250+ employees rate this connection as more statistically significant than respondents from companies with 50-249 employees.

3. Discussion

As previously mentioned, personnel marketing is a relatively new field. However, despite being a highly topical subject today, an in-depth review of professional and research publications and databases reveals that virtually no primary studies exist on personnel marketing. One of the few available works of primary research is an article by Christiane Gelghardt (2004), the main focus of which is personnel marketing and its application in practice. In her primary research, the author determined how human resources experts perceive the term personnel marketing in Germany. The article indicates that these experts also connect personnel marketing with recruiting and selecting employees (94%), with hiring and integrating new employees (63%), while 71% of respondents view personnel marketing as a tool for stabilising the existing workforce in a company.

Conclusion

Based on statistical processing, it can be stated that the term personnel marketing is in general used in business practice. It was shown that in companies with 250+ employees answered 'yes' statistically more often than 'no', and that at firms with 50-249 employees, the answer 'no' was more frequent than 'yes'. We can establish that this term is not used to any great extent at companies of this size (50-249 employees), while at companies with 250+ employees it is probably it in fact used.

Moreover, based on the statistical processing it can be said that in the opinion of human resources experts, the term personnel marketing is related to all HR activities, i.e. with recruiting and selecting employees, with hiring and integrating new employees, with the stabilisation of the existing workforce, with acquiring key employees and also with building the employer's brand. All of the stated claims were designated by respondents as relevant or quite relevant. A statistically significant difference was not found in the mean value of individual answers among respondents in connection with the size of the company.

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CHANGES IN NATIONAL COMPETITIVENESS OF CZECH REPUBLIC ACCORDING TO GCR

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Keywords:

national competitiveness – diamond model – Global Competitiveness Report – Global Competitiveness Index

JEL Classification: E20, F00, F6

Abstract:

The first objective of this paper is to briefly describe the methodology used by the World Economic Forum for the construction of the Global Competitiveness Index. The methods applied (proportion of hard and soft data, form of their aggregation, choice of respondents, etc.) do not make it possible to find a satisfactory and unambiguous answer to the question whether national competitiveness is objectively measurable. Therefore, not only all the indicators but the selected hard data from WEF Dataset as well will be taken into account for evaluation of Czech national competitiveness. The second objective of this paper is to describe and explain the differences between the results obtained by using all WEF indicators and the results derived from selected indicators only.

Introduction

The term “national competitiveness” is used very frequently; however, it does not have clear and uniform definition. Some definitions explain the national competitiveness in connection with the development of price-cost factors; other definitions emphasize the role of macroeconomic indicators such as GDP growth, living standards, and employment.

In this paper, we will start by briefly explaining the term “national competitiveness”. This part of our article deals with the relations and assumptions which are important for multidimensional measurement of competitiveness. International competitiveness rankings differ in the representation of hard and soft data and in the importance (weight) attributed to both types of data during the calculation of the aggregate index. Since the informative value of soft data can be considered problematic, we used only selected hard WEF data for construction of our own Competitiveness Index (Index 11) in the analytical part of this paper.

1. Methods, literature overview

In the early 80's, the concept of competitiveness started to be used not only at the business level, but also at the level of industries, national economies and world regions – in connection with the world economy changes, caused by globalization processes. It should be underlined that the application of principles of firm competitiveness did not presuppose fundamental differences between firm and national competitiveness. Although the term is used very frequently, it does not have clear and uniform definition.

The theory of “firm competitiveness” implicitly assumes that “competitiveness of nations” is not based only on country-specific factors, but heavily influenced by firm-specific factors as well. Using conditions for sustainability of a competitive advantage, it is possible to clearly describe the difference between competitive and uncompetitive firms. An uncompetitive firm is not able to offer goods and services, which customers are willing to buy, and therefore fails to fulfil its financial obligations¹. Some definitions highlight the importance of firms for national competitiveness and explain national competitiveness in connection with the development of price-cost factors and firm financial conditions; other definitions emphasize the role of macroeconomic indicators such as GDP growth, living standards, and employment.

National competitiveness is frequently conceptualized in terms of the ability to earn. It is believed that higher degree of competitiveness leads to higher GDP or income, and therefore to a higher standard of living. Porter (1990) asserts that national competitiveness is equivalent to productivity. Porter's comprehensive approach to national competitiveness, the so-called diamond model, reflects his conviction that there are close links between microeconomic productivity of firms and macroeconomic performance of the national economy. With respect to dichotomy in the ways in which policy makers think about competitiveness (on one hand, competitiveness is associated with qualities which enable a high standard of living, on the other hand, competitiveness is associated with locational attributes which drive economic growth) Delgado, Ketels, Porter & Stern (2012) proposed a novel definition of competitiveness, which “ties directly to economic performance and encompasses the full range of factors that shape national prosperity, and especially the influence of public policy and business practise”. According to attitude of Delgado, Ketels, Porter & Stern (2012), foundational competitiveness is defined as the expected level of output per working-age individual given the overall quality of a country as a place to do business. To estimate foundational competitiveness, these authors specify a comprehensive model of output per potential worker (measured by GDP in population between 15-64 years old) as a function of

¹ Many authors evaluate firm competitiveness using financial indicators derived from accounting statements. Scholleova and Camska (2015) tried to prove whether the commonly used financial indicators have an impact on firm competitiveness in terms of economic value added (EVA). Authors applied ROC curves and AuROC measures for quantification of the discriminatory power of detected scale variables. Their results showed partial ability to predict future competitiveness using the previous results of factors derived from the financial statements.

microeconomic environment (MICRO), social infrastructure and political institutions (SIPI), and monetary and fiscal policies (MFP). Using this concept of foundational competitiveness, authors define a related concept, global investment attractiveness, which is defined as the gap between a country's competitiveness and its current factor costs.

The most famous international competitiveness rankings attempt to reflect the important role of the global value chains. Timmer, Los, Stehrer & De Vries (2013) emphasize the importance of interconnection between economies. These authors point out that with the increasing fragmentation of production across borders and the increasing use of foreign inputs, traditional measures of national competitiveness can no longer be maintained. The novelty of their approach is that they trace the value added by all labour and capital which are directly and indirectly used for the production of final goods. The result of this approach is the global value chain income. First attempt to measure global value chain income was realized by OECD and WTO. This initiative resulted in concept named Trade in Value-Added (TiVA) presented by OECD (2013) in TiVA Database. TiVA indicators (e.g. domestic value added embodied in gross exports, re-export intermediates as % of total intermediate imports, foreign value added embodied in gross exports, etc.) are designed to improve awareness of the policy makers by providing new insights into the commercial relations between nations.

All cited authors share a common view, that multidimensional measurement of national competitiveness can be a suitable instrument for evaluation of national competitiveness. However, it is necessary to take into account the limited explanatory power of these indicators. The limits of multidimensional ranks are connected with using of hard and soft data and with the methodology of data aggregation. In this paper, WEF's Global Competitiveness Report (GCR) was chosen for evaluation of changes in Czech national competitiveness.

The first main aim of this article is to briefly describe WEF methodology used for construction of the Global Competitiveness Index (GCI). The second aim is to use data published by WEF in the Global Competitiveness Report for evaluation of changes in Czech national competitiveness according to the GCI. In analysis, our own index, based on using of hard data published in Competitiveness Dataset of WEF, will be constructed. This index is based on application of 11 selected hard indicators. Construction of this index was inspired by attitude of Klvacova & Maly (2008). We calculated the Index (11) as follows: we took into account the country's rank in 11 indicators and we computed the arithmetic average. Based on the index values obtained for each economy, we compiled competitiveness ranking for the EU 28.

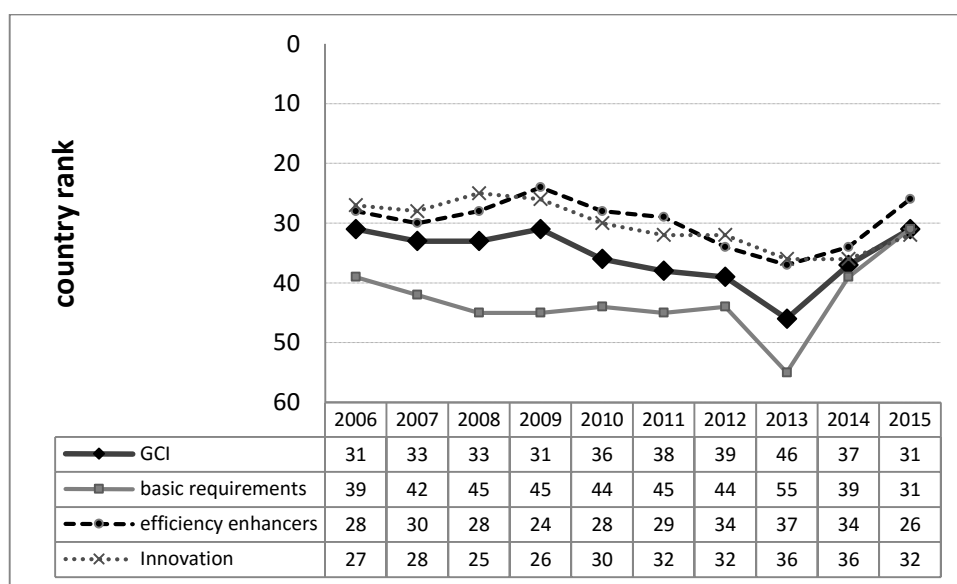
For the analysis of the changes in competitiveness and for the description of Czech strengths and weaknesses, methods of comparison and evaluation will be applied.

2. Results

2.1. Changes in Czech national competitiveness according to GCR

The Global Competitiveness Report (GCR) is published annually by the World Economic Forum (WEF). This annual competitiveness report is based mostly on soft data, which allows monitoring a larger number of countries than in case of the second most famous ranking - World Competitiveness Yearbook. In the current issue of GCR, 144 countries are evaluated on the basis of 114 qualitative and quantitative indicators, describing the macroeconomic and microeconomic factors of competitive advantage. Values in the framework of individual indicators scale from 1 (the worst result) to 7 (the best result). WEF assesses the competitiveness of economies on the basis of the weighted average. Comparability of differently developed countries (countries are divided according to GDP per capita and the share of primary products export in the total product) should ensure the application of different weights in the analysis of individual indicators. The following figure shows more detailed view of the determinants of changes in the Czech Republic's rank in the GCR in the last ten years.

FIG. 1: Changes in Czech national competitiveness according to GCR



Source: <http://reports.weforum.org/global-competitiveness-report-2015-2016/>, online 20.10.2015, own processing

In the last two editions of GCR, the Czech Republic succeeded in reversing a five-year downward trend. The position of the Czech Republic in the GCR is positively affected by the rating of foreign trade, level of prices (it is projected in the cost benefits of exporters), and the quality of the basic infrastructure. The trend of domestic demand (trend of consumption expenditure, trend of investments), firms' worsened access to financial resources, and the results of expert investigations (soft data) in the area of

criteria rating the conduct of management (management practices) had a negative impact on the country's rank in the years of the economic recession. The soft indicators (trust in politicians, quality and transparency of decision-making processes in the government and public sector, etc.) have a negative effect on the result in the Institution pillar (the third worst indicator for Czech Rep. in the last edition is Public trust in politicians – 107th place out of 144 monitored countries, the indicator with the worst evaluation is Burden of government regulation – 120th place). WEF data also show improvements in health and primary education, thanks to a higher primary enrolment rate, as well as gradual improvements in the labour market (47th), albeit from very low levels. While cooperation in labour-employer relations and the flexibility of wage determination are perceived more favourably, regulations are perceived as rigid due to bad evaluated indicators: Hiring and firing practises (98th) and Effect of taxation on incentives to work (108th). The country's capacity to attract talent remains limited (85th). For going forward, the following indicators need to be improved: technological readiness and the results in sophisticated and innovative activities. The country's competitiveness would be further enhanced by improvements in its higher education system, where the Czech Republic, at rank 29, features among the worse ranked EU economies. Compared to the EU-15, the Czech Republic lags behind mainly in pillars characteristic for the knowledge economy. Above all, the Czech Republic suffers from badly evaluated government procurement of advanced tech products (83rd) and availability of scientists and engineers (66th). Table 1 offers more detailed results for the Czech Republic. For more precise view on strengths and weaknesses of Czech Rep. and for analysis of economic crisis impact on Czech competitiveness we selected the results from the first year in Competitiveness Dataset - 2006, from the year 2010 (this GCR edition reflects the macroeconomic data from 2009) and from the last four rankings. We used dark grey tint for the two worst evaluated group of indicators and light grey tint for the two best evaluated pillars in every column. Arrows in the last column indicate the change (improvement, deterioration) in the new ranking (GCR 2015-16) compared to the first ranking (2006-07).

TAB. 1: Changes in Czech competitiveness – the results in competitiveness pillars

Ranking - GCI	Czech Republic						2006-15
	2006	2010	2012	2013	2014	2015	
<i>Basic requirements</i>	39. (4.9)	44. (4.9)	44.(4.9)	55. (4.8)	39.(4.5)	31. (5.3)	↗
1. Institutions	55. (3.9)	72. (3.9)	82. (3.7)	86. (3.6)	76.(3.8)	57. (4.1)	↗
2. Infrastructure	33. (4.4)	39. (4.8)	38. (4.8)	39.(4.7)	41.(4.7)	41. (4.7)	↗
3. Macroeconomic environment	36. (5.4)	48. (4.9)	42.(5.2)	55. (5.0)	40.(5.4)	21. (6.0)	↗
4. Health and primary education	57. (6.0)	43. (6.1)	53.(5.9)	60. (5.8)	37.(6.2)	27. (6.3)	↗
<i>Efficiency enhancers</i>	28. (4.6)	28. (4.7)	34.(4.6)	37. (4.5)	34.(4.6)	26. (4.8)	↗
5. Higher education and training	27. (5.0)	24. (5.1)	38.(4.9)	39.(4.9)	35.(5.0)	29. (5.1)	↘

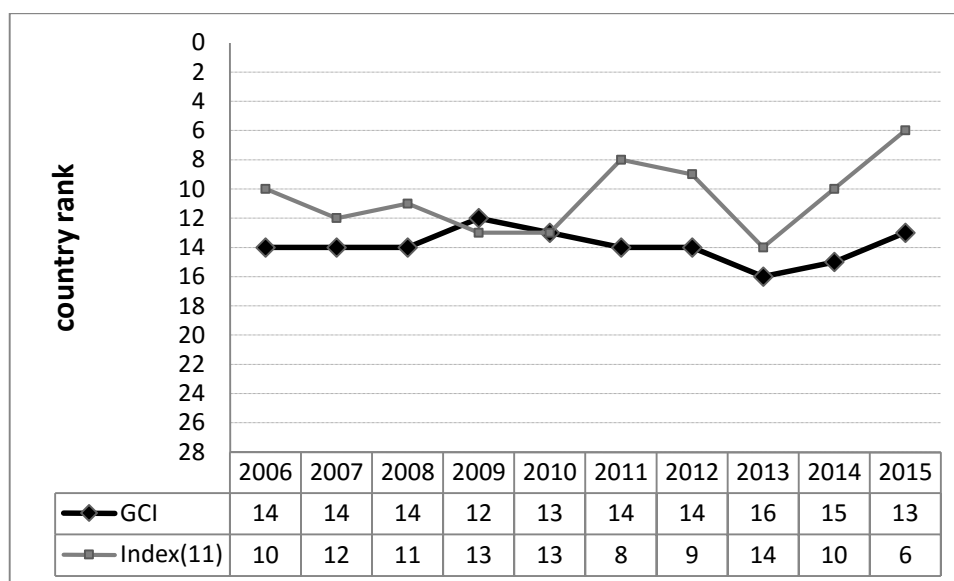
Ranking - GCI	Czech Republic						
	2006	2010	2012	2013	2014	2015	2006-15
6. Goods market efficiency	31. (4.7)	35. (4.6)	41.(4.5)	48.(4.4)	50.(4.5)	37. (4.6)	↘
7. Labor market efficiency	31. (4.6)	33. (4.7)	75.(4.3)	81.(4.2)	62.(4.3)	47. (4.4)	↘
8. Financial market development	50. (4.4)	48. (4.5)	57.(4.3)	58.(4.2)	44.(4.5)	24. (4.6)	↗
9. Technological readiness	27. (4.4)	32. (4.5)	31.(5.1)	34.(4.9)	36.(5.0)	29. (5.4)	↘
10. Market size	40. (4.6)	42. (4.5)	40.(4.5)	41.(4.5)	42.(4.5)	47. (4.5)	↘
<i>Innovation factors</i>	27. (4.4)	30. (4.2)	32.(4.1)	36.(4.1)	36.(4.1)	32. (4.1)	↘
11. Business sophistication	27. (4.8)	34. (4.5)	35.(4.5)	38.(4.4)	35.(4.5)	30. (4.5)	↘
12. Innovation	27. (4.0)	27. (3.9)	34.(3.8)	37.(3.7)	39.(3.7)	35. (3.8)	↘

Source: <http://reports.weforum.org/global-competitiveness-report-2015-2016/>, online 20.10.2015, own processing

2.2. Changes in Czech national competitiveness in the EU 28 – GCI and derived indices

Country ranking in international comparison of competitiveness can be influenced by selection of individual criteria, by selection of evaluated countries or by the method of data aggregation. Ranking economies in competitiveness rankings can therefore differ considerably depending on the fact whether those rankings evaluate each the EU country separately, or i.e. the EU28 as a whole. In this part of our paper, we followed the methodology of Klvacova and Maly (2008). Using countries' results in the selected hard data from WEF's Competitiveness Dataset (GDP in PPP, population, GDP per capita, mobile telephone subscriptions/100 pop., government budget balance as % GDP, annual rate of inflation, general government debt as % GDP, 3rd pillar: Macroeconomic environment², tuberculosis cases/100,000 pop., infant mortality as deaths/1,000 live births, life expectancy, mobile broadband subscriptions/100 pop.) we calculated the Index (11) for each country. (We calculated the arithmetic average from the country's ranking in selected WEF indicators and then we compiled new ranking for the EU countries.) Obtained results are used for the evaluation of changes in Czech national competitiveness.

² Klvacova & Maly (2008) used the Institutional Investor Country Credit Rating criterion, but since the data are not available for all EU countries in the examined period, this criterion has been replaced by the country rank in 3rd pillar: Macroeconomic environment.

FIG. 2: Czech competitive position in the EU 28 –GCI and Index (11)

Source: <http://reports.weforum.org/global-competitiveness-report-2015-2016/>, online 20.10.2015, own processing

When we consider only the EU 28 countries, the improvement of Czech ranking in the new GCI is less optimistic compared to the results of the GCR 2013 (an improvement of 15 places compared to improvement of 3 places). It is therefore clear, that the competitiveness position of the Czech Republic virtually did not change during the last 10 years. When judging the changes in the country's rank, it is essential to bear in mind, that the rating is relative - the country's improvement may be influenced or dictated by the slower growth rate of other countries' positive changes. It is evident that within the EU 28, there is no distinct convergence towards the European leaders (the most competitive countries according to: a) GCI 2015-16: Germany, Netherlands, Finland, b) Index 11: Germany, Sweden, Italy) in the aforementioned period - the reasons for this are obvious from the comparison of the results in individual pillars - see Tab. 1. If we use only selected hard indicators for our evaluation, the ranking of the Czech Republic is better in all inspected years - apart from the results from 2009 and 2010.

Due to the big representation of hard macroeconomic data in Index 11 (four data from 11 describe macroeconomic position) and the way of calculation (arithmetic mean), the impact of macroeconomic indicators on the overall result is important. Results in Index (11) in the years of economic decrease (2009, 2010 and 2013) are influenced mainly by the unfavourable macroeconomic data (the GDP decrease); therefore the results of the GCI and the Index (11) share more similarities. Favourable macroeconomic data are the main cause of bigger differences between the GCI and the Index (11) in the last year followed. In our opinion, the large representation of soft data in the GCI has a negative impact on the rating of the Czech Rep. (the same is typical for other V-4 countries) due

to the more critical attitude of evaluators from V-4 countries in comparison with evaluators from other countries, especially from the developed countries.

3. Discussion

The method of construction of the GCI (representation of hard and soft data, form of their aggregation, appearance of individual partial criteria including the formulation of questions which selected evaluators are asked, choice of the circle of respondents, etc.) naturally does not make it possible to find a completely satisfactory answer to the question whether national competitiveness is objectively measurable. Some indicators are mutually incompatible and inconsistent. For example, a country with an educated, but a cheap labour force, flexible labour market with a low rate of social protection, but low taxes as well, is considered as highly competitive.

High expenditures for the infrastructure, education, research, and development are prerequisites for better position in rankings, but positive balance of public budgets is a necessary condition for good evaluation in macroeconomic area too. According to articles dealing with national competitiveness key factors having impact on explanatory power of multidimensional competitiveness ranking are following: representation of hard and soft data, form of their aggregation, appearance of individual partial criteria including the formulation of questions which selected evaluators are asked, choice of the circle of respondents.

Conclusion

When rating the position of a country in the GCI, it must be considered that its position depends on a relative score – improvement of the position can be caused by either the absolute improvement of the results in individual indicators or the absolute worsening of other countries. These consequences must be taken into account when evaluating the strengths of Czech competitiveness. The weaknesses of Czech competitiveness (Czech rank in pillars with negative impact on overall Czech result in the GCI) stay the same during research period (the 1st pillar Institutions and the 7th pillar Labour market efficiency). The indicators with positive impact on Czech competitiveness changed in the last edition of the GCR compared to the first year of our analysis. However, the position of the Czech Republic in the key knowledge indicators (the pillars: higher education and training, technological readiness, innovation and sophistication factors) is worse in the last edition. It indicates low pace of improvement in these key aspects of competitiveness.

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FINANCIAL PROFILE OF INNOVATING COMPANIES

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Keywords:

innovating companies – benchmarking methodology INFA – economic performance

JEL classification: M210, O310.

Abstract:

Micro-data combination facilitates the new views on economic phenomena. Combination of financial indicators (The Czech republic statistical research P5-01 in 2012) with innovation data (The Czech republic statistical questionnaire TI in 2012) enabled to elaborate financial profile of innovating firms and compare with no innovating companies, using INFA methodology. Analysis is focused on productive innovations in manufacturing companies. On the basis of 3000 companies was created the performance survey of product-innovative companies. The economic performance of the product-innovative firms, that realised the new innovations on the market, was assessed by indicator EVA (economic value added). The comparison and explanation of amount of EVA indicator was made by INFA methodology and demonstrated by the “word graph.

Introduction

We occupy ourselves with research of firm’s performance and innovations, which are one of the most powerful driving forces of value generation (Neumaier & Neumaierová, 2013). This article seeks to demonstrate the possibility of acquiring additional information that results from linking the data from two separate databases. Unless we do link the databases, we will not be able to assign financial data to innovative enterprises and thereby create their financial profile.

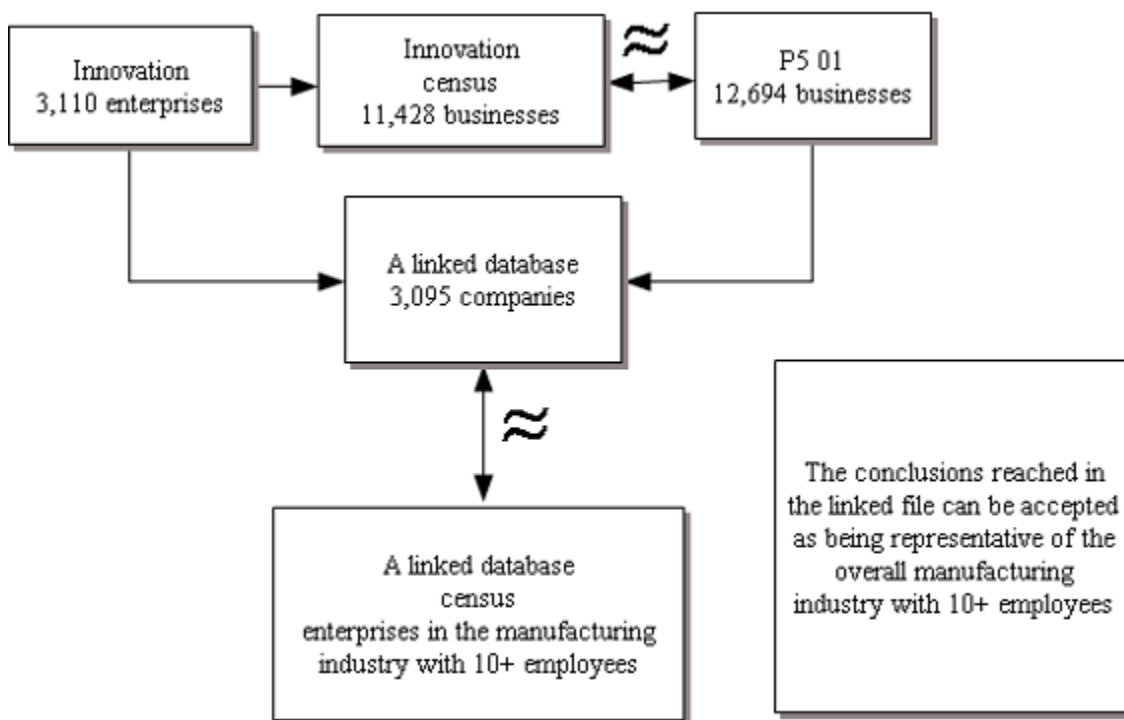
1. Data Sources and Research Methodology

We have microdata available from the CSO statistical survey (Czech Statistical Office, 2014) entitled “The Innovation Activities of Enterprises” (TI Questionnaire 2012) and also from the Annual Statements of Businesses from Selected Production Branches (Report P5 01). The data from the responses to the innovation questionnaire are in regard to the innovations implemented during the 2008-2010 period and to the financial

indicators for 2010. Report P5 01 comprises a balance sheet, a profit and loss statement and the number of employees; we chose the data for the year 2010.

We decided to process the microdata available in regard to the manufacturing industry. The innovation questionnaire is designated for businesses with ten or more employees (10+). It is a combined statistical survey (sampling, census). In the innovation questionnaire there are 3,110 enterprises that are classified as belonging to the manufacturing industry category. These represent 11,428 businesses with 927,485 employees and total sales of 2,988 billion Czech crowns. From Report P5 01 we chose data regarding enterprises with 10+ employees. These constitute 12,694 businesses with total sales of 3,128 billion Czech crowns and with 970,797 employees. Both the files are comparable and they represent enterprises in the manufacturing industry with 10+ employees.

We linked the microdata from both the files (see Figure 1). In this manner 3,095 companies with sales of 2,353 billion Czech crowns and with 601,953 employees were linked. In virtually every instance it was possible to assign the data from the balance sheet, the profit and loss statement and the number of employees of all the businesses to the innovation questionnaire. The conclusions reached in the linked file can be accepted as being representative of the overall manufacturing industry. It is a unique file that is not available to anyone one else. In regard to the individual enterprises we calculated the economic profit, i.e. the EVA (Neumaier & Neumaierová, 2014), using our INFA methodology (Neumaier & Neumaierová, 2002).

FIG. 1: Creating a linked database (a unique data file) by combining two databases

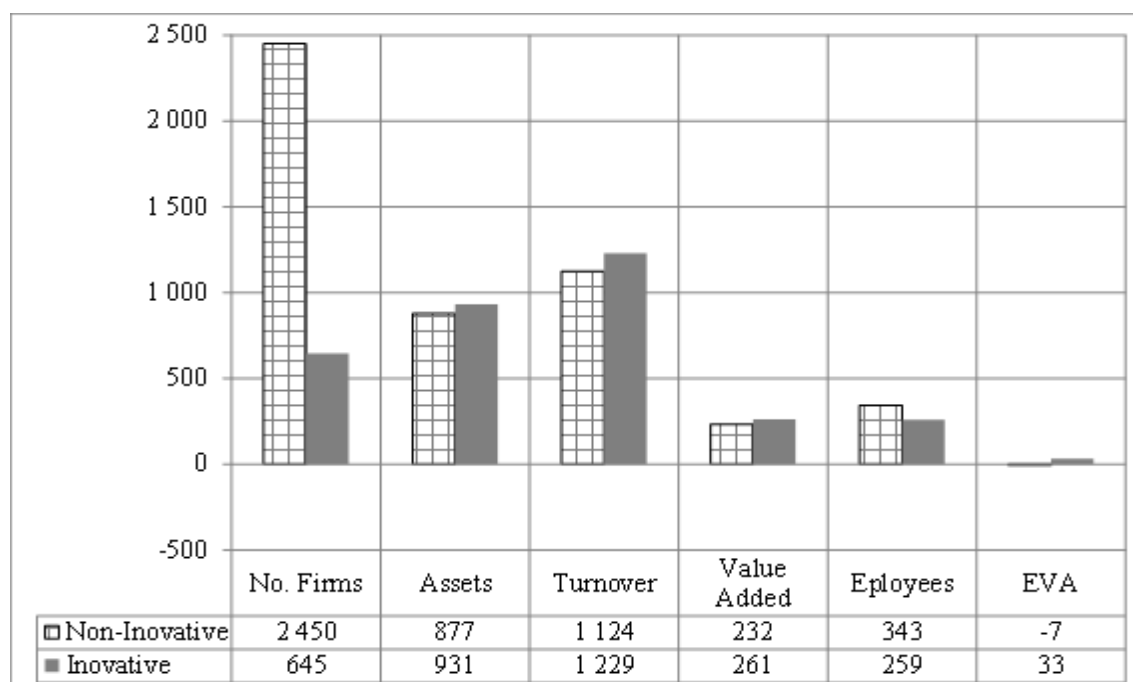
Source: Own Elaboration

2. Result

2.1. The first section compares innovative with non-innovative enterprises

We decided to implement the first section in the database by dividing it into companies that are implementing product innovation (in regard to their product(s) or service(s)), something which is new to the market, and into another category of businesses, i.e. those that lack this innovative focus.

Extremely dominant out of the total number of enterprises are those that lack innovation, which constitute 79% of the entire database and 57% of the headcount. Enterprises focussed on innovation prevail in the categories of Assets (52%), Sales (52%) and Value Added (53%). In regard to the creation of EVA, enterprises focussed on innovation created CZK 33bn, while those lacking innovation achieved a total loss of CZK -7 bn. Clearly, innovative companies are significantly more efficient than the businesses that lack innovation. Fig. 2 depicts the statistics of a number of businesses, including their Assets, their Sales (the revenues received from the sale of their own products and services), the value added (VA) and the EVA in billions of CZK and their number of Employees in thousands of persons.

FIG. 2: The first section in the database

Source: Data of the Czech Statistical Office, calculations authors

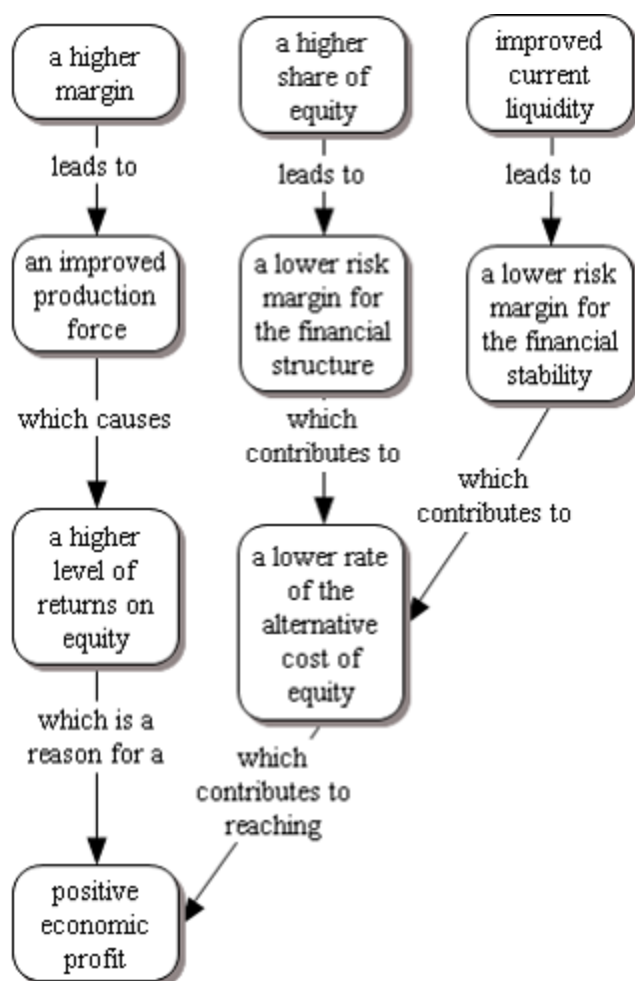
For evaluating the performance of the innovative companies the INFA methodology was employed (Neumaier & Neumaierová, 2014), which views the creation of economic profit in a causal manner. The result of its application is shown in Table 1, while the text chart in Figure 3 presents an evaluation of this table. The three legs shown in the figure represent the three groups of factors that are relevant to the INFA methodology. The first elucidates the reason for the creation of the output, while the second shows the manner of its division and the third the financial stability, based on which the creation and the division of EBIT are occurring.

TAB. 1: The financial performance of innovative and non-innovative enterprises

	Innovative	Non-innovative	Total
Economic profit (EVA)	33 444 425	-7 292 004	26 152 421
Return on equity (ROE)	15,33%	7,88%	11,87%
Alternative cost of equity (r_e)	8,64%	9,56%	9,07%
Production force (EBIT/Assets)	10,21%	5,66%	8,00%
Margin (EBIT/Revenues)	6,37%	3,72%	5,12%
Revenues /Assets	1,60	1,52	1,56
Share of equity (Equity/Assets)	53,68%	49,39%	51,60%
Current liquidity	1,67	1,42	1,54

Source: Own Elaboration

FIG. 3: The creation of the EVA in regard to innovative enterprises as compared to non-innovative enterprises, in accordance with the text chart of the INFA causal chain



Source: Own Elaboration

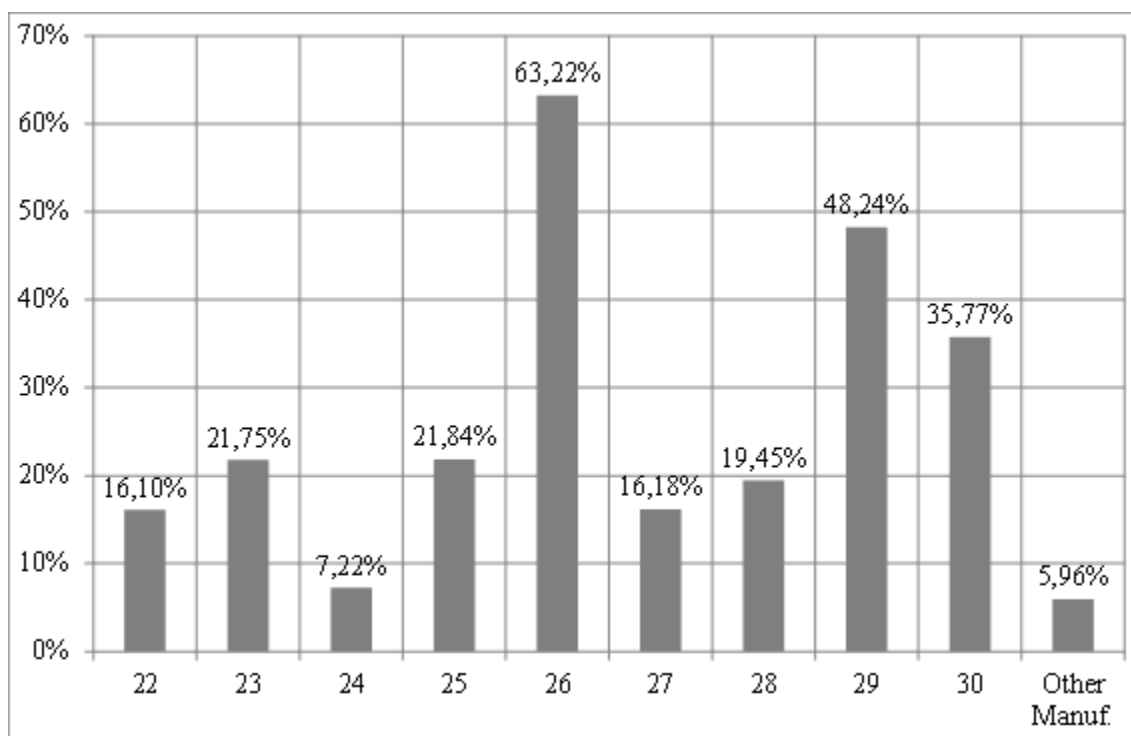
2.2. The second section in accordance with the innovative companies sector of industry

In the second section we have divided the manufacturing industry and the innovating enterprises in accordance with their categories. Tab. 2 depicts a list of the branches of the manufacturing industry. For each branch, we calculated the share of its sales from innovative products and services in terms of its total revenues (see Fig. 4).

TAB. 2: The branches of the manufacturing industry FIG. 4: The share from the sales of innovative products and services in regard to total revenues

CZ-NACE
10 - Manufacture of food products
11 - Manufacture of beverages
12 - Manufacture of tobacco products
13 - Manufacture of textiles
14 - Manufacture of wearing apparel
15 - Manufacture of leather and related products
16 - Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
17 - Manufacture of paper and paper products
18 - Printing and reproduction of recorded media
19 - Manufacture of coke and refined petroleum products
20 - Manufacture of chemicals and chemical products
21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations
22 - Manufacture of rubber and plastic products
23 - Manufacture of other non-metallic mineral products
24 - Manufacture of basic metals
25 - Manufacture of fabricated metal products, except machinery and
26 - Manufacture of computer, electronic and optical products
27 - Manufacture of electrical equipment
28 - Manufacture of machinery and equipment n.e.c.
29 - Manufacture of motor vehicles, trailers and semi-trailers
30 - Manufacture of other transport equipment
31 - Manufacture of furniture
32 - Other manufacturing
33 - Repair and installation of machinery and equipment

Source: Data of the Czech Statistical Office

FIG. 4: The share from the sales of innovative products and services in regard to total revenues

Source: Data of the Czech Statistical Office, calculations authors

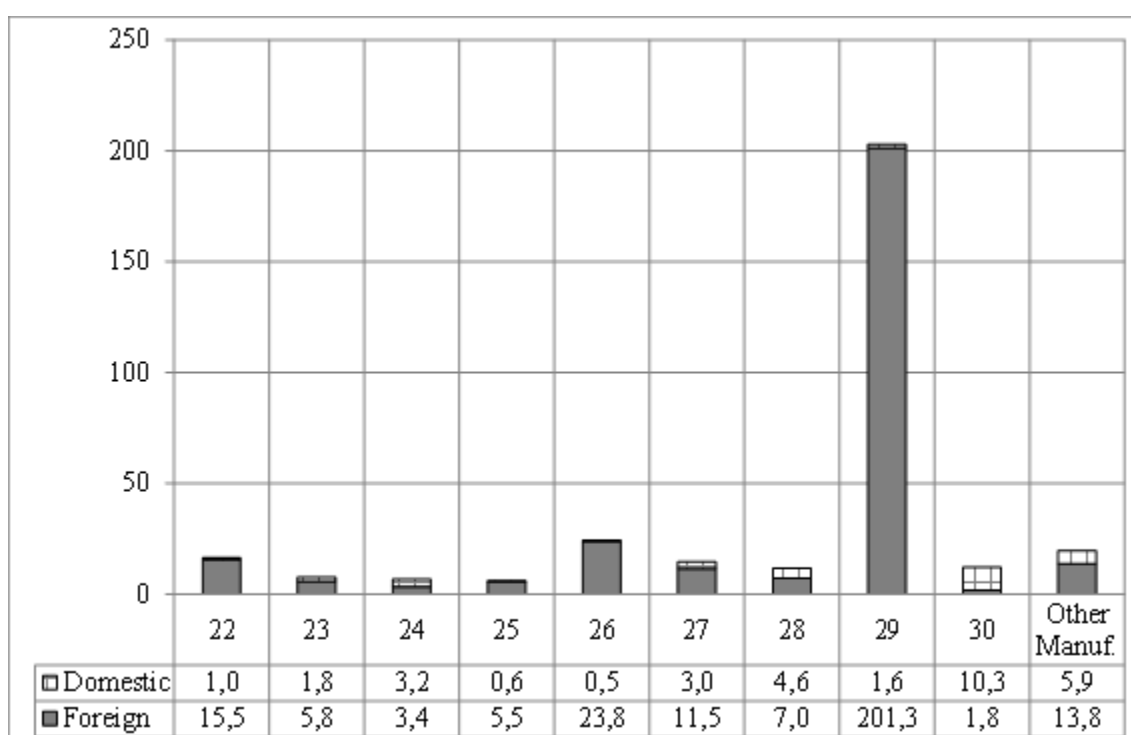
The largest share, as expected, is in regard to the manufacture of computers (CZ-NACE 26), namely 63.22%. In second place is the manufacture of motor vehicles (CZ-NACE 29) with 48.24%, followed by the manufacture of other transport equipment, i.e. aircraft, locomotives, carriages and ships (CZ-NACE 30) with an aggregate share of 35.77%. With a share of between 20% and 22% is the category that comprises the manufacture of fabricated metal products (CZ-NACE 25) and of other mineral products, such as cement, bricks and glass (CZ-NACE 23) and also the manufacture of machinery (CZ-NACE 28). Comprising another group of products, with a combined share of cca. 16%, is the manufacture of electrical equipment (CZ-NACE 27) and the manufacture of rubber and plastic products (CZ-NACE 22), while another significant share, i.e. 7.22%, is that of the manufacture of basic metals (CZ-NACE 24). The average share for the entire manufacturing industry is 26.19%.

2.3. The third section in accordance with the ownership of innovative enterprises

In branches with a high share of foreign-controlled enterprises there is also a high share of sales of innovative products and services. That is why we created the third section in the database, in accordance with the business ownership

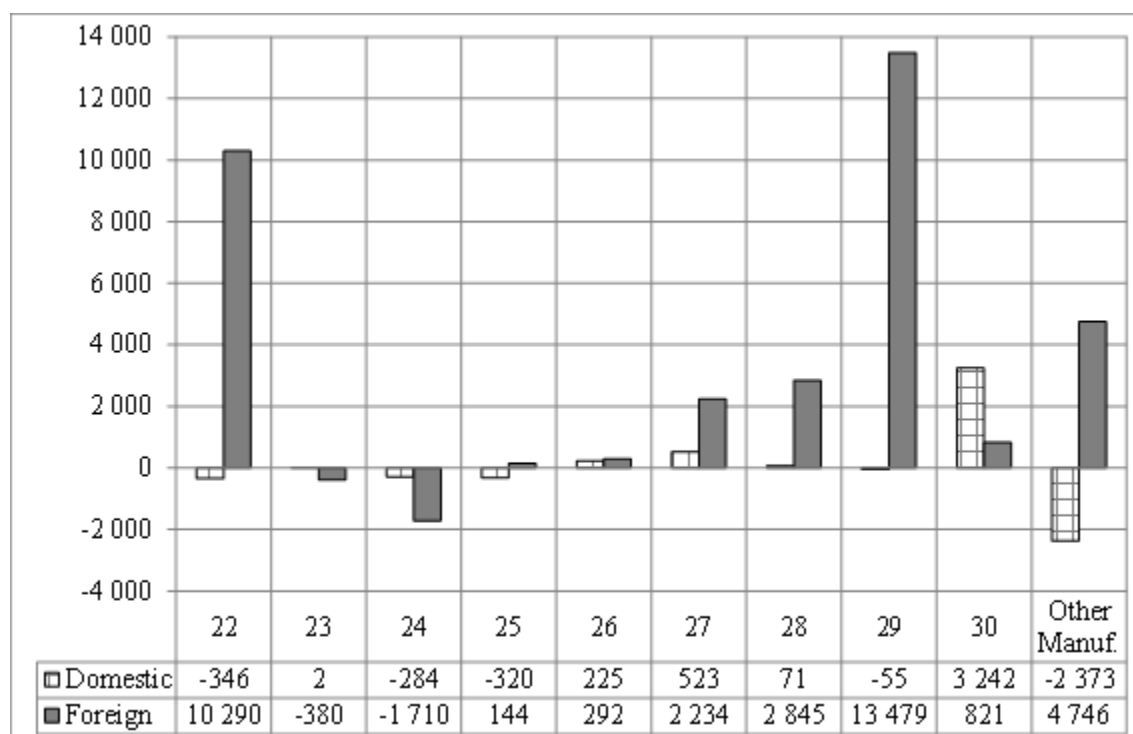
Out of the entire revenues of 322 billion Czech crowns earned for innovative products and services, 90% was received from foreign-controlled enterprises. Most significant, when viewed from the perspective of the different branches of industry, it is the manufacture of motor vehicles, which also constitutes 63% of the sales based on innovation. The manufacture of computers accounts for 8%, while the manufacture of rubber and plastic and the manufacture of electrical equipment combined make-up cca. 5%. Cca. 4% are those of manufacture of machinery and the manufacture of other transport equipment. Fig. 5 shows the sales of innovative products and services in billions of CZK and in accordance with their ownership.

FIG. 5: Revenues for innovative products and services in accordance with business ownership (expressed in billions of CZK)



Source: Data of the Czech Statistical Office, calculations authors

In Fig. 6 the EVA for innovative enterprises is defined in accordance with industry and with ownership, in millions of CZK. Clearly the main creators of the EVA are foreign-controlled companies and companies involved in the area of manufacture of motor vehicles and manufacture of rubber and plastic. Manufacturing enterprises under foreign control reached a negative EVA value only in regard to the production of metals and non-metallic mineral products. Corporations under domestic control thrived primarily through the manufacture of other transport equipment and additionally also the manufacture of electrical equipment, computer manufacturing and the production of machinery. In the sector of non-metallic mineral products, domestic enterprises moved above zero.

FIG. 6: EVA (expressed in billions of CZK)

Source: Data of the Czech Statistical Office, calculations authors

3. Discussion

From the perspective of the share and the volume of the sales of innovative products and of new services, the marketing situation in the manufacturing industry is at a good level. Creeping up now, however, is the question as to whether or not these goods and services have actually been developed in the Czech Republic. Probably due to the fact that foreign-controlled corporations constitute an aspect of global value chains, further development, with a few exceptions (e.g. Skoda Auto) will not be based in this country. On the other hand, in regard to domestic enterprises, it is possible to anticipate future development in the Czech Republic (e.g. of ultralights). That is not good news for the Czech Republic, but it was easy enough to anticipate.

Conclusion

Linking data concerning innovations with data in regard to the financial situation enabled obtaining new information about innovative businesses.

It was discovered that innovative companies have a significantly higher level of economic profit (the manner of its creation was explained in terms of the INFA methodology). It turned out that the most innovative branch of the manufacturing industry in the Czech Republic is the production of computers and that the most

innovative products actually originate from foreign-controlled enterprises, which also create the greatest volume of economic profit.

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FUNDAMENTAL CHANGES IN THE STATE AID POLICY IN THE SLOVAK REPUBLIC

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JEL classification: D41, F15

Abstract:

As a result of the modernization of state aid rules of the European Union Slovakia has adopted a new legal act regulating this area. In fact the original legislation as a whole was amended, however, the principles and philosophy of the state aid as regards obligations resulting from the membership in the European Union remained unaffected. This substantial legal change has an impact on the change of responsibilities of the Ministry of Finance of the Slovak Republic as state aid policy is the responsibility of the Antimonopoly Office of the Slovak Republic. A register of state aid was established on the basis the new legal act. The study analyses the major changes in the field of state aid policy which have a significant impact on the business environment in Slovakia as well as on the development of economic relations and international investment relations.

Introduction

The notion of state aid started to be used in connection with the process of preparation of the Slovak Republic for its membership in the European Union. The Association Agreement (the Agreement establishing an association between the European Communities and their Member States, of the one part, and the Slovak Republic, of the other part) in the provision of article 64 regulated the state aid. (OJ of 31.12.94 No L 359: 2-201) The agreement stipulated that in providing the state aid in Slovakia the provisions of the Treaty establishing the European Community will be fully respected. The Slovak Republic has committed itself in article 64 of the Association Agreement to adopt the implementation rules for the state aid. The draft implementation rules that had a standard character for all associated states were elaborated by the European Commission. The implementation rules for state aid based on this international agreement were adopted by the Association Council on 22 November 2001 and published in the Collection of Laws SR on 18 April 2002 no.186. In the interest of fulfilment of obligations steaming from the National Programme for the adoption of *acquis communautaire* it was necessary to adopt the Law on State Aid. (Government of

the SR, 2001) Experts from the Ministry of Finance of the Slovak Republic prepared the Law no. 231/1999 Coll. On State Aid, this entered into force as of 1 January 2000.

The European Commission evaluated the achieved progress during the accession process and in the Regular Report on the Progress Achieved in the Slovak Republic for the year 2001 it stated, that it is necessary to improve the discipline of competition in accordance with the rules of the EC, in particular in the field of state aid. (Government of SR, 2001) At the same time the European Commission pointed out the fact, that it is necessary to strengthen the administrative capacities, as the application of the Law on State Aid in practice was still inconsistent and insufficiently transparent. Within the framework of negotiation process the area of state aid was included into the Negotiation Chapter no. 6 Competition. The state aid became problematic especially from the point of view of correct application of EC primary and secondary legal regulations. At that time there was no strategy of state aid in place in Slovakia at the ministerial nor at the state level, which would set priorities on the basis of public interest in relation to the regions or economic sectors. As a consequence of this the interests of groups and of the political parties in powers could be enforced. On the basis of the said law the Office for the State Aid in its seat in Bratislava was institutionalised as the state administration body for the examination, evaluation, approval, registration and control of its providing. In the year 2004 on the basis of the initiative of the Ministry of Finance of the Slovak Republic (SR) the Office of the State Aid was abolished. The competences of the Office of the State Aid were transferred to the Ministry of Finance of the SR, whereby the condition of its independence was not complied with.

The application of the Law on State Aid in the economic practice has shown, that the amendment is needed especially with regard to the status of the Ministry of Finance of the SR as the state administration authority and with regard to the modernisation of the rules of the European Union in the field of state aid. The Law no. 231/1999 Coll. on the State Aid as amended was abolished and the new law regulating the legal relations in the field of state aid policy was introduced with its entry into force as of 1 January 2016. The position document of the European Commission to the Partnership Agreement for the Slovak Republic for the years 2014 – 2020 explicitly stipulates, that the coordinator of the state aid shall be the independent authority with the sufficient financial resources. (Partnership Agreement for the years 2014-2020, 2014) Such authority became the Antimonopoly Office of the Slovak Republic (SR) headed by its chairman (who is not the member of the Slovak Government). By this measure the requirement of the European Commission to prevent the coordinator of the state aid to be influenced by the political parties in deciding about the state aid was substantially accepted, which should ensure the stability and expertise of the administrative capacities in the field of state aid and relative independence of the coordinator of the state aid. On the basis of the new legal regulation, i.e. the Law of 2015 on the Regulation of Certain Relationships in the Field of State Aid and on Minimum Aid (Law on State Aid) the

new institutional procedures are introduced, while the rules of state aid remain preserved. By this action the currently valid legal regulation ensures transparency in providing the state aid, as the transparency in the field of public finances is the key element for the modernisation of the rules on state aid. At the same time the transparency increases the awareness about the state aid provided at different levels, which should ensure the better control and monitoring both at state and local level. (draft Law on State Aid, 2015)

1. Methods

The aim of this scientific contribution is to analyse the substantive changes in the field of state aid policy, which have the fundamental impacts on the business environment in Slovakia. In examining the given issues and finding answers there to the scientific methodology was applied which enabled us to find correct and accurate and mutually interrelated knowledge of the facts. We have analysed the valid legal regulation on the providing of state aid and we have pointed out the fundamental legislative amendments. By analytical examination we have identified the substantial facts and relationships connected with the state aid policy, which influence this issue. The methodology of synthesis enabled us to follow and monitor the relations between the facts, the character of mutual interrelations, to reveal reasons, functional interrelation, consequence of stages or the tendency for the development of the examined phenomenon. We have applied the induction method in order to formulate the general scientific conclusions on the basis of examination of the basic scientific data. The deduction method was used in order to abstract the general and partial conclusions from the general knowledge as regards the influence of the law of the European Union over the state aid policy in Slovakia. Another method that was used was the method of comparison that we have used in examining the volume of the provided state aid in Slovakia.

2. Results

2.1. Providing the state aid

According to the provision of article 107 paragraph 1 of the Treaty on the Functioning of the European Union (TFEU) any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market (OJ of 30.3.2010 No C 83:91). In order to clarify correctly the notion of state aid we will apply the finding of the Court of Justice of the EU in case C- 200/97 and C - 6/97 stating that the concept of aid is wider than that of a subsidy because it embraces not only positive benefits, such as subsidies themselves, but also measures which, in various forms, mitigate the charges which are normally included in the budget of an undertaking and which, without therefore being subsidies in the strict meaning of the word, are

similar in character and have the same effect (Case C-200/97, ECR 1998, p. I-7907, paragraph 34, C-6/97, ECR 1999, p. I-2981, p. 15.) The compatibility of state aid with the internal market can be acceptable only when the balance is guaranteed between the final infringement of the competition and the advantages resulting from the state aid. The introduced measure represents the state aid if all four criteria are met, i.e. the transfer of public funds, selectivity, advantage on the part of the addressee and the influence over the competition and internal market. These facts were also confirmed by the judgement of the Court of Justice of the EU in case C 140/09, where the criteria of state aid are stipulated First, there must be intervention by the State or through State resources. Second, the intervention must be liable to affect trade between Member States. Third, it must confer an advantage on the recipient. Fourth, it must distort or threaten to distort competition (Case C 14/09 /, ECR 2010 p. I-931 paragraph 31, C-142/87, ECR, p. I-959, p. 25.) The rules of the European Union applicable on the state aid are stipulated in the primary law of the EU, as well as in the respective guidelines, notifications, frameworks and codes that are issued by the European Commission on the basis of article 109 TFEU in order to apply articles 107 a 108 TFEU. (OJ of 30.3.2010 No C 83 :91) In addition to the explicit ban on the provision of state aid there are also exemptions, where state aid can be granted. Paragraph 2 of the article 107 TFEU further stipulates the kinds of state aid that are compatible with the internal market and paragraph 3 of the article 107 TFEU defines the kinds of state aid that can be compatible with internal market, if they are approved by the European Commission . (OJ of 30.3.2010 No C 83:91) Further to the primary law of the EU the Slovak legal regulation stipulates the main purposes of the granted state aid:

- a) for the economic development of areas with extra ordinary low standard of living or with extraordinary high unemployment rate,
- b) to implement the important project of common European interest or to remedy the serious insufficiencies in functioning of economy,
- c) for the development of certain economic activities or certain economic areas, unless such aid substantially influences the conditions for the trade so that it would contradict the common interest.

The disproportionality in the unemployment rate among individual regions has a number of common reasons: insufficient infrastructure in some regions, insufficient education of potential employees, concentration of industry in the given areas, weak motivation of businessmen and entrepreneurs to increase the number of jobs, incorrectly fixed system of social benefits, worsened business environment in Slovakia, low average salary in regions with high unemployment rate, high number of long term unemployed persons in the regions with high unemployment rate, the problem of education in the regions with high unemployment rate, etc. (Kajanová 2015, p. 379) Certain condition in providing the state aid can represent the fact that it can be provided in the area with extraordinary low standard of living or with extraordinary high unemployment rate, i.e. in the regions where the GDP per capita is at the level of 75 %

or below of the EU average rate. The inflow of foreign investments plays the important role in the regional development. The setting-up of agencies, branches or subsidiaries by nationals of any Member State established in the territory of any Member State with the aim of permanent and uninterrupted exercise of business activities is in accordance with articles 49 and 54 TFEU. The entities which would like to exercise their business activity in another Member State should find out and check the legal aspects that apply to such activities in order not to infringe the law of the respective Member State and not to be the subject of the legal actions and problems at the territory of another Member State. (Treľová 2014 p.63) On the other hand, thanks to the knowledge of the legislation they can ask for the state aid in this country. In the interest of facilitation of the implementation of state aid policy the non-legislative act was adopted in the year 2014 - Commission Regulation (EU) No 651/2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty. (OJ of 26.6.2014 L 187) The state aid can be provided also in the form of the state aid schemes, while the Map of Regional Aid has to be respected. The Regional Map of State Aid is the instrument, which substantively stipulates the maximum intensity of regional investment aid in the regions with regard to the provision of article 107 paragraph 3 lit. a) and lit. c) TFEU. The maximum intensities of the state aid are expressed by the equivalent of gross cash financial aid, which represents the volume of the state aid before the income tax is paid. This map is binding on the Slovak Republic from 1 July 2014 till 31 December 2020. The Law no. 561/2007 Coll. on the Investment Aid is also considered as the state aid scheme at present. It means that the investors are granted state aid in accordance with the legal regulations on investment incentives. The new legal regulation also defines the system of granting aid outside the scheme which is also called ad hoc aid. In granting such aid the provider is obliged to ask the coordinator of the aid for his/her opinion, whether the state aid which is to be granted to the applicant is in accordance with the applicable legal regulation.

The recipients of the state aid can be the persons and entities doing their business activities. According to article 107 paragraph 1 TFEU the state aid rules are generally applicable only when the recipient is “undertaking”. Any activity of offering the good or market activity is considered to be the business activity. The subject performing both the business activities and non-business activities is considered as undertaking only in connection with its business activity. According to the conclusion of the Court of Justice of the EU in joint cases C-180/98 to C-184/98 in the context of competition law, the concept of an undertaking covers any entity engaged in an economic activity, regardless of the legal status of the entity or the way in which it is financed (Case C – 180/98, C-181/98, C-182/98, C-183/98 and C – 184/98, Pavlov and others., ECR 2000, p. I – 6451, p. 74). In order to ascertain certain fact for example the recipient of state aid can be the non-profit organisation, allowance organisation or sport club, if their activity includes the business activity, i.e. if such entity does not only perform its activities in order to satisfy its own needs, but it aims at business activity in order to gain profit

therefrom. As business activity cannot be considered the activity of military corps, police corps or of state educational institutions, which are financed by the state, etc. The entities providing social services, whose system is based on solidarity cannot be considered as the subjects performing business activity. In this connection it is necessary to point out the fact that there is no legal title as regards the granted legal aid. According to article 4 paragraph 1 of the applicable legal regulation the state aid can be provided in particular for following purposes, i.e. for the development of regions, to small and medium enterprises, for the research, development and innovations, for the support of education and training, for the support of employment, for the protection of environment, for the protection of agriculture, forest industry and rural areas, etc. In accordance with article 7 of the new Law on State Aid the form of direct aid, i.e. the granting the advantage to the recipient by financial means through the subsidy or grant, contribution, payment of interests or part of interests from the credit, payment of part of credit, refundable financial aid granted under more advantageous conditions as the market conditions, the increasing of capital in a way that is not in accordance with the market requirements, can be distinguished. At the same time the indirect aid can be granted, i.e. providing the advantage to the recipient in the non-financial form, in the form of state guarantee or bank guarantee provided under more advantageous conditions as the market conditions, tax relief, sanctions relief, or through the sale of immovable property of the state for the price lower than the market price, the suspension of the payment of tax, etc.

In the wider context the recipient of state aid is granted certain advantage. The advantage is considered any economic advantage which would not be obtained by the recipient of state aid under normal market conditions, i.e. without the aid of state resources. The undertakings should be entitled to state aid only when they have used all market means and possibilities and if such aid is necessary in order to achieve the well determined purpose of common interest. In this connection the relevance of the influence of the measure over the undertaking is being considered, and not the reason nor the purpose of the state intervention. We can talk about the advantage every time if further to the interference of the state the financial situation and economic status of the undertaking at the market is improved. It is not important, if the advantage for the undertaking is obligatory in the sense that it could not be refused or evaded. (Draft Commission Notice, 2014) The state aid can be efficient in pursuing the goals of public policy only if it has the stimulation effect, i.e. only when it motivates the recipient to motivate the activities, which would not be performed without granted aid. The control of stimulation effect is important especially in examining the effective application of the rules of European Union on the state aid.

Further to the Report on State aid granted by the Slovak Republic in the year 2014 it is evident that there is a big interest in granting the state aid from the side of business

community. The table below illustrates that the biggest volume of state aid in Slovakia was granted in the period of years 2009 and 2010.

TAB. 1: Report on State aid (SA) granted in years 2008-2014 (mil. EUR)

Year	2008	2009	2010	2011	2012	2013	2014
SA	406.08	440.27	454.83	352.42	295.80	290.74	322.14

Resource: Report on State aid granted 2014, retrieved October 10, 2015, from <http://www.statnapomoc.sk/wp-content/uploads/2015/06/report.pdf>

2.2. Approving the state aid by the European Commission

According to Article 108 TFEU and article 2 of the Council Regulation No 659/1999 of 22 March 1999 laying down detailed rules for the application of Article 108 of the Treaty on the Functioning of the European Union (OJ of 27.3.1999 No L 83: 1-9) the Slovak Republic is obliged to notify the European Commission well in advance the granting of state aid. The European Commission shall not approve the following types of state aid:

- a) minimum aid,
- b) aid granted on the basis of state aid schemes, which is in accordance with the special rules of the European Union for group exemptions,
- c) individual aid granted on the basis of state aid schemes,
- d) ad hoc aid, which is in accordance with the special rules of the European Union for group exemptions or with the special rules for providing services in the public interest.

The payments for services in the public interest are also exempted from the notification obligation, if the conditions under the special regulation are met. The concept of services of general economic interest is mentioned in articles 14 and 106 (2) TFEU and in Protocol on services of general interest No.26, which is annexed to the Treaty on European Union and to the Treaty on the Functioning of the European Union. (OJ of 30.3.2010 C 83) This legal regulation provides space for the Slovak Republic to decide in quite a big number of cases and in big volumes about the state aid without prior notification to the European Commission. By such procedure the long and burdensome administrative procedure is being avoided, however, the responsibility for granted aid is assumed by the state. However, the European Commission is still entitled to perform its control over the state aid granted in all EU Member States through the ex post control system.

2.3. Unlawful state aid

In granting the state aid the situation can occur where already granted state aid is considered as non-eligible, unlawful and incompatible with the internal market by the European Commission on the basis of ascertained substantive facts. The decision of the Commission on non-eligibility of state aid takes by its legal virtue the preference over the provisions of the national law and it is excluded from the review by the national authorities. In this connection it represents the practical application of the principle of supremacy of the law of the European Union, which is also reflected in article 7 paragraph 2 of the Slovak Constitution. In accordance with the article 14 of the Regulation of the Council no. 659/1999 of 22 March 1999 (OJ of 27.3.1999 No L 83 : 6) the state is obliged to take all measures to implement the decision of the Commission without any delay and at the same time to take all necessary measures in order to recover the unlawful state aid.

The business entity with granted state aid considered as unlawful by the decision of the European Commission is obliged to return the provided amount corresponding to the unlawful state aid, including interests according to the special regulation of the European Union, to the budget from which the payment of the state aid was made or to the budget to which the payment should be made. This obligation also applies to the legal successor of the recipient of the state aid. The decision of the European Commission on the unlawful state aid is directly enforceable vis a vis the recipient of the state aid as of the date of its service.

2.4. Competence of the Antimonopoly office of the Slovak Republic

According to the original legal regulation, i.e. the Law on State Aid of 1999 as amended the Ministry of Finance of the Slovak Republic has coordinated the state aid in relation to the providers of state aid in the Slovak Republic and in the European Union (article 21). The Antimonopoly Office of the Slovak Republic, which was established as the state authority for the protection of competition, is the coordinator of the state aid at present. From the accession of the Slovak Republic to the European Union the Antimonopoly Office of the SR works closely with the Directorate General for Competition of the European Commission. European Commission is entirely independent, and it does not follow any instructions of the Member States of the EU in the exercise of its tasks and thus is independent from the national governments. (Bérešová 2013, p. 121)

The Antimonopoly Office of the Slovak Republic (SR) became the successor for the exercise of policy of state aid and one of its tasks is to overview the correct application of the rules of state aid in Slovakia, as well as to submit the reports on the provided state aid for the previous year to the European. The Antimonopoly Office of the SR is also entitled to exercise control over the granted minimum state aid with its provider as well as with its recipient. In addition to these competences the Antimonopoly Office of the

SR is also the administrator of Central Register on State Aid, i.e. the register of providers and recipients of state aid. The providers of state aid are obliged to enter the data in accordance with the Commission Regulation (EU) No 651/2014 and art. 9 Commission Regulation No. 702/2014 and in accordance with the Law on State Aid in the Central Register through the electronic form. In case of breach of the rules of state aid as included in the new Law on State Aid of 2015 the Antimonopoly Office of the SR is entitled to impose fines, including in cases of failure to cooperate and to provide assistance in the process of considering the notifications. According to article 3 of the new Law on State Aid the Antimonopoly Office of the SR elaborates ad hoc opinions to the proposals to provide state aid, it also ensures the methodology and consultations in the field state aid and it elaborates the positions to the draft legal acts of the Slovak Republic from the point of view of consistency with the EU rules in the field of state aid policy.

3. Discussion

The adoption of the new legal regulation in the field of competition policy has both institutional impacts, as well as the overall implementation of the state aid policy in Slovakia. The introduction of the Central Register will ensure the accessibility of information about providers as well as about recipients of the state aid. From the point of view of effective application of the EU rules on state aid with the view to eliminate as much as possible the cases of unlawful state aid, the important role of coordinator of the state aid is also enshrined in the obligation to ensure the methodology and consultancy in the field of state aid and ensuring the providing and sharing information about the state aid. The correct application of state aid from the side of authorities responsible for the state aid policy as well as from the side of state aid providers will ensure the fair competition at the EU internal market. Quite significant issue in this context is also the problem of moral hazard further to the provision of state aid. The business entities expecting to be saved in case of adverse economic situation, can realize their risky investment intentions. The prospective for the assistance and rescue and the restructuralisation of the respective undertaking can also artificially reduce the capital costs of the undertaking, whereby the undue competitive advantage is provided to it.

Conclusion

In this context we can state that the system of state aid in Slovakia is being substantially changed under the influence of the law of the European Union, whereby the granting of state aid becomes more transparent. The Antimonopoly Office of the Slovak Republic became the coordinator, but also the entity responsible for the performing of the state aid policy in Slovakia. The fulfilment of obligations following from the membership of Slovakia in the European Union is also observed by the Court of Justice of the EU, which also recognised the principle of responsibility of Member States for the breach of the law of the Union. Further to the breaches of the Union law the Member States can

be subjects of the obligation for compensation of damage with the negative impacts over the public finances. (Urbanová & Milošovičová 2014 p.103)

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THE INVESTMENT POTENTIAL OF SILVER

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Abstract:

Nowadays, there are many investment products on financial markets, where investors can invest their own or foreign sources. In terms of the final investment plan, it is the particular investor's decision as to what they will invest in and on which markets. One way of appreciating monetary funds is to invest on commodity markets i.e. in silver. The main objective of this paper is to highlight the investment potential silver offers to investors. The problem is that most retail investors prefer gold rather than silver because of ignorance of its wide application and use not only for investment purposes.

Introduction

Nowadays, it is recommended that the younger generation saves more for their retirement. One of the offered options for the appreciation of monetary funds is to invest on commodity markets, i.e. in silver. An investor can ensure a better standard of living by investing in this precious metal and its appreciation. The money obtained from this commodity can be used to maintain or improve the standard of living mainly of the elderly e.g. to pay for better healthcare, spa visits. Another option is unexpected situations in life where this investment can cover e.g. loss of revenue from being made unemployed.

The main problem that occurs with silver is the ignorance especially of new and small investors who are unaware of the investment possibilities that this precious metal offers. The aim of this paper is to highlight the investment potential for retail investors, who represent the majority of the investment public. One of the main advantages of this metal, which is appreciating in the long-term, is that it generates real value assets. Another advantage of investing in real assets is that the investor can envisage what there are investing in compared to e.g. shares that may be purchased in dematerialized form. And that is another advantage of investing in silver. It should also not be forgotten that silver is widely used in certain industrial sectors, where the metal is currently irreplaceable i.e. in the manufacture of electronics.

1. The theoretical basis

Commodities are necessary for the daily life of everyone, without them we cannot exist. Every citizen consumes commodities every day, e.g. sugar, coffee, milk, to meet their basic needs. Some are encountered indirectly or we are unaware that we need them to live. An example could be a car, its construction and operation without the use of commodities would be completely impossible e.g. platinum, which is used in the manufacture of catalytic converters in the automotive industry. The exhaustion or non-replacement of this commodity in the future could lead to the restriction or cessation of certain industries, in the event that it is impossible to find an adequate substitute. Another factor that affects the overall development of the prices of various commodities on the markets is their consumption by businesses and consumers, accompanied by the annual increase in the world's total population.

Therefore, it is not only silver, with its long history, which can be rightly regarded as one of the key and irreplaceable metals for mankind. This assertion is supported by the fact that it has been mined in Asia since 2500 years BC. Its main use was in the production of silver coins and this has persisted to date because some countries still use this precious metal as a currency that is still in circulation. (Shipman, 2007)

Commodities are usually divided in two main groups, i.e. renewable (soft) and non-renewable (hard). (Fabozzi et. al., 2008) The first group comprises those that can be annually replenished. These commodities are divided in two main groups, namely agricultural products and livestock. Agricultural products include e.g. cotton or timber and livestock can involve e.g. the beef trade. Non-renewable commodities can also be divided in two major subgroups i.e. energy commodities and metals. Energy commodities are represented by e.g. oil and coal and metals can be divided in precious, which includes silver and gold, and industrial, which comprises e.g. copper and lead. Nesnidal and Podhajský (2007) highlight the growing importance of commodity transactions in the future, regardless of their classification.

Silver is a non-renewable commodity and is very important for commodity markets. This is highlighted by its 4 % representation in the overall Rogers International Commodity Index (RICI index), which includes a further 36 commodities including sugar, zinc, coffee, and wheat. The highest weight value in this index is for oil, which reaches 16 %. The significance of this commodity for industry and world trade is demonstrated by its representation in the index focused on industrial metals i.e. Rogers International Commodity Index Metals. Here, its importance is increasing. The Index consists of the following metals: copper, aluminum, gold, lead, zinc, platinum, nickel, tin, palladium and silver. Here, the weight of silver is 15.94 %, the same as for copper and aluminum. Gold has the highest percentage with a value reaching 19.92 %. The other metals achieve lower values of less than 8 %. This index clearly points to the fact

that silver is valuable and irreplaceable among other industrial commodities. (RICI, 2015)

The investment opportunities of silver can be divided in three areas. The first area consists of investing in silver bullion, and the second area consists of coins. According to Veselá (2007, p. 268), “*The most famous silver coins include the American Eagle Silver Dollar, the Australian Kookaburra, the Canadian Maple Leaf and the Mexican Libertad*”. These areas represent physical investment plans without the entitlement to dividends. However, it is also possible to invest in silver in paper form or in dematerialized form, which is greatly expanding these days with the growing importance of non-cash payments, which reduce the transaction costs related to printing e.g. derivatives, futures, stocks. The advantage of this form is that the investor can be entitled to dividends if they invest in shares of companies that are engaged in e.g. silver mining. The issue of dividends is dealt with by e.g. Lease et al. (1999), Sejkora, Duspiva (2015).

Investment in silver these days suggests that there may be a sharp appreciation in the future. The main reason is its undervalued price. Compared to gold, the ratio should be 15:1, which means that the silver should be fifteen times cheaper than gold. Currently, the ratio is 60:1; hence the price of silver is currently greatly underestimated in comparison with gold. On the markets there are 5 times less silver reserves than gold. (GoldenGate, 2015) From this statement alone it is clear what investment potential this industrial and investment commodity conceals.

Rogers (2008) warns when investing in industrial metal and copper that if an investor decides to invest in a particular commodity then they should consider its potential in terms of supply and demand. As with copper, an investor investing in silver should identify certain factors that may affect the price and analyse in detail the potential of the commodity in which the investor wants to invest. In the case of silver, the supply side should be assessed e.g. how are mining costs increasing, what are the current reserves, how big are the current deposits? On the demand side, the investor should analyze e.g. substitutability, the existence of substitutes, and extent of applicability in industry. Mexico was the largest silver producer in the world in 2014, followed by Peru and China with relatively high levels of extraction. (The Silver Institute, 2015)

2. Applied scientific methods

In terms of scientific methods, the main analysis used in this article was through a search of literature and Internet sources, which was supplemented by synthesis linking knowledge gained from the available resources. This was followed by a comparison made when assessing three investment alternatives investors have when investing in silver. Furthermore, the principle of logical thinking was applied, especially when evaluating these investment alternatives and during the application of the methods used.

3. Investing in silver

If an investor decides to invest in silver on the commodity markets and utilizes the available information and recommendations, then their investment could greatly appreciate in the future. We will assume that the investor has decided to invest in this precious metal in a physical form. Nevertheless, it should be remembered that an investment in precious metals generally appreciates in the long term, which is usually more than three years.

Of course, the moment of purchase and sale should be correctly timed. Current knowledge, which is based on new information on the financial markets, encourages this investment. In which case, an investment could be very successful if it is confirmed that silver is really heavily undervalued. The development of silver for one ounce in US dollars for the chosen time horizon of the first eight months of 2015 is shown in Table 1.

TAB. 1: Monthly price of silver for 2015 in USD

Month	High	Low	Average
August	15.55	14.27	14.94
July	15.64	14.49	15.07
June	16.70	15.70	16.10
May	17.70	16.17	16.80
April	16.86	15.83	16.32
March	17.14	15.47	16.22
February	17.59	16.20	16.84
January	18.23	15.71	17.10

Source: The Silver Institute (2015)

In the event that in the future there will be a reduction in the ratio between gold and silver to a ratio of 15:1 as recommended by the experts, then the investor's investment silver would appreciate at least fourfold, because it is currently at a ratio with gold of 60:1. Investors who invested in the silver in the given duration according to the information included in Table 1 would generate profits based on the recommendations of experts. Again, the timing of the purchase is important because the rate of this commodity may begin to increase until it reaches the desired ratio to gold.

We will assume that the fourfold increase in the price of silver will begin from the highest average values shown in Table 1, i.e. 17.10 USD per ounce. Then, the following three situations may occur: an investor buys one ounce of silver at the average rate of 17.10, a lower than the average rate e.g. 14.27 or a higher than average rate e.g. 18.23, which is the highest rate stated in the table. The three investment options can be expressed mathematically to determine the expected gross return in monetary units and percentages as follows:

Alternative I

$$FV = P_A \times 4 = 17,10 \times 4 = 68,4 \text{ USD/unce} \quad (1)$$

$$Rb = P_1 - P_A = 68,4 - 17,10 = 51,3 \text{ USD/unce} \quad (2)$$

$$r_b = \frac{P_1 - P_A}{P_A} \times 100 = \frac{68,4 - 17,10}{17,10} \times 100 = 300 \% \quad (3)$$

FV – future value,

Rb – gross return in monetary units,

r_b – gross return in percentage,

P_A – average price, for which the commodity was purchased,

4 – the expected fourfold increase in price,

P₁ – sale, where we assume that the investor sells an ounce of silver after reaching the fourfold appreciation,

Alternative II

$$Rb = P_A \times 4 - L_A + (P_A - L_A) = 17,10 \times 4 - 14,27 + (17,10 - 14,27) = 56,96 \text{ USD/unce} \quad (4)$$

$$r_b = \frac{P_1 - L_A}{L_A} \times 100 = \frac{68,4 - 14,27}{14,27} \times 100 = 379,33 \% \quad (5)$$

L_A – below-average price at which the commodity was purchased,

Alternative III

$$Rb = P_A \times 4 - H_A + (P_A - H_A) = 17,10 \times 4 - 18,23 + (17,10 - 18,23) = 49,04 \text{ USD/unce} \quad (6)$$

$$r_b = \frac{P_1 - H_A}{H_A} \times 100 = \frac{68,4 - 18,23}{18,23} \times 100 = 275,21 \% \quad (7)$$

H_A – above-average price at which the commodity was purchased.

For all three alternatives, the investor sees a positive gross return. It also shows how important correct timing of the investment is for the purchase of the commodity in question, since each of the alternatives show different results in the achieved gross

return. In practice, it will depend on the price from which the projected fourfold increase in silver will begin.

4. Discussion

As with all investments, silver is not without its risks. One such risk is when the recommended ratio to gold, i.e. 15: 1 is reached. This may be within a time horizon of five, ten or fifteen years. An investor who chooses to invest in this commodity will have to be very patient in order for their investment to appreciate fourfold and more. If an investor decides to invest in silver bullion and coins, then they must have sufficient space for their storage. This storage service is offered by professional firms but for a fee, which can greatly increase a retail investor's costs or directly discourage them from this type of investment. The intention to invest in silver can also be dampened by the current existence of a tax burden. In the Czech Republic, a physical purchase and sale of commodities is burdened by VAT, unlike gold, which is exempt from such tax. Retail investors in particular must be familiar with the terms of VAT and also with income tax because the return on investment in silver could be considerably reduced.

On the other hand, the future predictions of experts of the appreciation of silver are very positive. Some estimates from analysts even speak of a 100-fold increase in prices over the next 10 to 15 years. Silver is currently considered to be the best investment. (GoldenGate, 2015)

Conclusion

In today's globalized world, there are frequent changes on financial markets. Some events are very difficult to estimate due to globalization processes, and this has an impact on the investment behaviour of investors. One of the ways investors can appreciate their own or foreign sources is to invest in silver on the commodity markets. Expert recommendations on this issue also support investment in this precious and industrial metal. Investing in this metal has a range of indisputable characteristics and benefits for investors, which include e.g. it being irreplaceable in industry as well as it being the most undervalued metal.

Of course, it is still true that investors should diversify their investment portfolio. Therefore, it is certainly not recommended that an investor invests all of their available cash resources in only one commodity. This would mean that the investor would become too dependent on one investment, which is highly risky. As with any other investment, silver has an assumption of risk that may arise in the future, e.g. the discovery of new deposits, being replaced by another substitute in industry and the tax burden. Due to the fact that silver is a long-term investment, the question is whether the current tax laws will still apply in five to ten years.

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TRADE CREDIT MANAGEMENT IN THE BUSINESS SECTOR IN POLAND – SELECTED ASPECTS

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Abstract:

Trade credit can be an attribute determining competitiveness of enterprises, and a source of serious financial problems for entrepreneurs who offer their customers this form of lending. In this context, it is necessary to consciously manage receivables, especially at the time of crisis and frequent payment delays. The aim of this paper is to identify and analyse the selected aspect in the area of receivable management in Polish enterprises, classified according to the size of employment, as micro, small, medium-sized and large enterprises. The paper uses the results of direct questionnaire study were conducted on a group of 380 enterprises in Poland in 2014.

Introduction

Financing of enterprises' economic activity is one of the most important challenges of the current market. Limited access to external sources of financing does not allow enterprises to fully use their production potential to extend the scale and scope of production. This situation is one of the factors that lead to the weakening of the competitive position of an organisation and lack of possibility of expansion.

Trade credit, also called merchant credit, as the oldest form of credit used by enterprises during conducting business activity, allows enterprises to purchase goods with deferred payment term and constitutes the basis for trade between enterprises. It reflects cooperation between a producer and purchaser of goods. The share of trade credits in the financing of the operation of Polish enterprises significantly exceeds the share of bank credit, and in the SME sector it represents a basic source of financing circulating capital.

This form of credit often becomes an attribute of manufacturers and impacts competitiveness of enterprises, but it may also be a source of their serious financial

problems. Difficulties with obtaining financial receivables after the payment date have a negative impact on enterprises' financial situation (Ziółkowska, 2013), especially on maintaining financial liquidity. It is therefore very important to intentionally manage claims and determine the appropriate credit policy.

The paper attempts to identify and analyse the selected aspect in the area of receivable management in Polish enterprises, classified according to the size of employment, as micro, small, medium-sized and large enterprises.

1. Theoretical aspects of trade credit management

Trade credit is inseparable from the trade of goods between companies. In academic literature, there exists a variety of theoretical explanations for how trade credit is determined and how it influences the financial condition of a company. Trade credit transactions normally involve short-term (e.g. thirty to ninety days) delayed payment of purchases of intermediate goods or services. Through delayed payment, trade credit suppliers are effectively funding their clients with short-term debt (Cuñat Garcia-Appendini, 2012). Many researchers indicate how (Gorzeń-Mitka, 2014; Deloof La Rocca, 2015) trade credit has a few main differences with respect to other types of corporate debt. These are as follows:

- a) suppliers lend their goods or services (seldom lend cash);
- b) trade credit is frequently not subject to specific, formal contracts between the lender and the borrower (for example in contrast with bonds or loans);
- c) trade credit is issued by non-financial firms.

For example, Petersen and Rajan (1997) discuss several of the main theories in this area. One of them (Price Discrimination Theory) predicts that non-financial companies provide trade credit or loans to companies with higher credit risk in order to facilitate their sales to these financially constrained companies. Another theory discussed by these authors was transaction cost reduction theory. According to this theory, trade credit enables firms to bundle various payment commitments into one by synchronizing their payment dates, and, therefore, to reduce transaction costs.

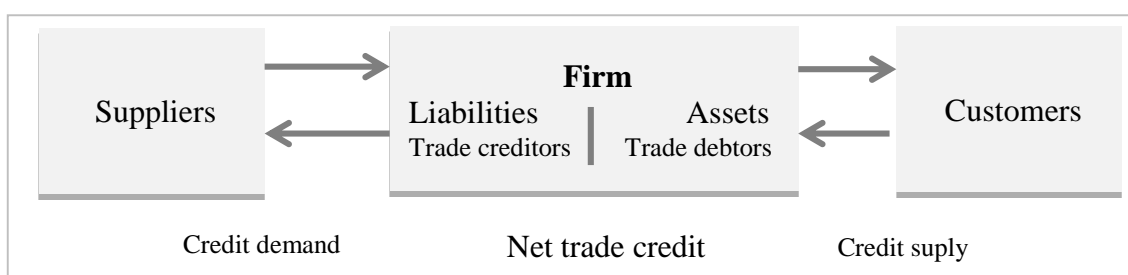
Trade credit is a vital component of corporate finance in many countries. Compared to the vast literature on banking and finance, however, Uesugi and Yamashiro (2004) indicate that trade credit has received rather modest attention from researchers. Trade credit has an essential role in the functioning of small and medium enterprises (SMEs). Trade credit is one of the most important sources of borrowing at an individual firm level. This applies to all types of firms and different economies. Carbó-Valverde, Rodríguez-Fernández and Udell (2013) discuss how trade credit provided an alternative source of external finance to SMEs during the credit crisis. Their study suggests substitution between bank loans and trade credit that is conditional on the level of financing constraints and is more intense during the crisis. This indicates that trade

credit was an important mechanism that helped some SMEs cope with the credit crisis induced by this financial crisis. They demonstrate that trade creditors play a role in the SME sector as lenders of last resort and this role becomes more important during a credit crisis.

On the other hand Schwartz (1974) reports that trade credit is a complement to bank debt and capital market debt. It diminishes the efficiency of an aggregate monetary control, but on the other hand it mitigates discriminatory effects caused by a restrictive monetary policy, which tends to affect mainly small and medium sized enterprises [SME]. Moreover in enterprises that are larger, have been functioning on the market for a longer period of time and have a better financial evaluation, business process management occurs more often within financial control of a company and there is more awareness of the necessity of using process approach in this area of management of finances of enterprises (Okręglińska & Lemańska-Majdzik, 2015).

According to Wilson (2014), trade credit is one of the most important types of short term credit used and accepted by businesses, by virtue of the number of transactions, the policies associated with accepting it, and the accounting procedures necessary to manage it accurately. Thus, credit has interesting characteristics: it represents a substantial component of both corporate liabilities and assets of the balance sheet. For the buyers' balance sheet, it is a source of financing through accounts payable, while, for the sellers, credit is an investment in accounts receivable. Trade credit is recorded as debtors (asset), which is the amount of credit that the firm provides to its customers, and trade creditors (liability), which is the amount that the firm has to pay its suppliers. Fig. 1 indicates the trade credit on the balance sheet.

FIG. 1: Trade credit on the balance sheet



Source: Wilson N. (2014). Trade Credit in the UK Economy (1998–2012).

It is worth emphasizing that Mehta (1968) applied the statistical technique of sequential decision process to the problems of trade credit management. He tried to examine two problems, i.e. credit extension policy on a specific request or account and construction of indices measuring the effectiveness of such a policy. The aim was to establish a decision system which has an analytical solution. He studied indices in terms of bad debt level, receivable level, etc. and measured the impact of credit extension procedures

on the subsequent phases of credit policy. The logical relationship between the operating decision rules and the control indices were suggested to the management in framing the optimal credit policy.

Furthermore, Fitzpatrick and Lien (2013) indicate that trade credit is used as a form of business funding for a number of reasons. First, suppliers may have an advantage over banks in providing credit because they tend to have more information about their customers and their credit history. Second, because suppliers cannot provide certainty about the timing for delivery of their goods, they may extend trade credit to provide buyers with more certainty about the timing of their payments. Third, trade credit can be used as an instrument of price discrimination.

Trade credit might also be available when other forms of financing are not. For instance, during periods of contractions in bank credit (say, due to monetary tightening or bank distress), buyers might depend more on trade credit for short-term financing as a response to credit market tightening, and this may be especially true for small firms (see, for example Choi & Kim, 2005; Love, Lorenzo & Sartia-Allende, 2007; Sipa, 2011).

2. Results

The aim of this paper is to identify and analyse the selected aspect in the area of receivable management in Polish enterprises, classified according to the size of employment, as micro, small, medium-sized and large enterprises. In view of the main aim, the following research hypothesis has been formulated: There are still poor management practices in the area of trade receivable management in Polish enterprises.

In order to examine hypothesis, the studies in a form of a direct questionnaire were conducted on a group of 380 enterprises in Poland in 2014. The collected data has a qualitative character. This resulted from the fact that there were microenterprises in the research group which are characterized by limited financial reporting. The studies had seed character and constitute the basis for the preparation of extended research in the future.

Effective management of trade receivable is one of the basic elements to ensure the liquidity of companies and its survival. The respondents indicated that the quality of receivables management is limited - most of enterprises take ad hoc action in this area, as needed, and thus the lack of a strategic approach is clearly visible (tab. 1). Looking at individual categories of businesses should be noticed that professionalism in trade credit management improves for larger companies, longer operating on the market. Taking into account the main business area, manufacturing companies as well as mix type companies (which might be also engaged in the production activity) are focused on the quality of receivables management to the greatest extent.

TAB. 1: Trade receivable management in the own assessment of the entrepreneurs according to the size of enterprise, the period of functioning on the market and type of economic activity (%)

trade receivable management	size of an enterprise				total
	micro	small	medium-sized	large	
very professional, in accordance with theoretical knowledge about the management	3.1	10.8	0.0	0.0	4.5
professional, we have established policy in relation to the recipients or their groups	34.0	47.0	81.0	64.3	40.5
ad hoc (incidental), we deal with receivables when it is needed	63.0	42.2	19.0	35.7	55.0
trade receivable management	period of functioning				total
	up to 1 year	1-3 years	3-5 years	over 5 years	
very professional, in accordance with theoretical knowledge about the management	0.0	3.9	6.3	4.6	4.5
professional, we have established policy in relation to the recipients or their groups	31.8	27.5	29.2	45.9	40.5
ad hoc (incidental), we deal with receivables when it is needed	68.2	68.6	64.6	49.4	55.0
trade receivable management	type of economic activity				total
	commercial activity	service activity	production activity	mixed activity	
very professional, in accordance with theoretical knowledge about	5.0	5.3	4.5	3.3	4.5

the management					
professional, we have established policy in relation to the recipients or their groups	39.7	35.1	54.5	43.9	40.5
ad hoc (incidental), we deal with receivables when it is needed	55.4	59.6	40.9	52.8	55.0

Source: own research

One of the most important elements of receivable management is their collection, especially in the case of outstanding payments. The range of managerial tools is here wide, both in terms of hedging against the insolvency risk as well as the enforcement of already existing arrears. The penalty interest is one of such tools, but the surveyed enterprises rarely used this form of disciplining the counterparties, fearing a negative reaction of customers in the form of resignation from commercial cooperation (tab. 2). It was found, however, a weak statistical correlation between the frequency of charging penalty interest for the delay in invoice payments and the size of the company.

TAB. 2: Charging the penalty interests for the delay in invoice payments according to the size of enterprise, the period of functioning on the market and type of economic activity (%)

charging the penalty interests	size of an enterprise*				total
	micro	small	medium-sized	large	
Yes, always	10.7	9.6	19.0	21.4	11.3
Yes, in some cases	24.0	42.2	42.9	50.0	30.0
No, never	65.3	48.2	38.1	28.6	58.7
charging the penalty interests	period of functioning				total
	up to 1 year	1-3 years	3-5 years	over 5 years	
Yes, always	18.2	11.8	10.4	10.8	11.3
Yes, in some cases	22.7	23.5	25.0	32.8	30.0

No, never	59.1	64.7	64.6	56.4	58.7
charging the penalty interests	type of economic activity				total
	commer -cial activity	service activity	producti -on activity	mixed activity	
Yes, always	9.9	13.2	4.5	12.2	11.3
Yes, in some cases	28.9	26.3	45.5	31.7	30.0
No, never	61.2	60.5	50.0	56.1	58.7

*Spearman's rho correlation coefficient = - 0.181, p = 0.000

Source: own research

One of the tools for hedging against the risk of the receivable loss is a requirement of the security for the receivables. Here, however, the entrepreneurs do not use almost any form of security. The large enterprises are here the exception - they make use of available opportunities in part, which is associated with scale trade contracts (tab. 3).

TAB. 3: Collaterals required in case of delivery of wares with deferred payment period according to the size of enterprise, the period of functioning on the market and type of economic activity (%)

collaterals	size of an enterprise				total
	micro	small	medium- sized	large	
promissory note	6.5	10.8	14.3	7.1	7.9
pledge	3.4	3.6	4.8	21.4	4.2
suretyship	9.5	6.0	14.3	14.3	9.2
bank guarantee	5.3	12.0	14.3	50.0	8.9
we do not require collaterals	75.2	67.5	52.4	7.1	69.7
collaterals	period of functioning				total

	up to 1 year	1-3 years	3-5 years	over 5 years	
promissory note	4.5	3.9	6.3	9.3	7.9
pledge	9.1	5.9	4.2	3.5	4.2
suretyship	4.5	11.8	8.3	9.3	9.2
bank guarantee	13.6	7.8	8.3	8.9	8.9
we do not require collaterals	68.2	70.6	72.9	69.1	69.7
collaterals	type of economic activity				total
	commer- -cial activity	service activity	producti -on activity	mixed activity	
promissory note	6.6	8.8	18.2	6.5	7.9
pledge	4.	3.5	0.0	5.7	4.2
suretyship	12.4	7.9	4.5	8.1	9.2
bank guarantee	5.8	7.9	18.2	11.4	8.9
we do not require collaterals	71.1	71.9	59.1	68.3	69.7

Source: own research

In case of refusal of debt repayment, the legal action (litigation) remains the only solution. Many of the surveyed companies had to use this solution in business practice in the last few years; the medium-sized and large companies apply this solution most often (tab. 4). On the other hand, the lack of using this form stems not only from the lack of such necessity in business operation but also from the high costs of judicial proceedings and concerns about their efficacy in Poland.

TAB. 4: Collection of trade receivables through the courts according to the size of enterprise, the period of functioning on the market and type of economic activity (%)

collection of trade receivables	size of an enterprise				total
	micro	small	medium-sized	large	
yes, many times	5.3	26.5	47.6	35.7	13.4
yes, once	8.0	15.7	28.6	7.1	10.8
no, it's too expensive form of debt collection	6.5	7.2	0.0	0.0	6.1
no, we do not believe in the possibility of such recovery of money	6.1	6.0	0.0	0.0	5.5
no, we did not have such a need	74.0	44.6	23.8	57.1	64.2
collection of trade receivables	period of functioning				total
	up to 1 year	1-3 years	3-5 years	over 5 years	
yes, many times	4.5	9.8	10.4	15.4	13.4
yes, once	9.1	5.9	4.2	3.5	4.2
no, it's too expensive form of debt collection	9.1	5.9	6.3	5.8	6.1
no, we do not believe in the possibility of such recovery of money	4.5	11.8	6.3	4.2	5.5
no, we did not have such a need	81.8	66.7	60.4	62.9	64.2
collection of trade	type of economic activity				total

receivables	commer -cial activity	service activity	producti -on activity	mixed activity	
yes, many times	14.0	9.6	27.3	13.8	13.4
yes, once	7.4	13.2	22.7	9.8	10.8
no, it's too expensive form of debt collection	4.1	7.9	4.5	6.5	6.1
no, we do not believe in the possibility of such recovery of money	5.0	6.1	4.5	5.7	5.5
no, we did not have such a need	69.4	63.2	40.9	64.2	64.2

Source: own research

3. Discussion

Risk management in the area of enforcement the trade receivables is an important element of trade credit management, requiring knowledge of methods and advanced management tools that reduce the risk. Due to the importance of trade credit for the national economy, it is vital to continuously develop the knowledge in the field of the functioning of small and medium-sized enterprises as well as building and modifying a set of micro- and macro economical tools to be used to effectively carry out management processes, strengthening and stabilizing the sector analysed.

Maintaining financial liquidity is a priority condition for the functioning of the SME. However, analysis of liquidity often does not take into account the smallest economic entities due to their limited financial reporting. Thus, it is appropriate to pay special attention to the analysis of financial liquidity in micro and small firms as well as its determinants.

Conclusion

The functioning of trade credit as a tool supporting the financing of enterprises' business activity can be examined in numerous aspects. First of all, it increases enterprises' possibilities of development, as it is used by credit recipients for long-term financing of working capital. It helps increase sales, enter new market segments and diversity business activity, and improve reputation and goodwill, as well as improving competitive position. It can also save time, effort and costs, especially if compared with bank credits. For the lender, it represents an excellent source of a financial policy,

which allows certain market segments to be activated while others – destabilised. It should be however stressed that inappropriate management of trade receivables may cause the loss of liquidity of companies using trade credit as well as their collapse.

The problems of conscious management of receivables and definition of a credit policy are especially visible among Polish enterprises. Many of them indicate problems with collecting trade receivables, but analysis of the ways of managing this area shows poor knowledge and skills of entrepreneurs, who rarely use available forms of disciplining recipients (penalty interests, insurance) or legal security or security on property against the risk of customer's insolvency. Enforcement of receivables by warrant of execution issued by court also does not happen very often even if enterprises have overdue receivables. It should be however stressed that this situation results not only from the attitudes and skills of entrepreneurs, but also the highly competitive market environment and the economic downturn, which often force such a lenient policy towards purchasers.

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PRICE VOLATILITY ON THE MARKET IN CEREALS AND PIGS FOR SLAUGHTER - ANALYSIS OF TRENDS AND REGULARITIES

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Keywords:

market of pigs for slaughter – procurement prices of wheat and rye – the purchase price of pigs for slaughter – the trend of price changes

JEL classification: Q 120, Q 130, Q 160

Abstract:

For agricultural producers fattening animals relative prices of basic raw materials which go into animal feed in relation to the purchase prices of cattle at a time are important. They provide information for producers about the potential conditions of the profitability of the next cycle of animal production. The aim of the study is to determine trends in market prices of pigs for slaughter and major cereals and mutual interactions between these prices in Poland in the years 1995-2014. Producers of pork in PL after a period of relatively stable functioning of the cereals market and buying livestock in 1995-2004, entered a new period, functioning within the EU single market characterized by severe competition and instability in the market price of cereals and livestock.

Introduction

For agricultural producers fattening animals, and also from the point of view of policy implementation control of production carried out by the state, or more broadly - in the framework of the European Union relationships in purchase prices to the prices of means of production are important, in particular feed prices as a key component of production costs. Relations between prices of basic raw materials which go into plant feed and the purchase prices of livestock in a given time constitute important information for producers on the potential conditions of the profitability of the next cycle of animal production. Wherein it should be noted that the purchase prices at any given time will not be adequate to those obtained at the time of sale of livestock. In deciding on the scale of production, there are four types of producers' price expectations: naive (producer assumes that future prices will be the same as that seen at present - theory of Ezekiel), adaptive (following adjustment of expectations adequately to the error committed previously - Nerlove), quasi-rational (based on time series and the relevant variables. Producers know that prices were changing in the past, but they are not able to determine how it will be shaped in the future - Nerlove, Grether, Carvalho), rational (based on the predictions on the future relations of demand and

supply of the product - Muth) (Chavas, 1999). However, research shows that many agricultural producers in Poland are directed by naive or adaptive rationale when deciding on the scale of production in future periods. Few producers, including the major ones are observing the functioning of its market, and even more rarely competitive markets (Olszańska, 2012).

The aim of the study is to determine trends in market prices of pigs for slaughter and major cereals and interactions of these prices in Poland in the years 1995-2014. The analyzes aim, among other things, to show what changes have occurred in this area in terms of membership in the European Union.

1. Methods, literature overview

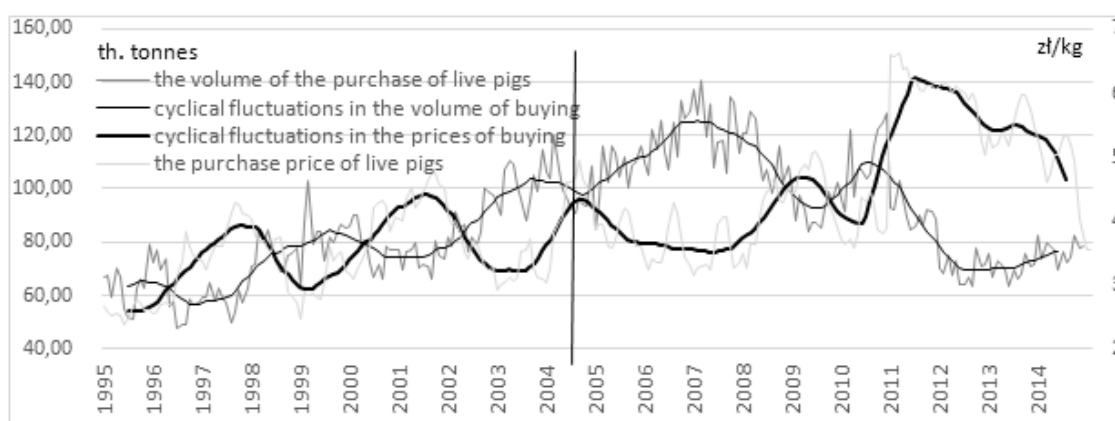
It is difficult to choose for analysis, the main purpose feed material used in the fattening of pigs. Undoubtedly, the most important role in fattening market is played by concentrates, of which the main component are cereals. To assess the relationship between livestock prices and the price of feed two plant products were selected, assuming that the prices of cereals are largely linked (derived primarily from the growing conditions in a given year). For the calculations the average monthly free market prices of rye and wheat were used as well as purchasing prices of pigs for slaughter published by the CSO and IAFE - PIB (Meat Market, 1995 to 2015; Grain Market, 1995 to 2015; Purchase and prices of agricultural products, 2005-2014). The analysis included data from the period of twenty years - from 1995 to 2014 (10 years before the Polish accession to the European Union and 10 years period of membership of the Union). Basic methods of statistical analysis of data were used for this purpose, in particular the analysis of time series. It was assumed that the data presented are multiplicative model.

The problem of estimating the purchase price relationship to the price of feed has often been the subject of research and analysis (Kaliszewicz, Głaza, 1997; Okularczyk, 1997, Szymańska, 2014). The conclusions pointed out in particular the importance of fattening effectiveness in shaping the profitability of production, expressed in feed consumption per 1 kg weight gain (Tarnowska, 2009). They also stressed the importance of optimal balancing of feed rations. In the case of pigs for slaughter the break-even point fattening is 1kg of live balanced by 6-7 kg of rye. Research conducted by IERiGŻ - PIB show the trend to the gradual reduction of these relations, with a reduction of feed consumption per unit of weight gain (Skarżyńska, Sadowski, 1998; Skarżyńska, Augustyńska-Grzymek, 2001). More detailed analyses indicate that both with the purchase of feed and feed from own production thresholds may be significantly different. In the case of purchased feed they be may be, for rye, from 7 to up to 10 kg and for wheat they are typically approx. 0.5-1 kg lower. In the case of feed from own production thresholds are usually lower, but at a very bad situation on the cereals market, may be more cost effective to purchase cereals for animal feed (Olszańska, 1999).

2. Results

In the years 1995-2014, a significant decrease in the size of the pig population was recorded in Poland, from almost 20.5 million units in 1995 to about 11 million units at the end of this period. At the same time one can observe a noticeable improvement in the quality of purchased livestock, there was a substantial improvement in indicators related to leanness, shorter is an average length of fattening period and at the same time the average weight of slaughtered pieces also increased. As a result, pig and cattle production compared to changes in herd size decreased but to a relatively small extent. These processes are accompanied by a much faster increase in imports of pork compared to the exports. All these symptoms indicate a significant crisis in the production of pork in Poland. These changes have been noticeable since the early 90s but especially intensified after Polish accession to the European Union. A similar situation also occurs in other markets - more Kowalska (2014). Polish producers clearly have difficulties meeting competition from livestock producers from countries such as Germany, Denmark and Belgium. It consists of a lot of reasons and one of the main ones are undoubtedly the profitability of production associated with the buying price volatility and fluctuations in the cost of basic feed. For the market of pigs for slaughter characteristic are the so-called. pig cycles, ie cyclically recurring fluctuations. They result from systematic fluctuations in supply of pigs for slaughter and consequently price fluctuations on that market. These fluctuations occur in all countries where the pork is produced and have been observed for many decades.

FIG. 1: Volume of purchase and purchase prices of live pigs in Poland in 1995-2014 (th. tonnes, zł/kg)

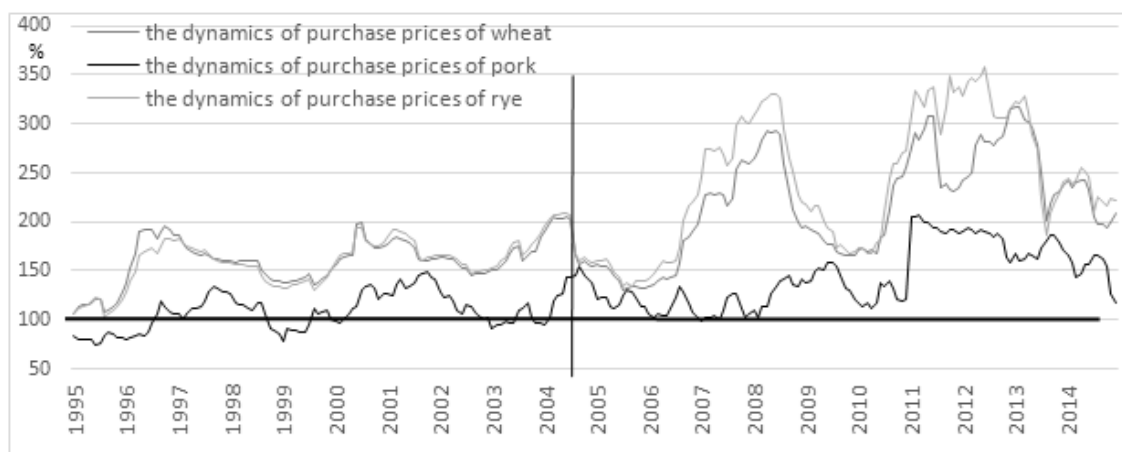


Source: own study based on data GUS, IERiGŻ- PIB

Fig. 1 summarizes the changes in the volume of buying and purchasing prices of live pigs together with an analysis of cyclical nature of these changes in Poland in the years 1995-2014. In this case, these are not purely cyclical changes, as the trend line could not be isolated. On the basis of the data it can be concluded that monthly changes in both volume and purchase prices are characterized by pronounced cyclicity the nature of

which has changed radically after 2004. In contrast to the relatively stable cycles, changes in the volume and purchase prices that were observed in the first ten years of analysis, since 2004 changes are less predictable and periods of growth and decline in the volume of buying and together with them the change in prices in the two periods (2004-2009 and 2011-2014) clearly deepened. Next to that in 2010-2011 there has been a significant suppression of growth phase of the cycle of buying livestock and livestock purchase prices. Data show a close relationship between the amount of the purchase in a given period and purchase prices. This is a market which quickly reacts to changes in supply. It should also be noted that despite ongoing inflation purchasing prices of pigs for slaughter at the end of 2014 were similar to those from the years 2005-2008.

FIG. 2: The dynamics of purchase prices of wheat, rye and live pigs in Poland in 1995-2014 (XII 1994 = 100%)



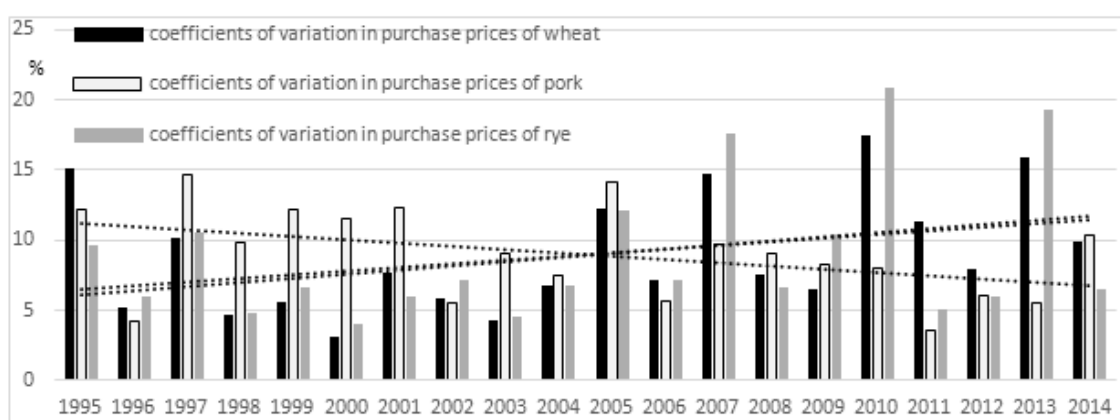
Source: own study based on data GUS, IERiGŻ- PIB

Changes in purchasing prices of pigs for slaughter compared to the purchase prices of the two selected cereals are shown in Fig. 2. The basis for the assessment of price changes was the prices of December 1994. Also in this case, there are considerable differences between the two analysed periods - before and after Polish accession to the EU. In the period 1995-2004, the purchase price of the analysed cereals, after a significant increase during the first months, were in the range 130-210% of prices in December 1994. During this period, the situation on the market of animals for slaughter was not so favourable. Purchase prices for animals for slaughter ranged from 75 to 143% of prices in December 1994. Noticeable are also close ties in the directions of changes in grain prices and purchase prices of livestock, though the price situation on the cereals market was undoubtedly more favourable. These trends deepened after Polish accession to the EU. Worrying phenomenon is the very significant fluctuations in grain prices and the background of negative changes in the level of purchase prices of live pigs. In the years 2004 - 2014 grain prices ranged from 134 to 359% of the price of

December 1994. During this period, the prices of buying livestock ranged from 99 to 207%.

Analysis of the coefficients of variation of prices for cereals and pork in each of the analyzed years indicates a more stable purchase prices in 1995-2004 compared to another 10 years in the case of cereals and reverse the trend in the case of purchase prices of pork (Figure 3). The juxtaposition of these two studies points to the steadily deteriorating economic situation for livestock producers, but also increasing uncertainty for producers of cereals.

FIG. 3: Coefficients of variation in purchase prices of wheat, rye and live pigs in Poland in 1995-2014 (%)

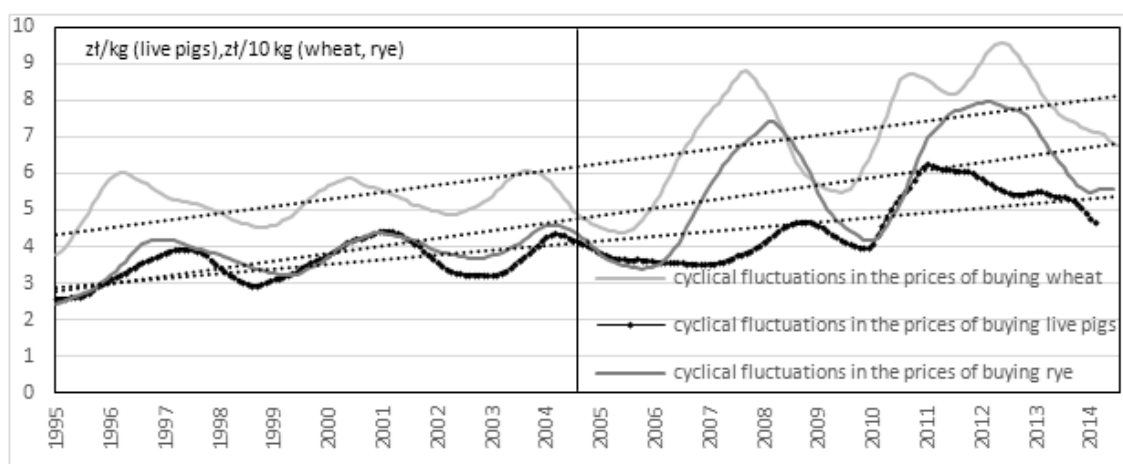


Source: own study based on data GUS, IERiGŻ- PIB

One of the main reasons of occurrence of cyclical fluctuations on the market of live animals are fluctuations in prices of basic raw feed ingredients. Fig. 4 shows the cyclical fluctuations in the market for livestock and wheat and rye. They are not the so called "Pure cyclical fluctuations" because the trendline was not isolated. In order to observe the relationship between changes in prices, such an approach is more appropriate because the data obtained are more closely linked to the current situation on the market. Also different units in the prices of cereals and livestock prices were used to get the effect approximation of the individual charts. The results indicate that both the cereals markets as well as on livestock in the analyzed period there were cyclical changes and the length of cycles of price changes were very similar and usually lasted four years. Due to the length of the pig fattening process cycles reflecting changes in market prices of pork were slightly offset relative to cycles reflecting changes in grain prices. The cycles of rye price changes were more strongly correlated with the cycles of livestock prices than cycles of changes in wheat prices. During the 10 years preceding the Polish accession to the EU, these cycles had a comparable and much smaller amplitude of the fluctuations in comparison to the period after 2004. Between the years 2004 to 2014 the amplitude of fluctuations in the grain market significantly increased,

although keeping the four-year cycle length. However the cyclicity in the market of pork has been disturbed. You may find that when it comes to the direction of price changes that cereals market became predictable, though of course such scale of fluctuations cannot be predicted, but the future price situation in the market pigs is also predictable, but to a much lesser extent, in terms of scale changes. This analysis also confirms that the average prices for cereals are rising faster than the purchase price of live pigs.

FIG. 4: Cyclical fluctuations in the prices of buying wheat, rye and live pigs (zł/kg – live pigs, zł/10 kg – wheat and rye)



Source: own study based on data GUS, IERiGŻ- PIB

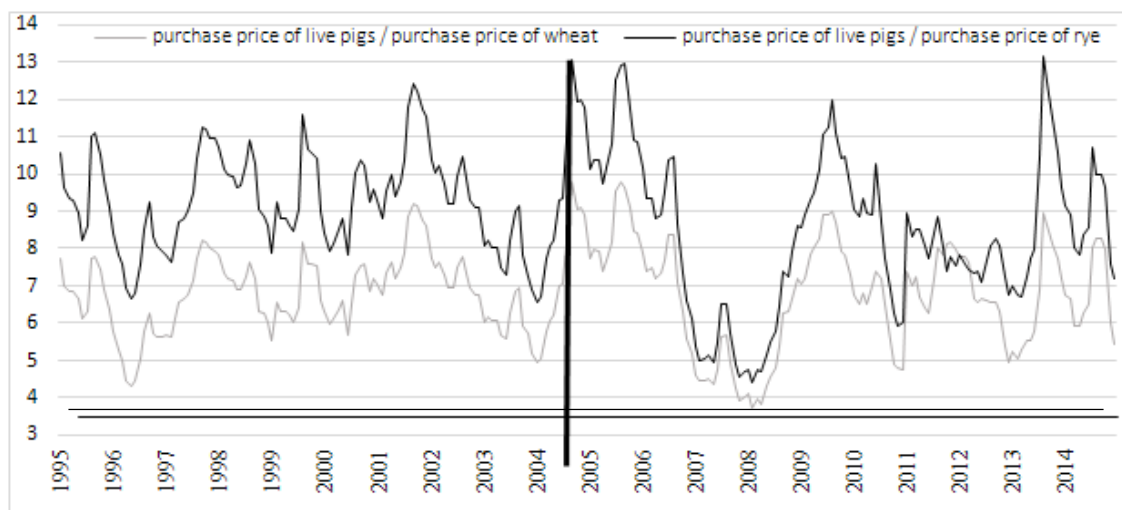
For agricultural producers in terms of estimating the profitability of production primarily important is the relationship between prices of cereals and livestock. The size of these relationships also in relation to the size of the purchase of livestock is shown in Fig. 5 - 7.

Assuming as a borderline but at the same time conservative cut-off level of relationship in which procurement price of 1 kg slaughter is offset by the price of 6 kg of rye and 7 kg of wheat it may be noted that from 1996 to 2004 profitability of pig farming fluctuated. The less favorable periods include the years 1996 and 2004. In other years the relationship between prices was relatively favorable. Definitely unfavorable situation for livestock producers took place in 2007 and, to a lesser extent, after the harvest of 2010. Significant fluctuations in harvests and grain prices are a strong threat to livestock production, the most for pig production. At the same time after Polish accession to the EU three periods of very favorable relative prices were also seen, but they lasted very briefly, limited essentially to the period of the grain harvest.

The calculations show that in the period preceding the Polish accession to the EU relations between procurement prices of live pigs to the prices for cereals fluctuated, but in relatively small scale and in most months (in the conduct of rational feed and care for

the good organization of fattening) gave producers a chance to achieve good economic results in fattening pigs. It was noticed by producers and the effect was to increase the volume of production and purchasing, of course, to the rhythm of cyclical fluctuations. This meant, therefore, that the average level of profitability in each year was different, but generally encouraged producers to conduct this type of production.

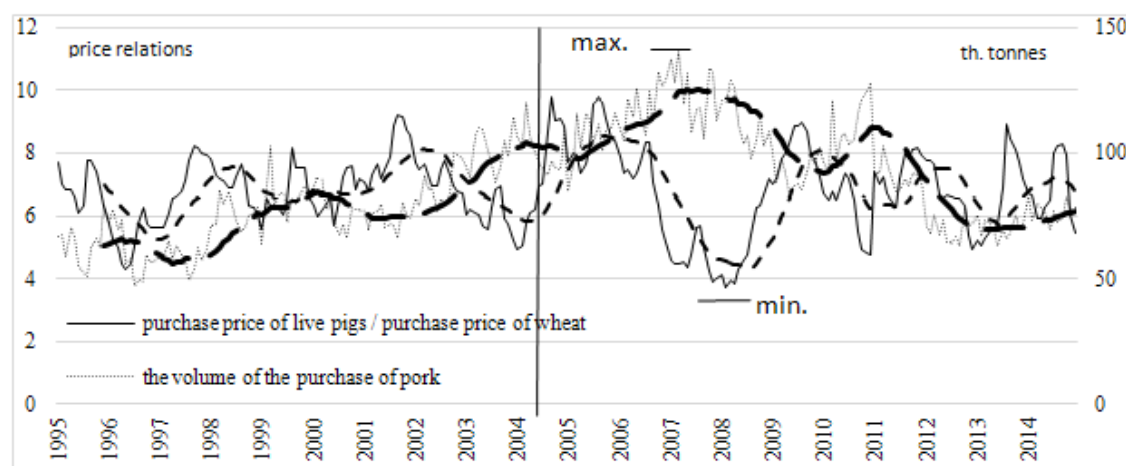
FIG. 5: Relationships pork purchase prices to the prices of rye and wheat purchase in Poland in 1995 - 2014



Source: own study based on data GUS, IERiGŻ- PIB

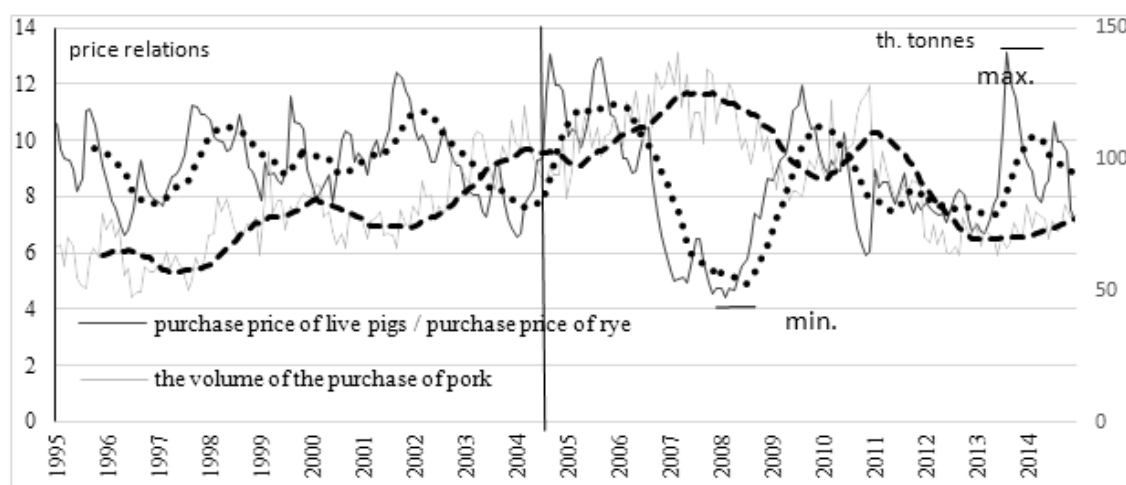
Already in the first two years after Polish accession to the EU signs of loosening of previously established relations were visible. The mood among livestock producers was undoubtedly affected by the very low purchasing prices of live animals to the prices of cereals that took place in 2008. Minimum level of these relations in the case of rye was 4.4 and in the case of wheat, 3.7 and very low levels of these relationships remained about one and a half year. Undoubtedly, it gave a strong impetus for many farmers to abandon this production which after all is very labor-intensive and requires vast experience. Many farmers who were in the course of fattening and based on purchased feed suffered very heavy losses. In subsequent years, despite the improving reciprocal price relations, the situation in this area was unstable. Observed was also a clear tendency to reduce the purchase price relationship between the prices of livestock and feed. The result was the collapse of the uptrend volume of buying livestock and steady decline in the volume of buying observed since 2008. Typically, you can also specify the characteristic shifting of the impact of changes in feed prices on the course of cyclical fluctuations. They depend on the length of the production cycle and the resulting delay between the time the decision to start the production cycle and the availability of the porker being ready to be sold.

FIG. 6: Relationships pork purchase prices to the prices of wheat purchase and volume of the purchase of live pigs in Poland in 1995-2014



Source: own study based on data GUS, IERiGŻ- PIB

FIG. 7: Relationships pork purchase prices to the prices of rye purchase and volume of the purchase of live pigs in Poland in 1995-2014



Source: own study based on data GUS, IERiGŻ- PIB

3. Discussion

Agricultural producers have a very limited impact on prices received on the sale of animals for slaughter market price risk reduction instruments may be used only by a relatively small group producers operating on a very large scale. Some possibilities to receive better prices are provided by more and more common, term contracts or in addition joining the group of producers. At a given level of prices on the market, the profitability of the farm animal production depends on the level of unit production costs. And their basic component is the cost of feed. Hence, their prices and the way of

obtaining and then the rationality of feeding have a decisive impact on the profitability of farming.

Most of the feed used to feed pigs can be also sold for other purposes. Thus, in conditions of low specialization of the farm, the decisions on increasing the scale of animal fattening or plant product sales are made on the basis of analysis of the relationship between selling prices of pigs and the market prices of plant raw materials, also taking into account the real opportunities to sell both. Period of uncertainty maintaining for a long time associated with fluctuations in the profitability of production of pork is certainly not encouraging to increase the scale of farming and certainly to make investments towards specializing in breeding flocks on a large scale.

Conclusion

Based on the analysis, one can formulate a number of general conclusions'.

Producers of pork in Poland after a period of relatively stable functioning of the market of cereals and livestock in 1995-2004, entered a new period - the functioning as a part of the common market in the EU. This means taking great effort to adapt to new conditions, strong competition and unfortunately very unstable situation on the market of cereals and livestock. Data indicates that among the three fields of animal production, the producers of pork are the most vulnerable. The result is a decrease in population and the volume of production and the high negative balance in foreign trade of pork.

The reasons for this should be sought in the low growth rate of purchasing prices of pigs for slaughter compared to the prices of cereals and price relations of livestock unfavorable for livestock producers compared to the prices of basic raw feed materials. Another very important problem is to reduction of predictability of price formation in both livestock and crops. This points to the need to review the existing rules of intervention under the WPR (mainly cereals market), because the instruments used are not very effective. Significant fluctuations in grain prices are undoubtedly also unfavorable for agricultural producers from other EU countries.

Livestock producers in Poland should seek to improve their competitive position. Pork is in fact highly valued meat in Poland, with still large and relatively stable demand. One undoubtedly still untapped possibilities is the organizational progress, and above all the development of integration ties within the framework of marketing channels.

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Rynek Mięsa, Raporty Rynkowe IER i GŻ-PIB, 1995-2015

Rynek Zboż. Raporty Rynkowe IER i GŻ-PIB, 1995-2015

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THE IMPORTANCE OF COUNTRY OF ORIGIN IN BUYING BEHAVIOUR OF SLOVAK CONSUMERS IN SELECTED PRODUCT CATEGORIES

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Keywords:

country of origin – buying behaviour – Slovak consumer – brand

JEL classification: M310

Abstract:

Many scientific sources usually extend topic of country of origin (CoO) in the advocacy of national interests of states, in the international marketing, in the retail policy or in the consumer protection. In this article is CoO described as the factor taken into account by consumers when buying three different product categories: food; footwear and textiles; and consumer goods. Based on the representative research, detailed testing shows, that gender, age, education and net income can influence attitudes to buy domestic products with different impact on each product category. Buying behaviour seems to be connected with level of education and net income, but both factors are not relevant for cluster analysis.

Introduction

The article is based on the recognition that consumer behaviour is affected by many factors and CoO is one of them. The reason why is this topic frequently discussed in marketing management is that competition of domestic product is subject of interests for many of actors. First of all, foreign competition for Slovak producers is massive. Strážovská and Sulíková (2015) proved that especially for local producers and family businesses is adequate aid of the government crucial. Ideas of Nováčková (2015), Smolková (2014), Gubíniová (2013), Hlásna, Horváth and Köksal (2013) and Treľová (2013) shows that managing company with limited capital budget needs to be more professional in understanding of Slovak consumer behaviour. Because of broader interest of support for domestic production, several organizations in Slovakia are active: Slovak government represented by Industrial Property Office of the Slovak Republic as a state body responsible for industrial property protection, Slovak Association for Trademark Products that supports the common interests of manufacturers of Slovak products, Ministry of Agriculture and Rural Development covering the domestic agricultural and food products labelling by logo “Quality Label SK”, Association of Trade and Tourism introduced an initiative “Quality from our Regions”. It is obvious that all of the governmental and commercial or non-profit organizations understand the

topic of promotion a positive attitude towards domestic products because it can be beneficial for all of them. A quick look into Slovak retail reveals massive support of Slovak production. Slovak retail chain Jednota with the highest share of Slovak product is confronted with aggressive campaigns of Kaufland (Kaufland.sk, 2015) and Lidl (Lidl.sk, 2015). Kaufland is communicating slogan "From love for Slovakia" (Youtube.com, 2015b). Lidl is proud on its quality and thematic weeks when in one were offered products from sentimental era of Czechoslovakia (Youtube.com, 2015a).

Many activities are done on the topics of CoO and its impact on consumer behaviour in Slovakia. One of them was research project VEGA 1/1051/11 supported by scientific agency of the Ministry of Education of the Slovak Republic and of Slovak Academy of Sciences, in which representative research was carried out. Involved authors published continuously parts of findings as for example Štarchoň and Weberová (2015), Smolková (2014), Vilčeková (2014) and Olšavský (2013).

1. Methods, literature overview

The objective of the research was to explore behaviour of Slovak consumers toward domestic and foreign brands. The data were collected from January to April 2013 in Slovakia in different regions of the country. The questionnaire was used as the data collection method. It consists from 3 open questions concerning brand recognition, where the spontaneous knowledge of Slovak and foreign brands was tested. After that, 27 statements in form of Likert scales were asked. Statements tested respondent's attitudes toward brand and price, country of origin, ability to deal with information and the quality of product. The scales range from 5 stages - absolutely disagree, disagree, do not know, agree and absolutely agree. The number of respondents reached more than 1200. Into statistical analysis were taken 1067 correctly answered questionnaires. This research was representative because the quota sampling was used and it covered proportionally subgroups relevant to the Slovak population in terms of age, income, gender and education. The data were statistically evaluated in software Statgraphics Centurion, which allows to prepare graphical and numerical outputs. As the statistical techniques were used frequency table, chi-square test and cluster analysis. Frequency table allowed to list items and number of times they occur in research. Chi-square test was used to examine whether two variables are independent or not. The null hypothesis was tested, that two variables are independent. The level of significance P-value was set at standard point of 0.05 (or 5%). Finally cluster analysis was realized for understanding the task of grouping a set of respondents in the groups consists from respondents with the same behaviour to chosen factors which were gender, age, education and net income of household. For cluster analysis was selected Ward's method.

The effect of the CoO is subject of marketing research of many global and local companies willing to be active not only locally but internationally too. As Agrawal and Kamakura (1999) wrote, over the last three decades, several researchers have examined

the effect of CoO on consumers' overall evaluation of product quality, beliefs regarding individual attributes of a product, attitude towards brand, and behavioural intention. And their conclusions suggest that CoO has a significant effect on consumers' evaluations of products and that consumers tend to use CoO as an extrinsic cue to make judgment about the quality of products. According to several review of literature it describes the nature and scope of CoO effects. Heslop and Papadopoulos (1993) and Johansson and Thorelli (1985) published that, whether directly through personal experiences, through information acquired from other sources or due to stereotypical beliefs about countries, consumers also tend to develop product-country images. These are images of quality of specific products marketed by firms associated with different countries. Examples for such product-country images are German cars, French wine or Swiss medicals. And what image of quality supports image of country – Slovakia? It is known that, from split of Czechoslovakia in 1993 country image of Slovakia has been not a topic of state priorities. Today's image of Slovakia is almost unknown and the last survey conducted in February 2015 by Focus agency shows that 83% of respondents agreed with the need to invest resources in creating a brand that will make Slovakia more recognizable in the world competition (mzv.sk, 2015). For marketers it is important to examine associations with CoO whether it is positive or negative, because it can be one of the many factors influencing consumer behaviour.

2. Results

According to the objective of this article to describe CoO as the factor influencing buying behaviour of Slovak consumers in 3 different product categories, respondents were asked statements as follows:

- a) It is important for me to buy Slovak products.
- b) I mainly buy food made in Slovakia.
- c) In footwear and textiles I prefer foreign brands.
- d) In consumer goods I prefer foreign brands.

Gender, age, education and net income of household were tested in relation to to them. The null hypothesis which was tested stated, that respondent's attitudes toward CoO in different product categories are independent from demographic factors. All the results are presented in the tables with exact volumes of critical P-value. In the next step cluster analysis identified consumer segments presented in table 2.

2.1. Comparison of tested variables

Two factors influencing the tested statements were identified in Chi-square test. Since the P-value is less than 5% in case of age and education, the null hypothesis can be rejected. These factors are independent when it goes on attitudes of Slovak consumers towards selected categories at the 95% confidence level. Detailed analysis showed that for older generation is more important to buy Slovak products. Similarly it is also in

food products when majority of all consumers prefer Slovak production. Foreign brands of consumer goods, textiles and footwear are preferred more by younger generation but majority of all age categories prefer foreign brands. Because education is second dependent variable, deeper analysis showed that with higher education level comes loyalty to Slovak products. Respondents with university degree mostly prefer Slovak products when respondents with primary education are at least patriotic. Slovak food prefers in the great majority all degree levels, but less primary. Majority of all respondents prefer foreign textiles and footwear and consumer goods.

TAB. 1: P-Values of the chi square test for selected product categories [in %]

Factors	Slovak products	Food	Footwear/Textile	Consumer goods	Average
Gender	17,74	24,68	77,76	25,88	36,51
Age	0,00	0,00	0,00	0,40	0,10
Education	0,00	0,02	0,33	0,07	0,11
Net income	2,55	2,29	20,61	32,55	14,50
Average	5,07	6,75	24,68	58,90	51,22

Source: Own research

2.2. Results of cluster analysis

After testing of independence level was expected age and education become relevant for segmentation too. But in segmentation plays both neutral role and therefore can be describe as not relevant for identification of similarities in buying behaviour of Slovak consumers. 997 fully completed records were placed into the cluster analysis. All the results can be introduced in the second table where exact numbers follow code list.

TAB. 2: Cluster analysis according to attitudes towards CoO

Cluster	SK products	Food	Foot/Textile	Consumer	Gender	Income	Age	Education
1	YES 2,3	YES 1,2	INDIF 11	INDIF 5,7	M/F	660-900	35-45	second
2	YES 0,4	YES 0,8	YES 0,7	INDIF 3,0	M	660-900	30-40	second
3	INDIF 6,3	INDIF 7,0	YES 1,8	INDIF 4,0	M/F	660-900	30-40	second
4	YES 0,5	YES 0,8	YES 0,6	YES 0,6	F	660-900	40-50	second

Source: Own research

Cluster analysis identified 4 segments. First consists from 126 members which welcome Slovak products, most from all segments prefer Slovak food but are indifferent when it comes to category footwear, textile and consumer goods, consists from both genders and belongs to the age 35-45. Second cluster is most abundant (34%) positively oriented on Slovak products, food but oriented more on foreign footwear and textile and indifferent in consumer goods. It is group of men aged 30-40. Third cluster counts 205 respondents and is indifferent to Slovak products, food and consumer goods but significantly oriented on foreign footwear and textile. This segment consists from both

genders. Last segment is second most relevant when counts 287, solely women oriented on Slovak products and foods but in other categories oriented on foreign brands.

3. Discussion

Issue of CoO is too complex to set a solid statement when it comes to decision making process in marketing. Our findings showed that education and age seems to be relevant factors when it comes to influencing consumer behaviour are not significant for cluster analysis when did not contribute to structuring the mass of respondents. Other findings by Štarchoň and Weberová (2015) stated that gender is not significant factor in building attitudes of Slovak consumers toward brands. But as it was demonstrated gender on the other hand has the capacity as the segmentation criterion. Age was investigated in earlier work by Olšovský (2013) with result that 2/3 of respondents are willing to pay more for their favourite brand and that price is most relevant factor for them. Also Mitková (2014) find generation approach as relevant but to that extend that Slovakia does not cover population growth in each generation segments similarly to the world. In presented segmentation were identified 4 clusters. Two of them are gender oriented, solely on men and woman and their market share is reaching 63%. This characteristic has the potential for utilization in the market practice when introducing gender sensitive offer. Only one segment tends to be indifferent to almost all the tested product categories. It means that 20% of Slovak consumers are not interested on the CoO. Deeper analysis will be probably needed for finding serious reasons why it is. Advocates of further advertising campaigns on buying national and local products seem to be still relevant. But when it comes to identification of the communication appeals with potential to reach all of the segments, these will be probably different. As marketing activities of Slovak retail shows, Slovak consumer tends to be more patriotic. Scandals in recent decades with imported poor quality products are perhaps responsible for careful shopping behaviour. And there is also other reason why Slovak consumer is willing to buy local product. As Vilčeková (2014) wrote, Slovaks buy national because they want to support local economy, employment (what is long term pain of Slovak economy) and as statistics shows, income of households measured by nominal average wage indicator increased from 2008 to 2014 by 17,3% when CPI inflation on the other hand counted only 11,4% in this period (nbs.sk, 2015). At this moment macroeconomic situation, awareness of Slovak consumers and campaigns promoting Slovak products and next activities on macro and micro level can shift Slovaks to buy domestic products.

Conclusion

All data were collected in 2013 and it can be expected that market forces are in progress and continual research are needed for identification of trends in consumer behaviour.

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EVALUATING THE PERFORMANCE OF AN ESTIMATED DSGE MODEL FOR THE CZECH ECONOMY

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Keywords:

DSGE model – labour market – search and matching – frictions – Beveridge curve – model evaluation

JEL classification: E32, J60

Abstract:

This paper investigates the behaviour of the Czech economy using a new Keynesian dynamic stochastic general equilibrium model for a small open economy. The goal is to assess the degree of rigidities in the Czech labour market. To achieve this goal, we estimate a model containing labour market frictions in form of search and matching processes, vacancy creation costs and wage adjustment costs. Furthermore, we evaluate the model's ability to capture the development of the observed variables in the examined period from 1999Q1 to 2015Q2. We compute conditional forecasts and stochastic simulations, which are then used for moment and correlation comparisons and calculation of the Beveridge curve. Our findings suggest, that there are some frictions in the Czech economy. According to our results, the model performed partially well.

Introduction

For macroeconomic researchers, it is desirable to examine the behaviour of economies to be able to improve the decisions of the policy makers. Capturing the exact relationships among all economic subjects at the same time is really complicated. To approximate these connections, economists started to use macroeconomic models, which simplify the view on the real economy. Nowadays, dynamic stochastic general equilibrium (DSGE) models are the main modelling technique because of their great variability. Unlike the vector autoregressive models, the DSGE models are based on microeconomic foundations, where each agent is represented separately. This allows modellers to construct models more intuitively and to implement structure on the modelled economy.

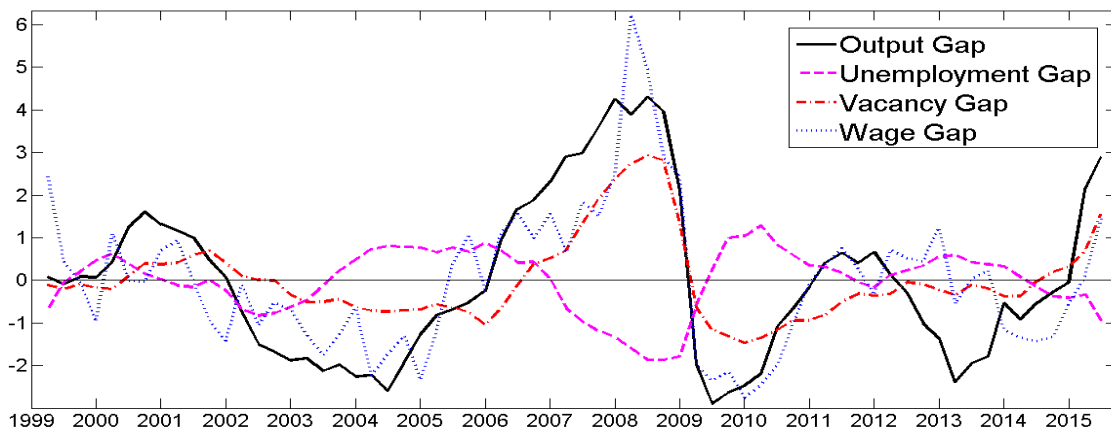
The goal of this paper is to estimate such model for the Czech Republic. We investigate the structure and the dynamism of the Czech economy by estimating a small open

economy model with integrated labour market. We examine the degree of frictions. After the estimation and result evaluation we look at how well the model performed.

1. Evidence in Czech data

Figure 1 shows percentage deviations of gross domestic product, unemployment rate, vacancy rate and real wage from their respective trends, which were calculated using Hodrick-Prescott filter. As we could see, vacancy and wage gaps are positively correlated with the output, while unemployment moves the opposite way. This means, that during recessions, when output decreases, workers get separated from their jobs and the unemployment increases. Firms are also less willing to create additional vacancies, therefore the vacancy rate drops as well. This decrease of vacant job positions makes it harder for jobseekers to get employed. The relationship between unemployment and vacancies, also known as the Beveridge curve (developed by Dow and Dicks-Mireaux (1958) and named after William Beveridge), will be examined in this paper.

FIG. 1: Development of selected macroeconomic variables



Source: data from OECD, detrended using HP filter

2. Literature

Literature regarding DSGE models is vast. Given their huge flexibility, there are various models that examine the behaviour of financial markets, the development on the housing market etc. However, our focus lies in the examination of the labour market and its frictions.

The role of monetary policy for labour market dynamics is discussed by Blanchard and Galí (2010). They investigate the presence of labour market frictions and the decision making of central bank in such setting. They find the relationship between inflation and unemployment to be dependent on the relation between labour market tightness and unemployment, while this relation depends on other labour market characteristics. The different characteristics can then explain the varying effects of shocks between the

economies. The authors furthermore suggest that the central bank cannot aim to stabilize inflation and unemployment at the same time, because there is a trade-off between these two variables.

The difference of labour market institutions among four major euro area countries (Germany, Spain, France and Italy) is examined by Consolo and Hertweck (2008). They are interested whether the difference in the dynamics of wages, job flows, unemployment and other labour market variables among the selected countries can be explained by these institutions. They use a DSGE model with matching frictions, hiring costs, price rigidities and different labour market structure for each country. They argue that even though the institutions play a significant part in the development of labour market variables, not all of them are bad or harmful.

Jakab and Kónya (2015) investigate the properties of the Hungarian labour market. They also found out that the implementation of the labour market to the model plays a significant role in the monetary transmission mechanism and gives a more realistic picture of the Hungarian economy. While the shocks in the economy influence labour market variables, the relevance of labour market shock to the other variables is not significant. Furthermore, the foreign shocks have a significant influence on the labour market, mainly on the domestic wages.

The Slovak labour market is compared to the Czech in the paper of Němec (2013). He estimates a SOE model and finds a low bargaining power of workers in both economies, which suggests a low participation in trade unions. According to the results, the unemployment benefits are significantly higher in the Czech Republic. The model supports the view that the structure of the Slovak and Czech labour market is similar.

3. Model

We selected a small open economy model developed by Albertini et al. (2012), who examined the labour market dynamics in New Zealand economy. Their findings suggest, that the changes in labour market variables are caused only by labour market shocks.

The model consists of three agents: households, firms and monetary authority. There is no government nor capital in this model. However, there is a detailed description of the labour market. The Cobb-Douglas type search and matching function determines the number of workers who are newly employed. There are frictions preventing job seekers to match with a vacancy. There are also employees, who lose their job. The model uses data regarding unemployment as well as hours worked. The wage and hours are negotiated in a Nash bargaining process, where the surplus of the production is divided between the households and firms based on the negotiation power of these agents. Households maximize their intertemporal utility function and consume composite

bundle of domestic and foreign goods. The production is divided into three groups: domestic producers (only firms hiring workers, therefore facing hiring (vacancy creation) costs causing them to be unwilling to create additional vacancies because of the increase of their total costs and also wage adjustment costs making wage optimization expensive), domestic retailers and importers (both selling finished products to households and facing price adjustment costs). Foreign sector is modelled using AR(1) processes.

4. Data and methodology

Following Albertini et al. (2012), we use 11 time series. Eight of them are for the domestic economy: real output per capita, CPI inflation, three month interbank interest rate, real effective exchange rate between domestic currency and the euro area, unemployment rate, average hours worked, real wage and vacancy rate. The euro area was selected for the foreign sector, given that it is the main trading partner of the Czech Republic. It is represented by real output, inflation and interest rate. The data sets were acquired from the online databases of the Czech Statistical Office and the Czech National Bank for the time period of 1999Q1-2015Q2. The data is seasonally adjusted and detrended using demeaning (for inflations and interest rates) and Hodrick-Prescott filter for the other variables with smoothing parameter $\lambda = 1600$.

DSGE model is selected for several reasons. First, unlike the partial equilibrium models, it allows us to examine the economy as a whole and see, how one macroeconomic variable affects the others. Also, DSGE models are structural and if they are specified well, they are not affected by policy changes. Therefore, they are resilient against Lucas critique.

Bayesian techniques, like the Kalman filter or Random Walk Metropolis-Hastings algorithm, are used for the estimation of the model. As opposed to the classical approach, the use of Bayesian methods allows us to give more information to the model by setting the prior distributions of parameters or calibrating them to fixed values. We follow the literature in calibrating most of the parameters. The rest, like the steady state of the unemployment, is calculated from the data. Two chains of Metropolis-Hastings algorithms with 800 000 draws are generated with acceptance ratio around 0.25. Matlab and its Dynare toolbox are used for the computations.

5. Results

In this section we present the results of the DSGE model's estimation. First, we look at the structural parameters, which, among other things, helps us pinpoint the origin of rigidities. Second, we simulate 1000 observations from the model to calculate the sample moments and autocorrelations and compare them to the statistics of the real data. The simulated values are then used for the estimation of the Beveridge curve. Finally,

we check the conditional forecasts to see how well the model can predict and compare these predictions to the observed data.

5.1. Estimation results

The values of the structural parameters are similar to our previous estimates (see Pápai, 2015; Pápai and Němec, 2015), where we discussed the impacts of the Great Recession. Out of the three price and wage setting frictions, the wage adjustment seems to be the cheapest. On the other hand, importers face high costs if they want to change their prices. This may be caused by the volatilities in the exchange rate. The relatively cheap wage adjustment is, however, offset by the high vacancy creation cost ($e = 7.76$).

TAB. 1: Structural parameter estimates

	Parameter	Prior density	Post. mean	Post. s.d.	HPD inf	HPD sup
ϑ	Habit persistence	$\beta(0.5, 0.15)$	0.544	0.0518	0.4565	0.6260
φ	Inverse of Frisch el.	$\Gamma(1, 0.2)$	0.965	0.0394	0.9004	1.0297
η	El. of subst. (dom. & for.)	$\Gamma(1, 0.2)$	0.602	0.0819	0.4679	0.7314
ξ	Firm's bargaining power	$\beta(0.5, 0.2)$	0.183	0.0886	0.0396	0.3216
ν	El. of matching	$\beta(0.5, 0.2)$	0.422	0.2058	0.0807	0.7387
e	El. of vacancy creation	$\Gamma(1, 0.5)$	7.760	0.1599	7.5487	7.9247
Price and wage setting parameters						
γ_H	Backward price (d. good)	$\beta(0.75, 0.1)$	0.500	0.1124	0.3173	0.6841
γ_F	Backward price (f. good)	$\beta(0.75, 0.1)$	0.740	0.0961	0.5842	0.8971
γ_W	Backward looking wage	$\beta(0.75, 0.1)$	0.319	0.0888	0.1748	0.4585
ψ_H	Price adj. cost (d. good)	$\Gamma(50, 15)$	35.261	8.2420	22.1815	48.6335
ψ_F	Price adj. cost (f. good)	$\Gamma(50, 15)$	69.069	15.4951	43.3963	93.5712
ψ_W	Wage adjustment cost	$\Gamma(50, 15)$	9.072	1.4616	6.6191	11.4060
Monetary policy parameters						
ρ_r	Interest rate smooth.	$\beta(0.5, 0.15)$	0.690	0.0507	0.6091	0.7729
ρ_π	Inflation	$\Gamma(1.5, 0.5)$	3.201	0.5035	2.3789	4.0030
ρ_Y	Output gap	$N(0.25, 0.1)$	0.304	0.0941	0.1482	0.4560
$\rho_{\Delta Y}$	Output difference	$N(0.25, 0.1)$	0.302	0.0956	0.1435	0.4583
ρ_e	Exchange rate	$N(0.25, 0.1)$	0.306	0.0706	0.1931	0.4243

Source: own calculations

5.2. Stylised data moments

Table 2 shows the results of simulation and moment calculation. The standard deviations of wages relative to output are simulated quite accurately, however the values for unemployment and vacancies differ significantly. Similar values are presented in the original article by Albertini et al. (2012): 8.121 and 13.956 respectively for New Zealand data. When looking at the correlations, we could see, that the model matches the signs of these statistics, but not the magnitude.

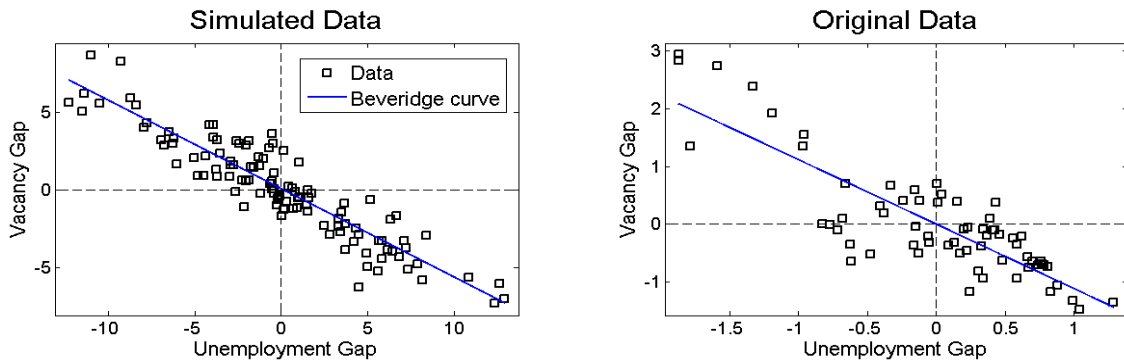
TAB. 2: Stylised data moments – model simulation and observed data

	Std. dev. to output		Correlation with output	
	Model	Data	Model	Data
Wages	0.886	0.819	-0.253	-0.641
Unemployment	8.717	0.389	0.347	0.798
Vacancies	14.121	0.513	0.2637	0.844

Source: own calculations

5.3. Beveridge curve

Using an econometric toolbox for Matlab, two simple linear regressions were estimated to acquire the Beveridge curves. Figure 2 shows the simulated and actual relationship between the vacancy and unemployment gap.

FIG. 2: Beveridge curve – simulated and observed data

Source: own calculations

The Beveridge curves have the following forms:

$$\text{simulated_vacancy_gap} = 0 - 0.567 * \text{simulated_unemployment_gap} \quad (1)$$

$$\text{actual_vacancy_gap} = 0 - 1.113 * \text{actual_unemployment_gap}. \quad (2)$$

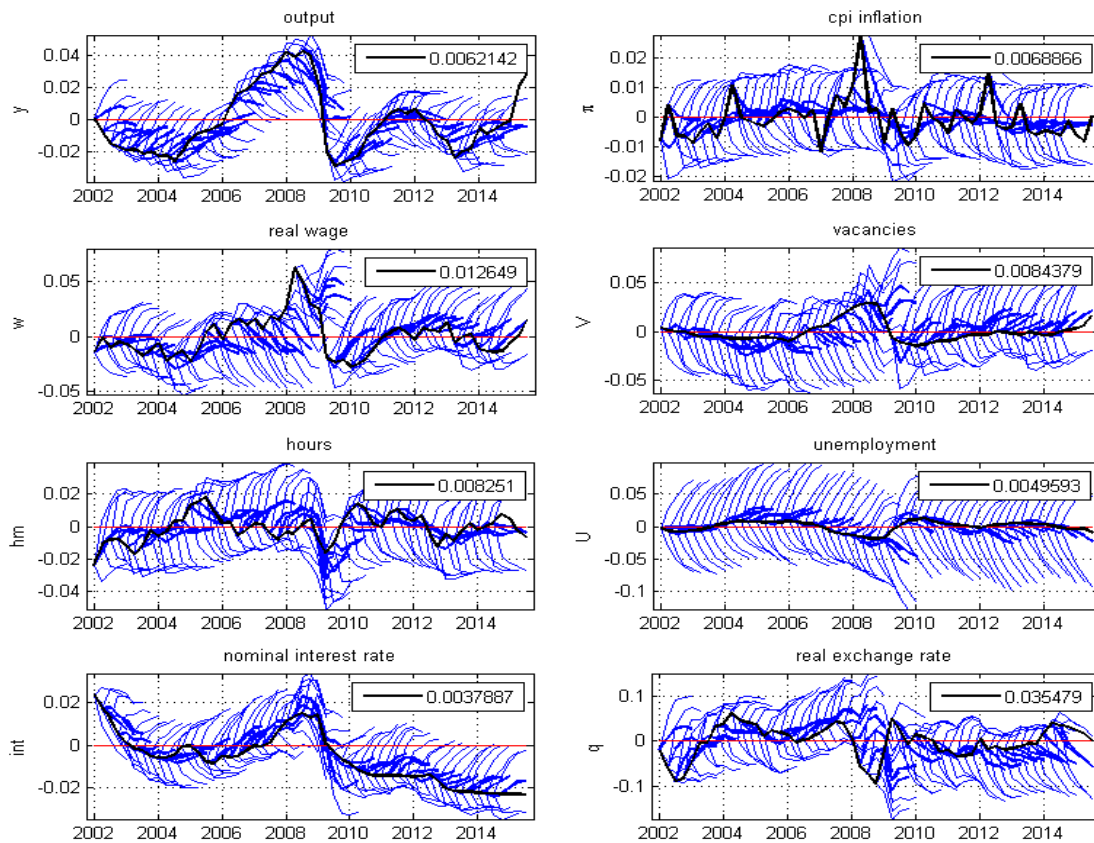
In both equations (simulated (1) and observed (2)) the intercepts are equal to zero, which means that a stable unemployment rate does not cause any shift of the vacancy rate from its steady state value – its gap from the trend is zero. Also, both estimated slope coefficients are statistically significant and negative. Therefore, we can say that the relationship between these two variables in the Czech Republic is in accordance with the economic theory. However, the value of this parameter for the simulated estimation is only half as big as the one observed in the real economy. Furthermore, it is worth noting, that the simulated gaps are significantly larger than the actual gaps. This illustrates the results presented in table 2. Finally, the high values of R-squared (0.849

for the simulated data and 0.711 for the observed data) suggest that the estimated models of Beveridge curves fit the data really well.

5.4. Conditional forecasts

Finally, figure 3 depicts the conditional forecasts, where the four period forecasts (and their highest density intervals (HDI)) evolve around the observed time series. We could see that except during the crisis in 2009, the predictions lie relatively close to actual data and even in this period, most of the data are inside the HDI of the predictions. Throughout the whole period, the forecasts for exchange rates and wages are, on average, the least accurate. We could also see the uncertainty of the predictions in case of unemployment, given by the wide intervals.

FIG. 3: Conditional forecast efficiency cascades with simulated unexpected shocks



Source: own estimations

Conclusion

In this paper we presented the results of a small open economy DSGE model with labour market fictions. We focused on evaluating the degree of these rigidities. The results of the estimation are similar to those of our previous research, as well as the original estimation on New Zealand data. Noticeable difference is in the low bargaining

power of firms which would suggest high participation in trade unions. We then provided some insight in model performance evaluation. The stochastic simulations showed inconsistency between the model and the real data. On the other hand, the model captured the Beveridge relationship fairly accurately. Also, the conditional forecast cascades seem to agree with the model. Our future research will focus on the improvement of the model performance using several modifications of the model structure.

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COMMUNE PROFILES – TYPES AND FORMATION

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commune – profile – specialisation – resources – benefits

JEL classification: R110

Abstract:

Commune is the basic unit of local government in Poland. The key clients of a commune are its inhabitants. Other clients, such as enterprises, investors, tourists etc., are only a “means” for carrying out the primary goal of the government unit, i.e. to improve the quality of the inhabitants’ lives. Because of conflicts of interests and the great variety of other clients it is not possible to satisfy all of their needs on an equally high level. This means that communes should choose those entities (clients) whose interests can be satisfied best and first. Such specialisation leads to the formation of specific commune profiles. This paper presents the regularities in the formation and the key benefits of such specialisation.

Introduction

The purpose of a territorial unit is to increase the collective effectiveness of the community inhabiting it. In practice this means striving for a broadly-understood improvement in the quality of the inhabitants' lives. However, the inhabitants' community is not internally uniform, and its members have varied and frequently contrary goals. Furthermore, they play different roles. They are simultaneously taxpayers and consumers of public services, inhabitants, and potential investors etc. Furthermore, next to the inhabitants, the commune's recipients include other entities that directly or indirectly express their needs and interests. Together with the inhabitants they form the group of the communes' clients. However, it is not possible to satisfy all of their needs on an equally high level. Communes should not even make such attempts, because it carries the risk of scattering their funds and leads to inevitable conflicts. An alternative to this is to specialise and form clear commune profiles. This means that communes should choose those entities (clients) whose interests can be satisfied best and first. This choice is dictated, among other things, by such factors as: natural conditions, tradition, current profile, demographical characteristics, location, and transport capabilities. However, one must remember that the selection of preferred clients must not be made while neglecting the performance of the communes' statutory duties towards their inhabitants. A commune's profile is reflected in extraordinary

accumulation of factors conducive to running certain types of activities and satisfying specific needs on the commune's territory. This way such activities will be carried out there with great intensity.

1. Profile studies

Studies of the processes of economic growth of local governments have been undertaken by numerous researchers; however, most frequently their studies concern either fundamental matters, such as the relationships between development and growth (Melkers, Bugler, Bozeman 1993; Beauregard 1993; Sengupta 2000, Chang, Ram 2000), or select problems and areas of commune functions, such as growth of entrepreneurship (Gardawski 2013; Strużycki 2011; Westlund, Bolton 2003), clusters (Porter 1990; Brodzicki, Szultka 2002; Nowak 2009), strategy building (Wiatrak 2011; Mastalka, Silhankova, Strakova 2014), or the growth of ecological activities (Leśniewski 2013). The concept of profiles fills the gap between the commune's deliberations and studies ran on the macro- and microeconomic level. It is relatively easy to operationalise. Profiles are relatively easy to identify both by using quantitative and qualitative methods. Profiles can be identified by applying the method of employee surplus or the method of identifying highly-specialised functions (Strahl, 2006). Cluster analyses or multiples analyses can also be used. The dynamics, and especially the complexity and the probabilism of the profile creation and development processes, may induce the use of qualitative methods in their studies as well. The communes in Poland are varied: they have different sizes, populations, location, lay of the land, soil composition, climate etc. Therefore, the categories adopted must be sufficiently broad, voluminous and flexible to enable the possibility of appropriate ordering of the objects studies. Therefore, it is neither recommended nor even possible to create rigid measuring methods to classify the communes and at the same time describe their profiles. One must also remember that the measuring methods that are being used for this purpose frequently become outdated. For example, the long-used indicators of access to telecommunication services, the number of cars, or the access to the water supply system have ceased to be useful. In the coming years the indicators of access to broadband internet or the use of sewage treatment facilities will cease to be useful as well. Popularisation of university education also changes the weight of this factor in studying the potential of territorial units. The author of this paper has conducted three-stage studies by using qualitative methods. The studies included an analysis of literature, a selection of communes, collecting press and statistical information about them, as well as conducting interviews with their leaders. An analysis of the communes' area development plans and strategies, as well as the employee surplus method applied during the analysis of statistical data made it possible to isolate model profiles. The selection of communes for later study has been done with a deliberate purpose in mind. The further analysis of documentation and the interviews that followed have been carried out in 30 communes and included 73 people. The selection of respondents was

performed by using the “snowball” method. The interviews were being recorded, and then they were transcribed and coded. The studies carried out by the author showed that the most frequently occurring profiles of territorial units include:

- a) industrial,
- b) agricultural,
- c) residential,
- d) tourism-oriented,
- e) service-oriented.

2. Study Results

2.1. Benefits of the profiles

A commune’s effectiveness in satisfying the needs of its inhabitants depends to a small degree on the commune's character: municipal, rural or municipal-rural. On the other hand, adopting the concept of profiles, this is associated with the drive for forming and developing an area of business that will dominate in the commune, gives the commune numerous benefits. The most important of these benefits include:

- a) activation of the commune’s economy,
- b) increased commune affluence,
- c) increased affluence of inhabitants,
- d) creation of advantageous commune image,
- e) development of human resources,
- f) adopting the philosophy of the commune’s subordination towards the recipient and improvement of institutional order,
- g) ordering of goals.

2.2. Profile creation

An analysis of the methods of commune profile creation reveals two dominating paths of their formation. The first one consists in a conscious analysis of conditions, a selection of profile creation strategy and its consistent implementation. A clear and attractive vision of the commune’s future is the most important element here. The key entities in this case are the commune authorities, which is usually just one charismatic leader guiding the commune over the course of several terms. The second path of profile creation, easily observable in Poland, consists in spontaneous, frequently chaotic, “bottom-up” development of a specific function basing on the commune’s internal resources or thanks to other favourable circumstances. This group includes many communes located in regions attractive to tourism, e.g. in the mountains or at the seaside. The development processes initiated in this way may lead to the profile being formed “bottom-up”. A profile thus formed fulfils its functions similarly to a profile formed as a result of a “top-down”, rational process of building and cementing specific characteristics and properties of the commune. In practice, these two extreme paths of

profile formation are combined and reinforce one another. Chaotic processes can be made orderly by coordinated activities of the commune's authorities and important social organisations. Analogously, communes may lose control over a rational process, e.g. as a result of the departure of an active and charismatic leader, weakness of public institutions, or a very strong pressure from economic factors.

2.3. Profile formation

Irrespective of the path of creation and cementing of profiles, these processes have certain shared features.

1. Profile creation takes place basing on specific resources. Traditionally, the most important assets included natural resources, arable land, forests, and convenient location with respect to defensibility or access to traffic routes. Currently, the importance of these factors has decreased, sometimes (like in the case of defensibility) to zero. However, certain raw materials and good transport connections to other centres may still be considered as key resources for certain communes. Other resources constituting basis for profile creation include lay of the land, location at the seaside, in the mountains or other regions that are attractive to tourists, vicinity of large cities, favourable geological or climatic conditions etc.

2. In many cases the commune's primary resource are the people who live in them. This means, in particular, the specific knowledge and skills gathered on the given territory, as well as the culture conducive to running certain activities. Human resources are also the basis for business. Even though the development of activity is possible also in communes with low human resources, it is slower and meets more difficulties and obstacles.

3. The creation and cementing of profiles is a dynamic process with varying pace. This pace depends on the size and the resources of the commune, the profile type, as well as many other factors that are difficult to predict. The outlying Warsaw residential communes are good example of this. Legionowo, located north of Warsaw, with its 50.000 inhabitants, following the period of dynamic growth in the 1970s and 1980s is now developing much slower. Having an analogous situation, but located to the south of Warsaw, Piaseczno is currently going through a period of dynamic growth, and the number of its inhabitants has grown over the last 20 years by 75%: from 25.305 people in 1995 to 45.567 in 2015 (but these data include only registered inhabitants; it is estimated that there are at least a dozen or so thousand people living there who are not registered). These towns are located at a similar distance from the centre of Warsaw and have similar traffic conditions (one road connecting them to Warsaw and one, badly used railway connection). Both communes have significant reserves of land set aside for construction purposes, but one of them is developing much faster than the other.

4. The phenomenon of creation and formation of profiles is of systemic nature: the individual constituents of this process interact with one another in different ways. Changes in one of the commune's subsystems will cause direct and/or indirect changes in other subsystems. However, the nature of these interactions and their final effect are difficult to predict. For example, the development of agricultural industry in the given area may increase the efficiency and improve the quality of agricultural production, increase the inhabitants' incomes, increase land prices, but also cement the current agricultural profile of the commune.

5. The process of profile formation is characterised by inertia. Each commune is a complex socio-technical system which is naturally resistant to change. The basic problem from the point of view of commune profile creation is providing the system with the dynamics it needs: initiating the changes. This means, in particular, the first clear changes launching the profile creation process. These can be the first industrial investment (including an investment in the agricultural and food industry), attracting a developer, educational, consulting or cultural institution to the given area, or creating or exhibiting a tourist attraction etc.. Therefore, usually there is strong competition concerning the "impulse for growth". An increase in entrepreneurship on the commune's territory may also be an impulse for creating a profile. Many communes attempt to create the best possible conditions for the development of business, counting on launching systemic growth processes. The tool used for this purpose include, among other things, business incubators, business support funds, consulting centres, development agencies and others.

6. Profile creation should be seen as an investment. Expenses incurred in connection with profile formation will always be greater than the associated incomes. Therefore, profile creation is unavoidably linked with risk taken by the investors. Depending on the situation, these investors are the commune's inhabitants, its authorities, businessmen, external investors and others. Similarly to regular business, the investments incurred in connection with profile formations need not be successful.

7. The profiles (except for the agricultural profile) are subject to the propagation process. Concentration of specific activity on the given area may be the result of natural processes or deliberate actions of the commune authorities. However, the initiated processes of cumulative profile growth and cementing lead to expanding the area covered by the given activity. Sometimes (although more seldom) the creation of a specific commune profile contributes to the emergence of other profiles in its vicinity. Therefore, industrial investments in the commune may lead to the formation of a residential or service profile in the neighbouring communes. The town of Zakopane is an example of this; as a large tourist centre it stimulates the growth of services and small production in the neighbouring Nowy Targ, other communes in the Podhale region, and also in the border regions of Slovakia.

8. In the long term the profiles have a tendency to “blur”. This is caused by the interplay of market forces. The commune’s specialisation in the given direction or area creates the need for new products and services that are not directly associated with the current profile. Communes create barriers protecting the negentropy of profiles only in rare cases, e.g. by limiting or even banning certain types of business or activity on their territories.

9. Profile formation takes place in a specific environment. This means that the specific region profile (if it exists) is conducive to the creation of a specific profile for a commune located on its territory. For example, a commune located in the Podlasie region will have it relatively easier to form an agricultural, tourism or service profile than an industrial one. These results not only from the availability of the specific resources required to create the profile, but also from the specific perception of the region also by the investors. Simultaneously, certain communes located in Upper Silesia, despite undisputable landscape advantages, have great difficulties in creating a tourism profile due to the industrial nature of the region. However, this does not mean that the commune’s profile is completely dependent of the profile (or, to be more precise, the perception) of upper level units. Numerous examples prove that “incompatibilities” may occur between the profiles of the communes and their surroundings, and furthermore, the relations between communes and their surroundings are bilateral in nature.

3. Discussion

We may speak about the existence of a profile when the activity in which a commune specialises provides it with significant influx of funds from outside its territory. Therefore, the concept of commune profiles is closely related to the theory of economic base (e.g. Wang, von Hofe, 2007). The offer of such a commune and the entities located on its territory is therefore addressed not only to the commune’s inhabitants, but also (primarily) to the external recipients. These can be businesses purchasing products of companies located within the commune, consumers buying food that is produced in it, tourists visiting the commune, people willing to purchase real property and settle down in the given area, and others. The creator of the theory of growth based on export, Ch. Thiebaut, claims that there is a relationship between the export dynamics and the level of employment in all sectors of regional economy (Thiebaut, 1962). Furthermore, according to the concept postulated by B. Weinstein, H. Gross and J. Rees, one important consequence of export activities is also the transfer of some of the taxes due to be paid to the inhabitants of other regions (Weinstein, Gross, Rees 1995). The successes of businesses already operating in the area encourage other enterprises to launch their business in the commune. Thanks to investments, the growth trickle-down effect described for the first time by A. Hirschmann takes place (Hirschmann 1964). The commune’s growth and specialisation is usually followed by the increase in knowledge and experience of people in the given field. At some point, the accumulated

knowledge and experience start to play a key role in cementing the profile. Therefore, what used to be an unintentional (usually) effect of individual decisions of the commune's authorities, inhabitants and entrepreneurs (e.g. with respect to the given type of business activity) becomes the driving factor behind growth. Even though the studies of numerous authors (Wiatrak 2011; Kuźniar 2013; Kłobukowski 2014) confirm the benefits of commune specialisation, the profile concept still requires further verification.

Conclusion

Adopting the profile concept provides communes with numerous benefits. However, planned creation of a profile is not easy and it frequently depends on external or independent factors, such as: location, traditions, social capital, natural resources etc. One must also remember that the profiling strategy may be more risky than the diversified growth strategy. Managing a commune with a clearly defined profile seems to be more complex than managing diversified communes, because during profile creation certain uncontrollable forces come into being. Therefore, the decision concerning the selection of the profiling strategy must be preceded by a comprehensive and in-depth analysis.

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SOCIAL RESPONSIBILITY ROLE IN TOURISM SUSTAINABILITY

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Keywords:

social responsibility – tourism sustainability – mental mapping – market externality

JEL classification: Z3, R1, J8

Abstract:

The article deals with the generalised social responsibility concept trying to explore its role in tourism sustainability. As a method for this kind of analysis, authors use the approach of mental mapping and the content analysis of related academic writings. The social responsibility is suggested to be perceived as an instrument for the solution of the negative environmental and socio-cultural market externalities. The social responsibility concept has many aspects with three main dimensions – economic, environmental and socio-cultural, the same dimensions as a sustainable tourism concept. As a results, the selected approaches, methods and concepts of tourism social responsibility, mental map of the fundamental aspects of social responsibility in sustainable tourism as well as market externalities in tourism are described.

Introduction

In the field of social responsibility studies, there are used mainly two terms for this phenomena: the corporate social responsibility (CSR) and the corporate social and environmental responsibility (CSER). To apply this concept in tourism, it is advisable to use the generalised term social responsibility, which includes economic, socio-cultural and environmental dimensions at different geographical levels (local, regional, global). Authors' intention is to analyse the relation between tourism sustainability and responsibility of its actors. In the recent years, the corporate social responsibility in tourism has undergone changes in the content and understanding of the interconnection of its dimensions and scope in several different ways - in terms of its content, its geographical extend and the mode of involvement of the tourism actors to social responsibility.

1. Theoretical background

Research on social responsibility in tourism as well as research of social responsibility in general is focused mainly on corporate actors' motivation and implementation process, measurement efficiency, role of environmental and social responsibility in

TAB. 1: Classification approaches of the tourism social responsibility

Topic	Related authors (examples)
The motivation for the introduction of social responsibility among companies and tourism destinations	Garay and Font, 2012
Economics implementation of social responsibility.	Kang, Lee and Huh, 2010; Singh, Cranage and Lee, 2014; Kang et al, 2015
Measurement results of the social responsibility of organizations and tourism destinations.	De Grosbois, 2012; Bonilla-Priego, Font and Pacheco-Olivares, 2014
The application of environmental dimension of social responsibility as a factor of competitive advantage - way of perceiving the introduction of environmental attitudes, preferences perception parts of the environmental approaches via customers.	Chen, Chang and Lin, 2012; Kang et al, 2015
The difference between the declared and real social responsibility.	Frey and George, 2010; Juvan and Dolnicar, 2014
Specifics of social responsibility in different sectors of tourism.	De Grosbois, 2012; Bonilla-Priego, Font and Pacheco-Olivares, 2014
Quality of tourism product increase/decrease in the context of implementation of social responsibility and a willingness to pay higher/same price.	Kim and Han, 2010; Kang et al, 2012; Parsa et al, 2015
The willingness of the various tourism stakeholders to support social responsibility.	Kang et al, 2012; Huang et al, 2014; Parsa et al, 2015
The human system of values and individually socially responsible behavior.	González-Rodríguez, Díaz-Fernández and Simonetti, 2015
Satisfaction of visitors with the implementation of corporate social responsibility.	Gao and Mattila, 2014

Source: authors

promotion and competition, gap between declared and real social responsibility and specifics of social responsibility in tourism sector (see TAB. 1).

Authors assume that the core of tourism unsustainability lies in unrecognized and/or unaccepted responsibility of both demand and supply tourism actors for their contribution to the tourism market negative externalities. Negative environmental and/or social tourism externalities are results of the production and/or consumption of a tourism services and use of related infrastructure in the form of harmful effects to local inhabitants and/or their environment (Pásková, 2012). These effects cause the tourism market failure which results in the tourism unsustainability. This is because the tourism corporate and individual actors fail to take into account the costs to the population and its environment. To achieve a more environmentally efficient and socially fair tourism performance, the efforts to introduce the social responsibility concept into the tourism market is recommended).

2. Results

2.1. Selected approaches, methods and concepts of tourism social responsibility

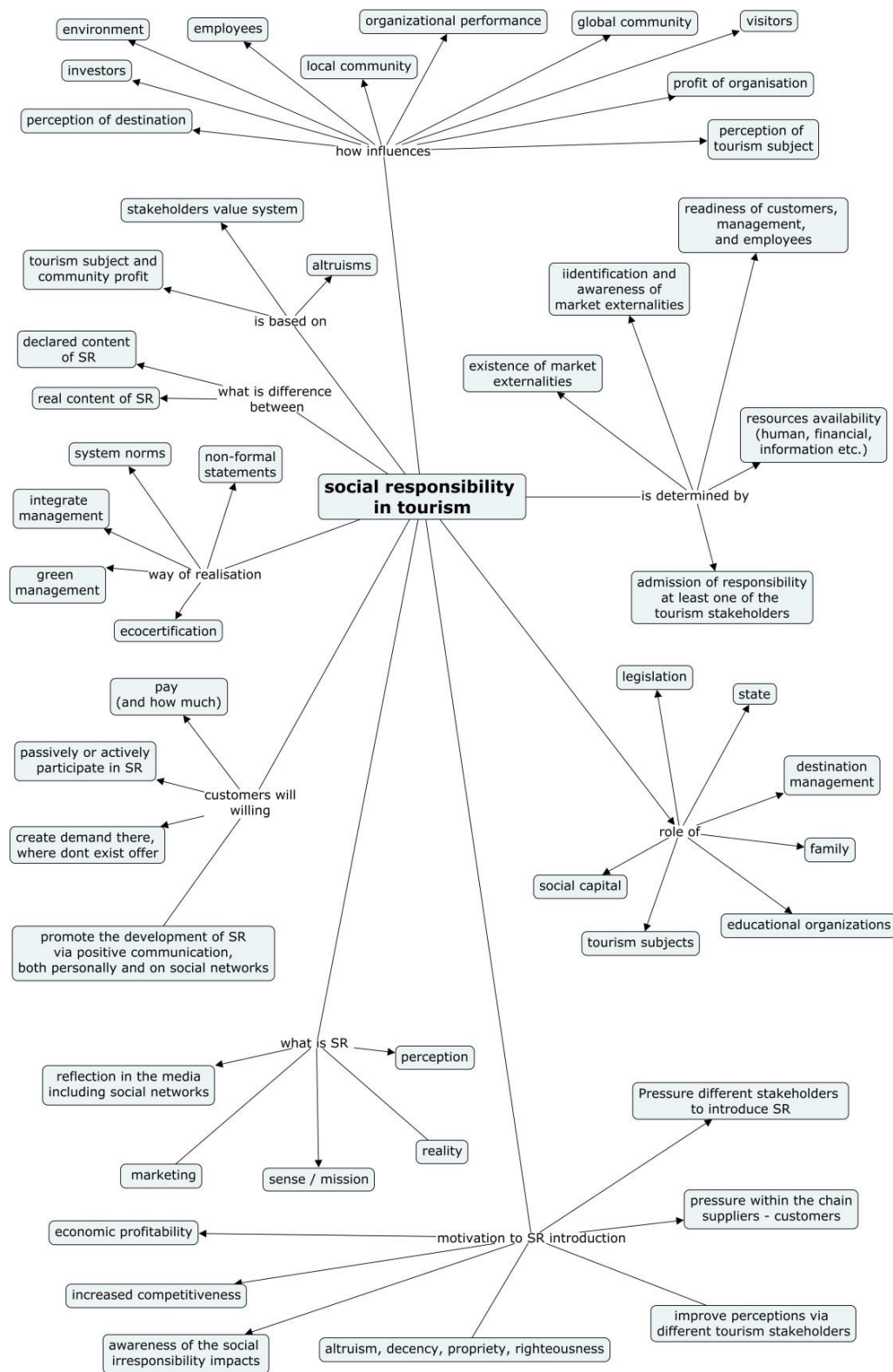
Based on the existing academic writing on the topic, authors suggest classifying of approaches to tourism social responsibility in the following way:

- a) Information analytic approach
 - I. Non-financial corporate reporting.
 - II. Sustainability monitoring (sustainability indicators – e.g. Choi and Sirakaya, 2006; they are ecological footprint, carbon footprint, etc.).
 - III. Environmental accounting.
- b) System approach
 - I. Implementation of system solutions applying standards - environmental management (ISO 14000+, EMAS), corporate social responsibility (SA 8000, ISO 26000).
- c) Compensation approach - a negative externality is compensated by a positive externality
 - I. A negative externality is compensated at the point of origin – e.g. the deterioration of air quality at the point of company production is compensated by the payment of therapy (camps) stays for local children.
 - II. A negative externality is compensated in an appropriate place (usually negative externality doesn't impact some specific locality) – e.g. compensation programs implemented by the airlines themselves, respectively with the participation of passengers (offset programs), e.g. by planting forests in Africa.
- d) Delegation (client) approach - the organization delegates responsibilities to clients and includes (internalizes) the impacts on the environment and society
 - I. Full delegation - environmental and social costs are fully calculated into the price of the tourism product.

- II. Partial delegation - the client helps to prevent or reimburse their environmental and social costs voluntarily (e.g. offset programs, participation in activities of social responsibility - typically hotels, e.g. Singh, Cranage and Lee, 2014)
- e) Preventive approach - the company tries throughout the product lifecycle to eliminate adverse impacts on society and the environment (e.g. FairTrade), even at the price of costs increase, e.g. by investment into human resources, innovation etc.
- f) Educational approach - focused on the implementation and clarification of principles whose understanding may lead customers to more sustainable patterns of behavior; examples are geoparks and their geotourism products.
- g) Regulatory approach
 - I. With the determination and enforcement of observation of certain rules for the elimination of externalities – e.g. protected areas
 - II. With the use of market regulatory mechanisms – e.g. emission allowances
- h) Marketing approach
 - I. Certification of environmental and "social" qualities associated with the marketing brand.

Mental mapping represents a useful method for the analysis of emerging complex social phenomena. Mental map of the fundamental aspects of social responsibility related to the tourism sustainability, based on ideas of different authors, is unveiled in the FIG. 1. The essential relation between the social responsibility concept in the tourism industry and its sustainability is clearly illustrated there by the mutually interconnected descriptions of the mission, basis, perceptions, reflections and determinants of the social responsibility concept in the tourism sector, by the discovering of the influencing factors, description of the role and positions of various tourism actors in promotion, introduction and implementation of this concept, identification of diverse motivations to introduce this concept into the tourism market as well as the ways how to implement this concept.

FIG. 1: Mental map of the fundamental aspects of social responsibility in sustainable tourism



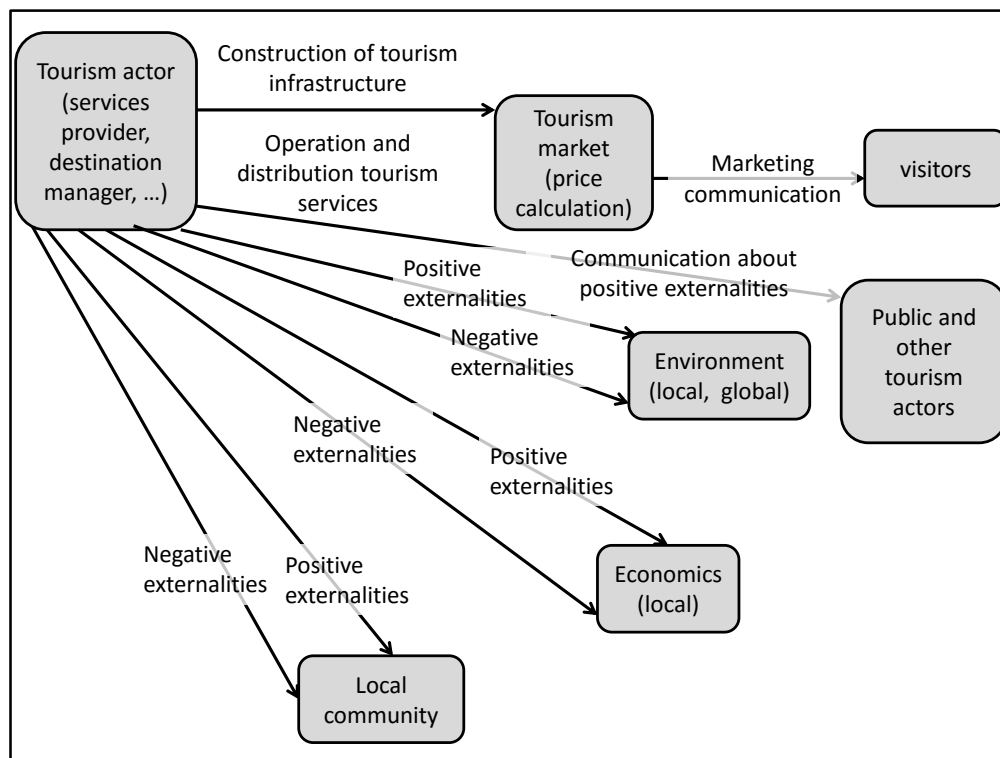
Source: authors, based on ideas of Kang, Lee and Huh (2010), Chen, Chang and Lin (2012), Garay and Font (2012), Parsa et al (2015)

2.2. The role of the market externalities in tourism social responsibility

It must be stressed that tourism market actors produce not only the negative environmental and social externalities but also the positive ones (FIG. 2). The implementation of social responsibility into the tourism industry should lead to the efficiency increase of the optimization process of the tourism effects. It should assist all the tourism actors to decrease their contribution to the negative tourism impacts and to increase their contribution to the tourism benefits for population and its environment.

Based on presented results and discussion, the authors suggest to examine following tourism related theoretical concepts (Pásková 2012) into the social responsibility research in the field of tourism studies: social exchange theory, carrying capacity concept and destination life cycle concept.

FIG. 2: Market externalities in tourism



Source: Pásková

Conclusion

Social responsibility represents an important concept for the research and theory development in the field of tourism studies as well as for the practice in the tourism industry. It may help in efforts of both tourism academic community and tourism industry actors to solve many problems related to the tourism unsustainability.

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EDUCATION AS AN ECONOMIC DEVELOPMENT ASSUMPTION – INTERNATIONAL COMPARISON OF CZECH REPUBLIC AND FINLAND

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educational system of Czech Republic – educational system of Finland – comparison – qualitative education indicators – economic development

JEL classification: A2, O1

Abstract

This submission is an international comparison of education systems in two EU countries – the Czech Republic and Finland. The comparison's focus is on the qualitative indicators of education based on the statistics from the OECD surveys. The aim is to present conclusions about current development of the respective economic indicators and fulfilment of the respective criteria of the Czech Republic and Finland. Based on the results of the comparison, suggestions can be proposed in order to improve the rate of fulfilment of the criteria from qualitative indicators perspective.

Introduction

An investment in education – especially in its quality – yields positive results for both individuals and society as a whole. An educated individual has a bigger potential to become a source of economic growth to create a foundation for general growth of society.

Thus, it is evident that education supports the economic growth of the country (Ranis, G., Stewart, F., & Ramirez, A.; 2000). To achieve the desired effect of educating individuals so as to benefit the society, it is desirable that the Czech Republic and other countries of EU or OECD ensure that their education system reaches certain standard of quality (Green; 2014). One way of assessing the effectiveness or ineffectiveness of an education system in terms of providing quality education is to compare it with another. International comparisons of education systems exist so that their individual aspects can be compared (Kaiser, F., Maassen, P., Meek, L., van Vught, F., de Weert, E., & Goedegebuure, L.; 2014). Furthermore, the results of the comparison are served to drawing conclusions and to determining a direction of the next development. In the case of this article is the success or failure of educational systems in selected EU countries - the Czech Republic and Finland - assessed by chosen qualitative indicators.

1. Research, Methodology

A number of organizations or institutions that perform a variety of international surveys in education focusing on the specific aspects exists in the world. Many entities deal with the indicators of education and their evaluation. For example, can be named UNESCO, OECD (2015), EU or U. S. Department of Education (2015). Each of these entities sets its own qualitative education indicators. This article is based primarily on the list of quality indicators by EU listed in the table TAB. 1.

TAB. 1: Enumeration of quality indicators according to Council of the European Union

Evaluated field	Indicator
Knowledge	Mathematics
	Fields of natural sciences
	Reading
	Information and communication technology (ICT)
	Foreign languages
	Ability to learn
	Civics
Success and further progress	Early school leaving*
	Completion of upper secondary education*
	Participation in higher education *
Monitoring and evaluation of school education	Evaluation and management of school education
	Parental participation
Resources and structures	Education expenditures per student*
	Participation at pre-school education *
	Number of students per computer*
	Education and training of teachers

* predefined qualitative education indicators having the quantitative character by the European Union

Source: own processing according to EUROPA (2006)

Qualitative education indicators in Europe have arisen from challenges of knowledge achieving, decentralization, data comparability, a social inclusion and the resources. The selected indicators for the comparison are defined in a table TAB. 2.

Every year the OECD publishes a document Education at a Glance (OECD; 2014) under the project INES where it is compared the education systems of all participating countries from different aspects of education indicators.

TAB. 2: A selection of indicators for the comparison of the educational systems in the selected EU countries

Selected indicators for the comparison	Organizations (studies) conducting the international surveys (a base for the comparison)
Ratio of students per teacher	OECD (Education at a Glance)
Participation in pre-primary education	OECD (Education at a Glance)
Mathematics	OECD (PISA)
Functional literacy Reading	OECD (PISA)
Natural sciences	OECD (PISA)
Education expenditures per student	OECD (Education at a Glance)

Source: own processing according to OECD (2015)

The OECD perform an international survey PISA (OECD; 2012) which is focused on determining a literacy level of fifteen years old pupils (the pupils in the last year of primary education. Another survey is a Programme for International Assessment of Adult Competencies (PIAAC; 2011) which is focused on assessing the level of skills required for success in everyday life and on the labour market. The OECD aims also at Early childhood education and care - ECEC (OECD; 2015) where are examined the trends at preschool education. For the comparison the indicators based on the same methodologies due to mutual comparability have been chosen. As already mentioned, many of selected indicators will come from the enumeration of qualitative education indicators, defined by the Council of the European Union. From the list of qualitative education indicators have been selected 3 indicators (EUROPA; 2006).

The selected indicators for the comparison have become the knowledge in Mathematics, Natural sciences and Reading literacy connecting to the one indicator - functional literacy (PISA; 2012). Furthermore, indicator Education expenditures per student which may seems rather as a quantitative education indicator at first but is seen as an indicator affecting the quality of education. Other selected indicator is the participation of pupils in pre-primary education. The importance of this indicator is due to positive impact on the success of the next education levels in the case of participation in it.

Currently, there is an emphasis on reducing the number of pupils in the classroom. For that reason it has been chosen the indicator of class size - the ratio of students per teacher.

2. Data analysis

For the comparison of education systems was desirable to the Czech Republic to choose a country which shows in certain aspects the quality of education or this country is

given as a model of good practice by experts. Finland has been chosen as a long term successful country in the international surveys.

The indicator of functional literacy is being researched by international PISA survey. The indicator consists of three other indicators – indicator of gained knowledge in Mathematics, Reading and Natural sciences. PISA research is being executed once in three years. Pupils of age 15 are being tested by the survey. A table TAB. 3 shows results of the research over the years 2003 – 2012. The values in the first part of the table are the sum of three indicators. The values in the second part of the table are the ration between previous values and OECD average of the year. This ensures possibility of comparison of different years.

TAB. 3: Functional literacy in education

	2003	2006	2009	2012
Czech Republic	1539	1506	1471	1500
Finland	1630	1658	1631	1588
OECD Average	1490	1490	1490	1491
FG – ratio (OECD = 1)				
Czech Republic	1.032886	1.010738	0.987248	1.006036
Finland	1.093960	1.112752	1.094631	1.065057

Source: own processing according to PISA (2006-2014)

The other selected indicator for comparison of education quality is teacher-pupil ratio. A presumption is the fewer pupils per teacher the higher quality of education because of the more space for individual access to each pupil.

The lower the value of the indicator is the lower is number of pupils per teacher. The decrease of the ration can lead to increased individual access to each pupil. A table TAB. 4 shows the ratio in 2012 for each education level in the selected EU countries. A value of OECD average are added for purpose of comparability. Time evolution of the indicator seems to be meaningless because of the fact that values slightly differs in time.

TAB. 4: The proportion of pupils per teacher by education level (year2012)

Country	Education level			
	Pre-primary	Primary	Secondary	Tertiary
Czech Republic	14	19	11	21
Finland	11	14	13	14
OECD Average	14	15	13	14

Source: own processing according to OECD - Education at a Glance (2014)

Next selected indicator is level of participation of individuals in pre-primary education. The indicator has values from last three years because it was not researched before. OECD shows the values of the indicator separately for each age of education participants (3, 4 and 5 years). It would be great to track aggregated values over the age. The problem is the aggregated values are not present and it is not possible to gather them from existing values (for example by summing values for each age). That is why decision of the best representative has to be made. The education participants of age three has been chosen to be most relevant because there is no EU country where is it possible to access higher education level than pre-primary level for the participants. The results are reported in a table TAB. 5.

TAB. 5: The participation of three-year olds in education (%)

	2010	2011	2012
Czech Republic	60	60	59
Finland	47	49	51
OECD Average	66	67	70

Source: own processing according to OECD - Education at a Glance (2012, 2013, 2014)

The relation between the indicator and the quality of education is supposed to be proportional. The more participants of pre-primary education and the younger participants are the more adaptable and successful they might be. It can be understood very positively in relation to quality of participant's future education.

As it has been said it is necessary to monitor not just outputs but also inputs in order to evaluate quality of education system. It is appropriate to monitor expenditure on education in interest of effective spending of public funds on education.

A table TAB. 6 clarifies the situation within the average annual expenditure on educational institutions per student and the pupil at all levels of education based on time axis for years 2006 – 2011. Average annual expenditure on student is expressed as the equivalent of USD recalculated on Purchasing Power Parity.

TAB. 6: The average annual expenditure on educational institutions per pupil and student in all levels of education - spending on R&D included (years 2006 – 2011)

	2006	2007	2008	2009	2010	2011
Czech Republic	5174	5426	5895	6216	6037	6931
Finland	8048	8440	9463	9910	10157	10905
OECD Average	7840	8216	8831	9252	9313	9487

Source: own processing according to OECD – Education at a Glance (2009-2014)

It is good to remember that increase of value does not necessary have to mean increase of expenditure on educational. The value increases if there is significantly lower number of students even if expenditure on education is still the same or even lower.

3. Discussion and conclusion

Economic theory deals with the functions and importance of education for decades (Hirsch, F; 1976). Currently, the emphasis is on the importance of education. The focus becomes due to the positive effects of education investments as a positive influence on human potential, on the enterprises competitiveness and on the whole society. The level of education along with the workers qualifications has great importance for the economic development. The roots of the theory of human capital can be found by economists of the Chicago School, especially by G. Becker, B. Weisbrod, T. Schultz and others (Kadeřábková, B., & Soukup, A.; 2001).

The article compares the education system in the Czech Republic and the education system in Finland. On the base of the comparison, Finland was evaluated as a country with a better education system than Czech education system. In all indicators (except indicator Participation of three-year olds in education), the Finnish educational system has shown better results than the Czech. Nevertheless, the Finnish education system cannot be used as a universal education system, having similar results in the Czech Republic. It is necessary to look at particular indicators in context and take over from the good practice exactly what the Czech educational system needs. The comparison could help the creators of the educational policy of the Czech Republic as an inspiration for finding appropriate tools, which tries to improve the quality of education in the Czech educational system.

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POTENTIAL EFFECTS OF THE TRANSATLATNIC TRADE AND INVESTMENT PARTNERSHIP FOR POLISH AGRI-FOOD TRADE

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Abstract:

In 2013 the negotiation under the Transatlantic Trade and Investment Partnership (TTIP) started. TTIP is expected to be the world's largest free trade area, since the European Union and United States are engaged. The article describes the main characteristics of agri-food trade between Poland and the United States in 2004–2014. Then using a general equilibrium model of the Global Trade Analysis Project (GTAP) the projections of possible effects for Polish agri-food trade are presented. The results of the analysis have shown that exporters of agri-food products from the US will benefit more from free access to the Polish market.

Introduction

Development of regionalism can be perceived as ongoing increase of number of regional trade agreements (RTAs). That is a prominent feature of modern world. Proliferation of RTA is recorded especially after the Uruguay Round of WTO. Regionalism offer alternative (discriminatory) way of liberalization in comparison to multilateralism (non-discriminatory). Liberalization introduced in the form of RTAs (free trade area, custom union, partial scope) can spur trade and welfare of selected group of countries, but can also influence on economy in negative way. Taking into account that almost all countries participate in one RTA at least, the membership in RTA can be generally estimated as positive way of stimulating economic development.

Poland as a member of the European Union participates in 36 regional trade agreements nowadays and in negotiation of the Transatlantic Trade and Investment Partnership (TTIP) from 2013. The TTIP is expected to be the world's largest free trade area, because the potential agreement will involve the two largest trade partners in the world. The main aim of the TTIP is to expand trade and investment on both sides of the Atlantic, to increase employment and competitiveness, and to develop a common approach to the rules of global trade. The negotiations are conducted in three main areas

improving mutual market access, reducing of non-tariffs barriers and strengthen the compatibility of regulatory systems, and developing common rules. Liberalization process of agri-food trade between the European Union (and Poland as well) and the United States is one of the most difficult areas of negotiation. The reason for that is located in different competitive potential of agri-food sector of the EU (and Poland) and the US and various approaches to agricultural production system and food safety regulations. Hence negotiated agreement on transatlantic free trade is an opportunity to strengthen and stimulate international cooperation. At the same time, however, it may pose a threat to the relatively less competitive EU agriculture, including Polish agricultural sector too. Therefore, the aim of the paper is to present the possible changes in agri-food trade between Poland and the US caused by the TTIP implementation.

1. Methods, literature overview

Our research encompass both ex-post and ex-ante analysis. In ex-post analysis the trade statistics data from World Integrated Trade Solution (WITS) were used. The research was focused on agri-food trade classified in 1-24 chapters according Harmonized System (HS). The trade relations between Poland and the US in 2004–2014 were analysed. The survey includes value, structure and dynamics analyses.

The general equilibrium model of the Global Trade Analysis Project (GTAP) was used to make ex-ante analysis. On the one hand, the GTAP general equilibrium model is based on specially adapted Leontief's inter-branch flow (input-output) matrix, and on the other hand, it is based on the assumptions of Walrasian equilibrium. The essence of the general equilibrium model is widely discussed by Shoven & Whalley (1984), Robinson & Roland-Holst (1988) or Devarajan & Go (1998). The detailed structure of the GTAP model was described by Hertel & Tsigas (1997) and Pawlak (2013).

The use of the model to forecast the consequences of changes in the agricultural and trade policies consists in building scenarios of simulated disturbances in the economic policy and in determining the influence of selected variables on the level of economic welfare and the sphere of production, consumption and trade on the global, regional or sectorial scale. In order to assess the prospects for the development of Polish foreign trade in agri-food products after the TTIP implementation, it was assumed that all tariff barriers to mutual agricultural trade between the EU and the US will be eliminated. Total effects of abolishment of tariff barriers were estimated. Due to the absence of lists of sensitive products for which the principle of partial liberalization (with the use of preferential quotas) may be applied, the analysis does not discuss the problem. The current GTAP database (The GTAP 8 Data Base) includes 129 countries/regions of the world and 57 sectors (groups of products or products) of national economies. In order to achieve the aim of the research the standard aggregation of the model database was modified and adapted to the needs of the research. Gragg's non-linear estimation was the method applied to extrapolate changes in trade turnover.

2. Results

Our results part is divided into two part. The first part is devoted to the main characteristics of agri-food trade between Poland and the United States. In the second part we present potential effect of TTIP, which were estimated by using GTAP.

2.1. Agri-food trade between Poland and the United States

During 2004–2014 there was trade deficit in the foreign trade of Poland. Steadily growth of exports combined with consistently slower pace of import growth resulted in a gradual decrease of trade deficit from more than \$14 billion to over \$2 billion (Tab.1). At the same time favourable trends in terms of agri-food have persisted. That was revealed as progressive improvement in the trade surplus, which exceeded \$8.8 billion in 2014 and was more than eight times higher than in 2004. It is worth to note that the importance of agri-food products in total Polish foreign trade has become more significant. Its share increased from almost 9% to 13% for exports and from over 6% to nearly 9% for imports respectively (Tab.2).

TAB. 1: Trade relations between Poland and the rest of world, and the US in 2004–2014 (billion USD)

Years	2004	2006	2008	2010	2012	2014	Changes 2004–2014 (%)
Total trade of Poland							
Eksports	73.8	109.6	171.9	157.1	179.6	214.5	290.7
Imports	88.2	125.6	210.5	174.1	191.4	216.7	245.8
Balance	-14.4	-16.1	-38.6	-17.1	-11.8	-2.2	-
Agri-food trade of Poland							
Eksports	6.5	10.6	16.8	17.5	22.1	28.0	431.3
Imports	5.5	8.0	14.9	14.1	16.8	19.2	352.2
Balance	1.0	2.6	2.0	3.4	5.3	8.8	-
Total trade between Poland and the US							
Eksports	1.8	2.1	2.5	2.9	3.6	4.9	273.4
Imports	2.1	2.7	4.5	4.4	5.0	5.4	254.2
Balance	-0.3	-0.6	-2.1	-1.6	-1.4	-0.5	-
Agri-food trade between Poland and the US							
Eksports	0.2	0.2	0.3	0.3	0.3	0.4	1.7
Imports	0.1	0.1	0.3	0.3	0.3	0.3	1.4
Balance	0.09	0.08	0.03	-0.02	0.04	0.05	-

Source: own research based on World Integrated Trade Solution, Comtrade Database.

Common characteristic of Poland-US trade relation was deficit in total commodity trade and trade surplus in agri-food trade (deficit was recorded only in 2010 and 2013). During 2004–2014 Polish agri-food exports to the United States increased almost twice, while imports more than threefold. The United States were relatively minor market for Poland agricultural sector and was responsible for average less than 2% in exports and imports (Tab.2). It has to be underlined that the importance of the US market for Polish agri-food exports systematically diminished from 3.1% in 2004 to 1.4% 2014 and the downward trend for imports was not so obvious. After all, the US has become more

important trade partner for Polish agri-food imports than exports. This picture is a little bit different if we exclude agri-food trade between Poland and EU countries, which are responsible for 80% and 70% of Polish agri-food exports and imports respectively. So regarding trade between Poland and non-EU partners, the average share of agri-food products sent to the US was equal to around 7.5%, and for imports respectively nearly 6%. In this case, there has been meaningful drop in the importance of the US in Polish agri-food exports (from nearly 12% to over 6%), with a relatively stable share in imports (in the range of 5.4% to 8.7%). It means that the US market was displaced by the third countries.

TAB. 2: Share of the United States in agri-food trade of Poland in 2004–2014 (%)

Years	2004	2006	2008	2010	2012	2014
Share of agri-food trade in total Polish trade						
Exports	8.8	9.6	9.8	11.1	12.3	13.0
Imports	6.2	6.3	7.1	8.1	8.8	8.9
Share of the US in Polish agri-food trade						
Exports	3.1	1.9	1.7	1.8	1.5	1.4
Imports	2.0	1.6	1.7	2.3	1.7	1.7
Share of the US in Polish agri-food trade with non-EU countries						
Exports	11.0	8.3	8.9	8.4	6.1	6.3
Imports	5.3	4.3	5.8	7.2	5.1	5.4

Source: own research based on World Integrated Trade Solution, Comtrade Database.

TAB. 3: Share of main product groups in agri-food trade between Poland and the United States in 2004 and 2014 (%)

Group of products	Exports		Imports	
	2004	2014	2004	2014
Animal	14.5	28.0	21.4	16.6
Vegetable	13.0	11.5	27.2	21.1
Oils	0.4	0.3	1.9	1.0
Food products	72.2	60.3	49.5	61.3

Source: own research based on World Integrated Trade Solution, Comtrade Database.

Agri-food trade between Poland and the US was dominated by food products. Their share decreased from over 72% in 2004 to 60% in 2014 for exports and increased from almost 50% to 61% for imports respectively (Tab.3). Poland exported to the United States primarily meat preparations and alcoholic beverages. Confectionery containing cocoa, processed fruit and vegetables, and preparations of the milling industry played also the important role. Imports was dominated by food industry products and tobacco, then animal feed and alcoholic beverages joined to the group leader, and their common share was worth more than 50% of all imported agri-food products. Within animal and vegetable products, Polish exports to the United States included mainly meat products

and the products of milling industry. The most significant in Polish imports from the US were fish and crustaceans, and fruits and nuts.

Given this as above, the US market is not very significant for the agri-food sector at the macro level. But it is very important for selected industries including fishing, meat, milling, confectionery, fruit and vegetable or beverage industries.

2.1. GTAP simulation

The results of simulation analyses let us conclude that the liberalisation of agricultural trade caused by signing the TTIP would not lead to significant changes in the total trade turnover value (Tab.4). The consequences of the agreement would be more noticeable in bilateral relations between Poland and the US. The liquidation of duty barriers in agri-food trade between these two countries might cause the export of agri-food products from Poland to the US to rise by about 27%, whereas the import of these products from the US to Poland might rise by 66%. Thus, if the agreement on TTIP was implemented, the income from the sales of food from Poland to the US might amount to nearly \$240 million, whereas import expenses might amount to \$205 million. The balance of turnover in the Polish-American agri-food trade would still be positive, but its value would be two times lower than before signing the free trade zone agreement (\$34.5 million vs \$64.6 million).

TAB. 4: Changes in the values of Polish agri-food trade in view of the TTIP implementation (million USD, expressed in market prices)

Trade partner	Export			Import			Trade balance	
	The base value ^a	The projection	Change (%)	The base value ^a	The projection	Change (%)	The base value ^a	The projection
World	12 028.30	12 046.65	0.2	9 286.52	9 340.54	0.6	2 741.78	2 706.11
USA	187.90	239.08	27.2	123.28	204.62	66.0	64.62	34.46

a - the base values in the GTAP 8 Data Base refer to the year of 2007.

Source: GTAP simulation.: own research based on World Integrated Trade Solution, Comtrade Database.

However, the US still would not be a significant trade partner for Poland and the share of American trade in the total Polish agri-food trade would only reach about 2%. The main cause of little significance of the US as a sales market for Polish agri-food products is the fact that in the US there is minimal demand for import of raw materials and agricultural products of the temperate climate zone made in Poland. Apart from that, the prices of these products are relatively low on the American market while the costs of transport are high. It would be a barrier to the development of export from Poland even if the duty was relatively low.

3. Discussion

The projected small growth in total agri-food trade is in agreement with the results of studies on the consequences of signing the TTIP agreement conducted by Fontagné et al. (2013), Francois et al. (2013) and Bureau et al. (2014). They proved that depending on the degree of advancement of liberalisation processes, the values of trade turnover in agri-food products of the EU member-states with the countries which have not signed the Partnership agreement might change by not more than +/- 1.5%.

When analysing mutual trade between the EU and the US, just like all above-mentioned authors we noticed that the TTIP agreement would bring more benefit in agri-trade to the US rather than to the EU countries, because of free access to the EU agricultural market, which so far has been protected by higher duties than the American market. As far as EU-US trade relations are concerned, there was a 7.1% duty tariff for agri-food products from the EU, whereas the EU duty tariff for agri-food products from the US was 16.9%, on average (Hajdukiewicz 2014).

If we want to compare the trade projections of the TTIP implementation for Poland and the rest of the EU countries we can suppose that the effects of liberalisation might be observed on a larger scale in Polish-American agri-food trade than in turnover between the EU and the US. According to Bureau et al. (2014), as a result of the liquidation of duty tariffs we can expect that by 2025 the export of agri-food products from the EU to the US would rise by 18.5%, whereas the value of agri-food products purchased on the American market would increase by nearly 31%.

Conclusion

To sum up, we can say that after the establishment of a free trade zone between the EU and US we should not expect a rapid increase in the export from Poland to the US and in consequence, we should not expect that the role of the US as Poland's export partner will be strengthened. Apart from few exceptions (e.g. the dairy market, which will be protected with high duties), there will be only slight improvement of access to the American market. Due to differences in duty tariffs, especially in the trade in products of animal origin, exporters from the US will benefit more from free access to the Polish market.

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SUBSIDIES AND FARMS' TECHNICAL EFFICIENCY

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Abstract:

The aim of the paper is to assess the influence of subsidies to farms in mountainous areas under Common Agricultural Policy of the EU on their technical efficiency. Parametric Stochastic Frontier Analysis is used to estimate production function of farms in Cobb-Douglas form. “True” Fixed Effects model for panel data assumed truncated-normal distribution of the inefficiency term. The subsidies per hectare (SAPS, Top-Up and LFA for mountains areas) were included into variance of inefficiency function in order to assess the direction of their influence. Average efficiency during 2008–2012 amounted to 81.16% suggesting that there is still space for improvement of farm management. All subsidies had undesirable impact as they increased the variance of inefficiency. Also the correlation between LFA subsidies and efficiency was negative.

Introduction

The implementation of the principles of Common Agricultural Policy (CAP) after the Entrance of the Czech Republic to European Union (EU) had many consequences for agricultural sector. Beside other facts, Czech farmers gain the possibility to obtain subsidies in a form of direct payments (single area payment scheme – SAPS topped-up by national support – Top-Up) and from Rural Development Programmes (mostly of project character). A special category of subsidies is area payments (on acreage of agricultural land) provided on permanent grasslands in Less Favoured Areas (LFA). Those areas represent around 50% of the total agricultural land and are divided into three types: mountainous areas, other LFA, and the areas affected by specific handicaps (Štolbová and Hlavsa, 2008). Pechrová (2014) shows that after the entrance to the EU “the subsidies helped to increase the profitability of a sector as a whole as same as of particular commodities. The justification for support of farms in mountainous areas is given by their unfavourable conditions. The aim of the payments is to maintain agriculture and the use of land by the means of adequate but not excessive financial compensations (Štolbová and Hlavsa, 2008). Together with Kroupová and Malý (2010) we may state stated “it is necessary to continuously analyse the efficiency of spent

finances in relation to the gained added value.” Therefore, the aim of the paper is to assess the influence of subsidies provided to farms in mountainous areas under Common Agricultural Policy of the European Union on their technical efficiency. The paper is structure as follows. First section review previous researches on the topic. Second introduces used methods for the analysis. Then the results are described and discussed in the next section. Last section concludes.

1. Literature overview

The subsidies should support the performance of the agricultural holdings, should enhance the efficiency of their functioning (Technical efficiency in this sense is understood as defined by Pitt and Lee (1981) as the ability to produce “the maximum quantity of output attainable from given inputs”.) and increase their resilience. It is expected that they should contribute to better farm management. However, this is not always true and additional financial means can have negative consequences. For example Lososová and Zdeněk (2014) found out that “the dependence of profit on subsidies is greatest in the mountain LFA.” Štolbová and Hlavsa (2008) discovered that economic results of even all agricultural holdings (not only those located in LFA) are more and more dependent on subsidies. Influence of agro-environmental subsidies on eco-efficiency of farms in Campos region, Spain, was assessed by Picazo-Tadeo, Gómez-Limón and Reig-Martínez (2011). Using truncated regression and bootstrapping procedure they came to the conclusion that the eco-efficiency is positively influence by the fact that the farmer participates in agro-environmental programs. In this sense, the subsidies fulfil their objectives. Similarly Juan, Sperlich, Kleinhanss and Murillo (2005) examined the determinants influencing farms' DEA efficiency index. They found out that direct payments tend (in absolute terms) to increase the efficiency. This type of subsidies positively correlates with environmental friendly production and awarding positive externalities, which are generated in agriculture. On the other hand, direct payments are not sufficient instrument which would correct the fact that the most efficient farms produce less environmental friendly.

2. Methods

First approaches towards the estimation of the production function's frontier were based on linear and quadratic programming techniques. The parametric approach – Stochastic Frontier Analysis (SFA) – originated with work of Meeusen and van den Broeck (1977) and Aigner, Lovell and Schmidt (1977). In this paper, we utilized SFA method as it accounts for panel data. Firstly, the production function was estimated in Cobb-Douglas form (i.e. power function – see Pechrová, 2015) which has several important features: it assumes constant returns to scale (with increasing inputs, the output grows proportionally), can be linearized by natural logarithms, and (therefore) the coefficients can be interpreted as elasticity. The functional form is stated below (1).

$$y_{it} = \alpha_i x_{1,it}^{\beta_1} x_{2,it}^{\beta_2} \dots x_{k,it}^{\beta_k} \varepsilon_{it}, \quad (1)$$

where α_i is a group specific constant, y_{it} denotes production of a farm i in time t , and $x_{k,it}$ ($k = 1, \dots, K$) represents K explanatory variables powered by elasticity coefficients β_k . A stochastic term ε is time and individual variant and consists of idiosyncratic term (v_{it}) and inefficiency term (u_{it}). We assumed that the first mentioned follows normal distribution and the later one truncated-normal distribution. Production (y_{it} – where i ($i = 1, \dots, n$) denotes particular farm in time t) was represented by sales of own products and services in thous. CZK. Its amount was deflated by the agricultural producers' prices (2005 = 100). Explanatory variables were: consumed material and services ($x_{1,it}$) and capital ($x_{2,it}$), both deflated by industrial producers' prices (2005 = 100), labour measured in number of workers ($x_{3,it}$), and land in hectares ($x_{4,it}$). SAPS ($z_{1,it}$), Top-Up ($z_{2,it}$), and LFA subsidies ($z_{3,it}$) together with constant were included as explanatory variables in the function of variance of the inefficiency term ($\sigma_{u_i}^2$), which model heteroscedasticity in farms' data. The subsidies should have negative sign as we suppose that they decrease the variance of inefficiency. Mean of inefficiency ($\mu_{u_i}^2$) explained heterogeneity among farms only by a constant. "True" fixed-effects model (TFE) elaborated by Greene (2002) was estimated in the form (2).

$$y_{it} = \alpha_i + \beta^T \mathbf{x}_{it} + v_{it} - u_{it} \quad (2)$$

where the variables have the same meaning as above. We applied maximum likelihood estimation method. Secondly, the efficiency was calculated as suggested by Jondrow, Lovell, Materov and Schmidt (1982). The data and results were described by descriptive statistics. The normality of distribution of efficiency was tested by Shapiro-Wilk test. As it had non-normal distribution, the correlation was assessed by Spearman's rank coefficient. Difference in technical efficiency between farms which receive above average and below average subsidies for LFA was tested using Wilcoxon rank sum test. Null hypothesis stated that there are no differences in average technical efficiency between them.

We utilized panel data of 223 farms observed during years 2008 to 2012. Farms were selected according to their location in mountainous areas. There were 962 observations ranging from 2 to 5 with average 4.3. Accountancy data were obtained from database Albertina of Bisnode Ltd., data about subsidies from State Agricultural Interventional Fund and about land from Land Parcel Identification System. The sample is described at TAB. 1. Average farm produced goods in value of 42.3 mil. CZK per year. Use of capital (long term assets) was almost five times higher. Regarding the size of the farm, it

is unbalanced in the sample. There are few big farms and a lot of smaller ones. Average agricultural holding had 52 employees, but 90% of them had less than 75 workers. There were few bigger farms as average acreage amounted to 1 022 hectares, but more than half of the farms were smaller than 846 hectares. All firms receive SAPS (on average 4186 CZK/ha), but not all of them obtained Top-Up. The sample was divided to the farms which receive more than average of LFA subsidies paid in mountainous areas (2 568 CZK/ha) and to those who receive less. The biggest part of the farms is located in mountainous area, the higher subsidies per hectare it obtains (Pearson correlation coefficient = 0.46 is statistically significant and points on relatively strong relation).

TAB. 1: Descriptive statistics of the sample of Czech farms in mountainous areas

Variable	Mean	Std. dev.	Median	Minimum	Maximum
y_{1t} - production (thous. CZK)	42276	149076	13254	-1698	2387548
x_{1t} - material and services (thous. CZK)	16572	25793	7012	51	255641
x_{2t} - capital (thous. CZK)	82405	514094	28563	0	7696959
x_{3t} - labour (-)	52	197	23	3	2750
x_{4t} - land (hectares)	1022	812	846	42020	6458
z_{1t} - SAPS (CZK / ha)	4185	774	4061	2413	5387
z_{2t} - Top-Up (CZK / ha)	1352	993	1347	0	3937
z_{3t} - LFA mountains (CZK / ha)	2568	1167	2501	148	4212

Source: own elaboration

3. Results

Firstly, a production function was constructed. Secondly, the technical efficiency of the agricultural holdings was assessed. Finally, the direction of the influence of subsidies on technical efficiency was assessed from the function of the variance of technical inefficiency, by correlation coefficient, and by testing whether the technical efficiency of agricultural holdings statistically significantly differ when they receive above or below average LFA subsidies for mountainous areas.

The results of TFE model estimation are displayed at TAB 2. It can be seen that all parameters were statistically significant at 1% level of significance and have expected sign. Increase of material and services, capital, labour or land by 1% cause increase of production by 0.92%, 0.07%, 0.001% and 0.14%, respectively. The sign for subsidies was positive showing that the increase of subsidies increases the variance of inefficiency among farms. This is not desirable situation. However, the coefficients had quite small values. Therefore, the correlation between the subsidies and the efficiency was examined next. Average efficiency was estimated at 81.16% which shows that farms still can improve their performance by 18.84%. The efficiency decreased between 2008 and 2009, but grew later (to 86.49% in 2012). Shapiro-Wilk test rejected the hypothesis that the data were normally distributed. Spearman correlation coefficients

between technical efficiency and SAPS, Top-Up and LFA in mountainous areas amounted to 0.07^{**}, -0.14^{***}, and -0.09^{***}. As all of them were statistically significant, we may conclude that there was weak positive relationship between SAPS and technical efficiency and weak negative relationship between Top-Up and LFA paid to farms in mountainous areas and the efficiency.

TAB. 2: Results of TFE model estimation, truncated-normal distribution of u_{it}

Variable	Coeff. (Std. err.)	Variable	Coeff. (Std. err.)
Frontier		μ_u – inefficiency mean function	
$\beta_1 (x_{1, it} - \text{material and services})$	0.9188 (8.63e ⁻⁶) ^{***}	δ_0 (constant)	-18.9153 (11.6715)
$\beta_2 (x_{2, it} - \text{capital})$	0.0740 (6.52e ⁻⁶) ^{***}	σ_u – inefficiency variance function	
$\beta_3 (x_{3, it} - \text{labour})$	0.0010 (1.52e ⁻⁵) ^{***}	ω_0 (constant)	-0.5557 (0.8339) ^{***}
$\beta_4 (x_{4, it} - \text{land})$	0.1355 (6.86e ⁻⁶) ^{***}	$\delta_1 (z_{1, it} - \text{SAPS})$	0.0003 (0.0001) ^{***}
σ_v – stochastic term variance function		$\delta_2 (z_{2, it} - \text{Top-Up})$	0.0004 (8.51e ⁻⁵) ^{***}
γ_0 (constant)	-35.3689 (128.0032)	$\delta_3 (z_{3, it} - \text{LFA})$	0.0001 (2.81e ⁻⁵) ^{***}

Source: own elaboration; Note: Statistical significance: *** at $\alpha = 0.01$, ** at $\alpha = 0.05$ and * at $\alpha = 0.1$

The first result is in contrast to previous observation from inefficiency variance function. When dividing the sample in two groups, having tested it by Wilcoxon rank-sum test, we found that probability that the efficiency of farms which receives above average subsidies is equal to technical efficiency of farms that obtain below average LFA payments is 0.03%. On 5% level of significance we may reject the null hypothesis, but on 1% level, the null hypothesis still holds. Hence, the ambiguous results do not allow us to clearly assess the impact of subsidies.

4. Discussion

Comparing our results to similar researches, we may conclude that finding ambiguous or not positive influence of subsidies on the performance of farms is common. On one hand, Pechrová (2015) found out that the RDP subsidies have a positive and statistically significant impact on the technical efficiency. On the other hand, she admits that the effect was statistically significant only at 90% level of significance. Kroupová and Malý (2010) suggested cancelling the payment on permanent grassland and decrease of payments on arable land while keeping the level of support for organic agriculture in order to increase the profit and production of organic farms. Otherwise, their results “indicate negative impact of subsidies on production, profit and technical efficiency of organic farmers and refer to the reality that actual level of subsidy discourages organic farmers from rational behaviour and implicates their dependence on state support” (Kroupová and Malý, 2010). Similarly results of the analysis done by Štolbová and Hlavsa (2008) show “...the ever rising dependence of the holdings economic results on

subsidies, and not only those for less-favoured areas, but even for the group of the FADN holdings operating outside the LFA”.

Conclusion

The aim of the paper was to assess the influence of LFA subsidies paid to farms in mountainous areas on their technical efficiency. Using Stochastic Frontier Analysis with production function in Cobb-Douglas form a “True” Fixed Effects model for panel data was estimated. The subsidies per hectare (SAPS, Top-Up and LFA for mountains areas) were included into variance of inefficiency function. A negative direction of their influence was found. Average efficiency during 2008–2012 was 81.16% suggesting that there is still space for improvement of farm management. The results of the analysis of the influence of LFA subsidies on technical efficiency of farms in mountainous areas in the Czech Republic are ambiguous. On one hand, they increased the variance of technical inefficiency and the correlation between Top-Up and LFA in mountainous areas and technical efficiency was negative, but, on the other hand, the correlation between SAPS and technical efficiency was found positive. In both cases, the values of the coefficients are around zero. Therefore, the examination of the influence on other farms' performance indicators is needed.

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SOLUTION ROBUSTNESS ANALYSIS

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robustness – sensitivity analysis – interval programming – parametric programming

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Abstract:

Nowadays a great research interest is devoted to uncertainty modeling, as changes in data can cause current solution to become non-optimal and present poor results from the objective function point of view. One of the popular approaches which deals with problem with uncertain data is robust optimization, which is designed to find solutions that are robust, which means that the solution does not depend on changes of certain parameters. This paper focuses on robust analysis of optimal solution and calculating its stability interval using proposed approaches based on interval programming. Stability of solution is calculated according to the possible changes in objective function coefficients only. Proposed method is compared with sensitivity analysis and parametric programming, main differences are outlined. The method is illustrates on an example.

Introduction

This paper introduces new method for judging solution robustness based on interval theory. The idea is to calculate a certain interval for changes in objective function coefficients, which assures, that the solution, obtained with the new objective function coefficients is still optimal. The key benefit of proposed method is the fact, that we are not only looking into increases in objective function coefficients, but decrease of coefficients inside the interval is also possible. The other key benefit is the fact, that we can change all objective function coefficients at the same time and the changes must be inside the interval but amount of changes must not be the same for all coefficients.

There are many approaches and papers dealing with robustness of the optimization problem. Basic definitions and methods are contained in the book of Ben-Tal, Ghaoui & Nemirovski (1997). Bertsimas & Weismantel (2005) proposed a definition of robust solution of the optimization problem which remains optimal even if a given number of parameters of the problem is changed. This number is denoted by the robustness or protection level.

1. Preliminaries

For introduction we would like to present basic operations with intervals, which are the foundation for proposed method (Přivozník, (2008)).

For the purposes of our study let us define an interval as a set (1)

$$\tilde{x} = [\underline{x}, \bar{x}] := \{x \in R, |\underline{x} \leq x \leq \bar{x}\}, \quad (1)$$

where \underline{x}, \bar{x} are elements from R and $\underline{x} \leq \bar{x}$. The interval is defined as thin when $\underline{x} = \bar{x}$ and wide when $\underline{x} < \bar{x}$. Interval is thus a space, where unknown \tilde{x} belongs.

Interval operations

Let us define summation (2) and subtraction (3) of intervals. For summation and subtraction of intervals lower and upper bound of an outcome interval can be defined as follows:

Definition.

$$\tilde{x} + \tilde{y} = [\underline{x} + \underline{y}, \bar{x} + \bar{y}], \quad (2)$$

$$\tilde{x} - \tilde{y} = [\underline{x} - \underline{y}, \bar{x} - \bar{y}]. \quad (3)$$

Now let's define multiplication (4) and (5) of an interval with a number k .

Definition.

$$\text{For } k \geq 0 \quad k * \tilde{x} = [k * \underline{x}, k * \bar{x}], \quad (4)$$

$$\text{for } k < 0 \quad k * \tilde{x} = [k * \bar{x}, k * \underline{x}] = (-k) * (-\tilde{x}). \quad (5)$$

To consider, whether one interval is greater than another we can use the following definition (6) and (7):

Definition.

$$\tilde{x} \leq \tilde{y} \quad \text{is defined as} \quad \bar{x} \leq \underline{y}, \quad (6)$$

$$\tilde{x} \geq \tilde{y} \quad \text{is defined as} \quad \underline{x} \geq \bar{y}. \quad (7)$$

Negative interval (8) can be then described as follows:

Definition.

$$-\tilde{x} = [-\bar{x}, -\underline{x}]. \quad (8)$$

2. Measuring solution robustness with interval programming

Let us now introduce the method for measuring optimal solution robustness based on operations with intervals and their properties.

Let us assume that x_0 is a basic nondegenerated optimal solution for the following maximization problem:

$$\max \{c^T x | Ax \leq b, x \geq 0\} \quad P = \{x | x \geq 0, Ax \leq b\}. \quad (9)$$

Definition.

Let $\hat{C} = \{c \in R_n | cx^0 \geq cx, \forall x \in P\}$ is a set of prices, for which x^0 is optimal solution.

We can prove the following statements:

- 1) $c^0 \in \hat{C}, \vec{0} \in \hat{C}$;
- 2) if $c^1, c^2 \in \hat{C}$ then $c = \lambda_1 c^1 + \lambda_2 c^2 \in \hat{C}$ for $\lambda_1, \lambda_2 \geq 0$;
- 3) if $c \in \hat{C}$ then $\lambda c \in \hat{C}$ for $\forall \lambda \geq 0$;
- 4) if n is normal vector of hyperplane crossing point x^0 so

$$n * x^0 = b_k, \text{ then } n \in \hat{C}$$
- 5) The set $\hat{C} = \{c | c = \lambda_1 n^1 + \lambda_2 n^2 + \dots + \lambda_s n^s, \lambda_i \geq 0, n^k * x^0 = b_k\}$, where n^k is normal vector for k -th hyperplane crossing point x^0 . The set \hat{C} is the cone from all normal vectors of given hyperplanes, which cross point x^0 .

The aim is to find maximum $\varepsilon \geq 0$, so that

$$\prod_{j=1}^n [c_j^0 - \varepsilon, c_j^0 + \varepsilon] \subset \hat{C} \quad (10)$$

We will define cost robustness index ε of the optimal solution x^0 of the problem (9).

Definition. For basic optimal solution x^0 of the problem (9) $\varepsilon \geq 0$ is cost robustness index if the solution x^0 is optimal for all

$$c \in [c_1^0 - \varepsilon, c_1^0 + \varepsilon] \times [c_2^0 - \varepsilon, c_2^0 + \varepsilon] \times \dots \times [c_n^0 - \varepsilon, c_n^0 + \varepsilon]. \quad (11)$$

Definition. For basic optimal solution x^0 of the problem (9) $\varepsilon_p \geq 0$ is cost percentage robustness index if x^0 is optimal for all

$$c \in c_1^0 [1 - \varepsilon_p, 1 + \varepsilon_p] \times c_2^0 [1 - \varepsilon_p, 1 + \varepsilon_p] \times \dots \times c_n^0 [1 - \varepsilon_p, 1 + \varepsilon_p]. \quad (12)$$

Cost robustness index ε assumes that a positive or negative change in any objective function coefficient (or at more coefficients at the same time) will not affect optimal solution of the problem, as long as the possible change is not greater than calculated robustness index ε .

We will use the interval operations for the estimation of ε robustness and ε_p percentage robustness index. Let the optimal solution x^0 correspond with the optimal simplex table in the form of the matrix (13)

$$\begin{bmatrix} a_1 & a_2 & \dots & a_n & | & b \\ z_1^0 & z_2^0 & \dots & z_n^0 & | & z_0^0 \end{bmatrix} \quad (13)$$

$$J = \{1, 2, \dots, n\}, \text{ base } B = (B_1, B_2, \dots, B_m) \in J.$$

Let us assume that only certain variables will meet the changes in objective function coefficients. Than $J^p \in J$ is the number of variable indexes with interval prices.

Thus we can distinguish two types of coefficients:

$$\tilde{c}_j = [c_j^0 - \varepsilon, c_j^0 + \varepsilon] \quad j \in J^p \quad (14)$$

$$\tilde{c}_j = [c_j^0, c_j^0] \quad j \notin J^p$$

If the price vector c is in interval (15)

$$c \in ([c_1^0 - \varepsilon, c_1^0 + \varepsilon] \times [c_2^0 - \varepsilon, c_2^0 + \varepsilon] \times \dots \times [c_n^0 - \varepsilon, c_n^0 + \varepsilon]), \quad (15)$$

and the base price vector is

$$c_B \in ([c_{B_1}^0 - \varepsilon, c_{B_1}^0 + \varepsilon] \times [c_{B_2}^0 - \varepsilon, c_{B_2}^0 + \varepsilon] \times \dots \times [c_{B_m}^0 - \varepsilon, c_{B_m}^0 + \varepsilon]), \quad (16)$$

then z-coefficients are

$$\tilde{z} = (\tilde{z}_1, \tilde{z}_2, \dots, \tilde{z}_n), \quad (17)$$

where

$$\tilde{z}_j = \tilde{c}_B \bar{a}_j - \tilde{c}_j. \quad (18)$$

The solution x^0 will still be optimal if $\tilde{z}_j \geq 0$ for all $j = 1, 2, \dots, n$, where x_j is nonbasic. The coefficients $\tilde{z}_j \geq 0$ can be solved for ε , so that ε robustness index is the result of the condition $\tilde{z}_j \geq 0$, considering the fact that for basic x_j the condition is fulfilled as $\tilde{z}_j = 0$.

Then we can write the equation for z-coefficients as follows:

$$\begin{aligned}
 \tilde{z}_j &= [\underline{z}_j, \bar{z}_j] = \sum_{i=1}^m \tilde{c}_{B_i} \bar{a}_{ij} - \tilde{c}_j \\
 &= \sum_{B_i \in J^p} [c_{B_i}^0 - \varepsilon, c_{B_i}^0 + \varepsilon] * a_{ij} + \sum_{B_i \notin J^p} c_{B_i}^0 * a_{ij} - \tilde{c}_j, \\
 &\quad \forall j \in J - B
 \end{aligned} \tag{19}$$

$$\begin{aligned}
 \tilde{z}_j &= \langle z_j^0 + \varepsilon \sum_{B_i \in J^p} [-1, 1] * a_{ij} - \varepsilon[-1, 1], \quad \forall j \in J^p - B \\
 &\quad z_j^0 + \varepsilon \sum_{B_i \in J^p} [-1, 1] * a_{ij}, \quad \forall j \notin J^p - B.
 \end{aligned} \tag{20}$$

For x^0 to be optimal we assume $\underline{z}_j \geq 0$

$$\begin{aligned}
 \underline{z}_j &= z_j^0 + \varepsilon \left(\sum_{\substack{B_i \in J^p \\ a_{ij} \geq 0}} (-a_{ij}) + \sum_{\substack{B_i \in J^p \\ a_{ij} < 0}} (a_{ij}) - 1 \right) \geq 0, \quad \forall j \in J^p - B \\
 &\quad z_j^0 + \varepsilon \left(\sum_{\substack{B_i \in J^p \\ a_{ij} \geq 0}} (-a_{ij}) + \sum_{\substack{B_i \in J^p \\ a_{ij} < 0}} (a_{ij}) \right) \geq 0, \quad \forall j \notin J^p - B,
 \end{aligned} \tag{21}$$

$$\begin{aligned}
 \underline{z}_j &= z_j^0 - \varepsilon \sum_{B_i \in J^p} |a_{ij}| - 1 \geq 0, \quad \forall j \in J^p - B \\
 &\quad z_j^0 + \varepsilon \sum_{B_i \in J^p} |a_{ij}| \geq 0 \quad \forall j \notin J^p - B.
 \end{aligned} \tag{22}$$

Result:

$$\begin{aligned}
 \underline{z}_j \geq 0 \quad \Rightarrow \quad \varepsilon \leq h_j &= \frac{z_j^0}{(\sum_{B_i \in J^p} |a_{ij}| + 1)}, \quad \forall j \in J^p - B, \\
 \varepsilon \leq h_j &= \frac{z_j^0}{\sum_{B_i \in J^p} |a_{ij}|}, \quad \forall j \notin J^p, j \in B.
 \end{aligned} \tag{23}$$

Proposition.

The cost robustness index is $\varepsilon = \min_{j \in J-B} h_j$, where h_j is defined in (23).

We can use the similar technique to obtain percentage robustness index ε_p .

The calculated cost robustness index presents the possible amount of changes (positive or negative) for any objective function coefficient (or more coefficients simultaneously), for which the optimal solution remains stable.

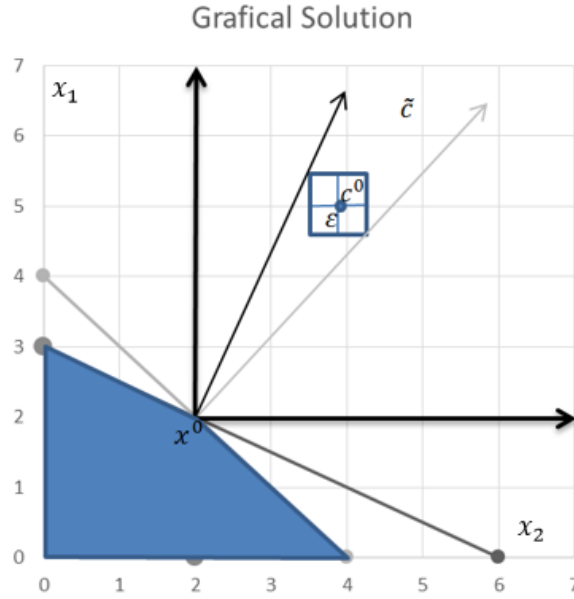
When comparing presented approach with existed approaches such as parametric programming and stability interval calculating we can remark the following: the strength of proposed method comparing to stability analyses of objective function coefficients is the fact, that we can change all objective function coefficients simultaneously, the changes must be inside the interval but amount of changes must not be the same for all coefficients. Comparing proposed method with parametric programming we can see that apart from parametric programming we are not bounded by a direction of change – the change is possible in any direction as long as we are moving inside the interval calculated for cost robustness index.

3. Example

We will introduce the proposed method on an example which will help to illustrate the idea of proposed method. Let us assume the following linear optimization problem (24):

$$\begin{aligned}
 2x_1 + x_2 &\leq 6, \\
 2x_1 + 2x_2 &\leq 8, \\
 x_1, x_2 &\geq 0, \\
 3x_1 + 2x_2 &\dots \max.
 \end{aligned}
 \tag{24}$$

Graphical solution of the problem (24) is presented with the Figure 1.

FIG. 1: Graphical solution

Source: own research

3.1. Calculation of ϵ robustness and ϵ_p percentage robustness index

The optimal solution for problem (24) is presented in Table 1.

TAB. 1: Optimal basic solution simplex table

	Variable	x_1	x_2	x_3	x_4	B
$[3 - \epsilon, 3 + \epsilon]$	x_1	1	0	1	-0.5	2
$[2 - \epsilon, 2 + \epsilon]$	x_2	0	1	-1	1	2
	z_0	0	0	1	0.5	10

Source: own research

From the final simplex table we can calculate the cost robustness index $\epsilon \geq 0$. We assume that for basic variables x_1, x_2 objective function coefficient z_j is always equal to zero, which means $z_1 = z_2 = 0$.

$$\tilde{z}_3 = 1 * [3 - \epsilon, 3 + \epsilon] - 1 * [2 - \epsilon, 2 + \epsilon] = [-3 - \epsilon, -3 + \epsilon] + [3 - \epsilon, 3 + \epsilon] = [1 - 2\epsilon, 1 + 2\epsilon],$$

$$[1 - 2\epsilon, 1 + 2\epsilon] \geq 0, \text{ is valid for } 0 \leq \epsilon \leq \frac{1}{2}.$$

$$\tilde{z}_4 = \left(-\frac{1}{2}\right) * [3 - \varepsilon, 3 + \varepsilon] + 1 * [2 - \varepsilon, 2 + \varepsilon] = \left[-\frac{3}{2} - \frac{\varepsilon}{2}, -\frac{3}{2} + \frac{\varepsilon}{2}\right] + [2 - \varepsilon, 2 + \varepsilon] = \left[\frac{1}{2} - \frac{3}{2}\varepsilon, \frac{1}{2} + \frac{3}{2}\varepsilon\right],$$

$$\left[\frac{1}{2} - \frac{3}{2}\varepsilon, \frac{1}{2} + \frac{3}{2}\varepsilon\right] \geq 0 \text{ is valid for } 0 \leq \varepsilon \leq \frac{1}{3}.$$

From the calculations above it is obvious that the robustness index for the presented model is $\varepsilon = \min\left\{\frac{1}{2}, \frac{1}{3}\right\} = \frac{1}{3}$, which means that any changes of any objective function coefficients in the range $\left[-\frac{1}{3}, \frac{1}{3}\right]$ will not affect the optimal solution (see Figure 1).

From the final simplex table we can calculate $\varepsilon_p \geq 0$, according to (12) which will meet our constraints.

$$\tilde{z}_3 = 1 * 3 * [1 - \varepsilon_p, 1 + \varepsilon_p] - 1 * 2 * [1 - \varepsilon_p, 1 + \varepsilon_p] = [3 - 3\varepsilon_p, 3 + 3\varepsilon_p] + [-2 - 2\varepsilon_p, -2 + 2\varepsilon_p] = [1 - 5\varepsilon_p, 1 + 5\varepsilon_p],$$

$$[1 - 5\varepsilon_p, 1 + 5\varepsilon_p] \geq 0 \text{ is valid for } 0 \leq \varepsilon_p \leq \frac{1}{5}.$$

$$\tilde{z}_4 = \left(-\frac{1}{2}\right) * 3[1 - \varepsilon_p, 1 + \varepsilon_p] + 1 * 2[1 - \varepsilon_p, 1 + \varepsilon_p] = \left[-\frac{3}{2} - \frac{3}{2}\varepsilon_p, -\frac{3}{2} + \frac{3}{2}\varepsilon_p\right] + [2 - 2\varepsilon_p, 2 + 2\varepsilon_p] = \left[\frac{1}{2} - \frac{7}{2}\varepsilon_p, \frac{1}{2} + \frac{7}{2}\varepsilon_p\right],$$

$$\left[\frac{1}{2} - \frac{7}{2}\varepsilon_p, \frac{1}{2} + \frac{7}{2}\varepsilon_p\right] \geq 0, \text{ is valid for } 0 \leq \varepsilon_p \leq \frac{1}{7}.$$

The percentage robustness index is $\varepsilon_p = \min\left\{\frac{1}{5}, \frac{1}{7}\right\} = \frac{1}{7} = 0,1428$, which means that any changes of any objective function coefficients in the range of 14, 28% will not affect the optimal solution.

Conclusion

This paper proposes a new method for measuring solution robustness, which helps to calculate solutions stability taking into account the fact that objective function coefficients could change due to unexpected circumstances. The method works with cost robustness index which declares the possible amount of changes (both positive and negative) for all coefficients in the objective function, for which the optimal solution remains stable. The paper introduces the method and describes it on a case study to illustrate how the cost robustness index is calculates. The paper also contains brief comparison of proposed method with parametric programming and stability interval calculation.

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APPLICATION OF SCHUMPETER'S THEORY OF THE INNOVATION TO ECONOMIC DEVELOPMENT

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Abstract:

This paper applies Schumpeter's theory of the business cycle, based on the original Schumpeterian model, to economic development in the United States during the period 1963 - 2010. The issue is examined from the perspective of various economic sectors, with a focus on the financial sector. Key concepts mentioned in the theory of the business cycle are quantified and then put into context with the development of the economy or selected region. Schumpeter mentioned five elements of innovation, which are quantified, performed primarily on the basis of submitted and accepted applications for new patents and utility design. The output of the analysis is an index which aggregates the individual elements of innovation. The results show that before an economic downturn in the sector, a significant increase in the output index is recorded.

Introduction

Over one hundred years ago, Moravian-born Joseph Alois Schumpeter came up with a theory that innovation causes movement in the fixed levels of the economy. This brings the need for a relocation of resources, and thus may induce a crisis in individual regions or entire national economies. These crises, however, lead to more efficient use of resources (i.e. creative destruction). His ideas were published in his critical work, *“The Theory of Economic Development”* (Schumpeter, 1912). Schumpeter's theory can successfully explain a number of important economic events even today. This paper focuses on an analysis of the incidence of innovation in key areas of the U.S. economy in relation to the business cycle.

1. Methodology

The methodology used in this paper is based on an examination of macroeconomic aggregates related to an understanding of the field of innovation by newly registered patents. The methodology is supported by a regression analysis. All data used in this

paper are based on in their real values or on the basic indices related to the total quantity.

2. Schumpeter's approach to innovation and the economic cycle

2.1. The role of entrepreneurs in Schumpeter's concept

Schumpeter saw the main role of the entrepreneur as that of an innovator entering a functioning market while also becoming the main driver of the economic process. Not only do entrepreneurs fill a niche in the market with their businesses, but their innovation sets the development process in motion and increases interest in the sector. Schumpeter worked very intensively with the concept of innovation, meaning the introduction of something new into the economic system, and distinguished five basic cases of innovation (Schumpeter, 1987; Kuznets, 1940).

Schumpeter argues that profit is the result of innovation. As soon as any entrepreneur puts an innovation into practice, he at that point basically has no competition, because the other entrepreneurs do not yet know about his established activities. This gain, however, will continue to shrink until it becomes zero and the total benefit of being the first is exhausted (Schumpeter, 1982; Freeman, 2014). Schumpeter does not associate the profit of a business with an imbalance in the market, and argues that if an entrepreneur innovates, it does not necessarily cause a market imbalance. This distinguishes his theory from the neoclassic approach. The economic process is not treated as a process of adaptation in order to achieve balance.

2.2. The theory of the economic cycle

Schumpeter's theory of entrepreneurs became the basis for his theory of the business cycle. Again, he works with the concept of innovation, this time in the context of economic cycles, which he likens to innovative waves. The expansion of the economic cycle begins at the moment when the innovator brings a set of innovations to the economy that forms the impetus for economic growth. At the same time, it supports investments in that sector. Another side-effect is therefore the expansion of credit (Schumpeter, 1991). The wave of new innovations is exhausted after a certain time, however, and all the primary signs gradually disappear. In some cases, it may lead to an economic recession. Some waves of innovation could trigger a wave of investment activities which are not supported by actual development, but only another wave of innovation (Aubry, et al. 2015). Some of these investments will turn bad and appear in the market as superfluous. Innovation is not characterized by a smooth flow of nature, but by shock waves, and therefore economic development on the basis of these waves is of different lengths.

Schumpeter's theory is a theory of a real cycle, rather than monetary theory, and thus is closer to Cassel's theory, than to the theories of Hayek or Mises. It is important to mention that Schumpeter treats each innovation cycle and each wave of innovation as unique (Tassey, 2013).

3. Quantifying innovation waves

The first case of innovation, as Schumpeter defined it, is the production of a new good that consumers do not yet know, or the productions of goods of a new quality. The second is the introduction of new methods of production which are virtually unknown to the industry (Louca, 2014). The foundation of a new industrial method, however, need not be new scientific discovery, but only a new way of its use (Schumpeter, 1987).

To measure these two cases of innovation, a detailed look at the development of new patents and inventions in the United States is used. The article focuses on selected patents according to the parameters of the United States Patent Office (United States Patent and Trademark Office). These are inventions, utility models and industrial designs. For a detailed analysis of the indicators (patents) a calculation of the changes recorded in the new patent applications over the previous year is used. At times when there is an increased risk of a new wave of innovation and thus an increased risk of patent registration by someone else, there is pressure on patent "producers" to register their patents earlier than others so that they can take ownership of the same benefits of entrepreneurial profit as an innovator (Vlček, 2013). The third case of innovation, defined by Schumpeter, is the opening of a new market, or a market which until then was not represented in the sector, regardless of whether the market already existed before. The fourth case of innovation is to obtain new sources of raw materials or semi-finished products - if they were previously inaccessible or had to have been first produced. From the perspective of measurement, this element is difficult to determine and is not key for the investigated sector and thus will not be dealt with here. The fifth and final innovation is the appearance of a new kind of organization such as one in the position of a monopoly (even through a trust). Creating a monopoly is connected with primacy in input with the innovation, if it is already understood as any of the items identified above, and it is therefore not required at this stage to further quantify this point.

4. Usage for the macroeconomic model

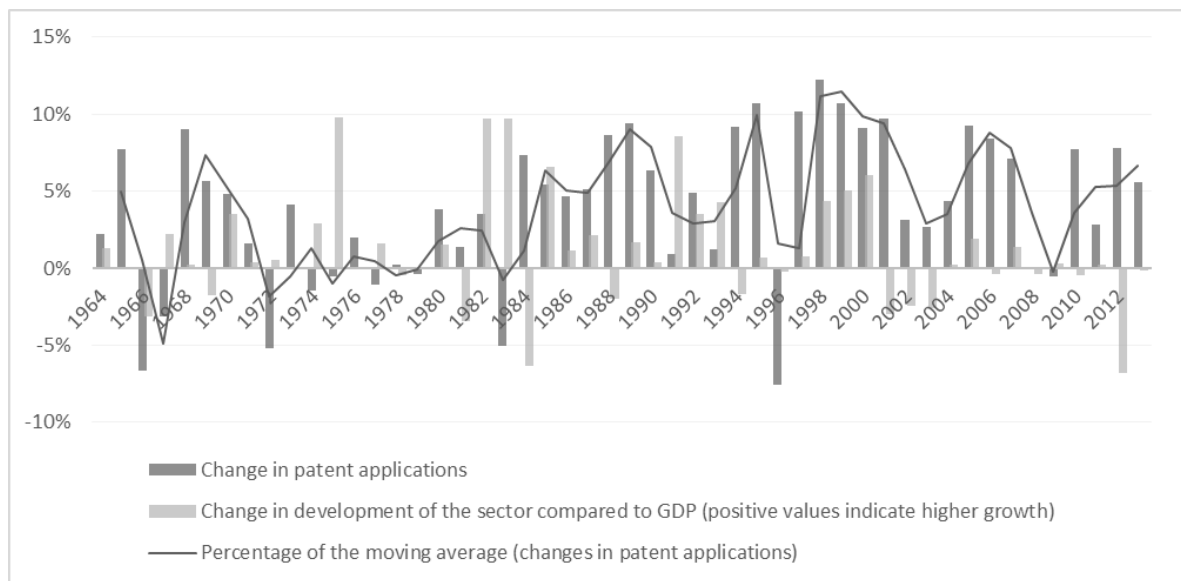
In its own way, the proposed model looks at the economy through innovation - everything is solved in an environment that compares both the development of the economy as a whole, as well as the development of one particular sector. The output of this model is a clear form of the prediction of the development (growth rate) of a sector within a predetermined time period. The predictions in the application bind to the expected development of revenue (or sales in general) in selected company or region.

The macroeconomic model is performed using a multiple linear regression, which assumes that the variable to be explained is precisely the expected change in revenue. There are two explanatory variables which are, by their nature, based on the quantification of the Schumpeterian theory. These are the change in patent applications ($X1$) and an indicator representing the overheating of the monitored sector ($X2$). The regression equation has the following formulation:

$$y = \beta_0 + \beta_1 * X1 + \beta_2 * X2 + \varepsilon \quad (1)$$

where y represents the expected change in revenue, $X1$ and $X2$ are the mentioned explanatory variables, and β parameters are estimated by the least squares method. Coefficient ε is a random component in the equation. In this paper, the model is applied to the financial sector. The overall development will be measured on the basis of real GDP and will be subjected to a regression analysis with the appropriate outputs. The initial analysis is presented in Figure 1.

FIG. 1: Schumpeter's economic cycles

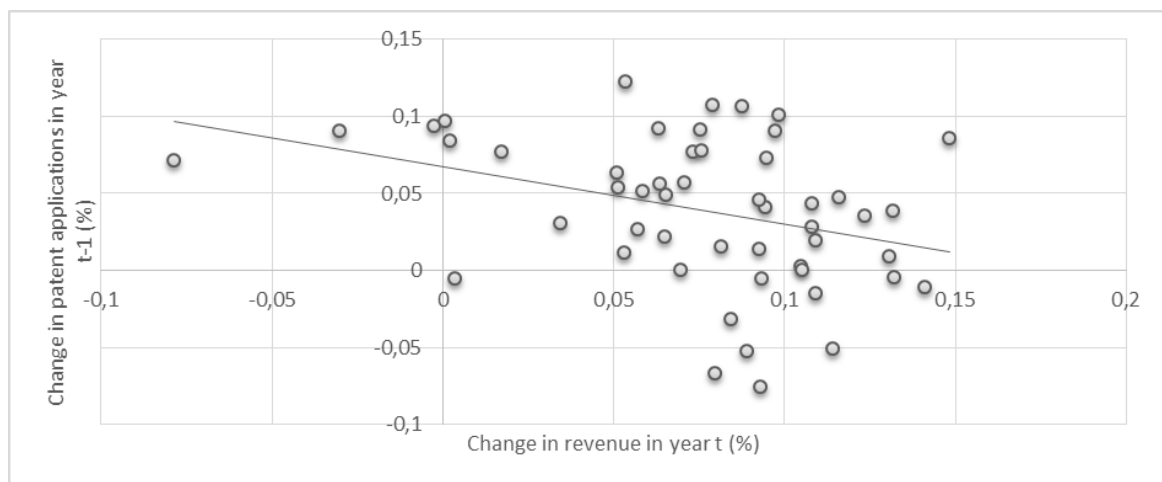


Source: Authors

Figure 1 reflects the evolution of two variables ($X1$ and $X2$) in the period 1963 - 2013. For the analysis of the economy from this perspective it is important to monitor the values of both indicators. One of them is therefore a change in the value of the development of applications for patents, and the second variable is the share of the sector to the real product of the economy that is interpreted by the overheating indicator. From Figure 1 it can be concluded that the next wave of new patent applications is currently on its way. This wave, however, is not supported by significant growth in the given sector, and so from the perspective of Schumpeterian theory, there should not be any risk of depletion of the innovation bubble in this sector.

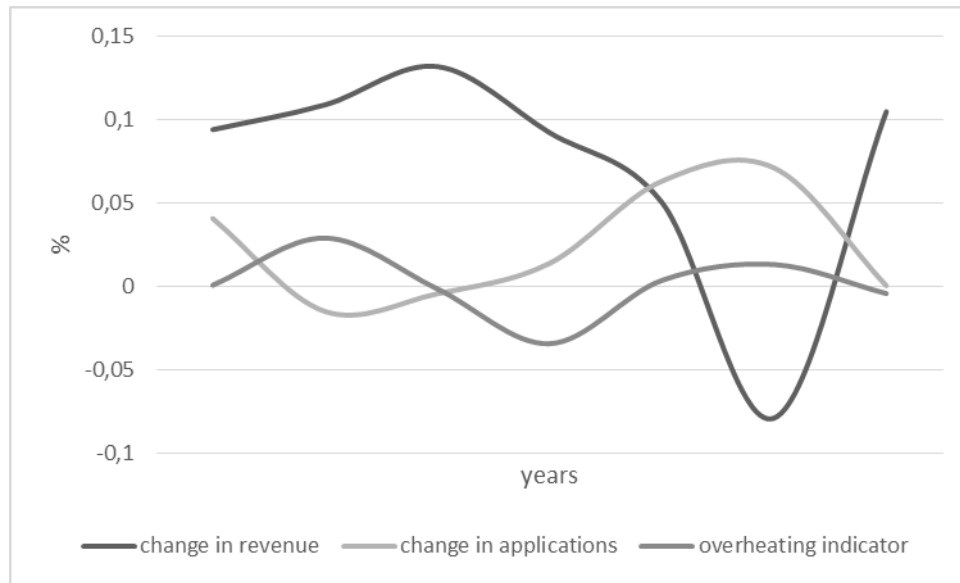
Furthermore, a regression analysis is performed. In this, the explained variable is the growth rate of revenue in the sector and the explanatory variables are: changing applications for patent registration, which is then supplemented by the overheating indicator from the monitored sector, measured as a percentage of the sector in the total GDP real economy. In order to maintain the logic of the above model, it is necessary to also carry out a time shift so that the variables are compared to ensure the possible prediction of revenue, depending on the change in the number of patent applications and the overheating indicator of the sector. Based on testing, the optimum size of this shift has been evaluated at one year. Changes in the number of applications for patents and the overheating indicator in year $t-1$ will be compared to the change in revenue in year t . This view of the issue can be illustrated using scatter charts that represent the relationship between being the explained variable and the two explanatory variables. Figure 2 shows a graph of the relationship between the change in revenue and indicator $X1$.

FIG. 2: The relationship between patent applications and the change in sales



Source: Authors

This graph shows that if the changes in applications in previous years had positive values, the changes in revenue had at least a partial tendency towards lower values. To complement this, the value of the correlation coefficient, which reaches values of (- 51), is also calculated, representing a moderate negative correlation. The initial regression analysis was performed on all the data. The resulting coefficient of determination, however, exhibits a very low value (12 %). For this reason, a modification was made, which focused only on the values that correspond to the logic of the wholly formed model - the amount of negative growth in revenue each year. From regression it is clear that the model based on the coefficient of determination explains 74 % of the variables. Likewise, it shows both explanatory variables as statistically significant. The whole approach is complemented with a graph which presents the development of input values in this modified model. The graph is presented in Figure 3.

FIG. 3: Development of the input variables - Schumpeter's model

Source: Authors

In Figure 3 it is possible to precisely monitor the negative relationship between the change in revenue and the two explanatory variables listed above. When the outputs are integrated into the regression equation, the following form is obtained:

$$CHiR = 0.111517 - 1.60518 * ChiA - 0.86547 * OI + \varepsilon, \quad (2)$$

where *ChiR* is change in revenue, *ChiA* represent change in applications and *OI* is overheating indicator. In the analyzed case, the change in revenue indicator has a value of + 2.295 %. This approach thus shows that negative development in the industry at selected region is not expected.

Conclusion

This approach does not attempt to predict the future development of the economy as a whole, but should draw attention to possible dangers in the given sector in the form of indications of possible overheating, or in other words, exhaustion of the innovation wave and further decline. Should such a situation arise, it would be desirable to adjust expected revenue (respectively, the final random variable) to possibly increase the level of risk on the basis of the regression analysis.

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THE CONSUMPTION OF MINERAL FERTILIZERS AND LIME IN POLAND AND THE CZECH REPUBLIC

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consumption – fertilizers – diversification

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Abstract:

The article presents the analysis of the mineral fertilizers and lime in Poland and in the Czech Republic in 2004-2014. The characteristics of mineral fertilization, including overall use of fertilizers and the use of the individual, basic components of fertilizer, were presented and analyzed. Detailed results of the study were presented for the country, regions and voivodships. Analysis suggest that the special feature of the use of mineral fertilizer in Poland and the Czech Republic are considerable regional differences in the size and structure of the use of fertilizers. On the other hand, the low level of calcium fertilization is insufficient in relation to the scale of soil acidification in Poland and the Czech Republic.

Introduction

The level of fertilization is the main but not the only factor affecting the height of obtained harvests (Czyżyk, 2011). The purpose of the use of fertilizers is to deliver nutrients to cultivated plants that are responsible for normal growth and development of harvests. A deficiency of nutrients not only inhibits the growth of harvests, but also contributes to the deterioration of the quality of harvests products. A popular way of delivering nutrients is the use of mineral fertilizers. It should be underlined that the nutritional requirements of the plants in relation to individual nutrients are very different (e.g. corn is a plant with high nutritional requirements). Mineral fertilizer in modern agriculture is a necessary yield-forming measure and doses of fertilizers depend on the content of nutrients in soils and nutrition requirements of the cultivated plants. On the other hand, the liming the soil is an agrotechnic procedure limiting the adverse effects of acidification of soils. In order to neutralize the acidity of the soil the liming is used that by modification of the physical, chemical and biological features of the soil contributes to the improvement of conditions for growth and development of crops. The liming is an important agrotechnic treatment not only for arable land but also for grassland and orchards (Piwowar, 2015).

The weight of goods and value of fertilizers and the number of farmers using fertilizers on their farms decide about the scale of the validity of fertilization in terms of economy. For example, in Poland in 2013/2014 83% of all households involved in agricultural activity (i.e. approximately 1.2 million farms) had used mineral fertilizers. The weight of goods supplied to the Polish market of mineral fertilizers (NPK) in terms of pure ingredient in 2014 amounted to 2 284 thousand tonnes (Śródki..., 2015). Major issues in the study are also external costs associated with the production and the use of mineral fertilizers. According to the research, in the European Union, the average emissions resulting from the production of nitrogen fertilizers is 58 860.6 g CO₂ eq kg⁻¹ of pure component. Important in the context of the production of fertilizers are also analysis of other emissions into the atmosphere, for example - dust (Tarnowska, 2009; Žak et al., 2014). In the case of phosphate fertilizers, the environmental problems are: the exploitation of non-renewable resources (phosphorites) and damaging waste (phosphogypsum). Irrational, excessive mineral fertilization, in particular with phosphorus poses a threat to the environment, mainly to soil and water. Excessive fertilization causes an increase the eluviation of P and K into the groundwater and surface water. The use of very high doses of mineral fertilizers with nitrogen contributes to the formation of excess nitrogen in the environment. Central Institute for Supervision and Research in Agriculture (CISTA) leads in the Czech Republic long-term field experiments on the effects of fertilization on soil properties and crop yields. Based on the test results, it is possible to calculate the balance sheet and determination of optimal fertilization (for sustainable crop production). Based on previous analyzes it can be stated that in order to achieve favorable yields while maintaining soil fertility, the average annual dose of fertilizers should be: 100-120 kg N, 30 kg P₂O₅ and 100-150 kg K₂O (Cermák, Smatanová, 2012). Various fertilizers should be taken into account in the annual doses, including natural fertilizers that are the valuable source of essential plant nutrients. In addition, natural fertilizers during the decomposition enrich the soil with humus and improve its properties.

1. Methods and sources of materials

The main aim of this study was to characterize some aspects of mineral fertilization and the liming of soils in Poland and the Czech Republic. Among others: the total use of mineral fertilizers and divided into basic nutrients and regional diversification of the use of mineral fertilizers were analyzed.

The basic range of temporal analysis was covered in the years of 2004-2014. The main source of information was the statistical data of the Central Statistical Office in Poland and the Czech Statistical Office. For the analysis of changes in the use of mineral fertilizers in Poland and the Czech Republic static metrics were used to detect patterns and draw conclusions, among others: dynamics and structure indicators, coefficient of variation (Ostasiewicz, 2011). These measures, aimed at the description of the structure

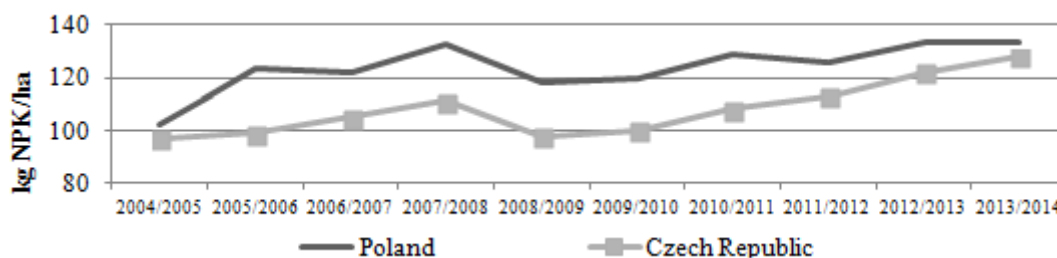
of phenomena, were used primarily to compare selected items (attributes) in spatial terms.

2. Results and discussion

The soil is the main habitat for the crop that provides the proper nutrients, water and air and thermal conditions. From the point of view of agriculture, the soil plays a fundamental role in the production and distribution of biomass (Uziak, Klimowicz, 2002). The proper soil processes and rational, sustainable agricultural economy allows to keep the long-term, efficient agricultural production in the area. To determine the agricultural value of the use of soil the following terms are used: richness of the soil, soil fertility and soil fertility. Soil richness designates the sum of mineral and organic components (Szymańska, 2012; Piwowar, 2014).

As analysis suggest, the soils in Poland have a high proportion of low or very low content of available and accessible for plants forms of phosphorus, potassium and magnesium. Of the 1 604 332 soil samples, surveyed in 2010-2013 by the Regional Agricultural Chemical Stations, 23% of them had low and 9% very low content of phosphorus. With regard to the magnesium 11% of the samples showed extremely low and 18% low content of this element. The largest deficit was recorded in the case of potash. Low content of available forms for plants of this component was characterized by 26% of the samples, and a very low - 15% of the samples (Środki...,2015). Also, in the Czech Republic a comprehensive monitoring of agricultural soils is carried out (Zbiral, 1995). It should be emphasized that the natural fertility of the soil in the Czech Republic is much higher than in Poland (Grzebisz et al., 2010). By virtue of the insufficient amount of minerals in soils, for the proper development of plants, it is necessary to use fertilizers. The monitoring and analysis of regional use of mineral fertilizers is very important (Olszańska, 2010). In the years 2004-2014 the use of mineral fertilizers in Poland and the Czech Republic was increased (Fig. 1).

FIG. 1: Consumption of mineral fertilizers in Poland and the Czech Republic



Source: (<https://vdb.czso.cz>; Rynek...,2015)

In 2004/2005, the use of mineral fertilizers in the Czech Republic increased by 31 kg of NPK/ha of agricultural land (ie. 32%). The analysis of data shows that the use of

mineral fertilizers in Poland was considered by 30%. The increase of the total use of mineral fertilizer in the Czech Republic during this period was determined mainly by the increased use of nitrogen fertilizers (25 kg/ha of agricultural land). Few changes in 2004-2014 was recorded in the use of potassium and phosphatic fertilizers in the Czech Republic (Table 1).

TAB. 1: Consumption of mineral nutrients in Czech Republic

Specifications	Mineral fertilisers (nutrients)						
	[kg x ha-1 of agricultural land]				[%]		
	Total	Nitrogenous	Phosphorus	Potassium	N	P	K
2004/2005	97	72	15	10	74	15	10
2005/2006	99	74	15	10	75	15	10
2006/2007	105	78	16	11	74	15	10
2007/2008	111	82	17	11	75	15	10
2008/2009	98	78	12	8	80	12	8
2009/2010	100	80	12	7	81	12	7
2010/2011	108	85	14	9	79	13	8
2011/2012	113	88	15	10	78	13	9
2012/2013	122	94	17	11	77	14	9
2013/2014	128	97	18	12	76	14	9

Source: (<https://vdb.czso.cz>)

In the analyzed period only minor changes occurred in the structure of the use of mineral fertilizers in the Czech Republic. In the entire period in the structure of the use of fertilizers in the Czech Republic dominated the use of nitrogen fertilizers and the increase in the share of this group in the overall consumption of fertilizers by 2 percentage points was recorded. The share of phosphate fertilizers and potash fertilizer in the total use decreased in this period by 1 percentage point (respectively from 15% to 14% and from 10% to 9%). Figures on the use of mineral fertilizers and fertilization structure in Poland are shown in the Table. 2.

TAB. 2: Consumption of mineral nutrients in Poland

Specifications	Mineral fertilisers (nutrients)						
	[kg x ha-1 of agricultural land]				[%]		
	Total	Nitrogenous	Phosphorus	Potassium	N	P	K
2004/2005	102	56	20	26	55	20	25
2005/2006	123	63	28	33	51	22	27
2006/2007	122	65	26	31	54	21	26
2007/2008	133	71	29	33	53	22	25
2008/2009	118	68	23	27	58	20	23
2009/2010	120	69	24	27	58	20	22
2010/2011	129	72	27	30	56	21	23
2011/2012	126	73	25	28	58	20	22
2012/2013	133	81	26	27	60	20	20
2013/2014	133	76	23	34	57	17	26

Source: (Rynek...,2015)

As well as in the Czech Republic as in Poland fertilizer use structure is dominated by nitrogen fertilizers, while their participation is relatively lower (57% in 2013/2014). The share of nitrogen fertilizers in the structure of total fertilizer use in this period increased slightly (by 2%). In Poland in the years of 2004-2014 a slight increase in the use of phosphate and potassium fertilizers, by 3 kg/ha of agricultural land and 8 kg/ha of agricultural land was recorded. The use of mineral fertilizers is much regional variation in both the Czech Republic and Poland (Table 3 and 4).

TAB. 3: The regional diversification of mineral fertilizers in the Czech Republic in 2013/2014

Specifications	Mineral fertilisers (nutrients)			
	kg x ha-1 of agricultural land			
	Total	Nitrogenous	Phosphorus	Potassium
Praha Region	162	119	24	19
Středočeský Region	156	116	24	17
Olomoucký Region	154	104	26	24
Jihomoravský Region	142	108	21	12
Královéhradecký Region	140	106	20	15
Zlínský Region	137	107	23	8
Pardubický Region	133	103	17	13
Vysočina Region	126	97	18	11
Moravskoslezský Region	115	88	16	11
Ústecký Region	110	85	18	7
Jihočeský Region	105	80	14	11
Liberecký Region	100	76	11	13
Plzeňský Region	97	83	9	4
Karlovarský Region	55	45	6	4
	Coefficient of variation (CV) [%]			
	23	20	33	44

Source: (<https://vdb.czso.cz>)

Of all the 14 regions in the Czech Republic the highest level of fertilization in 2013/2014 was recorded in the region of Praha (including 162 kg.ha-1 of agricultural land). In the seven regions of the Czech Republic recorded in the investigation year the level of nitrogen fertilization is higher than 100 kg x ha-1 of agricultural land. The lowest use of mineral fertilizers in the Czech Republic was reported in Karlovarský Region. The calculated coefficient variation of fertilization in the Czech Republic was 23%, but in the case of phosphate and potassium fertilizers was much higher (33% and 44%). Figures on the regional diversity of mineral fertilizers in Poland in 2013/2014 are presented in Table 4.

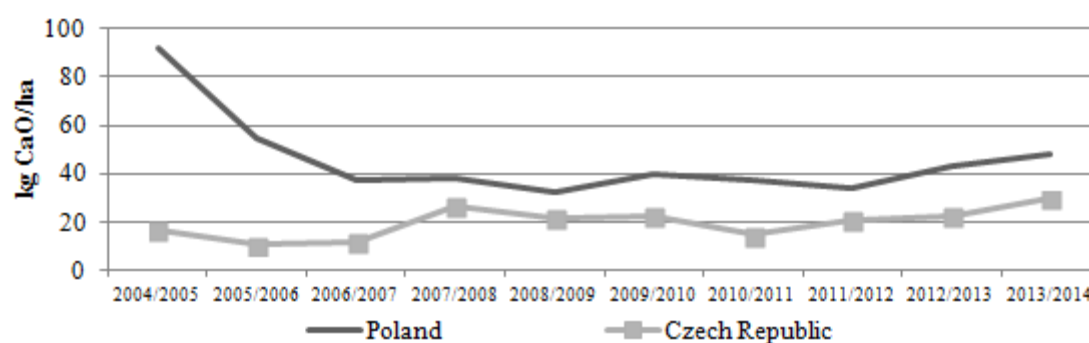
TAB. 4: The regional diversification of mineral fertilizers in Poland in 2013/2014

Specifications	Mineral fertilisers (nutrients)			
	kg x ha-1 of agricultural land			
	Total	Nitrogenous	Phosphorus	Potassium
Opolskie	188	106	34	48
Dolnośląskie	169	95	31	43
Kujawsko-pomorskie	166	97	28	42
Wielkopolskie	158	90	35	42
Pomorskie	143	89	21	33
Lubelskie	140	73	28	39
Śląskie	138	74	27	38
Łódzkie	136	77	24	35
Mazowieckie	125	70	23	32
Zachodniopomorskie	117	71	18	29
Podlaskie	116	63	23	29
Świętokrzyskie	106	58	20	28
Warmińsko-mazurskie	100	65	15	21
Lubuskie	98	56	17	25
Małopolskie	85	44	17	24
Podkarpackie	80	43	16	21
Coefficient of variation (CV) [%]				
	24	24	27	25

Source: (Rynek...,2015)

The highest level of mineral fertilizers in Poland in 2013/2014 was recorded in the opolskie and dolnośląskie voivodship. Relatively the lowest use of mineral fertilizers in Poland occurred in the eastern and southern voivodships.

An interesting from the cognition point of view is the level of calcium in fertilizer use in Poland and the Czech Republic (Fig. 2).

FIG. 2: Consumption of lime in Poland and the Czech Republic

Source: (<http://issar.cenia.cz/issar/page.php?id=1896>; Rynek...,2015)

Soil acidification is a gradual process that occurs in a large part of the resources of agricultural land in the Czech Republic. In recent years, almost all the land in the Czech Republic showed a slight decrease in pH. The process of soil acidification is a natural phenomenon, especially in mountain areas. The natural process is also reinforced by the effects of human activities, eg. inappropriate forest and agricultural management (<http://issar.cenia.cz>). The average value of soil pH (pH) of agricultural land in the Czech Republic is 6.0 (slightly acidic). However, more than 1100 thousand ha of arable land (or 33% of the total area) is very acidic (ie. the pH to 5.5).

Starting from 2005 we observe very large reduction in calcium fertilization in Poland. The reasons for this phenomenon must be sought in the fact that after the Polish accession to the EU, budget allocations for soil liming were liquidated and farmers were charged the costs of the liming. Acidification of soils in Poland and a drastic fall of the liming of the soil is another problem in terms of sustainable management of nutrients in the national agriculture. The analysis of the National Agrochemical Station in Poland shows that the structure of the soil pH in Poland is dominated by very acidic soils (pH <4.5) and acidic (pH 4,6-5,5). The total share of these two groups in the structure of soil pH in Poland in 2009-2012 was 44%. The causes of acidification of soils in Poland, like in the Czech Republic are both natural and anthropogenic (Piwowar, 2015).

The use of mineral and calcium fertilizers in an agricultural enterprise depends on many factors: the direction of agricultural production, cultivated species and varieties of plants, soil fertility in minerals of technical equipment, knowledge and skills of farmers, their financial resources, etc. Supply-side backgrounds on the market of mineral fertilizers are also very important. The largest producer of mineral fertilizers in the Czech Republic is Lovochemie (Included in the Agroferta.s. group). In Poland, the largest producer of mineral fertilizers is the Capital Azoty Group SA, under which operate, under a common brand, the largest chemical plants in Poland – from Tarnow, Pulawy, Police and Kedzierzyn-Kozle. Azoty Group has the largest potential, in Poland, for the production of fertilizers and nitrogen. Between the Polish and the Czech Republic there are differences not only in the use of fertilizers, but also in the scale of production and the volume of foreign trade turnover. Poland is an important not only in Europe, but also in the world producer of mineral fertilizers. Polish fertilizer industry produces about 1.6% of world production of nitrogen fertilizers and about 1.1% of phosphate fertilizers. Given the volume of production on a European scale Poland is the third producer of nitrogenous fertilizers (after Russia and Ukraine) and the second (after Russia), a manufacturer of phosphate fertilizers (Zalewski, Rembeza, 2013). As Zalewski (2014) indicates, in the years of 2007-2010 the average annual production of mineral fertilizers in Poland amounted to almost 2.2 million tons in terms of pure ingredient (NPK). The level of production in the Czech Republic was much lower and amounted to 296 thousand tons (Zalewski, 2014). Polish agriculture demand for mineral fertilizers is several times higher than in the Czech Republic, which is primarily due to

differences in the agricultural area between the two countries. Poland has a large production potential in the field of nitrogen fertilizers and a significant production surpluses. Polish important trading partner for fertilizers is the Czech Republic. For example, the value of Polish exports of nitrogen fertilizers to the Czech Republic in 2013 amounted to 41.9 million euros (Piwowar, 2012; Kowalska, 2015). Higher values in Polish foreign trade was recorded only with Germany (85.6 million) and Britain (49.3 million). A significant portion of export sales is realized on the basis of long-term contracts by domestic fertilizer industry. For example, Zakłady Azotowe Pulawy SA concluded on September 6, 2011 a contract with a Czech company Agro sc for sale of RSM of an estimated value of 185 mln PLN (Piwowar, 2013).

Summary

Mineral fertilizers and lime substances play an important role in the rural economy, as in manufacturing processes carried out in agriculture supplementing the nutrients in the soil and ensure optimal soil acidity is necessary. In the years of 2004-2014 upward trend in the consumption of mineral fertilizers in Poland and the Czech Republic was observed. The analysis of data shows that the increase in the use of mineral fertilizers during this period was determined mainly by the increase use of nitrogen fertilizers. There are marked differences in the structure of mineral fertilizers in Poland and the Czech Republic. A very high proportion of nitrogen fertilization in the fertilization structure in the Czech Republic, with a relatively low phosphorus and potassium fertilization, raises questions about appropriate, from the point of view of sustainable fertilizer, proportion between the consumption of primary nutrients: N, P and K. A special feature of the use of mineral fertilizers in Poland and the Czech Republic are considerable regional differences in the size and structure of consumption of fertilizers. The calculated coefficients of variation in total volume of mineral fertilizers in the Czech Republic and Poland were similar (23% and 24%). It is worth noting that a very low level of calcium fertilization is insufficient in relation to the scale of soil acidification in Poland and the Czech Republic. Starting from 2007 in both countries, the dynamics of the use of calcium fertilizers proceeded accordingly.

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ELECTRONIC MICROPAYMENT MARKET IN POLAND - CONSUMER SURVEY

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JEL classification: E42, G23, O33

Abstract:

The article presents the results of survey research concerning electronic micropayments. Firstly usage of micro-payments distinguished by different age groups of respondents is shown. Then opinions about usage of payments via SMS as a typical micropayment method are presented. As the security of electronic payments is a crucial topic the opinions of respondents about safety of e-payments are presented. Typical problems encountered by surveyed group during electronic payments process are also described.

Introduction

Due to the dynamic development of the market for electronic payments in terms of available solutions as well as consumer interest in these solutions authors decided to examine them. The aim of the study is to examine the Polish market of electronic micropayment paying attention to their development and analyse the future of such solutions.

The paper structure is the following. Firstly the key terms are defined. Then the methodology of research is described. Next the results of survey research are presented. In the last part of the article short conclusions are shown.

1. The most important issues and theories of micropayments.

Firstly we define the key terms concerning our research. Electronic money is defined as a store of monetary value that can be used to make payments without involving bank accounts as a prepaid bearer instrument (Directive of the European Parliament and of the Council of the European Union 2009/110 / EC, point 8). Electronic micropayments can be considered as the acquisition of goods and digital services and material on the amounts of several or tens of cents to the upper limit, which constitute the system capabilities and also the form of the transaction is more effective and convenient than alternatives forms (Zakonnik, 2011). Mobile payments are defined as payments, or the transfer of cash in exchange for a good or service, or the transfer of cash, in which the

mobile phone (or mobile device with similar functions) is used to initiate, confirm and complete the transaction (Kisiel, 2013, s. 9).

New trend in electronic payments is NFC (Near Field Communications), that is literally short-range communication. It is a wireless technology that uses radio waves to exchange data on short distances of a few centimetres. The technology is synonymous with proximity cards but in this case the form of the transmitter accepts a payment card instead of a cell phone or other mobile device. By using NFC mobile phone can also be a portfolio that gives access to the payment card holder (Koralewski, 2012). Much older are SMS Payments - these services are implemented on the basis of Premium SMS messages to premium rate. Mobile payments via SMS are most often associated with micropayments, since the range of the amount to which mobile devices are used generally corresponds to the range of micropayment (Koralewski, 2012).

2. Survey methodology

The study of consumer preferences was conducted through survey and was directed to adults. The questionnaire was created on the site ankietka.pl. The survey begins with the words of introduction the author of informing about and encouraging the use of research to take part in the study. It was divided into three parts and consists of 28 questions.

The first part of the survey concerns the general information on the subject. It consists of 5 questions of standard specifications and 3 additional questions concerning the use of the Internet, forms of purchasing and payment methods most commonly used by the test. Questions were with the possibility of one choice, only a question of form making shopping activities possibility was multiple choice.

The second part concerned the right information relating to purchases and electronic payments. This section included 14 questions. At the beginning of this fragment survey examined whether the respondent ever used or benefited from electronic payments, if the response was negative, study has been completed for the respondent. The last part was related to the audited opinion on the security of electronic transactions and a general opinion on the subject. It consisted of 6 questions. The last question concerned the general opinion of the test on electronic payments.

The survey carried out from 08.05.2015 to 05.17.2015. Completion of the study took place after reaching the number of 200 fully completed questionnaires.

3. Results

In our study attended almost equal number of men and women. The study sample consisted of people of all ages with a slight advantage of 18-25. By far the largest number of respondents (87 people - 43.5%) came from medium-sized cities with a population of 10 to 100 thousand inhabitants. Another group are people living in large cities over 500,000 inhabitants (47 people - 23.5%). The remaining three groups (villages and small cities) represented approx. 10% of respondents. The vast majority of

surveyed work or study. Respondents were also people who actively use the Internet. All persons of the survey sample used electronic payments and most have knowledge about them. The study was conducted to determine the market situation from the perspective of market users. Below most interesting results of the survey are shown.

The most popular form of electronic payments is prepaid account transfer (140 - 69.5%). Innovative solutions like P2P, virtual purses are gaining in popularity and as many as 34 people choose this form of payment. A small number of users of SMS seems a bit surprising, but the question was about the most popular forms. SMS payment is usually done occasionally.

TAB. 1: Usage of micro-payments by different age groups of respondents

In the case of payment for purchased goods or services with a value of less than 80 PLN, which of the payment methods most commonly Mr. / Mrs choose?	Age			
	18-25	26-40	41-55	55 and more
Prepaid account transfer	59	39	36	5
Credit Card	27	18	10	14
SMS Payment	3	6	3	1
Virtual purses / P2P email / systems such payments. PayPal	13	13	6	2
Total	81	56	44	19

Source: Own calculations based on survey results.

Based on the data from Tab. 1, it can be seen that the most common and oldest form of electronic payments or transfer is the most popular among the youngest group. It should be noted, however, that innovative solutions like P2P, virtual purses are gaining in popularity and as many as 34 people choose this form of payment. A small number of users of SMS seems a bit surprising, but the question was about the most popular forms and SMS payment is usually done occasionally. It can be observed that people benefiting from the innovative solutions (Virtual purses / P2P email / PayPal) are respondents with ages 18-25 and 26-40. Meanwhile, the users of credit cards are elder, as many as 14 of the 19 people choose this form of payment. The most popular solution of transfer payments is often chosen by each group of respondents, regardless of age.

Only 16.5% of respondents used payments via SMS (Tab. 2). The remaining respondents were showing a variety of reasons why they do not use this form. Most popular response (108 people - 54%) was "I do not need to buy anything via SMS". Part of the respondents (29 people - 14.5%) also fear for the safety of the SMS payment. The respondents also pointed out the other answers why not choose a SMS: higher cost due to commissions operator, increased tax charge.

TAB. 2: Opinions about usage of payments via SMS

	Do you use payments via SMS?		
	<i>Answer</i>	<i>%</i>	<i>Number of answers</i>
1)	Yes	16,50%	33
2)	I do not think it's safe solution	14,50%	29
3)	I do not need to buy anything via SMS	54,00%	108
4)	No, because it is too complicated	9,00%	18
5)	No, other reason	6,00%	12

Source: Own calculations based on survey results.

The vast majority of people who use the SMS payment belongs to the age group 26-40. It is possible to notice in the first row of the table (Tab. 3). Almost half of the respondents of the same group are using payments via SMS. Unexpected is that a similar result has not occurred in age group 18-25. This group of respondents was the largest in survey, but only less than 10% of them is using payments via SMS (7 from 81 people in group).

TAB. 3: Usage of payments via SMS and the age of respondents

Do you use payments via SMS?	Age			
	18-25	26-40	41-55	55 and more
Yes	7	21	3	2
I do not think it's safe solution	13	5	6	5
I do not need to buy anything via SMS	48	23	30	7
No, because it is too complicated	8	2	3	5
No, other reason	5	5	2	0
Total	81	56	44	19

Source: Own calculations based on survey results.

In the majority of the responses there is some uncertainty in respect of electronic payments, as 68.5% of them considered payment for reasonably safe. Electronic payments are extremely safe, in the opinion of 16.5% of respondents. Most of respondents do not consider e-payment dangerous (Tab. 4).

TAB. 4: Opinions about safety of electronic payments

	Do you believe that electronic payments are a safe form of payment?		
	Answer	%	Number of answers
1)	Very dangerous	2,00%	4
2)	A little dangerous	13,00%	26
3)	Safe	68,50%	137
4)	Very safe	16,50%	33

Source: Own calculations based on survey results.

The results of question about payments PayPass/PayWave and NFC are shown in Tab. 5. Most people think of contactless payments as a safe form but it is only 42% of the respondents (84 people). It should be noted that as many as 30% of respondents do not use this form because in their opinion it is poorly secured solution. The remaining 28% pay via contactless payments only if they are in a hurry.

TAB. 5: Opinion about different payment methods

	What do you think about PayPass/ PayWave payment cards or NFC?		
	Answer	%	Number of answers
1)	I consider them to be safe form	42,00%	84
2)	I am using this form only when I am in hurry	28,00%	56
3)	I think it's poorly secured solution and I prefer avoid this form of payment	30,00%	60

Source: Own calculations based on survey results.

One of the last questions in the questionnaire, alluded to know the opinion of the respondents on the disadvantages which they met while making payments electronically. Most respondents (over 50%) did not encountered any problems (Tab. 6). Most commonly reported issue was too long process of finalizing and finishing the transaction. In addition respondents complains on insufficient customer service and incorrect information about payment procedures.

TAB. 6: Problems encountered during making electronic payments

	What problems encountered when making payments through electronic way?		
	<i>Answer</i>	<i>%</i>	<i>Number of answers</i>
1)	I didn't have any problems	56,50%	113
2)	Too long process of finalizing and finishing the transaction	31,00%	62
3)	Insufficient customer service	12,00%	24
4)	Incorrect information about payment	12,00%	24
5)	Stealing confidential data during the payment	5,00%	10
6)	Other	1,50%	3

Source: Own calculations based on survey results.

4. Summary results.

Electronic payments continue to give way to the classical forms of direct purchases in stores. Members participating in the study during the selection of payment methods are primarily driven by the ease and speed of transactions.

Despite the many solutions offered to consumers, the surveyed group prefers a more traditional payment methods like bank transfer or credit card payment for purchases up to the amount of 80 zł. It should be noted, however, that innovative solutions also are used from time to time.

Contactless payments have proved to be very popular form the surveyed group and the vast majority of the respondents use it. Considering usage of the mobile device (SMS payment, NFC only about 25% of the respondents use this method of payment. It seems that mobile payments are still little known in the Polish market and are gaining in popularity. It can be assumed that at a time when consumers are thoroughly familiar with the offer, security and ease of making payments mostly is responsible for more frequent use of the mobile device.

The surveyed group seems to be open to innovative solutions. Improvements such as more efficient payment transfers or credit cards without fees were identified as forms that have the greatest opportunity for further development (transfer and debit card were the most frequently chosen form of payment). The respondents did not rule out other solutions like SMS payment, NFC, electronic purses, subscriptions.

Convenience and speed of transactions are in the opinion of respondents the biggest advantages of this type of payment, therefore these aspects should be continuously developed and improved. Referring to the speed, it is important to improve service time payments - accounting, finalizing the transaction.

Conclusion

The surveyed group shows that younger people are open to innovative solutions in electronic micropayments area. The question is what would encourage other customers to greater openness and to move away from traditional forms of payment.

For the majority of respondents electronic payments are safe, whereas only for 16,5% of surveyed are very safe, therefore there is still a place for improvement in this crucial area.

The future of electronic micropayments lies surely in mobile devices, but what kind of devices (mobile phones, microchips implanted under the skin, intelligent credit cards etc.) we will see in the next decades.

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STOCHASTIC MODEL OF INSURANCE COMPANY

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insurance company – simulation – Monte Carlo method - bankruptcy

JEL classification: C1, C15

Abstract:

The paper deals with Monte Carlo simulation model of an insurance company. Some forms of non-life insurance can be considered as short term contracts. Policies of this type of insurance usually last for a fixed period of time that can be relatively short. In this paper we mainly study the aspect of bankruptcy of an insurance company for short term contracts. Under the bankruptcy of the company we consider a situation when the total capital of the company decreases under to zero value. Further we study properties of distribution of economic results of the insurance company and provide adequate statistical tests.

Introduction

Insurance companies are institutions that usually help consumers (entrepreneurs, citizens) to decrease or to manage their risk. Consumers pay a regular stream of premiums to an insurance company. In exchange for it the insurance company pay them an adequate price for specified events that cause damage to consumers. Typical events that can harm consumers are natural disasters, car accidents or health problems. Insurance companies spread out the risk of one consumer among the risk of all its consumers. Such a problem can be described as a collective risk model. A classical model of this type that depends on time was introduced at the beginning of the 20th century, see e.g. (Lundberg, 1930), (Cramér, 1930). Different types and generalizations of this model can be found in (Beard et. al., 1970), (Freiberger and Grenander, 1971). Some forms of non-life insurance can be considered as short term contracts. Policies of this type of insurance usually last for a fixed period of time T that can be relatively short. Let $T=1$ represent one year for instance. In this paper we mainly study the aspect of bankruptcy of an insurance company for short term contracts. Under the bankruptcy of the company we can consider a situation when the total capital of the company decreases to the zero value. Instead of looking for an analytical solution we will use Monte Carlo simulation and study properties of gained data, for more details see (Prazak, 2015), (Baron, 2007).

1. Methods and Materials

In this section the simplified collective insurance contract model will be introduced and then the probability of ruin of an insurance company will be determined, see also (Freiberger and Grenander, 1971) or (Virius, 2010). The MATLAB implementation of simulation model will be presented finally.

1.1. Collective Insurance Contract Model and Its Assumptions

We will assume the fixed time period $(0, T]$ and a collective insurance contract: Let N be the number of claims over the given time period and Y_1, Y_2, \dots, Y_N be the corresponding individual claims. Then

$$S = \sum_{i=1}^N Y_i \quad (1)$$

is the cumulated sum of claims or aggregated loss. It is considered that the number of claims N has a primary distribution function F and that this random variable and claim sizes are independent. Further it is considered that the claims Y_1, Y_2, \dots, Y_N are independent and have the same secondary distribution function G . Particularly it is assumed that $E(Y_i) = \mu$ and $Var(Y_i) = \sigma^2$ for all $i \in \{1, \dots, N\}$. The aggregated loss S has a compound distribution that can be characterized by its expected value $E(S)$ and its variance $Var(S)$. It can be shown, see Appendix below, that

$$E(S) = \mu E(N) \quad (2)$$

and

$$Var(S) = \sigma^2 E(N) + \mu^2 Var(N). \quad (3)$$

An insurance company establishes its business with a start-up capital or initial reserve fund of the size U at time 0. Moreover it receives an amount P in premiums that are paid over the period T . The probability of ruin of the insurance company at the end of the period T can be formally expressed as

$$p_u = P(U + P - S < 0). \quad (4)$$

To find an approximation to this probability we make the following additional assumptions. The whole time interval (one year) is divided into $M, M \in \mathbb{N}$, independent smaller time intervals (fraction of day). In each of this smaller time interval there is at most one claim. This observation helps us to prepare a simulation model and compare its results with the analytical findings.

1.2. Monte Carlo Simulation

Experimental determination of probability p_u is not possible. Instead of experiment we can introduce and use a computer simulation. If we realize enough simulation we can find p_u with a desired accuracy. The occurrence of exactly one claim in each of M smaller intervals is modelled by Bernoulli distribution with the probability $p, p \in (0,1)$. It means that the primary distribution F is given by a sequence of M results of Bernoulli attempts. Since Bernoulli distribution is a special case of Binomial distribution, particularly $Bi(1,p)$, the MATLAB function `binornd(1,p)` can be used. The size of claim can be modelled by the exponential distribution with parameter λ . It means that the secondary distribution is $G \sim Exp(\lambda)$ and the MATLAB function `expnd(λ)` can be used. In the algorithm we use the following variables

- a) M – the number of time intervals in the whole period
- b) p – the probability of positive claim at the time interval
- c) U - start-up capital at the beginning of the period
- d) P – the year premium size
- e) C – the current value of the insurance company capital
- f) λ – parameter of exponential distribution
- g) y – parameter that control the size of claim
- h) Y – the size of the current value of claim
- i) i – control variable for number of periods
- j) χ – output variable for detection of bankruptcy of the insurance company

As soon as variables $U, P, C=U+P, S=0$ and $i=1$ are initialized then one step of simulation can be described by the following algorithm:

```

while i<M && C>=0
    F=binornd(1,p);
    if F==1
        Y=y*expnd(lambda);
    else
        Y=0;
    end
    C=C-Y; S=S+Y;
    i=i+1;
end
if C<0
    chi=1;
else
    chi=0;
end

```

If this algorithm is replicated several times we can gain enough results to find frequency of bankruptcy of insurance company. Let it is carried out X simulation. It is a similar situation as we carry out X experiments with real insurance companies. Data that we gained will be analysed. We find the mean of the proportion of bankruptcy of the given insurance company and determine the confidence interval for this proportion. Let us consider the random variable χ that can attain two different values – 0 or 1. If $\chi(i)=1$ then within i -th simulation the insurance company reaches its bankruptcy and if $\chi(i)=0$ then the insurance company does not reach its bankruptcy. Using Bernoulli law of large number the probability p_u of the bankruptcy of insurance company can be estimated as

$$p_u \approx \pi = \frac{1}{X} \sum_i^X \chi(i). \quad (5)$$

The statistics $X\pi = \sum_i \chi(i)$ has binomial distribution $Bi(X, p_u)$ with the mean Xp_u and the variance $Xp_u(1 - p_u)$. If the number of addends in (5) is sufficiently large Moivre-Laplace theorem can be used and the random variable π can be approximated by normal distribution with the mean p_u and the variance $p_u(1 - p_u)/X$. A 95% confidence interval for proportion p_u , cf. (Ramachandran and Tsokos, 2009), can be written as

$$p_u \in \left(\pi - 1.96 \cdot \sqrt{\frac{\pi(1-\pi)}{X}}, \pi + 1.96 \cdot \sqrt{\frac{\pi(1-\pi)}{X}} \right). \quad (6)$$

1.3. Analytical solution

If the probability of occurrence of exactly one claim per one smaller interval is $p, p \in (0,1)$, then the total number N of claims is a random variable $N \sim Bi(M, p)$. Using (2) and (3) we find that

$$E(S) = \mu Mp, \text{ Var}(S) = Mp(\sigma^2 + \mu^2(1 - p)). \quad (7)$$

If $Mp \gg 1$ and $Mp \ll M$ the binomial distribution can be approximated by normal distribution with the cumulated distribution function Φ and (4) can be written as

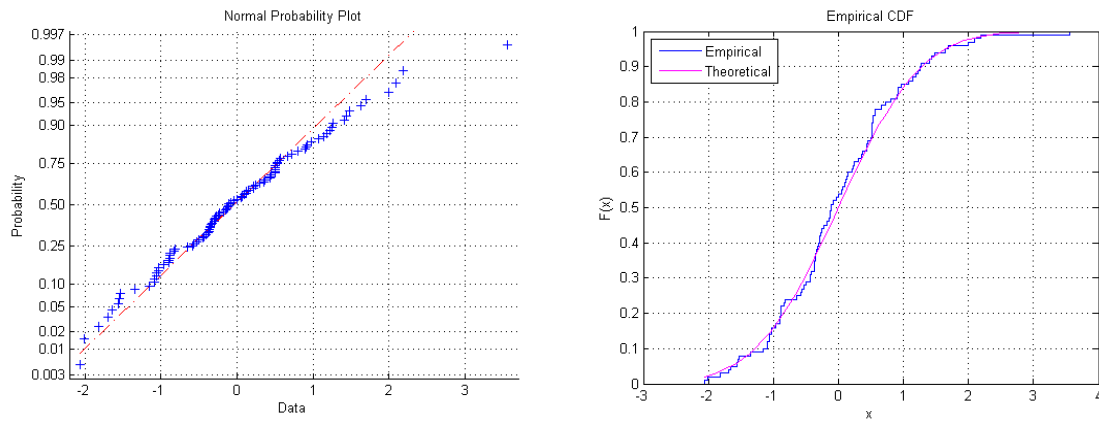
$$p_u = P(S > T + P) = 1 - P(S \leq T + P) \approx 1 - \Phi\left(\frac{T+P-E(S)}{\sqrt{\text{Var}(S)}}\right). \quad (8)$$

2. Results

At first we introduce results gained from simulation that was replicated 100 times. The values of parameters was set as follows: $M = 525600$ that represents number of minutes per one year, $p = 2.5 \cdot 10^{-4}$, $U + P = 6.5$ million CZK, $Y \sim 0.09 \cdot \text{Exp}(0.5)$ represents the primary distribution of values of claims. Based on the algorithm given at paragraph 1.2 and relations (6), (7) it has been found that $\pi = 0.2600$ and $p_u \in (0.1740, 0.3460)$. With a simple modification of the basic algorithm given in 1.2 we

can found essential qualities of compound distributions of the random variable S that represent cumulated value of claims per one year. It has been found that $E(S) \sim 5.9024$ and $Var(S) \sim 0.6547$. With these values it is possible to normalize the random variable S and compare it with standard normal distribution $N(0,1)$. The common transformation $Z = (S - E(S))/\sqrt{Var(S)}$ has been used. Normal plot and cumulated distribution function of random variable Z was compared with normal standard normal distribution. The results can be seen at Fig. 1.

FIG. 1: Normal probability plot of random variable S on the left panel. Cumulated distribution function of random variable S on the right panel.



Source: own computation, software MATLAB

Based on the above given observation we can formulate the null hypothesis H_0 that $S \sim N(5.90, 0.65)$. This hypothesis was tested with Pearson χ^2 goodness of fit test at the 5% significance level. In MATLAB the function: $[h,p] = \text{chi2gof}(Z, 'Alpha', 0.05)$ can be used. It has been found that p -value of this test is 0.0679 which means that it is not possible to reject the null hypothesis H_0 and the above given normal distribution can be considered as is a good model for distribution of aggregated loss S .

Now we introduce results based on analytical model given in paragraph 1.3. Based on the assumption that the primary distribution is $Y \sim 0.09 \cdot \text{Exp}(0.5)$ we find that $\mu = E(Y) = 0.045$ and $\sigma^2 = Var(Y) = 2,025 \cdot 10^{-3}$. If (7) is used it has been found that $E(S) = 5.9130$ and $Var(S) = 0.5321$. It means that $S \sim N(5.91, 0.53)$. Moreover if (8) is used we find that $p_u \approx 0.2105$.

3. Discussion

The results gained from simulation on the one hand and results gained from analytical model are compared in this section. The summary of all results can be found at Tab. 1. It can be observed that both sorts of results correspond well. We consider that better correspondence could be reach by larger number of replications of the simulation

model. It has been shown and proved that the distribution of cumulated sum of claims S can be modelled by a normal distribution which parameters are based on primary distribution of claims Y . For the given parameters of the model of insurance company we can state that the probability of bankruptcy of this company is more than 20%. Results are in conformity with results given in (Beard et. al., 1970), (Freiberger and Grenander, 1971) and (Virus, 2010).

TAB. 1: Summary of simulation and analytical model

	Simulation model	Analytical model
p_u	(0.1740; 0.3460)	0.2105
$E(S)$	5.9024	5.9130
$Var(S)$	0.6547	0.5321

Source: own computation, software MATLAB

4. Appendix

In this appendix we shortly introduce the reasoning that the relation (2) and (3) are valid. According to the law of iterated expectation, cf. (Rényi, 1972), and since $E(S|N = n) = E(\sum_{i=1}^n Y_i) = \sum_{i=1}^n E(Y_i) = \sum_{i=1}^n \mu = n\mu$ it is possible to write

$$E(S) = E(E(S|N)) = E(N\mu) = \mu E(N),$$

which is (2). Because $E(S^2|N = n) - (E(S|N = n))^2 = Var(S|N = n) = n\sigma^2$ it is possible to write $E(S^2|N) = N\sigma^2 + N^2\mu^2$ and according to the law of iterated expectation $E(S^2) = E(E(S^2|N)) = \sigma^2 E(N) + \mu^2 E(N^2)$. Using this result we can finally write

$$\begin{aligned} Var(S) &= E(S^2) - [E(S)]^2 = \sigma^2 E(N) + \mu^2 E(N^2) - \mu^2 [E(N)]^2 \\ &= \sigma^2 E(N) + \mu^2 Var(N), \end{aligned}$$

which is (3).

Conclusion

Insurance companies and their activities belong to important part of our life. Their economic results are based on balance between their regular premiums and irregular claims of consumers. The magnitude of premiums per one year is almost a known parameter. On the other hand the magnitude of aggregate loss given by the sum of all individual claims is a random variable. The quantities of this random variable have to be determined to predict economic results of the insurance company. Because experiments

with insurance companies are hardly practicable it is necessary to deal with simulation model. In this paper one of the possible models was introduced. It has been shown that the results gained from simulation model are in accordance to the analytical model. In our further research we are going to seek more detailed and more realistic model of insurance company.

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CZECH LEADERSHIP QUESTIONNAIRE: THE DEVELOPMENT OF A CZECH QUESTIONNAIRE OF TRANSFORMATIONAL AND TRANSACTIONAL LEADERSHIP

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transformational leadership – transactional leadership – leadership measurement – leadership questionnaire

JEL classification: M5, B41

Abstract:

This study describes the development of the Czech Leadership Questionnaire (CLQ, Dotazník přístupu k vedení lidí) which is an original method in Czech language aimed at measuring transformational and transactional leadership. The study also presents preliminary results of a validation study of this questionnaire. CLQ consists of 32 statements describing the behavior of a leader. Every statement is assessed on a 7-point Likert scale. The statements are divided into eight subscales which measure components of transformational and transactional leadership and non-leadership. In a sample of 1,084 respondents, a confirmatory factor analysis showed that the data fit an 8-factor model. All the subscales are internally consistent. The questionnaire is available upon request from the authors of the study.

Introduction

The study describes the development of a new Czech questionnaire aimed at measuring leadership and brings preliminary results of its validation study. The questionnaire is based on a theory of transformational and transactional leadership which, notwithstanding its existing critique (e.g. Prochazka & Vaculik, 2015; van Knippenberg & Sitkin, 2013; Yukl, 2008), represents the currently most researched and cited theory of leadership (Avolio, 2007; Conger, 1999). Despite the theory's prominence and plentiful evidence of its validity and reliability, there was neither validated Czech translation nor validated Czech method measuring transformational and transactional leadership. This hinders Czech researchers from the research of transformational and transactional leadership and a more frequent use of this approach in Czech organizations (Prochazka, Smutny, & Vaculik, 2014).

According to Bass (1997), the transformational approach builds on leaders' charisma and the internal motivation of their coworkers. It uses four basic mechanisms –

idealized influence (sometimes also called charisma), inspiration of followers, intellectual stimulation and individual approach of a leader to his or her followers. Meta-analyses show that transformational leadership is a moderate to strong predictor of various criteria of leader or team effectiveness (DeRue, Nahrgang, Wellman, & Humphrey, 2011; Lowe, Kroeck, & Sivasubramaniam, 1996). For example, it has a positive impact on objectively measured organizational outcomes (Resick, Whitman, Weingarden, & Hiller, 2009), follower job satisfaction (Awamleh, Evans, & Mahate, 2005) or manager ratings judged by their subordinates (Judge & Bono, 2000). Transformational leadership is a part of a complex model of leadership which besides transformational leadership also includes three components of transactional leadership and one component of so called 'absence of leadership' known as laissez-faire leadership (Bass & Riggio, 2006). Transactional leadership consist of contingent rewards, active management by exceptions and passive management by exceptions.

To measure the transformational and transactional approach to leadership, the Multifactor Leadership Questionnaire (MLQ), which is a subject to fees, is predominantly used in many countries outside the Czech Republic. The current version of the MLQ (Avolio & Bass, 2004) contains five scales of transformational leadership (idealized influence is measured by two scales), three scales of transactional leadership and one scale of laissez-faire leadership. Based on a factor analysis by Antonakis et al. (2003), the fit of the data gathered using the MLQ and the expected 9-factor model of leadership is adequate ($\chi^2(558) = 5\,306$, RMSEA = .05, CFI = .91) and the nine-factor model fits the data better than models containing less factors. The individual scales of transformational leadership are highly correlated (Avolio & Bass, 2004) and have the same or similar relationship with various constructs (Carless, 1998). This is why researchers tend to unit them into a single scale of transformational leadership. The 9-factor structure of leadership was not supported in existing translations of the MLQ. For example, the items in Dutch MLQ-8Y load on only three factors (transformational, transactional and passive factor which includes laissez-faire leadership and passive management by exception) (Den Hartog, Van Muijen, & Koopman, 1997).

As a) translations of the MLQ do not often have an expected factor structure, b) there exists a critique of the MLQ (e.g. in Alimo-Metcalfe & Alban-Metcalfe, 2001; Molero, Recio, & Cuadrado, 2010) and c) the necessity of paying the license fees could inhibit research activities in the Czech environment, we decided not to translate the MLQ itself but rather develop an original Czech leadership questionnaire. Similarly, Indian (Singh & Krishnan, 2007) and Australian (Carless, Wearing, & Mann, 2000) questionnaires were previously developed. We developed the questionnaire in a way that it measures transformational and transactional leadership and their respective components as described by Bass (1997).

1. Methods

1.1. The Questionnaire Development

In collaboration with students in final years of their Master degree in Management, we formulated 171 unique statements that describe a possible leadership behavior. Afterwards, the three co-authors of the study independently matched each statements with one of the eight subscales corresponding to one of the components of transformational, transactional or laissez-faire leadership. In case that unanimous consensus was not reached regarding the assignment of a statement to a scale, we discussed that statement and tried to reach an agreement. In case that even the discussion did not lead to reaching consensus, we eliminated the statement. We also eliminated statements that did not match a description of transformational, transactional or laissez-faire leadership according to all three co-authors. Overall, we eliminated 81 statements during this process. The remaining 90 statements were included as items in the questionnaire. We created a 7-point Likert scale for each of the items. Subsequently, we administered the questionnaire to the respondents in order to reduce the number of items and validate the questionnaire.

1.2. Sample

Using emails and Facebook groups, we asked people to assess an individual who leads them or led them in past. In a course of six months, the questionnaire was filled in by 1,093 respondents. The data of nine respondents were eliminated as they did not fill in the questionnaire thoroughly. They either stated that in the commentary section of the questionnaire or they replied the last 20 items of the questionnaire identically which was a beforehand-established criterion for eliminating a respondent.

The average age of the respondents was 25.64 years ($SD = 7.1$). The sample consisted of more women (69.6 %) than men. Among respondents, there was a marginal number of people with only a compulsory education (0.8 %). The majority of respondents were high school graduates (53.7 %) and university graduates having both Bachelor degrees (26.2 %) and Master degrees (15.9 %).

Assessed leaders were predominantly from respondents' workplace including immediate superiors (59.8 %) and managers who were not immediate superiors (7.5 %). Approximately 18% of leaders were from a school, sport or hobby-related environment. The rest were other leaders (e.g. managers from different organizations, political or religious leaders, and family members). Majority of the leaders were in charge of middle-sized teams with 11-30 subordinates (41.4%) or small teams with less than 10 subordinates (37.4%). The leaders were predominantly men (60.9%).

2. Preliminary Results

We divided the data from 1,084 respondents randomly into two parts. In the first part consisting of 734 leader assessments, we conducted a confirmatory factor analysis using statistical software MPLUS. In the analysis, we hypothesized an 8-factor structure of the questionnaire. We matched individual statements with the hypothesized eight factors of transformational, transactional and laissez-faire leadership (see above). Based on factor loadings and modification indexes, we gradually reduced the number of items in each scale so that there were four items loading on each scale (just as in the MLQ) and so that the questionnaire corresponds with the theoretical model. The result was a very good fit between the data and the theoretical model ($\chi^2(436) = 1,146$, CFI = .96, RMSEA = .05). In the remaining data from 350 respondents, we conducted another confirmatory factor analysis yet this time only with 32 items derived from the first analysis. The analysis confirmed a good fit between an 8-factor model and the data ($\chi^2(436) = 841$, CFI = .95, RMSEA = .05). The results of the confirmatory factor analysis on the whole sample supported the factor validity of the questionnaire ($N = 1084$, $\chi^2(436) = 1,479$, CFI = .96, RMSEA = .05) and showed that all items loaded strongly on their corresponding factors (the weakest loading was .46). The internal consistency of all eight scales was high (Cronbach $\alpha > .7$). The individual scales of transformational leadership were strongly correlated with each other ($r = .71 - .87$; $p < .01$) and could be combined into one internally consistent scale of transformational leadership. The individual scales of transactional leadership cannot be combined into one scale. Contingent Rewards correlated moderately positively ($r = .35$; $p < .01$) with Management by Exception – Active and negatively ($r = -.49$; $p < .01$) with Management by Exception – Passive. Management by Exception – Active and – Passive also correlated with each other negatively ($r = -.41$; $p < .01$). Management by Exception – Passive correlated positively only with Laissez-Faire Leadership ($r = .66$; $p < .01$) which correlated negatively with all other scales ($r = -.62 - -.84$; $p < .01$).

3. Discussion and Conclusion

We developed the Czech Leadership Questionnaire (Dotazník přístupu k vedení lidí, DPVL) in a way that the content of its eight subscales corresponds with the four components of transformational leadership, three components of transactional leadership and laissez-faire leadership. A confirmatory factor analysis conducted in a large sample shows a good fit between the data and the theory and provides an evidence of the factor validity of the new questionnaire. Fit indices indicate a comparable or better fit between the model and the data than in the case of the MLQ (Antonakis et al., 2003). High correlations between the scales of transformational leadership and a negative correlation between the transactional-leadership scales Management by Exception – Passive and Contingent Rewards are present not only in our questionnaire but also in the MLQ (Avolio & Bass, 2004).

The presented results are yet preliminary. We plan to carry out more analyses using the collected data and gather more data which could provide more evidence regarding the validity and reliability of the method. The next step is comparing the 8-factor model with alternative models with a lesser number of factors. Furthermore, we want to test the concurrent validity by relating the scales to several variables that are assumed to be related with transformational or transactional leadership (e.g. perceived leader's effectiveness, work attitudes). We are also collecting data from respondents speaking both Czech and English so that we can test the concurrent validity between the new questionnaire and an English version of the MLQ which represents the most widespread transformational-leadership questionnaire. Preliminary results in a sample of 106 university students show strong correlation of the transformational-leadership scales of the two questionnaires $r = .89$ ($p < .01$; the correlation represents a correlation of latent variables). Additionally, we would like to test the predictive validity between the questionnaire and objective criteria measured at later time than transformational leadership is measured (e.g. group performance). Moreover, we would like to test the factor structure in another differently-recruited sample or samples.

We believe that the presented evidence of validity and reliability is sufficient to start using the questionnaire for leadership research in a Czech-speaking population. We will gladly provide the questionnaire to others for research purposes. The questionnaire is available upon request from the first author of this study. We will appreciate if colleagues provide us with anonymized data gathered using the questionnaire for a secondary analysis to further validate the method. We will also appreciate if someone invests energy into independently testing the factorial structure of the questionnaire or collects data in his or her research that would allow for testing the concurrent or predictive validity of the method.

Transformational leadership is the most widespread and cited theory of leadership. A Czech-speaking community has lacked a method for its measurement. We believe that the Czech Leadership Questionnaire will fill the existing gap and will contribute to the development of leadership research in the Czech Republic.

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THE SELECTED ASPECTS OF WLEŃ MUNICIPALITY ECONOMIC SITUATION

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municipal strategy – the diagnosis of economic situation

JEL classification: R00, R1

Abstract:

The purpose of the article is research the selected aspects of Wleń Municipality economic situation. The municipality is situated in south-western Poland in Lower Silesia region, in Lwówecki district. The analysis covered the labor market situation, entrepreneurship, including e.g. unemployment structure by age and education. Attention was also paid to local government finances covering the share of municipal revenues in total revenues, as well as the share of capital expenditure in total expenditure.

Introduction

Wleń represents an urban – rural municipality covering the area of 86 km² situated in south-western Poland, in Lower Silesia region and Lwówecki district. Before the II World War it was a well-known spa resort offering therapeutic mineral waters, currently not used (Gonda-Soroczyńska et al., 2010). In 2014 the number of population was 4404 people, which translate into population density of about 51 persons/km². A larger city – Jelenia Góra – is 18 km away from the municipality. At the same time its location in the central part of Bóbr Valley Landscape Park results, on the one hand, in certain limitations to the industrial functions development but, on the other, offers extensive opportunities for the development of tourism. The purpose of the article is to diagnose the selected aspects of Wleń Municipality economic situation. Preparing the full analysis of socio-economic situation in the municipality constitutes the component of the ongoing efforts related to the Strategy of Wleń City and Municipality Development in the period 2015 – 2022. It is worth noticing that the specific nature of the analyzed problems and the related range of the available statistical data makes the application of the classification based on the Eurostat methodology impossible and requires the local classification to be used.

1. Labor market, entrepreneurship

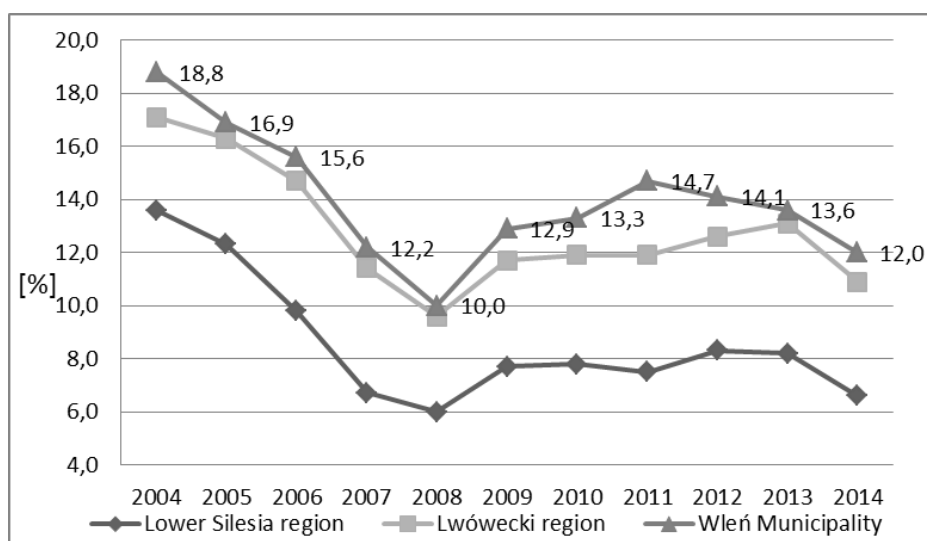
According to the data provided by the Central Statistical Office, at the end of 2004 the number of unemployed persons, recorded in Wleń Municipality, amounted to 564 including 260 women (46,1%). Till 2014 the situation improved – the number of unemployed persons dropped to 352 of which women constituted 46,6% (tab. 1).

The analysis of the unemployed registered in the production age population allows concluding that the unemployment rate in the period 2004-2008 was characterized by a decreasing tendency (picture 1). It is worth observing that in 2004 Poland joined the EU, which was reflected in the acceleration of economic growth processes, also in case of Wleń municipality. Simultaneously, however, the lack of barriers in moving and the desire to keep improving the living standards acted as an incentive for part of the population to migrate, both to larger Polish cities and abroad (the migration balance in the municipality since 2005 till 2014 is negative). Beyond any doubt these phenomena had impact on unemployment rate. After 2008 this favorable trend was reversed and till 2011 the unemployment rate was growing. It can be presumed that this situation was related to e.g. the general economic downturn. The period 2012 – 2014 brought about certain improvement in terms of the analyzed phenomenon. 2014 was particularly favorable in this matter since the unemployment rate in the municipality, against the previous year, dropped by 1,6 percentage points, i.e. more than in the previous years. It is worth noticing that during the entire studied period the share of the unemployed registered in the production age population in Wleń Municipality was higher than the values recorded for Lwówecki district and Lower Silesia region.

TAB. 1: The unemployed registered in Wleń Municipality

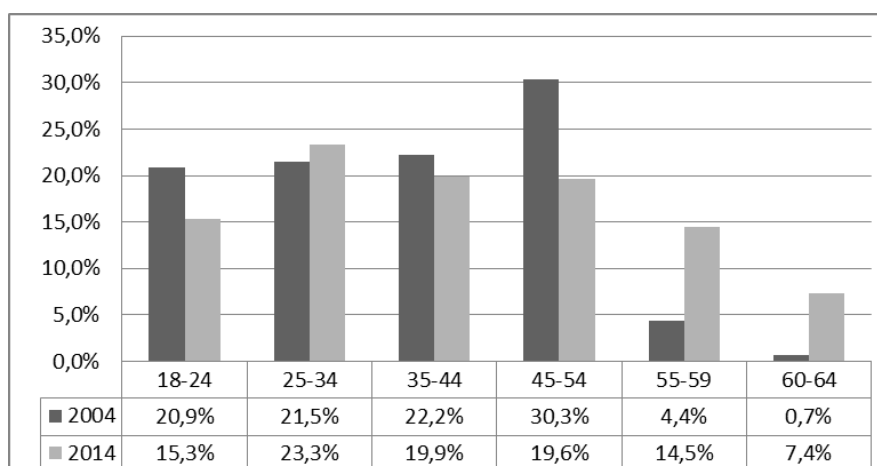
Wleń Municipality / years	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
total	564	513	474	372	303	389	399	438	419	400	352
women	260	234	259	201	157	183	193	215	230	205	164

Source: data provided by the Central Statistical Office

FIG. 1: The share of the unemployed registered in the production age population

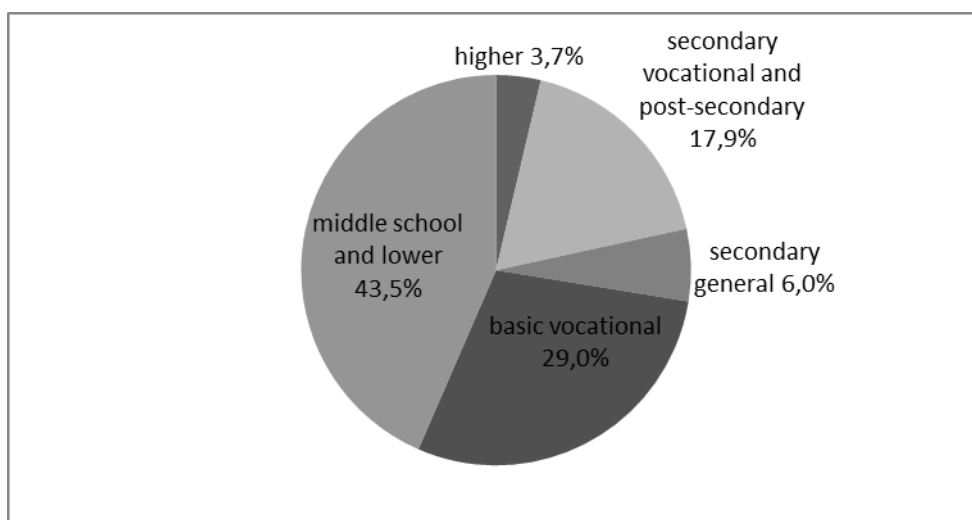
Source: authors' compilation based on the data provided by the Central Statistical Office

Young people aged 25-34 (82 persons, i.e. 23,3%) constituted the largest group of the unemployed in Wleń Municipality in 2014. It can also be observed that the situation of people aged over 55 (picture 2) became significantly worse comparing to 2004.

FIG. 2: The structure of the unemployed registered in Wleń Municipality in 2004 and in 2014 by age

Source: authors' compilation based on the data provided by the District Employment Agency in Lwówek Śląski

FIG. 3: The structure of the unemployed registered in Wleń Municipality in 2014 by education



Source: authors' compilation based on the data provided by the District Employment Agency in Lwówek Śląski

Having analyzed the unemployed structure by education it can be noticed that over 43% of them (153 persons) represent middle school and lower education (fig. 3). Higher education graduates represent the group least affected by unemployment – they constitute 3,7% of the total number of jobless population.

The next part of the diagnosis covers problems of entrepreneurship in Wleń Municipality and characterizes tendencies occurring in this area.

At the end of 2014 352 national economy entities were functioning in Wleń Municipality, i.e. 22 fewer than a year before, but 106 more than in 2004 (tab. 2). It can be noticed that in 2014 in the urban part of the discussed municipality slightly more than 55% of entities were functioning (2013 – 58,6%), whereas in 2004 this share amounted to 45,9%. The vast majority of enterprises were represented by small entities providing employment for up to 9 workers. In 2014 7 entities employing from 10 to 49 workers were operating in the municipality, of which 5 were located in its urban part. At the same time, both in an urban and a rural part one major entity was functioning where the number of employees was ranging from 50 to 249. Businesses employing more than 250 workers were not recorded in Wleń Municipality.

TAB. 2: National economy entities listed in the Official Company Register (REGON) by size (entities classified by the criterion of employment size)

Territorial unit	total			0 - 9			10 - 49			50 - 249		
	2004	2013	2014	2004	2013	2014	2004	2013	2014	2004	2013	2014
Gmina Wleń	246	374	352	233	364	343	12	8	7	1	2	2
Wleń - city	113	219	194	104	212	188	9	6	5	0	1	1
Wleń – rural area	133	155	158	129	152	155	3	2	2	1	1	1

Source: data provided by the Central Statistical Office

In 2014 the entities grouped in F section of Polish Classification of Business Activities (PCBA) 2007 (construction) were most numerous – 63 enterprises, both in urban and rural part of the municipality (tab. 3). The equally important role was played in Wleń Municipality by the entities grouped in section G (wholesale and retail trade; repair of vehicles, including motorcycles) – 62 entities, a slightly bigger part was seated in the rural area. The role of enterprises listed in section L should also be emphasized (activities related to real estate services), however, they were mainly present in the urban part of the municipality. Over 20 entities were also functioning in section C (industrial processing) and in S+T grouping (other services; households employing workers; households manufacturing goods and rendering services for their own needs), 20 in sections A (farming, forestry, hunting and fishing) and M (professional, scientific and technical activities).

The above data can be supplemented by the information that from the overall number of national economy entities listed in the Official Company Register (REGON) in 2014 65,6% (231 entities) were represented by natural persons running a business. Moreover, other 94 private sector entities were also present in the municipality (legal persons and organizational units without legal standing). Public sector comprised the total of 27 entities – legal persons and organizational units without legal standing).

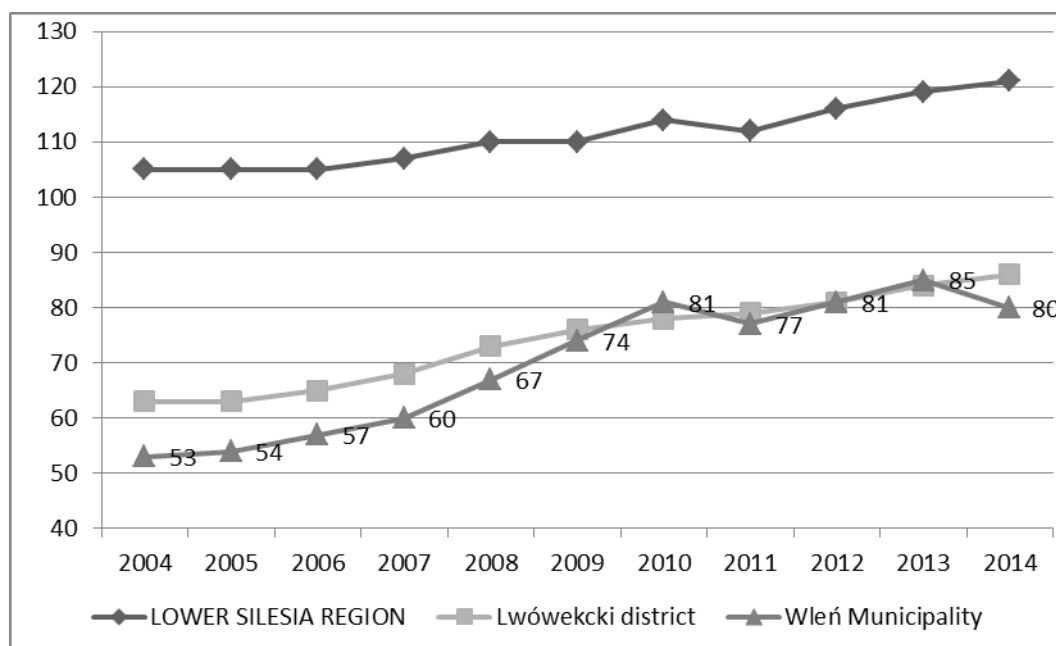
TAB. 3: National economy entities listed in the Official Company Register (REGON) by the section of Polish Classification of Business Activities 2007 in 2014

PCBA Section	Wleń Municipality	Wleń - city	Wleń – rural area
Section A	20	5	15

THE SELECTED ASPECTS OF WLEŃ MUNICIPALITY ECONOMIC SITUATION

PCBA Section	Wleń Municipality	Wleń - city	Wleń – rural area
Section B	0	0	0
Section C	28	11	17
Section D	0	0	0
Section E	1	1	0
Section F	63	32	31
Section G	62	28	34
Section H	11	3	8
Section I	9	4	5
Section J	2	1	1
Section K	4	1	3
Section L	59	55	4
Section M	20	10	10
Section N	8	3	5
Section O	5	3	2
Section P	13	9	4
Section Q	18	10	8
Section R	4	2	2
Sections S and T	25	16	9
Section U	0	0	0
total	352	194	158

Source: data provided by the Central Statistical Office

FIG. 4: Entities listed in the Official Company Register (REGON) per 1000 population

Source: data provided by the Central Statistical Office

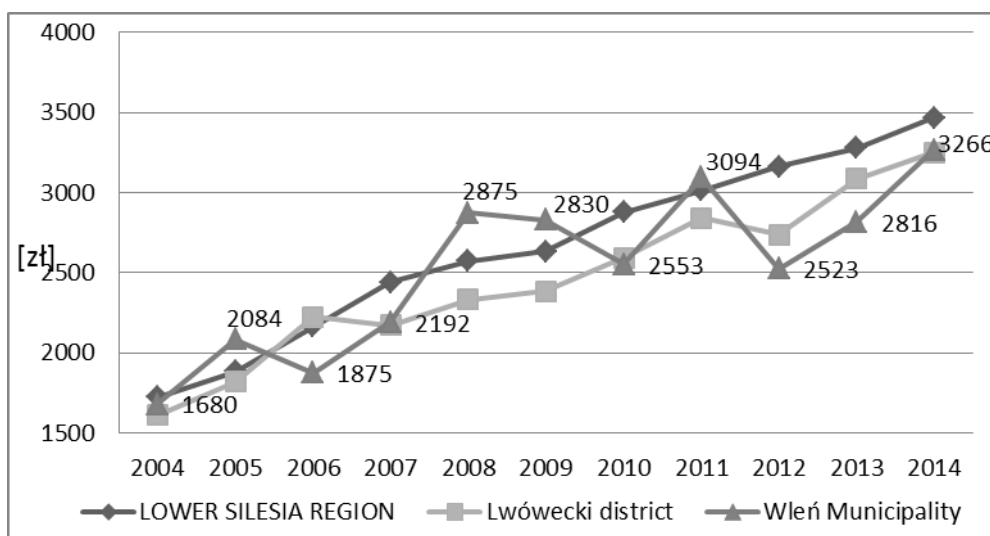
In the period 2004-2014 the level of entrepreneurship in Wleń Municipality measured by the number of entities listed in the Official Company Register (REGON) per 1000 population was lower comparing to the average values characteristic for the entire region (picture 4). After 2009, however, it reached the level comparable to that recorded in Lwówekcki district. The drop in the ratio for 2014 raises concerns, even more so that both in Lower Silesia region and in Lwówekcki district its value was increasing.

2. Local government finances

The total revenues of Wleń Municipality in 2014 amounted to PLN 14,21 million, which along with the total expenditure level of PLN 15,96 million means the deficit of PLN 1,75. Due to the fact that public spending is identified with the need to meet collective needs, the phenomenon of budget deficit can be interpreted as one of the Wagner's law manifestations (Szczęsny, 2006). Municipal revenues per capita presented the value of PLN 3266 and in 2014 reached the level similar to that characteristic for Lwówekcki district. Comparing to the regional average (PLN 3468), recorded in the municipalities without a city with district rights, the value was by PLN 202 lower (picture 5). At the same time it is worth noticing that in spite of certain fluctuations the total revenues per 1 resident in 2014 constituted over 194% of the value characteristic for 2014.

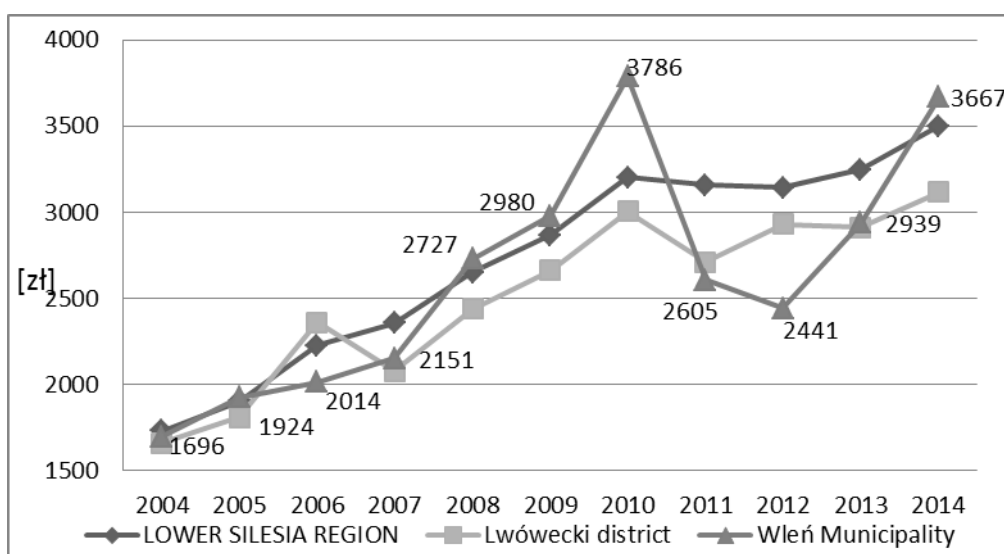
The expenditure level per capita in the analysed period presented significant fluctuations (picture 6). After 2010, when it reached the record level of PLN 3786, the value was noticeably decreasing and in 2012 it dropped to the level of PLN 2441. The period 2013-2014 brought about gradual increase of the analysed parameter (2013 – PLN 2939, 2014 – PLN 3667). It can be concluded that in 2014 the expenditure of Wleń Municipality per resident was higher than the district average, where the respective value was PLN 3117 and the regional average characteristic for the municipalities without cities with district rights (PLN 3501).

FIG. 5: Total revenues per 1 resident



Source: authors' compilation based on the data provided by the Central Statistical Office

FIG. 6: Expenditure per 1 resident



Source: authors' compilation based on the data provided by the Central Statistical Office

The rate of own revenues share in total municipal revenues confirms the level of financial independence characteristic for municipalities in terms of financial means spending. Its increase means higher financial possibilities of municipalities (Sukces ..., 2006; Kaczor and Tomalak, 2000; Pankau 2005, based on: Standar, Średnińska, 2008).

Starting from 2004 the discussed rate for Wleń Municipality (tab. 4) was significantly lower than the Lower Silesia region average value calculated for the municipalities without cities with district rights. In the period 2004-2007 and 2012-2014 it was also lower than the district average, however, it is worth noticing that in 2014 it presented the significantly higher level of 44,2%.

TAB. 4: The rate of own revenues share in total revenues (%)

Territorial unit	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
LOWER SILESIA REGION	57.2	55.5	55.6	57.7	61.0	58.2	55.6	55.6	57.7	58.7	59.4
Lwówecki district	37.7	36.1	34.3	44.2	45.4	41.7	37.4	40.8	41.0	44.6	45.2
Wleń Municipality	33.7	28.4	33.2	31.2	51.6	45.4	43.4	50.5	37.1	36.8	44.2

Source: GUS authors' compilation based on the data provided by the Central Statistical Office

The rate of investment expenditure in total spending reflects the activity of municipal authorities within the framework of the existing financial possibilities. Higher value of this indicator confirms the developmental orientation of a particular municipality. It should, however, be emphasized that – if the financial means are to be dedicated to investments rather than wasted – the infrastructure should be developed and focused on the residents' needs (Czempas, 2004, based on Standar, Średnińska, 2008) and entrepreneurs. Investment expenditure results in a particular type of a multiplier effect. A better developed municipality attracts investors, which is translated into opening new jobs. Therefore, the competitiveness of such municipality is increasing (Klimek, 2005).

Apart from the less prosperous 2006 and 2009 and very unfavorable situation in the period 2011-2012 (which occurred after the record period in terms of investment expenditure in 2010) Wleń Municipality was characterized by a very high rate of capital expenditure share in total expenditure (tab. 5). It confirms the pro-developmental orientation of the municipality.

TAB. 5: The rate of capital expenditure share in total expenditure (%)

Territorial unit	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
LOWER SILESIA REGION	17.0	16.4	21.2	19.7	21.1	21.4	25.1	22.5	18.3	17.4	18.9
Lwówecki district	22.4	18.9	30.2	13.0	18.0	20.5	24.7	14.6	18.1	14.6	16.0
Wleń Municipality	23.0	19.4	16.2	20.2	29.6	15.1	37.2	9.3	2.7	19.9	24.1

Source: authors' compilation based on the data provided by the Central Statistical Office

Conclusion

The presented research represents the component of the efforts related to the Strategy of Wleń City and Municipality Development for the period 2015 – 2022. It is a contribution towards developing SWOT analysis of the analyzed area. The conducted analysis allowed identifying the nature of selected economic phenomena in the discussed municipality, also at the background of larger, surrounding territorial units. It should be concluded that against 2004 the vast majority of the studied phenomena were improved – reduced unemployment rate, higher number of national economy entities listed in the Official Company Register (REGON), as well as total revenues calculated per resident. Simultaneously, at the background of other territorial units the results of Wleń Municipality were quite unfavorable in most cases. However, it should be emphasized that the values of own revenues share rate in total revenues present the pro-developmental orientation of the municipality. Measurement of socio-economic indicators is a key element not only in the evaluation of the current development of local governments, but it is also crucial analysis at the stage of defining new development policies. The use of indicator-based assessment effectively supports governance process at the local level and helps in implementation of the principles of sustainable development (Kazak et al., 2014).

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THE EFFECTIVENESS OF CARBON DIOXIDE EMISSIONS REDUCTIONS. A CASE STUDY OF THE REGIONAL FUND FOR ENVIRONMENTAL PROTECTION AND WATER MANAGEMENT IN WROCLAW

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Keywords:

climate change – environmental protection – environmental funds

JEL classification: H230, Q530

Abstract:

The aim of the article is to analyse the environmental benefits of projects financed by one the provincial funds for environmental protection and water management in Poland (Regional Fund in Wrocław) in terms of carbon dioxide emissions reductions. The analysis shows that objects and installations supported by the fund in 2008-2014 are to cut CO₂ emissions by at least 127 thousand tons. The most effective projects are energy saving measures in buildings, including thermal insulation or use of more sustainable energy sources. The paper also provides a brief comparison of the emissions reductions from projects financed through other funds.

Introduction

Important sources of support for environmental initiatives in Poland are funds for environmental protection and water management which are funded through environmental charges and fines. The integrated system of environmental funds consists of funds established at the regional level and one fund at the national level (The National Fund for Environmental Protection and Water Management). The funds are authorised to provide grants and loans for a variety of environmental projects.

In accordance with Article 400a paragraph 1 of the Environmental protection law support from environmental funds in Poland includes funding for projects related to air protection. Other possible areas include inter alia local renewable energy sources, environmentally friendly sources of energy and eco-friendly forms of transport (Environmental protection law). It can therefore be assumed that the subsidised financial assistance from the environmental funds contributes to achieving the targets of the EU 2020 Strategy. One of these targets is to reduce greenhouse gas emissions by at least 20%. This objective is included in many Polish strategic documents.

The aim of the article is to analyse the environmental benefits of projects financed by one the provincial funds for environmental protection and water management (Regional Fund in Wroclaw) in terms of carbon dioxide emissions reductions. The paper also provides a brief comparison of the emissions reductions from projects financed through other funds.

1. Methods, literature overview

Environmental funds are defined as "institutions designed to channel earmarked revenues for environmental protection purposes" (OECD, 1995). As Burchard-Dziubińska (2003) states funds established at the regional and national level are considered to play a major role in the financing of environmental protection in Poland. It is important that funds offer not only grants but also soft loans. According to the PSDB (2015) report loans enhance efficiency of the environmental or energy projects.

The analysis of the amount of the support and environmental benefits produced by projects supported by environmental funds is based on data from annual reports published by the funds. A precise comparison of the support from different funds is not possible as fully comparable data on the emissions reductions are not available. Another obstacle is a lack of full project descriptions. A category under which a given project falls was determined by the title of the project.

The analysis conducted in the paper is part of broader research which aims to determine and compare the impact of various environmental policy instruments on Polish climate policy objectives. The research is focused on economic instruments, i.e. environmental subsidies, environmental charges and taxes, and the EU emissions trading system. The results of the analysis can also be confronted with the data presented in the UNFCCC report. According to the report thermal modernisation projects supported with the resources of the regional funds will contribute to greenhouse gas emissions reduction of 16 thousand tons per year in 2015 (The Republic of Poland, 2013).

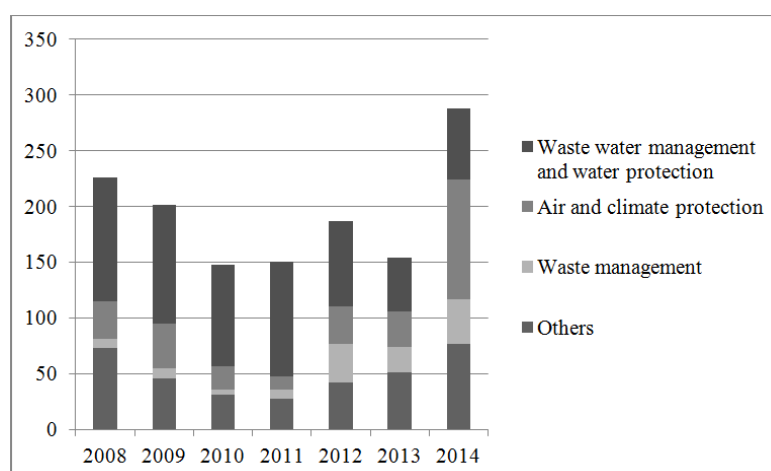
The main research period analysed in this article is 7 years. This is due to the need to compare environmental benefits of the support provided by the funds for environmental protection and water management and by operational programmes financed by EU funds. The programmes are set for periods of 7 years.

2. Results

The strategic objective of the Regional Fund for Environmental Protection and Water Management in Wroclaw is to improve the environment, obtain environmental effects in order to fulfil the EU directives and to raise awareness and create better attitudes towards the environment in accordance with the principles of sustainable development (Wojewodzki Fundusz Ochrony Srodowiska i Gospodarki Wodnej we Wroclawiu, 2005a). In 2008-2014, the fund directly supported the implementation of 2720

environmental projects (new and continuing investments). In 2007-2013, the fund's annual expenditures averaged almost 175 PLN million. In 2014 regional fund's expenses amounted to up to 288 PLN million (Fig. 1). This was primarily due to an increase in loans for projects related to air and climate. The value of loans for air and climate investments was almost 4 times higher than in 2013. At the same time the share of support for air and climate protection accounted for 38% of the total fund's expenditures. In previous years, the share was up to 22%.

FIG. 1: Expenditures of the Regional Fund for Environmental Protection and Water Management in Wroclaw in 2008-2014, PLN million

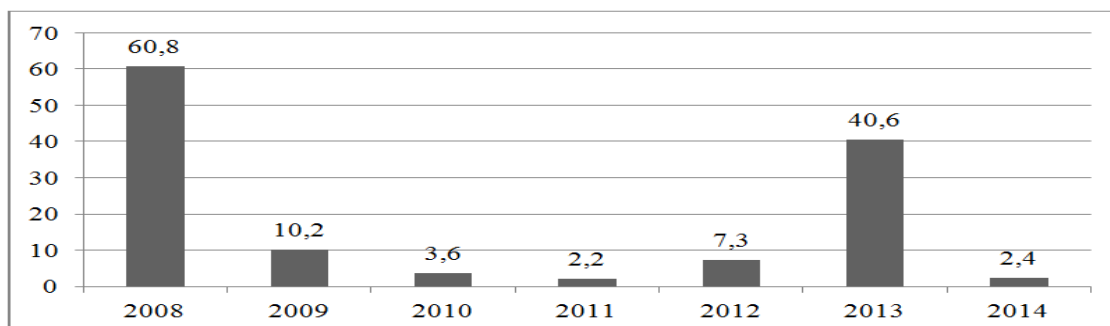


Source: Wojewodzki Fundusz Ochrony Srodowiska i Gospodarki Wodnej we Wroclawiu (2015b).

In 2008-2013 three-quarters of the fund's support for environmental protection and water management was provided via repayable assistance. In the case of air and climate protection the share of loans in the financial support is greater (usually more than 90%). It must be noted that air protection is one of priority investment sectors supported by the Regional Fund in Wroclaw. The fund cooperates with the National Fund and administers some of the National Fund's support schemes aimed at CO₂ emissions reduction and development of small-scale renewable energy installations (Wojewodzki Fundusz Ochrony Srodowiska i Gospodarki Wodnej we Wroclawiu, 2005a).

In 2008-2014, objects and installations supported by the Fund are to cut CO₂ emissions by at least 127 thousand tons (Fig. 2). The greatest results of the support were achieved in 2008 (reduction of 61 thousand tons of CO₂) and 2013 (reduction of almost 41 thousand tons of CO₂).

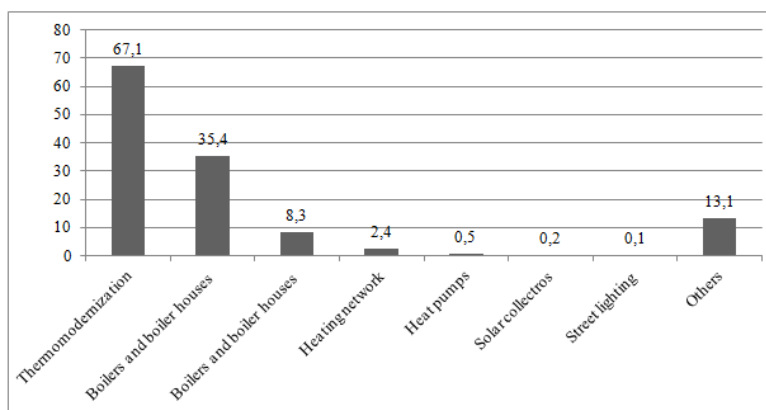
FIG. 2: CO2 emissions reductions achieved through support from the Regional Fund in Wroclaw, thousand tons of CO2 per year



Source: Wojewodzki Fundusz Ochrony Srodowiska i Gospodarki Wodnej we Wroclawiu (2015b).

Fig. 3 shows that the largest reduction in CO2 emissions was achieved by improving the energy efficiency of buildings. Most of the projects were implemented by municipalities, which improved the energy efficiency of schools, kindergartens, offices, health centres, sports and cultural centres. Thermomodernization was also carried out in the buildings of the parish and municipal companies. Other direct recipients of the support for thermomodernization of buildings were health centres and hospitals.

FIG. 3: Measures to reduce CO2 emissions, thousand tons of CO2



Source: Wojewodzki Fundusz Ochrony Srodowiska i Gospodarki Wodnej we Wroclawiu (2015b).

Projects related to the construction or modernization of boilers and boiler houses were mainly carried out by local government units. Three quarters of the analysed projects related to more environmentally friendly energy sources have been carried out by municipalities or counties.

Fig. 3 shows that a fairly small part of the analysed projects encompassed the use of renewable energy sources (such as solar collectors and heat pumps). However it should be noted that renewables (eg. biomass and solar energy) have been used in other projects (eg. on thermomodernization or changing heat sources).

The largest results were achieved through projects implemented by municipalities (Tab. 1). It can be assumed that the support for municipalities was also the most cost-effective. The support for avoiding 1 ton of CO₂ emissions was PLN 580. In the case of companies (e.g. utility companies, thermal power companies the support was PLN 1440 (the analysis includes only projects where CO₂ emissions reductions were reported).

TAB. 1: CO₂ emissions reduction by category of applicants, thousand tons of CO₂

Type and number of applicants	Avoided CO ₂ emissions	Project value	Loans from the fund	Loans from the fund
	Thousand tons per annum	PLN		
Municipalities (104)	66,7	76,3	4,2	34,3
Enterprises (29)	41,4	232,0	0,0	59,7
Health Care / Hospital (21)	6,6	44,7	1,8	27,2
Housing cooperatives (3)	5,7	13,1	0,0	7,9
Counties (17)	3,9	23,1	3,0	3,3
The parish / diocese (18)	1,5	7,0	1,6	1,4
Others (28)	1,2	24,1	3,6	7,6
Total (220)	127,0	420,3	14,2	141,4

Source: Wojewodzki Fundusz Ochrony Srodowiska i Gospodarki Wodnej we Wroclawiu (2015b).

3. Discussion

The analysis shows that the effects of financial support from Regional Fund in Wroclaw varied between years. The most effective projects to reduce carbon dioxide emissions are energy saving measures in buildings including thermal insulation or use of more sustainable energy sources such as gas or renewables.

Emissions reductions achieved through support provided by the fund can be, to a certain extent, compared with effects of projects financed by other regional funds (Tab. 2). As one can see the effects of the Regional Fund in Wroclaw are relatively large. However, the data should be treated with caution.

TAB. 2: Effects of the support provided by chosen regional funds for environmental protection and water management in Poland in 2010-2014

Fund	Annual CO ₂ reduction in thousand tons	Characteristics of data on emissions reduction
Regional Fund in Lublin	2,5	Agreements concluded in a given year
	0,8	Agreements concluded in a previous years
Regional Fund in Olsztyn	3,5	Agreements concluded in a given year
Regional Fund in Torun	63,5	Projects completed in a given year
Regional Fund in Wroclaw	11,2	Objects and installations commissioned in a given year
Regional Fund in Zielona Gora	0,4	N/A

Source: Wojewodzki Fundusz Ochrony Srodowiska i Gospodarki Wodnej w Lublinie (2015), Wojewodzki Fundusz Ochrony Srodowiska i Gospodarki Wodnej w Olsztynie (2015), Wojewodzki Fundusz Ochrony Srodowiska i Gospodarki Wodnej w Toruniu (2015), Wojewodzki Fundusz Ochrony Srodowiska i Gospodarki Wodnej we Wroclawiu (2015b), Wojewodzki Fundusz Ochrony Srodowiska i Gospodarki Wodnej w Zielonej Gorze (2015).

The annual emissions reductions achieved through support provided by the 5 analysed regional funds are higher much higher than benefits presented in the UNFCCC report. However, the reductions are much lower than the CO₂ cuts achieved by investments financed from the National Fund (an average of 240 thousand tons in 2010-2014 (Narodowy Fundusz Ochrony Srodowiska i Gospodarki Wodnej, 2015).

Conclusion

The financial support of the Regional Fund for Environmental Protection and Water Management in Wroclaw generally takes the form of repayable assistance (low-interest loans). It can be therefore assumed that investors who have to pay back the loan choose investments which not only can contribute to environmental or climate objectives but also which can be justified on financial return grounds. Loan repayments can be used by the fund to support other environmental projects.

Due to a lack of comparable data it is difficult to precisely compare the effects of support from various regional funds. However, it can be assumed that environmental benefits (in terms of carbon dioxide emissions reductions) of the support provided by the Regional Fund for Environmental Protection and Water Management in Wroclaw are quite substantial.

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NOTES ABOUT THE ECONOMIC GROWTH IN PERIOD 2000-2013

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Keywords:

TFP – Solow residuals – economic growth

JEL classification: 040

Abstract:

Economic crisis has highlighted many of the problems that have been suppressed, or simply ignored for years. At the same time it raised the question whether the world economy is still somehow able to grow or has already reached its growth ceiling. Nevertheless, economic growth remains one of the main long-term objectives of each country. According to our opinion, this is reason to analyse the way of achieving this growth. In the article we used the method of growth accounting for analysing the contribution of each factor to economic growth. We compared Denmark and Finland. We wanted to prove or disprove the hypothesis that the observed countries have achieved economic growth through the increasing factor productivity and not by the accumulation of production factors.

Introduction

Economic crisis has highlighted many of the problems that have been suppressed, or simply ignored for years. At the same time it raised the question whether the world economy is still somehow able to grow or has already reached its growth ceiling. Shapiro (2013) said that that only involvement of more innovations in production as well as reform of the start-ups creation policy can help to achieve the future economic growth of the country. Similar way of thinking can also be seen in the observations of de Neufville (2014), who reminds a combination of environmental and economic challenges and highlights the need to change the way the globalized world economy works. The same attitude to the role of innovation and investment as factors of economic growth can also be found in the works of Szabo, Šoltés & Herman (2013), Buleca (2013) or Harris & Moffat (2015), Sanchis, Sanchis-Llopis, Esteve & Cubel (2015). Common feature of the above articles is the thesis that economic growth can only be achieved by increasing the efficiency of use of limited resources we have today and not through further capital or labour accumulation. Therefore, the aim of our article is to analyse the situation of the two European countries (Denmark & Finland), which maintain relatively stable growth in the long term. We assumed that in the period under

review the economic growth was based on increasing the productivity of production sources and not on the accumulation of capital in the economy.

1. Methods, literature overview

To confirm or refute our assumption we used the method of growth accounting. Our method has been built on the approach described by Hsieh (2002). The calculation starts at the formula for economic output shown in the form

$$Y = rK + wL \quad (1)$$

In the equation we have “Y” as the aggregate output, “K” as capital, “L” as labour, “r” as the real rental price of capital, and “w” as the real wage. After the necessary adjustments of the original equation (differentiation and dividing by Y) we have come to the form:

$$\frac{Y'}{Y} = r \frac{K}{Y} \left(\frac{r'}{r} + \frac{K'}{K} \right) + w \frac{L}{Y} \left(\frac{w'}{w} + \frac{L'}{L} \right) \quad (2)$$

We used substitution in (2):

$$Y' = s_K (\hat{r} + \hat{K}) + s_L (\hat{w} + \hat{L}) \quad (3)$$

where “ s_K ” and “ s_L ” are the factor-income shares. (Hlousek, 2007) Next, we have the equation divided in two parts. Finally we obtained:

$$SR_p = Y' - s_K \hat{K} - s_L \hat{L} \quad (4)$$

and

$$SR_d = s_K \hat{r} + s_L \hat{w} \quad (5)$$

The equation (4) is called the Solow residual primal (SR_p) or TFP growth. Decomposition of output growth gives us information about contributions of physical capital, labour and productivity to economic growth. After the removal of the contribution of these essential resources, the remaining part of economic growth, which was not explained by a combination of the growth rates of all production inputs, will be considered as the real value of TFP growth. (Wang – Yao, 2003)

The equation (5) is called the Solow residual dual (SR_d). It is expressed as share-weighted growth in factor prices. Under the condition that output equals factor incomes we can talk about the result that the primal and dual measures of the Solow residual are equal. No other assumption about the production function, bias of technological change

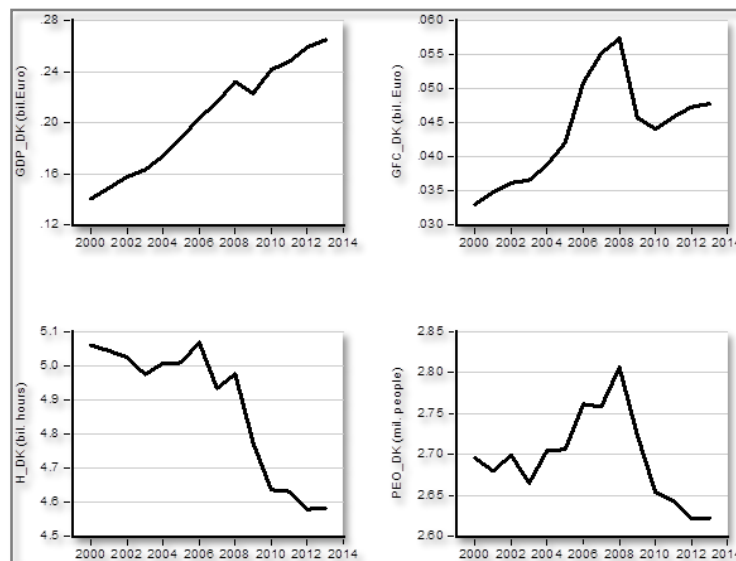
or relation between factor prices and their marginal products is needed for this result. We do not even need to assume that the data is correct. (Hsieh, 1999)

The pioneer of this method was Solow (1957). He came up with the idea to analyse the impact of individual factors on economic growth in the form of a dual approach to growth accounting. We can say that the Solow residuals are sometimes interpreted as measures of the contribution of technological progress (Romer, 2012, p.31; Mankiw – Romer – Weil, 1992).

2. Results

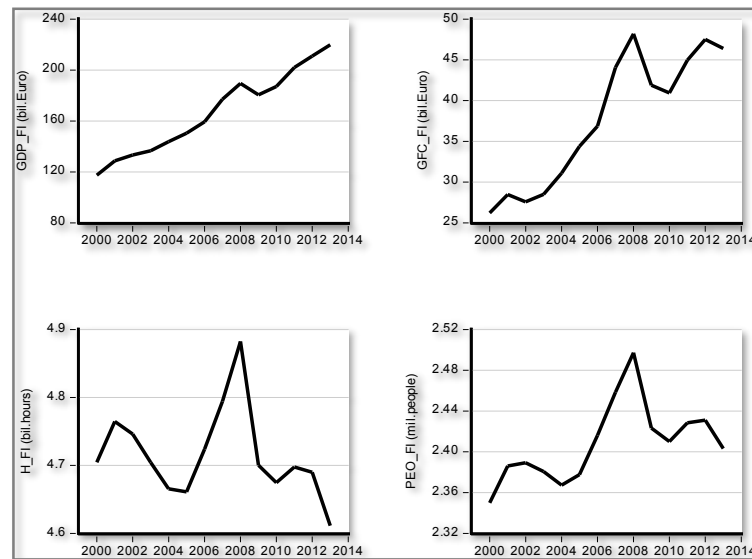
For the calculation of residuals we used data from databases statistical offices and national central banks of both countries as well as from Eurostat databases. The frequency of used data was annual in period 2000 – 2013. For SR_p calculation were used gross domestic product and stock of fixed capital (both in constant price of 2010) and total hours worked.

FIG. 1: Denmark – basic variables for calculating SR_p in period 2000 - 2013



Source: own research, Eurostat (2015)

The Danish economy reached, with the exception of 2009, economic growth. By 2008, growth was associated with relatively strong growth in fixed capital formation and also with a gradually declining trend in hours worked. At the same time grew the number of employed people in the economy. Thus, labour productivity grew. There was a sharp decline in both hours worked and the number of employed people in the economy after 2008. Nevertheless, since 2010 the economy renewed economic growth.

FIG. 2: Finland – basic variables for calculating SRp in period 2000 - 2013

Source: own research, Eurostat (2015)

Like the Danish economy also economy of Finland reached during the period, with the exception of 2009, economic growth. It was accompanied by growth of capital accumulation. While in Denmark the number of hours worked during the period had a downward trend in Finland the downward trend has been interrupted in 2006 when there was a sharp rise in this indicator. The crisis, however, stopped the growth and there was a sharp downturn accompanied by a decreasing number of people employed. Both indicators continue to hold the downward trend. The rental price of capital and the real wage were used in SR_d calculation. The rental price of capital rate was defined by 3 month nominal Euribor/Official rate deflated by inflation. The real wage was calculated as a nominal wage-consumer price index ratio. The average change of the real wage was at the level 0.9% in Denmark and 1.9% in Finland. To obtain factor-income shares we used annual data of gross value added, nominal costs of labour per person and number of employed persons. Average share of labour (s_L) in Denmark was 87% and in Finland it was 76%.

We used equations (4) and (5) to calculate the final results. (The results are in Table.1 and Table 2 and graphical results are presented in Figure 4 and 5).

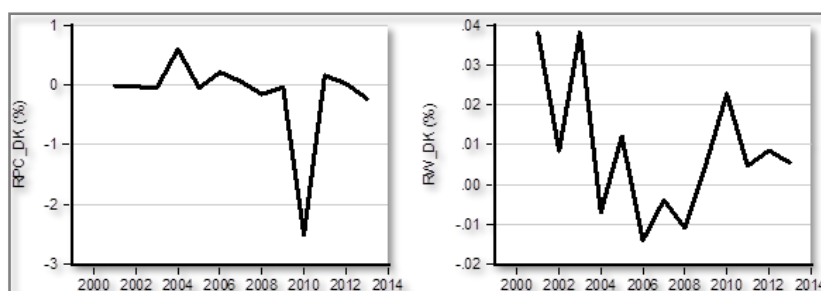
TAB. 1: Results of dual Solow residual (Dual TFP), (growth rates in %)

Denmark	Rental Price of Capital	Real Wage	Dual TFP	Finland	Rental Price of Capital	Real Wage	Dual TFP
Annual	(-0.499)	0.009	(-0.143)	Annual	0.111	0.019	0.048
Annual weighted	(-0.152)	0.008	(-0.143)	Annual weighted	0.034	0.016	0.048

Source: own calculations

The results for Denmark showed that the rental price of capital declined on average during the period. Its development reflects the diminishing marginal product of capital associated with the growth in the volume of capital. The average change in real wages was so small that it was actually negligible.

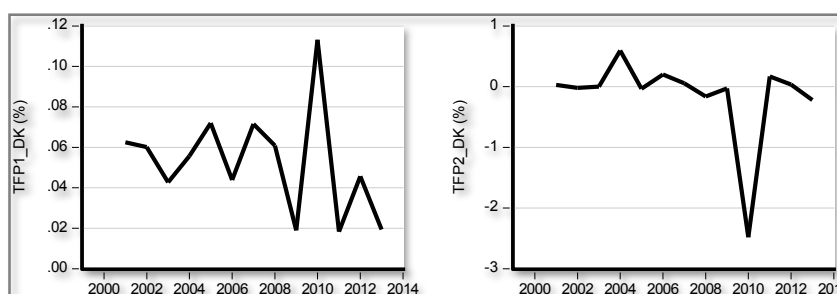
FIG. 3: Denmark - Rental price of capital (growth rate, %) and real wage (growth rate, %)



Source: own research

Based on developments in variables, one could say that the real wage in the economy has changed much more frequently, but the change was almost minimal. On the other hand, the change in capital prices was quite significant and it was especially for the period 2008-2012. A strong decline in prices of capital in 2011 was clearly associated with a second wave of the crisis.

FIG. 4: Denmark - Solow primal and dual residual (%)



Source: own research

This imbalance in change was also reflected in the final amount of TFP (TFP2 in Fig.4), which basically followed the development of changes in capital prices.

Significant impact of capital on economic growth was also confirmed by the second method. The second method confirmed that economic growth was most significantly influenced by changes in TFP (51%), but on the second place were changes in the volume of capital – 45.7% (see the results in Table 2).

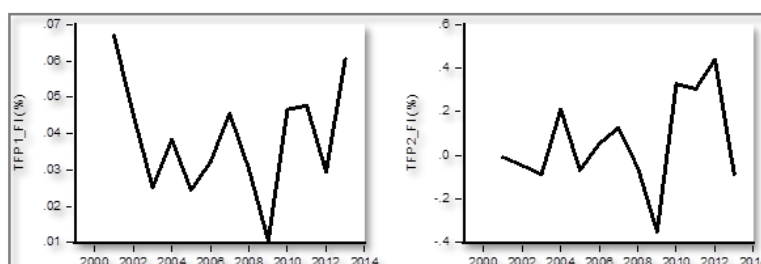
TAB. 2: Results of primal Solow residual (TFP1), (growth rates in %)

Denmark	Capital	Labour	TFP1	Output	Finland	Capital	Labor	TFP1	Output
Annual	0.119	0.006	0.059	0.116	Annual	0.048	(-0.001)	0.039	0.050
Annual weighted	0.053	0.004	0.059	0.116	Annual weighted	0.012	(-0.001)	0.0396	0.050
Contribution	0.457	0.033	0.510	1.000	Contribution	0.231	(-0.022)	0.791	1.000

Source: own calculations

The position of Finland was different. The rental price of capital increased on average during the period. In comparison with the development of this indicator in Denmark, the annual change was significantly lower, and despite the fact that there was a growth in the value of the capital the indicator increased and did not decrease. The rental price of capital in Finland did not record such extreme one way fluctuation as it was in the case of Denmark (especially in the period from 2008).

In addition, real wage has decreased by half slower than rental price of capital. This is reflected in the overall results TFP2.

FIG. 5: Finland - Solow primal and dual residual (%)

Source: own research

The relatively low impact of capital on economic growth has also been confirmed by the second method. The second method confirmed that economic growth was most significantly influenced by changes in TFP (79.1%) and contribution of capital was only at 23% (see the results in Table 2).

In the calculations used for Finland, we have come to almost identical results without distinction of method followed in calculating. The value of TFP1 was 0.0396 and the value of TFP2 was 0.048.

3. Discussion

However, the calculation of TFP for Denmark has brought significant differences in results – TFP1 equals to 0.059 and TFP2 equals to (-0.143). The rate of change is significantly greater in the case of dual TFP as in the primal TFP. It means that there was a change (the positive and negative) of factors market price and it could affect the

overall economic growth in the country. On the other hand, the accumulation of labour had no a significant impact on economic growth but capital accumulation significantly contributes to an overall real output of the country and thus influenced also the economic growth.

In term of numbers, the calculation of primal and dual Solow residual for Finland revealed that there is no significant difference in the perception of prices on the market factors and the estimates in the national accounts established by the Statistical Office. Our results indicated that for Finland obviating methods lead to very similar results. At the same time we came to the conclusion that in the case of Finland TFP was the most important factor influencing economic growth of the country in the period. Capital accumulation so far did not play as significant role as was in the case of Denmark.

Despite these differences, however, it concludes in the same result for both countries. In the period economic growth was achieved especially through increasing the productivity of production sources and not through the accumulation of capital in the economy. Thus we confirmed our hypothesis. Our findings also correspond with the results that have been achieved by Mas&Stehrer (2012, p.196) state that “average growth in TFP was the highest among the Nordic countries over the time period 1993 to 2007 at 1.6 percent. On the other hand, the TFP growth in Denmark was much lower and even became negative in several years.”

Despite the different results (in case of Denmark) we believe that dual approach is a useful alternative for TFP measuring. Our further research in this area will focus on the more detailed elaboration of the impact of the various forms of capital on economic growth.

Conclusion

By using the method of growth accounting we tried to confirm or refute the hypothesis that economies of Denmark and Finland have achieved economic growth by growth in factor productivity rather than through the accumulation of production factors. Our results confirm the hypothesis as well as we achieved similar results as Mas&Stehrer (2012, p.196) in their analysis of the Nordic countries.

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DETERMINANTS OF HOUSING PRICE: DATA ANALYSIS OF CITY BRNO

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Keywords:

housing – hedonic pricing model – OLS – price determinants

Abstract:

This paper introduces determinants of housing price in the statutory city of Brno. The aim is to present several determinants and find the model which describes the relationship between determinants and housing price. We choose three types of variables as determinants: time, location and house characteristics. For the purpose of processing this paper realized prices were analysed (for the period between 2012:Q1 and 2015:Q2) for housing units located in different districts of Brno. Those three are then variables entered into hedonic price model. Hedonic price model is estimated using the method of ordinary least square. In conclusion this contribution sets out the factors that influence the buyer's choice of new house.

Introduction

This article aims to identify and analyse the determinants of real estate prices in Brno. The house price is a result of the intersection between supply and demand in the real estate market. In other words, the consumer compares the benefits obtained from the profit of real estate with the costs that must be paid. One theory that solves this problem is the theory of hedonic price model (see Sirmans et al. (2006)). The theory has been developed because it has been necessary to work with products having different characteristics, but the goods are part of a single product group. These products are generally called differentiated products. Hedonic model is trying to find an explanation of prices, depending on their quantitative and qualitative characteristics (depending on the type of analysed product) and assumes that the construction of price of the good allows us to evaluate each of its characteristics separately.

Hedonic price models are typically based on interior and external physical characteristics of the house (size, appearance and features), spatial control variables for house (accessibility to schools and shopping, quality of other houses, availability of public services) and other factor associated with house (time trend, etc.). Sirmans et al. (2006) review that a lot of the variables have a positive relationship with the house price, on the other hand one of the most important variable which shows negative relationship is the age of house. Similar results are presented in Clark and Herrin (2000) or Cebula (2009). Other authors include into physical characteristics of the house the

type of masonry construction, the number of rooms and the size of the area. All of these characteristics have different impact on house price. Researchers, like Cebula (2009) or Fletcher et al. (2000), surmised that number of rooms is positively related to the sale price of houses. Kim et al. (2015) claimed that increase in property size leads to higher house price.

In this paper we model hedonic price methods based on ordinary least squares estimation by using cross section data.

1. Methodology and data

1.1. Methods

The hedonic price method uses the value of a surrogate good or service to measure the implicit price of a non-market good. For example, house prices can be used to provide a value of particular environmental attributes. Individuals may be willing to pay a premium for a house located close to a country park, while they may wish to have a discount on a house which is located close to an open cast mining site.

The hedonic regression analysis (adopted from Sirmans et al. (2006)) estimates the relationship between the price of an asset (the dependent variable) and all of its various characteristics (independent variables). For example, the price of a house can be summarised using a hedonic price function as follows:

$$P = f(\text{time, location, house characteristic}),$$

where the price of a house (P) is a function of its time trend (time), location relative to a local urban centre (location) and the house characteristics. The real estate location is so extensive and with a decisive influence on the price, that it takes an important part of model Schenková (2011). House characteristics can be different, see Sirmans et al. (2006) or Cebula (2009) or Manson (2009). We choose several factors according to Schenková (2010): ownership, total area and number of rooms, material masonry characteristics, state and flat location in the building. Because all flats in our data sets were in private property we do not work with this variable. Similarly, flat location in house is showed as statistically insignificant, therefore location in the apartment building is omitted from the model.

The change in a house price resulting from the marginal change in one of these characteristics is called the hedonic price (sometimes referred to as the implicit price or rent differential). The hedonic price can therefore be interpreted as the additional cost of purchasing a house that is marginally ‘better’ in terms of a particular characteristic.

We estimate hedonic prices assuming the hedonic price function has an adaptive functional form:

$$P = a + b1 * tr + b2 * area + b3 * rm + b4 * loc + b5 * mat + b6 * recon + e, (1)$$

where *tr* is the year of sale, *area* is the area of flat in square meters, *rm* is the number of rooms, *loc* is a location in different districts of Brno, *mat* is a type of masonry and a *recon* is reconstruction. More information about variables is discussed in the subsection Data. Based on the results of other authors, like Sirmans et al. (2006), Ebru (2011) and Kim et al. (2015), we assume that *a* can be negative or positive, *b1* is positive because the price of real estate is increasing in time, *b2* is negative because real estate which is bigger cost per square meter in mean less than smaller, *b3* is positive because we suspect that flat of type 2+1 is better than flat of type 2kk with the same area, *b4* is negative because real estate which is farther city centre is cheaper, *b5* is negative because new flats and brick flats are generally more expensive compare to a panel technology. It may be worth mentioning that panel construction companies does not rank high, although the quality of many brick houses, especially the older ones, is even worse (see Schenková et al. (2010)). Parameter *b6* could be negative or positive; negative in case that reconstruction signalizes that flats after reconstruction in comparison with new flats are cheaper (if the people view repaired flats as inferior to new flats); positive, if reconstruction signalizes that flats after reconstruction are more expensive than flats before reconstruction.

1.2. Data

Data set is unique summary of houses data between year 2012:Q1 and 2015:Q2. The data set includes 1081 observations of house characteristics in city of Brno. We used seven variables for our model. Variable price is the price per square meters in Czech crowns (CZK), including VAT. Variable trend denotes the year when the flat was sold. The variable location takes value from zero to three; each number marks one area in Brno. Location is divided according to Schenková (2011). More about the division of city areas is described in Table 1. The variable size describes total area of flat (in square

TAB. 1: Dividing of the city Brno

Brno			
0	1	2	3
Staré Brno	Ivanovice	Černovice	Bohunice
Stránice	Jundrov	Husovice	Bosonohy
Veveří	Kníničky	Komárov	Líšeň
Černá Pole	Komín	Maloměřice	Starý Lískovec
Královo Pole	Lesná	Obřany	Slatina
Pisárky	Medlánky	Židenice	Žebětín
Žabovřesky	Řečkovice	Zábřdovice	Bystrc
Ponava	Sadová	Štýřice	Nový Lískovec
	Soběšice	Trnitá	Kohoutovice

Source: Authors

meters). The variable rooms describe number of rooms in one flat. The variable material describes masonry material characteristics and takes value from one to five, where individual number indicates type of used masonry material (1-new type of material, 2-brick house before reconstruction, 3-brick house after reconstruction, 4-block of flats before reconstruction, 5-block of flats after reconstruction). The last variable is the variable recon. This is dummy variable which shows, if the real estate is after reconstruction (recon=1) or before reconstruction (recon=0). The frequency of variables in data set is described in Table 2.

TAB. 2: Frequency distribution of variables

Frequency distribution for loc, obs. 1-1081

	frequency	rel.	cum.
1	391	36,17%	36,17%
2	47	4,35%	40,52%
3	261	24,14%	64,66%
4	382	35,34%	100,00%

Frequency distribution for year, obs. 1-1081

	frequency	rel.	cum.
2012	312	28,86%	28,86%
2013	253	23,40%	52,27%
2014	394	36,45%	88,71%
2015	122	11,29%	100,00%

Frequency distribution for rooms, obs. 1-1081

	frequency	rel.	cum.
1	252	23,31%	23,31%
2	391	36,17%	59,48%
3	260	24,05%	83,53%
4	153	14,15%	97,69%
5	22	2,04%	99,72%
6	1	0,09%	99,81%
7	1	0,09%	99,91%
8	1	0,09%	100,00%

Frequency distribution for total area, obs. 1-1081

number of bins = 9, mean = 61,2573, sd = 28,1166

interval	midpt	frequency	rel.	cum.
< 40,172	20,585	237	21,92%	21,92%
40,172 - 79,347	59,759	636	58,83%	80,76%
79,347 - 118,52	98,934	182	16,84%	97,59%
118,52 - 157,70	138,11	19	1,76%	99,35%
157,70 - 196,87	177,28	2	0,19%	99,54%
196,87 - 236,04	216,46	1	0,09%	99,63%
236,04 - 275,22	255,63	1	0,09%	99,72%
275,22 - 314,39	294,81	2	0,19%	99,91%
>= 314,39	333,98	1	0,09%	100,00%

Frequency distribution for material, obs. 1-1081

	frequency	rel.	cum.
1	833	77,06%	77,06%
2	46	4,26%	81,31%
3	83	7,68%	88,99%
4	102	9,44%	98,43%
5	17	1,57%	100,00%

Frequency distribution for reconstruction, obs. 1-1081

	frequency	rel.	cum.
0	981	90,75%	90,75%
1	100	9,25%	100,00%

Source: Authors

2. Results

Before estimation we should describe some important correlations. Correlations between price and other variables are noted in Table 3. The first row records correlations for all observation. We can see that the relationship between variables is in agreement with our expectation from section data (excluding variable rooms). It is obvious that the variable recon has negative sign. It can be interpreted as very strong influence of new material, in other words older real estate even after reconstruction is cheaper than new real estate. The second row records correlations of observations without the cases where new material was used for the flats (the variable material is

equal to one). In this case the correlations are similar, except correlation between price and recon, which is positive, but close to zero.

TAB. 3: Correlations

	Obs.	Location	Trend	Rooms	Material	Area	Recon.
Price	1081	-0,312	0,4001	-0,3191	-0,5008	-0,2159	-0,2731
Price	248	-0,2496	0,2555	-0,4475	-0,3417	-0,3916	0,0317

Source: Authors

For estimating the hedonic price model we used statistical software GRET. The model is estimated by help OLS methods (see Koop (2008) or Cipra (2008)). The results are described in Table 4. Here, the R-square is 0,4676. It means that 46,76% of the variation of the price is explained by the trend, location, number of rooms, total area, material and distance variables. All of variables are statically significant on significance level of 10%. Also, the coefficients of trend and rooms are positive. In other words, if the trend and number of rooms increase, the price per square meter increases as well. On the other hand, the coefficients of location, total area, material and reconstruction are negative. It means, if the location, total area, material or reconstruction increases, the price per meter square decrease.

TAB. 4: Estimate

Model: OLS, using observation 1-1081

Dependent variable: price

coefficient	estimate	90% confidence interval		T-ratio
a	49150,40	47705,80	- 50595,10	56,01
b1	2500,10	2176,68	- 2823,53	12,73
b2	-1868,08	-2122,90	- -1613,26	-12,07
b3	882,71	325,78	- 1439,64	2,61
b4	-92,25	-111,94	- -72,56	-7,71
b5	-3503,28	-3908,47	- -3098,09	-14,23
b6	-1494,20	-2812,88	- -175,51	-1,86

R- squared: 0,467631 **P_value(F):** 0,00

Normality **Heteros.**
P_value: 0,00 **P_value:** 0,00

Source: Authors

The estimate can be interpreted as follows: One additional year will increase the price by 2500 CZK per square meter, one more zone from centre will reduce the price by 1868 CZK/m², one additional room will raise the price by 882 CZK/m², one additional square meter decreases the price by 92 CZK/m², the better type of masonry material will decrease the price by 3503 CZK/m² and reconstruction decrease the price by

1494 CZK/m². This is only point estimations. For better interpretation we show also the 90% confidence intervals which are not too wide.

3. Discussion

In comparison with other authors, older work and our own expectation we obtained satisfactory results. The basic relationship between key variables which describe the determinants of housing price in city Brno was confirmed. For this reason data set which is used can be convenient for our next research.

Conclusion

In this paper we identified and analyzed the determinants of real estate prices in the city of Brno. According to the theory and available data, we chose a hedonic pricing model that was able to capture the influence of the individual determinants In accordance with our assumptions. For this reason, the model seems to be sufficient for further extension. Correctly established model of hedonic prices can be a powerful tool for testing various hypotheses about masonry material.

One goal of future research is to use the basic model of this paper and test hypotheses about real estate prices due to their material characteristics. Another major goal of future research is focusing on real estate valuation. Because the model did not show a high coefficient of determination, we will try to expand a data sample and add other possible explanatory variables.

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DECREASE IN SALES OF PRINTED MEDIA AS A CONSEQUENCE OF CHANGES IN PURCHASING BEHAVIOUR OF READERS

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JEL classification: M31

Abstract:

The article dealt with the problem of the decrease in sales of printed media (newspapers and magazines) in particular from consumers', i.e. readers', point of view. The most frequent reasons have been found out due to which readers cease to purchase printed media. Readers prefer to obtain information from other media (TV, the Internet, radio), they switch over to the Internet versions of newspapers or magazines, and they also mind a large amount of advertisements contained in printed media. The matter of price (that means “newspapers and magazines are expensive”) is not so important, not even for economically inactive readers.

Introduction

At present, significant changes are happening within the field of printed media. These changes are observed by publishers of individual titles with considerable worries. As a consequence of the decrease in sales of printed media and the resulting decrease in number of copies their economic situation becomes difficult. In this article we will deal with this situation in particular from the point of view of consumers, that means readers in this case. Our aim is to identify factors that change their purchasing behaviour. We will subsequently analyse the factors that will have an influence on changes in previous consumer customs (readers used to buy printed newspapers and magazines). The subject of our interest will be also a finding how important is the role of price and whether age plays its role in some of the observed factors, that is whether younger readers show statistically significant different attitudes.

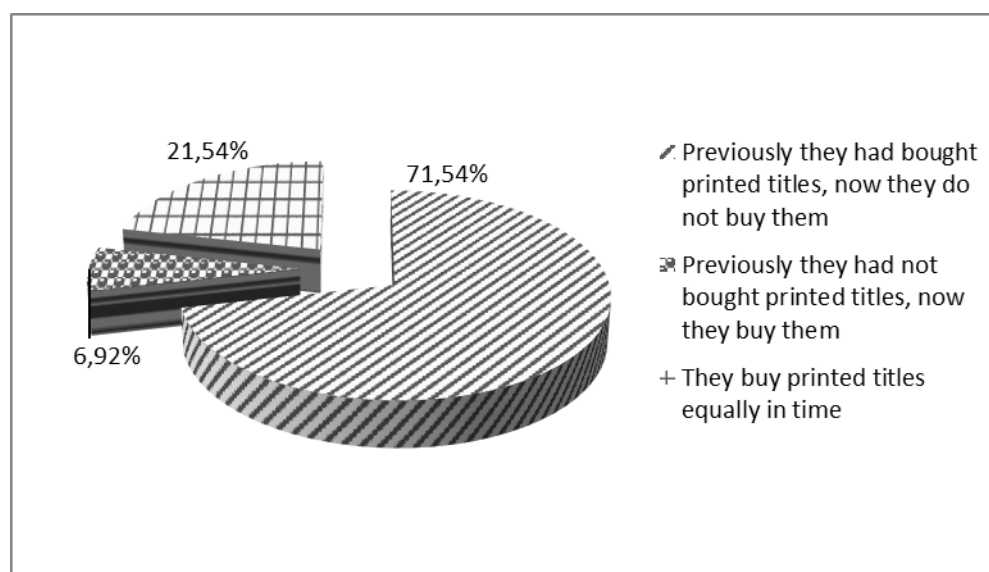
1. Metodology, research

The decrease in sales of printed media is an item of interest for a number of studies because this fact has significant negative economic effects on all publishers. And this is the context in which the problem of the decrease in readers' interest in printed media

dealt with in professional articles and studies. The transition of readers to the Internet versions of newspapers and magazines is a worldwide phenomenon. Publishers have to be able to respond to such a change in customers' behaviour. They have to be able to solve new technical problems such as displaying newspapers on a monitor in compliance with user comfort. But also printed media deal with a graphic appearance and fonts as one of the methods how to build and retain their brand (Richardson, 2010). On the other hand, the Internet issues bring new possibilities. Joukhadar (2004) points out that while in the past publishers did not know whether readers would open a printed newspaper or magazine, nowadays, in the Internet environment, they have precise information about access and download numbers. From the view of marketing, new media represent big challenges and there is a new opportunity how to know readers better and work with them better in terms of marketing. Many other authors (Papzian, 2006, Picklyk, 2012, Powell, 2012) deal with the decrease in sales of printed media, new trends, and their future consequences. The decrease in sales of printed media bring troubles for publishers especially due to the fact that this phenomenon is followed by the decrease in sales of advertising space which means the drop in income from advertising. For example, Schmalbeck (2010) deals with this issue. He argues that the decline in advertising income results in the following decrease in the number of title copies and following lowering of title quality and its scope of content. Some newspapers are not the even able to cover their operating costs. It is obvious that this issue is primarily discussed from the publishers' point of view. However, we were rather interested in the customers', that means readers' view. Our aim was to find out the reasons that lead to the decrease in readers' interest in printed media, newspapers and magazines respectively. We created a selective set by quota selection where the quotas were represented by age, gender, education, and economic activity. The method used was personal and written interviewing. We spoke to 150 respondents. Out of this number, we did not get back 13 questionnaires, and 7 questionnaires were subsequently discarded because the answers to all substantive questions were missing. The chi-quadrat – independence test was used within statistical processing for data analysis.

2. Results

At first we were interested in the fact how purchasing behaviour of readers changed over the past 15 years. This question was answered by 137 respondents in total. It is apparent from the results in Fig. 1 that only 22 % of respondents purchase printed media (that means newspapers and magazines) in the same extent as in the past. Almost 7 % of respondents purchase newspapers and magazines even more than 15 years ago. The majority of respondents, that means almost 72 %, state that they do not purchase newspapers and magazines (or they purchase them very rarely) but they used to.

FIG. 1: The change in purchasing behaviour of readers over the past 15 years

Source: own research

2.1. Identification of factors leading to the decrease in sales of printed media

There can be a range of reasons that can have effect on purchasing behaviour of readers. Within the operationalization process, we created a list of items at which the respondents stated whether the specific item influenced the change (the decrease respectively) in their consumer customs within the field of printed media purchase. This question was only answered by those respondents who stated that they used to buy printed titles but do not buy them now. 93 respondents answered in total. It is apparent from the results in Table 1 that the most frequent reason why readers ceased to purchase printed media is the fact that they obtain information from other media (70 % of positive answers, that means the sum of “certainly yes” and “rather yes”). This “other media” were specified in the question – TV, the Internet, radio, etc. This means the Internet in general. In contrary to this, the factor “transition to the Internet version” was specified in the questionnaire in a way that we do not mean the Internet in general but only transition to the Internet version of newspaper and magazines. Even this factor shows to be significant as it was positively answered by 58 % of respondents. Almost half (48 % respectively) of the respondent mind a huge amount of advertising in printed media. It is generally presented that people cease to buy newspapers and magazines because they are expensive. It follows from our results that the matter of price is important but it ranks the 4th place among the reasons why readers ceased to purchase newspapers and magazines. This was positively answered by 43 %, that means less than half of respondents. It is also apparent from the results that there are enough titles in the market, readers do not miss any other title, and there are no significant problems with accessibility of the existing titles.

TAB. 1: Factors influencing purchasing behaviour of readers

Evaluation of indicators (in %)	definitely yes	rather yes	rather not	definitely not	can not judge	total
do not like reading	3	16	39	33	9	100
do not need presented information	5	18	31	40	5	100
do not have time for reading	9	19	32	35	4	100
it is expensive	16	27	24	25	8	100
it is not modern	3	18	25	37	17	100
transition to the online version	28	30	26	14	2	100
published untrue information	8	26	39	20	8	100
favourite title ceased to be published	7	9	16	50	18	100
subscription ended, not renewed	8	13	21	42	16	100
left household, where they purchased the title	2	12	27	39	20	100
satisfying title does not exist	7	21	29	27	16	100
can not choose from a large amount of titles	8	23	31	30	9	100
favourite title is hardly available	1	7	26	46	21	100
do not attach gifts to magazines yet	3	11	39	31	16	100
bothering large amount of advertising	23	25	35	11	6	100
obtain information from other media	40	30	18	10	2	100
title appearance got worse	4	12	28	41	14	100
title content got worse	4	27	40	21	8	100

Source: own research

2.2. Analysis of factors leading to the decrease in readers' interest in printed media

It resulted from the aforementioned facts that money ("it is expensive") ranked the 4th place as the reason for the decrease in interest in printed media. We dealt with the question whether the price is a less important factor also for economically inactive readers because at this group we can generally expect higher price sensitivity. We found out within the socio-economic data whether the respondent is economically active (employed) or economically inactive (unemployed, student, retired). The research question was as follows: "Does the fact whether the respondent ceased to purchase newspaper and magazines because of price depends on his or her economic activity?" The calculation was performed using the chi-quadrat test with the contingency table. The null hypothesis was the statement that there is no dependence between the fact whether the respondent stopped buying newspapers and magazines because of the price and the fact whether or not he/she is economically active. Based on the calculated p-value of 0.7882 it is not possible to reject the null hypothesis. Therefore, we can prove dependence between the price as a reason for the decrease in sales of printed media and economic activity of the respondent.

We found out in the descriptive analysis of individual factors that the offer of titles of individual newspapers and magazines is sufficient in the market. Is it, however, possible that the existing portfolio is still insufficient for a certain age category? We created two sets of readers. "The younger" respondents were represented by those at the age of 15 to

34, and “the older” were the age category 35 and older. We formulated a research question: “Is there any difference in the number of respondents in individual age categories who state that they ceased to purchase newspapers and magazines because there is no such a title in the market that would fulfil their expectations?” To calculate this we used the chi-quadrat test using the contingency table. The null hypothesis was the proposition that there is no dependence between the two characteristics of respondents. The p-value was computed to be 0.9847 and thus it is not possible to reject the null hypothesis. It means that there is likely no gap in the portfolio of titles in the market and if the reader wants, he or she can find the right title regardless of what age category he or she represents.

The factor “it is not modern” was stated less frequently as the reason why respondents cease to purchase printed media. The sum of positive answers was 21 %. We were interested in the fact whether this group is primarily represented by younger readers. Again, we created two sets of readers: “the younger” represented by the age of 15 to 34, and „the older“ over the age of 35. We were interested in the fact whether the relative number of those who answered, that their reason for not buying newspapers and magazines is that it is not modern, is the same at both age categories. We tested the null hypothesis stating that there is no dependency between the reader's age and diversion from newspapers and magazines because of modernity against the alternative that such dependency exists. Here we also used the chi-quadrat test. Based on the same p-value of 0.9296 we cannot reject the null hypothesis. Therefore, we cannot say that younger readers cease to read newspapers and magazines relatively more often because it is not modern.

3. Discussion

In our study we dealt with the total view of the situation in the field of printed media, newspapers and magazines. Together with the development of new technologies, particularly with the increasing access of readers to the Internet, we can notice their general decline. Nevertheless, some studies show that while the sales of printed newspapers decrease, the interest in magazines slightly increases. Especially the interest in magazines that specialize in topics such as house and garden, or some magazines for women that specialize in lifestyle (Brendish, 2012). It is possible that this category includes also those 7 % of respondents from our research who stated that they now buy more printed media than 15 years ago. We can notice that consumer behaviour of readers change with regard to their motivation. There is a difference whether the reader is looking for current information about current affairs in society or whether he or she is looking for information within his or her leisure time activities, interests and hobbies. Whole the reader does not return to the first type of information, he or she repeatedly looks for the second type related to interests. It would be certainly interesting to deal with this issue in more detail in another future study.

Many published are afraid that parallel publishing of a printed title and its electronic version on the Internet will lead to certain cannibalism when readers would prefer the faster and easier-to-access Internet version. Simon & Kadiyali (2007) confirm these concerns. They argue that when the title content is available online, there is a decrease in sales of the printed version by 3 to 4 %, and in case where a full version is available online, the revenues from the sales of the printed version drop by 9 %. However, some newer studies (Kaiser & Kongsted, 2012) come with newer findings in this respect. A significant decrease in a printed version was noticed only by those magazines that are published less than weekly and that primarily have male readers. One of the last available studies which deals with the decrease in printed media (Savastano, 2014) identifies the online source of information as the factor that influences this decrease. Also this issue would deserve a deeper research from the consumer's point of view. There will be likely also psychological reasons why a certain group of readers still remains faithful to printed media even if they actively use new technologies.

Conclusion

Printed media (that means newspapers and magazines) have registered significant decrease in sales in recent years. Our aim was to identify factors that have influence on the change in behaviour of printed media readers. We identified three most significant factors that were stated by the respondent as the reasons why they ceased to purchase printed media. First of all, they stated the fact that as readers they obtain information from other media (TV, the Internet, radio). The second most frequent factor was the transition to the Internet version of newspapers or magazines, and the third reason was a huge amount of advertisements present in printed media that bother readers. The fourth reason stated was that they cease to purchase printed media because they are expensive. We found out within the subsequent analysis that the “price” factor shows no dependency between the price as a reason for the decrease in sales of printed media and the economic activity of readers. Another finding was that the current Czech market of printed media offers a sufficient number of titles for younger and also older readers. There is likely no gap in the market in this respect. One of the research questions dealt with the issue whether the transition from printed media to electronic version, typical primarily for younger readers (up to the age of 34), may be influenced due to the fact that “paper” media are not modern. No statistically important difference was found between both groups. Therefore, we cannot say that younger readers cease to read newspapers and magazines more often because they are not considered modern.

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ANALYSIS OF BARRIERS IN DECISION-MAKING OF UNSTRUCTURED PROBLEMS

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decision-making – decision-making process – critical factors of decision making – problem solving

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Abstract:

The aim of the paper is to present selected findings of the research “Solving Unstructured Decision-Making Problems in the Department of Defence of the Czech Republic.” The article deals with barriers and factors of rational decision-making of commanders and managers. The article’s goal is to identify such barriers that affect most significantly the frequently solved problems in the Department of Defence of the Czech Republic. As for the major problematic areas, these were identified in barriers related to ambiguous task assignment and a lack of competent personnel.

Introduction

The paper summarizes the results of the empirical research, which was carried out in the Department of Defence of the Czech Republic in 2012 by means of a questionnaire survey method, and in 2015 it was further supplemented by semi-structured interviews. The research dealt with unstructured problem solving by the Defence commanders and managers. The paper is focused on the analysis of the addressed problems and barriers which enter effective problem solving. The article answers the following research question: What is a relationship between the treated decision-making problems and barriers that make the solving of these problems difficult? The presented findings are beside the Department of Defence particularly useful for managers working in organisations of the state and public sector. Such organisations show similar characteristics and specifics and therefore it can be assumed that the employees of the given institutions perceive the decision-making processes similarly. The results can be also useful for managers in the private sector, optimizing the everyday decision-making processes, realising the necessity to carry out all the decision-making steps in sufficient quality and quantity.

1. Methodology

The goal of the above mentioned research is to identify significant factors affecting decision making, and reveal barriers to effective decision making within a particular organisation – the Department of Defence of the Czech Republic. The researched aspects involved those whose existence is vital for correct decision making by the management members of the CR Department of Defence. The data was collected through a questionnaire survey method, addressing 137 respondents who were chosen by means of a method of purpose selection. At the time of data collection 28% of the total number of the respondents worked at the strategic management level and 72% at the operational management level of the CR Department of Defence. 38% of the respondents work at the battalion level, 33% at the brigade level, 20% at the CR Department of Defence and 9% at the remaining units. The average length of the service is 18 years. The most frequent rank among the respondents is major (35%), then lieutenant colonel (19%) and captain (15%). Semi-structured interviews were carried out in order to obtain explanation of certain findings as well as for acquiring further qualitative data. These interviews involved 19 respondents of similar characteristics to the former sample. In order to answer the research question it was necessary to find out the frequency of solved problems and barriers felt within decision making. Therefore, the data was evaluated by the standard tools of descriptive statistics. Owing to the nature of the questions and the character of the variables it was not possible to use advanced statistical methods.

Decision-making process is a sequence of steps which people take while making decisions, both consciously and unconsciously. Such a process involves a problem identification and analysis, collection of the data and information about a problem, determination of objectives, limiting and evaluating criteria, generation of possible solution variants, selection of an optimal variant, and its implementation and check (Fotr & Švecová, 2010; Grasseová et al, 2013; Jay & Templar, 2006). The quality of a decision and decision making is influenced by a number of factors which can be divided to external and internal. The decision-making factors can be further supported by aspects that are related to decision-makers' personality, conditions for decision making (within a given organisational environment) and specifics of a particular decision-making problem. Solving a particular decision-making problem is always affected by personal characteristics of a decision-maker. Three primary aspects can be assumed for the capability to solve rather complicated unstructured problems. And these are previous knowledge of a given area, previous experience with solving similar problems, and cognitive abilities (Jonassen, 2011).

In the first place, according to Robertson (2001), previous experience of a decision-maker with solving similar problems can help the decision-maker. However, a decision-maker may, under the influence of the previous experience, also tend to choose

conservatively such ways of solutions that once proved to be effective but currently might not be as effective as they used to be.

Secondly, according to Jones (1995), the cognitive abilities – for instance intelligence, perception, convergent or divergent thinking, analytical abilities, memory capacity etc.

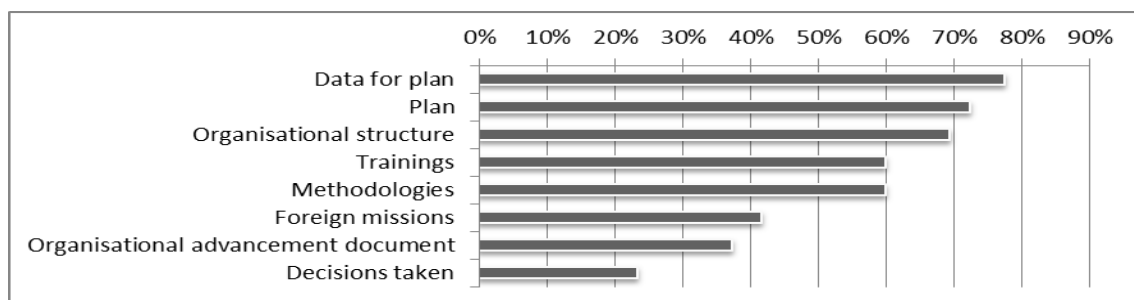
And thirdly, the sufficiency of theoretical knowledge of a manager and knowledge of appropriate methods for solving a decision-making problem.

Furthermore, decision making is affected by attributes of a particular decision-making problem. These can be related to aspects such as sufficiency of information, problem structuring that helps with better understanding of individual components of a decision-making problem as well as relationships and links among them, and last but not least there is also clear problem assignment (Jones, 1995; Robertson, 2001; Simon, 2000). A decision-making problem is perceived as a difference between a desired state (standard, regulation or plan) of a certain part of a decision-maker's surroundings and its real state (Donnelly, 2011; Grasseová et al, 2013). The barriers to decision making represent a number of obstacles which hinder a rational course of a decision making process as well as desired quality of a decision (Grasseová et al, 2013).

2. Results

Figure 1 illustrates the overall results of the questionnaire survey of the mostly solved individual decision-making problems as they were dealt with by the respondents in the past five years. The personnel of the Department of Defence identify the most frequently solved problems in data processing into plans, plans processing and dealing with a change of an organisational structure of a given organisation. These were represented by nearly $\frac{3}{4}$ of the respondents in terms of solving the decision-making problems. Significant decision-making problems, represented unanimously by more than a half of the respondents, are preparing and performing trainings in accordance with solving and processing the methodology, continuous operational advancement, order and different internal regulation.

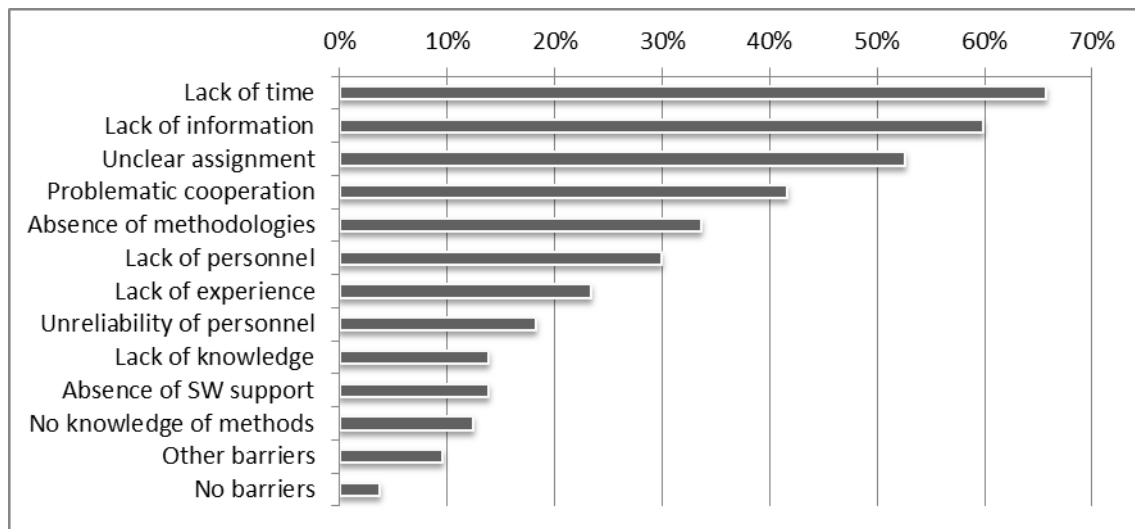
FIG. 1: Most frequently addressed decision-making problems



Source: own research

Figure 2 summarizes the outputs of the overall results which refer to the frequency of indicating the options of the individual barriers to rational decision making, which were felt by the respondents as significantly hindering the effective decision making. The presented figure shows that the personnel of the Department of Defence most frequently identify the barriers to rational decision making in the lack of time and information provided for problem solving. These two barriers are mentioned by nearly two thirds of the respondents. Another significant barrier that is agreed on by almost a half of the respondents is the unclear assignment of tasks or problems to be solved. The barriers that are less mentioned are problematic cooperation with other sections which participate in problem solving, the absence of clearly defined procedure of problem solving, and the lack of competent personnel, participating in problem solving. Only five of the respondents state that they do not encounter any barriers to rational decision making at their work.

FIG. 2: Barriers to rational decision making



Source: own research

In terms of the evaluation of the questionnaire survey we further assessed the interrelation of the individual decision-making problems and barriers which hinder the effective solutions to these problems. Table 3 presents the results of a comparison of the explored decision-making problems with the most significant barriers to decision making. Based on this figure it is clear that the respondents ascribe at least average significance to almost all of the offered combinations, as far as the perception of the topicality of the barriers to decision making when solving a particular decision-making problem is concerned, and a majority of them is felt to be highly significant attributes which hinder the effective decision making.

FIG. 3: Barriers to decision making when solving the individual decision-making problems

Barrier \ Problem	Lack of time	Lack of information	Unclear assignment	Lack of personnel	Problematic cooperation	Absence of methodologies
Organisational structure	76%	74%	78%	73%	74%	65%
Plan	74%	74%	76%	73%	74%	80%
Data for plan	81%	79%	88%	93%	88%	91%
Organisational advancement document	39%	35%	49%	44%	37%	37%
Trainings	63%	66%	63%	71%	65%	67%
Foreign missions	46%	43%	49%	34%	46%	41%
Decisions taken	28%	28%	25%	24%	25%	26%
Methodologies	58%	63%	63%	66%	68%	65%

Source: own research

The data preparation for a plan was identified as the most frequently solved problem. Nearly all the respondents who dealt with this problem encounter the barriers of the absence of the problem-solving procedures and the lack of competent personnel. At the same time there is also negative presence of the unclear task assignment and problematic cooperation with the other sections.

A similar situation can be observed in case of the second and third most frequently solved problem – the processing of plans and change of an organisational structure. Also here the majority of the respondents unanimously states to a great extent that the barriers occur with the lack of time, information and unclear task assignment, together with the lack of competent personnel and problematic cooperation with the other sections. More than a half of the respondents agree on perception of all the barriers quoted in the table while preparing and performing the trainings, where the most painful situation is related to the barrier connected with the lack of competent personnel. The members of the Department of Defence meet the least number of the barriers to the effective decision making when carrying out the taken decisions, international commitments, legal requirements, actions and tasks under a lack of resources for allocation.

3. Discussion

One of the key findings is the fact that at least a third of commanders encounters all of the most frequently mentioned barriers to decision making with all the cases of solved unstructured decision-making problems. No area has been identified that can be declared as a non-problematic one, and thus possibly serve as a source for sharing the experience with effective problem solving with different problem solving. Furthermore, it can also be observed that the frequency of problem solving is in direct proportion to the frequency of the perceived barriers to decision making, i.e. the overwhelming majority of the respondents feels almost all the barriers with the most frequently solved decision-making problems. Due to the different content of the solved problems at different command and management levels, and also in different areas of the CR Armed

Forces, it cannot be automatically assumed that the frequently solved problems are also the most significant and fundamental. However, there is a risk connected with the barriers to decision making, which are to the greatest extent related to those problems that might be crucial for the work of the Department.

The analysis of relationships between the problems and barriers has shown several findings that should be explored further in follow-up researches. Under the strict linear command structure and great bureaucratisation of a decision-making process it is rather surprising to realize that a significant barrier occurs with the unclear task assignment. In the Department of Defence it is relatively common that commanders deal with problems in terms of tasks (orders) which are assigned from a superior level. Based on the performed interviews the general reasons that would explain exact nature and causes of unclear task assignment has not been discovered. Nevertheless, it is obvious that solving a wrongly assigned task consumes more time and requires much more information. Therefore, if this complication is removed, a synergic decrease in the consequent barriers can be also expected.

The research shows that there is another significant barrier with the lack of competent personnel for problem solving. The respondents often referred, during the interviews, to the trend of downsizing the personnel capacity and reducing the work teams, when having only a fraction of the personnel available for problem solving in comparison with the past. In this respect a link to a barrier of problematic cooperation can be expected. A situation when units of insufficient personnel capacity cooperate with each other must be logically ineffective and problematic. Since this situation can be solved only by means of fundamental conceptual changes on the highest management levels of the Department, it is possible to at least partly eliminate the related barriers. The follow-up research work shall focus mainly on improvement of work productivity of the commanders and subordinates available for problem solving. Applying modern methods of the decision-making analysis may increase effectiveness of decision making in spite of the insufficient personnel.

Conclusion

The paper addresses the most frequently solved problems of the commanders and management members of the Department of Defence of the Czech Republic, as well as the most significant barriers that make such solutions difficult. The analysis of the collected data shows that the members of the Department encounter all the significant barriers while dealing with the most frequent problems, and there are situations when individual obstacles can be observed with decision-making processes of nearly all the commanders. Close attention shall be paid to the unusual significance of the barrier of unclear task assignment, while the follow-up researches should focus on an effective solution to the problems of personnel downsizing.

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ECONOMIC VALUE ADDED IN BUSINESS ECONOMICS

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Keywords:

business – performance – economic value added – evaluation

JEL classification: M20, M21

Abstract:

Economic Value Added (EVA) is based on the concept of economic profit. This indicator aims to motivate managers to focus on value growth for shareholders. Management should seek to maximize shareholder value in the form of dividends and share price growth. Main advantage of EVA is that it provides for management of larger enterprises more realistic information about performance and it also motivates them to make decisions leading to the growth of market value. Aim of this paper is to evaluate calculated values of EVA based on narrow value ranges of unnamed company which is involved in section D according to CZ-NACE division and to compare the results with values of section D - Electricity, gas, steam and air conditioning supply.

Introduction

Economic Value Added (EVA) is registered trademark of Stern Stewart & Company. EVA was introduced in the year 1991. The aim of EVA is to transform accounting data on economic model. EVA concepts are also signed as economic or residual profits. EVA is a measure of business performance. EVA is increasingly used by businesses in developed market and transition economies. EVA has several advantages which make it increasingly diverted from traditional financial indicators. The closest possible relationship to value of shares, usability of accounting data, the inclusion of risk and bound capitals, the possibility of performance evaluation and valuation are the advantages.

The aim of EVA is to motivate managers to be focused on value growth for shareholders. Management should maximize shareholder value in forms of dividends and share prices growth. EVA gives management more realistic information to company performance and it also motivates the company to make decisions leading to growth in business market value.

EVA calculation is based on the available data and cost of capital determination. Two basic calculation versions are: EVA based on income and on the basis of narrow value range.

1. Methods, literature overview

Kislingerová (2007) finds the main idea of EVA formation in microeconomics, where it is stated that the aim of the company is to maximize profit. Profit within the EVA formation is understood in the economic sense, not in the accountant sense. The difference between economic profit and accounting profit is in the view of the costs. The economic profit operates with economic costs i.e. costs which apart from accounting costs include the opportunity costs. Primarily by costs related to interest on shareholders' equity, including compensation for risk. According to Dluhošová et al. (2010, p. 19) "EVA is based on the fundamental rule that a company must produce at least as much as does the cost of invested capital. These capital costs or required rate of return are relating to both equity and debt. How creditors are entitled to payment of their interest the shareholders require payment of an adequate rate of return on capital that would offset their risk."

Positive values of EVA are according to Dluhošová et al. (2010) and Kislingerová (2007) obtained if NOPAT exceeds the cost of capital. This subtraction (EVA is higher than zero) is a value-added wealth of owners and shareholders for a certain period. Based on the above-mentioned characteristics of EVA indicator, it is obvious that the philosophical basis of the indicator is not new. Kislingerová (2007) assumes that those businesses that are governed by rule of the net present value of their investment decisions and the businesses that ensure optimization of capital structure, the businesses are achieving positive values of the EVA indicator.

"The EVA indicator measures how a company contributed with its activities to an increase or decrease of value for its owners in a given period." (Pavelková & Knápková, 2009, p. 52). If the value of the indicator is positive, that means $EVA > 0$, the company creates value based on their activities. If $EVA = 0$, then the return on invested capital of the company is equal to the cost of its acquisition. If the value is negative, that means $EVA < 0$, there is a reduction of investors' assets.

The EVA indicator is a very effective managerial tool used for the enterprise performance re-evaluating. It allows the development monitoring of the indicator and it provides a comparison with similar companies based on the EVA indicator. The importance of the EVA concept is in close relation to the value of the company. EVA is a powerful tool designed to measure performance, but it should be complemented by non-financial tools that enable to manage financial objectives by focusing on non-financial objectives and actions. It is also important to realize that the increasing value of EVA is not necessarily a sign of the company value growth. Impairment of the company despite the increase of the EVA value is possible if the costs of capital are rising, for example due to increased risk or if the assets are not sufficiently restored, the property is increasingly depreciated. Based on the mentioned the company is binding

less capital. Therefore it could not be limited to the value in current year, but it is also necessary to predict its future development. (Maříková & Mařík, 2005).

EVA based on the narrow value range known as EVA-Equity is based on return on equity. The indicator operates with return on equity and capital costs, and it is required to have the subtraction between profitability and costs of capital positive. From this perspective the enterprise is successful if the return on equity is higher or equal to the cost of equity. The EVA calculation based on the narrow value range is used in case of the external analysis. The formula for EVA-Equity calculation is:

$$EVA = (ROE - R_E) * E \quad (1)$$

ROE is return on equity, R_E is the cost of equity, E is the value equity.

The formula for ROE calculation is:

$$ROE = \frac{EBIT}{E} \quad (2)$$

EBIT is earnings before interests and taxes, E is the value equity.

For intercompany comparison EVA is not used in absolute value, but it is used EVA in relative value. In this case it is possible to express the EVA indicator in terms of total capital, or in terms of equity capital.

$$\frac{EVA}{C} = ROC - WACC \quad (3)$$

$$\frac{EVA}{E} = ROE - R_E \quad (4)$$

Positive value of indicator indicates growth in shareholder value. To evaluate the economic performance of a company it was chosen the methodology of the Ministry of Industry and Trade for EVA calculation. The main reason for this choice is the possibility to compare the results obtained of a company with the results achieved in the sector. Basic information about the analysed company are summarized in an annual report which contains the main financial statements such as balance sheet, income statement and attachment which adds information to the financial statements. The Ministry of Industry and Trade of the Czech Republic divides companies under EVA formation into four groups:

- a) Companies forming value: $ROE > R_E$
- b) Companies having ROE in the range: $R_F < ROE \leq R_E$
- c) Profitable companies with ROE in the interval: $0 < ROE \leq R_F$
- d) Unprofitable companies and companies with negative value equity.

For EVA calculation based on the narrow value range it is needed to determine the cost of equity and to calculate return on equity. Cost of equity is determined using CAPM-SML beta. The value of free risk rate (R_F) is derived from the average annual return on ten-year government bonds of the Czech Republic. These values are obtained from a public database of the Czech National Bank (ARAD). Since the company is traded on the capital market value is used beta coefficient for the sector. The value of beta coefficient debt-free company (β^U) is obtained from the damodaran.com and subsequently converted to the beta value of indebted company (β^L). The value of the market risk premium for the Czech Republic is also obtained from the website damodaran.com. The resulting cost of equity is calculated according to the formula:

$$R_E = R_F + \beta^L(R_M - R_F) \quad (5)$$

2. Results

Cost of equity in an unnamed company was the highest in the year 2009, when the value reached 51.81% (Table 1). In the coming years there has been a downward trend, in the year 2014 the cost was 16.6%. To reduce the cost of equity was mainly due to the downward tendency of the free risk rate of return and mainly due to the declining value of the beta coefficient, which reflects the sensitivity additional return on equity at additional revenue market portfolio. The value of beta coefficient of indebted firms is influenced by the levels of taxation and the size of the company's debt. In the year 2009 and the year 2010 there was a reduction in tax rates on corporate income and declining value of bank loans. When lowering the debt company runs less risk, which may result in decreasing the cost of equity capital because investors with a lower risk also expect lower profitability. D indicates the value of foreign capital it is the rate of taxation on profit.

TAB. 1: Cost of equity capital determination

	2008	2009	2010	2011	2012	2013	2014
R_F [%]	4,55	4,67	3,71	3,79	2,31	2,76	1,58
β^U	1,74	2,61	2,58	1,7	1,46	1,24	1,11
t [%]	21	20	19	19	19	19	19
D	8067916	6832020	8779028	7975653	8284504	8400637	8310518
D/E	2,52	1,93	2,6	2,26	2,26	2,3	1,22
β^L	5,2	6,64	7,99	4,81	4,13	3,55	2,21
$R_M - R_F$ [%]	5,84	7,1	5,85	6,28	7,28	5,9	6,8
R_E [%]	34,91	51,81	50,45	33,99	32,37	23,7	16,6

Source: own processing

Economic value added is then determined by multiplying the spread and the value of the equity. Calculation of economic value added is involved in the following Table 2.

TAB. 2: Calculation of EVA-Equity in CZK for the period 2005 – 2014

	2008	2009	2010	2011	2012	2013	2014
ROE [%]	18,26	27,36	27,78	26,18	20,84	21,05	12,46
R_E [%]	34,91	51,81	50,45	33,99	32,37	23,7	16,6
$ROE - R_E$ [%]	-16,65	-24,45	-22,67	-7,81	-11,53	-2,65	-4,14
E (thous. CZK)	3201554	3539907	3381465	3522288	3673145	3648801	6823774
EVA-equity	53305874	86550726	76657811	-27509069	42351361	-9669322	-28250424

Source: own processing

The return on equity did not exceed the cost of equity from the year 2005 to the year 2014, but the return on equity was higher than the free risk rate, and therefore the company in those years was ranked in the second category, where companies are belonging to a group of potential creators of the economic value added. A pyramidal analysis of EVA should be used for more detailed analysis of the development of EVA and the sub-indicators of EVA in order to know which factors influenced the EVA indicator. Table 3 shows, inter alia, the EVA values of Section D - Electricity, gas, steam and air conditioning supply.

TAB. 3: EVA indicators of the Section D

	2008	2009	2010	2011	2012	2013	2014
ROE [%]	15,32	16,5	10,63	13,97	19,44	16	6,79
R_E [%]	8,91	11,6	12,23	12,73	11,89	10,69	10,15
$ROE - R_E$ [%]	6,41	4,9	-1,6	1,24	7,55	5,31	-3,36
E (thous. CZK)	468118434	547897855	497701147	499475683	1323738905	1410151837	776095371
EVA-equity	3000639162	2684699490	-796321835,2	619349846,9	9994228733	7487906254	-2607680447

Source: own processing

Comparing the values of company with the values of industry, it was clear that the situation in the company didn't copy the trend in the industry. Analysed company had higher cost of equity compared to the industry. In the company, there is decreasing cost of equity, which for the future development of the economic value added is positive. The main difference between the company and the sector is in the final spread ($ROE -$

R_E). The Sector D generated the economic value added, which at first sight might arouse enthusiasm to invest into this sector. We must not forget, however, that the data obtained are for the industry as a whole and do not distinguish separately supply of electricity, gas, steam. Different range of production and supply is necessary to take into account also in the analysed company.

3. Discussion

The calculation of the EVA indicator should be calculated on the basis of the methodology used by the Ministry of Industry and Trade because the methodology allows comparison with competing firms or entire industry. According to Čechurová (2013), the larger the company is the more frequent use of EVA is. The application of the EVA indicator based on the narrow value range in businesses will be the objective to the further research in order to create a business performance model.

Conclusion

Calculated values of EVA of analysed company are compared with those achieved in the section Electricity, gas, steam and air conditioning supply. Negative values of EVA indicators indicate "destruction" of shareholder value. Unfavourable results of EVA were caused by the negative value of the spread because the cost of capital exceeded the return on that capital. The company didn't have a loss in the period. The company achieved the highest value of return on equity in the year 2010, the value was 27,78 %. The year 2010 also saw a reduction in the cost of equity by 1.36 percentage points to the level of 50.45%. Although the results of the economic value added were negative, the development trend showed a positive trend. The values of EVA for the industry showed positive values except the years 2010 and 2014. In the years 2008, 2009 and in the years 2011, 2012, 2013 was the increased shareholder value in the analysed industry, return on invested capital is higher than the expected rate of return of capital represented by alternative cost of equity. From this perspective the sector was attractive for investors.

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ANALYSIS OF STAKEHOLDERS OF MUNICIPAL ORGANIZATIONS

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Keywords:

Stakeholders – analysis – management – municipal organization – entrepreneurs

JEL classification: L30, O20

Abstract:

An analysis of stakeholders is an environment analysis which is one of the most important parts of designing a communication strategy. Such strategy should design the best steps a municipality management would use to communicate with their interest groups for dealing with local problem. An interest group (stakeholder) is usually defined as a person (natural entity, legal entity) whose activity can influence the municipality management or be influenced by it. These groups are the major actors and drivers of process making in a municipality and its implementation. Therefore, it is necessary to involve those actors that are the most important for creating, approving, promoting and implementing the plan into designing such a strategic plan. Identification of such players needs to be done as an initial preparatory step.

Introduction

Fulfilling the mission of municipal organizations' objectives is largely dependent on what assumptions have been accepted in relation to individuals or interest groups that provide sources of business in different forms. The degree of satisfaction of their needs and requirements is a measure of the success of an enterprise. This analysis of stakeholders is important because it acknowledges the existence and amount of stakeholders. It recognizes that some of them are more important than others. Therefore, it is necessary to choose and appropriate manner various stakeholders are treated. The analysis provides a framework which will help the company develop an appropriate strategy for reducing risk. The article describes stakeholders of municipalities in South Bohemia in Czech Republic.

1. Methods, literature overview

The aim of the paper is to identify the key stakeholders of municipal organizations and their influence and assumptions for the future strategy and development of municipalities and to set possible steps for involving the interest groups into designing a strategic plan.

The stakeholders were identified by students of the University of South Bohemia in České Budějovice. Within the classes of Management in Public and Social Administration, they were supposed to identify and rate (1-9) the most important interest-groups of municipalities and to assess their influence and assumptions for development. The methods of brainstorming and group decision-making were used.

Stakeholders represent a closed social relationship. It is outwardly apparent by the behaviour of people who follow an intention (Říchová, 2002). The most essential difference between an interest group and a political party is that political parties are trying to linearly achieve goals in consolidating their power at a particular position. The stakeholders put pressure on those players who have reached these positions (Cabada, 2004). Another currently a classic possibility defines an interest group as any group that is based on one or more shared attitudes and makes certain claims on other groups or organizations for the establishment, maintenance, or enhancement of forms of behaviour that are implied by the shared attitudes (Truman, 2004). Stakeholder is a voluntarily formed social unit with specific objectives and specific internal division based on work allocation (of organizations) that are trying to realize a personal, material and ideological interests of its members in terms of the needs, benefits and justification, and they do it within a social unit (a small sports club) and / or to other groups, organizations, institutions (a large sports association) (Fiala, 1999). The stakeholders could be divided into two types. Groups dealing with a specific interest exist to enforce or protect (usually material) interests of their members. Groups dealing with a general interest are founded in order to promote shared values, ideals or principles (Heywood, 2004). Strategic tools and techniques of analysis of interest groups represent the means for determining the correct timing and extent of that participation. Managers need to be aware of the consequences of their decisions for the key stakeholders of an organization (Freeman & Reed, 1983). The aim of the analysis of stakeholders is to:

- a) Identify the relevant interest groups.
- b) Identify and test the assumptions about interest groups (Tichá & Hron, 2009).

The purpose of this analysis is to describe what the most important interest groups should expect from the strategies so that the strategy should be subsequently formulated with regard to their expectations. This will ensure that the strategy of an municipal organization would be supported by the main stakeholder and would thus be easier to enforce (William, 1994). Setting the objective of the analysis is a common first step in almost every analysis (Mayers, 2005). Schmeer (1999) states that the stakeholder analysis is the process of collecting and analysing qualitative information, based on which it is possible to determine whose interests should be taken into account when developing and implementing strategies. Knowledge of key players, their skills, interests, position and importance allows managers to work more effectively with key stakeholders in the development strategy. By Částek (2010), this analysis is a tool of a strategic analysis of an organization. In its complexity, this method is able to cover all

aspects of internal affairs and enterprise interaction with its surroundings, including possible future impacts (Částek, 2010). Businesses and project teams need to decide how to spend their efforts to achieve their goals. Therefore, it is necessary not only to identify stakeholders, but also identify key stakeholders, i.e. the stakeholders who are mostly influenced by an organization or influence it mostly (Allen, 2008). The results of stakeholder's analysis are in the following table 1.

TAB. 1: Analysis of stakeholders (strategy)

KNOWLEDGE OF ASSUMPTIONS	<i>Certain</i>	Influence	Accept / convince
	<i>Uncertain</i>	Ignore	Educate
		<i>Insignificant</i>	<i>Important</i>
		INFLUENCE OF INTEREST GROUP	

Source: Tichá & Hron, 2009

Mitchell et al. (1997) notices that within relations with stakeholders it is necessary to take their dynamics into account. Who is not a stakeholder now, they may become soon. An enterprise should be prepared to deal with such changes and should be able to anticipate them.

2. Results and discussion

The influence of stakeholders on the strategic planning is crucial. Only the most important active groups such as citizens, businesses, non-profit organizations, or employees or management of the municipal office should take part in designing and implementing the strategies. The influence of a processor, i.e. the organization that deals with designing a strategy, needs to be taken into account. Its influence, however, should be minimized at least regarding the lobbying of individual interest groups. For that reason, roundtables are used where the widest possible range of interest groups discusses a shared vision and strategy for the development of municipalities which has the highest value if created with the participation of all. For organizational reasons, the discussion is often limited to a narrow range of groups, which can have a negative effect on the arrival of new ideas and approaches to problem solving and the development of a municipality.

Involving local actors may take place at several level. At first, it is necessary to identify the key actors, without which the process of strategic management would not work (assembly, council, and representatives of NGOs, business organizations and public and associations of municipalities). Next, it is important to determine the type of request to a municipal organization and vice versa, identify the assumptions about them and

determine the impact on strategy as part of the scoring scale of 0-9 (where 0 represents a negligible effect and uncertain assumption and 9 points mean a very significant influence and a certain assumption). The following step assesses the involvement cooperating entities and individuals who will actively participate in the development strategy. Their participation consists mostly of the survey research (population, entrepreneurs), where they play the role of respondents and they cooperate within the analytical part of the process (providing data, comments, etc.). Some also become the members of the team, they participate in the roundtables within the committees creating a strategic plan, and they comment on partial results and give suggestions. In the implementation phase of the strategy, they would also participate in the implementation of projects and then in the monitoring and evaluation.

The important interest groups are reported in the following table 2, which also includes an assessment of their influence and knowledge assumptions. The inhabitants are the most important interest group of municipal organizations. They require the most efficient management of municipal funds with the greatest benefit for themselves and the community. At the same time, a municipality request contribution to the budget of local taxes and solvency in compliance with laws and local regulations. The representatives of the municipal organization are the most important inner interest group. They decide on the most important matters under the municipal jurisdiction. They demand remuneration from the public budget for managing municipalities in their best intentions. Local businesses are also an interest group that influences the municipality budget. The municipality requires tax revenue into its budget and provides support to local entrepreneurs. Employees of a municipality as an interest group are required to work in accordance with the strategy of a municipality. In return, they require remuneration for their work.

Authorities and institutions, which are superior to the municipal organization, require specific results of its operations and compliance with laws. In return, they provide support to community management (e.g. the Ministry of Finance, Regional Office, Tax Office, Ministry of Environment, environmentalists, land registry office and building authorities). Within the cooperation level, the Local Action Group and the association of municipalities, in which most municipalities in South Bohemia are involved, is another interest group. Based on active partnership these associations deal with issues of sustainable development of the territory and cooperate in order to promote local and regional competitiveness. Schools as non-profit organization are also an important interest group. A municipal organization requires quality education and professional teachers for its citizens. In return, management of schools (nursery, primary) is financed by the municipality's budget. Cultural and sports clubs in the municipality are also included in the interest groups. A part of the budget is intended for clubs and sports clubs. A municipality requires representation in competitions and providing cultural and sports activities.

TAB. 2: Important stakeholders, their requirements, influence and knowledge assumptions

Stakeholders	Type of requirement	Influence	Knowledge
Council members	Remuneration, community development	9	9
Inhabitants	Housing, services, cultural activities, effective operation of the Authority	9	7
Entrepreneurs	more attractive conditions for businesses, increased promotion in the region, cooperation	9	7
Non-profit organizations	Take care of the operation, renew equipment	8	7
State	Compliance with the law, paying taxes	8	7
Employees	The right to wages, social and psychological job satisfaction and the creation of adequate working conditions	8	6
Clubs	Financial support, management of premises, renewal of equipment, the right to information, support for cultural events	5	7
Tourists	Care of local sights, municipality's promotion, tourism development	7	4
Associations of municipalities	Common projects, counselling	6	5
Suppliers	Compliance with of contracts, right to professional treatment	5	4

Source: own

Stakeholders want to obtain funds from the municipal organization to support their activities. Reasons and usage of these resources may cause conflicts between interest groups and the management of the municipality. The following table 3 shows the possible expenditure of municipal organizations from the budget that affect the satisfaction (of population) and functioning (of businesses), of the two most important stakeholder community.

TAB. 3: Two most important stakeholders in relation to the budget

Entrepreneurs	Inhabitants
equipment of industrial areas	re/construction of roads
systematic supply of land and buildings	social services
re/construction of roads	use of schools, retraining
improved waste management	improved waste management
reduction of environmental risks	reduction of environmental risks
safety	safety

Source: own

Stakeholders are classified into four groups by knowledge of their assumption and the extent and power of their influence. Then, it is possible to follow an attitude related to an efficiency of each group:

- a) ACCEPT / CONVINCE → the population, businesses, non-profit organizations, state, employees,
- b) INFLUENCE → clubs,
- c) EDUCATE → tourists, associations of municipalities,
- d) IGNORE → suppliers.

Conclusion

Analysis of stakeholders identifies and maps the individuals and groups who have or may have any interest in participating in the process of creation and implementation of the strategic document. It is appropriate to involve such interest groups that are related to the topic and strategy. The views of these groups should have a certain weight when drawing up a strategic plan. The most important stakeholders include inhabitants of municipalities and entrepreneurs who are a source of income for municipal organizations. Significant internal interest groups consist of municipality representatives, who decide on the use of financial resources and further development of a municipality. Accomplishing the mission of the municipal authority (public administration) and its objectives is largely dependent on what assumptions have been made in relation to stakeholders. The degree of satisfaction of their needs and requirements becomes a measure of the success of municipal strategic development.

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SCIENCE FUNDING AS AN OPPORTUNITY FOR SCIENCE MANAGEMENT: RESEARCH TEAM EXPANSION

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Abstract:

Management is the important element of any institutions as well as individual teams as a tool for resource management, organizing and other activities leading to efficient and effective achievement of goals and strategies of the organization. Management has an important position in research and development as so-called science management. Human resources management is one of the core areas of management. Human resources in R&D is a key element for successful solving research tasks which needs skills and knowledges of scientists. This work is focused on the development of research groups using grant funding. This article describes the trends in the development of the research team influenced by project applications and new projects in realization.

Introduction

Management as a set of management techniques, methods and procedures should be an integral part of R&D activities. Management of internal resources of each institution or sub-units is a basic prerequisite process transforming inputs into outputs (Mohelská & Pitra, 2012). We can talk about focusing or concentration the R&D towards the set goals. A prerequisite for the functioning of the transformation process is the effective use of internal resources, which are the human, material and technical, financial and informational resources (Mohelská & Pitra, 2012). Management of research organizations or even individual research team must implement strategic plans through the realization of individual activities (Boardman & Ponomariov, 2014).

This work is focused on human resources management depending on the volume and availability of financial resources for R&D. Scientists and also other research staff (technical and support staff) are key element affecting the performance of each R&D unit or organization and are necessary to achieve the milestones fulfilling defined strategy (Štemberková, Zdrálek, Matulová, Marešová & Kuča, 2015). A successful team has with appropriately defined strategy and is able to achieve the set goals becomes more

competitive. Searching and recruitment of scientists, build research teams for specific R&D tasks or projects is an important aspect for the successful achievement of milestones and obtain results which can be the basis for further projects and activities (Murayama, Nirei & Shimizu, 2015), (Mohelská, 2009).

The main task of this work is to find the connection between the personal development of the research team and financial resources, which are available to the research team and has the opportunity to use them. The research team which was chosen for this work has five-year history. This work maps the team development from its beginning until now. Chosen research team operates within a public research institution and focuses on the area of biomedicine. The research team was founded in February 2011 to carry out basic and applied research in the biomedical field. The reference period for this work is the years 2011 - 2015. The financial resources allocated for R&D staff costs are considered institutional funds and grant funds.

1. Methods, literature overview

It was analysed of the obtained data to achieve set objective of this work. For this work were used secondary data from relevant sources such as HR and projects database. This data were subsequently utilize and analysed. The research group was selected because of its knowledge throughout its existence and knowledge of the environment in which it operates. Data from different systems (HR and projects database) has been processed into the required format - tables. From these overviews were interpreted trend curves for subsequent comparison and interpretation of the obtained information.

Data collection was limited to the selected research group focused on basic and applied research in the biomedical field. The data are collected and analysed for the period from February 2011 to October 2015 with forecasts to the end of 2015. The R&D group expanded from the seven founding key researchers to the current 52 researchers (calculated only employment contract without agreements) during this reference period. The research group is composed of sub-teams, which are composed of the leaders of the teams. Generally the members of the research team are professor, associate professor, postdocs, PhD students, master students, laboratory and technical staff. Members of the team are also invited professors especially from abroad.

2. Results

The collected data were analysed in detail and then compared in order to determine whether R&D funding have a positive impact on the development of the scientific team and its sustainability. Based on the collected and analysed data can be deduced trends across workgroup during reference period (from February 2011 to the present. It is a period of almost 5 years (exactly 56 months). Indicators of the employee's number, including the amount of their working time were compiled by months in order to be able

to compare the personnel changes to the submission of project applications and new projects starts.

The number of employees (FIG. 1) shows certain periods of time, which is a significant personal development. The number of employees were significantly increase in these periods. In this context it should be noted that the budget for the research group was always planned for the calendar year by domestic research institutions and has been throughout the year unchanged. One of the goals of the research group was to minimize the impact on the budget for domestic R&D institutions. The research group is trying to retain the requirement on personal costs as a constant with tendency to seek other sources of funding. Reaching this goal has been achieved primarily through new R&D activities – new projects and partly through research contracts. The research group developed while maintaining and even lowering the budget for personal costs and the financial impact on domestic research institution budget. Personnel changes are independent of the influence of domestic research institution. Possible effects on personnel changes was searched within the R&D team based on above assumptions.

The research group was established in February 2011 with a 7 key researchers. It was necessary to stabilize the team itself in the selected areas of R&D and submit project applications to the relevant calls in the first year of the research team. The percentage increase in the average number of employees and average working time in each year is presented in the table below – TAB.1. The average number of employees annually grow by relatively high percentage rate. A significant increase in 2013 is due to launch of new projects. It was the highest number of new projects in this year in the history of the research group. Reduction of the percentage of R&D development is affected by the capacity (workspace and equipment) of research team – department.

TAB. 1: Annual % growth

	2011	2012	2013	2014	2015
Average number of employees	8	12,25	22,83	31,08	44,33
Annual % growth		53 %	86 %	36 %	43 %
Average sum of working time	3,55	6,94	11,17	10,70	14,24
Annual % growth		95 %	61 %	-4 %	33 %

Source: own processing

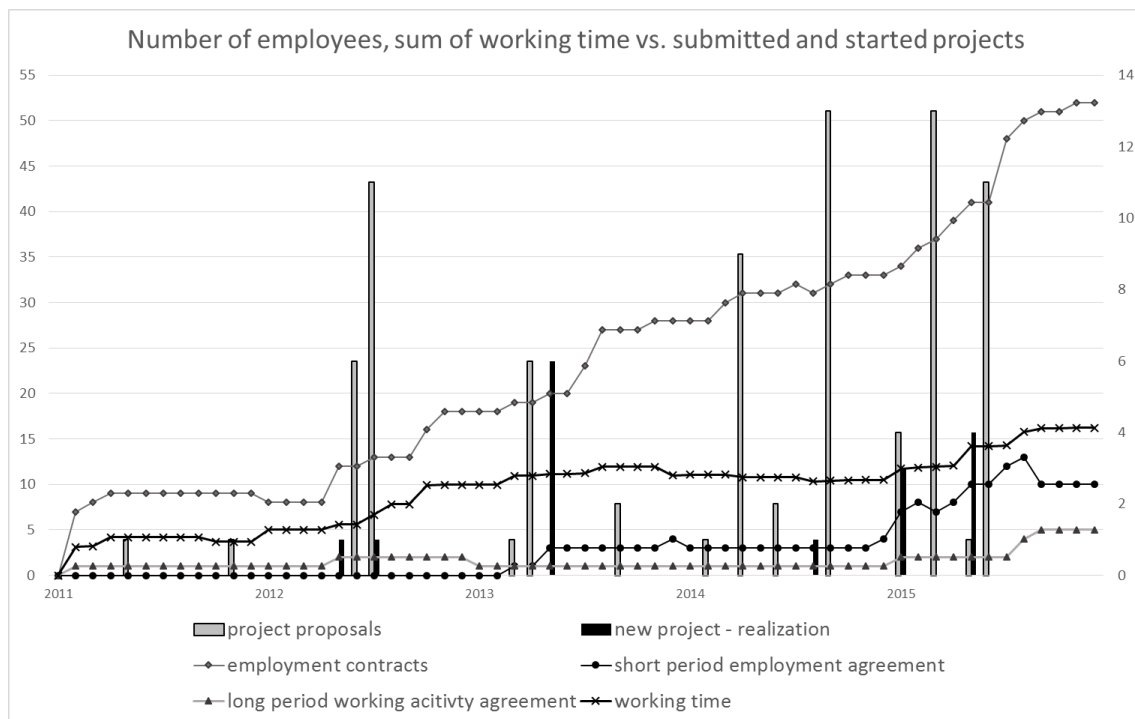
There are sum of working time at chart (FIG. 1), where is possible to show the various sum of working times in each months. The values in each months are the sum of all amounts of working time of employees. Disparity between the number of contracts (the unique number of employees) and the total working time is due to the fact that most of the workers of the research team are part-time employees. This strategy (part-time employees) has a very positive effect on so-called. Absorption capacity and scope of the

research team. There is a tendency to increase working time of employees engaged in these projects with the increasing number of new projects. It is expected that the curves number of workers and totals working time will come closer in the long term. The prerequisite for this trend is reaching the limit of capacity of this research department and a growing number of realized projects.

During the reporting period were also submitted various grant applications. Grant applications were always prepared for specific calls of relevant providers and according to research group focus. The number of grant applications are recorded on the graph below (FIG. 1). The preparation of some new grants were hired new researchers for the positions of investigators of these grants. The largest increases in the number of employees and the sum of working time can be monitored around the time of starting new projects. Researchers submitted the most grant applications as they were able to prepare considering the capacity of research team in the first year of existence.

In the following charts (FIG. 1) are compared HR trend curves with sums of submitted grant applications and sums of started new grants. Based on the analysis of HR trends and grants area can be deduced a connection between the new projects, new project proposals and changes in numbers of scientific employees. In case of newly prepared projects, there is usually growth of the number of employees in a short period before submitting the grant applications. The new realized projects have an impact on personnel changes (especially growth) since the start of project realization and further.

FIG. 1: Comparison between projects and changes in number of employees



Source: own analyse

3. Discussion

Based on the analysis, which is part of this work we can define a strategy leading to the development of the research team. An accompanying effect of personnel development is a wide scope of R&D activities in different areas or detailed focus on one topic in its developmental series so called research pipeline. We can say that size of the research team partly determines the absorption capacity (number of projects, which the group is able to prepare and solve in one moment) and its opportunities in R&D activities (especially size and number of these activities). In other words - stagnating team achieved in a short period of its maximum and is not able to realize new projects and solve more R&D tasks that could shifted the team further in the field of knowledge.

Use of grant funding opportunities has a positive effect on the development of the research team, not only for the funding of research activities but also to the development of the research team and development of the research areas (Hernandez-Gonzalez, Garcia-Moreno, Rodriguez-Garcia, Valencia-Garcia & Garcia-Sanchez, 2014).

Strategy part-time researchers whose can be shared with other teams which is based on the analysis seems to be suitable for sustained growth of research teams and their eventual consistency (institutional, national and international) and for increasing the competitiveness of R&D results (Bertolotti, Mattarelli, Vignoli & Macri, 2015). Further continuation of this research could be a closer analysis of the advantages and disadvantages of the described strategy.

Conclusion

The subject of the work was to analyse the selected research groups in terms of human resources development. Based on the evaluation of the obtained data can be defined with a particular relevance the behaviour of the research team whose aim is to develop in general. R&D is very competitive environment and the main task should be directed to the excellent results and excellence science that are comparable at the international level (Kato & Ando, 2013). Researchers are key element with their knowledges and ideas. Researches are also a key element in the development of R&D institutions and development of science in general. In the context of the R&D organization or its sub-components strategy is necessary to properly select new team members and achieve the development of the R&D organization or single team.

The subject of the work was to analyse the selected research groups in terms of human resources development. Based on the evaluation of the obtained data can be defined with a particular relevance the behaviour of the research team whose aim is to develop in general. R&D is very competitive environment and the main task should be directed to the excellent results and excellence science that are comparable at the international level. Researchers are key element with their knowledges and ideas. Researches are also a key

element in the development of R&D institutions and development of science in general. In the context of the R&D organization or its sub-components strategy is necessary to properly select new team members and achieve the development of the R&D organization or single team. Personal development should be understood as a key tool for improving the competitiveness of R&D results at international level. The positive impact of grant funding to the personal development of R&D teams is evident from the analysis and achievements of this work.

Acknowledgement:

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ETHICAL DIMENSION OF MANAGERIAL DECISION MAKING

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Keywords:

business ethics – managerial ethics – code of conduct – managerial decision making

JEL classification: I2, I3

Abstract:

Managerial ethics is reflected in managers' decision making and actions, which are based on their competence related to, among other things, ethics. Managerial ethics is nonetheless only a part of business ethics. The authors, who teach the course of Business Ethics at the Faculty of Informatics and Management, did qualitative research about managerial decision making in the Czech Republic, using frequency analysis and casuistry. Their research produced several interesting outcomes resulting in further questions about the way Czech manager behave and whether they are competent leaders.

Introduction

Managerial decision making and actions are based on the manager's expert competence related to management, individual and social psychology as well as ethics. The manager's competence can manifest itself in concrete situations (for instance, in everyday communication with subordinates, colleagues and other stakeholders) as well as in general activities (applying company policies and procedures, or even codes of conduct) of firms, corporations or institutions they lead. This contribution focuses on the typical current manager's ethical behaviour in concrete everyday situations as it is viewed by employees.

1. Methods, literature overview

Several authors claim (e.g. Velentzas & Broni, 2010) that ethical dimension in the conduct of business belongs to currently prominent management trends. Ethical dimension is often a vital part of what is commonly called Corporate Social Responsibility. Concerning managerial ethics, there are several authors focusing on this part of business ethics (e.g. Bláha & Dytrt, 2003; Dytrt, 2012) in the Czech Republic. These authors study in particular the awareness of Czech entrepreneurs about the importance of managerial ethics and their willingness to implement it in their companies. Managerial ethics is nonetheless only a part of business ethics. Several book on business ethics include chapter focusing on managerial ethics (Bláha, 2001),

(Fiala 2005). These authors often emphasize that managers wield power over their subordinates and power over other people ought to go hand in hand with respecting other human being, albeit one's subordinates. Of course, managers are accountable for the economic results but there should always be some space for sensible discussion. Other Czech authors of books on business ethics include, among others, Čaník, Řezbová & Zavřel (2005), Ševčík (2005), Šmajs et. al. (2008). These author do not discuss managerial ethics explicitly, it is however included as well as tip show to make a good code of conduct.

At the Faculty of Informatics and Management (FIM), University of hradec Králové (UHK), students of Management of Travel and Tourism may attend a course of Business Ethics. In fact, this course is compulsory for students of blended study programme (who attend classes only on several Friday afternoons and Saturday mornings), while it is optional for students of in-person instruction programmes (who have classes from Monday to Friday every week). Of course, the syllabus of Business Ethics includes managerial ethics as FIM focuses on teaching management for future managers. In the blended study programme, students attending Business Ethics get credits if they meet several requirements, which are specified below.

First, they have to study all required compulsory sources, which supplement both lectures (two six-hour classes during the summer term and a four-hour class during examination period) and the eLearning course in virtual learning environment Blackboard. Second, students analyse the sample code of conduct of a travel agency (Semrádová, 2011, 48) and determine those parts of the code which could prove to be difficult to accept in Czech travel agencies. Third, they look for essential ideas and then form apt questions about particular problem areas they find. Fourth, participants write a detailed casuistry related to a concrete problem at their workplace (blended learning study programme students usually have full-time jobs), whether and how their manager solved it, they assess the strengths and weaknesses of their manager's approach to the problem. if they disagree with their manager's actions, they should explain why they disagree, how they would solve the problem themselves, what they would do in the same way as or in a different way than the manager and give reasons. Finally, students write final essays based on compulsory sources. This essay should also show the student's approach to studied problem areas.

The above mentioned compulsory reading is quite demanding. Most students, however, are able to understand essential motifs of the text (Semrádová, 2012, 98-102). Students have to form various types of questions. First, questions about terminology and meaning (e.g. What do the terms of differential world, transversality, postmodern rationality, ethical hermeneutics mean?). In case no student know the correct answer, these questions are answered by the teacher. Second, students should ask problem questions (e.g. Why shall I be moral in this world?). These questions later provide topics for class discussion.

For their final essays, students can choose one of the following problem areas: good and bad ethical choices in managerial activities; unethical activity done in the company's interest; economic and ethical principles in company management; required qualities of the modern manager; ethical manuals, professional codes of conducts in the activities of companies, organisations and institutions; ethical audits, their types, risks and benefits; company / organisation / institution image, goodwill, trustworthiness; conflict of professional and personal interest, the role of compromise in managerial decision making; managerial malfeasance; ethical abysses in managerial activities. Students may also suggest their own topic.

The authors decided to do qualitative research. It is time-consuming but may bring more unexpected interesting results. As teachers of Business Ethics at FIM, they collected essays of almost two hundred students between 2013 and 2015 and conducted frequency analysis. Another used method was casuistry. The latter is commonly used in business ethics as David P. Schmidt (2015) maintains as he writes that 'casuistry, in ethics, (is) a case-based method of reasoning. It is particularly employed in field-specific branches of professional ethics such as business ethics and bioethics.' As regards the frequency analysis, the authors counted the incidence of ethical motifs in students' essays. First, they focused on students' approval or disapproval of their manager's solutions (see Table 1). Second, they concentrated on students reproaches against manager's behaviour (see Table 2). The aim was to collect data about managerial practices in Czech companies, which may be further studied.

2. Results

The results are based on both students' class work as well as homework. Students individually analyse a sample code of conduct, which is available in their study materials (Semrádová, 2011, 48). The results of their analyses are later used in writing their final essays and during the follow-up discussions with the teacher. The aforementioned sample code of conduct includes several requirements that students repeatedly assess as difficult to apply in the practice of Czech travel agencies.

The most significant objection relates to interfering with the employee's free time. A lot of students maintain that employees do not want to be involved in any extra activities that are excessively time-consuming and difficult-to-do as they may hinder the employees' performance of their core activities in treating clients and in the office. Another objection aims at the allegedly unacceptable practice of snitching as all cases of trespassing against the code of conduct should be reported first to the immediate superior and ultimately to the owner of the company.

Business Ethics teachers at FIM also assess the long-term results of casuistries in order to innovate the syllabus. Table 1 and Table 2 show statistical results from previous

years, namely 2013, 2014, 2015. 192 students' casuistries were included in this survey, studied, and evaluated.

TAB. 1: Students' approval of their manager's solutions

Students' evaluation of their manager's solutions of problems	number
adequate	73
agree with reservations	52
strong disapproval	67
another solution suggested	67

Source: own research

Table 1 shows how 192 students (and at the same time respondents and employees) assessed their manager's performance in solving problems. 38 per cent of these students accepted and supported their boss's solutions and 27 per cent of them agreed with their manager's choices with certain reservations. Nevertheless, 35 per cent of them expressed their strong disapproval and suggested another solution to problems.

TAB. 2: Reproaches against manager's behaviour

Reproaches against managers	number	percentage
They are arrogant	78	40.6
They are impolite, vulgar	76	39.6
They are unjust	76	39.6
They are not fair	76	39.6
They do not work hard	64	33.3
They practice malfeasance	62	32.3
They are irresponsible	62	32.3
They are incompetent	61	31.8
They side with their friends and protégés	59	30.7
They behave hysterically	57	29.7
They do not justify their decisions	54	28.1
They fail in difficult situations	48	25
They are not responsive or emphatic	41	21.3
They manipulate others	39	20.3
They provoke conflicts	27	14
They do not behave correctly	27	14
They exceed their authority	26	13.5
They do not provide feedback	23	12
They do not accept another opinion	22	11.5

They do not accept criticism	22	11.5
They enforce their own preferences	21	10.9
They misuse confidential information	17	8.9
They treat other people unfairly because of their age	11	5.7
They sexually harass other people	8	4.2
They bully other people	6	3.1
They drink alcohol at workplace	3	1.6

Source: own research

Table 2 lists the frequency of various reproaches against managers. The most criticised quality is arrogance, followed by impoliteness (even vulgarity). Managers are also condemned for their being unjust and unfair. As the students could mention more than one reproach against their managers in their casuistries, the total number of reproaches is higher than 192, which means that the number of students and the percentage shown in Table 2 do not add up to 100 per cent.

Regarding the essay topics, ninety-four final essays (the authors collected 192 of them) were devoted to ethical choices of managers, eighty-one essays discussed malpractice or ethical misconduct done in the interest of the company. In six cases, essays explored essential traits of effective managers, economic and ethical principles in company management. Three essays studied professional codes of conduct and ethical manuals. Another three treated ethical abysses in managerial practice. Two essays argued about malfeasance, another two compromise in managerial decision making, and two more essays were about ethical auditing.

Conclusion

The research shows that one third of respondents strongly disagree with their managers' approaches to solving problems. No clear conclusions can be drawn, on the other hand, this result may lead to further questions. Among others, whether the managers are competent, or about the atmosphere at the workplace.

As for the reproaches against managers, most managers are criticised for their bad behaviour or for being unfair. On the other hand, almost one third of respondents think that they are incompetent, which correlates with what was highlighted above.

The authors believe that collected data confirm that it is significant to study and discuss ethical dimension of organisational culture as it may bring some interesting insight into it. The authors' experience with teaching the course of Business Ethics shows that students, albeit those who have already started their professional careers and study only part-time in blended study programmes, understand the significance of ethical dimension at the workplace. The course of Business Ethics should therefore be inspiring

for them in their own decision making, business practice, and self-reflection as they may (have) become managers themselves.

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IMPACT OF THE SEPA PROJECT ON THE IMPLEMENTATION OF CROSS-BORDER PAYMENTS AGAINST THE EUROPEAN REGULATORY BACKGROUND

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Keywords:

SEPA – cross-border payments – internal payments – regulation – EPC

JEL classification: G 210, G 230

Abstract:

The SEPA project can be considered the third most significant domain in terms of regulation of selected financial market services, after Basel and MIFID. The submitted study aims to show the impacts of the SEPA project on the implementation of cross-border payments. A hypothesis has been set, which presumes that the SEPA project has implied or will imply also impacts on the provision of selected internal payment services. Methods of historic description, comparative analysis and deduction have been applied to attain the set objective and to prove or disprove the stipulated hypothesis.

Introduction

Adoption of Directive 97/5/EC of the European Parliament and of the Council on cross-border credit transfers and Regulation (EC) No 2560/2001 of the European Parliament and of the Council on cross-border payments in euro significantly increased the need for harmonisation of not only the euro area payment systems but also of the product portfolio and the hitherto differing practice. Against this background anew initiative was established in spring 2002 as the European Payments Council, which clearly articulated the need for creating the so-called "single euro payments area" (SEPA, hereinafter referred to as "SEPA") (Pantůčková, 2003). The introduction of EUR as of 1 January 2002 as the single currency of selected EU countries directly resulted in the necessity to standardise and, if possible, unify (or at least approximate) the procedures related to processing and implementing payment operations and the relevant instruments.

The SEPA project should be seen as an important contribution to the financial integration of Europe. The introduction of euro created necessary conditions for such integration. The success of the single currency would be incomplete, if not accompanied by the introduction of integrated payment systems, money and capital markets and a financial sector providing its services in a single market (Machala, 2006). Until the

introduction of euro as the single currency the sphere of payment operations among the EU Member States has not been subject to almost any regulation. The first generally applicable piece of legislation appeared in 1997 as Directive 97/5/EC of the European Parliament and of the Council on cross-border credit transfers. This standard constituted the first document to implement a certain level of regulation in the domain of cross-border payments. For banks the Directive brought namely clear definitions of certain requirements needed to ensure general awareness of their clients upon execution of cross-border credit transfers. These requirements included, inter alia, the following information both before and after the execution of a cross-border credit transfer:

- a) charges for the transfer,
- b) duration of the transfer,
- c) dates of debiting and crediting the transferred amount,
- d) value of the transfer,
- e) exchange rate applied to the transfer operation etc.

The Directive was followed by Regulation (EC) No 2560/2001 of the European Parliament and of the Council on cross-border payments in euro, which introduced mainly the requirement according to which the cross-border payments in euro must not been subject to charges higher than the charges applied to equal internal payments (EU, 2001). The entire regulation project had been commenced to make payments within the EU ordered by citizens and implemented by banks as simple and cheap as, for example, transfers among accounts within a single city of a particular country.

1. Methodology, research

The SEPA project can be considered the third most significant domain in terms of regulation of selected financial market services, after Basel and MIFID. The submitted study aims to show the impacts of the SEPA project on the implementation of cross-border payments. A hypothesis has been set, which presumes that "the SEPA project has implied or will imply also impacts on the provision of selected internal payment services". Methods of historic description, comparative analysis and deduction have been applied to attain the set objective and to prove or disprove the stipulated hypothesis.

The SEPA project and cross-border payments have been covered by various authors including Pantůčková (2003), Machala (2006) or Chuchvalcová (2007), whose works have been presented namely through the "Bankovníctví" monthly journal. Lately the project has also been reviewed by academics, e.g. Polouček (2013) or Schlossberger (2011, 2012, 2015), formerly Tomášek (1999). The most important foreign available information sources include in particular the webpage of the European Payments Council (EPC, 2015a) or, inter alia, Klímková (2008).

2. Creation of the EPC and the Project

The European Commission had declared that it would continue its regulation of the payment domain and the banking sector in the EU thus decided to respond to this situation. Banks announced that they even intended to assume this initiative and to proceed in compliance with the EC's intentions, however, by self-regulation. In March 2002 representatives of 42 European banks gathered to create a body called European Payments Council– EPC (hereinafter referred to as "EPC") (Chuchvalcová, 2007). This idea was further supported by the existence of the TARGET system since 1999. The system was initially prepared as a settlement scheme for large-value payments, however, in terms of the number of transactions retail payments were not negligible either. Later a clearing system for SEPA products has been developed, called STEP 2.

The mentioned banks set the latest target date for the SEPA system establishment as the end of 2010. In 2004 the scope of SEPA participating states was enlarged by the accession countries. Further it was decided to institutionalise the EPC, which had been formerly operated rather as an interest grouping. On 17 June 2004 the EPC transformed itself into a public benefit company according to the law of Belgium, the members of which included representatives of the banking sector from all the 25 EU Member States. Banks from the EEA and Switzerland had also been invited to join. Except for Liechtenstein all the addressed countries acceded to the scheme. Simultaneously also representatives of three European banking associations became members of the system. Currently the SEPA project is implemented by 28 EU Member States, 3 EEA (non-EU) countries and Switzerland. These member countries include also territories within the jurisdiction of the selected EU Member States and other territories, which joined the SEPA system (EPC, 2015b)

The EPC Plenary acts as the supreme body of the SEPA scheme and the only SEPA body with decision-making powers. Every member of the EPC Plenary is obliged to inform about any and all issues discussed at the plenary sessions and is responsible to transfer any and all information and decisions on approved standards and norms into the relevant member's national environment and to inform all relevant entities accordingly. The SEPA and its standards thus create a self-regulating operational framework for European banks, which is not legally binding and enforceable.

Also the European Central Bank (hereinafter referred to as "ECB") started to support the SEPA project. In December 2013 the ECB announced the launch of the Euro Retail Payments Board (hereinafter referred to as "ERPB"). The key general task of this new entity, which replaced the SEPA Council, is to help foster the development of an integrated, innovative and competitive market for retail payments in euro in the European Union (ECB, 2013).

3. Regulation of the SEPA Project

The European Commission declared that self-regulation failed in implementing basic SEPA products, namely the SEPA credit transfer – SCT and SEPA direct debit – SDD, therefore the Commission prepared, also to support the mentioned project, Regulation of the European Parliament and of the Council (EC) No. 924/2009 on cross-border payments in the Community (hereinafter referred to as "Regulation No. 924"). The Regulation governs cross-border transfers and, in addition, it directly affects the SEPA project (e.g. certain provisions on direct debits refer to SEPA). In 2012 the EU almost finalised its regulatory efforts by publishing another Regulation, namely Regulation (EU) No 260/2012 of the European Parliament and of the Council establishing technical and business requirements for credit transfers and direct debits in euro and amending Regulation (EC) No 924/2009 (hereinafter referred to as "Regulation No. 260").

Regulation No. 260 in its Article 5 reiterated that "self-regulatory efforts of the European banking sector through the SEPA initiative have not proven sufficient to drive forward concerted migration to Union-wide schemes for credit transfers and direct debits on both the supply and the demand side" (EU, 2012). Therefore, the EU decided to support the SEPA project directly, i.e. to regulate not only the SEPA transactions within the project, thus also all the entities voluntarily participating in the project, but all the cross-border transfers in euros and, eventually, all the other cross-border transfers. Due to this, Regulation No. 260 was called an "end-date" Regulation, which stipulated a final date for the implementation of SEPA direct debit and credit transactions (SEPA direct debit here in after referred to as "SDD" and SEPA credit transfer here in after referred to as "SCT"). However, Regulation No. 260 did not address legislative measures to regulate the third basic SEPA product, payment transactions through payment cards.

Regulation No. 260 supplemented reachability with respect to direct debits set by Regulation No. 924 and reachability of credit transfers and again emphasized the reachability of direct debits. Further it set the so-called interoperability. In general the interoperability may be characterised as an obligation to make payment schemes to be used by payment service providers for the purposes of carrying out credit transfers and direct debits compliant with the principle stipulating that rules for such schemes must be the same for national and cross-border credit transfer and direct debit transactions within the Union.

As stated above, Regulation No. 260 set deadlines for a coherent implementation of national and cross-border credit transfer and direct debit transactions for the euro area countries as 14 February 2014. However, due to insufficient preparedness of certain states this date could be postponed, as stated in the additional Regulation of the European Parliament and of the Council (EU) No. 248/2014, amending Regulation (EU) No 260/2012 as regards the migration to Union-wide credit transfers and direct debits.

The deadline was set as 1 August 2014 and referred to a unified data format of the schemes set for credit transfers and direct debits in the individual states of the euro area.

4. SEPA Products

SCT, SDD and SEPA payment card have been available to members of the SEPA project since 2008 and 2009. The EU regulates two of them, SCT and SDD, through its legal support upon the implementation thereof. Countries, which implemented the euro, have been obliged to provide these two products in internal and cross-border payment transactions according to the same technological principles and under equal terms since August 2014 (or later, on the basis of an exception awarded). In this case we do not speak about member banks in the SEPA projects, but about SEPA countries. In these countries basically all payment service providers that offer credit transfers and direct debits should implement these products according to SEPA rules, because these transactions constitute europayments. Non-euro area countries, which do not use euro as their national currency, should according to Article 16(2), which mentions payment service providers that offer payment services denominated in euro and that are located in a Member State which does not have the euro as its currency, e.g. the Czech Republic, ensure reachability of euro payments, not later than on 31 October 2016. In practice this means that by the mentioned date all entities offering payment services in euro must be able to clear also cross-border credit transfers for the benefit of their client and respond to direct debit payments in euro (e.g. also to reject a direct debit transaction, if the client refuses the direct debit). Until the set date a voluntary approach to SEPA products may be applied based on an accession agreement. According to paragraph 8 of the same Article, payment service providers located in, and payment service users making use of a payment service in a Member State which does not have the euro as its currency shall comply with the interoperability requirements and the rules of Regulation No. 260 for credit transfers and direct debits including required elements of payment orders set in the Annex to the Regulation. However, this requirement again applies to payments made in euro.

Table 1 states the number of entities offering the SEPA credit transfer and the SEPA direct debit in its two basic forms, both for the whole EEA and as the number of entities currently offering these products in the Czech Republic. After the above mentioned deadlines all the remaining payment service providers (subject to exceptions for entities providing limited services) must comply both with the reachability and interoperability requirements. This will probably mean an increase in the number of providers, because the SEPA will be obligatory for all the providers at least in terms of their reachability.

TAB. 1: Number of SEPA providers

Product	Total number of providers in EEA	Of which, total number of providers in the Czech Republic
SEPA Credit Transfer	4 521	14
Core SEPA Direct Debit	3 776	4
B2B SEPA Direct Debit	3 349	2

Source:EPC as at 15 April 2015, available at http://epc.cbnet.info/content/adherence_database

5. Discussion – SEPA and links to the territorial aspect

On the basis of the SEPA project rules given by Regulation No. 924 and Regulation No. 260 and the analysis and comparison thereof the following conclusions can be deduced:

Until February and August 2014, respectively, products provided by the SEPA project on the basis of a payment order and a direct debit instruction could be considered cross-border payment instruments, however, only for the EUR currency. Cross-border payments constitute a wider category and include payments within the European Economic Area (here in after referred to as "EEA") in the EEA currencies.

After August 2014 also credit transfers and direct debits within the national payment system must be treated as SEPA products, since under Regulation No. 260 Member States of the European Monetary Union(hereinafter referred to as "EMU") must be comprehensively interoperable, i.e. both in internal and cross-border payment operations.

For countries outside the EMU SEPA products are available only for cross-border transfers, as their interoperability and reachability is only required for those payments. Because the euro is not their domestic currency, these states cannot be reasonably required to implement these principles also to internal transfers and direct debits.

Deadlines in the sphere of cross-border payments are given by Directive 2007/64/EC of the European Parliament and of the Council on payment services in the internal market (EU, 2007).

The question is *how the target of the SEPA project*, which lies in the unification and harmonisation of national and cross-border payment operations performed in euro, *will be attained in the countries that will refrain from introducing the euro*. In such countries clients of payment service providers, mostly banks, may still use up to four different formats of payment orders –internal credit transfer/collection order, SCT or SDD order, cross-border credit transfer/collection order in a non-euro currency and foreign order/collection e.g. for non-EEA currency (e.g. USD).

Conclusion

The aim of this study was to show how the SEPA project had affected the implementation of cross-border payment transactions. Based on the defined methods it can be stated that the target has been met. The SEPA project is a very important achievement for the gradual harmonisation and standardisation of selected payment services across the EEA. Although the project has been based on self-regulation of its members upon creating and implementing these services, since 2009 a significant contribution from the EU can be seen in terms of its regulation. The European Union has instruments – mostly legislative ones – at its disposal to promote ideas, which the project has not been able to implement directly, as originally planned. In particular, the impact of Regulation No. 260 unifies credit transfers and direct debits – the two core payment instruments – across the EEA, if denominated in euro, to the same technology platform. In practice this will mean that customers will not have to think about whether they pay or they receive payments within a single EEA country in euro or whether the transaction will be routed to another EEA country. It can be concluded that on the basis of comparative analysis of regulatory sources and on the basis of deduction *the set hypothesis has been confirmed, however, for entities established in the EMU only.*

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THE DEPENDENCE OF THE COMPANY'S INDEBTEDNESS ON INDUSTRY BRANCHES

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Keywords:

indebtedness – debt ratio – bankruptcy – insolvency – debt ratio on industry sectors

Abstract:

During the economic recession was shown how quickly some companies got into insolvency and bankruptcy. At the time of bankruptcy and just before indebtedness is a basic internal risk factor indebtedness of the company. It works well for most of bankruptcy model, but is not the most important factor. With this in mind, it was questionable where the fine lines between effective financing and the problems arising because of excessive debt. This article aims to find a typical debt in industries and show the differences between sectors both in the Czech Republic and the international context. For this purpose, there was used data sources from both the Czech Republic and from international databases.

Introduction

Reasonable debt is one of the factors improving prosperity. Sufficiently powerful enterprises, which have higher EBIT than the EBIT indifferent (Kislingerová, 2010) when using debt capital raised through financial leverage return on equity. But conversely, if the company is not powerful enough, debt is the cause of the negative impact of financial leverage and return on equity (ROE) decreases. In the event when CAPEX is higher than OPEX the company will have a loss. Repeated loss may reduce firm equity enough to be threatened by over-indebtedness and bankruptcy, and in the worst case go bankrupt. Indebtedness is very important from the point of view of the future of the company and it is questionable whether it is generally possible to draw the line when it is still OK, and when it becomes a problem. There are a number of auxiliary rules, which are certainly worth to follow in reducing risk. These include the golden balance rule, which recommends aligning timeframes bound assets and capital or rule of balancing the risk that recommended that equity capital was higher than debt (Synek, 2009). The problem is that the risk is closely related to yields, so the elimination of risk is also to reduce the potential yield. Debt and return on capital are therefore parts of practically all the most famous bankruptcy indicators (as Altmann, IN indicators, Králíček, Bonita, PAN and so on) see (Čámská, 2015). Now the golden balance follows the rules but the fact that the debt ratio will vary depending on the industry, at least according to the operating risks of the operating lever (Synek, 2011).

Capital-intensive industries can use more long-term capital, without affecting their financial health if they have sufficient profitability, and this is then reflected in the use of capital debt.

1. Methods, literature overview

Also indebtedness or financial leverage are already dealt with in the history of many authors who performed an international comparison (Shamsur, 2012) or even development over time in selected states. Typically, these work but watch the economy countries as a whole without affecting the claims of individual sectors. The aim of this article was to show the differences between sectors and highlight the fact that even when looking at sectoral specificities, there may be differences. First and foremost, we are using the database from Czech statistical organization published on sites Ministry for Trade and Industry (MPO, 2015) investigated the debt (long-term debt in sectors according to the classification CZ NACE). This will be marked in sectors with the greatest leverage and compared with the probability of bankruptcy in individual sectors. For this purpose is used the correlation coefficient measuring the relationship between average indebtedness and share of companies after bankruptcy in different sectors. Furthermore, based on the Bloomberg database drawn from (Damodaran, 2015) will be raised indebtedness of companies in the US, Europe and Japan, were chosen deliberately developed economies of the world. Using pairwise comparison of correlation index is evaluated dependence debt to the business sector.

2. Results

Define the debt as a share of debt sources in total capital resources of the company, therefore

$$\text{Debt ratio} = \text{Debt} / \text{Assets} \quad (1)$$

2.1. The Indebtedness in Czech companies

At Czech companies (using data from year 2014 and 2013) is the highest debt in the main D according to the CZ NACE, ie. ACCOMMODATION AND FOOD SERVICE, namely 67%. Given the burden of most companies in the sector with high traffic flows, it is a logical outcome, while the lowest debt in the group A Agriculture to 3%. Selected results for the groups are in Tab. 1. It is interesting that the stability of the debt grows at a lower level of debt, but would be evaluated as an independent and most stable sectors in the industry.

If we look at the Czech economy in the detailed division of sector, it is possible to divide into quartiles included among the industries almost (and stable over time) without debt (0-8%) following sectors: information service activities, furniture

production, publishing activities, rubber and plastic products, production of machinery and equipment and production of transport equipment.

The industry is slightly indebted (9-14% and stable over time): Manufacture of basic metals, fabricated metal products, support activities for transportation, telecommunication business, civil engineering, specialised construction activities, specialized mining and quarrying, manufacture of basic pharmaceutical products and pharmaceutical preparations and manufacture of chemicals and chemical products.

The industry adequately indebted (15-24%, stable over time): wholesale trade, except of motor vehicles, waste, purification and distribution of water, manufacture of other non-metallic mineral products, of fabricated metal products, except machinery and equipment, manufacture of paper and paper products, mining of coal and production of motor vehicles (except motorcycles, trailers and semitrailers).

The industry indebted (26-70% and stable over time): production of food and beverage, wholesale and retail trade and repair of motor vehicles, advertising and market research, real estate activities, computer, electronic and optical equipment, accommodation and air transport.

TAB. 1: Debt ratio in Czech companies (for branches)

NACE	Sector	1.-4.Q.13	1.-4.Q.14
A	Agriculture, Forestry and Fisheries	3%	3%
N	Administrative and support activities	17%	10%
J	Information and Communication	13%	12%
E	Water supply	16%	15%
G	Wholesale and retail trade, repair of motor vehicles	17%	15%
B	Mining and Quarrying	20%	15%
C	Manufacturing	18%	16%
	Industry (B+C+D+E)	22%	19%
F	Construction	17%	19%
	Nonfinancial corporations (without K)	22%	21%
D	Electricity, Gas, Steam and Air Conditioning	28%	23%
	Selected services (G to N without K)	22%	25%
H	Transportation and Storage	18%	28%
M	Professional, Scientific and Technical activities	26%	31%
	Other services (P to S)	37%	36%
L	Real estate activities	37%	37%
I	Accommodation and Food services	67%	57%

Source: own processing

It may generally be stated, that companies in the Czech Republic have rather conservative financing, debt above 50% in only two sectors - see explanation above,

accommodation and air transport. In the air transport the problem is (except that it is a very capital intensive industry) by the lack of statistical processing companies - there are only a few companies in the industry.

Comparing sector indebtedness and the degree of bankruptcy in 2012 for group described in Tab. 1 compared by (Čámská, 2013) shows a very low level of interdependence, plus negative. The correlation coefficient is -0.042. Reasonable debt itself is not the cause of bankruptcy.

2.2. The indebtedness of companies in the developed parts of the world

For evaluation in Europe, USA and Japan is used a database of Damodaran, year 2014. In Tab. 2 we can see the summary results for individual markets, it is clear that the funding is much less conservative than in the CR.

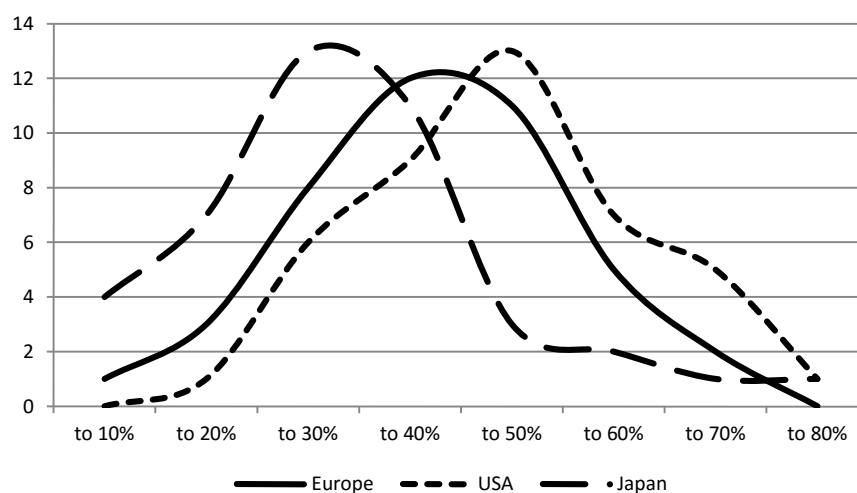
TAB. 2: Debt ratio in Europe, USA and Japan (for all branches)

Debt ratio	Europe	USA	Japan
minimum	10%	13%	0%
maximum	87%	99%	92%
weight average	65%	62%	57%

Source: own processing

It can be said that the US is the least conservative financing, which proves particularly value for Tobacco (99%). For further processing were excluded sectors, the formed less than 20 companies (as such the US, Europe and Japan).

FIG. 1: Distribution by sector indebtedness



Source: own processing

Distribution by sector indebtedness is shown in Fig. 1 and it is visible that the European market has a symmetrical distribution. US and Japan markets have the skewness - tend more to the deviation to a lesser or greater debt ratio. Indebtedness sectors in different parts of the world show significant differences, as shown the Tab. 3 and Tab 4.

TAB. 3: The sector with low debt ratio (< 20%)

Europe	USA	Japan
Electronics	Electronics	Advertising
Homebuilding		Computers/Peripherals
Semiconductor Equip		Drugs (Biotechnology)
Software		Drugs (Pharmaceutical)
		Entertainment
		Furn/Home Furnishings
		Household Products
		Chemical (Specialty)
		Publishing & Newspapers
		Software
		Telecom. Equipment

Source: own processing

TAB. 4: The sector with high debt ratio (> 50 %)

Europe	USA	Japan
Banks (Regional)	Advertising	Oilfield Svcs/Equip.
Engineering/Construction	Computer Services	Paper/Forest Products
Entertainment	Construction Supplies	Power
Real Estate	Environmental & Waste	Real Estate
Recreation	Hotel/Gaming	
Restaurant/Dining	Packaging & Container	
Trucking	Paper/Forest Products	
	Power	
	R.E.I.T.	
	Real Estate	
	Restaurant/Dining	
	Trucking	

Source: own processing

The markets have very little in common, as evidenced by the correlation indexes that between each pair of markets show weak dependence (correlation 0.34 to 0.37). Indebtedness in the sectors depended not only on the company's preferences, but also the preferences of creditors and those in various economies differ.

3. Discussion

A different mix of capital structures depending on the industry is nothing surprising, what is interesting is the low dispersion values in sectors compared to markets in Europe, USA and Japan. This may be contributed to the increasingly negative perception of debt and risk. Almost zero correlation between indebtedness in the sector and share bankrupting companies in the sector is surprising. Two factors affect it. Overall, the low indebtedness of the company does not limit the right - the source of risk for Czech companies are more at risk than the financial business. Indebtedness is also just one of several factors that come into bankruptcy models. (Čámská, 2015) examined 39 models used in the transition economies and 14 models of all indebtedness as input didn't apply. Indebtedness itself can't be considered as a risk factor. The problem is that the company uses lender's capital for larger investments, ie. For the purpose of financing the future knowing what the future holds. A bad investment decision in respect to indebtedness is an issue of survival.

Conclusion

The article showed that the capital structure is just one of many aspect of management companies. Although the company affects the financial perspective, it may do so positively and negatively, because the decision on the sensitive issue of debt. The economic recession had an impact on the shift towards conservative financing, particularly in the Czech Republic, the level of indebtedness in the sector is very low. It is interesting that there is no correlation between debt and bankruptcies in the industry sectors. Indebtedness of individual sectors varies widely in space - the correlation between sector indebtedness in the Czech Republic, Europe, USA and Japan is very weak. Conversely, indebtedness in various sectors is relatively stable over time. This finding makes sense since neither individual firms do not change their capital structure in a short period, because it is very difficult and at the same time is an element of possible instability.

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THE GUESTS' SATISFACTION SPECIFICS IN THE HOTEL INDUSTRY

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Keywords:

accommodation – customer – satisfaction – service

JEL classification: L83, Q56, Z32

Abstract:

The development of accommodation facilities has been currently accompanied with the growth of customers' emphasis on the quality and structure of the additional services. Customers' satisfaction with services in tourism is thus one of the important factors affecting the level of sales and profits, prosperity, position in the competitive environment, etc. The paper is focused on the guests' satisfaction in the theoretical background. In this context, it presents the guests' satisfaction case study.

Introduction

The hotel industry, in particular, and all businesses service which depend on building long term relationship need to concentrate on sustaining customer loyalty. In this respect, loyalty is greatly influenced by service quality. As such, hotels often invest a lot of financial expenses in managing their relationships with guests and maintaining quality to ensure that customers whose loyalty is in the short term will continue to be loyal in the long term (Al-Rousan & Badaruddin, 2010).

1. Guests' satisfaction

The services for customers are provided by employees of the accommodation facilities and at the same time they are in constant contact with customers. It is rather an exception if a customer who stays in accommodation facility comes into contact with management. We agree that it is a paradox when guests who hold high posts in their companies encounter during their entire stay only employees who are often not even on middle management level. Therefore receptionists, chambermaids, cleaning ladies and stewarding have very important functions although these job levels require low limit of education and low limit of experience (Kiráľová, 2002). Many managers agree that guests should experience added value that they did not primarily expect for their money but they received it. If they received added value, they are motivated to come again to the accommodation facility. Yasin & Zimmerer (1995) state that the accommodation facilities which implement successful quality programs (hotel standards, ISO Standards or Total Quality Management) not only have greater customer satisfaction. TQM is the

highest level of the quality and describes a management approach to long term success through customer satisfaction. In a TQM effort, all members of the accommodation facility participate in improving processes, products, services, and the culture in which they work.

It is necessary to realize that a complaint is for providing high quality services beneficial. Long (2006, In Belešová 2009) says that only 4% of dissatisfied customers complain directly in the accommodation facility. Dissatisfied customers talk about their negative experience approximately to 10 family relatives, friends and even foreigners. 13 % of them share it later with another 20 people. Eventually, up to 1,560 people could be informed about one negative experience. Currently, there is a time of information and communication technology, to share negative experience via social networks such as Facebook or Twitter is the easiest and fastest way among friends.

There are many models which express the basis of customers' satisfaction. These models do not exclude themselves but complement each other. At the same time it means that customer satisfaction is not only a result but specific process (Gúčík, 2007). It does not only serve as detection of customer satisfaction level, but also as a tool for arrangement of establishment which need to be accepted to improve situation in the accommodation facilities (Zeithaml, Bitner & Gremler, 2006). To the best-known models and indicators of customer satisfaction belong models as ACSI and ECSI, model GAP, model KANO and model of possible reactions.

The aim of this paper is to emphasize the importance of the customer satisfaction and customer orientation in the accommodation facilities. Theoretical findings will be presented through a case study of the Spanish hotel in the Economy class which is situated on the Costa del Maresme coast. The hotel is used mainly by Dutch, British and German clientele. There were used primary data collected by the questionnaire technique. The questionnaires were prepared in four different languages – Czech, German, English, and Spanish. The total number of the printed questionnaires was 200 but Czech version of questionnaire was not answered at all. Most of the questionnaires in English were not completed well and therefore we did not include them in the research. 134 foreign guests took part in this questionnaire survey and filled up the questionnaires correctly. Questionnaire consisted of 14 semi-opened and opened questions, where respondent was supposed to express his/her point of view; and scale questions when respondent evaluated services particular accommodation facilities with the help of Likert Scale. Closed, dichotomic and selective questions were also used. Secondary data were also used there. The sources of them were professional books and periodical literature, and scientific articles available online. When processing this essay, we used the methods of scientific work, particularly method of analysis and statistical methods.

2. Guests' satisfaction case study

For accommodation facilities is very important to monitor the guests' satisfaction and reach also their satisfaction because it is more expensive to acquire new customers than to keep existing ones. Accommodation facilities should strive to maintain as much as possible satisfied, regular and loyal guests who will spread the good name of accommodation facility.

The town of Calella is characterized by a lively and cosmopolitan city with a typical Mediterranean climate and is located about 60 km from Barcelona and Girona. In both cities, there are the major airports providing transportation to several states. The center of the town goes through a large pedestrian shopping area, pleasant green spaces and a wide range of accommodation facilities. This small town has over 14,000 beds in the individual accommodation facilities. Every year the city hosts approximately 250,000 tourists from Europe, especially from Germany and Great Britain (calella.cat, 2015). Calella has a total of 46 different types of accommodation facilities from the campsites up to hotels in the First Class superior. There are 9 apartments, 5 hostels, 2 campsites, 1 guest house and 29 hotels (8 hotels in the Economy class, 16 hotels in the Standard class, and 5 First Class hotels).

As we mentioned above, 134 foreign guests took part in this questionnaire survey. The main age group represented respondents aged 31 to 40 (26%), younger than 18 (25%), and from 18 to 30 years (25%).

The most common reason for visiting Costa del Maresme coast was recreation, stated by 42% respondents. Other reasons were unspecified, we noted by 28% of the respondents. Culture and sightseeing visited 17% of the respondents, other 7% of the respondents reported in the questionnaires sport activities and the remaining 6% mentioned business trips. Respondents received information about accommodation facilities from different sources, the most frequent sources of information are the booking websites (47% of the respondents). The same 16% value came from personal experience, friends and family recommendations, and other options. Only 5% of the respondents visited the website of the accommodation facility and received information from this unique opportunity. Price, which appeared in 34% of the answers, is often mentioned as a decisive criterion for selecting not only accommodation facility but also for the products and other services. Preference in the localization noted 28% of the respondents, previous positive experience (13%), good name of the accommodation facility (10%), and discount on accommodation and other reasons were both mentioned by only 7% of the respondents.

We noted the majority of positive responses about the guests' satisfaction with accommodation services. Regarding the localization of the accommodation facility there were 95% of the respondents who expressed their opinions positively. 85% of the respondents were satisfied by the room reservation process, whether the receptionist

was polite and helpful, only 8% of the respondents were dissatisfied with this service. With service check-in there were not so much problems, as 89% of the respondents were satisfied, only 6% of the respondents expressed their opposite view. Regarding the reception staff behavior, in most cases the respondents were satisfied (88%). Even greater was guests' satisfaction with the behavior of maids (89%). So we can conclude that the results of the evaluation were above average. Overall, in the professionalism of the staff there we noted positive results; more than 3/4 (76%) of the respondents were satisfied, only 9% of the respondents were dissatisfied. More than half (58%) of the respondents were satisfied with the room size, almost one quarter (24%) of the respondents were dissatisfied. Furthermore, the respondents were satisfied with the lighting in the room (54% and 26% dissatisfied), with air conditioning and heating (49% and 40% dissatisfied), with TV offer (39% and 45% dissatisfied), with storage space (74% and 10% dissatisfied) with a cleanliness of the room (82%) and bathroom (85%). 79% of the respondents expressed their satisfaction with the cleaning services of the room and bathroom, only 7% of the respondents were dissatisfied. Nearly 3/4 of the respondents (72%) were satisfied with the check-out service, 12% of the respondents stated the opposite opinion. The ratio of price and quality of the room appraised 70% of the respondents. 11% of the respondents were not satisfied with this ratio and required larger room, better and newer room equipment or lower price for accommodation (table 1).

TAB. 1: Rating of the accommodation services

Criteria	very satisfied	satisfied	neutral/ not sure	dissatisfied	very dissatisfied
Localization	45	50	0	0	5
Room reservation	49	36	7	4	4
Check-in	35	54	5	6	0
Behavior of staff (reception)	39	49	7	4	1
Behavior of maids	38	51	7	4	0
Professionalism of staff	49	27	15	8	1
Room size	14	44	18	19	5
Room equipment	7	42	35	10	6
Lighting	10	44	20	19	7
Air conditioning/heating	16	33	11	10	30
TV offer	9	30	16	20	25
Storage spaces	16	58	16	10	0
Room cleanliness	29	53	13	5	0
Bathroom Cleanliness	36	49	6	6	3
Check-out	45	27	16	2	10
Room rate vs. quality	28	42	18	9	2

Source: Own elaboration.

With the catering service, respondents were mostly satisfied; we noted a minimum of negative responses. We found out that 79% of the respondents were satisfied with the

breakfast offer and only 11% of the respondents were not fulfilled. We noted very similar results with the lunch offer (74% satisfaction and 17% dissatisfaction), the dinner offer (82% satisfaction and 11% dissatisfaction), and the bar offer (80% satisfaction and 13% dissatisfaction). The cleanliness of the restaurant (91%) and bar (83%), as well as the cutlery cleanliness (81%), reached approximately the similar results of the respondents. The guests' dissatisfaction with food (11%) and beverages (9%) quality was also the same. The ratio of price and quality of beverages was higher (80%) than food (63%; table 2).

TAB. 2: Rating of the catering services

Criteria	very satisfied	satisfied	neutral/ not sure	dissatisfied	very dissatisfied
Breakfast offer	22	57	10	7	4
Lunch offer	35	39	9	7	10
Dinner offer	25	57	7	8	3
Bar offer	34	46	7	4	9
Restaurant cleanliness	39	52	4	5	0
Bar cleanliness	43	40	14	3	0
Cutlery cleanliness	40	41	4	4	11
Professionalism of staff	42	34	15	5	4
Food quality	21	48	20	7	4
Beverages quality	26	54	11	6	3
Price of food vs. quality	33	30	15	14	8
Price of beverages vs. quality	26	54	11	6	3

Source: Own elaboration.

The hotel offers a very small number of the additional services. 14% of the respondents rated a billiard as an excellent additional service. A good level of the billiard indicated 56% of the respondents. A swimming pool as one of these services, noted only 6% of the respondents as an excellent additional service, 37% of the respondents were satisfied. 60% of the respondents were satisfied with entertainment services. With Wi-Fi connection were satisfied 70% of the respondents in total. 29% of the respondents expressed their negative opinions (table 3).

TAB. 3: Rating of the additional services

Criteria	very satisfied	satisfied	neutral/ not sure	dissatisfied	very dissatisfied
Billiard	14	56	14	16	0
Swimming pool	6	37	32	10	15
Entertainment services	16	44	27	6	7
Wi-Fi connection	16	54	1	9	20

Source: Own elaboration.

3. Discussion

Still more and more potential customers in the international tourism are looking for accommodation for their holiday or business trip themselves through the Internet. This option saves the customer time spent while visiting the tour operators and travel agencies and money. Purchase of the accommodation via Internet is cheaper and the customer can take advantage of various discounts. Website reservation portals provide a clear overview of the accommodation facilities and their availability in customers' final destination.

We assume that these reasons were the main guideline for 46% of the respondents who ordered their vacation via booking portals. The hotel belongs to the Economy class which makes it not great prestige in comparison with other accommodation facilities but offers a higher quality at a lower price to its clients. So, we can state that price became the reason for choosing the hotel for 34% of the respondents, while 28% were assessed with a maximum satisfaction. Some rooms at the hotel have not been renovated, which was also mentioned as a deficiency in many questionnaires. The hotel tries to compensate these deficiencies on a personal approach to guests and professionalism. The hotel also ensures the quality of provided food and drinks. The menu at the restaurant is not large but quality is more than adequate. Drinks in the hotel bar and restaurant are served exclusively in jars apart from other hotel chains which is served in the plastic cups. Cleanliness of all parts of the hotel was also evaluated very positively.

The swimming pool was assessed more negatively and 25% of the respondents noted this pool as the biggest lack in the hotel. 32% of the respondents did not use the pool during their stay and preferred swimming in the sea. The pool size and its area do not match the number of the guests at the hotel. In this case, unfortunately we cannot recommend any improvements. Area, where the hotel is located, does not allow any reconstruction. Another big disadvantage is the air conditioning in the hotel and also in the room, 40% of the respondents were dissatisfied totally. In the questionnaires, we saw this deficiency, especially in months July and August. In September the respondents assessed the air conditioning at a good level due to better climate.

13% of the respondents would appreciate a minibar or refrigerator in the room. However, this is contrary to the idea of the hotel management to attract the largest possible number of visitors to the hotel bar. If there is a cooling device in each room, many customers would not use the services of the hotel bar and the hotel would have lower revenues. Guests visiting the hotel are mostly foreigners and use internet mainly for connection with families or search for some information related to their visited destination. It would be good to consider the possibility of improving hotel services. Until now, the hotel provides free Internet access from the reception area and bar to its guests. The hotel could charge the Wi-Fi connection from the room. The guest

will have a choice of two Wi-Fi connection options; the first one will be for a small fee directly in the room, the second one will be free of charge in the lobby area.

Conclusion

In the past, it was important for the accommodation facility to accommodate all the guests. Currently, in addition to the accommodation and catering services, the guest needs a broad range of the additional services. The guest is more experienced and expects the quality. If the guest is satisfied, he does not complain because he considers that it is useless and nobody pays any attention to his complaints. The mistake is that the receptionist thinks that everything was fine, if he does not register a complaint. We note that it is important to focus on the guest's satisfaction than any negative event will decide whether to return to the accommodation facility and become a loyal guest or not.

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USING OF CASHLESS PAYMENT CARDS IN CZECH REPUBLIC AND POLAND

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Abstract:

The level of use of payment cards in the "old" and "new" EU Member States has started to emerge in the past decade. The countries of Eastern Europe are even in some way at the forefront of using of these modern forms of payment. Recently, there have been several surveys made by leading card companies or by independent Internet sources, which state Poland and the Czech Republic as European leaders in contactless payment by credit card. The article summarize the results of several such studies and compares them with author`s comparative analysis of using of contactless payment cards in both countries. The results of the author`s own analysis are consistent with the results of independent sources.

Introduction

Companies engaged in the development and operations of payment card systems (especially Visa and MasterCard) are still developing new technologies to improve the current card systems. It is a necessary response to competition from other forms of electronic payments, such as online e-payment or mobile payment. The rapid development of contactless payment includes the great opportunities for innovation of conventional payment cards. This method of card transactions can be defined as follows (the definition is processed by using material available on the website of the Austrian central bank, 2015):

“In contactless payments, the transaction data between cards and payment terminals are exchanged by means of wireless noncontact communication technology. Such waving and touching technology means that customers no longer need to insert cards into terminal, they simply have to hold them a few centimeters away from the terminal to be read. More specifically, the transactions use near field communication (NFC) technology, an extension of radio frequency identification (RFID). NFC allows for wireless data transmission between electronic devices over a short distance of up to roughly 4 cm. Payments of less than EUR 20 to EUR 25 do not require entry of the

four-digit PIN code. Contactless payments above this amount require entry of the PIN code, however”.

The large credit card schemes MasterCard and VISA already offer contactless payment products. Their official position is that making contactless payments via smart cards is widespread in the U.S.A. and in Asia but has not been introduced on a large scale in Europe. But - the results of partial surveys published not only by both biggest card companies, but by independent sources, too, in last two years do not confirm always the last sentence of the previous paragraph - on the contrary, they are sometimes in direct contradiction. This fact will be explored in the following sections of the article. Special attention will be given to the situation in the Czech Republic and Poland.

1. Sources of former information

Some information about important moments in evaluation of using of contactless card in the world is possible to find in information sources, which are achievable on open sources on the Internet. This information gives us an idea of the extension of this form of payment in individual countries.

Some interesting information about contactless payments was published on specialized web platform Let's Talk Payments (LTP), which was launched in August 2013 as an information resource for the industry and which since then has reported on industry news every single day, and continues to be the fastest growing payments and digital commerce news destination globally. As was on server LTP published (Ray, 2015), over 2.5 million merchants accept MasterCard contactless payments across 66 countries. Research from Informa reveals that more than 90% of the total global value of transactions from mobile NFC payments was generated in the Asia Pacific region, although Europe and Canada have also significantly scaled up in terms of NFC payments. The contactless payments situation was analysed in some countries that are driving the overall market. Between the ten analysed countries there were only three from Europe – Poland, Sweden and the United Kingdom. As this LTP survey processed by Ray (2015) proved, nine Polish banks have confirmed plans to commercially launch Visa Cloud-based Mobile Contactless Payments at the beginning of this year, reinforcing Poland's reputation as a hotbed for innovation in digital payment services. Poland has been extremely enthusiastic in embracing contactless payment technology and is already Visa's largest market in Europe in terms of contactless transaction volumes. Close to 70% of Visa cards in the market have contactless functionality, with the technology accounting for more than 40% of all Visa payments in Poland. More than 75% of all in-store Point of Sale (POS) terminals support contactless payment, with plans in place for all Polish POS terminals to support the technology by the end of 2017.

The Danish company Nets is specialised in managing digital values through delivery of strategic consulting and IT solutions. The Dankort is most widely used and the least expensive national payment card in Denmark. As Nets in the press release (2014) said, as a result of an agreement just entered into involving the retail trade, the banks and Nets, the Dankort will be equipped with contactless functionality as of summer 2015. This paves the way for quicker payments for the merchants, and added convenience for consumers. "This agreement represents an important step into the future for the Dankort in terms of remaining a strong and preferred payment option for people in Denmark. This really matters to the Danish public, and it is important to the retail trade, too", are according to Henrik Hyltoft, Market Director of the Danish Chamber of Commerce.

Information about prepared chase in contacts between Swedish bank ICA and its clients was published on specialized web page Pymnts.com at the end of 2014. As Pymnts.com Publisher (2014) said, the Swedish bank ICA will issue MasterCard contactless payment cards to more than 500,000 customers in the first contactless rollout in Sweden, the bank announced on Tuesday Dec.9th, 2014. The bank is owned by Sweden's largest grocery retailer, the 2,300-store ICA chain, which said it already has NFC-based contactless readers in all its Swedish stores. ICA also operates stores in Norway, Estonia, Latvia and Lithuania. ICA said it began testing the cards a few weeks ago, and MasterCard is working with the bank and retailer on the rollout. In Sweden contactless payments existed before 2015 – it represented a €9.5 billion opportunity in Sweden, but it was realized by mobile payments, not by card payments.

As the VISA said (2015) in its press information, the Czech Republic occupies the highest position of all the tables for contactless payment. "According to current statistics our country is first in terms of the proportion of contactless payment at retailers, reaching nearly 60 percent which is significantly higher than in the other country in order - Poland. "The Czechs have already known that apply contactless means to pay quickly and safely at the same time," says Marcel Gajdoš, regional manager of Visa Europe for the Czech Republic and Slovakia. The evidence is done in next table.

TAB. 1: Top 5 countries with the highest proportion of contactless payments in shops (June 2015)

Country	Proportion of contactless payments (%)
Czech Republic	59,45
Poland	39,03
Slovakia	38,71
Great Britain	6,86
Croatia	6,18

Source: (VISA, July,13th, 2015)

Data show that consumers also like to use contactless cards for payment of higher amounts, such as payment for weekly shopping in supermarkets. This is especially true in countries such as Czech Republic, Poland and Spain, where cardholders have the opportunity to use contactless cards for any payment - just attach the card and enter the PIN on the terminal.

TAB. 2: Top 5 countries with the most advanced contactless infrastructure (March 2015).

Country	The number of contactless terminals	The number of contactless transactions (mil.)	Expenditure (mil. EUR)
Great Britain	410 000	52,6	330,0
Poland	354 000	49,7	334,9
Czechia	75 000	14,0	314,4
Spain	593 000	11,5	447,8
France	405 000	8,3	88,5

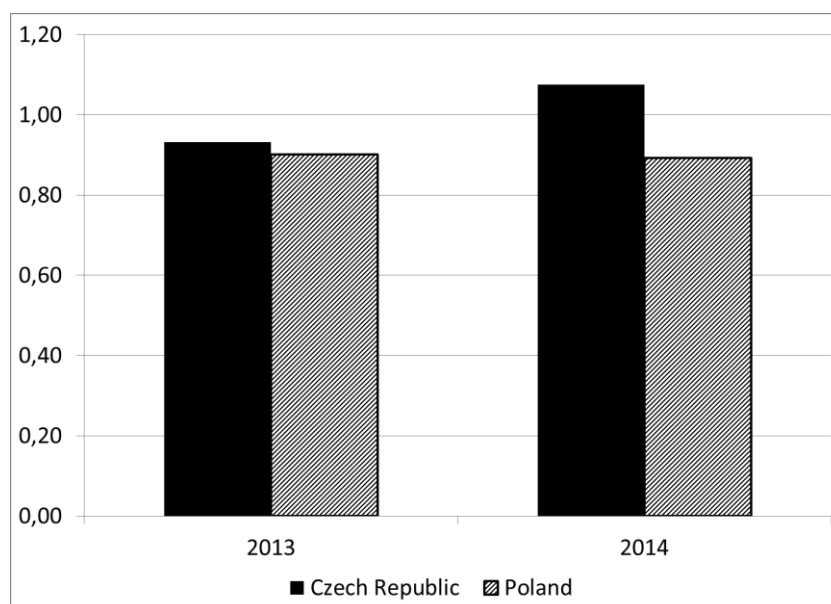
Source: (VISA, July, 13th, 2015)

The above data and examples show that Poland and the Czech Republic are ahead in using some types of payment cards, although they are the states in which using of credit cards started much later than in other European countries. This mainly concerns using of contactless payment cards, which are issued in the Czech Republic since 2011 and in Poland even a few years earlier. The fact that these two countries have overtaken Europe in the introduction of contactless payment cards is also confirmed by the fact that while the Czech and Polish banks reported regularly about the use of contactless payments, in other states with considerably more developed banking system, these data are not available.

The next chapter contains comparative analysis of selected indicators of using contactless payments in the Czech Republic and in Poland since 2013.

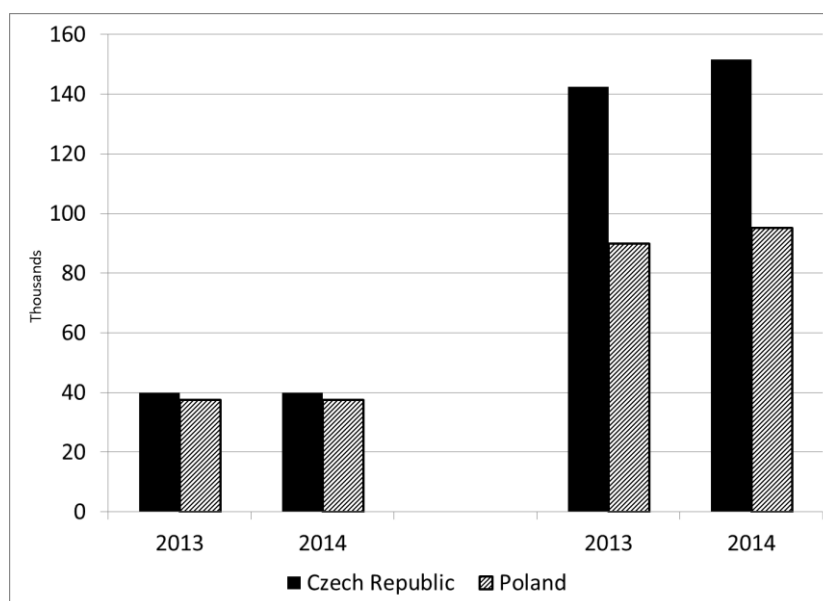
2. Comparison of using contactless card in Czechia and Poland

There are shown in chart No. 1 that the number of cards per capita is very similar in both countries (in the Czech Republic and in Poland) - in both states every citizen owns on average one payment card. The diameter of one card to the citizen, of course, means that there are people with ten cards, and on the other hand, children and seniors do not own any card.

FIG. 1: Number of payment cards per capita

Source: (own)

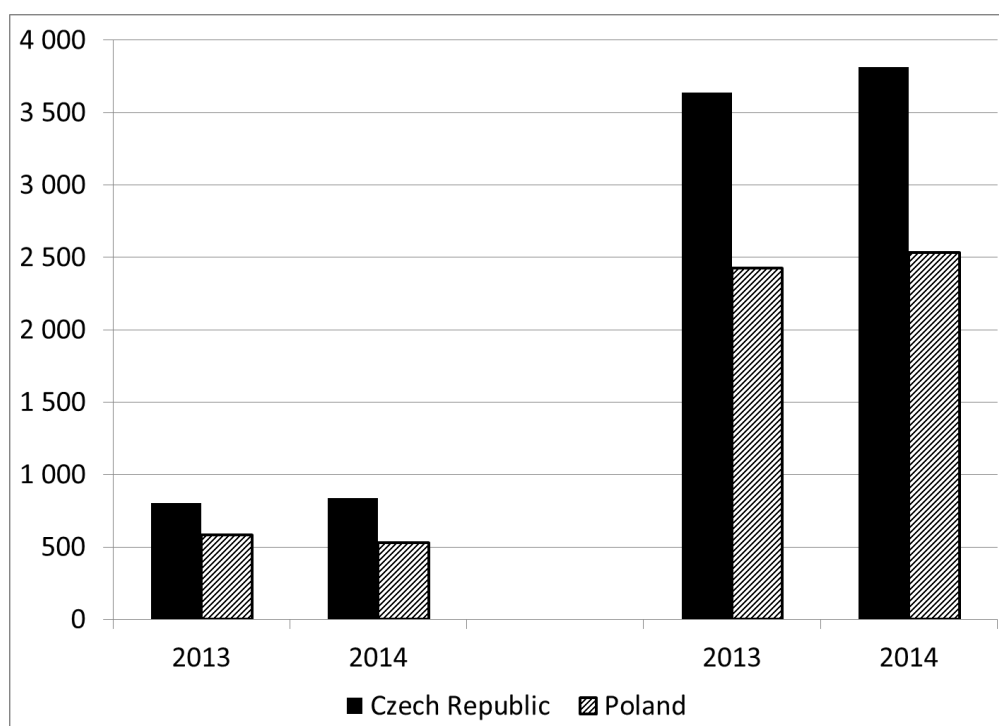
Data in chart No. 2 show that in both countries clients use each ATM 40 thousand times per year. There are some differences, if we compare the value of money, which is withdrawn on average from each ATM – in the Czech republic it is more than 140 million CZK, in Poland it is about two thirds of this sum (Polish data are translated at exchange rate 1 CZK = 0,1574 PLN).

FIG. 2: Volume and value (CZK) of transaction per one ATM per year

Source: (own)

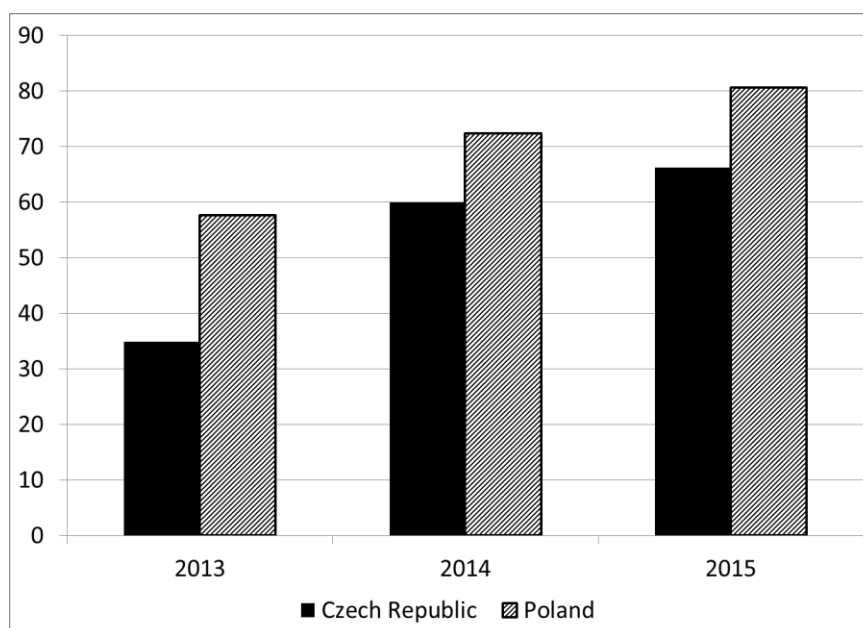
There are shown in chart No. 3 similar data to chart No. 2. This time data on left side of chart explain average value of transactions realized in shops, restaurants, petrol stations etc. in both countries on POS. (Polish data are translated at exchange rate 1 CZK = 0,1574 PLN). The right part of chart shows, that value of money, which is withdrawn from ATM, is four or five times higher than money paid by POS. Moreover, cashless payments are lower than in the past due to the influence of contactless payments. Cash payments in the Czech Republic are relatively high due to influence of high bank charges in case of withdrawing money from ATM owned by other bank.

FIG. 3: Average sum of individual POS transaction and ATM withdraw



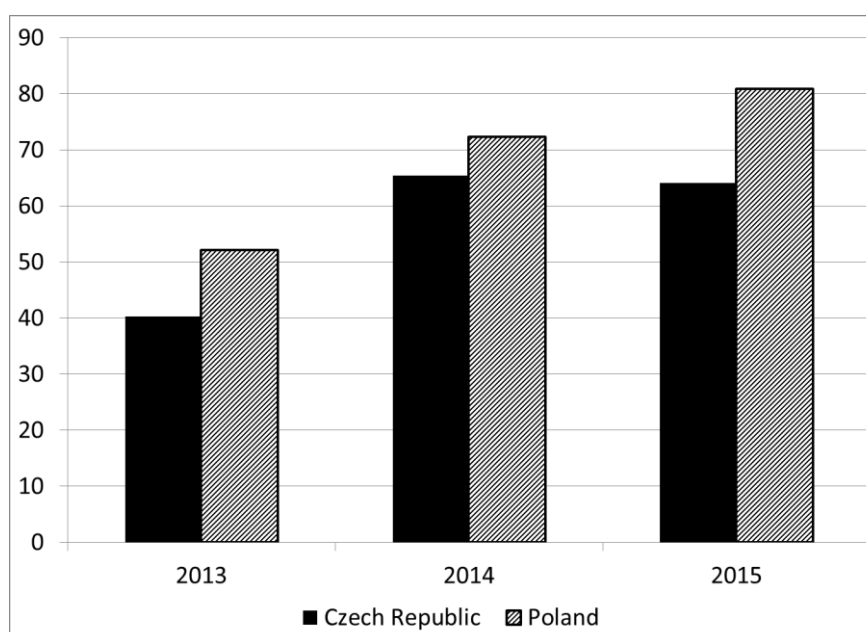
Source: (own)

The next two (last but not least) graphs demonstrate the facts mentioned in the previous chapter. The first one shows the share cards which are able to realize contactless payment (NFC card functions) to the total number of payment cards issued in the country. The graph confirms the fact that were contained in the sources cited in previous chapters. The Czech Republic as well as Poland aim to one goal - all cards held by citizens of both countries should be able to pay contactless in the near future.

FIG. 4: Share of NFC cards to all cards issued in country (%)

Source: (own)

It is necessary to have contactless technology to be able to pay contactless, but it is also necessary to have the infrastructure for their use. Basic facilities for the use of payment cards in cashless payments are the so called electronic POS (point of sale), located in each store, which is possible to pay with cards.

FIG. 5: Share of POS with NFC technology to all POS in country (%)

Source: (own)

The following chart shows the share of POS in both countries which are able to accept contactless cards to their total amount. As with the credit card, also penetration of POS devices capable of communicating non-contact is very high. It can be assumed that by the end of the decade, all equipment installed in the Czech Republic and Poland will be able to handle requirement for contactless payment

Conclusion

The development of using of payment cards in the Central Europe countries started very slowly at the end of the last century. In general, nevertheless, the former Eastern Bloc countries lag far behind the Western Europe in the use of modern forms of payment. Comparative analysis of data carried out in the third chapter of the contribution confirmed the assumptions that were contained in the quotations from foreign sources. Both countries – the Czech Republic and Poland are countries that progressed very far in the use of contactless technology of paying by payment cards. In the near future (within three to five years) can be noted that almost all payment cards in both countries will be cashless. Regardless of the fact that both countries have begun to use credit cards rather late, they got to the use of modern technology to the European top. Late start of using of modern means of payment was paradoxically possible cause for their rapid deployment, because it was possible to start building new systems without the burden of older and already outdated technology. At the same time it gives the possibility of rapidly adopting more modern payment methods such as mobile payments, etc. View to the future of modern electronic payment systems and tools in the Central Europe should be optimistic.

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FOUNDATIONS OF MODERN ACCOUNTING

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Keywords:

accounting – bookkeeping – single-entry accounting – economics history – Czech lands

JEL classification: N93, M41, K23

Abstract:

The aim of the paper is to examine accounting systems used in practise in the area of Czech lands before 1946 when due to the act no. 205/1946 Coll. double-entry bookkeeping became obligatory. Based on the analysis of accounting legislation, historical textbooks and preserved accounting records the paper discusses previous research in this field, assesses the use of each type of accounting technique in the past and find out the single-entry accounting as the most popular accounting system in practise before 1946 despite the benefits of the other accounting systems.

Introduction

Double-entry bookkeeping became obligatory in company practise in 1946 due to the act no. 205/1946 Coll., laying down uniform accounting principles. Before this year there was no exact instruction about accounting technique and its use in the Czech lands (Puchinger & Slavíčková, 2015). As the previous findings show the decision of what type of accounting system will be used depended on the company and usually followed the purpose for which the company kept their accounting records (Puchinger & Slavíčková, 2014). Due to this fact we can speak about accounting disunity which is necessary to be examined if we want to understand the foundations of modern accounting in our country. The aim of this paper is to conclude and evaluate previous research in this field, to describe what types of accounting systems existed and last but not least to assess the most popular one according to the practice.

1. Methods, literature overview

Summarising the previous research in this field we can identify few overviews of accounting techniques used in the past in the Czech lands. Based on older studies especially from the first half of the 20th century published by Bohumil Štursa (s.d.), Josef Fiala (1935), Hugo Raulich (1938) and others it was Josef Blecha who in 1956 distinguished five different accounting systems: single-entry merchant accounting (die kaufmännische einfache Buchführung), extended single-entry accounting (die erweiterte einfache Buchführung), administrative single-entry accounting or cameral accounting

(die einfache Verwaltungsbuchführung or die altere Kameralstil), table accounting (die Tabellenbuchführung) and cameral accounting (die Kameralbuchführung). In 1984 Blecha rewrote his classification and named only four types, among which he included double-entry accounting along side two single-entry accounting and cameral accounting systems (Blecha, 1984). Blecha supplemented his qualifications of historical accounting techniques with a detailed description to help researchers with identification, however, to find differences between these accounting systems could be difficult at times (Blecha, 1959). More recently Renáta Hótová defined three different types of bookkeeping: an accounting system based on a number of accounts called single-balance system, an accounting system based on two basic lines of accounts, it means the double-balance system, and a cameral accounting system (Hótová, 2003). Last but not least Miloslav Janhuba claims in 2007 in brief that since ancient time single-entry accounting with some cameral elements has been used in our country, without specifying what the most important characteristics of this system was. According to him, with the arrival of Italian merchants in Bohemia during the period of Rudolf II we can talk about the penetration of double-entry bookkeeping (Janhuba, 2007). The insufficiencies of all these descriptions are the lack of the exact chronological context on the one hand and no evidence of the source to support some of these claims on the other. For these reasons it is necessary to examine these results and define new categorisations. Using the method of historical analysis the research is based on real historical sources, such as the historical legislation dealing with accounting rules, textbooks and other educational tools used for education of accountants in schools and last but not least originals of historical accounting books and records.

2. Results

Following the possibilities of preserved accounting resources from the period before 1946 we can say that the legislation contains relatively few regulations about accounting. Before the beginning of the Word War II there was no law focused directly on accounting. All firms and companies followed the regulations related to accounting issued in the General Commercial Code from 1862. It defined accounting terms for the first time ever in our country and described requirements for conduction of business books as well as the balance (balance sheet). Last but not least each business subject was required to publish the annual results of economic activity (General Commercial Code, 1862). Broadly speaking, all other laws and regulations about accounting in the period of Habsburg monarchy as well as the first and the second Czechoslovak Republic referred to this Code and were complemented with regard to whose specific need of their users. In this context we can name especially Act no. 220/1896 RGB, on direct personal taxes, Act no. 133/1903 RGB, on the revision of gainful and economic societies and other associations, or Decree no. 11/1921 O. J., on establishing a single formula for the compilation of final accounts of joint-stock banks and the presentation of mandatory statements, and Act no. 239/1924 Coll., on savings books (certificates),

joint-stock banks and the revision of banking institutions (Puchinger & Slavičková, 2015). However, neither the General Commercial Code nor special legislations spoke about accounting technique which could be or should be used by enterprises. The decision about a suitable accounting system belonged to the user – an accountant or the owner of the company before 1946 (with the exception of the period of Protectorate of Bohemia and Moravia).

The lack of exact regulations regarding the use of accounting technique was filled in by education practise which is without any doubt reflected in the content of the preserved historical accounting records. The first business schools were founded shortly after the beginning of the second half of the 19th century in our country. The oldest and also the most popular one was Prager Business Academy established in 1856 (German speaking), others followed soon including Czechoslavonic Business Academy founded in 1872 (Czech speaking). Nevertheless, it was some of the teachers working at these schools who had the greatest influence on accounting practise by the means of their textbooks which were reprinted repeatedly for the long time till the mid 20th century. We should mention at least Josef Pazourek, who established accounting as a science in our country, created Czech accounting terminology as well as founded the first accounting journal but also taught this major in business school in Chrudim and Hradec Králové (Kubeša, 1967); Antonín Skřivan, a founder of his own Koncessionierte Handelslehranstalt (Kubeša, 1968); and Karel Petr Kheil senior, a teacher in Prague and the inventor of Kheil's double-entry accounting system (Kubeša, 1967). Schoolbooks of Jan Poklop, Quido Teissler, Karel Randa, Jan Rančák, Josef Fiala and many others were also very popular (Puchinger & Slavičková, 2014). The most important fact is that all these textbooks concentrated their attention on single-entry bookkeeping in the first place. Only some of them contained also instruction about other accounting systems, double-entry, cameral or so called American accounting. Considering the content of historical accounting records all these accounting systems existed in many variations without any exact framing.

3. Discussion

Comparing our results with conclusions of the aforementioned authors, the criteria for classification of Josef Blecha were not the accounting principles of each accounting system but it was the purpose of their use. Because of that he omitted double-entry bookkeeping the first time and in his second classification he included two (in previous even three) single-entry systems on the one hand and created table accounting which probably never existed in practise on the other. He also declared that the “single-entry merchant accounting is partially double-entry” (Blecha, 1984, 324), which is totally wrong. Looking at his sources Blecha made a mistake probably because he adopted information mainly from Germany and Austria where the situation was quite different without any historical critical approach. The problem of the opinions of Renata Hótová and Miloslav Janhuba is that they are far away from the content of real historical

resources. As the findings showed, there is no evidence about double-entry accounting before the modern period and also using of cameral accounting was in reality in fact much less widespread than they supposed.

Conclusion

Based on the analysis of accounting legislation, schoolbooks and historical accounting records we can say that the foundations of modern accounting lay on the single-entry accounting. This system has been used in many variations in our country since the Middle Ages; moreover the basic principle remains the same. When a need arose its users helped themselves with complicated system of auxiliary books. Thanks of them the single-entry accounting served very well to medieval guilds as well as large noble estates or firms and companies also in the 19th and the first half of the 20th century. The most surprising fact is the preference of cameral accounting instead of double-entry accounting mainly in the case of noble estates which used it probably since the beginning of the 19th century (Mikušek, 1986). Double-entry bookkeeping did not spread in our country before the act no. 205/1946 Coll. mentioned above. The reasons why it happened remain a question for further research.

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RURAL POPULATION AND AGRICULTURE IN RELATION TO GLOBAL ECONOMY

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Keywords:

rural areas – population – structure – regions – development

JEL classification: Q10, R11

Abstract:

The article analyses the development of the rural population (or its share) in the context of the past several decades. The main emphasis is placed on identifying the differences existing between the various regions of the world and then on the influence of the GDP value development (including and after deduction of agricultural GDP), GDP/cap (including after deduction of the agricultural GDP/cap), GDP generated by agriculture, GDP/person working in agriculture, on the number and especially the share of the population living in rural areas. The volume and particularly the structure of the world population over the past three decades have changed extremely. Restructuring of the global economy has led to a significant decline in importance of rural areas.

Introduction

Agriculture and rural areas are very closely interconnected. Due to the fact that agriculture as an economic activity has a global character and is implemented on very large areas usually outside urban area, its link to the rural areas (where more than 95% of the land is found - this number includes not only agricultural land, but also forests and other land types) more than logical.

Agricultural activity takes place on more than 48 million square kilometres, which represents more than 35% of the mainland area on the ground. In terms of economic activity (manufacturing, mining and services), agricultural sector is the most dependent on large expanses of available land resources of high quality (high demands on soil nutrients and fresh water supply). Farmland in the past represented and still represents a natural base for the development of human civilization.

For a very long period rural areas as such represented the main source of economic and population growth across the entire globe. It was a question of the ability of agriculture to provide sufficient food base for further development of human civilization. Even at the turn of the 18th and 19th centuries, the countryside had more than 90% of the world

population and agriculture represented one of the most important sectors of the national economy in almost every country of the world.

1. Methods, literature overview

In the countryside, where most of the agricultural activities take place there currently live about half the world's population - more than 3.5 billion people. The relationship between the rural development and development in agriculture is historically very long and significant (Lupták and Naxera, 2013). A very dynamic development of rural areas then occurred, especially with the advent of agriculture about ten thousand years ago. It was agriculture that largely determined the character of the cultural landscape, and further development of settlements, villages and later also cities.

The position of agriculture began to change over time (Spicka, 2014) with the advent of the industrial revolution, when until then the prevailing national economic model AIS (methodology by Holub, 1972) (agriculture-industry-services) or AIS was gradually replaced by the IAS model (industry-agriculture-service) or ISA - this means that the dominant position of agriculture was broken in favour of industry.

A very strong link exists between the development of agriculture and development of the rural areas and their populations (Dorosh and Thurlow, 2012; Adesina, 2010, de Janvry, and Sadoulet, 2010). With the declining importance of agriculture in different regions of the world, there is an abrupt shift of population from rural areas to urban areas (cities and suburbs), where there is a significant concentration of industry (about 25% of the world GDP value) and services (about 71 -73% of the world GDP value).

With the advent of the industrial revolution we clearly see the growing importance of cities as major economic and settlement centres. While as early as the beginning of the 20th century only 10-15% of the population lived in the cities (Tellier, 2009), after the Second World War, it was about 20-25% and today in 2014 it is already more than 50% (WB, 2014).

An extreme transfer of population has occurred, especially in developed countries (Zinchenko, 2012), into towns in North America (about 80% of the local population) and Europe (75-80% of the local population). Very significant transfers of population into towns can also be seen in developing countries (Latin America - more than 70%), Africa and Asia (more than 45% of the local population now live in cities and in a number of countries restrictions have to be imposed on the movement of inhabitants from rural to urban areas (WB, 2014)).

A wide range of causes can be seen behind a radical decline in the share of rural population in the total population. The most important one is the decline in the share of agriculture in the total value of economic activities in the world, as well as the lower growth rate of the added value generated by the agricultural sector compared to other

sectors of the global economy. The generally lower level of income in agriculture and not least important the decline of jobs in the agricultural sector (Bohackova, 2014), which is crucial to maintaining the rural settlement structure, also play their role. This applies in relation to both the developing and the developed countries of the world. It is important in this regard is to take also into account the size of the country and the population density. This is because, especially in those countries that have a large area, the dynamics of the rural population share decline is very high and dependent on how the economic power of developing urban and suburban areas is developing (Marsden, 1996).

The article analyses the development of the rural population (or its proportion) in the context of the past several decades (or from the perspective over the past 30 years - from 1980 to 2012. Some reduction in the time series was necessary due to data availability). The main emphasis is put on identifying the differences existing between various regions of the world, and then on the influence of the GDP development (including and after deduction of agricultural GDP), GDP/cap (including a deduction for the agricultural GDP/cap), GDP generated by agriculture, GDP/person working in agriculture, on the number and especially on the share of the population living in rural areas.

The article is focused mainly on the identification of differences existing between various regions (East Asia and the Pacific, Europe and Central Asia, European Union, Latin America and the Caribbean, the Middle East and North Africa, North America, South Asia and sub-Saharan Africa) and groups of countries (High Income, Upper Middle Income, Middle Income, Lower Middle Income and Low Income Countries).

Dividing countries into groups was carried out through the methodology used by the World Bank (WB, 2014). The database is based on the analysis of the relationships existing between the proportion of the population living in rural areas on the one hand, and the share of agriculture in GDP, the value of agricultural production, the value of agricultural production per worker, employment in agriculture, GDP, GDP per capita, and total population on the other hand. Data included in the analysis represent a synthesis of time series provided by the World Bank (WB, 2014), the International Monetary Fund (IMF, 2014) and FAOSTAT (FAO, 2014).

Primarily, the analysis focuses on the relationship between the development of the share of rural population and the development in the value of the share of agriculture in GDP and the share of agricultural employment in total employment.

In respect to the methods that have been applied, this article uses elementary statistical calculations (Hindls et al., 2007): the chain index or average growth rate calculated as a geometric mean of individual annual changes, the correlation between the selected variables on the one hand, and the share of rural population on the other hand, elasticity

or sensitivity of the proportion of the rural population to the percentage changes in variables (the elasticity is calculated by means of a logarithmic regression, individual regression functions were statistically significant at the alpha level of 0.05).

2. Results and Discussion

It can be demonstrated that countries with the highest share of agriculture in forming the GDP is Sierra Leone (about 56.7%) and, by contrast, the country with the lowest share of Kuwait with 0.46%.

In general, it holds that the share of agriculture contributing to the world GDP is about 3.25%. There is a very strong correlation (0.97) between the development in agriculture and the share of rural population. In the years of 1980 - 2012 the share of agriculture in GDP in the world has reduced from 7.57% to 3.25%, and there was also a reduction in the share of population living in rural areas from 60.63% to 47.45%.

On average, it is valid that when the value of the world agrarian GDP or the share of agrarian GDP in the total GDP value changes by 1%, the share of rural population is then reduced by 0.22% or 0.32% respectively. The relationship between the two variables is inverted. The growth in the share of agricultural GDP generally increases the proportion of the population living in rural areas and vice versa.

The highest proportion of people living in rural areas can be found in low-income countries and in the least developed countries - generally in the following regions: South Asia, the Pacific, sub-Saharan Africa, the Caribbean and East Asia. In these regions more than 50% of their population live in rural areas. The share of agriculture in GDP of these countries is very high and ranges from 3.6 to 28%.

By contrast, in developed countries - particularly the members of OECD - located mainly in North America and in Europe, the share of people living in the countryside is about 17% or 30% respectively and the share of agriculture in GDP is very low in the range of about 2%. The decline in the share of agriculture in GDP is usually accompanied by a significant reduction of the proportion of the rural population in the total population.

In the years of 1980 – 2012 alone there was an increase in the world rural population from about only 2.68 billion people to 3.33 billion people (ie. an average annual growth rate had reached about 1%), while in urban and suburban areas the population increased from 1.74 billion people to more than 3.69 billion people (average annual rate of population growth exceeded 2%).

During the years of 1980 - 2012 the share of agriculture in GDP has reduced in developing countries (low income - from 37.7% to 28%, lower middle income - from 30.2% to 16.8% middle income - from 22.29% to 10%; upper middle income - from

201% to 7.8%) much more strongly than was the case in developed countries (from 4% to 1.44%).

The percentage of people employed in agriculture has declined significantly (from 48.5% to 33%), the share of agriculture in GDP declined from 7.5% to 3.1% and consequently the proportion of rural population also decreased from 60.6% to 47, 45%. This trend concerned all surveyed groups of countries.

With the decline in the share of agriculture in GDP, there is a significant reduction of the rural population – or its share of the total population. This trend is especially typical for East Asia and the Pacific, Europe and Central Asia, the European Union, Latin America, the Middle East and North Africa, North America and South Asia.

This trend does not include only sub-Saharan Africa which, however, is specific by its extreme backwardness and extremely high rate of growth of its own population.

The data suggest that an important driver of these changes is the general economic growth (the main source of which lies outside the agricultural sector and rural areas), the growth of individual income per capita (nevertheless, the main source of economic activities is not the rural areas but cities and therefore, people from rural areas naturally migrate to urban and suburban areas). Generally, the growth of the economy (GDP and GDP/capita) has a negative impact on the proportion of the rural population (confirmed at the significance level of alpha 0.05).

The rural population – or its share – is most dynamically reduced in the case of a High income and Upper middle income countries (from 295 mil. (28%) to 252 mil. (19.8%) or from 1,070 mil. (66, 3%) to 940 mil. (39.33%)).

In Middle Income Countries there is an obvious significant stagnation in the growth of the rural population (from 2,064 mil. to 2,470 mil.), which was shown by a particularly strong reduction of the share of the population in the total population (from 69.2% to 50.45%). The strongest dynamics of the physical growth of the rural population is shown by countries designated as Lower middle income (from 993 mil. to 1,530 mil.) and especially the Low Income Countries (from 320 mil. to 608 mil.).

However, despite the growth of the physical number of rural residents, even in these countries it is possible to observe a considerable reduction in their share of the total population (from 72.5% in 1980 to 61% in 2012, or from 81.5% to 72%).

Conclusion

While at the beginning of the period observed in this study about 2.6 billion people lived in the country, at the end of the period it was already 3.33 billion people. Over the years the dynamics of the rural population growth has decreased significantly. The

result of this development was a decline in the share of rural population in the total population of the world from 60.6% to about 47.45%.

The high dynamics of the transfer of population to urban areas was accelerated particularly by the economic growth coupled with the development of secondary and especially tertiary sectors of the global economy.

The main obstacles to the transfer are the ability of these areas to generate employment and business opportunities, inadequate infrastructure, limited accommodation capacity (especially in developing countries), and further restrictions placed on the movement of people from rural to urban areas, which exist in some areas of the world (e.g. China). At the present time the most dynamic decline in the rural population share occurs especially in transition and industrializing economies.

In developed countries the decrease in the share of the rural population in the total population is less dynamic. A specific group of countries is represented by the countries designated as Low Income and Lower Middle Income. In these countries it is also possible to see a significant decline in the proportion of rural population, however, this decline is not as dynamic as in other countries, mainly because of the high rate of population growth, limited capacity of urban areas, and then also because of the limited ability of the secondary and tertiary sectors to generate employment and other economic opportunities.

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THE AMOUNT OF WAGES AS AN IMPORTANT DETERMINANT OF JOB SATISFACTION – CASE STUDY IN THE CZECH REPUBLIC

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Keywords:

wage – determinants of satisfaction – job satisfaction – Czech Republic

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Abstract:

There are very few studies that address determinants that affect job satisfaction in the Czech Republic. The published studies show that the Czech Republic has been among the countries with the lowest satisfaction level. The aim of this study is to analyse the impact of wages on the level of job satisfaction in the Czech Republic, the partial aim of this study is to answer the research question of whether the development of wages follows the development of the overall job satisfaction, i.e. satisfaction with wage. Wage is an important determinant that affects job satisfaction. The results of the study show that the overall level of job satisfaction is decreased with the determinant of wage, but on the other hand it is not possible to demonstrate that wage development follows the development of satisfaction with wage, i.e. the overall satisfaction with job, it is also fundamentally affected by other determinants.

Introduction

Human resources have been the most important factor that affects the performance of an organisation, organisational culture and innovation processes, not only with their abilities and skills, but also with their attitude and emotions. Job satisfaction is one of the significant components of emotions.

The first empirical data dealing with job satisfaction in the Czech Republic, have been available since 1997 from the International Social Survey Programme (ISSP), which within a single module also focused on labour orientation (working conditions, job characteristics, subjective experience of employment etc.). The published studies suggest (Medgyesi & Robert, 2003; Večerník, 2003; Franěk & Večeřa, 2008; Franěk et al., 2014), that the level of job satisfaction in Central and Eastern European countries were relatively small compared to the values of job satisfaction in Western and Northern European countries. The Czech Republic ranked among the countries with the lowest levels of satisfaction.

Job satisfaction is affected by many factors, such as the opportunity for career growth and continuous professional development, working conditions, the work itself, and very important components are also wages and employee benefits. (Mohelská & Sokolová, 2015; Mohelská & Sokolová, 2011)

The present study examines how the amount of wages determines job satisfaction in the Czech Republic.

1. Research's Objective and Methodology

The object of this study is to analyse the impact of wages on the level of job satisfaction in the Czech Republic, the partial aim of this study is to answer the research question of whether the development of wages follows the development of the overall job satisfaction, i.e. satisfaction with wage.

To determine the development of wages and employee benefits, the available official data from the Czech Statistical Office (ČSÚ, 2015) was used. Data mining was carried out in this area, whose goal was to discern the key trends in this area.

The same study was performed twice to determine the level of job satisfaction (January and February 2013, and again in the same months of 2015), which was conducted through a questionnaire survey - Czech version of "Satisfaction with Employment Questionnaire" (Spector, 1985). For the purposes of this paper, only data following the level of overall job satisfaction and satisfaction with wage are used.

It was not possible to obtain a cross-sectional sample, the data was collected through collaboration with part-time study university students. It used the fact that these students work in different types of organisations, in at least three regions in the Czech Republic.

In total, the study involved 1,950, i.e. 1,547 respondents. However, 174, i.e. 77 questionnaires were excluded from the sample due to various errors and missing values.

Statistical analyses were performed using Statistica 8 Software.

2. Development of wages

Labour costs consist primarily of wages and the related social security payments, which are derived from the wage amount. Almost two thirds (64.4%) labour costs consist of wages and salaries (hereinafter as wages). Another important item is the social costs with 26.1% and the third largest item is compensation wages (7.6%). The remaining non-wage costs are considerably lower and therefore less visible. In times of crisis, after 2008, employers tried to save money on them (ČSÚ, 2015).

In the long term the structure of labour cost is almost the same, when in the years 1994 - 2013 the direct costs ranged between 70-72%, the social costs between 25-27%, social benefits between 1 - 2.5% (ČSÚ, 2015).

The time series for the period 1994-2013 shows a steady growth, which has been more gradual in the recent years. Average monthly labour costs per employee in 1994 was 10,244 CZK. After 10 years, in 2004 it already amounted to 26,428 CZK and in 2013 it amounted to 34,825 CZK per employee. Therefore, during the reporting period the total labour costs increased by almost 3.5 times, mainly due to the direct costs. The highest growth was at the beginning of the period between 1995 and 1996 (18% and more). While the lowest was at the end of 2009 (+0.9%) and 2010 (+2.0%), in 2013 wages even decreased compared with the previous year (-0.2%).

This trend can also be seen in the following table (Tab. 1), which monitors the average gross monthly wage. The year of 2014 is also shown there, when again there was growth in the average gross wage. According to the existing indicators, this trend should continue in 2015.

TAB. 1: Average gross monthly wages (per full-time equivalent employee)

Period	CR total			Business sphere			Non-business sphere		
	Nominal wage in CZK	Nominal wage index, CPPY=100	Real wage index, CPPY=100	Nominal wage in CZK	Nominal wage index, CPPY=100	Real wage index, CPPY=100	Nominal wage in CZK	Nominal wage index, CPPY=100	Real wage index, CPPY=100
2000	13 219	.	.	13 170	.	.	13 457	.	.
2001	14 378	108,8	103,9	14 304	108,6	103,7	14 733	109,5	104,6
2002	15 524	108,0	106,1	15 380	107,5	105,6	16 197	109,9	108,0
2003	16 430	105,8	105,7	16 149	105,0	104,9	17 692	109,2	109,1
2004	17 466	106,3	103,4	17 191	106,5	103,6	18 714	105,8	102,9
2005	18 344	105,0	103,0	18 019	104,8	102,8	19 877	106,2	104,2
2006	19 546	106,6	104,0	19 244	106,8	104,2	20 977	105,5	102,9
2007	20 957	107,2	104,3	20 661	107,4	104,5	22 387	106,7	103,8
2008	22 592	107,8	101,4	22 439	108,6	102,2	23 334	104,2	98,0
2009	23 344	103,3	102,3	23 104	103,0	102,0	24 411	104,6	103,6
2010	23 864	102,2	100,7	23 733	102,7	101,2	24 453	100,2	98,7
2011	24 455	102,5	100,6	24 447	103,0	101,1	24 494	100,2	98,3
2012	25 067	102,5	99,2	25 078	102,6	99,3	25 014	102,1	98,8
2013	25 035	99,9	98,5	24 986	99,6	98,2	25 255	101,0	99,6
2014	25 607	102,3	101,9	25 546	102,2	101,8	25 879	102,5	102,1

Source: custom processing according to the (ČSÚ, 2015)

Table (Tab. 1) of the average gross wages also shows that differences in gross wages in the private and public spheres do not differ significantly.

Conversely, very large differences regarding sectors are activities. The sectors with the highest labour costs in the long term include Information and Communication activities

and Financial intermediation - average labour costs are higher than 60,000 CZK per month, although, in this sector the social benefits also decreased in 2013 to 83% of 2008. At the opposite end, well below average is the sector of Accommodation and Food Services and Administrative and Support activities. (ČSÚ, 2015)

3. The results of the study - the impact of wages on job satisfaction in the Czech Republic

In 2013 the study had 1,776 respondents participating and in the repeated survey (2015) there were 1,470 respondents. The respondents were aged 17-74 years, i.e. 16-77 years, and their average age was 36.3 years (SD = 10.80), i.e. 36.19 years (SD = 10.70). There were 762 men and 1,014 women in 2013, in 2015 it was attended by 619 men and 851 women, in both cases they lived mostly in the north-eastern regions of the Czech Republic - Hradec Králové, Pardubice and partly Vysočina regions (The Czech Republic consists of 14 regions). According to the observed characteristics (sex, age and education level of respondents and characteristics of organisations) it can be seen that both surveys are comparable under the investigated samples.

Tab. 2 shows the average score of overall job satisfaction, as well as the average satisfaction score with wage for both surveys.

TAB. 2: The average score of the overall job satisfaction and the satisfaction with wage (2013 and 2015)

Item	2013		2015	
	Pay	Overall satisfaction	Pay	Overall satisfaction
Gender				
Males	3.36	3.79	3.44	3.78
Females	3.05	3.69	3.21	3.70
Age				
Less than 30	3.21	3.77	3.33	3.77
30-40	3.22	3.74	3.32	3.71
41 +	3.12	3.68	3.27	3.71
Education				
Elementary educational level	3.06	3.75	2.75	3.51
Skilled worker	3.10	3.64	2.98	3.59
Secondary school	3.14	3.70	3.25	3.69
Higher professional school	3.26	3.78	3.33	3.74
Undergraduate (distance	3.05	3.70	3.29	3.79

learning)				
University degree education	3.29	3.80	3.48	3.81
Years of experience (tenure)				
Less than 5 years	3.22	3.79	3.37	3.80
5-10 years	3.22	3.71	3.24	3.68
11-15 years	3.06	3.61	3.19	3.64
More than 15 years	3.11	3.70	3.35	3.73
Organization ownership				
Czech owner	3.17	3.74	3.36	3.79
Foreign owner	3.41	3.82	3.45	3.80
International corporation	3.56	3.87	3.38	3.77
Public/governmental organization	2.79	3.56	2.97	3.49
Organization size				
up to 50 employees	3.20	3.79	3.42	3.87
up to 250 employees	3.08	3.68	3.20	3.63
up to 500 employees	3.11	3.73	3.25	3.68
more than 500 employees	3.32	3.70	3.30	3.69
Job level				
Manager/supervisory responsibility employee	3.53	3.91	3.18	3.68
Non-supervisory responsibility employee	3.10	3.68	3.60	3.85

Source: own

Regarding the determinant of wage satisfaction, it can be stated from the data that satisfaction with wage slightly increased on average or remained the same. For example, a greater increase in wage satisfaction occurred in women, older people, people with higher education, the most significant increase in wage satisfaction can be seen in Non-supervisory responsible employees. Conversely, a more significant decrease in wage satisfaction occurred in Manager/Supervisory responsible employees.

4. Discussion

The average level of overall job satisfaction ranges above the average level of wage satisfaction. So it could be stated that the determinant of wage reduces the level of overall job satisfaction.

The relatively low level of job satisfaction in the determinant of wage, although in the investigated years the wages grew, may be due to the fact that since 2009 the rate of wage growth has slowed significantly. Yet in 2013 there was even a drop in wages, but

in the survey in early 2015 this fact did not reflect significantly in the overall satisfaction, while satisfaction with wage increased slightly. This may be due to the fact that the respondents were pleased that in 2014 there was again a slight increase.

For deeper analysis it is needed to assess the development of satisfaction in long-term order to create a longer time series.

Conclusion

Wage is an important determinant that affects job satisfaction. The results of the study show that the overall level of satisfaction with work decreases with the wage determinant, i.e. the average level of the determinant is significantly lower than the average total job satisfaction. The emerging trend of rising wage levels is certainly good to increase the overall job satisfaction. On the other hand, it is impossible to prove that wage development follows the development of job satisfaction, the overall job satisfaction is that fundamentally affected also by other determinants.

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FUNDRAISING IN VENTURE CAPITAL AND PRIVATE EQUITY INDUSTRY: EVIDENCE FROM CENTRAL AND EASTERN EUROPE

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JEL classification: G24

Abstract:

The purpose of this paper is to focus on the investigation of the private equity investment process in the markets of Central and Eastern Europe (CEE), in the 2008-2014 period. In particular, this paper analyses the sources of the capital flowing into the industry, broken down with respect to investor type and geographical location of the investor. The study provides a discussion of the important parameters that determine the fundraising process of private equity funds. The study concludes that European investors from outside of the CEE region are the leading source of funds. Domestic CEE investors still represented a relatively low share of overall fundraising.

Introduction

Central and Eastern Europe (CEE) is the region with more than 20 years of private equity activity experience behind it. According to the European Private Equity and Venture Capital Association (EVCA), private equity (PE) is equity capital provided to enterprises not quoted on a stock market. The terms venture capital and private equity differ primarily with respect to the stage of development of the entrepreneurial firm in which they invest. Venture capital (VC) is a subset of private equity and refers to equity investments made to support the early stage development phases of a business. In its statistics and reports, EVCA (2015) differentiates particular stages for VC and PE. For VC investment, the following stages are differentiated: seed, start-up, venture, and later stage venture, and for PE investment: growth capital, rescue /turnaround, replacement capital and buyout stages. For example, start-up stage definition is explained by the fact of financing provided to companies for product development and initial marketing. Companies may be in the process of being set up or may have been in business for a short time, but have not sold their product commercially. The private equity industry comprises a broad spectrum of investment funds in terms of their size, legal structure and investment strategies. Research findings by Mayer, Schoors&Yafeh, Y. (2005) suggest that PE investment patterns differ across countries in terms of the stage and sector of financed companies. They also suggest that that differences in investment

activities are related to the variations in funding sources. This study tries to filter out particularities of the emerging markets of CEE as compared to the more established Western European markets.

1. Methods, literature overview

This article starts with the pre-existing literature review in order to examine the potential factors that might affect the growth of the international PE market in CEE region. Research methods cover the comparative analysis of scientific literature documents and reports as well as statistic data. The statistical data used in the article has been based on publications and reports of the European Private Equity and Venture Capital Association (EVCA). The data for the private equity and venture capital markets of CEE include: Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia and Ukraine.

Several factors have contributed to the growth of the international PE market in CEE region: the internationalization of capital sources, growth of GDP, need for risk diversification, deal opportunities, and increasing opportunities for exiting investments due to well-developed stock market (especially in Poland) that permits exit through an IPO (Sołoma, 2013). As Bernoth, Colavecchio & Sass (2010) find that, financial market conditions, business confidence, liquidity of the stock markets, human capital endowment and regulation in the labour market are driving forces of PE activity. They emphasize that in both Western and CEE countries PE investment is positively affected by the size of commercial bank lending relative to GDP. There is also evidence that the venture capital process in the CEE region is more complex than in Western countries, due to evolving accounting rules, taxation regimes and poor legal infrastructure (Klonowski, 2007). Moreover, there are different attitudes of entrepreneurs with respect to the sale of majority versus minority stakes, and different regulations regarding sales to foreigners (Sołoma, 2014). Furthermore, relevant factor of VC/PE activity is the demand-side aspect in a regional context. At the country level, the demand -side aspect is whether firms are open to investment. As Christensen (2007) notes that many entrepreneurs lack the skills to present the business plan convincingly to investors and projects are not always acceptably developed in terms of information, organization and management. Venture capitalists advantage relates to the knowledge transfer ranging from strategic and financial to operational expertise. Yet, sometimes first generation business owners are not looking for outside investor due to “keep it in the family” culture. They are not prepared to accept a new partner with an equity share. There is recognition in the literature that the existence of a prospering VC and PE market infrastructure requires many socio-economic and institutional prerequisites (Groh et al. 2013). For example, culture, education system and the readiness of the entrepreneurs to take risks play a significant role in the process of creating and developing a venture. Moreover, the quality of a country’s legal system play a significant role in PE

fundraising efforts. According to Cumming, Fleming & Schwienbacher (2006), the quality of a country's legal system is an even stronger driver of VC returns than the state of development of a country's stock market. As noted by Cumming and Johan (2014), contracts that specify ownership and control are extremely important for limited partnership funds that act as a financial intermediary between institutional investors and their investee companies. Additionally, the law that governs the enforcement of such contracts influence investors to invest internationally in venture capital and private equity funds. Evidence from US, suggests that the willingness of US VC firms to invest overseas is positively related to the size of the VC firm and it is driven by the availability of deal opportunities (Hall & Tu, 2003). As Wright, Pruthi & Lockett (2005) point out, „VC will only flow to a country if there are thought to be good investment opportunities”. Furthermore, the literature on venture capital finds that that government policies can have a strong impact, both by setting the regulatory stage, and by stimulating private fund flows and investments (Jeng & Wells, 2000).

2. Results and discussion

The 2008 financial crisis has strongly impacted private equity markets in CEE region. The market is down in both the fundraising value and the investment value. In the years 2008 through 2014, fundraising for CEE amounted to € 7.0 bn. (TAB. 1).

TAB. 1: PE fundraising and investment activity in the CEE region and Europe-wide, 2008-2014

	2008	2009	2010	2011	2012	2013	2014
CEE:							
a/ fundraising (in € billion)	2.47	0.45	0.60	0.94	0.69	0.40	1.47
b/ annual investment value (in € billion)	2.44	2.43	1.34	1.25	1.00	0.78	1.31
c/ investments: number of companies	207	125	166	195	226	241	290
d/ private equity investments as a percentage of GDP (%)	0.20	0.24	0.11	0.10	0.08	0.06	0.10
Europe-wide:							
a/fundraising (in € billion)	80.4	18.6	21.8	41.1	24.5	53.5	44.6
b/ annual investment value(in € billion)	53.4	24.3	41.9	44.9	36.8	35.7	41.5
c/ investments: number of companies	5421	4545	4816	4778	4943	5089	5500
d/ private equity investments as a percentage of GDP (%)	0.40	0.18	0.32	0.32	0.26	0.25	0.27

Source: Own research based on data obtained from Central and Eastern Europe Annual Statistics EVCA Special Papers 2009-2015.

The fundraising indicators reached its top in 2008 (€ 2.47 bn) and they have not returned to the pre-crisis amounts since. The fall in fundraising was very high – the 2009 result was only 1/5 of the 2008 value (TAB. 1). The sharp decrease in CEE

fundraising in 2009 is explained in large part as a result of financial and economic crisis. Yet, in 2014 total fundraising reached €1.47bn – the highest level for CEE in the past six years. A record number of 290 companies in CEE received private equity backing in 2014. For the sixth year in a row, the number of companies receiving private equity investments continued to rise in the CEE region (TAB. 1). By comparison, in Europe, total amount of PE investments reached €41.5bn., where 5500 companies received investment in 2014.

On national levels, the growth level of country PE market is often measured as PE investments to GDP ratio. In 2014 the ratio of PE investment to GDP in CEE was 0.1%. The CEE region is still far below Europe as a whole where the average was 0.277% (TAB. 1). It should be noted that in 2009, the ratio of PE investment do GDP in the CEE region was 0.24%, while the Europe- wide average was only 0.18 %. On the other side, the overall conditions for PE in CEE continue to improve. The accession of CEE countries to the EU has improved investment environment for PE funds. Many countries in the CEE region outpaced the EU average GDP growth rate. CEE is now an integral part of Europe's economy, taking advantage of inflow of EU cohesion funds, attractive labour costs below European levels, high levels of education and generally borderless access to the markets. Importantly, exit channels were improved. For example, the Warsaw Stock Exchange registered the largest number of IPOs among all European exchanges in each year between 2009 and 2012 (Sołoma 2014). Tax competition is also an important tool for Eastern European countries to attract PE investment.

Investors allocating funds to PE in CEE include: banks, corporate investors, funds of funds, government agencies insurance companies, pension funds, private individuals and other asset managers (TAB.2).

TAB. 2: Sources of capital raised for CEE venture capital and private equity in 2008-2014 (in % of amount)

Sources of capital	2008	2009	2010	2011	2012	2013	2014
Banks	12.1	10.1	1.6	12.2	4.3	3.7	4.4
Corporate investors	6.9	0.9	0.9	8.3	0.5	9.1	0.0
Funds-of-funds	25.0	9.4	8.3	25.6	19.4	15.1	12.6
Government agencies	2.7	28.3	64.3	14.1	29.2	48.3	41.9
Insurance companies	6.0	8.5	0.0	1.5	5.8	1.6	2.0
Pension funds	18.0	0.8	0.7	12.7	15.0	5.9	10.9
Private individuals	9.3	8.8	4.1	5.2	3.7	5.5	0.8
Other asset managers	2.8	0.7	5.8	0.5	4.8	0.7	2.1
Other sources	17.2	32.5	14.3	19.8	17.4	10.1	25.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Own research based on EVCA/PEREP_Analytics and EVCA YEARBOOKS 2008-2015

For example, according to the EVCA (2015) classification, corporate investors included in the fundraising statistics are corporations that produce products (manufacturing company) or deliver non-financial services (it excludes banks, fund of funds, insurance

companies, pension funds, and other asset managers). Since 2009, government agencies (i.e. country, regional, governmental or European institution for innovation and development) have been the leading source of capital for CEE funds, followed by funds of funds and pension funds.

Table 3 summarizes geographic sources of funds raised for CEE private equity in the years 2008 through 2014. The data indicate the following results. The majority of PE capital raised for CEE was provided by European investors with commitments comprising from 37.6% of total CEE fundraising up to 69.6% in the years 2008 through 2013. However, institutional investors outside Europe emerged as the leading source of funding (55,1%) in 2014.

TAB. 3: Geographic sources of funds raised for CEE private equity, 2009-2014 (% of total)

Geographic sources of funds	2008	2009	2010	2011	2012	2013	2014
Within CEE	5.3	17.7	16.4	36.5	6.5	17.2	12.4
Europe (excluded CEE)	51.5	45.9	69.6	38.7	37.6	59.7	29.8
Outside Europe	37.7	7.5	0.4	16.8	45.1	15.1	55.1
Unknown	5.5	28.8	13.6	8.0	10.8	8.0	2.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Own research based on data obtained from Central and Eastern Europe Annual Statistics EVCA Special Papers 2009-2015

In 2014, the percentage of funds raised domestically in the CEE region remained below the average in the overall European market (12% of total in CEE against 24% in Europe).

Conclusion

The results of this study made it possible to formulate the following key findings. First, in the years 2008 through 2014, fundraising for the CEE region amounted to € 7.0 bn. Private equity attracts a range of private investors and institutions which become PE fund investors or limited partners. In terms of geography, European investors from outside of the CEE region were the leading source of funds. Domestic CEE investors still represented a relatively low share of overall fundraising when compared with Europe as a whole. Second, since 2009, government agencies have been the leading source of capital for CEE funds. Government policies, support programs and agencies can have a strong impact, both by setting the regulatory stage, and by providing access to entrepreneurial finance.

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TRENDS IN TAXATION OF CONSUMPTION IN THE EUROPEAN UNION

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Keywords:

value added tax – excise duty – tax system – fiscal policy

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Abstract:

In the article the special place was devoted to the issue of using Value Added Tax (VAT) and excise duties in the turnover taxation in the aspect of the development of the economic activity of enterprises. To this purpose were presented the observed tendencies in the last years in applying indirect taxes in individual countries of the European Union as well as the limitations, being a consequence of the process of the harmonization in this sphere. Here was also taken an attempt of the reply to the question, in what direction and the scope the process of the tax harmonization should run in the future in order to guarantee essential independence for individual states in effective realizing the social-economic policy.

Introduction

In the European Union, VAT and excise duties are commonly used, so these taxes are an efficient source of tax revenue to the state budget, and at the same time they have a lot of implications for the socio-economic life of the Member States. Analyzing the taxation of consumption by these taxes we cannot ignore the tax harmonization in the European Union in the field of indirect taxation.

The European Union has no uniform tax system in place for all the 28 member countries, which means that each nation runs its own tax policies. There were, admittedly, no customs barriers, no restrictions on trade in goods and services, no restrictions in the flow of capital and labour, however, a diversified tax system was remained on the uniform market. Importantly, after the common currency was adopted by some EU members, taxation became one of the last economic instruments in the hands of the local and national governments for stimulating the domestic and foreign investments and setting tracks for economic developments within their territory.

1. The functioning of the VAT in EU countries

Insert The process of harmonization of systems in the field of tax on goods and services (value added tax - VAT) was initiated by the adoption of the so-called Sixth Directive

according to which: sales of goods and provision of services on the territory of a given country carried out by a VAT taxable person is subject to VAT as well as import of goods, tax payers are all persons who independently conduct business activity covering actions associated with production, trade and provision of services irrespective of the purpose of a given activity; there were established rules for deduction of tax paid at earlier stages of trading and basic exemptions from taxation, i.e. sales for export, providing major public goods and others. Then, in order to adjust tax rates and forms of its collection to the needs of emerging internal market in the Community, there were made two modifications of the Sixth Directive which entered into force on 1993 and stated, i.a. that VAT shall not be charged at internal EU borders and that the goods and services shall be taxed in the country of destination until the end of 1996, and from the date of 1.01.1993 the turnover shall be taxed in the country of origin, although there are exceptions to this rule. Furthermore, according to this Directive, at the latest from the date of 1.01.1993, should have to apply the standard VAT rate of at least 15 per cent and one or two reduced rates of not less than 5 per cent (Szciodrowski, 2012). The use of reduced rates was related to goods and services enumerated in Annex H and K to the Sixth Directive. Under this directive, methods simplifying the application of VAT, relating to both tax payers and tax administration, were established.

Determining the minimum levels for tax rates means that Member States can use higher VAT rates in their tax systems, in relation to these reduced and basic ones, causing differences in tax burdens between individual EU countries. However, it should also be noted that some countries in the process of negotiations guaranteed the right to apply the rates lower than the minimum ones set out in the sixth Directive. There are many indications that the process of VAT harmonization in the EU will be continued, although it has encountered numerous barriers among EU members (e.g. the lack of a common position among countries in the Community concerning the final shape of Annex H and problems with extension of Annex K to the Sixth VAT Directive. Over the past 40 years, the Sixth Directive has been repeatedly modified and corrected. In the interests of transparency and legal clarity it was considered necessary to sort out the provisions of existing directives and enclose them in a single legislative act. As a result, from 2007 it applies Directive 2006/112 / EC on the common system of VAT (Currently, goods and services taxed at the reduced rates are listed in Annex III (Council Directive, 2006)).

In the context of the application of VAT, it should be noted quite a clear trend increase in base rates, which itself has indicated since the introduction of this tax to the tax system of the country by 2015. It turns out that the average level of the standard rate for all European Union member states in the year of introduction of VAT to the national tax system was 15.8 per cent., while in 2015 it is almost 21.6 per cent., which means an increase by approx. 5.8 p.p., i.e. a change of + 36.7 per cent. (see Table 1).

TAB. 1: VAT rates applied in the EU countries

Country	The year of the introduction of VAT	Standard rate in the year of the introduction of VAT	Standard rate in 2015	Change (p.p.)	Reduced rate in 2015 ^a
Austria	1973	16	20	+ 4	10
Belgium	1971	18	21	+ 3	6; 12
Bulgaria	1994	18	20	+ 2	9
Croatia	1998	22	25	+ 3	5; 13
Cyprus	1992	5	19	+ 14	5; 9
Czech Rep.	1993	23	21	– 2	10; 15
Denmark	1967	10	25	+ 15	-
Estonia	1991	10	20	+ 10	9
Finland	1994	22	24	+ 2	10; 14
France	1968	16,66	20	+ 3,44	2,1; 5,5; 10
Germany	1968	10	19	+ 9	7
Greece	1987	16	23	+ 7	6; 13
Hungary	1988	25	27	+ 2	5
Ireland	1972	16,37	23	+ 6,63	4,8; 9; 13,5
Italy	1973	12	22	+ 10	4; 10
Latvia	1995	18	21	+ 3	12
Lithuania	1993	18	21	+ 3	5; 9
Luxembourg	1970	8	17	+ 9	3; 8
Malta	1995	15	18	+ 3	5; 7
Netherlands	1969	12	21	+ 9	6
Poland	1993	22	23	+ 1	5; 8
Portugal	1986	16	23	+ 7	6; 13
Romania	1993	18	24	+ 6	5; 9
Slovakia	1993	23	20	– 3	10
Slovenia	1999	19	22	+ 3	9,5
Spain	1986	12	21	+ 9	4; 10
Sweden	1969	11,11	25	+ 13,89	6; 12
United Kingdom	1973	10	20	+ 10	5
Average rate	-	15,79	21,6	+ 5,81	-

^a Exemptions with a refund of tax paid at preceding stages (zero rates) are not included above

Source: own calculations based on: (VAT Rates..., 2015).

The upward trend of the basic VAT rates and increase in reduced rates (or abolition) on particular goods and services are the result of reorienting fiscal policy of these countries. Currently, indirect taxes are becoming the main source of tax budgetary revenues (especially VAT), while direct taxes lose their fiscal importance. On the one hand, this requires broadening the tax base in indirect taxation and increase in rates of these taxes and on the other hand allows for reducing the fiscal burden of direct taxes, giving impetus to increase economic activity among entrepreneurs. That trend is not the exclusive domain of EU countries, but also occurs in OECD countries (to which some EU countries belong as well).

It is also worth noting that according to the theory of optimal taxation using indirect taxes, including tax on goods and services VAT, tax rates should be differentiated in such a way that the highest of them shall apply to goods with low price elasticity of demand. However, in relation to goods with high price elasticity of demand the low rates shall be applied (this has been proven mathematically and is commonly known as the Ramsey's rule), which would result in rise of indirect tax efficiency, including VAT (Ramsey, 1927). But doing so would be rather difficult to accept socially, since low elasticity of demand in relation to the price is usually shown by the first use goods (food, clothes, public utility charges, fees for utilities etc.), whereas higher elasticity usually applies to durable-use goods. Application of higher rates in relation to "socially sensitive" goods and services seems to be an unfair action in the belief of the majority of society, which might mean a real barrier in implementing such a project. But on the other hand, compliance with the Ramsey's rule is implementation of the concept that the tax system shall play a greater fiscal role ensuring adequate budgetary revenues and a role of the pacemaker of economic processes, and to a lesser extent replace - as happens at present - state social policy.

Referring to the question of future operation of VAT in the EU countries, it is certainly a worthwhile action, serving the economic development of EU countries, especially those that are below the average development level, to gradually reduce basic VAT rates to 15%, while covering the growing number of goods and services with the basic rates. In turn, reducing over time the number of goods and services taxed in accordance with reduced rates or goods and services exempted from taxation, while reducing the basic rate, would be, on the one hand, to simplify the structure of the tax itself and on the other hand would contribute to broaden the tax base. Thus, the unification of VAT rates, limiting the scale of using the reduced rates and both objective and personal exemptions is important not only to simplify the tax system, but also can provide a stable, rhythmic and efficient source of budgetary revenues.

VAT efficiency is negatively influenced by the application of reduced rates in relation to final goods, in manufacturing of which the materials covered by the basic rate were used. This results in the need to refund the tax already charged from the budget to those entrepreneurs, to whom the tax already paid by a given entrepreneur to the tax office (due to a reduced rate and thus lower price) has been reimbursed by the consumers to a lesser extent. From the point of view of achieving social and economic aims, there is a difference, whether the reduced rate applies to a final good or to a product used to produce a final good. Whereas the use of reduced VAT rates will always mean lower revenues for the state budget. In turn, the introduction of an exemption to the structure of VAT, although it is beneficial for the end consumer, in addition to diminishing the budgetary revenues, makes an entrepreneur being exempted from VAT unable to deduct the amount of VAT included in production materials, which is not economically neutral for him as a result of increased costs and reduced production profitability. An

entrepreneur wanting to make up for higher costs may attempt to pass them partially to the recipients of a product in their price. A recipient being a VAT tax payer, by selling the goods or a service will charge VAT on it, but he/she will not be able to reduce the price by the tax hidden in the purchase price from an exempted seller. Thus, tax payers exempted from VAT are not attractive partners for VAT payers. Such actions would help strengthen the role of VAT as a tool to stimulate the positive impact on economic processes, while ensuring the appropriate budgetary revenues from taxes.

Undoubtedly, more exceptions from tax, more preferential rates and a broader list of goods and services covered by them mean a smaller tax base, therefore, the necessity of a higher basic tax rate which would guarantee adequate budgetary revenues (Kuzińska, 2002). It should be emphasized that the reduction in a basic tax rate of this tax, while increasing its base, aims at not harming entrepreneurship development and obtaining an investment boom. It is impossible to lower direct tax rates, while excessively increasing indirect tax rates. Of course, this type of activities should be left to particular countries, since they create the climate for social and economic development on their territories.

2. The functioning of the excise duty in the European Union

In EU countries, the process of harmonization of excise duties is related to applying excise duties to the so-called harmonized goods, and for other products, the so-called excise goods, the taxation principles are left to individual countries in the Community. The excise duty includes both amounts and rates, but in relation to harmonized goods the amounts are applied.

Similarly to VAT, key feature of excise duty is the possibility of passing it to the end consumer (so-called phenomenon of tax incidence). In this aspect, social dimension of such actions in state fiscal policy should be taken into account, since excessive excise duty burden results in increase in prices of products, limiting their availability to an average consumer. This may imply decline in demand for certain products and, consequently, a production drop in their production plants. Thus, in economic terms, that could mean decline in production capacity, reduction of both employment and level of investments for individual companies and their business partners. Thereby, too high excise duty can have a very negative impact on entrepreneurship and its development, and in consequence on decrease in budgetary revenues. In this context the possibility to compete on the common European market or on world markets is not without significance. Price-generating character of this tax may result in the fact that comparable items will be less competitive on foreign markets due to high excise duty rates. Hence, for this reason and due to the need to create equal opportunities and comparable conditions of competition for products from different EU countries on the common market, there has been a far-reaching harmonization of excise duty rates.

Under European Community Directives being in force at the beginning of 1993 in EU countries, the levying of excise duty for three groups of products, whose manufacturing technology and forms of distribution across the EU are similar and are fiscally important for this group of countries, was regulated. A unified system covered taxation of goods included in the aforementioned group of harmonized products, i.e. alcoholic products, tobacco as well as fuels and energy (Council Directive, 2008). The essence of the process of harmonization of tax law within the EU boils down to the necessity of applying minimum excise duty rates on these products, regardless of whether they are produced in a given Member State of the Community or imported from third countries. A margin for manoeuvre remaining the responsibility of Member State includes determining harmonised rates higher than the minimum ones and shaping structural elements of this tax in relation to other products, taking into consideration the economic, social, cultural and other state-specific factors.

However, it should be noted that leaving a degree of fiscal sovereignty to Member States cannot result in appearance of elements of discrimination of domestic or imported products in the rates structure because of their quality, brand or other criteria. Excise duty is levied when a given product is released for consumption and budgetary revenues go into the budget of the country of the consumer. Determining the minimum excise duty rates in relation to exhaustively listed groups of products may be attractive from the point of view of those countries that are characterized by a higher level of tax rates and the lack of opportunity for their significant reduction. But on the other hand, countries that have room for manoeuvres to such reductions, cannot offer their production on the common market due to the imposed limitation, thus effectively threaten the products of countries with higher burdens imposed on products subject to excise duty. Although in this respect the sovereignty in the conduct of tax policy by a given Member State of EU is not complete, what can force domestic producers to compete in quality and lower production costs, not in low excise duty rates.

Another aspect of setting minimum rates should be noted here, namely the need to raise them in countries which - like Poland - have recently joined the European Community. In many areas, such a requirement due to a price-generating nature of this tax may result in certain difficulties of both economic and social nature, among others, increase in the costs of maintenance and production. In order to limit the negative phenomena, the process of gradual reaching the minimum rates level was implemented and transition periods for application of the rates lower than the minimum ones were introduced. The high level of excise duty burdens, despite the effect of tax anaesthesia relating to consumers, may lead to reduction in demand for products of enterprises and their turnovers, which can cause the collapse of many entities and job losses. Although the consumer is not liable to pay excise duty (does not pay it to the tax office), he/she usually bears the entire burden of this tax. From a business perspective, this tax, like VAT, is a burden interfering in turnovers achieved by enterprises (Famulska and

Znanięcka, 2001). Enterprises producing or importing these products may, to a greater or lesser extent, feel the potential changes in the level of turnover taxation with excise duty, which is reflected in the reaction on the demand side. Therefore, any change regarding levying excise duty on more goods, especially increase in tax rates, should be preceded by a thorough analysis of taking into account not only the current impact on the state budget, but also the impact of such changes on business activity of enterprises and the level of their competitiveness on foreign markets.

Conclusion

Conducted in EU member countries tax policy is not indifferent, both from the point of view of development of the economies of these countries and their societies. Thus, thanks to the use of instruments of this policy can have a significant impact on the behaviour of enterprises and citizens, and achieve the objectives of economic policy. Not without reason - despite pursued for decades of tax harmonization in the EU, the Member States want to maintain some independence in shaping its own tax policy, which is expressed opposition to the ideas of the total harmonization of tax systems in these countries. For the economies of all EU countries it is essential to achieve the highest possible rate of economic growth, and businesses and consumers must play the most important role in this task. Therefore, the government should create conditions conducive to the development of their economic activity, and such preconditions will have to include a low tax burden.

Unquestionably determined unification of tax legislation is necessary, but it should oppose any action that would have to deprive Member States of their sovereignty in making economic and tax law. Existing regulations guiding framework for harmonization of taxation of consumption are sufficient, although in some areas (e.g. in relation to tax rates), appear frequently as excessively interfering in the tax policy of the state. This should be an important element of the discussions and agreements in the future within the EU. At present, the most important in this respect seems to define these areas of socio-economic and legal fields, which will remain in the exclusive and independent domain of the EU Member States, which would mean the inability to impose regulations that will not be by the state or the society accepted or are socially and economically unfavorable.

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RCBS ONLINE COMPARISON SERVICES COVERAGE AND EBA PROVISIONAL LISTS

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Directive 2014/92/EU – RCBS – comparison tool – provisional list – European Banking Authority

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Abstract:

Retail core banking services for natural persons legal environment will be soon changed by “Payment accounts directive”. As a one of the preparation tasks the European Banking Authority promotes national and EU provisional lists regarding the fees on payment account. The paper deals with the question whether the most promising instrument of information asymmetry comply with the upcoming condition changes – the case of the United Kingdom. Paper also discusses the possible points to be tackled otherwise the provision lists and officially certified comparison sites might not be successful.

Introduction

Retail core banking services for natural persons (thereinafter as RCBS) term relates to basic day-to-day needs that are common to all payment accounts. RCBS are one of the key instruments in economic life of virtually the entire adult population of the European Union (thereinafter as EU). And yet in such important market one of the fundamental market inefficiencies is present in greater extent than it should be – the asymmetry of information (European commission IMS DG, 2007), (Van Dijk Management Consultants & CEPS, 2009), (CEPS, 2009).

That is one of the main reasons of (European Union, 2014) adoption. This directive, commonly known as “Payment accounts directive” (thereinafter as PAD), lays down a new rules concerning the transparency and comparability of fees charged to consumers on their payment accounts held within the EU. Mentioned goals are to be achieved through several ways. This paper will focus on two of them and on their mutual relation – national/EU provision lists and comparison services. This paper’s ambition is to point out a possible inconsistency of these ones and to comment expected influence on the information asymmetry as reason of this afford.

1. Literature and the problem overview

Although a criticism of the information imbalance disregard is even older than the Cambridge neoclassic economy, a theoretical framework of information asymmetry was introduced at a much later date by Stigler (1961) as an outcome of the search costs and as a source of price dispersion. The first term might seem much less important nowadays due to the Internet and so no need of Stigler's "shopping tour". As Kucuk, and Krishnamurthy (2007) claims, there is not just decision making process change but mainly renegotiation of consumer power (in favour of the consumer). On the contrary wide-range empirical surveys (European commission IMS DG, 2007), (Van Dijk Management Consultants & CEPS, 2009), (CEPS, 2009) suggest the RCBS market still shows inconsiderable level of information asymmetry. We found that in the Czech Republic (Soukal, & Draessler, 2015) a surprisingly low share of RCBS with activated e-banking consumers possesses optimal account regarding their service demand. An EU total number of such consumers might be as high as tens of millions if we take into account the share of banked EU adult population, see table 1. However magnitude of the problem was looked over in favour of more pressing matters such as the retail loans and insurance market information asymmetry.

TAB. 1: Share of banked population over the age of 15 in the EU in %

Country Name	Banked 15+ population	Country Name	Banked 15+ population
Romania	60,8	Luxembourg	96,2
Bulgaria	63,0	Malta	96,3
Hungary	72,3	France	96,6
Slovak Republic	77,2	Austria	96,7
Poland	77,9	Slovenia	97,2
Lithuania	77,9	Spain	97,6
Czech Republic	82,2	Estonia	97,7
Croatia	86,0	Belgium	98,1
Italy	87,3	Germany	98,8
Portugal	87,4	United Kingdom	98,9
Greece	87,5	Netherlands	99,3
Cyprus	90,2	Sweden	99,7
Latvia	90,2	Denmark	100,0
		Finland	100,0

Source: own elaboration based on (TNS Opinion & Social, 2011), (World Bank, 2015).

Previously mentioned issue of price dispersion was not clearly proven (Pan et al., 2004) on real versus electronic retail markets yet. Although it is worth mentioning that compared surveys were mostly focused on goods rather than services which is the case of RCBS and, even that surveys summary article was focused on countries with the most advanced e-markets, the results might be considered a bit outdated. We performed

empirical study focused on the RCBS market. Our findings, based on average e-banking activated consumer cluster's centroid and the model of desired prices in stochastic environment, show not negligible price dispersion issue even when the exclusive accounts were not taken into consideration (Soukal, & Draessler, 2012).

Regardless of information asymmetry manifestation a conventional way of information asymmetry involves signals, respectively as Mavlanova et al. (2012) claim, a consumer should search for firms with high-cost and easy-to-verify signals. However, due to a specific nature market regarding product unification and regulation, see (Soukal, & Draessler, 2015), one of the most effective tool were not signals but online comparison tools.

2. Problem treatment

2.1. Framework set by PAD and EBA

As a treatment of above mentioned problems a PAD was adopted. PAD defines a framework for the rules and conditions according to which member states are required to comply till 2017. Though banks do use the signals and consumers give some level of regard the PAD promotes the comparison tools as one the main solutions along with the unified terminology. Consumers in every member state have to have access to at least one website comparing RCBS fees. Web comparison pages that would be officially stated or certified as recommended comparison tool have to meet specific conditions:

- a) free of charge usage,
- b) include further comparative determinants related to the offer,
- c) be operationally independent and to disclose their owners,
- d) set out clear, objective criteria on which the comparison will be based,
- e) use the standardised terms set out in the final list referred,
- f) provide accurate and up-to-date information,
- g) include a broad range of payment account offers covering a significant part of the market,
- h) to provide an effective procedure to report incorrect information. (European Union, 2014)

The points b), e) and g) are brought together by the latest EBA initiative arisen from the task given in PAD: to appoint the competent authorities that will develop the provisional lists of at least 10 and no more than 20 of the most representative services linked to a payment account that are subject to a fee and are offered by at least one payment services provider at national level. The guidelines how competent authorities should apply the criteria, what factors they should take into consideration, how they should report their list of the most representative services etc. are to be and were set out by the EBA (2015a) provision lists initiative. The next stage includes terminology revision at the EU-level. EU-level standardisation of terminology will take place for the

services that are common to at least a majority of Member States. The goal of this framework is rather clear however do the competent national authorities and the comparison web services comply?

2.2. Provision lists compliance

Requirements regarding national provisional lists consist of 5 phases. The first one is the identification of services to be considered for inclusion. The basic requirement is to consider the general population of consumers. The services consideration is to be firstly assessed by the prevalence of the services (how often they constitute a feature of payment accounts). Secondly take into account a proportion of consumers using the service along with the number of times the service is used. Thirdly the provision of the account itself should be handled as a service. The issue of frequency is naturally complemented by the cost criterion. The focus should be on services that generate the highest cost for consumers, both overall as well as per unit, and at the same time being most commonly used. Authorities should consider fees cumulatively when determining the unit costs or overall costs of services that might attract different types of fees due to tying and conditional prices. A time framework should be annual.

The second phase establishes the provisional lists. When establishing the provisional list, a priority is given to those services that satisfy both frequency and costs criterion. Then the services that only satisfy one of the criteria are to be assessed. Other criteria should be used as an exception only. The last but important rule is to treat one service as a single one irrespective of the potential for providers to differentiate costs according to factors such as channels of usage or the identity of the receiving payment service provider. Mentioned rules are brought together in a template regarding:

- a) account management,
- b) payment instruments,
- c) domestic payment services,
- d) international payments and foreign currency-related services,
- e) overdraft and overrunning services.

The third to fifth phases are consisted of compliance response, readiness to provide supporting data to justify any decision and the submission of provisional list itself.

Current state of compliance (EBA, 2015b) is outright. 14 member states and EFTA countries, for which compliance is voluntary, stated full compliance by the spring 2015 and 12 countries intended to comply during 2015. Only Icelandic Financial Supervisory Authority did not declare oneself position however as an EFTA member the compliance is not obligatory.

2.3. Current comparison services compliance in the United Kingdom

United Kingdom is one of the innovation leaders regarding the financial market and more or less the only M-type banking system in the EU. Significant number of liberal market based proposals adopted in PAD is already being used in the United Kingdom. Also non-government institutions (such as OFT) involvement and legal dispute over the hidden fees 2007–2009 (Griffiths, 2009) show that this market is ahead of at least most of the EU member countries. That is why the compliance status was examined there.

PAD states that at least one comparison website has to be available in each of EU member states. However it can be presumed most of the web comparison services providers will try to be listed as officially acknowledged site because it would increase awareness of it and it is a sort of easy-to-verify signal. Both are conditions for the user increase fulfilling the goal of the page regarding consumer advisory and of course increasing the ads profit (with an exception of financial services that would rise sure question of equal RCBS provider treatment). Still the question is how current comparison sites comply the condition set at PAD and especially b), e) and g) conditions, see the first bulleted list in 2.1 part, that are linked to the provision lists. Whether the condition is met or not decision is based on the EBA provisional list template, with an exception of e) where “final” is swapped with “national” or “submitted”.

TAB. 2: British comparison services compliance to chosen PAD and EBA criterions

Site or service	b	e	g	URL
Which	yes	no	yes	http://www.which.co.uk/money/bank-accounts
Know your money	yes	no	yes	http://www.knowyourmoney.co.uk/current-accounts/
Money saving expert	no	no	no	http://www.moneysavingexpert.com/banking/bank-charges-compared
Love money	yes	no	yes	https://www.lovemoney.com/currentaccounts
Money supermarket	yes	no	yes	http://www.moneysupermarket.com/current-accounts/
Uswitch	yes	no	no	http://www.uswitch.com/current-accounts
Go compare	yes	no	yes	http://money.gocompare.com/currentaccounts

Source: own

Although the EBA initiative shows so far positive progress from the side of competent authorities (mostly central banks or other financial market supervisors and chambers) the situation regarding the public comparison tools is much worse. The most frequent reason for noncompliance in terms and range criterion is aim on overdrafts. Yet it is true that RCBS providers mostly charge the fees on overdrafts however a rule of at least 10 services is set out and in the discussion will be clarified why it is important to meet it. Nearly all of the services gave no regard to payment services (both domestic and cross border) and payment instruments.

The assessment result would be even worse with more demanding “further comparative determinants related to the offer” criterion. Surveyed services take into account mostly desired card type, interests, and overdraft conditions. Only the Go compare and Love money provide extended range of services related (or demanded) that determine the total fees and service range. Most representative examples are enhanced customer service, travel insurance, cash back, switching incentive, preferential rates on foreign currency.

Conclusion and discussion

However the situation seems problematic there is more than one year till the obligatory implementation of PAD into the national legal systems. With new conditions we can expect that at least some of comparison sites will add all required features to be officially listed as certified web comparison page. It seems highly unlikely that a public authority would have to create PAD required site to meet article 7, par. 1 condition.

An issue of “at least 10 services” was mentioned in previous part. PAD will face the same challenge as other directives regarding the charges. The more “manoeuvring space” the banks have the less it is probable that the legal instrument would be efficient. Let us remind the situation from 2010. When the directive 2007/64/EU was implemented the banks reacted swiftly and complied. But they did not give up on charges banned by the directive. The charges were moved from prohibited types to another types of products, see (Soukal, 2010). That is why, even for such advanced and competitive market, as the British one is, the higher number of monitored services is the better. Yes, now most of the charges are linked to the overdrafts. However who could stop the banks from moving the charges elsewhere and so to become much better in comparison within the frame of provision list obligatory services, than they truly are? The answer is nobody and it would be up the will of the comparison web provider to include other services into the comparison. A success of the effort also depends on how national authorities define “general population”. Our analysis proved that there is a specific cluster of consumers that combine both electronic as well as over the counter communication channel. However this cluster is as small as 3.4 % regarding the consumer with activated e-banking. The range of EBA provision list services is even wider and so the probability of small outlying clusters is increased. Without the inclusion of these clusters the chance of successful fees relocation rises again.

It is highly probable that PAD implementation will reduce information asymmetry for specific consumer segments – mainly those who were not aware of relevant comparison services yet and maybe cognitively lazy consumers. However it would be unrealistic to expect that it will cause significant fee reduction and levelling changes. I argue with Pan et al. (2004) finding that online price dispersion is significant, persistent and ubiquitous. Yet minor improvement is not foreclosed regarding the price dispersion and information asymmetry. So at the end it would be appropriate to conclude by Zhang, (2005) claim

that analysis shows that whereas imperfect information can be improved, it leads to new uncertainties so that the perfect information limit can never be reached.

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MIGRATION TRENDS IN THE EUROPEAN UNION - CASE OF SLOVAK REPUBLIC

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JEL classification: F22, F55

Abstract:

The paper deals with the problem of migration within the European Union, while looking at the situation in the Slovak Republic. Basically we need to distinguish on the EU level between the intra-EU and extra-EU migration. The second mentioned is very up-to date those days. The situation between the EU member states differs a lot, as more developed countries of the former EU15 still serve as receiving countries for both flows of migrants, while the new member states (from the enlargements in 2004, 2007 and 2013) serve as a sending countries within the intra-EU flows, while at the same time as countries of not interest at all for the extra-EU migration flows. The paper proves this on the case of the Slovak Republic.

Introduction

The migration is the topic of those days on the level of the European Union as well as within the individual member states. The situation between states is different, as just some of the EU's member states serve as a final destination for migrants either EU citizens, as well as migrants from abroad, meaning third country nationals. The problem of migration is very wide as while trying to explain its impacts we need to distinguish between the intra-EU migration (based on the fundamental right of free movement of persons) and extra-EU migration which is a big issue in the year 2015. The position of Slovak republic in the context of the problem of migration is in the periphery, meaning that Slovakia is more an example of a country sending people within the EU, than a country receiving people either from the other member states as from abroad. The aim of this paper is to look in more details on the situation of migration in Slovakia.

1. Methods, literature overview

This paper aims to examine the importance of the analysis of the migration flows within the EU countries. The orientation of the paper is to show, based on the case of the

Slovak republic, what we are talking about while looking at the both directions of migration flows in those EU countries which are mostly sending than receiving migrants. The paper is based on the relevant analysis, statistical data (especially for both flows of migration in Slovakia) and legislation. The methods of data analysis, synthesis and comparison, as well as a literature review and statistical methods were used in this paper.

2. Results

The right to move and live freely within the European Union (EU) and within the whole European Economic Area (EEA) is one of the fundamental principles of the European Union and European integration in general. This right was established by the primary legislation of the European Communities at the very beginning and now is one of the basic rules of functioning of the internal market within the EU, established by the present primary legislation - article n. 45 of the Treaty on the Functioning of the European Union and developed by EU secondary legislation and the Case law of the Court of Justice. The movement of people for different reasons, like work, study, family purposes, and retirement can actually yield a variety of benefits to the citizens and countries of Europe individually and to the whole EU. These include more efficient labour markets (very important for the total economic prosperity, especially for the functioning of the Eurozone), increased cultural exchanges, better-trained workers, and the opportunity for citizens to broaden their horizons.

According to the mentioned legislation EU citizens are entitled to:

- look for a job in another EU country
- work there without needing a work permit
- reside there for that purpose
- stay there even after employment has finished
- enjoy equal treatment with nationals in access to employment, working conditions and all other social and tax advantages.

In addition to the right to look for a job within the EU countries the single market was opened also for sole traders. Given that there exist the freedom of establishment and freedom to provide services in the European Union, every citizen of the EU Member State has the right freely to start a business or carry on a trade in another Member State. (Trelova, 2015) That is also why the migration within the EU is a real issue. To make it easier the EU nationals may have certain types of health and social security coverage transferred to the country in which they go to seek work.

To date, free movement of persons within the EU (or even the EEA) area has seen three main eras (Benton, M. & Petrovic. M., 2013):

- a) The free movement of European workers has a long history. It has been enshrined in EU law since 1968. The first important period of migration is that

preceding the 2004 and 2007 enlargements where most movements were small-scale and regional (such as between countries that had historical ties and bilateral agreements, e.g. Germany and Austria, Belgium, the Netherlands and Luxembourg, the United Kingdom and Ireland). Also in this period of time there existed the movement of workers between at that time non-EU member states from Eastern European countries (e.g. the Visegrad four region) and the Baltic states. The highest number of those non-EU citizens was in Germany, France and United Kingdom.

- b) Following the 2004 enlargement when large (and in some cases unexpected) numbers of eastern Europeans moved from east to west, especially to countries that chose not to restrict access to their labour markets (the United Kingdom, Ireland and Sweden). The main mobility flow was from Poland and Baltic region to the UK and Ireland (Slovak workers took part in this flow, even though in the absolute number it is not comparable to the Polish flow). Austria and Germany were the last countries in 2011 to remove restrictions for citizens from the 2004 enlargement countries, even though they experienced a modest increase in their EU populations in the post-enlargement years. Following the 2007 enlargement the main flow of new EU citizens from Bulgaria and Romania was oriented to Spain and Italy.
- c) The period since the economic crisis where an initial decline in east-west labour mobility was followed by a boost—although a modest one, according to some analysts—in movements of workers from the crisis-hit countries of the south to the more prosperous north.

Intra-EU labour mobility has also been presented as one potential response to the Eurozone crisis. Based on the theory of optimal currency zone, employment opportunities are unevenly distributed across the continent; labour mobility offers a mechanism to reduce these disparities, especially within a single-currency zone where exchange-rate adjustments cannot be used to reduce economic imbalances among countries. The question of how and to what extent flows have responded to shifting labour market conditions is therefore a pertinent one. At the same time, recent political and economic tensions—particularly the prolonged jobs crisis throughout much of Europe—have placed intra-EU mobility under increased scrutiny.

Despite the relative ease with which EU nationals can live and work in other Member States, intra-EU movement is relatively small compared to other forms of migration. While 4.1 percent of EU residents are from outside the European Union ('third-country nationals'), only 2.5 percent are EU nationals living in another Member State. Most foreign nationals reside in the 'old' European Union, the so-called EU-15. Nowadays are clear similarities between some EU countries even though their historical background and reasons for the present similarities are quite different. The similarities are in their EU-12 populations, when we look for example on the United Kingdom and Germany on the one hand, and Austria and Ireland on the other hand. We can find that Austria and Ireland have small absolute numbers of EU12 population within their populations but among the highest relative numbers (while comparing populations of

EU-12 nationals relative to their population). On the other hand the United Kingdom and Germany both have high overall numbers, but a small share relative to their population. (Benton, M. & Petrovic. M., 2013)

The present problem within the EU is mostly based on the migration from the third countries, where the main problem is to distinguish between the economic migration - which can be limited with the EU legislation and refugees, meaning asylum seekers who are protected with the international legal acts. The role of individual member states in this new situation is different, so looking for a common solution acceptable for all parties involved is very difficult. The different are interests of the member states, the EU as a whole, international community, but first of all of those migrants. That is why the aim of this paper is mostly to present the background of the situation in the Slovak Republic.

2.1. The labour migration from Slovakia

While looking at the migration from Slovakia, it seems clear that emigration (statistically we have on mind short-term emigration with the aim of looking for work abroad, as at the moment of migrating we do not know how long the migration would last) is directed mainly to the countries of the European Union. That could be simply explained, with regards to the rules of the internal market of the EU where free movement of persons plays crucial role. The main destinations of Slovak workers are Czech Republic (thanks to the lowest language barrier, common history and geographical proximity), Austria and Germany (where was big migration even before entering of Slovakia to the EU, even though afterwards those two countries restricted the access to their labour markets for the whole transitional period).

From the data in Table 1 it is clear that labour emigration from Slovakia had in last ten years increasing tendency. The logical exception in this trend was the period of economic crisis (years 2009, 2010, 2011), while from the 2012 the number of migrants is growing again. The entrance of the Slovak Republic to the EU significantly helped the emigration to the other member states.

TAB. 1: Migration of Slovaks within the EU countries (in thousands of workers at the end of the year, for the year 2015 it is the number at 30th of June)

	2004	2005	2006	2007	2008	2009
Together	103,6	125	158	177	168	129
Czech Republic	61,4	65,4	69,5	72,1	70,1	49,9
Great Britain and Northern Ireland	7,0	13,0	22,6	29,0	20,2	14,1
Hungary	6,7	11,8	16,6	19,5	18,9	14,5
Austria	7,0	9,7	11,6	15,1	17,6	19,9
Ireland	0,5	2,8	7,0	9,0	8,1	3,1
Germany	7,6	6,3	7,9	8,8	9,3	8,5
Italy	3,8	1,7	7,1	6,7	8,9	4,7
Netherlands	0,6	0,8	2,5	2,7	2,9	4,2
The rest of the world	9,0	13,9	13,3	14,3	11,6	10,1
	2010	2011	2012	2013	2014	2015
Together	126,7	115,1	120,7	136,4	134,0	141,9
Czech Republic	52,4	43,6	44,9	43,5	38,0	37,7
Great Britain and Northern Ireland	10,6	9,7	7,5	10,6	10,1	8,5
Hungary	11,6	9,8	7,3	6,1	4,9	6,2
Austria	23,9	25,6	29,3	37,9	39,3	39,6
Ireland	3,4	1,9	1,0	1,8	1,3	1,7
Germany	6,3	5,7	9,8	14,8	17,3	23,6
Italy	3,0	3,1	4,0	4,3	3,4	2,5
Netherlands	5,0	5,9	6,4	5,2	5,7	3
The rest of the world	10,5	9,8	10,5	12,2	14,0	19,1

Own processing according to: Statistical office of the SR. Short-term labour migration abroad (database DATAcube). Retrieved from <http://datacube.statistics.sk/TM1WebSK/TM1WebLogin.aspx>

2.2 The immigration to Slovakia

While looking at the opposite way migration in case of Slovakia, it is clear that Slovakia is mostly a sending country. Table 2 shows the number of residence permits at the end of the reference years. There is growing tendency, when each year there are several thousands of new valid residence permits. Since the accession of the SR into the EU in 2004, the number of legally living foreigners in Slovakia has increased more than three times.

Traditionally, the most numerous category of foreigners in Slovakia is formed by the citizens of neighbouring countries, who are mostly linked to Slovakia by work, family and social relations. For the EU countries the most populous minorities living in Slovakia are from Czech Republic, Hungary, Romania, Poland and Germany. For the third country nationals, most numerous are migrants from the Ukraine, Serbia, Russia, Vietnam and China. There were 220 migrants from Syria with valid residence permit at 30.6.2015 living in Slovakia. During last year the number has grown only by

14 migrants. The data for illegal migration show that the biggest group of illegal migrants in the first half of 2015 was from Ukraine (344), followed by Syria (154), Kosovo (111), Afghanistan (57) and Iraq (43). Even though there was an increase in the number of illegal migrants from Syria (in 2014 there were just 29 illegal migrants), the numbers prove the known fact that Slovakia is not a destination for refugees from the region of Syria, who are most abundant group in the present migration flows to some EU countries (mainly Germany). (Ministry of Interior, 2015)

TAB. 2: Number of valid residence permits at 31.12. (for the year 2015 it is the number at 30th of June)

	2003	2004	2005	2006	2007	2008	2009
Third country nationals	x	x	x	x	x	19 472	21 492
EEA nationals	x	x	x	x	x	33 234	36 830
TOTAL	29 219	22 108	25 635	32 153	41 214	52 706	58 322
		2010	2011	2012	2013	2014	2015
Third country nationals		22 932	24 333	25 019	26 157	29 171	31 043
EEA nationals		39 652	41 858	42 858	45 492	47 544	48 379
TOTAL		62 584	66 191	67 877	71 649	76 715	79 422

EEA - European Economic Area (All EU countries plus Norway, Iceland and Lichtenstein; although Switzerland is not a member of EEA, thanks to the bilateral agreements it has with the EU, the Swiss are also counted). Source: Ministry of Interior. Statistical Overview of Legal and Illegal Migration in the Slovak Republic, 2004 - 2015. Retrieved from <http://www.minv.sk/?rocenky>

The foreigners with residence permits in Slovakia represent less than 1.5% of the total population of Slovakia. It is the sixth lowest proportion on the total population in the whole EU (the lower proportion of foreigners have Poland, Romania, Bulgaria, Croatia and Lithuania). While looking just at the foreign workers, the number of them has increased more than six times. In 2004 there were 3 351 persons, compared to 20 113 in 2014, including more than 4 641 nationals from outside the EU. The illegal migration is also negligible part of the problem. Since the accession of Slovakia into the EU, the illegal migration to the Slovak Republic has decreased eight times: from 10 946 illegal migrants in 2004 to 1 304 in 2014. In 2004, 11 395 persons applied for asylum in Slovakia. During the following years, the number of applications has stabilized at several hundred per year. Slovakia is not a good example of granted asylums. In 2014, just 14 people were granted asylum. From the overall number of 57,991 applications since 1993, asylum was granted to 645 people, whereas 631 people were provided subsidiary protection as another form of international protection. Citizens of Afghanistan, Syria, Vietnam, Ukraine and Somalia applied for asylum most often. (IOM, 2015)

3. Discussion

In standard migration models, the migration is predicted to yield the gains for both sending and receiving countries, and therefore for the international, or even global economy as a whole. The concept is based on a more efficient allocation of labour resources and by facilitating the matching of workers' skills with the available job vacancies in an expanded labour market. However, the theory warns, that these benefits may not be evenly distributed between the receiving and sending countries, nor between different groups of citizens within the individual economies.

Managing migration more effectively has become a top policy priority for the many developed and developing countries. This is especially relevant today in the view of the migration crisis in the EU, but also prospects driven by the ageing of populations in majority of developed economies, followed by increased labour shortages on one hand and persistent gaps in income and standard-of- living differentials across developed and developing countries on the other hand. It is widely recognised that migration, if properly managed, may generate important gains not only for migrants but also for the host and sending countries. (Katseli, L. & Lucas, R. & Xenogiani, T., 2006)

Professor Dustmann and Dr Frattini prepared in 2014 an analysis of the fiscal consequences of European immigration to the UK. Their findings proved, that: "Immigration to the UK since 2000 has been of substantial net fiscal benefit, with immigrants contributing more than they have received in benefits and transfers. This is true for immigrants from Central and Eastern Europe as well as the rest of the EU." (UCL, 2014) Their findings could be generalized, as the experiences from other mostly receiving European countries with the internal migration within the EU were the same.

The situation is different while looking at the situation of extra-EU migration. On the case of the Slovak Republic we showed that mostly the countries which are sending countries within the intra-EU migration are not interesting for extra-EU migrants, while on the other hand the economically most powerful countries, which are destinations for intra-EU migration, serve in the same way for the extra-EU migration. This fact will have broad impacts on the future of the EU, which will be intensively influenced by the present migration crisis within the EU.

Conclusion

Slovakia is not an example of the traditional final destination for migrants. It was not affected by the dramatic increase or decrease of migration during the twentieth century. Even though the present migration flows within the EU, Slovakia seems almost exclusively as a country of origin of the migrants, a sending country. It was the accession of the Slovak Republic (SR) to the European Union (EU) and the Schengen Area that caused more significant changes. (Pawera, R. & Šuplata, M., 2004) During the period since 2004, the illegal and asylum migration has decreased and the legal

migration has increased three times. Although increase of foreign population in Slovakia, the representation of foreigners in population remains low.

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ENERGY MARKETS CHALLENGE NEW LEGISLATION

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Abstract:

The majority of European companies trading commodities, unlike their financial counterparts, were excluded from being licenced under MiFID 1 legislation package. The European Union's new financial markets regulation MiFID 2 redefines these exemptions. Companies licenced under MiFID 2 will be forced to comply with bank-like capital and capital requirements, liquidity requirements and public disclosures. The regulation also induces a requirement for the companies to adopt new risk management principles and internal capital adequacy procedures as part of their internal processes.

Introduction

The European Commission (EC, 2015) stated that an integrated EU energy market is the most cost-effective way to secure affordable supplies to EU citizens. Through common energy market rules and cross-border infrastructure, energy can be produced in one EU country and delivered to consumers in another. This keeps prices in check by creating competition and giving consumers choices when it comes to their energy supplier.

Energy markets are virtual places where buyers and sellers trade various types of energy commodities. Trading energy commodities involves a different approach than trading financial products due to its nature (some commodities, like electricity, are non-storable, involve physical flow etc.). Energy commodities are often related to security of supply and consumer prices for natural gas and electricity and are thus under increased attention of regulators.

1. European Energy Markets

Energy trading is at the heart of Europe's liberalised energy markets. European Federation of Energy Traders (EFET, 2012) posited that competitive, liquid, sustainable and transparent wholesale energy markets are essential to deliver low-cost supplies to European energy consumers. They also help energy producers, suppliers, intermediaries and large consumers to reduce risk management costs. Moreover, transparent price

discovery not only generates confidence among investors, but also, if properly appreciated, should reassure policymakers, regulators and consumers.

Green Paper, the European strategy for sustainable, competitive and secure energy of the EU (EC, 2006), states that energy policy is built on three core objectives:

- a) Sustainability - to actively combat climate change by promoting renewable energy sources and energy efficiency;
- b) Competitiveness - to improve the efficiency of the European energy grid by creating a truly competitive internal energy market;
- c) Security of supply - to better coordinate the EU's supply of and demand for energy within an international context.

National electricity and gas markets opened up to competition around the turn of this century. The objective of adopted legislative packages was to ensure a functioning market and a high level of consumer protection as well as adequate levels of cross-border interconnections and generation capacities. The main aim of the first two directives was to avoid discrimination rather than improve European cross-border integration.

Boltz (2007) posited that there was no evidence for natural market integration as potential losses at a national level were in many cases higher than potential gains from competition. Major price differences between markets in Europe sparked a discussion about wholesale markets indicating potential gains from competition. The third legislative package further liberalises internal energy market to avoid cross-border issues, regulates transmission network ownership and ensures more effective regulatory oversight.

1.1. History of EU energy market regulation

Vasconcelos (2005) considers regulation as a modern and efficient interface between the public interest, the interests of consumers, the interests of those providing regulated services under monopolistic conditions and the interests of those using the monopolistic infrastructure.

The independent national energy regulators and the foundation of free energy markets are closely related to the 1987 Single European Act, which promoted integration of national markets towards a single European market and the “1992 Internal Market” agenda. The three concepts of liberalization, independent regulation and supra-national integration of electricity and natural gas markets stem from the EU Internal Market project and are inter-related.

Most energy regulatory authorities in Europe were founded in late 1990s when the first internal electricity market directive was approved. With the second internal electricity

and natural gas market directives, adopted in 2003, independent energy regulatory authorities became mandatory in all member states.

The Agency for the Cooperation of Energy Regulators (ACER), a European Union Agency launched in 2011, was created by the Third Energy Package to further progress the completion of the internal energy market both for electricity and natural gas and can be seen as the central institution in the creation of a Single Energy Market. ACER is an independent European structure which fosters cooperation among European energy regulators and ensures that market integration and the harmonisation of regulatory frameworks are achieved within the framework of the EU's energy policy objectives (ACER, 2015).

1.2. Wholesale energy markets

Commodities undergo a variety of transformations till it become a consumer goods, like spatial transformation (transportation, logistics), temporal transformation (storage) and transformation of form (processing, refining). Constraints in transformation can vary in severity over time. Commodity firms add value by identifying and optimising transformations in commodities that reconcile mismatches between supply and demand. They invest in infrastructure that alleviates physical (e.g. development of distribution infrastructure) or regulatory (e.g. US crude oil, which is subject to export restrictions, may be refined into products which can be sold abroad) constraints (FIA, 2015).

Companies trading commodities specialise in analysing information that identifies optimal commodity transformations (spatial, temporal or transformation) in response to given price signals. Many of them seek to profit from differentials in prices of the untransformed and the transformed commodities (arbitrage involving the simultaneous purchase and sale of a commodity in different forms) rather than speculate on commodity price risk (profit on expected price movement).

Energy markets consist of a large variety of commodity firms, like fully developed trading firms operating in many or few market segments, big banks with commodity trading desks (proprietary or customer desks), industrial groups with trading and distribution infrastructure.

Commodities trading takes place either via bilateral agreements on non-regulated markets (over-the-counter, OTC) or via regulated markets (commercial energy exchanges) commonly referred to as wholesale markets. These markets are seen as the key price-signal provider for energy sector participants. Energy prices (product of wholesale markets supply and demand) affect choices of consumers and producers, investment decisions of grid operators and production facilities.

Efficient wholesale markets play a crucial role in market integration throughout the continent. A closer look into price mechanism of natural gas contracts in Europe shows

an increasing share of gas-to-gas competition (GOG), where the price of gas contracts is determined by the interplay of supply and demand on the wholesale markets and is traded over a variety of different periods, comparing to Oil-indexed prices of gas contracts (OPE), where the price is linked, usually through a base price and an escalation clause, to competing fuels, typically crude oil, gas oil and/or fuel oil. International Gas Union data demonstrate (IGU, 2015) that GOG contracts rose from 15 % in 2005 to 61 % in 2014 while OPE contracts declined from 78 % in 2005 to only 32 % in 2014.

Competition and increased liquidity on electricity markets led to an increase in cross-border electricity flow, new market-coupling areas were created (interconnection between national grids) to address different prices for electricity across Europe. Liquid wholesale markets also help national systems operators to cope with the massive expansion in renewable energy sources overloading existing grids in Europe.

Recent changes to the regulatory framework sparked a discussion about the future of wholesale markets as new legislation actions imposed additional costs (REMIT) and redefinition of business principles (MiFID 2).

1.3. REMIT

Wholesale markets can be seen as a crucial price signal provider for energy companies, traders and consumers. To prevent energy markets from being manipulated, the member states implemented sector-specific energy market monitoring practices. To implement monitoring on a macro level, the EU adopted Regulation (EU) No 1227/2011 of the European Parliament and of the Council on the wholesale energy market integrity and transparency (REMIT). The Regulation introduces a sector-specific wholesale energy market monitoring framework to detect and prevent market abuse, to ensure market integrity and transparency for the benefit of European energy consumers (ACER, 2015).

REMIT reporting brings in additional reporting requirements for the reporting of wholesale energy contracts that are not currently caught by EMIR (i.e. spot transactions, transactions relating to the physical supply of gas or electricity etc.).

Reporting requirements under REMIT:

- a) 1st phase started on October 7, 2015 - reporting of transactions and orders on organised market places (exchanges and trading platforms in Europe) and backloading (reporting of all transactions concluded before 1st phase started and remained outstanding on that date).
- b) 2nd phase starts on April 7, 2016 – additional reporting of conducted bilateral transactions with energy products traded on organised market places and backloading (reporting of all transactions concluded before 2nd phase started and remained outstanding on that date).

The main goal of the above-mentioned reporting is to monitor trading activity in wholesale energy products to detect and deter market manipulation and insider trading. The complexity of multi-party reporting shows that every concluded transaction has to be paired between counterparts and respective orders to trade concluded on 64 registered organised market places with 4 153 market participants (energy companies) in 8915 recognised standard contracts.

1.4. MiFID 2

MiFID 1 (Directive 2004/39/EC on markets in financial instrument) contained generous exemptions for companies trading commodities. New MiFID 2 (Directive 2014/65/EU) package redefines which companies and sectors will be covered with new regulations. The crucial problem for energy market participants is the definition of ancillary business exemptions, the only way how to avoid legislations bank-like requirements.

If trading companies fall under the scope of MiFID 2, they will be treated as investment firms and new capital requirements under the banking regulatory framework (Capital Requirements Regulation – CRR and Capital Requirements Directive IV – CRD) will apply to them.

MiFID 2 together with Capital Requirement Directive and Capital Requirements Regulation, impose on commodity traders new obligations:

- a) Capital, liquidity adequacy and large exposure requirements;
- b) Public disclosure and reporting requirements;
- c) Risk management (ICAAP and SREP, internal models).

For companies regulated under MiFID 2 legislation, new bank-like capital requirements - capital disclosure obligations and own capital and liquidity requirements – will apply. Capital requirements legislation requires institutions to comply with capital ratios (capital to risk-weighted assets) for their CET1 (common equity core Tier 1), Tier 1 and Tier 2 capital. Liquidity adequacy ratios include the liquidity coverage ratio (short-term resilience to liquidity risk) and the net stable funding ratio (available stable funding).

FIA (2015) considers that imposing of capital requirements obligations not suitable for commodity firms may be in conflict with the objectives of key policy frameworks such as the Third Energy Package, to foster liquidity and depth of trading in what were, and in many cases remain, relatively illiquid markets. Additional capital requirements on commodity firms are likely to lead to the withdrawal of many market participants, further damaging liquidity and market efficiency to the detriment of consumers.

Under CRR/CRD IV legislation, institutions are subject to new public disclosure and regulatory reporting. To improve the transparency of company activities, it requires annual disclosure of profits, taxes, subsidies, return on assets and risk management

objectives and policies and leverage ratios. It also requires reporting to national regulatory bodies on regular basis.

Risk management based on the companies' own risk models (regulatory reviewed and approved), Internal Capital Adequacy Assessment Procedures (ICAAP), Supervisory Review and Revaluation Process (SREP) impose rules for assessing the firm's capital and internal procedures for risk management, capital planning and its cyclical revaluation.

2. Discussion

While MiFID 1 excluded energy companies from its scope as a result of broad exemptions made available for companies trading commodities, new legislation redefines exemptions available to commodity trading. Companies trading commodities will have to be registered under MiFID 2 and fall under scope of CRR/CRDIV, MAD2/MAR legislation suited for investment companies.

Requirements imposed on firms trading commodities will significantly affects their expenditures, as a result of changes to internal processes, capital cost, as a result of higher capital requirements and regulatory risk as a result of the bulk of regulatory reporting requirements.

According to various professional groups like FIA, ISDA or EFET, new requirements may have a very negative impact on market liquidity so important for smooth energy flow throughout Europe.

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THE RESEARCH INTO THE VALUE SYSTEM OF SECONDARY SCHOOL AND UNIVERSITY STUDENTS AND THE CREATION OF AN APPLICATION FOR SELF-TESTING

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Keywords:

subjective quality of life – value system – life satisfaction – online application – database

JEL classification: I120, I310, I00

Abstract:

The article deals with the subjective quality of life and value system of the current population. It presents the results of a research from the years 2014–2015. To assess the quality of life standard the method of subjective questioning SEIQoL was used. The research has confirmed the priority of traditional values of health, friends, family and partner. In the group of secondary school students self-fulfilment and interpersonal relationships are among the top ten most frequently chosen subjects while university students on the other hand are more focused on travelling and leisure activities. Men unlike women include interpersonal relationships and entertainment in the first ten values while women prefer values of mental well-being and self-fulfilment. The study brings an original newly created application for electronic completion and evaluation of the questionnaire.

Introduction

The definition of the quality of life varies depending on the point of view. According to World Health Organization WHO the quality of life is the answer to the question - How does a person perceive his/her position in life in the context of his/her culture and the system of values? A person's goals, expectations and standards are also taken into account. (WHOQOL Group, 1995). Individual diagnostics is used to identify subjectively perceived quality of life. (*Barcaccia et al., 2013; Land et al., 2012; Wei-Ching et al., 2011; Huebner et al., 2005*)

1. Methodology of research

The study is based on the theory of life goals and focuses on the quality of life (Křivohlavý, 2010, p. 185). It uses the SEIQoL questionnaire method which brings closer the individually perceived quality of life. Its principle lies in the fact that the

respondent is asked about *five most important domains* in his/her life. The examples of the domains are health, family or education. People select the areas which make them happy, the goals they want to achieve. They focus on such life goals that they have directed their existence to and to achieve them they utilize smaller goals. (Křivohlavý, 2001)

The method SEIQoL – The Schedule for the Evaluation of Individual Quality of Life was created in 1994. (O’Boyle et al., 1994)

The most suitable way of detecting is the analysis of subjective views and conviction of the respondent – or *judgement analysis*, i.e. in an interview the interviewer helps determine the amount of importance of individual aspects.

1.1. Procedure of the SEIQoL method

The SEIQoL method is conducted in the form of a *semi-structured interview*. The interviewer has to find out the most important areas in the respondent's life. To facilitate it only these five areas are requested, because they represent the most important areas and thus should adequately reflect the quality of the respondent's life. (Strnadová et al., 2013)

In a situation when the essential areas, determining the quality of life of an individual, are selected, the respondent is asked to mark how he/she is currently satisfied with every single area. The respondent identifies the amount of *satisfaction that he/she feels with a given area* using percentages. The interviewer should ensure that the respondent actually reflects the current perception of satisfaction with the registered area and does not think instead about the importance of the areas.

The next step is to determine the *importance* of the five areas. The respondent is asked to allocate a corresponding part out of a hundred percent to each of the selected areas.

In conclusion we ask the respondent to determine how *satisfied he/she is with the life on the whole*. The most suitable way how to carry out this is to prepare the line ("thermometer") on which the respondent marks the point reflecting his/her current life situation.

The evaluation of the questionnaire is carried out through the following calculation. Satisfaction with the first life area is multiplied by the importance of the first life area. The same multiplication is done in the other four areas. These five results are added up and the total is divided by one hundred. Thus the value between zero and one hundred is obtained. It can be presented as a percentage value of the quality of life. If everything works well, the total result should not much differ from the value which the respondent marked on the “thermometer” at the end of the questionnaire when he/she was assessing the quality of life on the whole. (Křivohlavý, 2001)











2. Results of research

2.1. Group of respondents

For the case study the data was collected from two target groups of respondents – secondary school students and university students. 80 persons in total participated in the survey and filled in the questionnaire:

- a) secondary school students: 40 persons – 12 men, 28 women
- b) university students: 40 persons – 10 men, 30 women

FIG. 1: Value system of secondary school students

Life theme	Selected	Importance	Satisfaction
health	 65%	27%	79%
friends	 53%	15%	79%
family, home	 53%	30%	95%
partner	 48%	25%	83%
family	 40%	31%	83%
education	 35%	14%	56%
money	 33%	8%	65%
work, career	 25%	12%	58%
self-realization	 18%	16%	71%
interpersonal relationships	 15%	14%	70%








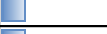
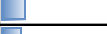

Source: own processing

The research sample were students aged 17 to 24. The research was conducted in two schools: Grammar school Nový Bydžov and FIM UHK among the students of Financial management and Information management of full-time studies. The research was carried out over the years 2014–2015. (Myšková, 2015)

2.2. Graphic processing of results and data interpretation

Almost three quarters of secondary school students select *health* as their most important value. However, this theme is not considered as important as *family and home* which have also the highest degree of satisfaction. One third of secondary school students also include *money* into important themes. Almost three quarters of them are satisfied with it but at the same time they do not give it such importance. Social issues - *friends*, *self-realization* and *interpersonal relationships* have relatively low importance but high satisfaction. The themes of *friends* and *family* are selected approximately by a half of the surveyed sample of secondary school students while *family* is regarded about twice as important as *friends*. If we merged values *family*, *home* and *family*, then they would be the most frequently selected value with more than 90% representation.








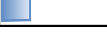
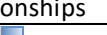

FIG. 2: Value system of university students

Life theme	Selected	Importance	Satisfaction
health	 68%	25%	83%
friends	 68%	27%	86%
family	 63%	16%	79%
partner	 43%	24%	76%
education	 33%	18%	76%
money	 28%	12%	55%
travelling	 18%	9%	49%
family, home	 15%	25%	86%
work, career	 15%	14%	37%
free time	 13%	15%	75%

Source: own processing

The first position in university students' priorities is again shared by the themes of *health* and *family* which also give the respondents most satisfaction. A new theme in this research sample is *travelling* which makes roughly half of the respondents satisfied. Also the theme *free time* appears for the first time. Three quarters are satisfied with this life value.








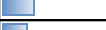
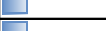
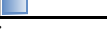
FIG. 3: Value system of men

Life theme	Selected	Importance	Satisfaction
health	 68%	23%	90%
family	 55%	29%	91%
friends	 50%	13%	81%
partner	 50%	25%	88%
family, home	 36%	32%	94%
money	 27%	8%	49%
education	 23%	18%	62%
work, career	 18%	8%	75%
interpersonal relationships	 14%	16%	71%
entertainment	 14%	14%	73%

Source: own processing

More than two thirds of men select most frequently *health* as a life theme and 90% of them are also satisfied with it. The themes of *family*, *friends* and *partner* are selected by about a half of the male respondents while they give the least importance to *friends* and are the most satisfied with *family* and *home*. Unlike women, men included *entertainment* in the top ten values and almost three quarters of them are satisfied with it. *Work*, *career* and *money* make men rather satisfied but they do not consider these themes very important.

FIG. 4: Value system of women

Life theme	Selected	Importance	Satisfaction
health	 66%	28%	78%
friends	 60%	16%	78%
family	 53%	29%	83%
partner	 43%	24%	76%
education	 38%	16%	67%
family, home	 33%	28%	93%
money	 31%	11%	64%
work, career	 21%	15%	42%
mental well-being	 16%	22%	78%
self-realization	 16%	16%	73%

Source: own processing

Also women select *health* in the first place. However, in total, the themes of *family* and *family and home* might be the competing ones and also they make women as well as men the most satisfied. In comparison with men, women's top ten values also include the themes of *mental well-being* and *self-realization* which make roughly three quarters of women satisfied.

2.3. Summary of research results

Secondary school students and university students agree on the first four life values, i.e. *health*, *friends*, *family* and *partner*. Unlike university students, secondary school students have the themes of *self-realization* and *interpersonal relationships* among the first ten most frequently chosen subjects. On the other hand, university students are already more focused on *travelling* and *leisure activities*.

Men compared to women include *interpersonal relationships* and *entertainment* in the top ten themes. Women's preferences are values of *mental well-being* and *self-realization*. The fourth position in both the groups is occupied by the theme of *partner* and it is the same in the eight position which is held by the theme of *work and career*. In terms of satisfaction with a partner men indicate greater satisfaction (88%) than women (76%).

3. Application for self-testing

The measurement of the quality of life by the SEIQoL method takes place with the assistance of a trained person who explains the procedure to the evaluated person, keeps an eye on the validity of data and categorizes more extensively described life themes (mainly because of the subsequent statistical evaluation). The assistance of this professional guarantees a better exactness and reliability of data but at the same time it makes this test inaccessible for random users.

This is one of the reasons why the application for the quality of life measurement by the SEIQoL method has been created. This application can be used not only by professionals for their patients, clients or respondents but also by anybody who wants to try out this test independently and without any obligation. It is a web application accessible on-line in any browser to anyone who is interested. It can be found on the address <http://qol.alltest.eu/seiqol>.

The interface of the application is user-friendly (see FIG. 5 and FIG. 6) and more experienced users find it immediately obvious from the brief descriptions of the individual form elements.

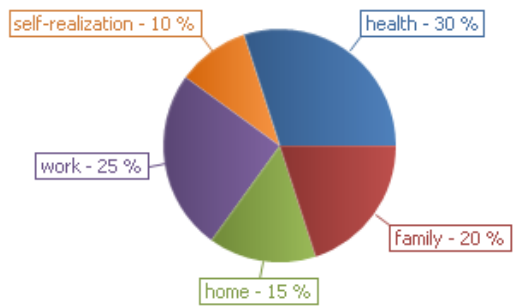
FIG. 5: Form of the app for entering data

Life theme	Importance	Satisfaction
health	30	
family	20	
home	15	
work	25	
self-realization	10	

Sum of importance: 100 *sum of importance must be equal to 100*

Overall satisfaction with life: 0% to 100%

FIG. 6: Graph - division of life themes



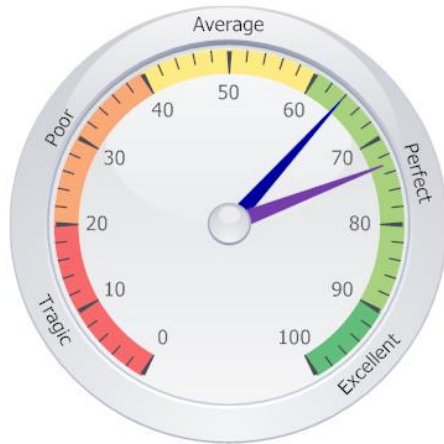
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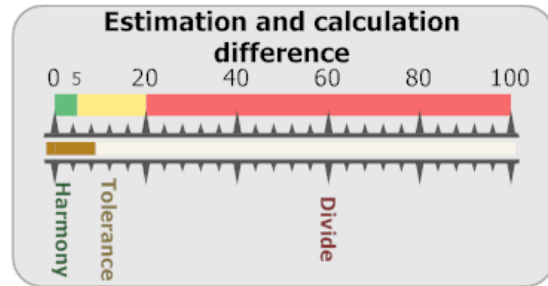
Once all the data is filled in correctly, it is evaluated. The user's life satisfaction is calculated via the SEIQoL method and it is compared with the user's estimated result (see FIG. 7). Also the difference between the both values is determined and evaluated verbally and graphically (see FIG. 8).

The data entered by the users is simultaneously saved in a database. Then a unique code is generated and added into the link, under which the user can view his/her evaluation at any time later. In addition, the stored data will be used for subsequent statistical evaluation and further research in this field.

FIG. 7: Graphical evaluation of estimated and calculated quality of life **FIG. 8: Evaluation of difference between estimated and calculated satisfaction**



Source: own processing



Source: own processing

4. Discussion

The SEIQoL method is primarily used in *individual diagnostics* of the situation of a chosen person. It is not suitably applicable to large volumes when a social phenomenon or characteristics in the society is studied. However, the method can be used to compare two groups of respondents. Either we examine one group in the range of time delay, or two groups differing in a specified feature. Our research referred to two groups which differed by two specified features - (secondary school students versus university students; men versus women).

Until now, measurements of the quality of life by SEIQoL have been carried out only through subjective questioning in a printed form with the help of an assistant - interviewer. Now a *new application* has been created that significantly simplifies this cumbersome and lengthy process and thus allows more massive utilization of the measurement. The application enables to do the *measurement electronically* and entirely independently by an examined person. It is also available *for all potential respondents* as an on-line website so that it can be used virtually by everyone.

Moreover, a significant advantage is immediate *automatic evaluation*. Everyone who fills in their data, will right away receive the feedback in the form of the inclusion of their values into the standardized categories. Of course, the measurements can be conducted repeatedly after some time and thus the development of one's life preferences in time may be followed. Furthermore, it will also be possible to compare one's personal result with the data of the other application users and to see one's situation in relation to the rest of the population.

Conclusion

Despite the prevailing cult of material wealth, security and money in today's central Europe our research has confirmed the stability of the most important values in secondary school and university students. These values are *health, family, friends* and *partner*.

Apart from immediate benefits for individual users the newly created application is also beneficial for further research. Thanks to this form of data collection our research can be *extended by a substantial number of other respondents* and thus in the future we will be able to present further and more accurate results from different parts of the world and for a longer period of time.

The results of research of values may stimulate appropriate actions in a managerial environment. Top managers in organizations should enable employees to create these values in their spare time – to strengthen their health, devote themselves to their families, friends and pursue their hobbies. Unified interpretation of common values in the internal environment of an organization reinforces corporate cohesion.

Acknowledgement

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THE PROBLEMS ASSOCIATED WITH USING COACHING AS A LEADERSHIP STYLE IN THE IT SECTOR IN THE CZECH REPUBLIC

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JEL classification: M12, M14, M53

Abstract:

This paper deals with the suitability of coaching as a method of managing employees in companies operating in the IT sector. The purpose of the paper is to present the results of a survey which was carried out on current managerial work practices; to define whether it is possible to apply the coaching method in the IT sector, as well as to discover any possible obstacles. The survey is based on a qualitative data analysis resulting from a series of interviews conducted with the managers of Czech IT companies. The research reveals that there are several barriers hindering the IT firms' use of coaching.

Introduction

The essence of coaching is to achieve a better perception of reality, as well as to increase the levels of accountability and trust in the company. These three elements are absolutely crucial for achieving the main objective of coaching, which is improved employee performance. People can reach greater levels of performance, if they use their full potential. Workers use only about 30 – 60% of their potential. (Whitmore, 2014, Somers, 2007). The coaching management style is where the manager uses coaching techniques during interviews and meetings with his/her subordinates. By his/her use of these techniques, the manager encourages the employees to be able to recognize the possibilities for solving a given problem themselves. The manager, through coaching, also encourages the employees to decide which solution is most appropriate in every situation. This management method is in direct contrast to the directorial approach to management. The latter style is where the manager tells his/her subordinates what they must do and how they are to do it (Caplan, 2003). Vint (1998), specifies the definition of coaching, thus: "the manager-coach provides his/her subordinates with a contextual setting for the problem, by showing the direction they should take; supporting them in their efforts; asking questions and listening to their answers in such a way that they, on their own, arrive at the best solution for both themselves, and for the entire company".

The purpose of this paper is to present the results of the survey which was carried out on current managerial work practices; to say whether it is possible to apply the coaching method in the IT sector, as well as to discover any possible obstacles.

1. Description of the Problem and Methods

In connection with the use of the coaching management style, it is important to remember that in some situations it is better to use the directorial management style, and to leave aside the coaching style for a short time. Be that as it may, from the long term perspective, the coaching style is considered to be the most effective management method. The growth of efficiency is attributed to the fact that in addition to its management, the employees also develop themselves. The directorial style of management is recommended to companies in the following situations. (Wright, 2005):

- a) The manager possesses the decisive knowledge to which none of his/her subordinates have access;
- b) The subordinates are working on the given task for the first time ever and they need instructions in order to complete it successfully;
- c) There is a crisis situation and immediate decisions and action from the leadership is crucial;
- d) The company, for legal, and other, reasons must operate under strictly controlled conditions.

On the other hand, coaching is suitable for the following situations (Green, 2012):

- a) When the management's main goals are employee development and with it increased work efficiency;
- b) When employees have extensive experience and knowledge;
- c) When employees are fully competent in their jobs without the manager's help;
- d) When there is noticeable devotion to duty on the part of the employees, as well as an interest in completing their tasks promptly;
- e) Where the employees are willing to accept challenges and try out new approaches.

The benefits to the firm itself, as well the employees, where coaching is practiced, are many. One of the greatest boons to emerge from the use of the coaching style of management is that it is a very effective means by which to influence subordinates. Because the managers spend so much time with the employees during coaching sessions, they develop an interest, not only in their work, but also in the workers themselves. This helps the managers to awaken the employees' full engagement, and willingness to take maximum responsibility for their work. Whitmore (2014), sees further advantages. He places in first position among the benefits of coaching, increased performance and productivity. In other words, the main aims of coaching. Higher performance is achieved by the ability of coaching to remove barriers and so to unleash human potential. Another advantage is the continuous development of employees, and with it improvements in the related ability to learn. Other advantages of the coaching

method of management are, for instance, improved management/labour relations. If the employee feels appreciated and that his/her talents and efforts are recognised, he/she is often willing to take the initiative on his/her own to help resolve future problems as they arise without being told by a superior to do so. This creates a much faster response in the event of the emergence of a threat to the company, as well as more efficient problem solving abilities. The company as a whole is more flexible and able to adapt to new realities. Despite the fact that all these advantages appear so tempting, there are often various obstacles which prevent changes being made to the overall management approach which would allow the commencement of active coaching (Whitmore, 2014). The greatest of these barriers could appear in firms where there is a certain type of long established management practice in operation and the employees are used to it. The results presented in this article come from primary data. The research itself was aimed at those aspects of management which enable us to better understand the whole question of managing people in the IT sector:

- a) Find out the general approach of managers of firms in this sector to leadership, and become acquainted with currently used practices;
- b) Identify the barriers preventing the use of coaching as a method of management in companies, and reveal the extent to which any barriers that are identified effectively limit the use of coaching as a management tool.

The qualitative research method was used to obtain data and information. The chosen method was interview. Interviews were carried out with employees who were members of top, or line, management in their firms. The criterion used in choosing respondents was that they had to have at least two subordinates. Therefore, the respondent held an executive position and could fill the role of manager using the coaching management style (manager – coach). The outcome of the interviews conducted with senior managers is a collection of data, in the form of answers, which were recorded in audio form for further processing. In this way the authenticity and completeness of the data was preserved. The structure of the interviews was uniform in order to facilitate the comparison of the answers from the various respondents and thus to draw conclusions of a more general nature. It was a semi-structured interview, whose core always remained the same. Before the data was analysed, it was transcribed into text form and at the same time there was carried out the so called reduction of the first order – the removal of sentences [or parts thereof] which did not carry any information, as well as that of unimportant terms. Thanks to the fact that in this research, we only analysed the data arising from the factual content of the interviews, the reduction made for a clearer and smoother output. In the phase of the preparation of data for analysis, we used the coded text – more frequently occurring themes were systematically marked with the aid of key words and other markers for further stages of analysis. To the substrates thus prepared, we then applied partial qualitative data analysis procedures. First, the clustering method was used. This consists of grouping certain statements into groups based on their content and compliance overall. This gave rise to the more general

category of uniform shape, which repeated the same characteristics. These more general groups were then possible to understand as results of the research (Miles & Huberman, 2013). The second method which was used during the analysis was the method of contrast and compare. By using this technique we have been able to recognize deeper differences within and without the identified groups. Thus, it was possible to uncover the diverse nature of the statements from the individual groups. Examples of these are the contextual differences in the environments of the various companies in which the research was conducted (Mikovský, 2006). In the final phase of the research, the groups were identified by use of the general terms analysis method. From this analysis method we could tell more precisely what barriers to coaching the executives faced, and which of them they perceived as being the most critical. The research sample included 90 respondents from 30 organizations operating in the IT sector in the Czech Republic. This is a random sample. The research was conducted in the period November 2014 - May 2015.

2. Identification of the Perceived Barriers to the Use of the Coaching Style of Management

The aim of this research was to identify the possible barriers to the use of the coaching management style of leadership. It showed that in everyday practice there exist many obstacles which make the coaching process more difficult, or even exclude its use completely. These obstacles can be, according to their nature, divided into several groups. The first group can be those barriers which spring from the organisation itself as a whole, and from the people who work there. From the point of view of the manager, these are internal barriers. The second group of barriers are those arising from the fears and assumptions of the managers about themselves; - these are the manager's own individual internal barriers. The last, and for firms in the IT sector a very important group, are those barriers relating to the nature of the work itself – we can call them 'work barriers'.

2.1. External Barriers

Research respondents in this area perceive the following barriers to the use of the coaching method:

- a) The worker's own character traits;
- b) Aversion to change; bewildered reaction to coaching;
- c) Interpersonal relations and emotions in the area of people management;
- d) Time demands in the implementation and application of coaching.

The study shows that people's character traits appear to be the crucial factor affecting the utility of coaching. The majority of respondents mentioned this in their answers. It shows that a certain group of people practically cannot be coached. Some people are not proactive; they do not like to seek out new things and experiences and are not open to

various discussions. For such people, use of the coaching style of management is completely ineffective, because the process with these people would get nowhere with the questions posed. They need to receive precise information and instructions; only then are they capable of turning in an excellent performance. Two factors come into play here. One is age; younger people are often more open to the coaching approach. With older workers the use of coaching is more problematic. However, this is not a universal rule. Experience also plays a role. More experienced workers can be coached to a greater degree. People's aversion to change is, to a greater extent, another obstacle to the use of coaching. For some people it can be difficult to 'suddenly' change from their long accustomed methods of working. This more or less depends on people's character traits. Contemporaneous with this is the obstacle presented by the certain style with which people are accustomed to receiving instructions. People, from force of habit, expect that they will receive answers and information. Instead of that, when someone asks them questions, they do not know how to answer and do not understand the situation. In cases where a company starts using the coaching style of management on a larger scale, these employees could, for reasons of preference for a different management style, go to work for another firm. Another sticking point for the application of the principles of coaching is also the presence of deteriorating relations both between individual employees and also, for instance, between departments. If two people cannot communicate, either in everyday, or in work-related, situations, then the use of coaching with them is doomed from the start. An inseparable part of this situation is the bringing of negative emotions and their own interpersonal relations problems to the workplace. One of the major obstacles to the use of coaching is its time consuming nature. This can be an obstacle for many reasons. One obstacle is the process of explaining and implementing coaching in companies, and the second one is that, even when it is being used, the very nature of the jobs in the IT sector may limit, or preclude its usefulness.

2.2. Internal Barriers

The second group of barriers are those connected to the respondents themselves; the current managers. It concerns those barriers which reflect their personal fears about themselves, their abilities and assumptions:

- a) Their self-control when using coaching ;
- b) Insufficient judgment;
- c) Their perceptions of the managerial function;
- d) Their erroneous understanding of the principles and techniques of coaching;
- e) The coach's personality.

Many respondents agree that for them self-control, while applying the principles of coaching, is a big obstacle. They are afraid that they may not be able to maintain a suitable distance; which is necessary for coaching; in every situation. Maintaining a distance is difficult for managers for two different reasons:

- I. Their habit of managing in a directorial manner;
- II. The elimination of their own suggestions and thoughts.

The first of these reasons is the managers' habit of doing things as they 'have always been done'. Most of them currently use the directorial management style, therefore the change from making declarative sentences to asking questions could be very difficult for them, at least in the beginning. The second reason, why self-control is a problem for managers, is their insufficient level of detachment from their own proposals and solutions, as well as from their own thoughts, generally. Some respondents, for instance, are afraid that they could not control themselves, and at a certain moment they would spontaneously start using the directorial style of management. The reason for this is that they have their own concrete ideas on how to solve the given problem, which is different from those of their subordinates. The managers also have a problem with discussing certain topics and they suppress their thoughts if the conversation starts to take a different turn. During the interview, there appeared the opinion that the obstacle to managers starting to use coaching, or even where they refuse to even try it, is their lack of willingness to change. Another barrier to the use of coaching can be the perception of the managerial role. Some respondents are of the opinion that thinking of tasks; their delegation among subordinates, thinking up techniques, understanding the wider contexts and sense – are primarily managerial roles. They see themselves as those who should carry out these functions. In addition, lack of understanding, or erroneous understanding, of the principles and techniques involved in coaching people, on the part of those who should be carrying out the coaching; i.e., the managers, is also an obstacle to successful coaching in firms. It was also mentioned in interviews that many coaches cannot carry out coaching effectively, because they do not possess the qualities necessary for effective coaching.

2.3. Work Barriers

We can count among the work barriers the following factors:

- a) The time limits related to work and task completion;
- b) The nature of the tasks, and work, generally, in the IT sector;
- c) The customer's demands and the nature of the firm's product.

Firms in the IT sector carry out, to a large degree, specific tasks - both from the point of view of content; result quality; resources and time. Space is small for the application of coaching principles in the assignment of tasks because employees are under time pressure as well as their having a lot of work to complete within a set time. Apart from the limited time space, another barrier to coaching is the current period of crisis. Respondents almost unanimously agree that whenever a crisis situation started, there is no space for creative thinking, and so coaching and its principles must be completely abandoned. At such times, managers must make very fast decisions themselves and revert to the directorial management style so that they can give each subordinate clear

information and instructions. The nature and substance of most of the jobs to be done in the IT companies are absolute barriers to the use of coaching in such firms. It emerges from the interviews that the characteristics of IT jobs, in general, places limits on coaching. It is almost impossible to use coaching when delegating certain tasks. This is because the tasks are mostly of a procedural nature. Nonetheless, the interviews reveal that despite most IT tasks being of a procedural character, there are also less specific tasks which need a certain amount of creativity – in such cases the respondents could envisage their using coaching. The nature of the tasks is very often [however, not always] influenced by the demands coming from outside the organisations themselves – i.e., from the customer. IT firms' customers almost always give precise specifications which the product [mostly software], or service, should have.

3. Discussion

On the basis of the results, possible solutions which would enable the wider use of coaching in IT firms can be discussed:

- a) Acquaint all employees with the terminology and purposes of coaching, change managers' views of the time spent in coaching; help them to see it as an investment in the achievement of increased performance in the future;
- b) Support the organising of coaching meetings, as well as smaller coaching conversations. Choose for the role of internal coach such employees as have achieved the quality level necessary for a good coach, and who have a lot of emotional intelligence;
- c) Recognise the 'coachability' of employees, and according to that, select an appropriate leadership style. Use coaching to the greatest possible extent in delegating tasks of a more complex nature. Certain elements of coaching must always be used when assigning tasks – without regard to the nature of the task. Use the principles of coaching during strategic meetings, regarding the firm's possibilities for future development, which are chaired by the company leadership;
- d) Coaching through the understanding of an individual's values will help you to find his/her personal motivational factors. Coaching is done to help employees orient themselves in their demanding work situation, clarify priorities or to discover the causes of worsening performance;
- e) Coach the employees in the area of time management, too, so that they achieve greater efficiency in the use of time. Use coaching in the sales department in order to uncover the employee's insufficiencies and fears, which could affect their success in sales. Use the elements of coaching when making plans for the longer term. Coaching is also useful in the regular evaluation of employees.

Conclusion

The article presents the results of the extensive research which was conducted concerning the management of people in firms in the IT sector in the Czech Republic. In addition, the research uncovered the potential barriers to the use of the coaching

management style. On the basis of these results it is possible to take a critical look at the possibilities for using such a management style in such a specific sector. It also enables us to discuss solutions which could help us to increase coaching activities in these firms. The research has yielded particularly significant findings regarding the barriers to effective coaching which exist in the IT sector. This research may be useful in resolving problems associated with coaching in this sector of the economy. Although many barriers arise from the objective conditions inherent in these organisations, these firms' management can still consider implementing this approach to people management.

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MARKETING MANAGEMENT PROCESS IN THE ENVIRONMENT OF E-COMMERCE

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e-marketing management process – marketing management – marketing – e-commerce

JEL classification: M15, M19, M39

Abstract:

This paper deals with the marketing management process in e-commerce. The main objective of this paper is to theoretically propose the marketing management process (model) in e-commerce and its impact and coherent relations with other business processes and e-commerce environment. This process respects the specific environment and other aspects of e-commerce. The theoretical part consists of current knowledge about marketing management process and the e-commerce. The analytical part proposes the theoretical marketing management process in e-commerce. The main contribution of this paper is the proposing the e-marketing management process, because on other academic source and other papers focus on the issue examined. Other research activities will be based on experiment on usage of theoretical process in practice.

Introduction

In today's business world, the importance of marketing is increasing. This proves that in many companies, the cost of marketing is up to 50 % of total business costs (Kotler, 2003). Marketing is "a process, by which individuals and groups by creating and exchanging products and values for other products and values, acquire what they need and want" (Kotler & Armstrong, 2009, p. 26). Modern marketing is affected by the digital revolution, resulting in a substantial increase in purchasing power, a greater variety of available goods and services, a larger amount of information about practically anything, easier contacts and serving and taking orders or opportunity to compare reports about products and services (Kotler & Keller, 2012). According to Capon (2001), customers are different than before: demanding, individualistic, better informed and more critical. The starting point for marketing during the information age is a priority customer orientation in relation to personalized marketing, the transition from marketing focused on traditional market to marketing focused on digital market, as well as implementation of a comprehensive marketing, which integrates the known procedures and principles (Kotler, 2000; Pilík, 2008).

1. Theoretical Framework

Marketing management should monitor all these parameters continuously and evaluate and if necessary, take appropriate action. The need for professional approach lies in tracking market trends, customer knowledge and estimates of future demand. Nowadays, for a successful marketing management particularly important factors are following: good (unique) strategy, information systems, qualified staff, quality products and services. Marketing management includes these important issues (Kotler &Cox, 1980): analysing the marketing opportunities, organizing the marketing activities, planning, controlling the marketing efforts. Marketing management is an integral part of the management and represents the company's continuous efforts to allocate existing resources as efficiently as possible to the target markets and programs with a potential for growth. The basic aim of marketing management is to achieve competitive advantages by creating an effective relation to the target segments, selecting marketing strategy with corporate objectives and effective selection and motivation of marketing management implementers. According Kotler and Keller (2012), the main tasks of marketing management lie in developing marketing strategies, plans, getting information, making connections with customers, creating strong brands, creating the market supply, creation of distribution networks, communicating the value or creating the long-term growth. Marketing management is a necessary means for a long-term success. Unfortunately, during the time of recession, the necessary of marketing is decreasing. However, according to Kotler and Caslione (2009), this mistake could lead to the loss of market share and innovation potential. Meyers (2007) defines marketing management as a business category, which creates the marketing more effective and efficient and which is responsible for streamlining and automating the processes. It encompasses the entire marketing lifecycle from planning and budgeting to implementation of the activities carried out and analysing and reporting. Webster (2002) states that the main functions and effectiveness of marketing management are based on customer orientation, sophisticated strategic management and stimulating the demand. Kahn (2009) underlines the importance of teamwork in the final process of marketing management, which should be concentrated in a defined or designated team. Tsai (2008) argues that the process of marketing management should become an integral part of the corporate identity, which is co-created by marketing manager, filling a number of management and marketing functions. Cant et al. (2009) highlights in the process of marketing management some managerial and strategic instruments that create a synergy effect of the whole process. These include decision-making process, creation of a competitive, growth strategies and top management cooperation with other departments of the company and other external and internal factors affecting the final outcome of the process. Kazmi (2009) declares that with a development of the Internet market and information technologies, the new possibilities are opened up for the concept of marketing management. This is mainly due to the globalization process, which provides a large amount of input data and their subsequent comparison to efficient process of the current marketing management. Weitz and Wensley (2002)

reported the main themes of contemporary marketing management in relation to the general social issues and topics related to consumer protection. The topics of marketing management are concentrated mainly in relation to the classical marketing mix 4P, while respecting other external factors that significantly influence the process of marketing management. Blažková (2007) states that marketing management and its strategy is among companies underestimated. Large and multinational companies utilize the concept of marketing management in greater or lesser extent and the strategic management is an integral part of their business activities. For small and medium-sized companies in this area, weaknesses are discovered. The further research surveys (Hommerová & Králová, 2009) conducted in the studied area show that Czech companies do not perceive marketing as one of the most important part of the management (Pilík, 2008). Hill and Rifkin (2000) reported ten rules of the radical marketing management), which present the how to achieve the business success.

2. Material and methods

The main objective of this paper is to (theoretically) propose a process model and the individual process steps of marketing management that is tailored to the needs of e-commerce. This process model is then illustrated by the e-commerce environment (internal and external). The process model is based on the study and analysis of documents and other resources on the inquired field, modelling and simulating the environment of e-commerce.

3. Marketing management process (Statement of the problem)

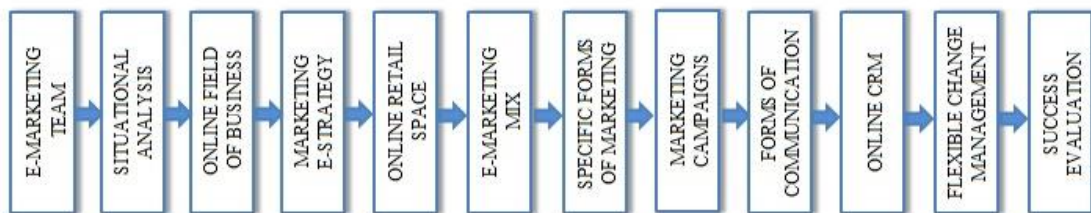
For a successful marketing management process in e-commerce (called as well as e-marketing management process), it is necessary to define the main process (see Figure 1), which leads to a clear concept of e-marketing management. This paper proposes various general points for successful e-marketing management, which in this form can contribute to the increasing competitiveness of companies trading mostly electronically. Over the years, different opinions have been formed on the concept of marketing management process, which reflect the effectiveness of the investigated field. Consensually in practice and theory, a model is applied that includes phase of analysing, planning, implementing and monitoring and controlling. However, this model has a limited validity, since it ignores in its initial phase the environmental factors, opportunities and factors for the creation of strategy and marketing program. These deficiencies are eliminated by the marketing management model by Boyd et al. (1995). This model highlights the importance of making effective and unique strategies at the level of the entire company, while respecting environmental factors. In the next phase it emphasizes the analysis of the market and opportunities through the analysis of environment, competitors, customers, strategic changes in the industry (expected, unexpected, positive, negative), the creation of preparation for marketing research and control system and its critical standards. At this stage, the segmentation of market,

targeting and positioning e- should be realized, which Kotler (2003) regarded as a necessary strategic processes to the creation of a marketing mix. On a basis of analysis, a business and corporate strategy should be refined that creates the base for a marketing program. Furthermore, marketing program should be developed regarding the main strategies in major markets. In the last phase, a strategy is created in accordance with the marketing program, and at the end of process, a system of controlling measurement and monitoring is realized. These principles of marketing management are also identified by Lee and Carter (2012), who put a great importance on analysis of individual environmental factors in relation to the concept of marketing strategies and basic management principles. Stevens, Loudon and Wrenn (2012) add that the entire process should be after its implementation focused on customer associated with his wishes and needs. The entire process of marketing management should be according to them holistically oriented. Lancaster and Massingham (2010) add in the process of marketing management stress the possibility of precise targeting and the importance of marketing information system.

4. E-marketing management proces (Problem Solving)

For a successful marketing management process in e-commerce (called as well as e-marketing management process), it is necessary to define the main process (see Figure 1), which leads to a clear concept of e-marketing management. This paper proposes various general points for successful e-marketing management, which in this form can contribute to the increasing competitiveness of companies trading mostly electronically.

FIG. 1: E-marketing management process



Source: own

The steps in the e-marketing management process are described in the following passages:

1. *The selection of the marketing team.* For effective implementation of marketing activities, it is necessary to select marketing manager, who is responsible for all marketing results. Through his staff and its managerial skills, creativity, cooperation, teamwork, effective communication and motivation, he could be able to achieve main marketing and other business goals.

2. *An analysis of internal and external factors that affect e-commerce and the Internet company.* For a thorough analysis, it is necessary to ensure high quality information that requires knowledge management principles. The analysis should explore the selected factors (political, legislative, economic, social, technological, etc.) that affect the market and industry, evaluation of market position and status of current and potential online and offline competition, evaluation of potential risks and assess their seriousness, assessment of business partners, suppliers and customers. Practice shows that this phase many companies underestimate or do not use the results of the analysis for further activities and decision-making process.

3. *Defining the scope of activity.* The company trading mostly electronically should make the necessary strategic steps before starting marketing activities. It should define the segment, on which it will operate (in terms of territorial, behavioural or demographic segmentation; it is customary at the beginning of the business plan to focus on the Czech Internet market) and whether it will trade only electronically or also on the traditional market. One of the most important steps is to define the target group of customers, for example in the Internet community's most prominent group of age group between 15 to 45 years with moderate incomes. It is also necessary to define the location and identification of customers with the brand (positioning), which creates a basis for strategic brand building (branding). This phase is also necessary to obtain quality information and data that can provide a knowledge management system and knowledge of marketing. The key knowledge of marketing are (Svatošová, 2012):

- *Knowledge of the market with regard to geographical conditions.* Geographic location plays a key role in the market. It will be appreciated that each market can have a wide range of specificities, which affect demand and other needs.

- *Knowledge of own products, services and their options.* Each marketing professional should be thoroughly familiar with the products offered, i.e. the knowledge of production technology, quality, technical and functional characteristics, support services etc.

- *Knowledge of competition.* It is necessary to know the situation on the market, where the product is moving, i.e. what the competition offers, for how much, under what conditions, if their offer is better or worse, what benefits and conditions of sale offers etc.

- *Knowledge of market development.* It is necessary to know the forecasts of market development, i.e. whether the market is stagnating or ongoing expansion in any direction, what the competition is preparing, or what the latest scientific findings are.

- *Knowledge of customers.* Equally important is to know the customers, both existing and potential. A successful marketer should constantly monitor the demand and its

fluctuations and flexibly respond to them. Demand and supply can differ widely depending on the type of goods offered.

- *Knowledge of the impact of marketing resources.* It is necessary to perfectly know how different mechanisms of various kinds of promotion are working and what its implications for the designated target group of customers are. Workers of marketing departments are forced to constantly find new forms of promotion, or work on modifications of existing ones.

- *Knowledge of laws and regulations.* It is necessary to acquire knowledge of all laws and regulations related to the offered products and services. This knowledge should be updated regularly with the changing these standards and other laws. In the case of negligence or omission of some important provisions of laws and regulations, damage and subsequent loss of customer trust and outflow of customers are threatening.

- *Understanding and complying with ethics.* It is necessary to respect the values and rules that generate ethics. Some types of behaviour are not punishable by law, but they are not socially permissible and acceptable. Under the ethics threshold, we can include methods of promotion associated with death, health or general morality, or threaten the moral education of youth.

- *Knowledge of communication and means of communication.* It is necessary to acquire good communication skills for understanding the customers. A successful marketer should acquire knowledge of psychology of advertising and sales, personality psychology and the ways and forms, through which it is possible to lead a productive dialogue with customers.

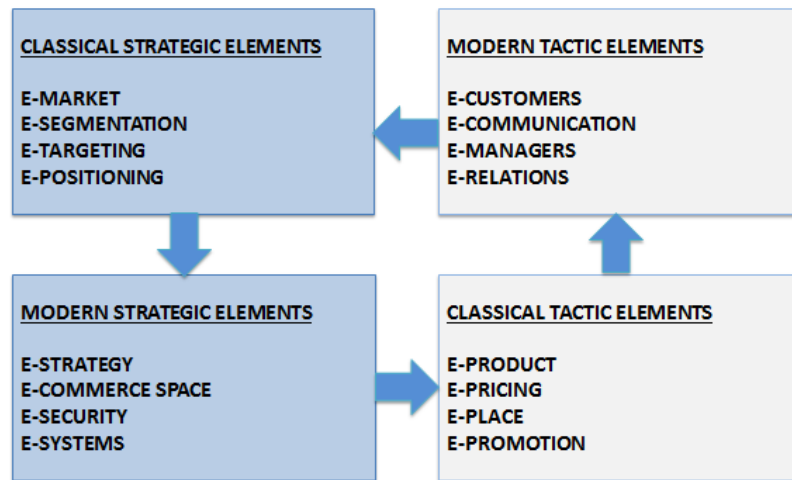
- *Knowledge of the innovation processes.* Currently the companies is facing a dilemma - if they do not innovate, will cease to exist, and if they innovate and their innovations are not successful, they may cease to exist as well. Nevertheless, it is surer to be innovative than to be stagnated (Kotler, 2003). Knowledge of the innovation process (along with invention and creativity) leads to innovative practices not only in marketing.

4. *Creation and implementation of marketing e-strategy.* Companies underestimate the importance of strategy and do not consider it as important. However, the most successful companies in the world declare that the basis for success is a quality and unique strategy. A successful marketing e-strategy is based on the mission, vision and corporate strategy, which should be formed in line with the identity and culture of the company. All employees of the company cooperate on implementing the successful e-marketing strategy, which becomes a powerful competitive weapon. This is necessary to establish a list of tactical and operational steps that will encourage the essence of marketing concept. When creating a marketing strategy in e-commerce, it should be taken into account factors (external and internal, positive and negative, on the basis of

analysis results) that influence the progress, development and implementation of e-strategy. Creation of e-marketing strategy takes into account the principles of knowledge management and marketing.

5. Preparation of the Internet sales space. Preparation, design and administration of web sites (e-shop) are considered to be the key strategic steps. Although many publications or experts are dedicated to the web design, finds significant shortcomings still could be founded in this area. The Internet company should realize that one of the main tools for success are high-quality and user-friendly website that motivate the users to buy. Web design uses the knowledge of marketing and visual communication, interaction design, psychology (particularly in influencing shopping behaviour and decision-making) and other related fields, which is complemented by appropriate marketing activities. The ultimate aim of web design in e-commerce is its utilize as a key instrument of competition. Based on web design, the have to be technically well prepared, but also convincing enough to fulfil their economic and non-economic function. For e-marketing manager, it is necessary to find a quality designer that creates flawless functionality and attractiveness of the website. This stage requires thorough preparation of the e-marketing manager and his team in choosing the web design strategy. The quality and functional websites with subsequent marketing activities can constitute up to 80% of the success in the online environment. Important is then ready websites interconnected with forms of internet marketing (social media, banner and text advertising, SEO, SEM etc.).

6. Tactical choice of e-marketing mix. For a company trading mostly electronically, it is important to define key tactical tool, through which it fulfils its strategic objectives. Most companies are limited to elements of classical marketing mix 4P, some of these elements are preferred more compared to others – in the case of Internet companies, it is most commonly pricing and promotional policy. However, theory and practice confirm that no consideration of the marketing mix elements at the same degree and priority reduces the effectiveness of business activities. In addition, the marketing mix is misinterpreted as a strategic tool and its classical form for e-commerce and business today is not entirely suitable. Therefore, the author of paper proposed an e-marketing mix (see Figure 2), which reflects the needs of current online environment. Diagram of e-marketing mix reflects the strategic and tactical processes that can ensure the effective fulfilment of objectives in the area of e-commerce. E-marketing mix can be understood as a cycle, which consists of two strategic and tactical two stages, involving hard and soft elements of today's Internet market.

FIG. 2: E-marketing mix

Source: own

7. *Selection of specific forms of marketing.* Internet companies primarily focus on Internet marketing tools (website optimization, website analysis and its attendance, Search Engine Marketing or banner or text ad), and other tools of modern and traditional marketing are used rarely or not at all. It is obvious that especially start-up internet companies cannot afford a costly marketing campaign, but the purpose of marketing is to attract the attention so that its brand and products could be developed into a broad awareness. This could be ensured by a low-cost form of marketing presentations (guerrilla marketing, social media marketing, viral marketing, online public relations etc.), often with higher efficiency than with traditional marketing media. The trend for current e-commerce is the using of conversion marketing, which aims to increase a conversion rate (i.e. percentage of the total number of users who had finished their purchase conversion) and that Internet companies often neglect, even though it is one of the key e-commerce activities. The average conversion rate of Internet companies is between 2.2 and 2.9%. The best conversion reached 12%. However, it is necessary to selected forms of marketing to create a single integrated unit, which completes the form of e-strategy.

8. *Creation of individual marketing events and campaigns.* These campaigns should be formed in a line with long-term marketing plan. An example is a distinctive viral advertising, which raises awareness about a product or brand, consumer contests, loyalty programs, discount events, the campaign focused on a single product, a campaign aimed at the entire brand, using the elements of buzz marketing, affiliate marketing, advergames and others. Their creators and implementers should be able to estimate the extent of their effectiveness. This activity requires a considerable degree of creativity and estimation of trends. In some major steps, the marketing campaigns could be outsourced.

9. *Selection of (online) communication method* with existing and potential customers and online monitoring of the Internet community. Internet companies choose, as the most common method of direct communication, online e-mailing, telephone support and others. With the dynamic development of Internet environment and the behaviour of the Internet community, this form of communication loses its effectiveness. Marketing trend is actively involved in social media, through which it is possible to precisely target a selected form of marketing activities. Many Czech Internet companies are often confined to a passive presentation of the company on Facebook, without any other support and active communication. This form of marketing tool loses its meaning and effectiveness. Marketers should realize that success of marketing on social networks and media is based on active communication and support to the user community. It is often defined by the responsible person, who is in charge of only the active management and distribution of marketing tools through social media. At the same time, Qualman (2012) estimated that 93% of companies use social media to business. Social media is changing the lifestyle and needs of online customers, whom it is necessary to be adapted. It is also necessary to monitor the evolution of views on a brand or product.

10. *Online Customer Relationship Management (CRM)*, i.e. building-up the confidence, security and customer orientation. This concept should allow recognizing, understanding and anticipating the needs, wishes and purchasing behaviour of online customers and ensure two-way communication between the company and customers. This can be achieved by quality information, effective online communication tools and online communication mix. Companies have to monitor customer satisfaction and strive to increase it. Practice shows that the costs of acquiring a new customer can be five to ten times higher than the costs of care for existing customers and retaining them, while a five per cent reduction in the rate of outgoing customer may lead to increased profits by 25 to 85%, depending on a concrete industry (Kotler, 2003). To build relationships with customers, it is necessary to increase the level of credibility and quality (e.g. awarding a quality certificate by Czech association APEK etc.). Many surveys show that 78% of consumers trust recommendations before buying the product (both personal and through discussions on social media), only 14% said they trusted direct advertising and only 18% of television advertising campaigns showing positive ROI (Return On Investment), (Qualman, 2012).

11. *Flexible response to change*. Online marketing team would be flexibly adapted to changes in the market or actively induce and control through the change management process. It is necessary to respond to increased online demand at Christmas time and effort to satisfy each target customer, as well as building credibility (security of online shopping seriousness of seller, quality certificates etc.), as well as strategy review due to the expansion of online trading (setting up a physical store, the expansion of storage space, a change of personnel management, expansion of distribution channels, etc.). The company trading electronically should also actively monitor and follow trends that are

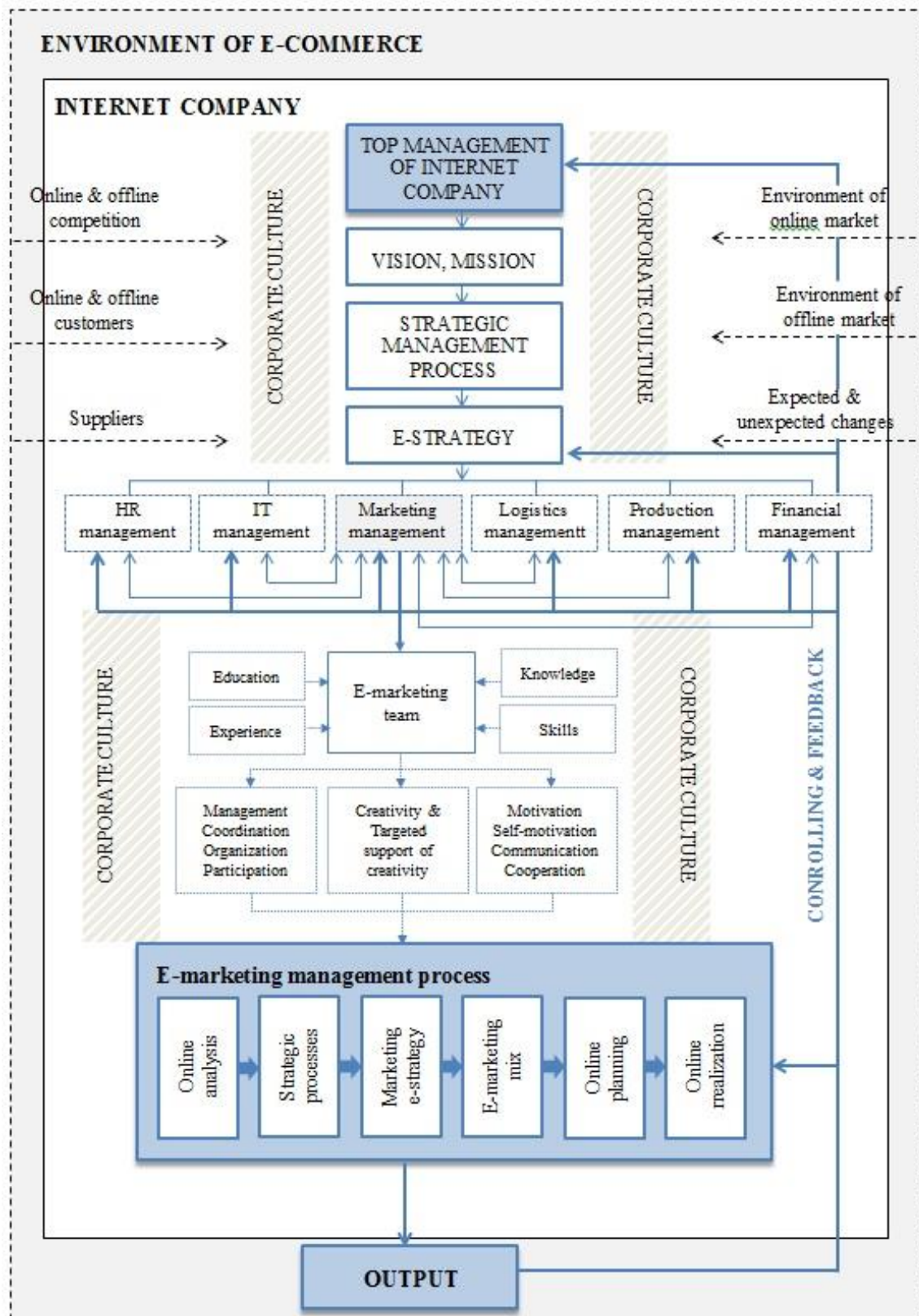
shaping the e-commerce, such as the development and security of online and offline payment systems, the development of prices on the Internet or configuration of e-commerce options for tablets and smartphones and others.

12. *Evaluating the success of partial marketing campaigns strategies.* During the planning process, it is necessary to determine, how to measure the relationship between planned and actually achieved the target, f. e. by marketing audit, which consists of a control of strategy, performance, profitability or customer satisfaction. The controlling should be carried out when preparing a plan with an estimate of the consequences and risks of the various planned actions during the marketing campaign, which should result in adaption to changes and feedback.

5. Discussion

The proposed marketing management process in e-commerce is easily applied in practice, since it is intelligible, concise, easily to be understood, logically structured and its outputs can be beneficial for theory and practice. The results of the process model will take effect in e-commerce in the longer term. For a maximum efficiency of implementing the e-marketing management process, it is necessary to put this model into the whole management system of Internet company, as shown in Figure 3. This figure illustrates a maximizing the output of Internet company in the application of the proposed process model. The management system is constantly being positively and negatively influenced by the e-commerce environment, including factors of online and offline competitors, online and offline customers, suppliers, the environment of traditional or Internet market and the expected and unexpected changes. Based on a set vision and mission, the top management of Internet company creates a major e-strategy, as a result of the strategic management process. Furthermore, it elaborates on the lower level of management – HR, IT, marketing, logistics, production or financing. All these levels of management should cooperate together and contribute to the overall output of Internet company. All of these aspects help to create a corporate culture of the Internet company. Figure 3 elaborates the e-marketing management process, taking into account the work of online marketing team, which based on their skills, knowledge and experience that influences the entire e-marketing management process. Efficiency of the output of entire process is also determined by management and coordination of the entire system, targeted support for creativity and effective communication, motivation and cooperation of all members of the marketing team. The actual output, which is the result of systematic work of all units of the company, affects the whole e-commerce.

FIG. 3: E-marketing Management Process in the E-company Management System



Source: own

Conclusion

This paper has summarized the current knowledge on marketing management at the time the information age. It has defined the main problem that is based on the lack of a comprehensive theoretical approach to marketing management in e-commerce. Therefore, this paper has proposed a process model of marketing management for e-commerce, which is illustrated on the system of Internet Company respecting the external and internal factors. The main aim of this paper is a theoretical approach to defining a process model of e-marketing management, respecting the specificities of e-commerce environment, such as e-strategy and design of e-marketing mix. In this area, the relevant professional resources are missing. The paper would help to solve a theoretical approach in the surveyed area. It can be assumed that the respecting and following this process model will help to strengthen the market position of companies trading mostly electronically. The other research activities will focus on applying the theoretically proposed process model into practice with the help of experiment methods and case studies on selected companies trading electronically.

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STUDENT BANK ACCOUNTS IN THE CZECH REPUBLIC

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Keywords:

payment card – student account – selection, survey – utilization

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Abstract:

The aim of the paper is to describe the situation in the field of student bank accounts and payment cards in the Czech Republic. Bank accounts and payment cards as a means of cashless become nowadays as a normal part of our lives. In recent years they have undergone significant development, which was caused by the rapid development of information and communication technology. The main part of the submitted article will be focused on the selection of the bank account in connection with payment card for student from nine bank institutions. The actual evaluation of student's bank accounts and payment cards was conducted via decision support system Expert Choice.

Introduction

It was already 100 years in 2014, when the first payment card that facilitate and simplify payment. Payment cards as cashless have become nowadays as a common part of our lives. In recent years they experienced significant development, which was caused by the rapid development of information and communication technology. In today's age of modern technology are payment cards almost essential. Exception constitutes neither student of high schools and universities or young people who begin their professional lives.

The main condition to get the student debit card is opening a student account. Another important condition for obtaining payment card is age that is depending on the bank ranges from 10 to 30 years. Bank payment cards and accounts for student and young people in this age group favouring and often exempt from certain fees. Banking institutions are trying to get on advantages the young people as soon as possible to use their services. There is an opportunity that after ending of their studies will the people stayed by the same bank.

1. Methods, literature overview

1.1. Methods and goals

The article is based on primary and secondary sources. The primary sources are represented by the results from the conducted questionnaire investigation and by ideas of the author. The secondary sources are represented more. They comprise information about products, professional literature, information collected from professional press, discussions or previous participations in professional seminars and conferences relating to the chosen subject. Data and information about student accounts and debit cards were obtained from websites of selected banks and their printed materials for clients. The data of individual banking institutions are up to date to 1st of November 2015. Then it was necessary to select, classify and update accessible relevant information from the numerous published materials that would provide the basic knowledge of the selected topic.

The aim of the paper is to present the results of selection of student bank accounts and payment cards in the Czech Republic.

1.2. Literature overview

The first payment card in the world started in 1914 by American Telephone and telegraph company Western Union Telegraph Company. The card was made of metal and was similar to a military identification labels. Western Union has offered it free to their regular customers. Company enables them to make calls and send telegraphic messages through its affiliates and pay them at the end of the month. The company has provided its customers short-term trade credit. (Juřík, 2001)

The reason why Western Union began issuing of "Identification Card" was an effort to retain good clients and persuade them to increase the use of cashless payment options. Therefore, these cards are called loyalty. The first payment cards increased sales of the company because cashless payments were much more convenient than cash and it was easier for the client. They also spend more money. There has been applied experience of traders who have discovered that when they puts the customer the opportunity to pay in instalments or later, they buy more. (Juřík, 2001)

Acceptance of payment cards in the Czech Republic respectively in Czechoslovakia was established before our first card was issued due to credit card Diners Club. Officially, the Czechoslovakia began to accept credit cards in 1965, but the first transaction was made in 1968. Card was firstly used for payment in the Prague branch of Čedok. The first payment card was issued in 1988 by Živnostenská banka. It was called as Dispositional cards to Tuzex accounts. In 1991, Živnostenská banka continued on this project by issuing VISA Classic and VISA Business year later. (Juřík, 2001)

Debit cards for student offer only the big banks in the Czech Republic. They are Česká spořitelna, ČSOB (Československá obchodní banka), Evropsko-ruská banka, GE Money Bank, Komerční banka, Oberbank, Poštovní spořitelna, Raiffeisenbank, UniCredit Bank. Smaller banks do not offer special student accounts and cards, but underage student can there find current accounts (with debit cards) cheaper or completely free under certain conditions.

2. Results

In the first part of chapter will be shortly presented results from the questionnaire investigation done at University of Hradec Králové. The main focus will be in the next part given on the results of the selection of student's bank account and connected debit card. There will be done the three model situation. The first one is done for college students that have not much money and do not use the payment card and bank account alot. The second one is presented for students that use the payment card and bank account actively and use it also abroad. In the third model situation is used the software Expert Choice that aims to facilitate the decision making process for the indecisive student that do not know now their needs in the connection with utilization of debit card and bank account. With comparison of the Multicriteria Decision Making in banking sector aimed also Hedvičáková, Pozdílková and Soukal (2011).

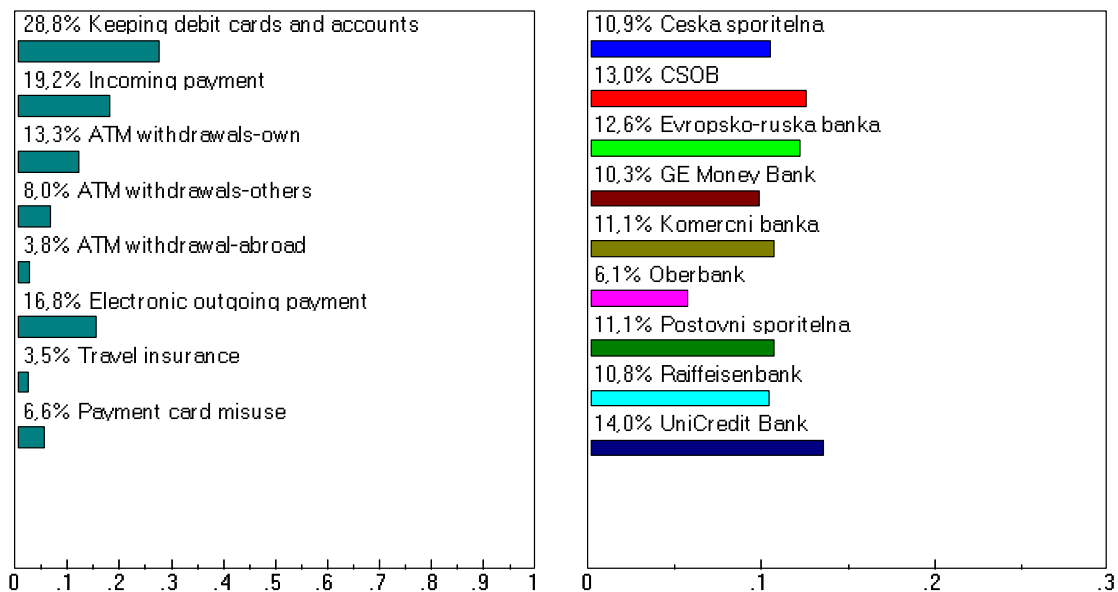
2.1. Selection of student bank account in the Czech Republic

To facilitate the selection of the bank account will help decision support system Expert Choice. By the selection is taken into account almost all possible uses, charges and costs associated with debit card and student account. These criteria are assigned different weights that are shown in the graph on Figure 1. The greatest weight is assigned to the bank charges of a debit card and student account, followed by incoming payment, because the student does not want to pay, even if debit card and student account for a certain period RIP. Choose from own ATM is the third, fourth, outgoing electronic payments. These criteria can be described as the most important. Other criteria are withdrawals from other ATMs, payment card misuse in case of theft or loss, travel insurance and ATM withdrawals abroad. All these criteria did not exceed the limit of 7%. The next step was filled with the appropriate values of selected criteria table with concrete values. The lower the value of the concerned criteria, had the greater weight and vice versa. In the event that the bank did not offer any of these services, the value is set to 0. This incidence occurred only in the case of travel insurance and insurance against debit card misuse in case of loss or theft in Evropsko-Ruská banka. The results of the selection of student account and debit cards for indecisive student can be seen also in Figure 1.

The total result together with the results of the individual criteria in Expert Choice shows, that won UniCredit Bank. In the second place was ČSOB and it was closely

followed by the third Evropsko-Ruská banka. The difference between the fourth to seventh places at the bank was minimal, ranged from just 0.4%. Last but one went to GE Money Bank, which lost many other banks that are placed in front of her. Last place occupied Oberbank, which significantly lagged behind other banks, and therefore fell compared to the worst.

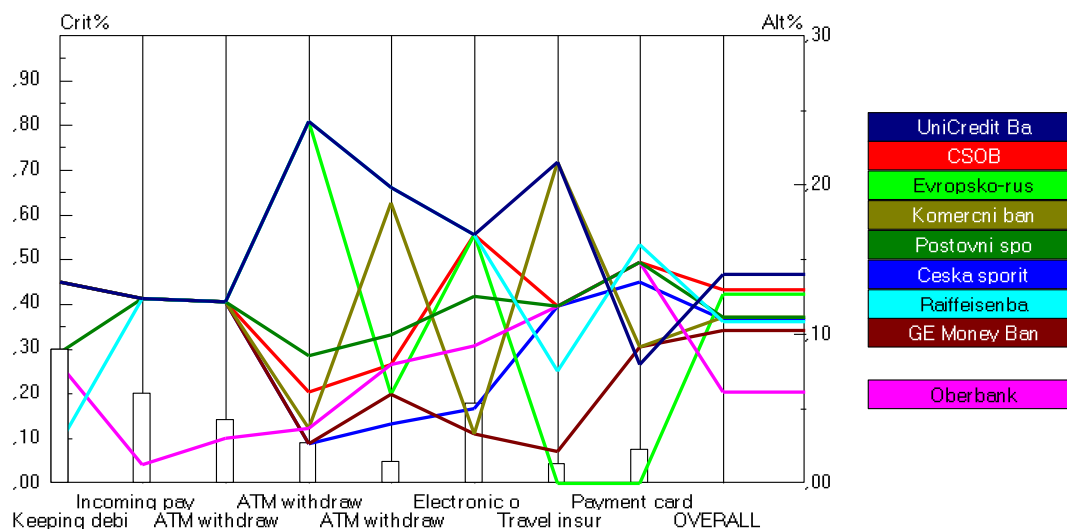
FIG. 1: Selected criteria, their weights and results of the selection in Expert Choice



Source: (own research based on data from financial institutions)

Figure 2 contains the performance sensitivity and detailed results of selection.

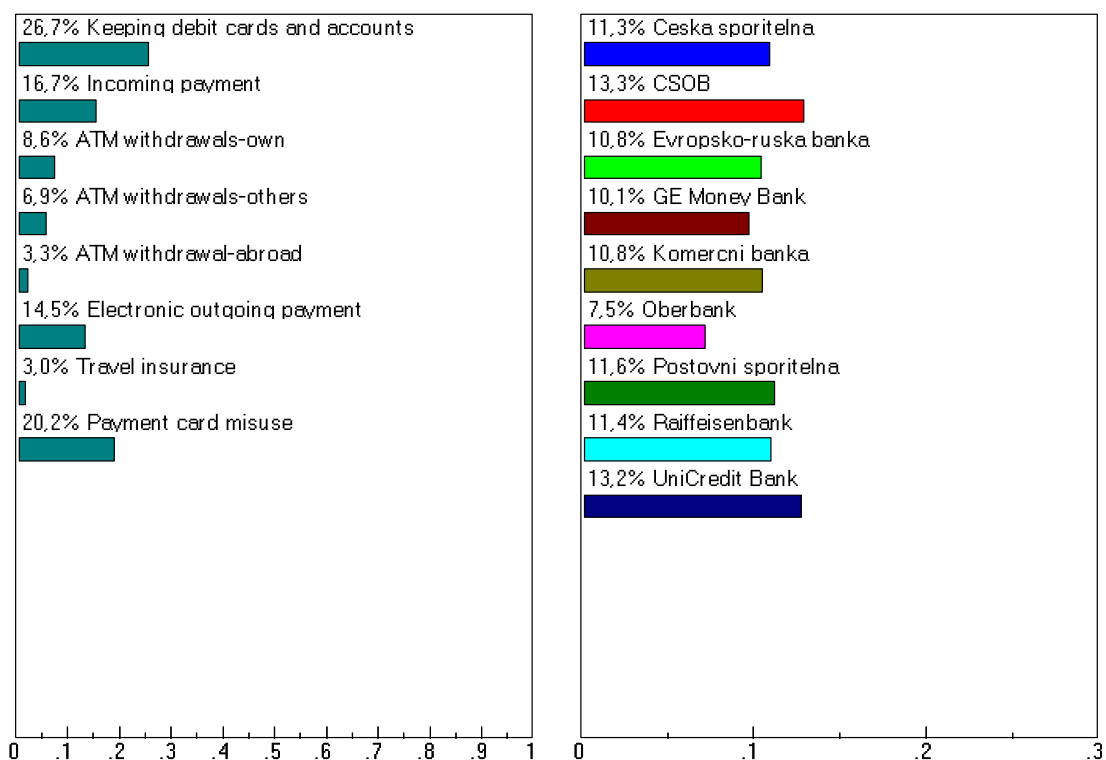
FIG. 2: Performance sensitivity and detailed results of selection



Source: (own research based on data from financial institutions)

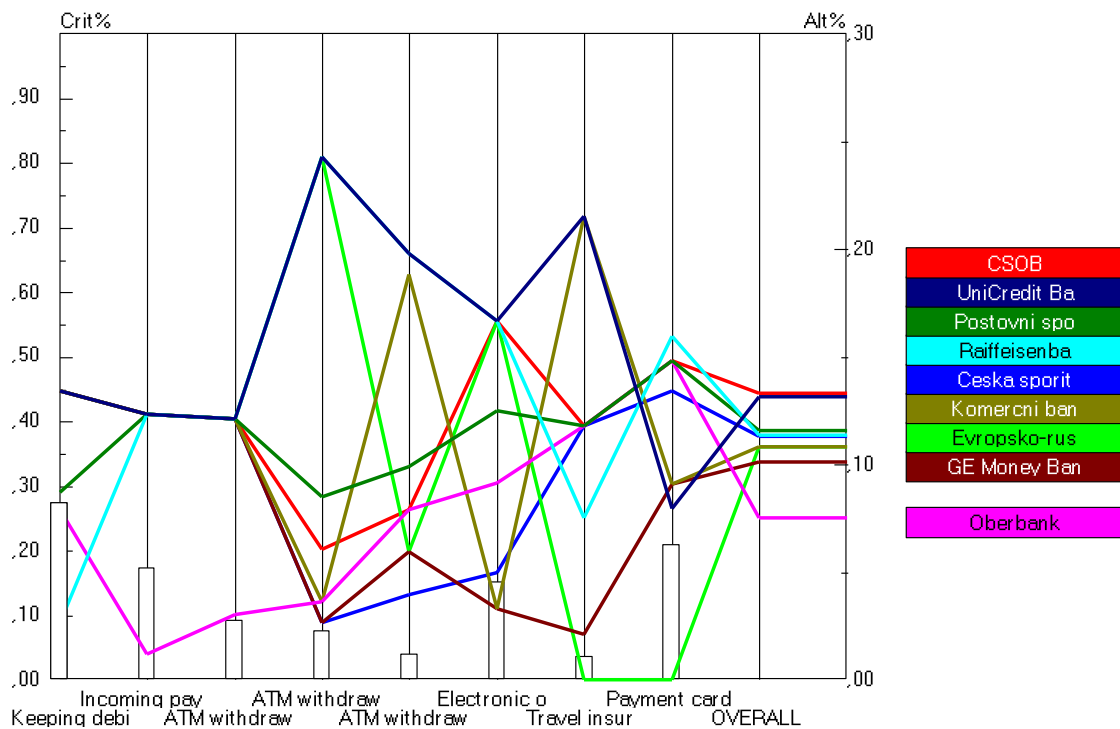
The next results in fig. 3 show the results of selection in case of changing the evaluation criteria. The biggest change was done in the criterion insurance of card. Most student underestimate insurance of debit card in case of payment for this service and does not establish it to the student account. Student often say that they have little balance and, for example, have no an overdraft and thus in the case of card loss do not lose a lot of money. On the other hand, some student have a balance greater or they have authorized overdraft or belong to a group of safe student, and therefore they want to have extra insurance card because of misuse. In the case of higher weight of this criterion in selection of student accounts and the related payment card follows in the next pictures.

FIG. 3: Selected criteria, their weights and results of the selection in case of higher weight for insurance of debit card



Source: (own research based on data from financial institutions)

In the event that we reduce the weight of individual criteria and multiplied it by the insurance card against misuse, the results are slightly changed. In the first place is closely followed by ČSOB placed UniCredit Bank. On next positions are Poštovní spořitelna, Raiffeisenbank, Česká spořitelna and Komerční banka with same total results as Evropsko-ruská banka. Last but one is again GE Money Bank, and the last is again Oberbank.

FIG. 4: Performance sensitivity and detailed results of selection in case of higher weight for insurance of debit card

Source: (own research based on data from financial institutions)

3. Discussion

Student account and credit card can acquire anyone who meets the age criterion and in most of the banks is second criterion to have status of a student. Debit cards are conditional on the foundation of the student account from which are used the funds. It is also very important to rethink how student account will be used in the future. At time, the requirements may change, and it's good to take it into account. The situation in this field is changing very often. There are a lot of special offers etc. Streamlining of fees will be very beneficial not only for young people but also for others. Also due to utilization of student account and debit card is this population getting better financial literacy that is not at sufficient level in the Czech Republic.

Conclusion

Česká spořitelna in comparison with other banks led the average. Its great advantage is a wide range of services, large number of branches and ATMs, but some services have set prices at a higher level.

ČSOB occupied on the front position. If a student is considering a larger bank in which he wants to stay longer and has a wide network of branches and ATM. ČSOB is one of the best options.

The main weakness of Evropsko-ruská banka is a limited number of branches, only at Prague and Karlovy Vary. As well as for debit cards does not offer travel insurance and insurance against loss or theft. However was evaluated very well.

The average result was achieved by GE Money Bank. The biggest weakness is relatively expensive travel insurance, which had had big insurance limits, however for student is it usually unnecessary. Another challenge was the payment through internet banking, where there was no possibility of acquiring more favourable package for frequent use.

Komerční banka scored the most thanks to its travel insurance, which is to the student credit card for free. The big advantage is the possibility of selecting a package for internet payments and rewards for using the card. With these benefits occupied top positions and appears to be a suitable alternative to bank ČSOB. Bank is only one without interest on current account deposits.

The worst result gained Oberbank, which was last in the comparison. Outside of fees for almost all services is also its disadvantage smaller branch network. On the other hand has the highest interest, thanks to which some fees can compensate.

Although Poštovní spořitelna charges payment cards, in comparison did very well. Poštovní spořitelna seems like an interesting choice for smaller towns and villages where there is an extensive network of bank branches and ATMs.

Due fees for account maintenance is not Raiffeisenbank suitable for those who have little debit card use. Conversely, if the student frequently travels and does not want to bother where collect the money Raiffeisenbank is one of the best options.

Absolutely the best in comparison was UniCredit Bank. It can prepare for student and young people very interesting and useful package of services, which are not under normal operations applied. Institution has a smaller number of branches, but usually in larger cities have at least one branch.

On the first positions were perceived UniCredit Bank, ČSOB, Poštovní spořitelna and Komerční banka with Česká spořitelna. Differences are in some cases negligible. It depends on the criteria and their weights that were used for the evaluation.

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THE LOCAL DEVELOPMENT INDEX AS A TOOL FOR THE EVALUATION OF SOCIO-SPATIAL INEQUITIES

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– development index

JEL classification: O220, R110, R150

Abstract:

The growing problem of unsustainable development has become the premise for the development of socio-economic research, which involved a large number of development analyses measured at the regional level. Taking into account the alarming rise in socio-spatial inequities and the negative phenomena which accompany them such as gentrification, poverty and social marginalisation it is essential to establish a method of implementing a regional socio-economic development index at the local level. Therefore, the authors of the article focused on measuring development at the local level, at the same time reflecting the manner of functioning of the internal structure and determining weak zones within the space of the city of Wrocław.

Introduction

The alarming level of exclusion of certain areas from social and economic development has been noticed as early as in the 1960s. Increasing economic development (Noorbakhsh, 1998) and globalisation have been considered the reasons behind the formation of areas characterised by stagnation. These processes have had a significant impact on the development of cities, the occurrence of problems within urban space, the rise in social inequities, marginalisation and other negative phenomena (Hermant-de Callatay & Svanfeldt, 2011) which in effect lead to the formation of the „unfairly structured city” (Sykora, 1999) and the division to more and less attractive urban space. This was accompanied by a process of hierarchisation of the urban tissue into areas of welfare and poverty, determined by economic and social factors.

As the problem became increasingly serious the last three decades saw the initiation of research regarding socio-economic development (Milenkovic, Vukmirovic, Bulajic

& Radojicic, 2014) most often conducted within different spatial systems (Novotny & Nosek, 2012) e.g. at the regional (Palchoudhuri, Roy & Srivastava, 2015; Hassan, Zaman & Gul, 2015; Milenkovic, Vukmirovic, Bulajic & Radojicic, 2014) or local level (Przybyła, 2015).

The „socio-economic development index”, aimed at reflecting differences between regions was used to identify the level of development (Palchoudhuri, Roy & Srivastava, 2015).

Due to the increasing problem of non-sustainable development as well as the intensification of socio-spatial segregation—also in cities (Bodenschatz, 2008)—the authors of this article suggest to conduct research within the internal urban structure. Activities in this respect will allow for the delineation of problematic areas and, in effect, direct expedient support into the stagnant areas.

The aim of this article is to use the example of Wrocław to introduce a method of measuring the socio-economic development index at the local level which would reflect the differences in the functioning of each separate zone or internal structure of the city. The implementation of the proposed index has allowed for the evaluation of the urban tissue of Wrocław.

1. Local socio-economic development measuring method

The development level for each district of the city of Wrocław (Fabryczna, Krzyki, Psie Pole, Stare Miasto, Śródmieście) has been determined by performing a multidimensional comparative analysis (MCA) used to describe complex phenomena characterised by more than one variable (Flejterski, Jaźwiński & Klóska, 2010). The method used for this purpose utilised the Hellwig development index, which is a synthetic index of the taxonomic distance of a subject from the theoretical development model. The established method allows for the ordering of a Pi set of subjects (in this case districts, where: $i = 1, 2, 3, \dots, n$) each one of which is described with a set of m - diagnostic features which are stimulants or destimulants (Pomianek, 2012). Thus, the following features have been taken into account in the research:

- x1-feminisation rate;
- x2-birth rate per 1000 people;
- x3-deaths per 1000 people;
- x4-net migration per 1000 people;
- x5-number of people of working age per 1000 people;
- x6-non-working age population per 100 persons of working age;
- x7-total number of housing put into use per 1000 people;
- x8-number of tourists accommodated per 1000 people;
- x9-ascertained crimes per 1000 people;

x10-crime detection rate in %;
 x11-number of road accidents per 1000 people;
 x12-number of collisions per 1000 people;
 x13-number of national economy entities per 1000 people ;
 x14-number of newly registered national economy entities per 1000 people;
 x15-number of deregistered national economy entities per 1000 people.

It has been assumed that x2-birth rate per 1000 people, x4-net migration per 1 000 people, x5-number of people of working age per 1 000 people, x7-total number of housing put into use per 1 000 people, x8-number of tourists accommodated per 1 000 people, x10-crime detection rate in %, x13-number of national economy entities per 1 000 people, x14-number of newly registered national economy entities per 1 000 people are stimulants, with the remaining features serving as destimulants (Flejterski, Jaźwiński & Klóska, 2010).

The set of subjects, each of which is described by a set of m- diagnostic features is most commonly represented in the form of a matrix:

$$X = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1m} \\ x_{21} & x_{22} & \dots & x_{2m} \\ \dots & \dots & \dots & \dots \\ x_{n1} & x_{n2} & \dots & x_{nm} \end{bmatrix} \quad (1)$$

where: - the jth value of the feature (j= 1,2,3,...,m) for the ith subject (i= 1,2,3,..., n)

This is followed by a division of data to stimulants and destimulants and standardisation according to the following formula (Stec, 2012):

$$z_{ij} = \frac{x_{ij} - \bar{x}_j}{S_j} \quad (2)$$

where: x_{ij} - the initial value of the standardised jth feature for the ith district,

\bar{x}_j - arithmetic mean of the jth feature,

S_j - standard deviation of the jth feature,

z_{ij} - standardised values of the jth feature for the ith district.

The result is a Z matrix of standardised feature values:

$$Z = \begin{bmatrix} z_{11} & z_{12} & \dots & z_{1m} \\ z_{21} & z_{22} & \dots & z_{2m} \\ \dots & \dots & \dots & \dots \\ z_{n1} & z_{n2} & \dots & z_{nm} \end{bmatrix} \quad (3)$$

where: z_{ij} is a standardised value x_{ij} .

Assigning the standardised values to a matrix allows for the establishing of a development model, i.e. a theoretical, best subject (district) with standard coordinates. The resulting hypothetical district is characterised by the best observed values of standardised variables, referred to as “model subjects.” Model subjects represent the best values (Kunasz, 2006) for each variable with:

$$z_{0j} = \begin{cases} \max z_{ij}, \text{ for variable } Z_j, \text{ which is a stimulant} \\ \min z_{ij}, \text{ for variable } Z_j, \text{ which is a destimulant} \end{cases} \quad (4)$$

The guidelines established above are essential for the development of each district according to the following formula:

$$d_i = 1 - \frac{D_{i0}}{D_0} \quad (5)$$

where: d_i - socio-economic development index for the i th district;

D_{i0} - Euclidean distance for the i th district from the subject P_0 ;

D_0 - model value of the Euclidean distance.

with (Stec, 2012) the Euclidean distance for each subject (of the i th district) from the development model has been calculated according to the following formula:

$$D_{i0} = \sqrt{\sum_{j=1}^m (z_{ij} - z_{0j})^2} \quad (6)$$

The model value of the Euclidean distance has been calculated using the following formula:

$$D_0 = \bar{D}_0 + 2S_0 \quad (7)$$

where:

$$\bar{D}_0 = n^{-1} \sum_{i=1}^n D_{i0} \quad (8)$$

$$S_0 = \sqrt{n^{-1} \sum_{i=1}^n (D_{i0} - \bar{D}_0)^2} \quad (9)$$

The synthetic socio-economic development index for Wrocław, which is an arithmetic mean of indices calculated for each district of Wrocław, has been created based on the calculated development indices for each district, as expressed by the following formula (Kunasz, 2006):

$$\bar{d} = \frac{1}{n_i} \sum d_i \quad (10)$$

where: \bar{d} - social development for each district of Wrocław;

$\sum d_i$ - total of normalised values for each features which are subject to research;

n_i - number of socio-economic indices equal to the number of districts.

The attained values of the socio-economic development index have been classified using two parameters, i.e. an arithmetic mean which served as a conventionally established middle of the scale, and standard deviation.

This resulted in the delineation of four ranges within the scale according to the following criterion (Ziemiańczyk, 2010):

$$\text{- 1st district group (very high development level): } d_i \geq \bar{d} + \sigma ; \quad (11)$$

$$\text{- 2nd district group (high development level): } \bar{d} + \sigma > d_i \geq \bar{d} ; \quad (12)$$

$$\text{- 3rd district group (low development level): } \bar{d} > d_i \geq \bar{d} - \sigma ; \quad (13)$$

$$\text{- 4th district group (very low development level): } d_i < \bar{d} - \sigma ; \quad (14)$$

where: d_i - social development index of the district;

\bar{d} - average social development index of the districts;

σ - standard deviation of the development levels observed in the districts.

The resulting ranges allowed for the classification of the city's districts according to the level of their development, as well as the representation of the results using a map and creating a rank of city districts according to their development level.

2. Results

The conducted research of the level of socio-economic development of the city of Wrocław was aimed at reflecting the quality of life in each of the city's districts (Fabryczna, Krzyki, Psie Pole, Stare Miasto, Śródmieście). An objective evaluation of the development is difficult due to a lack of data, the omission of certain social groups or the fact that information which would allow for the representation of the actual socio-economic situation is not published. Because of the above reasons the analysis was conducted based on statistical data for the year 2011 available at

Central Statistical Office Local Data Banks, Statistical Yearbooks for the city of Wrocław (Komarowska, 2012) and data made available by the Wrocław City Police Headquarters.

2.1. The first survey

Inequities within the city space have already emerged at the stage of an initial analysis of variables selected for the research.

The district of Stare Miasto is one that deviates the most when compared to the rest of city's units. A number of negative phenomena takes place within this region: the lowest, negative birth rate and number of people of working age. The number of non-working age people is the highest for the entire city. This is the city's most dangerous district based on the largest number of ascertained crimes, road accidents or collisions. The highest percentage of registered and newly registered national economy entities and the highest number of accommodated people are the only factors which could indicate a high level of development within the city centre.

Unlike the case of Stare Miasto, the set of features defining the Krzyki district is not characterised by unfavourable feature values. The high quality of life in this area may be expressed through a the highest (positive) migration value, which suggests an inflow of people into this region. It is a district with the highest number of houses put to use, while its total number of national economy entities as well as the number of newly registered national economy entities are both the second highest values. As opposed to the other districts, the percentage of deregistered national economy entities is the lowest.

The Śródmieście district is characterised by both positive and negative aspects. It is a region with the lowest number of houses put to use. It is also subject to an internal outflow of people into other districts, which is indicated by the lowest (negative) migration rate. When compared to the other districts Śródmieście also has the lowest number of newly registered national economy entities. It is also the least dangerous district, as shown by the low percentage of ascertained crimes, collisions or road accidents. Additionally, the crime detection rate is the highest in the city. The district is also inhabited by the highest number of people of productive age.

The Psie Pole district has the highest birth rate and the lowest death rate. It is an area in which the crime detection rate is the lowest, similarly to the number of national economy entities.

The lowest number of accommodated people can be found in the Fabryczna district, which might indicated the touristically unattractive nature of the area. It is a district with the lowest number of accidents.

Initial results can be verified in Table 1.

TAB. 1: The values of diagnostic features for each district in the city of Wrocław

The statistical feature		The name of the district:				
		Fabryczna	Krzyki	Psie Pole	Stare Miasto	Śródmieście
x ₁	feminization rate	113	116	110	121	114
x ₂	birth rate per 1000 people	1.25	-0.12	2.06	-4.32	-2.94
x ₃	deaths per 1000 people	6.49	8.04	6.24	9.34	8.6
x ₄	net migration per 1000 people	0.46	1.07	0.39	-0.13	-0.75
x ₅	number of people of working age per 1000 people	643.65	649.21	651.58	620.17	682.57
x ₆	non-working age population per 100 persons of working age	55.4	54.0	53.5	61.2	46.5
x ₇	total number of houses put into use per 1000 people	5.76	11.39	5.66	1.48	0.64
x ₈	number of tourists accommodated per 1000 people	378.23	812.13	441.33	7267.54	1025.34
x ₉	ascertained crimes per 1000 people	42.42	54.56	49.77	139.05	58.18
x ₁₀	crime detection rate in%	50.2	49.7	48.7	50.4	53.7
x ₁₁	number of road accidents per 1000 people	1.37	1.85	1.81	2.97	1.76
x ₁₂	number of collisions per 1000 people	8.43	14.92	11.55	27.43	10.88
x ₁₃	number of national economy entities per 1000 people	150.8	161.6	145.91	235.11	153.65
x ₁₄	number of newly registered national economy entities per 1000 people	13.8	15.6	13.62	20.43	12.70
x ₁₅	number of deregistered national economy entities for 1000 people	14.71	13.39	13.44	18.41	14.51

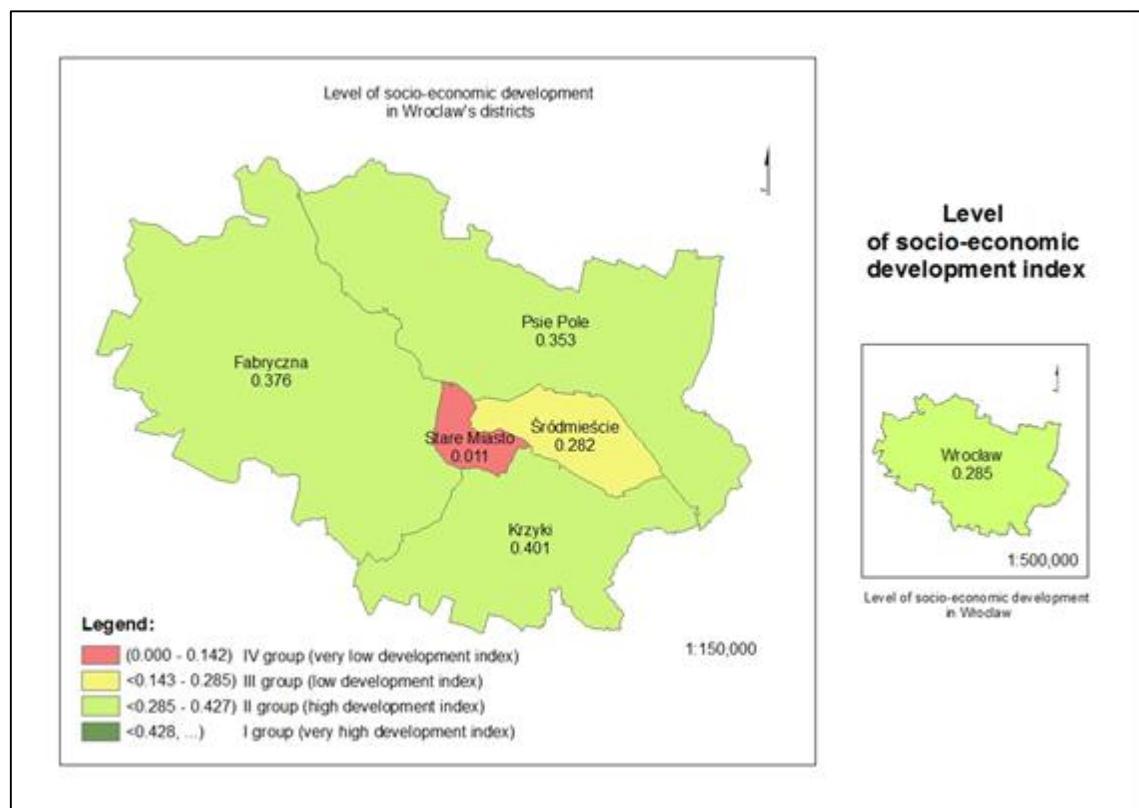
Source: own calculations based on collected statistical data

The values of diagnostic features have been implemented in the framework of the described method. They have also become a base to calculate the rate of socio-economic development for each of the districts of Wrocław.

2.1. The second survey

None of the studied districts of Wrocław have showcased a very high development level. The results have been represented using maps (FIG. 1).

FIG. 1: The socio-economic development index for Wrocław



Source: own study

The conducted analysis showed that the Stare Miasto district is characterised by the lowest socio-economic development index. The region is significantly distinct from other parts of the city. It has attained the lowest, near-zero value (0.011). Despite the high historical potential of the city centre, the occurrence of values which attract tourists and the most rapidly growing economy it is an area with the lowest socio-economic development level, which is why it is located in the lowest group with regard to development.

The Śródmieście region comes fourth in the development ranking (index value = 0.282) and represents the third group of areas, i.e. those with a low development level. This

was determined by not only the lowest, negative net migration, housing put into use and newly registered national economy entities but also the second lowest birth rate and one of the lowest total shares of national economy entities.

The next group, characterised by a high development level, included Psie Pole, Fabryczna and Krzyki, with Krzyki achieving the highest index value from among all the city districts.

Psie Pole and Fabryczna attained a relatively similar index value (0.353 for Psie Pole and 0.376 for Fabryczna), which may be related to the relatively similar number of people of working age, non-working age population per 100 persons of working age, similar crime detection rate, number of accidents or a comparably low number of deregistered national economy entities. The district of Krzyki is characterised by the highest socio-economic development index, which was already signaled in the initial data analysis by its highest values for each feature. Despite of this the district found itself in the second development group alongside Psie Pole and Fabryczna.

3. Discussion

The city of Wrocław, considered to have one of the best levels of development among Polish cities, does not constitute a homogeneous urban tissue when it comes to socio-economic development. It is apparent that it is subject to the formation of better and less developed areas. The city centre, despite of its very high level of economic and service-related attractiveness and high tourist potential is characterised by the lowest socio-economic development index. This type of tendency has also been emphasised in the 2011 *Cities of tomorrow. Challenges, visions, ways forward* report published by the European Commission. The authors of the document have outlined the problem of the intensive economic development of European city centres which had lead to an increase in the value of real estate, rental fees, the significance of the central area of a city and improved standard and quality. This had in turn lead to difficulties in the local community accommodating to the new situation and, in effect, financial problems and the need to move to other, often poorer and more dangerous or pathological regions. That is why actions have since been undertaken in attempt to battle this phenomena, referred to as the gentrification of city centres (Hermant- de Callatay & Svanfeldt 2011).

A properly implemented development policy encompassing the inner centre, downtown and peripheral areas of the city should serve as a solution aimed at mitigating the rising phenomenon of socio-spatial segregation.

Hampering the development of attractive city centres is obviously difficult as they offer the best places for services, concentrate private investments and the essential institutions, as well as influence the competitiveness of the city. They also have a unique character, history and set of architectural values which all attract tourists.

Despite of this the policy pursued in the city should aim at the rejuvenation of the remaining parts of the city, as the development of the centre alone is insufficient. This should be done using the potential of a given place and taking into account the needs of its inhabitants, as this would provide the revitalisation with a social dimension. Ensuring proper access to services, cultural sites and well-tended public space will result in an increase in social status and not only further the development of these areas but also have a significant impact on the growth of the entire city.

Peripheral areas constitute the largest problem of traditional European cities next to gentrification. Urban sprawl is a major social problem that needs to be reduced, as it leads to the non-sustainable development of the urban region, as well as the intensification of socio-spatial segregation (Bodenschatz, 2008).

This problem is also apparent in a conducted analysis of Wrocław statistical districts. Areas located further from the centre show a distinctly higher socio-economic development level. There are high-standard housing estates located within these districts. They are often meant for people who are wealthier or who have received a better education, and are subject to a limited amount of negative phenomena. One needs to determine how to direct the development policy in order for everyone to find their place in the urban tissue. This problem might become more severe in the future as the central part of the city is largely detached from all the other districts, which is why its inhabitants might in time become forced to move into other regions for economic reasons. If this were to happen, they would be unable to use the peripheral areas of the city as an alternative.

Conclusion

It is a difficult task to attaining high quality of life, welfare, security and stability in each district of a contemporary European city, with problems related to social inequity, spatial segregation and gentrification on the rise. It is crucial to remember that the developmental problems of cities are closely connected to the level of their socio-economic development. It thus seems justified to conduct research related to the functioning of the internal structure of the city. This will allow for arriving at a reliable evaluation and directing expedient measures into areas characterised as problematic.

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BASIC MANAGER COMPETENCIES IN PERSONAL MARKETING

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Keywords:

competency – competency in personal marketing – personal marketer – labor market

JEL classification: M5, M54

Abstract:

In the pre-crisis period, which was characterized by increased job supply and low supply of labor force on the labor market, the competencies of personal managers in the area of personal marketing were investigated only marginally. This fact has however changed with the implementation and detailed analysis of integrational processes during the financial and economic crisis, when the ratio of job vacancies and labor force rapidly changed in favor of excessive labor force and drop of job vacancies. The objective of the article is to analyze various theoretical approaches in the definition of competencies in personal marketing, and within the empirical research to define their content and structure. In the same time, the article states a group of competencies of personal marketing perceived by company managers operating in Slovakia. The article arose as an outcome of the VEGA project 1/0662/15.

Introduction

In present, there is a big interest of more scientific disciplines in defining the content of the term “competency”, which offer a range of theories, approaches and definitions of the mentioned term. In behavioral, psychological and economic sciences competency is generally defined as a “result of the individual’s personality development in a certain moment, which enables him/her to give certain performance” (Novák, 2012). Competency “can be also understood as a certain capability”, “dynamic ability”, which is the key for success. “Competencies develop the resources’ potential and enable the company to adapt itself promptly and not accidentally to the requirements of the market. Competencies take into consideration the flow of assets/property and activities, what can be explained by the relationship between resources and company’s performance”. From the perspective of content competency, as a static phenomenon, is investigated mainly in connection with cognitive and decision making process, taking into account the responsibilities for the effects and consequences of the taken decisions.

Additionally, it is analyzed in connection with motivation (Matkovčíková, 2011), what is reflected also in the basic definitions.

In the theory of management and theory of human resources management, personal marketing competencies are mentioned for the first time in the period of excess job vacancy supply and lack of proper labor force on the labor market. This is reflected in their definition, which is in the theory of management connected with the application of marketing methods and procedures focused on proper occupation of job vacancies with the objective of human capital creation. As a result, a narrower connection of the “competency” definition is with the problemacy of intellectual, mainly human capital. The content of manager competencies in personal marketing, according to R. M. Grant (2008), is created by hierarchically ordered capabilities “... capabilities going through functions, capabilities broadly developed within one function, capabilities linked to one activity, specialized capabilities linked to a specific part of activities and capabilities linked to a certain act”. Each function, thus a function in the area of personal marketing, its incorporation into the company’s organization structure contains a group of competencies, from which one is basic, determined for the performance of a certain function. The basic competency can be a competency linked to the organization’s capabilities (e.g. management of the brand, PR, organization’s reputation, feedback on the trends) as well as a personal competency, linked to individual capabilities (knowledge, skills to use marketing tools, experience). It follows the definition of competency, which is in the theory of management generally defined as a “capability of an individual to act and behave in a way which corresponds to work requirements in the parameters set by the environment of the company and thereby achieving desirable results” (Armstrong, 2005). Manager acquires the manager competency by personalizing theoretical and practical experience and knowledge (Matulčíková, 2013), and what more, by application of these into the working stereotype together with the key competency, which is from the content perspective defined as a “result of a lifetime, individual process forming part of the personality development process” (Belz & Siegreist, 2001).

Analytical approaches agree on the basis of the term competency, which is formed by two components. The content of these are linked to specific functions, which are carried out by the manager in the area of personal marketing. Specifically, in the theory of personal marketing and personal management the term competency is used in the context of performing individual, specific functions which form their content background.

1. Manager competencies in personal marketing and their perception by the companies’ managements in Slovakia (results of the research)

As demonstrated by the analysis of secondary sources, in the current theory the complex view on the manager’s competencies in the area of personal marketing is basically

missing. Starting from the analysis of individual theoretical approaches to the definition of the personal managers/managers in personal marketing competencies' content the main objective of the research was set as following: to find out how the competencies relating to the area of personal marketing, or stemming from the functions of personal marketing are perceived by the managements of the companies operating in Slovakia. As for partial objectives, it was set to find out what forms the content of personal marketing competencies according to the companies' managements and which competencies are perceived and classified as basic manager competencies for the area of personal marketing.

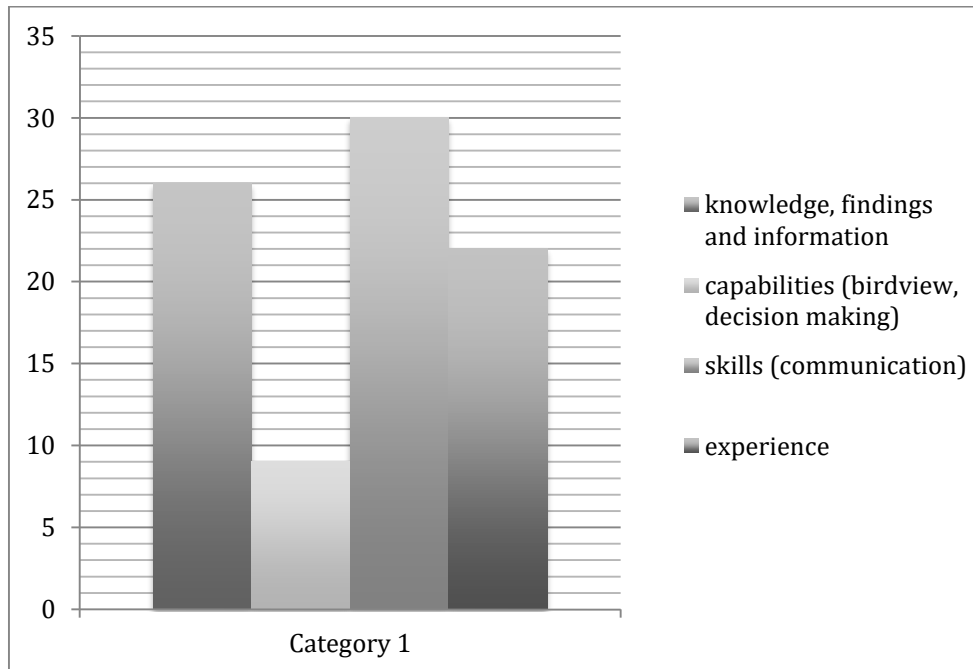
The sample of the respondents was represented by 145 personal managers and managers of middle and big companies operating in Slovakia, who carry out activities and tasks stemming from the functions of personal marketing and at the same time they are members of the companies' managements. For the collection of data, exploration methods were used in the primary research – a questionnaire method and a method of semi-structural interview. The questionnaire contained 30 combined questions, 5 characteristics of personal marketing competencies and 5 characteristics of personal management competencies with an included 5 grade scale of potential answers and was distributed to the respondents by e-mail. As a supplementary method, the method of semi-structural interview by phone was used. For data processing gained from the semi-structural interview, the methods of content analysis, methods of sorting, classification, comparing and generalization were used. For complex evaluation of the gained data and information, standard mathematic-statistical methods were used. The research ran in two phases in the periods of March 2014 and December 2014.

The outcome within the research focused on the definition of managers' competencies in the area of personal marketing was following. The analysis of the respondents' answers oriented on the perception of personal managers/managers in the area of personal marketing competencies demonstrated that, personal managers/managers actually don't differentiate between the competencies of personal marketing and competencies of personal management. Only 6 respondents exactly distinguished the competencies of personal manager/manager related to the area of personal marketing, the rest of the managers perceived all stated competencies in the questionnaire as competencies of personal management. One third of the respondents perceived the competencies related to the area of personal marketing as specific competencies of personal management. All respondents negatively answered the question, whether it is possible to distinguish the type to which each competence belongs to.

The second partial objective of the research was to find out, what forms the content of manager's competencies in the area of personal marketing according to the companies' managements. The base of the starting point was the theoretical knowledge gained from the secondary research, according to which the content of the basic competencies is formed by the following components: knowledge, experience, findings, capabilities,

skills and personality characteristics. These components were sorted and presented to the respondents together with situations, which required using some of the listed competencies of personal marketing in order to solve the situation. The respondents were asked to associate individual components to the pre-marked contents of individual personal marketing competencies. With the exception of two, all respondents in different order associated the components to the pre-marked contents of individual personal marketing components and agreed that skills form the basis of the components in the area of personal marketing. Knowledge and findings were listed on the second place and experience was listed on the third place by most respondents. Capabilities were listed on the last place by majority of the respondents. Personality characteristics, as a significant component of the personal manager/manager in the area of personal marketing competencies, were not marked by any of the respondents (Figure 1).

FIG. 1: The content of personal manager competencies in the area of personal marketing



Source: own elaboration

The gained results in principle correspond with the authors, who examined the content of competencies in general and also specifically in personal marketing. A minimum difference is in the first component, because some authors W. Meier, (1991), J. A. Freiling (2004), R. M. Grant (2008) consider knowledge, findings and information for the most significant component of the competencies' content, while our respondents listed this component on the second place. In connection with the content of the

competencies, we have explored which capabilities and skills are perceived by our respondents and belong to the content of personal marketing competencies according to them. From the skills, the respondents listed effective communication on the first place (96% of respondents).

Another objective of the research was to find out, which competencies are perceived by the companies' managements and which they consider relevant for the area of personal marketing. From the group of the presented competencies, which included besides the competencies defined by the theory, personal marketing competencies, which according to the content belong to personal marketing competencies. Majority of the respondents (86%) agreed on seven competencies, which they clearly listed as personal marketing competencies: competency to select and apply proper marketing tools for solving specific personal needs of the company, competency to create and design a job vacancy, competency to offer and sell a job vacancy on the labor market, competency to create the strategy of the company in the area of personal marketing, competency to participate on the selection processes of the employees into the company, competency to create databases of applicants for job vacancies in the company, competency to interfere in the communication with personal agencies, state institutions, bureau of employment, which dispose with databases of free labor force and others.

Competencies for the area of personal marketing, which were marked by our respondents, in principle correspond with the competencies for the area of personal marketing, which are defined by the authors W. Meier, (1991) and R. M. Grant (2008), P. Kita (2004), who besides our seven listed competencies identically add the following competencies, which also belong to the main competencies in personal marketing: competency to select proper marketing tools for the needs of personal marketing, competency to create the company's image for the needs of personal marketing and competency to use personal marketing in the company's PR. The results present the inventory of basic manager competencies in personal marketing.

Conclusions

Nowadays, a huge attention is dedicated to the problemacy of manager competencies in personal marketing. It is result of several theory needs, company and entrepreneur practice, which currently more, than in the past seeks for more sophisticated methods to acquire and maintain high quality employees – the source of intellectual capital of the company. The intellectual capital, which is perceived as one of the basic intangible assets of the company, its quality and corresponding structure is the result of proper comprehension and application of competencies in the area of personal marketing. This fact is supported by our results gained from the empirical research. The outcome demonstrates that current company managements operating in Slovakia understand the significance of personal marketing competencies; they perceive them as separately content defined competencies, which are linked to the functions of personal marketing

and whose proprietors/executors can be personal marketers as well as managers of the company. On the basis of the gained results, components which form the content personal marketing competencies were identified and seven basic manager competencies for the area of personal marketing were defined and compared with the current literature. Gained knowledge and information also document the current status of the problemacy in the area of competencies, their definition and enable to outline a follow up for the next research.

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TRENDS OF MARKETING INNOVATIONS IN E-COMMERCE

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JEL classification: M37

Abstract:

This article briefly describes the trends of marketing innovations in e-commerce. The aim of this paper is to show the aspect of innovation in marketing, especially in marketing area, used in practice in Polish e-commerce. The primary purpose of this paper is based on literature review of the problem of marketing innovation and new form of e-marketing supported by research carried out from 2008 to 2014 conducted in the sample of about 500 e-shops. Based on research, we identified the existing modern trends and the popularity of selected marketing innovation in e-commerce sector. Finally, implications and future work of these findings were discussed.

Introduction

In today's economy, more and more companies perceive website as an excellent tool for communication with business partners and customers. Some websites, or more complex internet services become not only a tool for exchanging information about products or product presentation or so called "business card", but already they contain elements of the transaction, such as the ability to place an order, choose the type and time of delivery or implemented solutions for micropayments. Complementing the functionality mentioned above very often becomes also possibility of selecting the communication from via instant messaging or "social media". Therefore it could be said that now the Internet has become not only a tool to complete the transaction but primarily the presentation of offer and communicate with customers.

1. Literature review

Accordance to OECD (The Organisation for Economic Co-operation and Development) an innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations (OECD, 2005, p. 46).

New marketing practices can play a central role in firms' performance. Marketing practices are also important for the success of new products. Marketing innovations can

be important for firm performance and the overall innovation process. Identifying marketing innovations allows for the analysis of their impact and their interaction with other types of innovations. Moreover defining characteristic of marketing innovations is the orientation towards customers and markets, with a view to improving sales and market share (OECD, 2005, p.12-13). Therefore marketing innovation is understood as a implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing, According with Oslo Manual marketing innovations are aimed at better addressing customer needs, opening up new markets, or newly positioning a firm's product on the market, with the objective of increasing the firm's sales. It is consist also of; significant changes of product design, introduction of the new sales channels (product placement and distribution), product promotion, pricing, seasonal, regular and other routine changes in marketing instruments (OECD, 2005, p. 49-51). Today, it's could be observed a large diffusion of innovation in the area of e-marketing, which can manifested by designed of change through email campaigns, website maintenance, search engine optimization, and social networking maintenance and integration.

2. Statistic data and trends

According to Polish Central Statistical Office 65.3% of the companies owned their own website in 2014. The leader in this respect were large companies, in which nine out of ten had a website compare to 61.1%) of small and micro firms (GUS, 2014, p. 73-74). However, from the point of view of this paper, it is important that regardless of the size of the enterprise, as well as the nature of the business, the most commonly used functionality of the website was: presenting of products, catalogues or price lists of products and company's services. In 2014 those feature pages were used by almost 60.4% of companies in Poland (GUS, 2014, p. 64). Moreover, in 2013 the percentage of firms placing orders via computer networks has increased in relation to the previous year by 2.4 percent and rise up to 23.6%. Moreover in the past four years could be seen the faster growth of electronic ordering specially in large enterprises and 2013 more than half of them applied this form of shopping into their daily business shopping processes. Electronic commerce had great popularity among companies from ICT field, in which the proportion of entities submitting orders via internet has risen up to 66.2%. The lowest interest of making deals via Internet has been showed by the companies from transportation and the warehouse management area (17.2%) and also construction (17.9%) (GUS, 2014, p. 63).

According to the institution analysing the characteristics and trends in Polish e-commerce in Poland is constantly growing interest in e-shopping. It is estimated that in Poland there are 21.6 million Internet users (64% of whole population), of which 17 million (78%) visited e-commerce sites, and 21.7 million (59%) visit e-shops. Moreover, the growth rate of Internet users interested in shopping via the Internet is higher than the percentage increase in the number of Internet users in Poland within the

same period [2.76]. According to the report, "The value of Polish e-commerce market in 2015" published by Dotpay estimated value of the Polish e-commerce market in 2015 is about 33 billion PLN. Importantly, the turnover of the industry - only in Poland - increased at a rate of at least 15% per year (Dotpay, 2015).

As emphasized by the authors of the report "E-commerce in Polish small and medium-sized enterprises" to the greatest barriers of the development of online activity within micro and small businesses included, among others (Tokarska, 2014):

- a) cost of doing business - 70%,
- b) high competition - 61%,
- c) high seasonality of sales - 29%,
- d) limited band - 18%,
- e) infrastructure Store - 9%,
- f) lack of specialists - 7%.

At this point it is worth noting that a significant proportion of entrepreneurs in the segment of small and micro-enterprises (78%) use e-commerce platforms. It is a rational choice, especially when the costs associated with starting it own e-commerce business can be a significant barrier. As many as 54% of respondents indicated that they use them for marketing activities. This means that the surveyed services such as Allegro are useful part of the ecosystem of e-commerce for many entities. What's more, 30% of respondents confirmed that e-commerce platform were the most effective tool to increase sales. According to this report it could be said, that this is strong and significant signal that there are no better forms of sales on the Internet for micro and small companies, if you want to quickly and effectively achieve results (Siejak, 2012).

Another important and interesting factor is the effect of the so-called "ROPO" that affects up to 50% of the sales. This phenomenon lies in the fact that before consumers taking decisions of purchasing product off-line, searching for information online. According to IAB Europe in 2012, the most frequently purchased under the effect of product groups can include (Siejak, 2012):

- a) mobile phones - 72%,
- b) vehicles - 70%,
- c) hotel services - 59%,
- d) audio devices - 51%,
- e) sports equipment - 47%,
- f) car Insurance - 40%.

In turn, the most widely used online marketing channels by micro and small enterprises in 2014 were among others (Opiniac, 2015):

- a) e-commerce platform - 54%,
- b) fanpage on social networking sites - 47%,

- c) positioning on search engines - 44%,
- d) advertising on social networking sites - 37%,
- e) word of mouth marketing- 35%,
- f) newsletters - 30%,
- g) paid advertising on search engines - 29%,
- h) search engine companies and Compare Prices - 28%.

other forms such as for example working with bloggers, or banners or cooperation with specialized PR agencies or group shopping sites were among less than 20% indicated channels and forms of communication companies in the market.

The same report highlights the fact that in the coming future, these same companies primarily intend to use such forms of communication with the market, as (Opiniac, 2015):

- a) positioning on search engines - 49%,
- b) fanpage in social media - 37%,
- c) newsletter - 36%,
- d) advertising on social networking sites - 33%,
- e) Word of mouth - 31%,
- f) e-commerce platform - 30%,
- g) Sponsored links - 29%,
- h) PR measures - 21%,
- i) working with bloggers - 20%.

Summarizing the above considerations concerning statistics and research results in the area of electronic commerce, as well as ROPO effect it should be explicitly stated that from the point of view of its paper innovation in internet marketing and it's trends is still the most important factor for the offer and customer approach. Nevertheless, in order to be able to effectively use the Internet to do business should take into account a wider range of aspects supporting the sales process, communication with the market or directly customers s also supply of a product or service. In the analysed data for the development of e-commerce market in Poland very often emphasizes ease of communication, shipping speed, simplicity and trust in the payments, but also after-sales service as key elements of doing business in such a competitive environment such as the Internet.

3. Identification of marketing innovations trends

3.1. Metodology

Main subject of research was identification of relevant trends for marketing innovations in e-commerce sector. The research method was an online survey, the subject of the study were Polish e-shops. The average number of e-shops surveyed amounted to approx. 500 companies. The research conducted regularly since 2008. The exception is

the year 2012 which failed to conduct the survey. The method of analysis used Pearson's correlation to estimate trends of popularity of marketing innovations. Analyzed variables are the year of the survey and the popularity of the use of the innovation in e-shops. A basic property of Pearson's r is that correlation equal -1 means a perfect negative linear relationship, a correlation of 0 means no relationship, and a correlation of 1 means a strong positive linear relationship (Pearson, 1895). r^2 is the coefficient of determination and it is seemingly intuitive measure of the proportion of the variance and informs the strength of relationships of the analyzed variables. High values of r^2 are particularly useful when using for predictions and identification of trends. Statistical significance was set at $p = 0,05$.

3.2. Analysis of the research

Table 1 summarizes the popularisation of marketing innovations identified by this study. Note that this research does not describe the detailed form of each marketing innovation, as a depth analysis of this data is beyond the scope of this paper. For example, the traditional form of e-mail marketing is not identified as a marketing innovation. But the use of personalization content (Ellis-Chadwick & Doherty, 2012) or techniques of persuasion, can be counted as a kind of innovation.

TAB. 1: Popularity of selected marketing innovation in e-commerce in the years 2008-2014.

	2008 [%]	2009 [%]	2010 [%]	2011 [%]	2013 [%]	2014 [%]	Pearson's r	r^2
price comparison sites	67,5	63,0	65,9	67,1	56,4	37,5	-0,85	0,73
e-mail marketing	38,6	41,5	47,4	43,8	52,2	62,8	0,95	0,90
loyalty program	24,0	22,2	29,3	20,1	28,8	30,1	0,55	0,30
social marketing	2,0	10,6	31,2	37,4	58,1	66,6	0,98	0,95
group buying websites	0,0	2,2	9,8	12,7	7,4	6,3	0,49	0,24
search support products	7,2	8,1	13,2	16,7	24,4	22,4	0,92	0,85
paczkomat	3,2	4,8	9,7	9,7	25,0	29,1	0,95	0,89
packaging advertising	0,0	0,3	0,6	0,4	0,7	0,5	0,68	0,47
free samples	7,3	9,2	15,1	18,7	21,1	25,6	0,98	0,97
SMS advertising	0,0	0,0	0,0	0,4	0,3	0,2	0,63	0,40

Source: own work

Analysis of the results shows that of innovation with a high correlation coefficient can identify five solutions. Free samples and social marketing ($r^2 > 0,9$) are characterized by a strong trend growth in popularity in the analysis period. Additionally, in 2014, social marketing has been used in over 66% of the analyzed e-stores, which allows to predict its further dynamic development. Very high positive correlation also exists for a tool

called paczkomat, e-mail marketing and search algorithms supporting products. Also identified a strong trend but with a negative factor for innovative tools as websites of price comparison engines. This result seems surprising, because the price comparison services are one of the major sources of search products on the internet.

Among the marketing innovations showing moderate strength correlations are packaging advertising and SMS advertising. Both of these forms are very unpopular in e-commerce as a form of advertising. On the other hand, group buying portals and loyalty programs received low value of the Pearson's correlation, which indicates the lack of a visible trend of these solutions.

4. Discussion

Contemporary popularity of social marketing and e-mailing with the identified growing trends, indicates a continuation of the increasing popularity of e-commerce sector. This conclusion is also confirmed by other studies and publications (French et al., 2010, p. 11). An even greater potential for social marketing can be achieved through the integration of viral marketing activities (Miller & Lammas, 2010, p. 1-9). The systematic growth in popularity has achieved innovation as free samples, which is currently used in 25% of the analyzed companies. However, free samples much more frequently used in the cosmetics industry and information technology, as temporarily free versions of the software. A surprising result is the decreasing popularity of price comparison sites whose usefulness should increase by dynamic development of mobile applications (Pralat, 2013, p. 177). Probably the main reason is the high cost for companies, because e-shops presenting products in price comparison sites need to enter the low price and pay the subscription fee. Among the other significant trends are applications of supporting of search in e-shop platforms and innovative delivery - paczkomat (Ciepaj, 2013, p. 446). The new marketing innovation, which is used recently in e-commerce sector is to create a blog or cooperation with the blogger. However, such additional analyses will be a rewarding avenue for future research. Interesting aspect for future research is also a concept of open innovation, which are important elements in the development of innovative enterprises (Pomykalski, 2012, p. 537-538).

Conclusion

In this research work we focus on the identification trends of innovative solutions in e-commerce sector. E-commerce has already demonstrated its great benefit for both sites: clients and sellers. Dynamic growth contributed to the increase in the number of e-shops and e-customers. Highly competitive results in implementation of innovative solutions for e-commerce sector, which serve to distinguish the product and the brand among competition. Our estimation results show existence of significant trends among marketing innovations of e-commerce sector. Among the most important innovation

was identified e-mail marketing, social marketing, and free samples that showing an upward trend in popularity in e-commerce. In contrast, a low coefficient popularity of SMS advertising and packaging advertising over the last 6 years, suggesting that these innovations are characterized by low usability and efficiency.

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CURRENT TRENDS IN THE MONITORING OF KEY EMPLOYEES IN THE CZECH REPUBLIC

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Keywords:

management – HR management – monitoring – key employees

JEL classification: M00, M500, M540

Abstract:

Key employee is a term used specifically for an important employee or executive who is core to the business. The goal of this paper is to compare the organization size by number of employees with frequency of the monitoring of key employees in the Czech Republic. The paper's methodology uses the basis of a questionnaire and comparative research. An overall comparison of the data acquired presents current trends in using the monitoring of key employees. The paper tries to highlight that, in the current knowledge economy, the monitoring and manage of key employees is important.

Introduction

Human resources management perceives Koubek (1995) as the newest concept of personal work, which began to take shape during the 50s and 60s, and becomes the key of management of the company and most important task of managers. Petříková (2002) perceives employees as a source of knowledge and corporate performance. Urbanová (2009) the notion of key employees characterizes as workers without which would be significantly compromised the business.

Hovorková (2010) claims that key employees are very important for the company and can be a competitive advantage. She characterizes them as talented employees who have a close working focus, hard to find on the labour market. This author claims that his death, disability or absence could prove to be disastrous, not only financial loss (eg. transfer of know-how towards to competition). For this reason, companies opt for a “keyman insurance” policy which provides safeguard against losses incurred due to sudden demise or disability of the key employee. This type of policy is alternatively referred to as key person coverage, key employee coverage, etc. (Jason, 2014)

Horník (2007) adds that it is possible to determine the number of key employees in a concrete company, it is first necessary to carry out an evaluation of employees or their performance, abilities, skills and corporate benefits. The goal of this paper is to compare

size of companies by number of employees with frequency of the monitoring of key employees in the Czech Republic. The intention of the research investigation is to map the current state and trends of the examined problematic of key employees monitoring.

1. Methodology

The research's methodology is based on comparative qualitative research using a questionnaire given in the Czech Republic in 2014 as its basis. The basic sample for the survey included the most prevalent sectors among the first 100 most significant companies in the Czech Republic.

The research investigation took place on the basis of a questionnaire given in 2014 and 2015 from October 2014 until February 2015. The questionnaire was sent by email and included an accompanying letter. Establishing the basic sample for questioning first consisted of determining which sectors were the most prevalent among the top 100 most significant companies in the Czech Republic. The association CZECH TOP 100 (2014) has an online document which served for this purpose.

The following five sectors were established as being among the most prevalent sectors:

CZ NACE 350000 Manufacture and distribution of electricity, gas, steam and air conditioning;

CZ NACE 290000 Manufacture of motor vehicles (except for motorcycles), trailers and semi-trailers;

CZ NACE 190000, 200000, 210000 The chemical, pharmaceutical, rubber and plastic industries;

CZ NACE 640000, 650000, 660000 Banking and insurance;

CZ NACE 260000, 270000 Electronics, optics and electrical equipment.

In addition to the chosen sectors, the following additional criteria were established:

- legal entity;
- turnover of above 30 mil. CZK;
- number of employees above 50;
- all areas of the Czech Republic;
- actively engaged in business.

Next, specific companies with the above-listed selected criteria were established using the MagnusWeb database information system. The final sample for questioning amounted to a total of 1295 respondents. From these, 95 companies were in CZ NACE category 350000; 249 companies in CZ NACE 290000; 473 companies in CZ NACE

190000, 200000 and 210000; 142 companies in CZ NACE 640000, 650000 and 660000; and 336 companies in CZ NACE 260000 and 270000. The rate of return for correctly filled-in questionnaires was 9.73 %, with 126 overall.

The following research question has been established:

There is a difference between average size of companies by number of employees and frequency of key employees monitoring?

To answer the research question a statistical evaluation was used T-test for independent variables (Kozel, 2011; Kubanová, 2008). In this case, the dependent variable sizes are companies and independent variables is the monitoring of key employees. The level of significance by the test was determined $\alpha = 0.01$. If the p-value is smaller than the significance level $p < \alpha$, there will be a difference in the size of the company by number of employees, depending on whether companies use the monitoring of key employees or not. Calculation of this test was performed in STATISTICA software.

2. Results

Present Empirical generalization and interpretation of the determined results was conducted on the basis of the survey results. On the basis of the questionnaire, the following facts were established and empirical generalization and interpretation of the final results was conducted.

TAB. 1: Hard Data

Legal Business Form		Organization Turnover [CZK]		Number of Employees	
Joint-Stock Company	52 %	30 – 59.99 mil.	34 %	50 – 150	42 %
Private Limited Company	48 %	60 – 99.99 mil.	11 %	151 – 250	13 %
General Partnership	0 %	100 – 199.99 mil.	7 %	251 – 500	15 %
Limited Partnership	0 %	200 mil. – more	48 %	501 – more	30 %

Source: own research

Table 1 depicts the so-called hard data that was acquired and represents the data listed by respondents in percentages. The most common legal business forms for the respondent sample were the joint-stock company and private limited company; next, the most prevalent type of organization ownership was domestic. The organization's size according to turnover was most prevalent in the range of 200 mil. or more with the range of 30 – 59.99 mil. following. Organization size according to the number of

employees had highest representation in the range of 50 – 150 and 501 or more employees.

TAB. 2: The Result of T-testing in STATISTICA Software

Variable	T-test; Group. 1: 0 – Do monitoring Group. 2: 1 – Does not monitoring				
	Average (0)	Average (1)	t	sv	p
Organization size, Monitoring	3.081633	1.966667	4.086879	77	0.000106

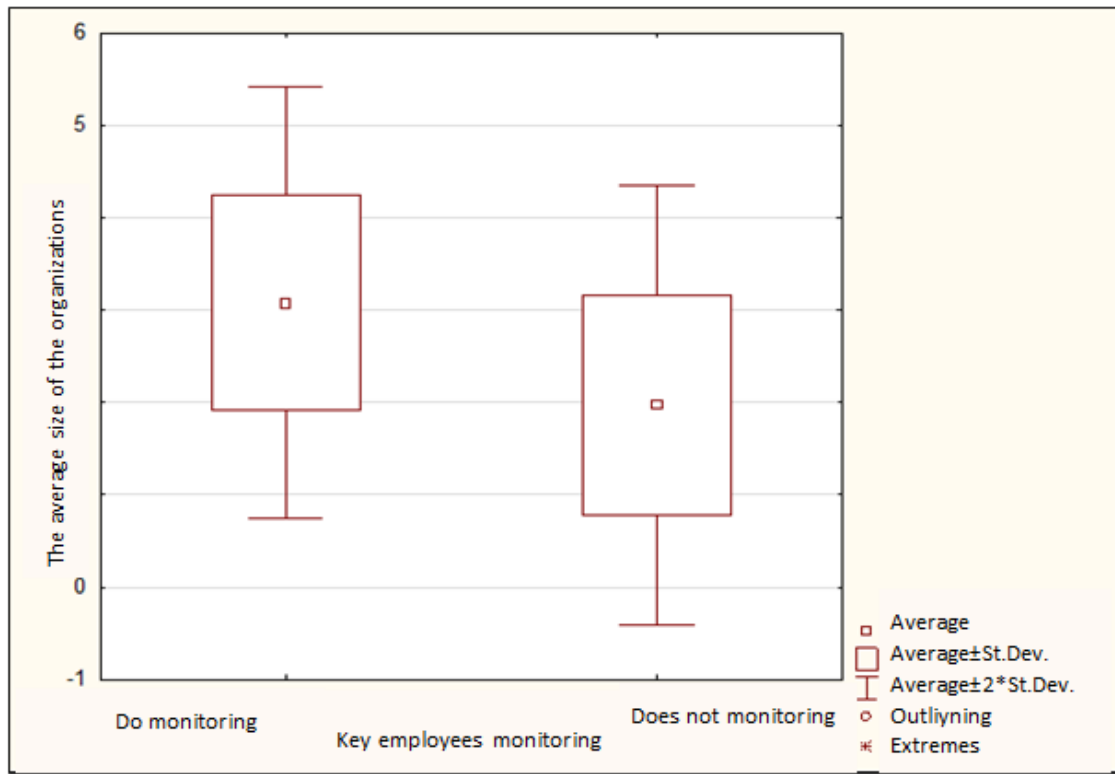
Source: own research by STATISTICA software

Table 2 shows the result of T-testing in STATISTICA software. The results show that the p value is less than the specified level of significance of the test α ($p = 0.000106 < \alpha = 0.01000$). On average large organizations use the monitoring of key employees. Fig. 1 illustrates the result of the performed test.

According to survey results, 61 % of respondents monitor the number of key employees. This was based on the following methods:

- periodic workshops led by company management;
- process management;
- personnel administration;
- SKILL MATRIX method;
- HR department with the support of external auditors;
- business results;
- the annual evaluation interviews with employees, incl. talent management.

FIG. 1: Box Chart Showing the Average Size of the Organizations at the Key Employees Monitoring



Source: own research by STATISTICA software

3. Discussion

Current methods and tools allow the organizations use the monitoring of key employees. Many authors agree that it is important to know the number of key employees in the organization (Urban, 2013).

The basic question is who will be responsible for the monitoring of key employees and which methods/tools should be used. The author of the paper considers that a competent person for the detection of key employees should be HR manager. To the second question results of the research corresponds. Next of the possible tools could be Enterprise Social Networks. Černý (2013) enterprise social networking is perceived as part of internal communication, aimed at cooperation, sharing information, getting feedback and communication between people in the organization. The transfer of internal communication in social networks is inevitable in the future. (Sedlák, 2012) The author of this paper sees a great potential in using of enterprise social networks. Enterprise Social Networks do not allow installing the monitoring of key employees yet. It will be interesting to monitor technical development of Enterprise Social Networks and others tools.

Conclusion

During the last years there has been to significant changes in the view of the employee. Currently the one of the critical factors in the success the organization includes the number of key employees. Companies are aware that employees are a valuable asset of the organization.

The goal of this paper was to compare companies' size by number of employees with frequency of the monitoring of key employees. The overall results of the research data presents current trends in using of the monitoring of key employees in organizations in the Czech Republic. The result of T-testing in STATISTICA software shows that companies which using the monitoring of key employees are on average larger by number of employees. There is a space for discussion and question why larger organizations pursue this indicator about the number of key employees. In modern organizations is of crucial importance detect a number of key employees. Some businesses have excessive dependency on particular executives who are extremely important for the smooth functioning of the business. The absence of such key employees can cause huge losses. Therefore, competitive organizations are looking for ways to detect the number of key employees, and managers looking for ways how to treat with this indicator.

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CURRENT TRENDS OF INTERNAL COMMUNICATIONS IN ORGANIZATIONS IN THE CZECH REPUBLIC

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Keywords:

management – internal communications – enterprise social networks

JEL classification: M00, M150, M10

Abstract:

Internal communications brings together all management functions and its purpose is the efficient use of corporate resources at the manager available. The goal of this paper is to identify tools of internal communications used in organizations in the Czech Republic in 2015. The paper's methodology uses the basis of guided conducted interviews. An overall comparison of the data acquired presents current trends of internal communications. The paper tries to highlight the fact that, in the current knowledge economy, effective internal communication is a key to the successful functioning of the company.

Introduction

Internal communications brings together all management functions and its purpose is the efficient use of resources (information, finance, materials, people), which has a manager available (Skarlantová, 2005). Internal communication is an integral part of a well-functioning company and is considered as the basis for success (Petříková, 2002). Urban (2013) emphasizes that managerial communication reflects the ability of managers and employees with each other openly and effectively communicate. Fast, direct, open and persuasive communication with employees regardless of the size of the company becoming one of the most important prerequisites for the successful development of the organization.

Kolajová (2006) perceives cooperation and communication as mutually strongly interrelated concepts. Furthermore takes the view that cooperation and activity of employees is strongly influenced by their motivation. Global surveys have confirmed a positive correlation between employee motivation and financial indicators. (Hewitt, 2015). Kolajová (2006) adds that the cooperation of a team of workers is also important who takes the role in the team and what are its characteristics. Further authoress points out that the relations of individual employees with other colleagues significantly affect of working climate in the company and consequently its overall operation and

performance. She says that it depends mainly on how top management and other management staff know to uniformly and responsibly determine the conditions for well-functioning cooperation and communication.

1. Methodology

The goal of this paper is to identify tools of internal communications used in organizations in the Czech Republic in 2015. The intention of the research investigation is to map the current state and trends of the investigated problematic.

The paper's methodology uses the basis of guided interviews conducted from October to December of 2014. The basic sample for interviewing included all top and line managers, predominantly HR managers. Non-probability quota sampling was used for determining the respondent sample (Gavora, 2010; Surynek, Komárková & Kašparová, 1999).

Companies were selected on the basis of predetermined criteria and determination by secondary analysis. The following criteria were established:

- legal entity;
- number of employees greater than 50 – to increase the validity of the data in the research investigation;
- all areas of the Czech Republic;
- actively engaged in business.

2. Results

Present Empirical generalization and interpretation of the determined results was conducted on the basis of the survey results.

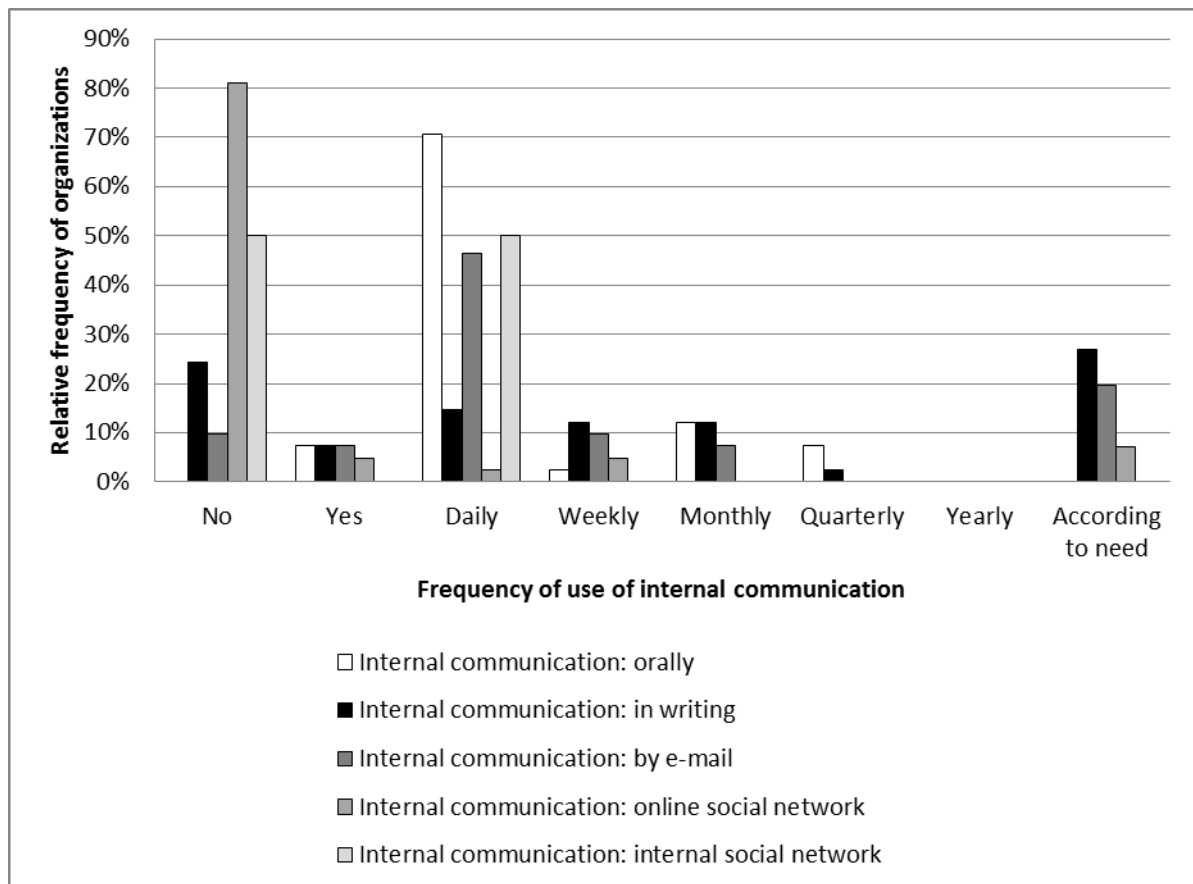
The final sample for interviewing numbered a total of 49 respondents. Table 1 depicts the hard data that was acquired, which represents the numbers in percentages of the data listed by the respondents. The most common types of legal business entities for the respondent sample were the private limited company and the joint-stock company. The largest number of organizations fell into the 50-250 employee range with the 1001-5000 employee range following. The highest number of respondents listed pure line or line and staff organizational structure; next divisional and matrix structures.

TAB. 1: Hard Data

Legal Type of Business Entity [%]		Daughter Company [%]		Organization Size [%]		Organizational Structure [%]	
General Partnership	4	No	40	50-250	59	Line	27
Limited Partnership	0	Yes, EU	27	251-500	6	Staff	8
Private Limited Company	55	Yes, non-EU	8	50-1000	12	Line and Staff	27
Joint-Stock Company	41	Yes, CZ	21	1001-5000	18	Divisional	12
		World	4	More than	4	Functional	12
						Matrix	14

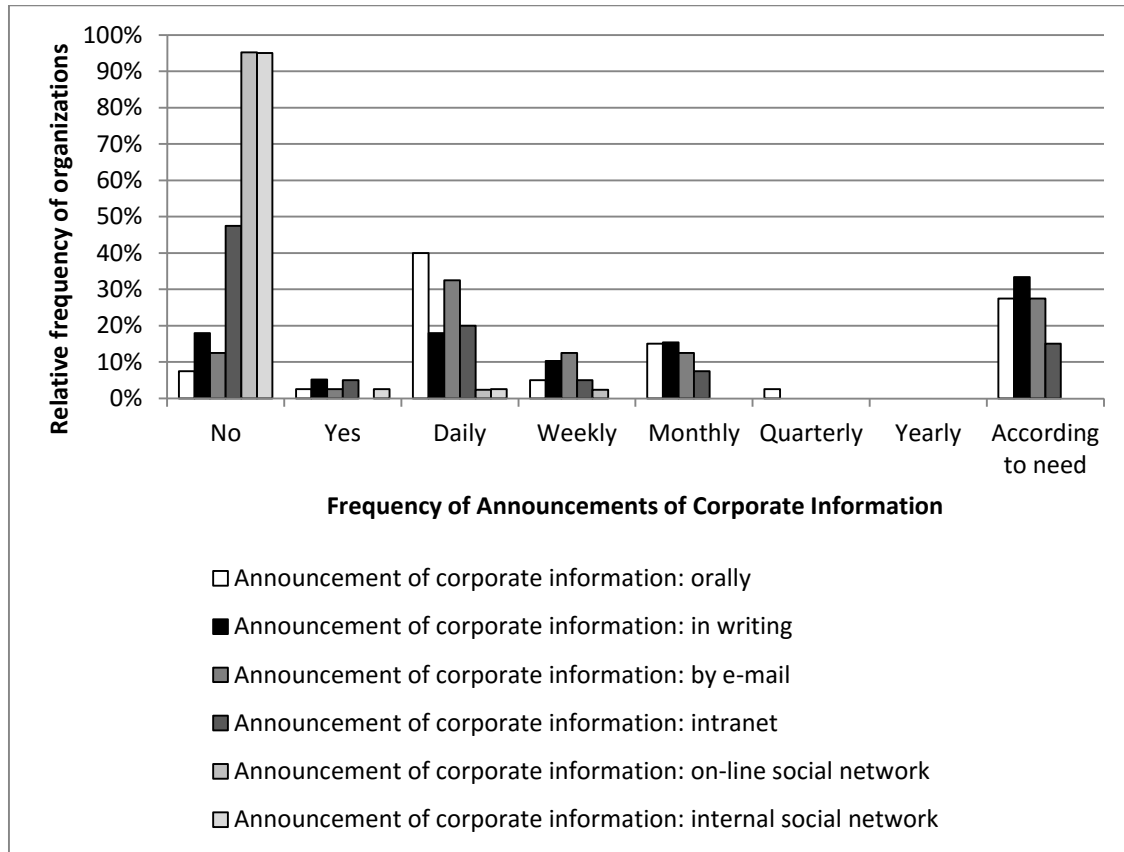
Source: own research

Fig. 1 shows the frequency of the use of various internal communication tools which occurs every day especially in oral form, by email and through Enterprise Social Network (in case this network is used). Weekly communication occurs mainly in writing and by e-mail; monthly communication occurs in writing and orally (mainly corporate meetings), quarterly communication occurs orally (mainly corporate meetings). Communication based on the needs to communicate occurs in writing and by e-mail. Among unused forms of communication, according to research, ranks online social networks and enterprise social networking. Respondents also notes that the second most common internal communication ranks telephone communication and message boards are in most manufacturing companies also used.

FIG. 1: Frequency of Using Individual Instruments of Internal Communication

Source: own research

Fig. 2 shows the frequency of announcements of corporate information through the internal communication which occurs every day especially in oral form, by e-mail and the publication of information on the intranet. Weekly announcement of corporate information occurs primarily via email and in writing; monthly disclosure of information occurs in writing, orally (corporate meetings) and on the intranet, quarterly communication is done verbally. Announcement of company information as required occurs in writing, by e-mail and orally (corporate meetings). Among unused forms of communication, according to research, ranks online social networks and enterprise social networking.

FIG. 2: The Frequency of Announcements of Corporate Information via the Internal Communications

Source: Own research

3. Discussion

The basic question is how to achieve the interests of all employees to ensure the prosperity of the company. A number of authors answer this question that one of the many factors in achieving prosperity of the company is effective internal communication.

The effort of managers is engage in dialogue that will lead others to common solutions of organizational problems with the aim continuous improvement and fulfillment of business objectives (Bělohlávek, 1996). While in the past, internal communication was mostly one-sided, formalized and written character, based on a fixed hierarchical structure of the organization and limited communication channels. In modern enterprises is of critical importance two-way communications, rather informal. (Urban, 2013).

One of the possible tools and current trends for internal communication are Enterprise Social Networks. Černý (2013) enterprise social networking is perceived as part of internal communication, aimed at cooperation, sharing information, getting feedback and communication between people in the organization. It offers an entirely separate and well-secured environment. He added that mainly integrates an intranet along with other collaborative tools. Meanwhile, organizations in the Czech Republic this software tool not very used. The author of this paper SEES a great potential in using of enterprise social networks. The reason of the low using of this network may be due to poor promotion. The author of this paper recommends increasing promotion for managers and recommends provide information about the characteristics of Enterprise Social Networks, and especially their benefits for internal communication.

Conclusion

One of the critical factors in the success the organization includes the ability of managers and employees with one another openly and effectively communicate. During the last years there has been to significant changes in the way of managerial communication. While in the past, internal communication was mostly one-sided, formalized and written character. (Urban, 2013; Bělohávek, 1996)

The overall results of the research data presents current trends of internal communications in organizations in the Czech Republic. In modern organizations is of crucial importance two-way communications, rather informal. Daily internal communication occurs mostly orally, weekly communication occurs mainly in writing and by e-mail. Announcements of corporate information through the internal communication which occurs every day especially are in oral form, by e-mail and the publication of information on the intranet. Weekly announcement of corporate information occurs primarily via email and in writing.

There is a space for discussion the question of the usefulness by email. By Microsoft there is a continual sending emails back and forth, causing companies escaping the current context and important documents. The transfer of internal communication in social networks is inevitable in the future. (Sedlák, 2012) Enterprise Social Networks are slowly starting to use in the Czech Republic.

Author of the paper agrees with Petříková (2002), which claims that positive influence on motivating employees to higher productivity have mainly interrelated to working environment factors related to internal communication, managerial style, social environment and corporate culture. It will be interesting to monitor new trends in internal communications in the future.

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ATTITUDES OF CZECH AND SLOVAK CONSUMERS TOWARDS BRANDS FROM THE POINT OF VIEW OF GENDER AFFILIATION

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Keywords:

gender – attitudes – brands – consumer behavior

JEL classification: M31

Abstract:

The main objective of this article is to investigate correlation between gender affiliation and consumer preferences. Our article looks at attitudes of Czech and Slovak consumers towards brands taking gender – one of the most important demographic factors – as a variable. First, positive and negative approaches to the importance of gender affiliation in contemporary market theory are presented. A brief introduction of research studies conducted in Slovakia and the Czech Republic follows. Then, selected outcomes of the primary research concerning gender affiliation and consumer preferences are shown. Finally, the outcomes of both research studies are analyzed and compared. Results suggest that gender affiliation has no influence in the Slovak Republic and only a limited impact in the Czech Republic.

Introduction

This research study reflects the assumption that there is a relationship between the sex and attitudes towards the brand. Furthermore, it assumes that gender affiliation may affect the formation of positive and negative attitudes towards the brand while taking into consideration the country of origin or country of origin of the product in general (not in relation to specific countries and to the positive or negative image of the given countries). Gender as such plays a role in the process of purchasing decisions in which the fact whether the decision is made by a male or a female has an impact on the outcome of this decision in the context of different expectations, needs and demand for products that can satisfy them. Thus we stated the following research question: Does one of the main demographic characteristics – gender – influence attitudes of Czech and Slovak customers – consumers towards a brand and the country of its origin or towards the product in the studied area or towards selected product categories.

1. Methodology and methods

This article in the first part presents positive and negative approaches in contemporary marketing theory and partially in practice towards highlighting the impact of gender differences on marketing or even against application of the so called gender marketing. Subsequently, in terms of addressing the research questions, methodology and selected research methods concrete conclusions are formulated – these are based primarily on the results of the analysis of specific outcomes of the primary research carried out within the research project VEGA 1/1051/1 Analysis of strategic processes of brand building and brand management in the context of homogenization and individualization of consumer needs by the Marketing Department at the Faculty of Management, Comenius University in Bratislava and secondly by the selected results of the research based on the same methodology “The Czechs and brands” that was conducted at the Department of Marketing Communications at the Faculty of Multimedia Communications, Tomas Bata University in Zlín.

The group of respondents involved the population of the Slovak Republic and the Czech Republic aged 16+ and it was based on the principle of quota sampling – quotas such as age, gender, education, income and the size of place of residence reflected the distribution of socio-demographic data of the group defined by the Statistical Office of the Slovak Republic and by the Czech Statistical Office. Reliability of the research study was set at 95%, accuracy to 3%. The question relating to gender was answered by 1022 Slovak respondents of which 48% were men and 52% women and by 1028 Czech respondents of which 49% were men and 51% women. As the group was made up of 504 men and 518 women in Slovakia and 505 men and 523 women in the Czech Republic it is possible to consider representation of men and women to be adequate.

Data were gathered in the period of January to April 2013 in Slovakia and from October till November 2014 in the Czech Republic by means of personal interviews and an online questionnaire available on the Internet. The questionnaire was divided into three parts: it started by three introductory questions focusing on the spontaneous awareness of brands and associations with Slovak brands. Then a series of 27 Likert scales followed – they were designed to detect preferences of Slovak and Czech customers and their attitudes towards domestic and foreign brands by expressing their consent in the following range: I fully agree – I partially agree – I do not know – I partially disagree – I totally disagree – with various statements. The last part of the questionnaire focused on basic socio-demographic characteristics of respondents.

Primary data were processed in the R statistical software and Statgraphics program. Descriptive statistics were processed in the Statgraphics program, factor analysis, segmentation, correlation and comprehensive analysis of attitudes were performed in the R statistical software.

2. Gender affiliation and marketing

The existence of biological social differentiation on the basis of gender is a fundamental phenomenon that enables marketers to define target groups from the point of their consumer behavior and specific offers of products and services. Biological differences cause different mental preferences of looking at the world, there are differences in intellectual functions and in subconscious, automatic and instinctive reactions and thus cannot be denied. As stated in Vysekalová et al. (2011, p295), the issue of gender affiliation is tied to marketing. Several concepts have been proposed to explain gender affiliation in marketing. Sex roles serve as a sub-cultural category because every culture attributes different characteristics and roles to men and women (Schiffman & Kanuk, 2004, p457). On the other hand, feminist critique emphasizes the danger of gender stereotyping. Darroch (2014) claims in his latest book “Why Marketing to Women Doesn’t Work” that gender identity neither explains nor indicates consumer behavior. However, men and women approach purchasing decisions very differently (Kraft & Weber, 2012, p248). The difference is created because men and women have different expectations, women look to satisfy their long term needs and wants while men are shorter sighted and look at satisfying their immediate or short-term needs and wants (Baker, 2012). Influence on gender identity has often been simplified to an ability to predict consumer behavior related to gender. Gender identity, however, can be seen in a wider context, for example in relation to brand loyalty, as presented by Ye and Robertson (2012, p81).

In general, it is necessary to monitor and respond to main changes in lifestyle and demographic structure of inhabitants (Juříková, 2014, p46-47). Several research studies (Mohan, 2014; Das, 2013; Avery, 2012; Kraft & Weber, 2012) have so far been dealing with examining attitudes towards brands in the context of demographic profile of customers, however, they have not demonstrated any significant dependence of the relationship. On the contrary, there are results of research projects and analytical introspection that point to the fact that gender affiliation influences attitudes towards brands. This dependence is confirmed by Rajput, Kesharwani and Khanna (2012), Stokburger-Saue and Teichmann (2013), or Mostafa (2006). Looking at research works of the above mentioned authors confirming or rejecting the discussed relationship, one has to take into consideration that they used different methodology and their results are culturally, geographically or product determined. However, they have created framework presenting diversity of research results. In the context of this study related to the relationship between gender dependency and building attitudes towards brands, no clear position is taken and thus a determined research question can be considered relevant.

Within market segmentation, gender segmentation still plays an important role. Gender affiliation is one of frequently used variables in market segmentation (Kardes, Cline & Cronley, 2011, p37) and at the same time it is often a distinguishing variable of

segmentation (Schiffman & Kanuk, 2004, p65). Nowadays, the role of gender affiliation is blurring, consumers of many product categories cannot be segmented on the basis of gender as more and more men and women are displayed in roles traditionally held by the opposite sex.

3. Research and results

The research study focused on the assumption of an existing relationship between gender and attitudes of Czech and Slovak customers towards brands and it is based on the results of primary research conducted at the Department of Marketing, Faculty of Management, Comenius University in Bratislava, Slovakia and at the Department of Marketing Communications at the Faculty of Multimedia Communications, Tomas Bata University in Zlín, Czech Republic. Comprehensive results of the Slovak primary research were presented in the monograph *The Brand and the Slovak Customer* (Smolková et al., 2013), partial results were published by Olšavský (2013), Vilčeková (2013), Vilčeková and Sabo (2013), Smolková (2014), Štarchoň and Weberová (2014, 2015) and more other papers and articles. Concerning the Czech primary research the results are under the processing and will be presented in monograph ready to be published by the end of 2015.

For the purposes of the research study and in the context of this article Pearson's chi-squared test of independence is used to test the null hypothesis. The null hypothesis attempts to show that there is no relationship between the explaining and explained variable. The relationship of gender affiliation and attitudes of respondents towards selected statements was confirmed, respectively rejected, so the null hypothesis was either rejected or not rejected.

TAB. 1: Domestic products are of high quality

	N	χ^2	DF	α
Czech Republic	1028	24,275	4	7,035e-05
Slovakia	1012	5,269	4	0,261

Source: (own)

Analyzing the statement „Slovak products are of high quality“ (Table 1) based on the analysis it was found out that the null hypothesis in relation to gender affiliation of respondents and the statement shall not be refused. So there is no correlation between gender affiliation and the statement that Slovak products are of high quality. In contrary to this, based on the results concerning Czech research, there is a correlation between gender affiliation and the statement “Czech products are of high quality” (Table 1). There is the difference in the preferences of Slovak and Czech consumers.

TAB. 2: I prefer domestic brands

	N	χ^2	DF	α
Czech Republic	1028	22,3949	4	0,0001672
Slovakia	1001	2,724	4	0,605

Source: (own)

Analyzing the statement “I prefer Slovak brands” (Table 2) it was found out that the null hypothesis in relation to gender affiliation of respondents and the statement shall not be refused. So there is no correlation between gender affiliation and the statement that respondents prefer Slovak brands. Otherwise, a different situation is noticed in the answers of the Czech consumers, where the correlation between gender affiliation and the statement “I prefer Czech brands” (Table 2) is visible and there is a difference in the preferences of Slovak and Czech consumers, too.

TAB. 3: I am willing to pay more for domestic brands

	N	χ^2	DF	α
Czech Republic	1028	0,9814	4	0,9126
Slovakia	996	4,867	4	0,301

Source: (own)

The next statement was „I am willing to pay more for the Slovak brand“, resp. for the Czech brand (Table 3). Results based on the analysis show that also in this case the null hypothesis in relation to gender affiliation of both Slovak and Czech respondents and the statement shall not be refused. There is no correlation between gender affiliation and the statement that respondents are willing to pay more for the Slovak, resp. the Czech brand and there is no difference in Slovak and Czech consumers' preferences.

TAB. 4: Foreign brands are of higher quality

	N	χ^2	DF	α
Czech Republic	1028	4,7853	4	0,31
Slovakia	1009	5,931	4	0,204

Source: (own)

Results based on the analysis show that also in this case the null hypothesis in relation to gender affiliation of respondents and the statement shall not be refused. Again, concerning Slovak and Czech consumers there is no correlation between gender affiliation and the statement that foreign brands are of higher quality (Table 4).

TAB. 5: I do not know whether I like domestic or foreign brands

	N	χ^2	DF	α
Czech Republic	1028	1,1517	4	0,886
Slovakia	1007	3,471	4	0,782

Source: (own)

Analyzing the statement "I do not know whether I like domestic (note: Slovak, resp. Czech brand) or foreign brands" (Table 5) based on the analysis it was found out that also in this case the null hypothesis in relation to gender affiliation of respondents involved to the primary research and the statement shall not be refused. No correlation between gender affiliation and the statement was confirmed.

The last three statements focused on selected product categories and it was assumed that certain gender differences would occur within purchasing behavior. As can be seen in Table 6 and Table 7, no correlation was confirmed in any of the three statements.

TAB. 6: Selected product categories – Slovakia

	Average value of men's response	Average value of women's response
Choosing consumer goods I prefer foreign brands	0.23	0.25
I buy food made mainly in Slovakia	0.49	0.52
Choosing shoes and textile I prefer foreign brands	0.56	0.52

Source: (own)

Based on the average value of respondents' answers in the Slovak Republic (Table 6) it can be concluded that there is, according to gender, no significant difference in preference perception of specific product categories.

TAB. 7: Selected product categories – Czech Republic

	N	χ^2	DF	α
Choosing consumer goods I prefer foreign brands	1028	2,2697	4	0,6863
I buy food made mainly in the Czech Republic	1028	5,0142	4	0,2858
Choosing shoes and textile I prefer foreign brands	1028	1,669	4	0,7963

Source: (own)

Exact values α could be calculated from the findings measuring the attitudes of respondents in the Czech Republic, these present the value of the chi-square test (Table 7). They say that the explaining variable of gender has no correlation to the explained variable which was the statement on the attitude towards the selected product category.

Conclusion

Based on the results of the research study it can be stated that in the context of the research question – Does one of the main demographic characteristics – gender – influence the attitudes of Slovak customers – consumers towards brands and the country of origin or towards selected product categories? – this relationship was not confirmed. It can be concluded that gender affiliation has no influence on the attitudes Slovak customers have towards brands, the country of origin or product. This means that gender does not present any significant factor in shaping a customer's attitude towards brands. In contrary to this statement the results from the research conducted in the Czech Republic, it is obvious, that at least in attitudes of Czech consumers toward the high quality of Czech products and their preference of Czech brands there is dependency on gender. These findings can prove valuable in planning and implementing functional marketing strategies in both Czech and Slovak economies and in managerial decision-making processes dealing with the building and managing of specific brands. But it has to be noticed that additional researches would be needed to investigate future changes in correlation of gender affiliation and consumer preferences towards brands.

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ANALYSIS OF LAND RESOURCES IN LOWER SILESIA AGRICULTURE IN THE YEARS 1999-2012

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amount of land – soil quality – weather conditions – typical utilized agricultural area

JEL classification: Q000, Q150

Abstract:

Earth along with the weather conditions make up the main production resource in agriculture. The aim of the paper was to analyse quantitative and qualitative changes of this resource during favourable period for Polish agriculture. The article focuses on the Lower Silesia (dolnoslaskie voivodship), because this province on the background of the country has a very good natural conditions. There were made an efforts to find out whether changes in land resource going in the right direction and it will better serve agricultural production.

Introduction

Since the introduction of administrative reform in 1999 Lower Silesian agriculture is changing, mainly under the influence of two invigorating impulses: a growing market economy and Polish membership in the European Union. Described economic phenomena have contributed to changes in productive resources in agriculture, as well as social and environmental transformation. For agriculture production particularly important resource is land and climatic conditions impacting heavily on it (Piwowar, 2014). Most described in this article phenomenon is evolving thanks to the efforts of man, but there are those for which he has no influence. These include weather changes observed for centuries.

1. Methods, literature overview

The aim of the study was mainly analysis of changes in the quantity and quality of agricultural land resources in the Lower Silesia on the background of the country. Similar there was analysed the weather conditions, which in agriculture constitutes an integral component of the land resource. To carry it all out there were mainly used data from the Central Statistical Office (CSO) for the years 1999-2012. There were also used information from the Institute of Agricultural and Food Economics (IAFE), the Ministry of Agriculture and Rural Development (MARD) and the FAO. Comparisons were

carried out both in terms of time as well as space, using, among others, an indicator of agricultural production space valorisation (IAPSV) and Gini's coefficient of concentration.

2. Natural conditions

Agriculture is an activity sensitive to the impact of climate and the accompanying weather conditions (sunshine, temperature, rainfall, etc.). The main climate factors influencing the type and effectiveness of agricultural production are (Banski, Blazejczyk, 2005):

- a) solar radiation (insolation),
- b) temperature,
- c) precipitation,
- d) the length of the growing season.

The length of the vegetation period of plants depends mainly on the thermal conditions, which in turn depend on the insolation. For the climatic vegetation period in Poland adopted season in which the average daily temperature exceeds 5°C. In agriclimatology indicator specifying the size of the heat resources in the growing season is used. It is calculated by summing up the active temperature throughout the year, ie. the surplus of average daily temperatures above 10°C (Kozuchowski, 2011). Most plants grown in Poland (cereals, potatoes, fodder crops) requires annual sum of active temperatures in the range 1400-2200°C. More needs have sugar beets, corn for grain, sunflowers, vines (2200-2500°C) (Falkowski & Kostrowicki, 2001).

Lower Silesia is characterized by large spatial variability of active temperatures, due to the clear differences in the landform of northern and southern areas. In a typical mountain counties sum of these temperatures do not exceed in a year 1900°C. The farther north, there are better conditions for growing thermophilic plants. Despite the large variation in temperature within the region, compared with other regions in the country, its climate is favourable for agriculture. This is evidenced by data collected in TAB. 1. They represent the changes in the major climatic factors.

In the Lower Silesia the average temperature in all the indicated periods (annual and long-term) were the highest among all provinces in Poland. In the long term only the zachodniopomorskie province achieved similar results. The annual sum of sunny hours from the beginning of the century also belonged in Lower Silesia to one of the highest, giving way to mostly the mazowieckie province. In the province of Lower Silesia is a trend towards increasing sunshine and persistent high temperature, which encourages the development of agriculture.

In the region of Lower Silesia may be the problem with a relatively small amount of rainfall. If for spring wheat adopted for the growing season months from April to

August, then it can be seen that the sum of the multiannual average monthly rainfall during this period is 58.2% of average annual precipitation in Lower Silesia, ie. 326 mm. Transpiration of water on a wheat field absorbed during the growing season 375 mm of water (Kozuchowski, 2011). These calculations indicate a deficit of about 13.1% of water. Climatic water balance in Poland is negative during the growing season. It is estimated that for agriculture, water resources of the country are inadequate. The most rainfall (both – on an annual and long-term basis) was recorded in the Silesian province. Lower Silesia took in this regard barely twelfth position. According to employees IAFE climate apparently varies from year to year. The growing seasons are observed long drought, which reduces crop yields (Jozwiak & Mirkowska, 2011).

TAB. 1: Atmospheric factors crucial for agriculture by province

Weather stations in provinces	Insolation during the year in hours			The average annual temperature in °C			Annual precipitation totals in mm		
	1999	2001- -2010	2012	1999	2001- -2010	2012	1999	2001- -2010	2012
dolnośląskie	1785	862	2035	9,7	9,4	9,5	449	560	516
kujawsko-pomorskie	1731	1699	1807	9,3	8,7	8,6	572	583	521
lubelskie	1929	1770	1786	8,4	8,1	8,1	678	614	503
lubuskie	1574	1713	1728	9,6	9,2	9,1	520	591	544
łódzkie	1712	1764	1920	8,8	8,6	8,7	564	601	521
małopolskie	1583	1663	-	9,1	8,7	8,6	701	719	619
mazowieckie	1693	2292	2393	9,1	8,8	8,8	484	571	519
opolskie	-	-	1986	-	9,3	9,5	-	606	504
podkarpackie	1581	1929	1911	8,8	8,7	8,8	734	725	558
podlaskie	1780	1738	1729	8,0	7,5	7,0	501	613	611
pomorskie	1605	1851	1973	9,6	7,9	7,8	620	670	684
śląskie	1752	1741	1837	9,1	8,8	8,8	753	770	698
świętokrzyskie	1717	1728	1784	8,4	8,1	8,1	599	659	636
warmińsko-mazurskie	-	-	-	8,2	7,9	7,5	701	646	701
wielkopolskie	1875	1850	1900	9,4	9,2	9,3	597	535	664
zachodniopomorskie	1816	1703	1654	9,6	9,4	9,1	574	588	529

NOTE: The black colour was awarded the highest indications mentioned features. Source: own study based on: Central Statistical Office (2000-2013). Statistical Pocketbook the Republic of Poland, Warsaw.

Described factors and landform affect the length of the growing season, or the time in which they can grow. It takes in Poland from 230 days to the Silesian Lowland up to 180 days to the Suwalki Lake District (Banski & Blazejczyk, 2005). In Lower Silesia outside mountain region, the growing season begins around March 31 and runs until 5 November. Its gradual extension is observed.

A synthetic measure of quantitative valuation of natural conditions for agricultural production is the indicator of agricultural production space valorisation (IAPSV). Its design is based on four partial indicators: agroclimate, water conditions, landform and soil quality. The effect of atmospheric factors are climate and water condition, which, together with the quality of soils and topography, decide on production results in

agriculture and the appropriate use of its resources. In the Lower Silesia province most favourable natural conditions for agricultural activities reign in the counties of Strzelin and Wrocław (good hydrological conditions, high rate agroclimate, favorable landform and, above all, high quality of the soil). In these counties average weighted synthetic IAPSV stood at 97.4 and 92.7 (Klimczak, 2008).

Distinct changes in climate occur slowly. However, the change scenarios are created. The most likely scenario assumes that at the end of the twenty-first century temperature rises in Poland by about 3-4 ° C, slightly increase rainfall and vegetation period will be extended –in Western Poland up to 110-125 days, and in Eastern Poland for 50-65 days (Kedziora, 2008). The FAO publication says that the potential effects of climate change are still uncertain. However, elevated levels of CO₂ can have a positive impact on agriculture by giving higher yields (by rapid growth of biomass crops) and better use of water in many crops (Alexandratos, 1995).

3. Analysis of utilized agricultural area quality

Utilized agricultural area (UAA) is a directly productive and the most important part of agricultural land. Their quality is defined mostly by quality classes. Soil quality does not change quickly. Changes in the UAA structure (TAB. 2) due primarily to the exclusions part of the land in each bonitation class from agricultural use.

TAB. 2: Changes in the quality structure of UAA in Poland

Utilized agricultural area		1990	2000	Dynamics of changes in UAA
Total in thousand. ha		18804,7	18536,9	98,6
According to bonitation classes in%	I	0,4	0,4	98,7
	II	2,9	2,9	98,6
	III	22,3	22,7	100,0
	IV	39,8	40,0	98,8
	V	22,7	22,6	98,4
	VI	11,9	11,4	94,9

Source: Statistical Yearbook of Agriculture 2012, Central Statistical Office, Warsaw, p. 78

In the last decade of the last century the total utilized agricultural area in Poland decreased by 267.8 thousand. ha, ie. 1.4%. Most (5.1%) disappeared worst quality land. Most increased a share of utilized agricultural area class III. In the quality structure of UAA still the most important role play the middle classes soils (III and IV). Their total share in 2000 amounted to 62.7% and increased over the decade by 0.6 percentage points.

Lower Silesia stood out, on the background of the country, favourable quality structure of utilized agricultural area (TAB. 3). Although province took 4th place in terms of the share of the best and medium-sized soils, it had the smallest percentage of land V and

VI bonitation class. This translated into the highest in the country, next to the opolskie province, soil bonitation indicator, and one of the highest indicator of agricultural production space valorisation (IAPSV).

Soil bonitation indicator, calculated on the basis of the Common Agricultural Censuses (CAC) in 2002 in Poland amounted to an average of 0.82 (ie. by 0.07 more than in 1996). The increase in the indicator was mainly due to afforestation of the weakest land and the allocation of the construction or recreation. The highest value of soil bonitation indicator was recorded in 2002 in following provinces: opolskie (1.05), dolnoslaskie and zachodniopomorskie (after 1.03), the lowest – in the mazowieckie (0.65) and lodzkie (0.66) (Central Statistical Office, 2003).

TAB. 3: Quality of utilized agricultural area by province in 2000

Provinces (voivodships)	UAA share of bonitation class (in %)			Soil bonitation indicator	IAPSV
	I + II	III + IV	V + VI		
POLAND	3,26	62,66	34,08	0,83	66,6
dolnośląskie	7,17	71,13	21,70	0,98	74,9
kujawsko-pomorskie	2,72	72,57	24,71	0,91	71,0
lubelskie	7,92	69,08	23,00	0,97	74,1
lubuskie	0,37	56,85	42,78	0,73	62,3
łódzkie	0,92	52,93	46,16	0,72	61,9
małopolskie	6,67	62,93	30,40	0,90	69,3
mazowieckie	0,75	54,18	45,07	0,72	59,9
opolskie	7,96	70,27	21,77	0,98	81,4
podkarpackie	5,35	67,16	27,49	0,89	70,4
podlaskie	0,00	52,88	47,12	0,65	55,0
pomorskie	4,93	60,44	34,64	0,83	66,2
śląskie	1,55	62,44	36,01	0,79	64,2
świętokrzyskie	10,68	53,60	35,72	0,86	69,3
warmińsko-mazurskie	0,45	73,97	25,58	0,86	66,0
wielkopolskie	0,76	57,40	41,84	0,76	64,8
zachodniopomorskie	0,87	71,99	27,14	0,84	67,5

NOTE: The black colour was awarded the highest indications mentioned features. Source: own calculations based on Statistical Yearbook of Agriculture 2012, Central Statistical Office, Warsaw and Information Bulletin Institute of Soil Science and Plant Cultivation, Pulawy 2000 No. 12

During the last CAC 2010 the quality of agricultural land has not been studied. However, since Poland access the European Union and was extend its Common Agricultural Policy, in official statistics appeared a new concept related to the quality of agricultural land – land in good agricultural condition. In contrast to the described natural conditions, the quality of land maintained in good agricultural condition depends mainly on agricultural practices used by farmers in accordance with the principles set out in the Ordinance of the Minister of Agriculture and Rural Development of 12 March

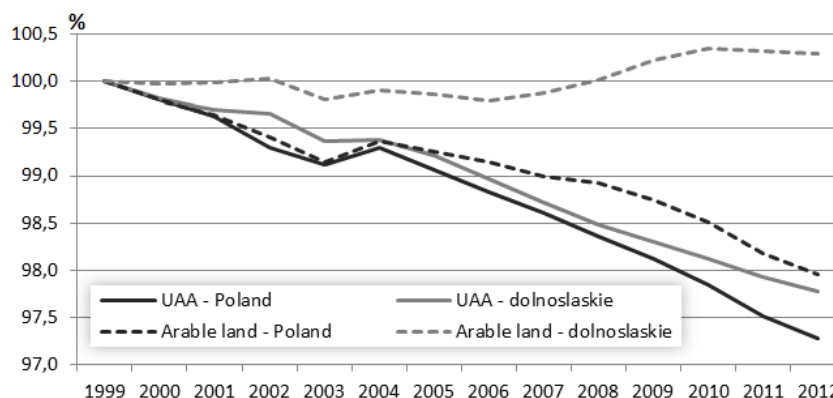
2007 on minimum standards (Dz. U. No. 46 item. 306). The data on this category of land are published since 2007.

In 2007 utilized agricultural area in Poland occupied area of 16 177.1 thousand. ha, of which 95.7% were land in good agricultural condition. According to the data of the 2012 total utilized agricultural area decreased by 7.0%, of which area in good agricultural condition – by 6.1%. The faster pace diminished the former, because the share of the land in good agricultural condition rose to 96.5%. In Lower Silesia in 2007 from 917.3 thousand. UAA 94.3% were land in good agricultural condition. Within five years, all the utilized agricultural area decreased by 1.5% and land in good agricultural condition – by 2.4% (Local Data Bank, , Agricultural Census). Despite the smaller proportion of loss in the total UAA in the province, faster than in the country's shrinking resource of land in good agricultural condition. Their share decreased to 93.9% of UAA. This unfavourable phenomenon means that some owners of agricultural land in Lower Silesia not cultivate UAA and even does not keep them ready for cultivation. They lose out doubly because they cannot charge fees nor derive income from the sale of agricultural products. The land is degraded, and it should be remembered that in Lower Silesia it has high quality.

4. Changes in surface and structure of utilized agricultural area quality

Since 1999 in Poland it has changed utilized agricultural area (UAA) and their classification. Under the regulations in force from 2002 to geodetic surface of agricultural land also included built-up agricultural land and land under ponds and ditches with a total area of 640 thous. ha (Szymańska, 2012). Geodetic area of farmland increased therefore on land not directly related to agricultural production. For the analysis of changes adopted so-called typical area (Dzun, 2007) of agricultural land, which consists of: arable land, orchards and permanent grassland (FIG. 1).

FIG. 1: Changes in a geodetic surface of the typical utilized agricultural area (UAA) and arable land in Poland and dolnoslaskie province in the years 1999-2012



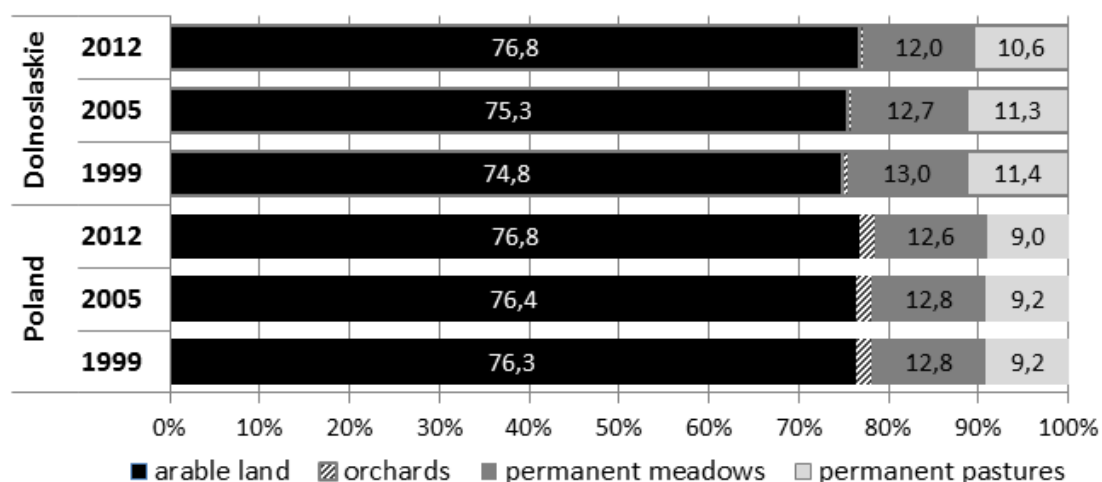
Source: own study based on Local Data Bank of Central Statistical Office, Agricultural Census

In 1999 the utilized agricultural area occupied 18 592.1 thous. ha of geodetic surface in Poland and 1 165.7 thous. ha –in dolnoslaskie voivodship. In the analysed period, the area decreased by 2.7% in Poland and 2.2% in Lower Silesia. The area of typical arable land decreased gradually. The reversal of this trend followed in the significant 2004 – stronger in the country than in the province. Than in the coming years once again took on a downward trend. Describe changes took place more slowly in the region than in the country. The dynamics of reducing the surface of the land used for agriculture is worrying. This process should be subject to inspection by the competent authorities of the state administration. Further reduction of agricultural land resources are proposed by the European Commission. It involves exclusion 5% of farm production in order to increase the area of ecological land (Kowalska, 2011).

The most important type of utilized agricultural area are arable land. Their area in Poland decreased over the considered period a bit more slowly than the total UAA. Definitely otherwise changed arable land in the Lower Silesia. In a very little hesitant to 2002, significantly decreased in the following year to rise in a favourable for agriculture year 2008. Since 2011 there is observed a slight decrease in the surface of arable land in the province.

Differences in the course of changes in the size of arable land in Poland and in the Lower Silesia result of the attitude of farmers from Lower Silesia to develop primarily crop production and abandonment of livestock farming (Olszanska, 2012). This approach made that the structure of agricultural land also has changed (FIG. 2). Generally proportion of arable land grew at the expense of decreasing area of orchards and permanent grassland. In the Lower Silesia these changes have marked more clearly than in the country, especially in 2012.

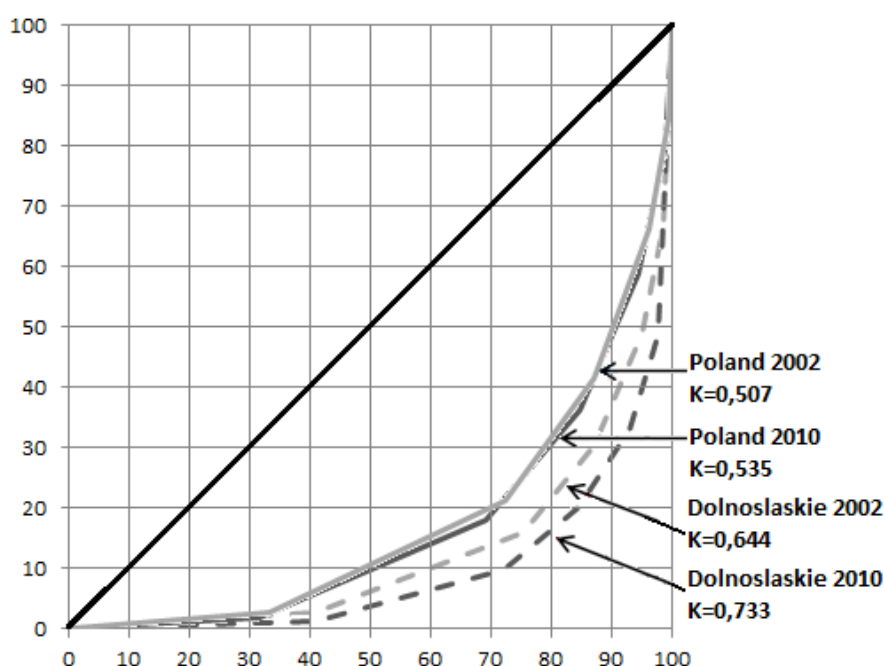
FIG. 2: Changes in the structure of typical utilized agricultural area in Poland and in dolnoslaskie province



Source: own study based on Local Data Bank of Central Statistical Office, Agricultural Census

Apart from changes in the structure of the kind there is observed the evolution in the structure of the area of UAA. Distribution of the UAA between a group of area farms is in Poland increasingly uneven (FIG. 3). Based on the results of the two last censuses of agricultural (CAC 2002 and CAC 2010) there was plotted Lorenz curves and calculated Gini coefficients of concentration - K (Pułaska-Turin, 2011) of utilized agricultural area in individual farms for Poland generally and Lower Silesia.

FIG. 3: Lorenz concentration curves of utilized agricultural area in individual farms according to agricultural censuses



Source: own study based on Local Data Bank of Central Statistical Office, Agricultural Census

Increasing value of this indicator shows the progressive polarization of the utilized agricultural area in the direction of farms territorially the largest and smallest. Described phenomenon was in the period between censuses less pronounced in Poland total than in Lower Silesia. Whilst the fact of the concentration of land in larger farms should be assessed positively, whereas the increasing fragmentation of UAA among minor farms surprise in the context of low profitability. It may result from the inheritance departments of the land rather constituting as a capital investment than a means of agricultural production.

Conclusion

- e) Analysis of the weather conditions showed that in Lower Silesia were high insolation and average annual air temperature. Unsatisfactory rainfall whereas accounted for issue. It would have been indicated greater attention to water drainage and in the future expansion of the irrigation system.

- f) Quality of agricultural land in Lower Silesia is one of the highest in Poland. This region should take advantage of favourable weather and soil conditions to increase agricultural production.
- g) Lower Silesia faster than the average of Poland increase share of land not maintained in good agricultural condition at UAA. This negative effect should be limited, because the owners of such land lose twice. They cannot collect direct payments, as well as receive revenue from the sale of crops and valuable resource of good quality land is not used.
- h) Disturbing is the process of reducing the surface of UAA in Poland. To a lesser extent it is progressing in the Lower Silesia, where rose, in the reporting period, the share of arable land in the UAA. This is due to the development primarily of crop production. Disappearing livestock production makes that still high proportion of meadows and pastures is no longer used.
- i) Observed in Lower Silesia progressive unevenness in the distribution of agricultural land is unfavourable in relation to small farms. The increase in their number makes UAA are more and more fragmented, and their cultivation becomes ineffective.

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MANAGEMENT METHODS IN STRATEGIC PLANNING OF MUNICIPALITIES

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Balance Scorecard – municipality – New Public Management – strategic planning

JEL classification: O210, R58

Abstract:

Strategic management is the process of self-government, which relies on modern management methods and is based on the concept of New Public Management. The most frequently used methods in the Czech environment of medium and small municipalities are methods BSC - Balanced Scorecard and MBO - Management by Objectives. The aim is to improve the performance of public administration through the use of management methods used by the private sector. This paper aims to show the specific example of the creation of village development strategy through the Balanced Scorecard method and find the limits and barriers to its use at the local government level under the Czech conditions.

1. Introduction

Social changes already in the 80's of the last century led to drastic interventions in the environment, public administration, and yet generally applicable approach to public administration changes to management in public administration. Strategic planning in the public sector in recent years has undergone significant changes and towards a systemic approach and use modern management methods. Methods, principles and concepts are based on the major works of the world's leading representatives of modern management such as Drucker (2001), Norton & Kaplan (2004, 2008), Johnson & Friesen (1995), Arveson (2003), Ochрана (2007) and others.

In the Anglo-American model of public administration in the late eighties and early nineties David Osborne & Ted Gaebler (1994) developed the system of New Public Management. This system is aimed at increasing government efficiency, improving services to citizens, increasing the professionalism and ethics of public officials, introducing indicators for evaluating the performance of individual officials and striving for greater efficiency of public administration verification.

The intention of this article is to present the outputs of the completed project for the future project concerning the town of Brasy, where of New Public Management and Balanced Scorecard management method were applied for setting the Strategic and Community Plan for the city. Part of this work was a survey through which citizens had the opportunity to influence the future direction of their city. From the perspective of this research, application of modern management methods has brought an interesting experience and limits associated with their use in practice.

2. Methodology, theoretical base

New Public Management as an effective alternative to public management became of global importance in the 90s of the 20th century and developed in many countries (eg, New Zealand, Switzerland, the Netherlands). The concept of New Public Management utilizes quality management models such as Total Quality Management (TQM) and the Excellence Model (EQM) and introduces management methods and techniques from the private sector into public administration. These include methods of management by objectives (MBO), Delphi, methods of quantification and measurement (3E SMART) control using feedback, benchmarking, the method of self-assessment CAF, McKinsey model 7 "S" method balanced targets (BSC), map strategies and more. This dramatically changes the requirements for skills and competencies of managers in public administration.

New Public Management moved to the front ranks of staff accountability and management by objectives and the means of action of services (not primarily funds). Public service has not yet unfolded from the economic system and the political system has been subordinated. Today the effort of the economic system is to correct faulty development of public administration policies (Wright & Nemec, 2003).

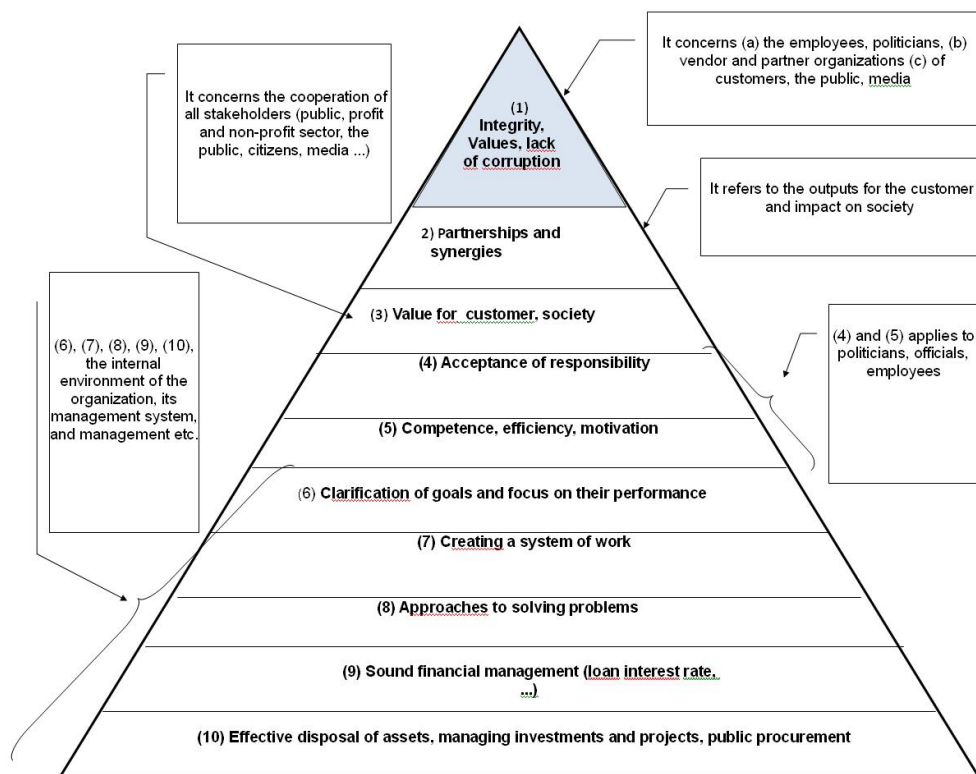
The main objectives of the concept of New Public Management are:

- a) market-oriented approach, in which citizens are seen as consumers; it is necessary to satisfy their needs and to monitor citizens' satisfaction with the services provided
- b) focus on setting goals and monitoring the effectiveness of the services provided
- c) focus on the efficient use of resources to achieve high quality services in the strict control of costs associated with the operation of public administration
- d) focus on the product - the public service
- e) the responsibility for the results of the public administration manager
- f) the use of incentive systems of the business environment

When applying management techniques fundamental differences between management in the public and private sectors must be respected:

- a) a public organization is politically identified in terms of needs and is not based on the needs identified by the market, where politics are usually separate from the administration
- b) the basis for measuring the performance of public organizations is not profit; the universal criterion is called tracking public interest, and there is usually no clear performance measurement system linked to the effectiveness and efficiency of particular initiatives
- c) the different legal environment for the decision-manager
- d) managerial decisions in the public sector and public decisions are discussed in the press and media
- e) education in the public sector is generally focused on the management and practical knowledge of managing organizations
- f) the public sector and its organizational structure depends on the degree of decentralization and privatization of public services with strong links to the traditional system

FIG. 1: Principles, skills and shared values, strategic management of cities, municipalities, counties



Source: (Půček & Koppitz, 2012)

BSC method (Balanced Scorecard) is an appropriate tool for measuring the effectiveness of strategies implemented and is now becoming increasingly applied in the management and evaluation of strategies in the public sector. Using the BSC method can represent causal relationships between strategic objectives and the processes for

implementing the strategy. It is used as a management system that enables long-term management strategy through the driving factors for achieving the desired results. It connects the operational activities with an emphasis on performance measurement and management strategies. The framework for the development and planning strategy is a map that clearly shows the strategic concept and is connected to BSC (Kaplan & Norton, 2004).

BSC enables evaluation of performance and outcomes of resources for development, not only the strategy as a whole but also for individual sub-tasks / projects and for assessing the contribution of each employee to achieve personal goals. This method of evaluation allows for the creation of teams within the organization (as projects / targets, and not according to the organizational structure of the office), and management strategies. The method is the development and transfer of vision and strategy into tangible objectives and a comprehensible set of indicators of financial and non-financial performance, providing a tool for assessing the success of the strategy. The introduction of BSC has meant that it targets, benchmarks and strategic actions are assigned to a particular point of view using the concept of Perspectives. The BSC method monitors the process and implementing the strategy in four perspectives:

- a) perspective partner / citizens
- b) financial perspective
- c) internal process perspective - new and innovative processes
- d) the perspective of learning and growth

Targets in individual perspectives must be balanced. Balance means understanding the balance between short- and long-term objectives, the required inputs and outputs, internal and external performance factors and financial and non-financial benchmarks (Kaplan & Norton, 1996). The main task of these perspectives is already considered before starting the process of creating a strategy to ensure that they are thought through for all the important aspects of the company or institution. The prospects are not selected for their own sake, but provide a clear view of the success of an organization linking the drivers of performance. Within the defined strategy this represents a flexible system.

Managerial methods have been supplemented by sociological surveys and questionnaires. Maps of the resulting draft strategy were then subjected to a debate by the so-called Focus group.

3. Results

The basis BSC's is being used for the strategy of the village. It sets out the direction it should take and the objectives to be achieved. From these targets are then derived partial goals, not only on the level of achievement of each of the necessary steps, but also at the level of individual departments which will participate, and which objectives

and sub-objectives are to be achieved. The final step, and one must say not a very easy step, is determining metrics by which to evaluate progress made in achieving the partial and overall objectives (Ochrana, 2007; Peková, Pilný & Jetmar, 2012). These metrics are then used to determine the financial evaluation of employees and other workers.

Within the creation of the project for the future of the village Brasy - Strategic Planning and Community Planning, a questionnaire survey was distributed (CzechIT, 2014). The questionnaire was pilot tested and identified deficiencies or clarifications were incorporated into the final version. In the second half of 2013 questionnaires were distributed to citizens of the municipality Brasy. In the questionnaire survey, a total of 194 completed questionnaires were returned, though many of them were incomplete or incorrectly filled out; those questionnaires were excluded from the process. The final set with which to work in the analysis, numbered 175 respondents.

Based on the outcomes of the questionnaire survey outputs from the situational analysis and structured interviews with representatives of municipalities a draft maps strategy was created (Figure 1), which was also discussed at the meeting with the citizens of the various parts of the village (focus groups). With the help of local media, residents were invited from various parts of the municipality to participate in the discussion. A major topic was to determine the population of Brasy's point of view regarding the future of their village, which was discussed with the residents gradually through the various issues.

From the outputs of the questionnaire only results from two pivotal questions are presented. In the future the residents of the village Brasy want to protect natural and cultural values, and the residents were almost in total conformity, as 98% of the population involved in the survey voted for this. The result of this issue corresponds to the issue where residents were questioned about what living in the village is like. The clearly prevailing answer was their closeness to the surrounding natural environment. As a second area residents would like to support leisure and social activities (91% of total positive responses: Definitely yes, Probably yes). There was a high level interest expressed also on cooperation with neighboring municipalities and the development of services for leisure. There was positive support for expanding the conditions for cycling and cooperation with major cities on expanding leisure opportunities in general (TABLE 1).

TAB. 1: Should the community develop these areas?

	Definitely yes	Mostly yes	Don't know	Mostly no	Definitely no
Extend the offer of the construction of houses / flats	29,89%	29,31%	13,79%	22,41%	4,60%
Expand areas for business	23,26%	37,21%	23,84%	9,30%	6,40%
Expand the possibilities for cycling (signage, rest areas)	42,29%	34,86%	10,86%	8,57%	3,43%
Protect natural and cultural values	72,99%	24,71%	1,72%	0,00%	0,57%
Develop services for recreation and leisure	51,15%	37,93 %	6,32%	2,87%	1,72%
More support for leisure and club activities	50,87%	41,04%	7,51%	0,58%	0,00%
Cooperation with neighboring municipalities	52,05%	35,67%	11,70%	0,00%	0,58%
Collaboration with major cities in the area to extend the range of leisure opportunities	37,14%	36,57%	17,71%	6,86%	1,71%
Build attractions such as a water park, motocross track, bobsleigh, etc.	27,33%	20,93%	15,12%	20,93%	15,70%

Source: own, 2014

The residents of the village Brasy chose peace and security as their priority in the future. This preference exceeds 83% of all respondents' wishes. Less than 50% of the residents would like to see their village as a place with a range of cultural and sporting events for them. Only 10% of those surveyed would like to see that the village was attractive, and 15% of the municipality expressed a desire to be seen as a vibrant place to offer both residents and tourists (TAB. 2).

TAB. 2: What would you like to have in your community in the future?

Answer	Answer	Percentage
A quiet and safe place to live	144	83,24%
An offer of quality living in a larger city	21	12,14%
Attractiveness to tourists	18	10,40%
A quiet place surrounded by unspoiled nature	42	24,28%
Places offering cultural and sporting events for residents	60	34,68%
A busy environment with a range of cultural and sporting events for both residents and tourists	27	15,61%

Source: own, 2014

The survey also showed that residents consider as the greatest deficiencies: inadequate employment opportunities, lack of interest of the citizens of the municipality, bad relationships between residents and disorder in the village.

Results of the survey were incorporated into the strategy. The Map strategy was submitted for discussion within the four focus groups. Joint conclusions of the Focus Groups (answers are the same in all parts of the municipality) are as follows:

- a) the residents consider only their part of town as a place where people live, not the entire village of Brasy,
- b) residents see their part of town (Vranovice, Stupno, Kříše) as their home; effectively, residents of Brasy see only their own house,
- c) the residents are satisfied with the security in the village, except for petty crime (theft) and dangerous roadways,
- d) there is a good relationship between established residents and people with weekend cottages (who normally don't live in the village),
- e) the availability of doctors / kindergarten / elementary schools is considered satisfactory,
- f) most residents must commute to Rokycany and Pilsen for work,
- g) survey participants would like to have more job opportunities in the village, such as the presence of large companies, though they do want an increase of motor traffic in the town,
- h) nearby Darovanský Court residents are perceived as more neutral or positive (because the resort is well-known), although there is some increase in traffic during golf tournaments (Thursdays - Sundays),
- i) in all parts of the village people also mention in particular the natural attractiveness of the area that they would show their friends.

Subsequently the final form of the Maps Strategy has already been processed (FIG. 1), which formulated the vision and mission of the community. The Brasy vision is built on the strengths of the communities and shows the direction of the development of the overall community in the long term with regard to the requirements of the population, combined with the possibilities of the development of the village for the use of its real potential, especially for existing residents, with an emphasis on visitors and potential residents.

VISION: Brasy - a nice place to live

Brasy is a nice place, not only looking at the diverse physical facilities of natural and cultural capital, but also a place made up of active people, enabling the implementation of a wide range of both periodic and one-time activities, creating and developing the unique atmosphere of the village - a place for life.

Extended version of the vision:

- a) high quality education, health and social services
- b) an active social life
- c) respect the maintenance and protection of cultural, historical and natural heritage

Following the vision in the brief or an extended variant is not possible without clearly defined, unmistakable and easily understood attributes to be pursued by all stakeholders

/ partners so that there is no doubt about their concepts and everyone becomes a bearer of values with which both residents and visitors identify.

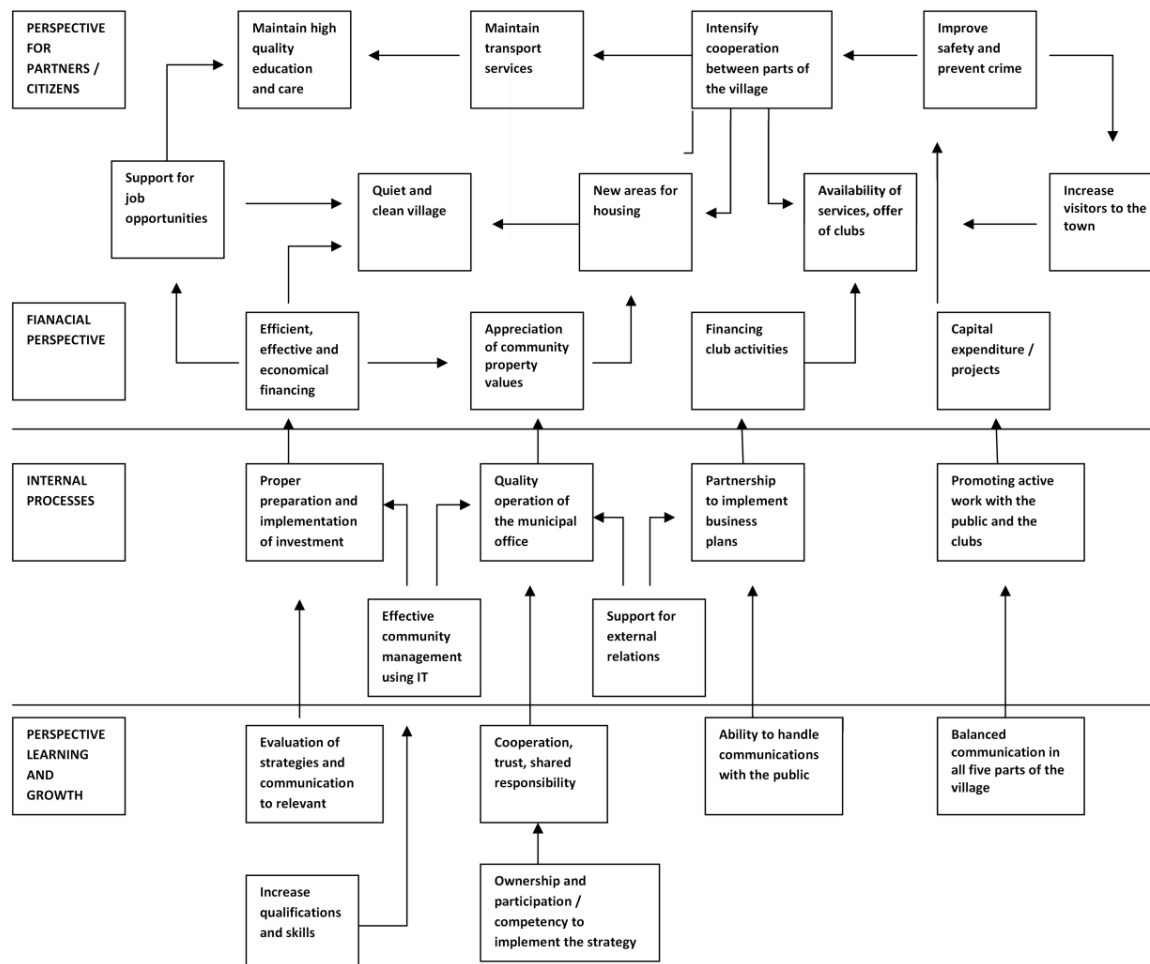
Attributes (values) vision:

- a) Liability
- b) Respect for the past
- c) Prosperity, Quality

MISSION of the municipality:

Our mission is to ensure the prosperity of the village, which is nice for the life of local residents as well as an attractive place for other potential residents, through professionally guided and open opportunities for its development.

FIG. 2: Maps Strategy of Brasy



Source: own, 2014

4. Discussion

Applying the BSC and the maps strategy in the strategic management of the village Brasy represents a higher quality of internal processes leading to good corporate governance. Citizens can actively participate in community management, monitor the fulfillment of the objectives, based on their actual needs and may make corrections to the direction of development of the municipality. The introduction of the BSC method and the maps strategy to the strategic management of the Brasy municipality encountered some problems that need to be continuously addressed in the implementation process. One of the problems is the lack of qualification of employees in the municipal office. Therefore, in the preparation of the strategic plan, educational workshops were held and office workers received basic knowledge and acquired the skills to work with the BSC. Another problem is motivation, because administrators see in the application of new techniques as a burden rather than improving their work and personal growth. The problem is the time and financial demands of continuous evaluation of the strategy, the involvement of actors from the ranks of citizens and civic initiatives in the implementation of the strategy.

The process of preparing the strategy for Brasy municipality demonstrated that it is possible to BSC method used not only for the strategic management of large cities, but also smaller municipalities. The condition is taken into account both general and specific problems of municipality and overcome the distrust of citizens, representatives and employees of the municipal office to introduce innovative methods in the management of the municipality. Method BSC and strategy map is an illustrative and understandable means of communicating with citizens in a transparent approach of public administration with a focus on increasing the quality of services for citizens.

Conclusion

The use of management techniques for the strategic management of municipalities in the Czech Republic is not yet the norm. The village of Brasy has about 2,100 permanent residents, the result of a merger of several small villages and contains five parts of the municipality which have, apparently, disparate identities. This resulted in the preparation of the strategic plan. Citizens of various parts of the village have expressed their views and attitudes during focus group and map strategy was implemented to work in groups in a clear and understandable way. The positive result was that all parts of the Brasy municipality participated at a relatively high level. Citizens were active and willing to agree on common objectives and contribute to the implementation of the strategy. In addition, they were able to define the main objectives and agree on them across all parts of the municipality. They expressed interest in the progress of the working groups. For municipal leadership, it was key to evaluate implementation strategies according to set criteria and monitor the financial impact, efficiency and effectiveness of individual steps.

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ELECTRONIC SALES REGISTRATION (ESR) IMPACT ON SMALL ENTERPRISES – A CASE STUDY

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Keywords:

electronic sales registration – ESR – Czech Republic – case study – small enterprise

JEL classification: H260, M21, P160

Abstract:

The paper deals with expected impact of electronic sales registration launch on retail sale in the Czech Republic. The qualitative case study of a small enterprise exemplifies the risks connected with the introduction of the system in its suggested form. The paper further highlights negative impacts that the ESR may have on a small enterprise (0-5 employees) and simultaneously identifies the ESR as one of the potential barriers in decision making about the launch of entrepreneurial activity and as a cause of current activity limitation.

Introduction

At the present time (October 29th, 2015) the government legislative proposal of electronic sales registration (also electronic sales records, hereafter ESR) is prepared for approval in its third reading in the Parliament. The legislative proposal raised strong criticism from the opposition as well as from the public. The balance of political power in the Parliament is inclining in favour of the law and Finance Minister/Deputy Prime Minister Andrej Babiš connects his political future with the functioning of the system (ČTK, 2015). The paper deals with the expected impact of the law on small enterprises, namely on the case study of a “wandering” shop with used and new books. The negative impacts that the ESR may have on a small enterprise (0-5 employees), are pointed out in particular and at the same time it shows the ESR as one of the potential barriers in decision making about the launch of entrepreneurial activity and as a cause of current activity limitation.

1. Methodology, research

The paper is a case study of a particular existing enterprise in the Czech Republic. The author conducted the analysis of the economic data of the enterprise in the context of its historical development and in relation with its planned linking to the ESR. Participant observation, informal interviews, email communication with companies (in October

2015) and personal experience of the author (an employee of the company) in years 2012-2015 were utilized. The research itself took place in *October 2015*.

Theoretical bases are based on the economic and social importance as well as on development of middle classes that can be paralleled with the owners of small enterprises. Elemental principles of the ESR are explained afterwards along with the history and running of the selected small enterprise. The result is identification of consequences and risks brought by the ESR not only for this particular company. In the conclusion the ESR is interpreted as a manifestation of purely instrumental rationality.

According to the generally known theory of (neo)liberal capitalism the ideal state is a market economy based on functioning of mutually competing enterprises, whereas important for the stability of the labour market as well as economic and political system itself is to have as many subjects as possible on the market. Even though there are disputes in the literature (Blažek & Uhlíř, 2011) regarding the importance of small and medium-sized enterprises, it is evident that in the sphere of tourism such enterprises are considered as a part of desirable cultural diversity and as a prerequisite of meeting the demand for authenticity, e.g. local and regional products. The search for authenticity and originality is very important, as e.g. Zschocke (2005) points out. Small enterprises can be understood as subjects whose owners are relatively free, economically independent on direct support from the state. Their entrepreneurial culture differs from large companies. As pointed out by e.g. Ritzer (1996), culturally standardizing (even unifying) demands are connected with large companies interested in maximum operation efficiency. Small enterprises on the market often have to face the pressure from large companies and mass culture of so called “cultural industry” (Adorno & Horkheimer, 2009), which leads to the weakening of goods and services offers diversity. According to Adorno and Horkheimer (2009): “Only those who can pay the exorbitant rates charged by the advertising agencies, [...] can enter the pseudo-market as sellers.”

The owners of small enterprises can be sociologically marked as members of so called old middle classes, which were heavily negatively by the economic crisis in 1930s. The rise of large companies and corporations was the consequence of the aforementioned crisis. New middle class (of employees) dependent on employers emerged. According to Keller (2012), the remnants of the old middle class remained only in the sector of goods and services, and they are threatened by the dominance of large companies: “When neoliberals speak of the minimal state that would be minimally interfering with the economic activities, small businessmen expect that the free space would be flooded by them. As if they had not noticed that in the free competition they are not facing equally small neighbours but the largest economic colossi of the world.”(Keller, 2012).

Sustainment and emergence of small enterprises is desirable for healthy development of the economy, tourism, political stability and cultural (“consumer”) diversity. Nonetheless, the implementation of the ESR will have no positive contribution.

According to the valid government legislative proposal (the Chamber of Deputies of the Parliament of the Czech Republic, 2015a) waiting (as of October 29th, 2015) for its approval in the Parliament of the Czech Republic, the goal is the on-line records of all enterprises accepting payment in cash. The enterprise will have to be connected to the financial administration, and issue receipts after reverse confirmation by the. A simplified mode (without the necessity of immediate on-line recording) will be (besides the enumerated spheres – e.g. the acceptance of cash in transportation) eligible only for enterprises whose uninterrupted functioning and sales recording would be inhibited by the system. Such enterprises will be appointed by the government regulation. This duty is generally applicable to accommodation and catering services, wholesale and retail sales. The explicatory memorandum states that all entrepreneurial subjects should benefit from this connection (the Chamber of Deputies of the Parliament of the Czech Republic, 2015a).

In case of fast approval the force of legislation (in the first phase in accommodation and catering services) is expected in the late 2016. In order to mitigate the impact on entrepreneurs a nonrecurring tax relief in amount of 5 000,- CZK will be introduced, allegedly related to acquisition costs as well as lowered rates of value added tax (VAT) in accommodation and catering services (the Chamber of Deputies of the Parliament of the Czech Republic, 2015b).

2. The ESR and Retail Business – the Case Study of a Shop with New and Used Books

2.1. History and Functioning of the Enterprise

The subject emerged in the year 2011 as a physical person enterprise focused on purchase and sale, namely of second hand books. The enterprise began as a market stall sale on cultural events (fairs, marketplaces, festivals) in the spare time of the entrepreneur. Due to low the turnover rate (in the first year of business 100 000,- CZK) he is not a value added tax (VAT) registered payer. The primary reason for commencing of business was a market niche and a thought of an extra income.

First sale operations were economically successful and at simultaneously intensified economically effective purchase of books (thanks to the generally fading demand and to the ability of opting for the quality titles for low price). Consequently, the entrepreneur rented a sales warehouse in a small village, where he pays low rent thanks to its peripheral location. Consequently he could expand the offer and open a business in the country (village up to the pop. 2000) with highly limited opening hours. The fact also

offered the opportunity to organize cultural and educational events as a meaningful use of leisure time. After the inclusion of tax deduction, the first year in business resulted in the loss of 36 000,- CZK.

In the second year the enterprise was in loss to the extent of 12 000,- CZK. In the third year the entrepreneur rented a shop in a small town (up to pop. 10 000) with the nearest real competition 20 km away. Thanks to the combination of short-term employing of temporary workers among e.g. students, unemployed, seniors and even his wife, the business operates with limited opening hours. Within the third year the loss was lowered to the extent of 4 000,- CZK and turnover reached 300 000,- CZK. This marks economically positive development with current economic result (October 20th, 2015) apparently approaching profit. Sales and revenue were increased due to, among other things, viral marketing and personal attitude (business trips to carefully selected events and relations with customers). The entrepreneur is considering expanding the business and e-shop. The character of goods (besides new and used books also tea and oriental merchandise) enriches the offer in the small town and contributes to its appeal.

2.2. Initial Expenses for the Business Commencement and Mobile Sale

The initial expenses to commence the entrepreneurial activity accounted for ca. 20 000,- CZK (business license fees, books, stall and its equipment – lighting, tables, tablecloths, decorations). Thanks to the main employment the entrepreneur did not have to pay social and health insurance. Among other costs it was necessary to include also travel expenses (minimal with regard to the regional focus) and selling-place hire fees. Those are still on average of 400,- CZK (with no electricity) for a stall size on small events. The maximum charge of 6 000,- CZK (with electricity) was at a big event (festival). Current annual average overhead expenses on one business trip can be assessed to 633,- CZK.

2.3. The Expenses For the ESR Connection

On October 23rd, 2015, the author following the needs of entrepreneur approached via electronic mail first ten companies that popped up in Google.com search engine after the insertion of key word “cash registers.” The expression was chosen due to its appearance in media discourse as well as in common communication among entrepreneurs. The inquiry had the following parameters: to send a business offer of everything necessary (hardware, software) for the mobile connection to the planned electronic sales records suitable for a market stall sales. Nine companies responded by October 29th, 2015. Four companies were rejected from the following analysis based on their responses: in one case the offer included a free trial of the cash register system but without any acquisition costs information. In the second case the answer consisted of a statement that the company is not yet ready for such a situation and thus no relevant offer can be presented. The third offer amounted to 10 000,- CZK, but it was

accompanied with a notice that the application is still in preparation. The fourth company stated that its systems are not viable for market stall sales.

The relevant offers (5 offers) were ranging from max. 26 000,- CZK (3 offers) to min. 16 000,- CZK (2 offers). In the case the entrepreneur wishes to have the business open and simultaneously be somewhere else with the stall, the system (connected to the business) would cost according to one of the offers 40 000,- CZK. Other offers did not reflect such a possibility. The charges related to the internet connection and to the increase in costs for electric energy on outdoor events were reflected. Such charges can be expertly estimated amounting to 300,-CZK/month (internet) and 500,- CZK/outdoor event with electricity. In case of two business trips per month the average expenses *increase by 20%* amounting to 791,- CZK.

All-in *input costs* necessary for business commencement would, in the case of the first scenario (26 000,- CZK), *increase by more than twice* (46 000,- CZK) and in the second scenario *by 44%* (36 000,- CZK). The entrepreneur claims that he would rather not start a business in such a situation regarding possible risks of failure.

In the light of aforementioned findings it is not clearly evident on which data the Ministry of Finance of the Czech Republic based its claim that the expenses will be amounting to a few thousands CZK (Financial administration, 2015). The explicatory memorandum of the law estimates the costs on the example of Croatia 5 700,- CZK, or rent of the device amounting to ca. 500,- CKZ/month (the Chamber of Deputies of the Parliament of the Czech Republic, 2015a).

In terms of the operation of the business (with limited opening hours):

- a) the nonrecurring *expenses for the ESR connection* ranging from 26 000,- to 16 000,- CZK would represent in the first scenario *more than twice the amount of annual costs* of rent and energy in the village establishment (sales warehouse and cultural centre) that amounts to 12 600,- CZK; in the second scenario it would be more than 1.5 times the amount of the costs;
- b) 26 000,- CZK would comprise of *39% of annual costs* of rent and energy in the business in a city. 16 000,- CZK would comprises *24% of current costs*.

Considering the business project success, the entrepreneur is contemplating a purchase of another stall in order to work on multiple events with the help of temporary workers. However, such a decision would two times increase the costs of the ESR. The village business will have to be closed down, because the connection expenses for the ESR would affect it as well.

3. Discussion

Provided that the current proposal be approved, fewer stalls can be expected on fairs, farmer's markets and other outdoor events. It is difficult to claim that a number of

business establishments will cease their operations, but the rational economic thinking can make them re-orientate to internet shops. Cities in peripheral areas will thus lose on their appeal (e.g. city parterres). Shopping malls will more intensively concentrate the visitors in big cities. It also seems that some citizens would rather not even start any business at all.

According to the research of Toto and Detelj (2014: on-line), the introduction of the ESR in Croatia, which is supposed to be an example for the Czech Republic, also lead to complaints of the entrepreneurs about increased expenses, frustration from not/operation of the system, problematic preparation of small enterprises (for example cheap i.e. slow internet connection), pressure on cheating, and even business termination.

Conclusion

The ESR can be a potential barrier in the development of small enterprises in the phase of decision making about the launch of entrepreneurial activity, i.e. an economic barrier in entering the sector.

The ESR will have a noticeable impact on the expenses of small enterprises practicing the mobile (stall) sales.

The ESR may be another blow to so called old middle classes, whose businesses have already been under pressure of large companies for a long time, and thus also weaken the diversity of goods and services offered especially in peripheral areas outside big cities.

The ESR can be considered as a manifestation of the natural world colonization, which is the result of pure instrumental rationality. Its hegemony narrows the space for alternatives and serves to enforcing of interests of economic, political and technological power, which was already pointed out by so called Frankfurter school in the mid. 20th century (Adorno & Horkheimer, 2009; Horkheimer, 2007; Marcuse, 2014). The connection of the “mass culture,” technology and manipulation (“the entrepreneur refusing the ESR = dishonest entrepreneur”) may be called, in reference to J. Habermas, (1981), the natural world colonization by technological and economic power. Mere wandering bookseller will thus spent considerable amount of money (and even time in the case of having multiple customers at the same moment) operating the ESR instead of normal communication with customers. If the state is not able to efficiently collect taxes, than we all should compulsorily be on-line, i.e. in the Matrix (?).

The ESR can also be a security threat. It is, besides other on-line public administration registers, yet another potential means of information acquisition from the competition leading to the total domination of the citizens. All the on-line information is convenient for a totalitarian regime (in the spirit of memorable Stalin’s claim that every problem

has its name and address). It is difficult to believe that the data safety will be ensured when not even the American government is able to defend itself against hacker's attacks in the year 2015 (Kabrhelová, 2015). Not to mention the corruption risks in the Czech Republic public administration and the fact that the system's greatest advocate is the "Czech oligarch" and Finance Minister Andrej Babiš.

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AGENT-BASED COMPUTATIONAL ECONOMICS: MODELLING OF ECONOMIC ENTITIES

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JEL classification: C63, D2

Abstract:

Modelling of economic systems generally requires suitable and realistic representation of economic entities such as industrial plants. Although certain level of abstraction is usually unavoidable, the simplification is often more distinctive than necessary. This paper presents two perspectives of economic modelling while using agent-based approach: (1) simplified version where single individual agent represents the whole economic subject, regardless of its complexity, and (2) more detailed models where internal functioning of agents leads to emergence of respective multi-agent sub-system. Higher precision of the model is expected to offer more elaborate, realistic representation, balanced by higher computational costs during the model runtime. Through comparison, this paper points out the most important advantages and disadvantages of both approaches.

Introduction

The notion of agent-based computational economics (ACE) refers to the agent-based models consisting of a large number of agents, capable of mutual interactions (Tesfatsion, 2003). The behaviour of the system on the macro level and/or researched phenomena usually emerges as a consequence of these interactions. ACE is therefore suitable for study of economic behaviour in large-scale models which include thousands of participating entities.

Such models are extremely useful for research and study of phenomena related to functioning of such economic systems. Since real-world application of e.g. experimental policies, or various economic strategies, and study of their results might be costly or even disastrous, approach using artificial environment represents cost-efficient, comprehensible, and safe approach in these matters (Bureš, Blecha, & Tučník, 2015).

Real-world economics systems are generally dynamic, complex and difficult to describe in formal (mathematical) terms, given the enormous number of interfering factors. The overwhelming complexity of such systems makes research of their behaviour or prediction of their future development strenuous and often results in questionable reliability of the whole model. In order to handle the complexity issue, excessive simplification is often introduced into the model, using *ceteris paribus* assumption to eliminate supposedly non-relevant factors from the model. Such theoretical results have typically clear, comprehensible formal construction, but economic reality with its complexity renders application of such results difficult or burdened with errors. On the other hand - and especially in the context of scientific research - often the less abstract models which include more factors are those which have a potential to lead to new ideas and finds. Level of detail considered in approaches discussed in this paper would not be possible even a one or two decades ago. Given the computational power available today, it is possible to apply quite detailed models which allow to scale the level of detail according to the research problem at hand. This may provide good basis for more complex studies of supply chain management problems, for examples see (Ivanov & Sokolov, 2013) or (Long, Lin & Sun, 2011).

1. Two Agent-Based Approaches to Modelling

The aim of this paper is to provide comparison of the two approaches to agent-based modelling of larger scale economics systems (with at least thousand or more agents in the model): (1) simplified version where single individual agent represents whole economic subject as one entity, regardless of its internal complexity (Single-Agent Representation, SAR), and (2) more detailed models where internal functioning of agents is represented by the whole multi-agent sub-system (Multiple-Agent Representation, MAR).

The former case allows efficient employ of the variety of standard agent-related features such as autonomous deliberative decision-making, encapsulation of internal processes and behaviour, or use of various social aspects in agent's interactions. The downside lies in the fact that such agent architecture effectively acts as a black box, and its internal functioning mechanisms are virtually unknown and it is next to impossible to verify their settings' correctness. Such simplification may unintentionally render such agent entities inert to many phenomena which may have impact on the overall performance of the model on the macro scale. This may be important for various aspects of the whole supply chain management (Behdani, van Dam & Lukszo, 2013).

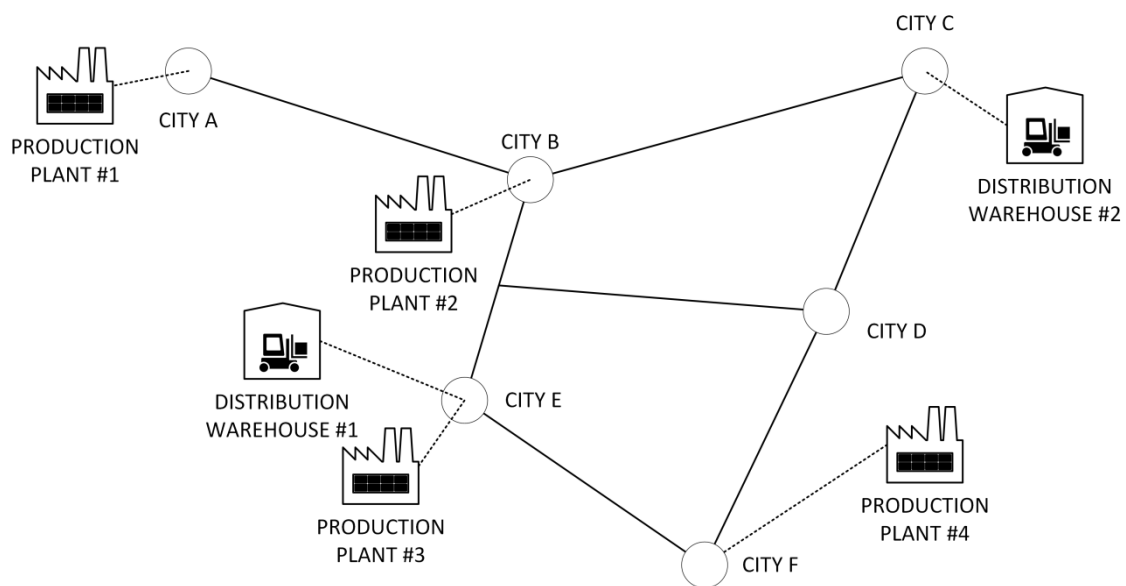
In order to avoid such disproportionate reduction of model accuracy, the MAR option will allow more elaborate modelling of economic entities such as industrial plants, larger companies, etc. Various facilities of such larger companies are usually scattered in several geographical locations. In this case, a corporate entity (company) consists of several agent-represented sub-systems which constitute its individual parts (sub-

divisions) with certain level of autonomy. These sub-divisions may be geographically distributed across the larger area, which allows inclusion of logistic, regional, spatial, or temporal aspects into the model, making it consequently much more accurate.

2. System Building Blocks

The MAR approach divides companies into three levels. Similar approach is used by Behdani et al. (Behdani, van Dam & Lukszo, 2013) in their multi-plant enterprise model. The highest level constitutes of the Company Agent (CA), representing the highest managerial control level of the company. This agent does not have fixed location in the model and its purpose is to create connection between individual subsidiaries located in different geographical locations (see FIG. 1). CA allows sharing of company policies for all subsidiaries which it belongs to. Its purpose is to maximize effectiveness of the whole company through adjustment of subsidiaries' priorities (and consequently influencing their decision-making processes). CA is also allowed to establish or close down new/existing subsidiaries.

FIG. 1: Allocation of company's facilities across several geographic locations



Source: author

Middle level is represented by the Factory Agent (FA). FA represents one subsidiary of the company in a specified location. Its function is to provide interface between production processes and other agents. Within the subsidiary, FA manages HRM (workforce), supply management, warehouse management, and sales of products.

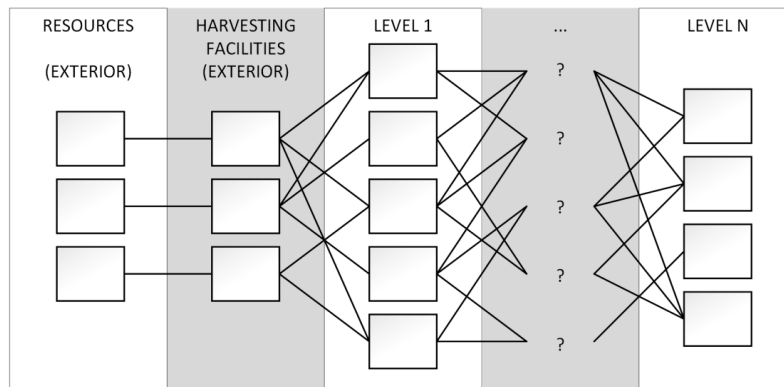
At the lowest level operate Production Agents (PA), representing production. Two groups of PAs are distinguished in the model. The first group consists of the Mine Agents (MA), which generate specific product only with usage of workforce, machinery

and energy. MA agents do not include other semi-products or products as inputs in their production processes. Since they represent the beginning of the production chains, MAs represent mines, oil rigs, woods, and other various harvesting facilities in the model. The agents which belong to the second group are called Production Line Agents (PLA). These agents use more complex inputs for production, consisting of raw or processed materials, other semi-products and products.

MAR architecture of the model allows CA to own arbitrary number of FAs regardless of their location. However, transportation costs (money, time) have significant impact on the effectiveness of the company as a whole and therefore its subsidiaries could be expected to be relatively close to each other and not vice versa.

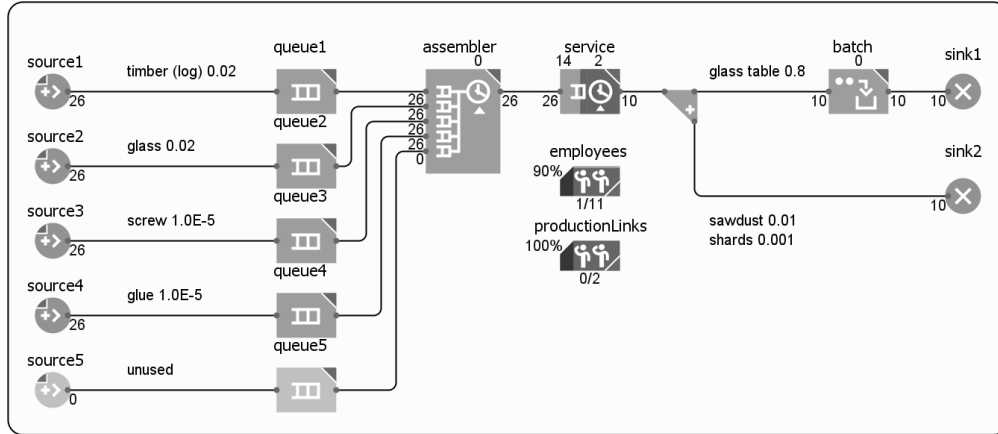
FA is always closely connected to any (arbitrary) number of PAs which belong to it. Although any combination is possible, it is more effective to connect PAs which are adjacent to each other in the production chain (see FIG. 2). This can help to minimize costs of transportation or storage. Also, the consumption of the same input materials may lead to more cost-effective solutions.

FIG. 2: Production chain (general representation)



Source: author

Production of PAs is completely dependent on the FA which is responsible for acquisition of workforce with appropriate specializations and inputs in respective amounts and combinations. Every PLA produces exactly one product and any amount of by-products (such as recyclable waste or pollution). PLA can in addition also use various raw materials as inputs (see FIG. 3). Distribution of inputs is responsibility of FA and must be prepared before the work shift or at any moment when they are running out. This is because the capacity of product-line storages is always limited and it is possible that it would not be able to accommodate amount of inputs for the whole shift. This allows further optimization of internal supply chain management within the FA- PLA structure.

FIG. 3: Production line model of PLA

Source: author (screenshot of Anylogic interface)

In order to avoid interruptions during production, FA keeps materials needed for production for several days ahead. This can be later subjected to further analysis and optimization, according to supply management theory, but this simplification is considered to be sufficient at this time. (Denkena, Henjes & Lorenzen, 2012) provide more elaborate models of adaptive supply management for local applications, or at the regional level (Chaib-Draa & Müller, 2006). If the supplies reach critical level, order is sent to the Broker agent, which represents market interface and handles matchmaking process of coupling buy/sell orders. This may require some time if there is not enough goods available at the market, or if the price exceeds pre-defined (by FA) maximum. Fulfilling order also takes some time, mainly for transport. Expected consumption is computed by application of this formula (for given number of days):

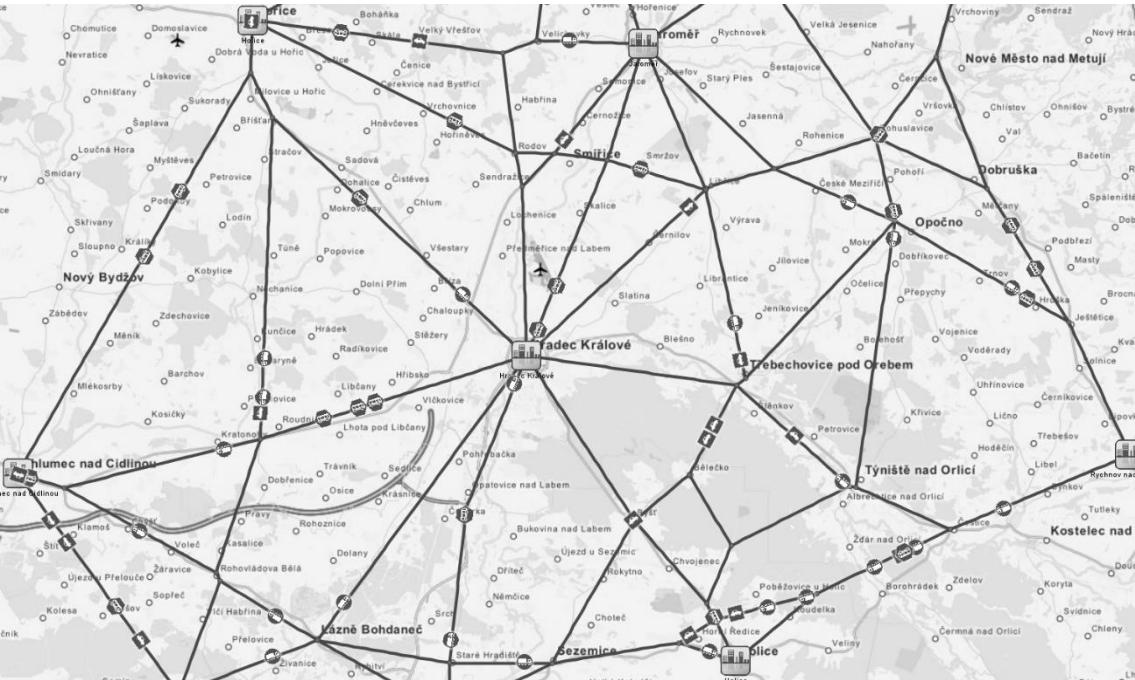
$$V = d \cdot V^p \cdot \sum_{i=1}^3 \left(\frac{480}{t^p} \right) m^i \quad (1)$$

Where:

- V is presumed volume of a needed material for d days.
- d is number of days which FA is collecting material for.
- Vp is volume of material needed per unit of product p.
- tp is time needed to create a single unit of product p.
- mi is number of operational parallel machines in shift i.

Transportation of goods is realized over the GIS data structure (see FIG. 4) where nodes represent cities or crossroads, edges represent roads. Transportation is handled by Transport Companies (dedicated multi-agent sub-systems), which send Transport Agents on on-demand basis.

FIG. 4: Transportation graph over GIS map



Source: author (screenshot from model interface)

FIG. 5: Comparison of the SAR and MAR Models

SAR	MODEL ASPECT	MAR
Imprecise, transportation costs will be only estimated, may not be a problem in models with low transportation costs	COSTS	Precise, allows modelling of salaries, transportation costs, shipping costs, etc.
Imprecise, factor of transportation within company facilities is neglected	TIME	High precision, it is possible to model transportation between individual buildings in various geographical locations
Low precision, optimization or research of model behavior possible only on the highest level	SUPPLY MANAGEMENT	High precision, several geographical locations reflect better real-world situation in companies
Single agent, modular structure, less specialized, overlap of competencies	ORGANIZATIONAL STRUCTURE	Specialized agents, clear responsibility, holonic structure (optional), utilization of social aspect of agent behavior
Low requirements, suitable for large number of agents	COMPUTATIONAL REQUIREMENTS	For large scale systems requires distributed computation and/or advanced optimization
Less demanding since some factors are omitted in the model, architecture of individual agents may be complex or not	IMPLEMENTATION	Complex, utilization of the whole framework is required

Source: author

3. Comparison of the SAR and MAR Modelling Paradigms

In comparison to the simplified SAR model, MAR paradigm offers more comprehensible and detailed cooperation of individual subsidiaries of the whole company, allows logistical connection between them, and allows single production entity to produce more types of products at the same time and location. Agent using SAR representation is bounded to single geographical location (typically where the company HQ is situated) which has significant consequences for the precision of the modelled transactions. On the other hand, easier implementation may be suitable for less complex models where such level of precision is not necessary, or where are required lower computational or memory demands. Final comparison of the both approaches is shown at the FIG. 5.

Conclusion

Two different approaches for applications in agent-based modelling of economic systems were presented. The SAR approach represents standard, basic approach to the modelling, where individual agents represent companies as a whole. The other and in principle basically opposite approach is the MAR paradigm. The MAR utilizes layered multi-agent structure to represent various aspects of the companies - from the top managerial levels down to the bottom level of production lines. This is more detailed representation which allows incorporation of the various aspects in the model SAR approach is not capable of. Also, the organizational structure in MAR models is generally holarchic, see (Horling & Lesser, 2004) for more details, and as such it is very suitable for modelling of company hierarchy and structure. The downside is a higher complexity and computational costs.

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WAYS OF USING SOCIAL NETWORKS FOR HR PURPOSES

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social networks – human research – quantitative research

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Abstract:

Social networks are a modern means of communication, and in conjunction with personnel management they are one of the most recent themes at present. This article analyses the current status of the use social networks for HR needs. At the beginning, research of scientific databases was carried out, which served as a basis for primary research. The research respondents were the most important employers in the Liberec Region. Using a combination of personal, written and electronic polling, questions were asked to the HR departments through quantitative research. An evaluation was conducted of through combination of descriptive statistics and testing of statistical hypotheses, which led to the presentation of very interesting findings.

Introduction

Communication for HR purposes, conducted via social media, is included in a new field named personnel marketing. Based on theory personnel marketing is divided into external and internal types. The main purpose of external personnel marketing is to address and acquire new staff. The purpose of internal personnel marketing is to create quality conditions for work performed by already hired staff. Internal communication contributes significantly to the creation and sustaining of business culture. In a well-functioning business, even an employee at the lowest position benefits the employer. It is apparent from this that there is an endless process involved, which is participated in by all employees. In the past, unidirectional communication were more frequent, but in the modern period bidirectional communication across the entire structure of the business is essential (Dvořáková, 2012). External communication involves an analysis of the labour market as well as identification of the needs and wishes of potential staff. The purpose of external communication is to ensure that an available job offer attracts many suitable candidates in a timely manner and with reasonable costs. A no less important task is obtaining reasonable information about individual applicants, so that based on that information it will be possible later to select the most suitable of them relatively reliably (Koubek, 2003).

The aim of the paper was to use primary research to find out the current status of the use of social networks for HR needs. The missing current information was the main reason for the conducting of the research presented herein, which was conducted in May 2015.

1. Literature review

The literary view is focused on two areas: social networks and personnel marketing. Social media are online media based on uninterrupted mutual communication. Consumers are using them increasingly more often and replacing them with traditional off-line searches (Klein & Ford 2003). Social networks have already become an important source of information about job applicants and for searching for suitable candidates for key positions. Online media are also perceived as one of the least expensive communication tools (Novotová, J., Němečková, J. & Semerádová, 2014). Already today, many companies are realising their importance, and verification of candidates in various internet databases are among routine procedures before new staff are hired. From these sources, it is possible to obtain otherwise unavailable personal information, to check contact persons and to avoid the risk of a leak of important information to the competition as well as to analyse a party's regular social behaviour in society (Janča, 2008). The social network LinkedIn was created directly for professional networking purposes. The Czech version has approximately 200,000 users. This network serves for publishing personal professional CVs. Users can search for contact information for persons or groups of interest (Bednář, 2015).

2. Methodology

The basis of the project was research of scientific databases. That research was followed by primary research, which involved addressing the most important employers in the Liberec region with survey questions. The basis for addressing the respondents was the database of the Regional Authority in Liberec, which each year prepares a list of these enterprises. The basic sampling consisted of 86 enterprises, which were addressed. As far as methods are concerned, the quantitative data collection method, based on analysis of data obtained through direct polling, was used. In order to ensure efficiency, a combination of personal, written and telephone polling was used (Creswell, 2008). The output was a set of accepted or rejected hypotheses (Disman, 2002). In view of the work objectives, a descriptive purpose can be identified within that research, and that purpose serves for determining the frequency of individual types of questions. From statistical methods, descriptive statistics and testing of statistical hypotheses were used (Pearson's chi-squared test, p-value). The resulting p-value is the smallest level at which zero hypothesis can be rejected. Pearson's chi-square test is used for testing nominal variables, which were used in the research, where there is no set qualitative sequence of individual occurrences of phenomena. The test conditions are that at least 80 % of cells in the pivot table have an expected frequency of more than 5 and all cells in the table (therefore, 100 % of cells) have an expected frequency of more than 2 (Meloun, 2006).

Based on the research in accordance with the defined aim, tested hypotheses were defined:

H0₁: Social networks are currently a tool used for HR needs.

H0₂: The size of an enterprise does not have an effect on the perception of social networks by HR staff.

H0₃: The size of an enterprise does not have an effect on the purpose of communication via social networks for HR staff.

H1_{1,2,3} = non H0_{1,2,3}

3. Qualitative research

The research was carried out using personal polling in the Liberec Region in April and May 2015 and corresponded to qualitative research. The polling had its own solid structure in the form of a compiled questionnaire, which was tested before the research itself was conducted. After the elimination of incomplete responses and checking of the logic of given responses, 58 fully completed questionnaires were evaluated. Polling was more extensive, but the paper presents only the most significant questions related to the defined objective. That objective was to find out the current status of the use of social networks for HR needs. The poll results can be divided into three parts:

The first part: Classifying parameter based on the research of literature and scientific databases, three classifying parameters were chosen: The "size of the enterprise" and "the industry in which the company operates". Myslivcová & Maršíková (2015) found that utilisation of marketing tools is influenced not just by the company's size, but also by the ownership, and therefore the company culture was examined and applied. The addressed respondents were key employers in the Liberec Region. The evaluation showed that statistically significant differences had been identified only in the sizes of firms, and therefore only this classifying parameter is presented further. For the "type of industry" and "company culture" parameters, there was no difference identified as statistically significant. Overall 19 representatives of companies with 50-249 employees each (32.8%) and 39 representatives of companies with more than 250 employees (67.2%) were included in the evaluation. The 85 most important employers in the Liberec Region were addressed, and 68% returned responses; therefore, the goal for the number of responses was fulfilled. The division into companies with 50-250 staff and those with more than 250 staff was based on information from the Association of Small and Medium-sized Enterprises of the Czech Republic. Enterprises with fewer than 50 employees were not included in the research, since the intent was to address the most important employers in the Liberec Region.

The second part: Use of SM for HR is fundamental part of the research consisted of questions directly focused on using social media needs for HR staff's needs, and two questions were resolved. The first was aimed to establish whether HR staff perceive

social networks as a tool bringing benefits. The second question focused on for what purposes HR staff are using social networks. First, the question was regarding whether HR staff currently perceive social media as a tool for their activities. The results are presented in Table 1.

TAB. 1: Question – "Do you think that social networks are an HR tool?"

	Enterprise size					
Response	Medium		Large		Total	
	Number	%	Number	%	Number	%
Yes	13	68.4%	34	87.2%	47	81%
No	6	31.6%	5	12.8%	11	19%
Total	19	100.0%	39	100.0%	58	100.0%

Source: own research

It is apparent from the results that the surveyed companies clearly perceive social networks as an HR tool, since 81% of them answered yes. Only 19% of the companies surveyed answered no. Therefore, the H_{01} hypothesis can clearly be rejected, and the H_{11} hypothesis can be accepted. *H₁₁: Social networks are currently a tool used for HR needs.*

The second hypothesis concerned the classifying parameter "Enterprise size" and whether it has an effect on the perception of social networks. It pertained to whether there is any statistically significant difference in perception of social networks among enterprises. A Pearson's chi-squared independence test was. It was conducted at the level of significance $\alpha = 0.05$. The results are presented in Table 2.

TAB. 2: Pearson chi-squared test

Test criterion (G)	Critical value $\chi(1-\alpha); df$	P-value
G = 2,935	3,841	0.086695689

Source: own research

At the level of significance of 5%, the zero hypothesis H_{02} about the independence of individual characters cannot be rejected, and at the same time H_{12} cannot be accepted. It can be confirmed that with 95 % certainty the following applies: *H₀₂: The size of an enterprise does not have an effect on the perception of social networks by HR staff.*

The research showed that social networks are an HR tool in this regard. This claim is related to another polling subject, which concerned for what purposes HR staff use social networks. The list of possible answers does not contain specified purposes. Variants of responses are focused on the area of internal and external HR and on whether the information is provided or obtained via social media. The results are presented in Table 3.

TAB. 3: Purposes for use of SN for HR

Purpose of using social networks	Enterprise size					
	Medium		Large		Total	
	n	%	n	%	n	%
for obtaining information	5	35.7%	17	37.0%	22	36.7%
for providing information	4	28.6%	10	21.7%	14	23.3%
for communication with potential employees	4	28.6%	15	32.6%	19	31.7%
for communication with current employees	1	7.1%	4	8.7%	5	8.3%
Total	14	100.0%	46	100.0%	60	100.0%

Source: own research

It can be stated that certain trends have been recorded, which could indicate that a certain purpose of using social networks is dominant. Answers can be divided into two categories. The first category deals with whether or not social media are used for obtaining or providing information, and the second category deals with whether the information serves for internal or external communication. The first category is dominated by retrieving information, a total of 37% of the firms, while providing information on social networks is done by 23% of the companies polled. The second category is significantly dominated by communication with potential employees (32%), meaning communication for external HR needs. Only 8% of companies surveyed conduct internal communication with their own employees.

This is followed by subjecting the results to testing of statistical hypotheses, which is intended to identify possible differences between enterprises. A Pearson's chi-squared independence test was conducted. It was conducted at the level of significance $\alpha = 0.05$. The results are presented in Table 4.

TAB. 4: Pearson chi-squared test

Test criterion (G)	Critical value $\chi^2(1-\alpha); df$	P-value
G = 0.304	7,815	0.959349599

Source: own research

The results clearly speak in favour of the zero hypothesis. It can be stated that at the level of significance of 5%, the zero hypothesis H_{03} about the independence of individual characters cannot be rejected, and at the same time H_{13} cannot be accepted. It can be confirmed that with 95 % certainty the following applies: *H₀₃: The size of an enterprise does not have an effect on the purpose of communication via social networks for HR staff.*

The third part: Platforms for HR. In the previous section it was shown that social networks are perceived as a tool for HR, and it was determined for what purposes they are used. The subsequent part of the research focused on what kinds of platforms are

currently used for this activity. The use of two platforms, Facebook and LinkedIn, clearly dominates. For large companies, LinkedIn had a 71% share, and Facebook had a 49% share. For medium-sized companies, LinkedIn had a 66% share, and Facebook had a 37% share. The use of Twitter is relatively widespread among large companies (15.6%). By contrast, only 7.7% of the large firms and 26.3% of medium-sized firms did not use any social networks for HR, and that group consists of three large firms and five medium-sized firms. In this case the effect of companies' size on the used platforms was not evaluated, since the table of frequency at medium-sized enterprises was not filled, and aggregation among platforms would not make sense.

Conclusion

This research has served as an information basis for the primary research, which has been presented here. The research has revealed a major difference between the use of social networks in the Czech Republic and elsewhere in the developed world. In the Czech Republic the use of social networks in HR is still marginal, and therefore the information sources dealing with this issue in the Czech Republic are limited. The lack of information was the reason why the most important as well as the largest employers in the Liberec Region were addressed. A major successful accomplishment of the research was obtaining of responses from 68% of enterprises from the complete database of all important employers. These responses and subsequent statistical evaluation showed that more than 80% of HR staff admit that social media is an HR tool. However, this claim conflicts with the status quo, since the use of social networks for HR among the surveyed respondents was not found to be very significant use. This implies that HR staff want to include social networks among their most important tools, but so far this is not being done. This gap in the use of social networks is most apparent in communication with employees, since it is used only by 8% of companies. Just 24-37% of companies currently use social networks for other purposes. This is a very low number when compared to the extent to which HR staff are convinced that this tool is important. The research included determination of what effect classifying parameters have on information obtained. Of the three set classifying parameters, only one was included in the research, and it was company size. For the others, internal heterogeneity in responses was not proved, or the parameters were not sufficiently represented. For the evaluation of dependence, the Pearson's chi-squared test was used, which did not prove that either the responses or the overall decisions regarding the use of social networks depended on enterprise size. So it can be stated that HR staff in all companies in the Liberec Region think in almost the same way. That is, the differences between responses are not statistically significant. The aim of the paper was to present the results of qualitative research in the use of social networks for HR purposes. It can be stated objectively that this aim has been fulfilled and that the results clearly speak in favour of the use of social networks in HR. The two platforms Facebook and LinkedIn are used the most. The reason for the use of Facebook is its popularity and massive use across

different age groups. The reason for the use of LinkedIn is its professional focus, where groups are formed based on professional skills and experience. Currently many Czech companies do not fully utilise social networks, compared to elsewhere in the developed world, even though the research has shown that there is huge potential for their use. Enterprises are currently at a crossroads, when they are starting fully implementing social networks among their tools, and time will tell what kind of role social networks will eventually have in HR. *(This document was created with financial support from TUL, as part of the grant scheme supporting specific university research projects).*

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FACTORS INFLUENCING SUCCESS OF CROWDFUNDING CAMPAIGN: CZECH EXPERIENCE

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JEL classification: H40, G31, M10

Abstract:

Reward based crowdfunding is a relatively new approach of business funding that use a widespread online community to support various business and/or individual projects. Presented study focuses on the crowdfunding practice conducted by organizations and individuals located in the Czech Republic. Specifically, the study analyses the sample of 427 projects realized through the Czech crowdfunding platform HitHit. However, the majority of findings correspond to other research studies conducted on US crowdfunding platform Kickstarter, there are some differences exist. In general, the Czech crowdfunding environment has higher campaign success rate, the strength of examined factors is higher, and the nominal value of contributions of backers is lower.

Introduction

Funding is definitely one of the most significant factors influencing success of new business plans, creative projects, or publicly beneficial projects. In addition to traditional sources of funding determined for certain types of project, the crowdfunding starts to be promoted for other business types support, today. According to Ethan Mollick (2014, p.1) the crowdfunding refers to: “the efforts by entrepreneurial individuals and groups – cultural, social, and for-profit – to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries”. In the last several years this tool proved its ability to compete with traditional capital sources as it is confirmed by an investment volume of \$5,1 billion realized through crowdfunding in 2013 (Crowdsourcing.org, 2013). Crowdfunding starts to be used by the traditional and longtime operating companies, too; for instance in the field of technologies, design, music, or computer games.

There are several valuable research studies focusing on crowdfunding (Belleflamme, Lambert & Schwienbacher, 2014; Kuppuswamy & Bayus 2014; Ahlers et al., 2012; Guidici et al. 2012; Agrawal, Catalini & Goldfarb, 2011; Kleeman, Voss & Rieder,

2008). These texts make an effort to define what factors and how are influencing the success of crowdfunding projects; and consecutively empirically describe the crowdfunding itself and associated areas. However, we can still assert that there is rather a limited amount of research work done on this topic and requiring deeper attention. Specifically, in the Czech Republic it is a theme with no interest of academicians, and naturally, with lack of relevant research works.

As the current studies were usually conducted on the sample of larger crowdfunding platforms focusing primarily on United States, they are specific with the population, business and cultural environment, thinking of the people and consequent willingness to transfer money over the Internet and so forth. Therefore we cannot apply such results in the smaller countries as the Czech Republic, or other countries with similar population, development, or purchasing power.

For this reason the given text aiming at characterization of the crowdfunding operation in the Czech Republic, the factors influencing the crowdfunding campaign success are examined.

1. Review of the literature

1.1 Crowdfunding definition, types and methods

Crowdfunding is a type of micro financing; the term is derived from generally more known word crowdsourcing which is composed of two words: crowd and outsourcing. According to Cambridge dictionary, the crowd means a large group of people with similar interests and outsourcing is a business activity which is set aside and committed to the hands of other firm. Kleeman, Vos & Rieder (2008, p.12) define crowdsourcing as “activity, when profit oriented organization farms out specific tasks or product sale to wide public (or crowd) in the form of open appeal published on the Internet with an intent to involve individuals into to production process.” Schweinbacher & Larralde (2012) simplify this definition on “activity where the commissionaire uses wider group of people or community for a specific job”. Lack of the capital caused by economic crisis and web 2.0 technologies development enabling direct interaction between project initiators and their supporters are considered to be the main ground for the crowdfunding emergence and progress (Agrawal, Catalini & Goldfarb, 2011).

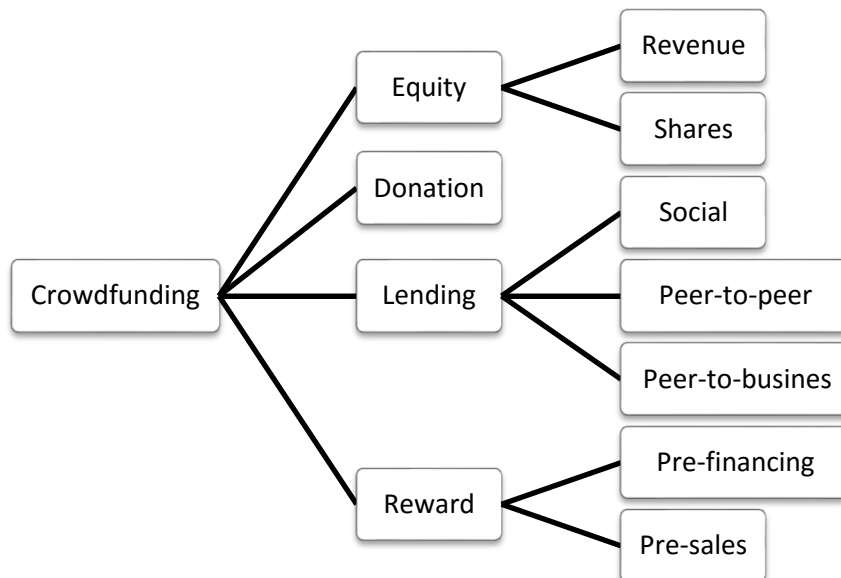
Crowdfunding projects appear in all sizes and types; ranged from art projects through projects tackling social needs right to technology projects demanding hundred thousands of dollars. Kuppuswamy & Bayus (2014) in his research states that average contribution makes \$75 and an average project has no more than 100 backers. However, the nonprofit projects reach importantly higher success as well as higher collected amounts, in comparison to profitable projects. In spite of the fact that crowdfunding is

primarily a tool for acquiring financial means, it can also serve for marketing purposes as identification of potential interest for the project or verification of project idea.

As it turned out, the crowdfunding is proved as relevant tool for large projects funding, too. Authors of Pebble, the smart watch for mobile phones, were able to collect \$10,266,845 (with original goal of \$100,000) from 68,929 of backers. Similarly, the game console OUYA collected requested amount of \$950,000 in 8 hours.

DeBuysere et al. (2012) state that perceived value might be much higher than actual economic value. For instance a concert tickets or even meeting with the musician can represent an attractive opportunity for the backers. Kuppuswamy & Bayus (2014) list the most frequent types of rewards as: (a) products (actual product or DIY version of the product); (b) creative cooperation of different forms (backer can become a character in a play, film or commix); experience (a call from the authors, dinner with creators, concert in the garden); souvenirs (photos from production, personal acknowledgements in closing subtitles). Kickstarter, Indiegogo, Ulule or GrowVC are the names of the largest crowdfunding platforms and all of them significantly use social sites for communication between the project owners and the crowd. At the same time, the hundreds of crowdfunding platforms differ not only by the name or focusing at certain area (cultural, technological or social) but also by the method of crowdfunding. Variety of crowdfunding methods is described in FIG. 1. As the most popular crowdfunding method can be considered a reward based crowdfunding, examined in this study later on.

FIG. 1: Classification of crowdfunding methods



Source: Authors

1.2 Problems of crowdfunding

DeBuysere et. al (2012) name out the most frequent problems of crowdfunding that are to be solved early: cheating, value setting, legal protection, communication, and asymmetry of information.

Cheating is very likely in case of equity crowdfunding realized through shares. Contrary to venture capital or business angels capital there is no personal contact or real knowledge of the business intent. Information published on the project page of the crowdfunding platform remains the only source for potential shareholders. In case of reward based crowdfunding the crowdfunding platform acts only as an intermediate; thus it does not take any legal accountability and does not provide money reclaim. For instance the Indiegogo crowdfunding platform state that they do not guarantee the contributions will be used as it is promised, the rewards will be delivered, or the campaign will reach declared goals. Markowitz (2013) states an example of HanFree iPad Accessory project aiming at accessories production for Apple iPad. The project was supported by 440 backers and with total value of \$ 35,004 (with original goal \$ 15,000). However, the project authors did not have any experiences with business and manufacturing of products. Due to incapability to complete necessary design and production plan, and after more than 8 months, the project authors announced that project failed. Similarly, after two years from Instacube project (intelligent photo frame) crowdfunding success (when 3,434 backers accumulated \$ 621,049) no backers have received neither one piece of the product.

Value definition. It is questionable that some entrepreneurs decide themselves how much percentage should be offered for certain value of capital which they want to obtain. At the same time, some parts of the project as intellectual property or market size estimation are difficult to be calculated. In addition, detailed due diligence has no economic sense for the smaller investor as planned investment represents earning of only several days.

Legal protection. Projects that are not protected with patent or copyright are visible to every visitor of crowdfunding page and possibly can be subject of theft. Programmable button Pressy in ear connector for smart phones can serve as an example. This project was supported by 28,818 backers with \$ 695,138. However, even after one year the product was not introduced on the market, yet. This delay was disused be Chinese company Xiaomi, which duplicated the original project and sells this product under the brand MiKey for one fifth of price.

Communication. If the crowdfunding campaign is successful, some of the investors are willing to help with the running of the firm in post investment phase, too. Such investors can provide advises on the field of product pricing, design or business strategy. However, management of such large number of shareholders located in various geographical regions might be problematic.

Asymmetry of information. Belleflamme et al. (Belleflamme, Lambert and Schwienbacher. 2014) warn that the producer knows much more about the product quality than the customer who pre ordered the product in case of reward based crowdfunding. In this case, the real quality is revealed later, thus the company must address that the customers perceive an expected value of the product differently. Moreover, the commonly accepted data model determined for the presentation of investment project across the platforms does not exist. Similarly, no commitment on provision of controlled data for project founders exists.

Conflict of interest. Such conflict arises when the owners or specific providers of funding use secret information for systematic generation of extraordinary profits in comparison to crowd using share crowdfunding. However, some of the crowdfunding platforms get already an understanding of potential conflict and keep a rule 50/50 between own resources and crowd resources in one campaign.

2. Research methodology

2.1 Hypotheses

The hypotheses are formulated particularly on the basis of U.S. crowdfunding practices examined in studies of Molick (2014) and Agrawal, Catalini & Goldfarb (2011). At the same time, the hypotheses are adjusted to Czech crowdfunding patterns; the seventh one is formulated newly.

H1: Unsuccessful projects will collect small share of requested amount only; while successful projects overcome requested amount by small part.

H2: Stable increase of the number of contributions is positively associated with the project success

H3: Sufficient portfolio of small rewards (between 3 and 20 Euros) is positively associated with the project success

H4: Number of Facebook fans and likes is positively associated with the project success

H5: Existence of introductory video is positively associated with the project success

H6: Repeated update of the project page is positively associated with the project success

H7: Lack of grammar and/or spelling mistakes is positively associated with the project success

2.2 The sample and data

Research data were collected from 427 projects realized through the Czech most popular crowdfunding platform HitHit in the period from November 2012 to October 2014.

Data were obtained in CSV format as the database export. Majority of information necessary for the next analysis were available in the gathered data as: project name,

project duration, requested amount, received amount, number of donors (backers), geographical information about the projects, classification into categories, information, whether introductory video was used; rewards offered for a contribution of a specific amount; number of updates of individual projects or financial transactions realized on the accounts of specific projects. Some other information connected to projects as number of Facebook friends or Facebook likes were collected manually by the authors. Data were processed with use of LibreOffice Calc and StataCorp Stata 13. Amounts in Czech crowns were converted to USD. The aggregated data on the projects are available in TAB. 1.

TAB. 1: Description of data collected from HitHit crowdfunding platform

Variable description	Successful project	Unsuccessful project	In Total
Requested amount (in \$)	4,110	4,810	4,505
Financed (in %)	117 %	9 %	56 %
No. of backers	133	13	65
Contribution/Backer Ratio (in \$)	50	27	37
Facebook friends	3787	1982	2520
Facebook likes	296	78	173
Number of updates	2.34	1.51	2.18
Video on intro page (in %)	85 %	71 %	77 %

Source: Authors

3. Results

H1: Unsuccessful projects will collect small share of requested amount only; while successful projects overcome requested amount by small part

Analysis of data confirmed the hypothesis. Unsuccessful project receives only 8.93 % of requested amount and \$ 365 in contributions in average. The most often, nearly in two thirds of cases (62 %) these projects received up to 10 % of requested amount. In 12 % the projects were not funded at all. Approximately one fifth of projects obtained from 10 to 30 % of the financial goal. Funding between 30 and 50 % gained only 4 % of projects. Any of unsuccessful projects was funded by more than 50 % of required amount. Vice versa, the successful projects have got 117 % funding and \$ 4,781 in contributions in average. Nearly half of projects obtain between 100 and 110% of asked amount only. One quarter of project obtain between 110 and 130 % of requested funding. Only about 3 % of projects get more than doubled amount of original financial goal.

H2: Stable increase of the number of contributions is positively associated with the project success

It was found that an allocation of contribution is not even during the collection period. Regardless, in case of successful and unsuccessful projects the allocation is almost the same in first 25 days of the campaign. Usually, unsuccessful projects get the highest number of contributions in first 5 days of campaign; than the number of contributions decreases. On the other hand, the successful projects are able to keep relatively stable number of contributions in the campaign beginning, during the second part and with the approaching end of the campaign the number of contributions is steeply increasing. The successful projects get the highest number of contributions during last three days of the campaign. This might be explained with an ability of project owners to mobilize potential project backers or fans. In case of certain types of project (film, music, community) when the reward is not tangible can some fans wait until the last day of the campaign. Usually they do not contribute for the second time if the project overcomes 100 %, because the campaign target (specific movie, music album) will be possible to get for free. An analysis of contributions showed that there is dependence among received percentage from the required amount in certain day of the campaign and the success of the project. Overcoming 30 % of required goal in the first 15 days of the campaign is critical for the success.

H3: Sufficient portfolio of small rewards (between \$3 and \$25) is positively associated with the project success

Arising from the very nature of crowdfunding, there are a high number of contributors donating relatively small amount of money in the most successful projects. Contributions in between \$3 and \$25 made nearly 76% of all collected money. Therefore, it is crucial to have for every project success enough of creatively invented rewards in this financial range. Findings showed that projects offering only one reward in this extent have two times lower chance to succeed than other projects. Similarly, the projects offering choice of two rewards have their chance to succeed smaller by 26 % than the other ones. Increasing the number of these rewards over three have no influence to project accomplishment. Contributions over \$500 make only 1 % of all contributions and they are given by legal entities in exchange for some form of promotion, for instance advertisement in subtitles of the movie, on the project website, on printed material and so forth.

H4: Number of Facebook fans and likes is positively associated with the project success

Findings showed that we can estimate potential success of the campaign on the basis of the size of social community connected with the project. Taking an average project with 80 fans, the chances for success of such project is 22 %. Subsequently, the chance for success of the project with 800 fans is 45 %; and the chance for the success for the

project with 8000 fans reaches almost 65 %. It was found that increase of fans over 10 000 does not increase the chance for the success significantly. However, there were only a few projects with this number of fans, so this fact might be biased and require another clarification. It is necessary to warn that high number of social site fans do not guarantee successful campaign automatically. However, there were several projects in the sample with thousands and tens of thousands fans on Facebook pages and the campaigns were unsuccessful. Failure of such project was caused primarily due to misunderstanding of crowdfunding principles as the project authors communicated to their fans just by chance and were not able to appeal them effectively and meaningfully. The other aspect examined in this hypothesis was number of likes on the project page of crowdfunding platform. Project with 75 likes on its project page has approximately 34 % chance of success; project with 170 likes has 71 % probability; and the project with more than 1,000 likes has higher than 90 % probability to succeed.

H5: Existence of introductory video is positively associated with the project success

Introductory video clip can be a strong tool for attracting potential contributors. It can help the campaign authors present their enthusiasm, confidence, readiness and eager for the project. Absence of the intro video is rather connected with inadequacy of the project and signals low project quality. Any video is more effective than only a text request for the financial contribution. More than three quarters (77 %) of sampled projects disposed of the introductory video. Project with video were successful with 73 % higher probability than the projects with absence of the video.

H6: Repeated update of the project page is positively associated with the project success

Practically 50 % of sampled project authors in the sample have not used a chance to update information on the project page. Thus, they lost possibility to change nature of collection progress. Only 18 % of projects updated the pages in first three days. It was found that the absence of such “quick” updates decrease chance of the success by 16 %.

H7: Lack of grammar and/or typing mistakes is positively associated with the project success

The project description of all relevant projects was analysed to found number of grammar or typing errors in the text. More than four fifths (84 %) of the projects with no errors were successful in 46 %. Contrariwise, the projects with errors in their descriptions reached only 29 % success. Nevertheless, it is assigned a lower weight to this factor of success; therefore we should not take it into account separately, but only as a part of larger set of criteria.

Discussion and Conclusion

The presented paper brings new findings on the use of crowdfunding practices in Czech Republic. Comparing to well-known crowdfunding platform Kickstarter analysed in a research study of Molick (2014), the Czech backers tend to support rather cultural projects and vice versa they give less support to computer games or web applications. Moreover, projects realized through Czech platform HitHit have reached higher average success rate 43.5 % versus the Kickstarter 38.8 %.

Findings of first six hypotheses correspond with research study of Molick (2014) realized on Kickstarter. Nevertheless, some small discrepancies were found. An introductory video seems to be a higher signal of success. Projects with the video realized on Czech crowdfunding platform succeeded in 48 %, in case of international Kickstarter platform it was in 36 %. Similarly, the frequent updates of crowdfunding page have higher impact on project success in the Czech environment. In the case of time allocation of funding, the project which exceeds 30 % point has a 96 % chance of success, compared with 90 % probability found on the Kickstarter platform. A portfolio of small rewards In general, rewards in a portfolio of smaller rewards are on the lower level than in the Kickstarter platform. While an average contribution in Czech HitHit platform is \$ 29, in case of Kickstarter it is \$ 88. Grammar and typing errors occurrence factor might be unique for the researched environment for the Czech language complexity. Similarly to the findings of Cabral (2012) it was found that presence of such errors significantly decreases the crowdfunding campaign success. Also, the correlation analysis among the variables was performed. The results are available in TAB. 2.

TAB. 2: Correlation among analysed variables

N=467	Success	Requested amount	Financed	No of backers	Contribution per backer	Facebook
Success						
Requested	-0.064*					
Financed	0.440*	0.627*				
No of backers	0.309*	0.645*	0.9437*			
Contribution/backer	0.357*	0.000	0.1762*	- 0.0139*		
Facebook	0.132*	0.010	0.1759*	0.1938*	-0.0454*	
Up-to-dateness	0.231*	0.172*	0.3413*	0.3181*	0.0733*	0.000

* p<0.05

Source: Authors

As the given text is focusing mainly on reward based crowdfunding, the focus on equity or lend crowdfunding would be interesting as well. Also, it is recommended to repeat this research with higher sample of projects in several years. Unlike mentioned foreign

experience, the Czech crowdfunding does not serve as a credible alternative to traditional funding, yet. This is due to the generally low awareness on both the side of business and the side of potential backers, who might be interested in a given product.

Based on presented research, we can conclude that projects eligible in the Czech Republic will be mainly working with community (for public good, film, music, art) requesting relatively small amount for their implementation. Contrariwise, the business or technology projects are not considered as suitable for this type of funding, yet.

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MINDFULNESS-BASED APPROACH IN ORGANIZATIONAL MORAL DEVELOPMENT

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Keywords:

moral development – mindfulness – compassion - self-compassion - moral awareness

JEL classification: M14, M53, O35

Abstract:

Morality and ethics is one of the primary organizational topics today. Growing complexity and dynamic of our society places higher demands on the individuals and acting in moral way can be more difficult today. This papers presents practical recommendations for the organizations, which want pro better equip their members in order to better cope with everyday issues in moral way. This paper brings insight into internal and external dimension of individual's moral acting and present methods of mindfulness, compassion and self-compassion and the way, how they can address complex issues of organizational moral development.

Introduction

Morality has been concern of many scholars since antiquity. In his first book "*The Theory of Moral Sentiments*," Adam Smith acknowledged acknowledged one's motivation to enhance his condition by besting competitors, but he also stressed that intention can only be realized in the spirit of fair play as judged an by informed, ethical and impartial spectator (Smith, 2011 [1759]). In more recent history, theories of transformational and charismatic leadership preceded creation of ethical leadership, defined as "*as the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making* (Brown, Treviño & Harrison, 2005, p. 120)." After the debacle of financial sector in 2008, development of moral environments and ethical leaders has become of the primary organizational challenges (Treviño & Nelson, 2011). Morality arises from the social condition (Rest, 1986). Haidt & Kesebir (2010) use the conception of moral systems (also stated as moralities), defined as the "*interlocking sets of values, virtues, norms, practices, identities, institutions, technologies, and evolved psychological mechanisms that work together to suppress or regulate selfishness and make social life possible* (p. 800)." Moral systems help individuals to be compatible with each other and with their

environment. As long as there is a society, where individuals are able to cooperate, there need to exist some sort of moral systems to make such cooperation possible (Graham et al., 2011). However, some of the moral systems may seem to be inefficient today, as we live in rapidly changing and complex society. Statement of ethics guidelines and organizational missions also does not seem to be sufficient solution of our condition. Individuals need to learn to be self-reliant and responsible moral actors, able to treat and evaluate every situation anew (Trevino & Nelson, 2011).

Morality is a result of complex interaction as is rooted both in society and in human psyche (Rest 1986). First of all, this paper presents two main perspectives, which map moral development of individuals. External dimension is focused on one's recognition of his/her place in collective, and the way he/she influences others and gets influenced by them. Internal dimension focuses on how one's mental setting triggers one's moral/immoral actions. Secondly, this paper recommends complementary practices of mindfulness, compassion and self-compassion, which can help individuals to be more aware of both external and internal dimension of their moral development and to have the possibility to make their actions more compatible with others.

1. Dimensions of individual moral development

External and internal moral dimension of individual moral development two perspectives, from which is possible to understand how individuals act as moral actors.

a) External Dimension

External dimension focuses on the way, how one's actions influence people in his/her environment. There are two main ways how this influence occurs. The first form is more direct. Certain actions, which individuals manifest in everyday life, have impact on well-being and expectation of others in such a way, that they either promote or disrupt cooperation in organization. It is responsibility of particular individual to discriminate moral actions from immoral ones. Correct decision is always a challenge of particular situation (Treviño & Nelson, 2011). And according to Rest (1986) is making a correct moral judgment preceded by one's ability to imagine all possible actions in particular situation and the possible consequences of those actions upon others (Rest, 1986). This ability is related to the development of moral awareness, defined as the *"person's recognition that his/her potential decision or action could affect the interests, welfare, or expectations of the self or others in a fashion that may conflict with one or more ethical standards (Butterfield, Treviño & Weaver, 2000, p. 982)."*

Secondly, individuals also influence each other indirectly through the learning process. According to social learning theory is every individual potential role model for others. This means that others may implement patterns of behavior of certain individual into their own behavior through the modeling and the role models with highest attractiveness have the highest possibility of catching the attention and being modeled (Bandura,

1976). High attractiveness in organization is usually the domain of the leaders, which is actually one of the reasons why theories like ethical leadership call for leader's responsibility to be a moral model for others by already mentioned "*demonstration of normatively appropriate conduct through personal actions and interpersonal relationship* (Brown, Treviño & Harrison, 2005, p. 120)."

b) Internal Dimension

Internal dimension focuses on, how individual's psychological setting influences his actions in organization. This setting has impact on the moral/immoral behavior he/she will express and to what role model he/she will be more attentive (Bandura, 1976). Most of this setting is related to subtle psychological processes, which usually determine one's decisions without his/her awareness. Intuitive and affective factors usually precede higher cognition (which is for example related to judgment) (Zajonc, 1980), and moral decision-making is not an exception from the rule (as the moral intuition usually precedes moral judgment) (Haidt, 2001). These findings imply, that even if particular individual wants to behave in moral way (to promote cooperation, to support others, etc.), he may do just the opposite in some situations. One's decision can be completely intuitive driven in some situations and the resulting behavior can be harmful to the mutual cooperation.

According to Graham et al. (2011) every individual possesses various ratios of moral foundations, defined as the "*five top candidates for being the psychological 'foundations' upon which cultures construct their moralities* (p. 368)." Basic moral foundations are Harm/Care, Fairness/Reciprocity, Ingroup/Loyalty, Authority/Respect, and Purity/Sanctity. Moral foundations have partly the genetic origin, that is, they seem to have developed with the predecessors of our species. Although some foundations like loyalty may have played crucial role in the development and survival of our predecessors (loyalty to group has been identified in the case of chimpanzees), their setting may trigger behavior and attitudes, which are completely inappropriate for living in contemporary society. Classical example is the relation between racist or xenophobic attitude and loyalty, meaning that loyalty to the group is linked to the preference of in-group members, but also to discrimination or even hatred of out-group members (Gibbs, 2014). Moral intuitions are also further formed throughout one's lifetime, especially in childhood and adolescence (Gibbs, 2014). For example, amount of the caring and emotional safety received from parents in during childhood is related to the development of attachment system, which is crucial for one's capacity to receive and give care to others and to oneself (Bowlby, 1982). The quality of such development then influences one's ability to trust, cooperate and communicate with people in his/her environment (Neff, 2011; Gilbert & Choden, 2014).

2. Moral development practices

Descriptions of external and internal dimensions suggest, that one of the main weak points of individual moral development is the lack of awareness. Following practices are therefore suited for the development of both externally and internally focuses awareness and also ability to take the action, if necessary.

a) Mindfulness – enhancing the awareness

Mindfulness is usually defined as *“the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment to moment”* (Kabat-Zinn, 2003, p. 145). The aim is basically enhancement of one’s awareness and attention in order to achieve more clear experience of the present moment (Brown & Ryan, 2003). The clearness is related to the development of nonjudgmental attitude, which basically helps individuals to perceive both internal (thought, feelings, emotions) and external (other people, environment) phenomena without interference of previously created conceptions (Muhr & Handberg, 2014). Mindfulness can be developed through the various complementary practices, like focusing on one’s body and breath (Kabat-Zinn, 2013; Muhr & Handberg, 2014), one’s inner psychological states (thoughts, feelings and emotions (Jotika & Dhaminda, 1986), or insight dialogue with others (Kramer, 2007). As a way of enhancement of the awareness mindfulness seems to be also beneficial for the development of moral awareness (Vich, 2015). It has been also recognized as a useful way for the development of the advanced ability to recognize one’s emotions and coping smoothly with them (Chiesa, Serretti, Jakobsen, 2013). This effect is related to the development of the insight into the full magnitude of one’s psychological processes (Jotika & Dhaminda, 1986). Dedicated practitioners might therefore become more aware of both the moral consequences of their actions (moral awareness) and of the subtle determinants of their moral actions (mostly moral intuitions), upon which they might choose not act (if they find them contrary to the cause of successful cooperation). Mindfulness helps individuals to be more aware of what qualities they bring into the collective and how these qualities affect the mutual cooperation.

b) Compassion – opening up to the condition of others

Development of compassion is usually presented as complementary practice to mindfulness (Kabat-Zinn, 2013; Gilbert & Choden, 2014). Compassion can be characterized by *“feelings of warmth, concern and care for the other, as well as a strong motivation to improve the other’s wellbeing”* (Singer & Klimecki, 2014, p. 875). The first component of compassion is the ability to feel and to perceive the condition of others, while the second one is the ability to take the action to help others improve their situation (Gilbert & Choden, 2014). Mindfulness can help individual to be more aware of his functioning in everyday life (including his mental processes), but that is not always the guarantee that he/she will truly act in the way that is beneficial for

others and promotes mutual cooperation. According to Rest (1986) requires one's moral act not only the moral awareness and judgment, but also moral intention and ability to take the action. Compassion can be helpful in this way as it has been recognized as a means through which can one purify his motives towards benefit of others (Gilbert & Choden, 2014). One of the basic compassion practices is the development of loving-kindness, which is based on the gradual opening-up and wishing all the best to the three categories of people: those related with positive, those related with neutral feelings and those related with negative feelings. Especially in the case of third person practitioner tries to recognize that such person might have a difficult life conditions and that may have lead to his present situation. Based on this understanding may practitioner wish that person to be able to deal with his/her conditions and act in a better way (Gilbert & Choden, 2014). Development of compassion helps individuals to be more opened to the condition of others and to reorganize their motives and values according to this understanding.

c) Self-compassion – giving back care and emotional safety to oneself

Individuals who did not received proper care and emotional safety during their early development usually posses smaller capacity to receive and give care (Bowlby, 1982). Such condition is also usually related to high self-criticism, which (contrary to expectations of many people) weakens one's ability to give and receive feedback. Neff (2003) explains that *“in the case of negative emotions associated with personal failure or inadequacies, there is an exaggerated focus on implications for self-worth (another way in which “over-identification” is occurring), leading to overly severe judgments and criticisms of the self (p. 89).”* Self-compassion is, therefore a method through which practitioner literally resets his/her attachment system through giving oneself understanding and loving care (Neff, 2011). Practitioner therefore creates inner emotional safety in order to have a reliable platform for recognition of his flaws and inadequacies as a worthy part of shared human condition (Neff, 2003). Similarly to compassion, self-compassion is complementary to the development of mindfulness. Practicing individuals learn to be more aware of their tendency to self-flagellate for all the flaws and daily mistakes and to bring the non-judgmental and compassionate attitude to such insight.

3. Discussion

Even from the perspective of individual, moral development is a complex issue. According to reciprocal determinism does individual's psychical condition, his/her behaviour and environment mutually influence each other (Bandura, 1976). Every individual has potential to become moral role model for others, if he/she is able to attract their attention. However, the moral quality of such individual is strongly influenced by his/her psychological setting, which designed the genetic predispositions. Those predispositions are triggered mostly during one's early development, and quality

of such development usually determined which patterns manifest (Gilbert, Neff, 2011; Gilbert & Choden, 2014). Interaction of various individuals is practically the process which forms the environment. Every individual therefore holds tremendous potential to influence the evolution of human moral systems and the way, how people cooperate with each other. However, if one is unaware of how his/her psyche works and how he/she influences and gets influenced by others, then he/she is likely to be just trapped in his actual condition without any tangible perspective of progress. Therefore, the aim of this paper was to refer to the potential of the development of awareness in organizations. Awareness may help individuals to become active moral actors. From the external dimension perspective, individuals may develop the moral awareness, which is the ability to become aware of the consequences of particular actions upon others (Butterfield, Treviño & Weaver, 2000). Higher awareness can also help individuals to be more aware of which individuals they follow as moral models and also which individuals are likely to follow them. In the case of internal dimension, awareness has important role in the process of recognition one's psychological setting, which is mostly designed by individual's genetic makeup and early life development. Higher awareness represents one's chance to progress through his default setting. In other words, aware individuals can switch from the passive moral actors (which possess some moral intuitions according to which they mindlessly act) to active moral actors.

Practical methods for raising awareness of individuals in organizations were presented in the second chapter. Main of these methods is mindfulness, which is a recognized method for enhancement of both external and internal focused awareness (Brown & Ryan, 2003; Kabat-Zinn, 2013). Complementary method to mindfulness is the development of compassion, which helps individual to perceive more intensely the condition of others and to purify his/her intentions based on this understanding (Gilbert & Choden, 2014). Development of self-compassion is the second complementary practice, which provides individual with necessary emotional safety in order to be able to absorb potentially negative feedback and to face his/her own flaws and inadequacies (Neff, 2003; 2011). Organizations should consider implementing the intervention, based on the development of three mentioned qualities (mindfulness, compassion, self-compassion) in order to practically help its members to become self-reliant moral actors. Regular mindfulness-based intervention is usually suitable for 15 – 25 participants and takes approximately 8 weeks (2 with two hour sessions per week). Most recognized mindfulness-based intervention today is Mindfulness-Based Stress Reduction Therapy (Kabat-Zinn, 2013), but there are many other mindfulness-based interventions occurring nowadays. Some of those approaches are criticised for being just the attractive form for making and profit, just a training of attentions, which lacks any moral foundations at all (Purser & Milillo, 2015). This is another reason, why (for the sake of maintaining the quality of mindfulness interventions) is important to develop the compassion and self-compassion in order to be able to develop the caring and ability to honestly give and receive feedback.

Conclusion

Thus paper has presented practical recommendations for the organization, which want to enhance moral level of its members. Individual moral development is the result of the interaction of external behavioural and internal psychological factors. General recommendation of this paper is that organizations should place more focus on the development of awareness among its members. Paper presented practices of mindfulness, compassion and self-compassion as suitable methods for enhancement of such awareness. Practicing individuals can embrace their potential to become responsible moral actors, capable of enhancing their own condition and the condition of others. Moral development of organizations still needs to be coordinated from top-down and methods like ethical guidelines and mission are still topical. However, helping organizational members to become conscious creators of the whole system seem to be the necessary step for making ethics, morality and mission to be a vivid part of organizational life.

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A MONTE CARLO BASED ANALYSIS OF TAX SYSTEMS: POLAND VERSUS CZECH REPUBLIC

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Keywords:

lifelong tax burden – statistical simulation – personal income tax

JEL classification: C51, H20, J31

Abstract:

This paper applies the parametric statistical simulation (Monte Carlo) method to characterize and compare the Polish and Czech systems of personal income taxation, on the lifelong tax burden basis, combined with factors of inter-temporal taxable income dynamics. It is shown that the current Polish system is markedly superior to the Czech one, both in terms of stability, and progression characteristics. Opportunities for further tax-incidence research using this method are suggested.

Introduction

Several factors influence the tax burden of an income-tax payer. The obvious one is the structure and parametrization of the applicable fiscal revenue system, combined with the amount of individual taxable income or its various breakdowns in populations, as in Seidl et al. (2013), or Široký (2013). This rudimentary relationship constitutes the basis of most existing tax-incidence analyses, such as by Nicodème (2007), Vermaeten et al. (1994) or Klazar and Slintáková (2012). To date, much less attention has been given to two other factors that may impact the tax burden, sometimes significantly. The one is short-term income volatility, addressed in various contexts by e.g. Mirlees (1971), Kanbur (1981), Majd and Myers (1985) and Vlachý (2007, 2008a, 2008b), the other one is the payer's total lifetime income and its temporal structure (Fullerton and Rogers, 1993; Caspersen and Metcalf, 1994).

The research presented herein uses an application of the parametric statistical simulation (Monte Carlo) method (Herzog and Lord, 2002; Breton and Ben-Ameur, 2005), first proposed and applied in this regard by Vlachý (2015), to investigate and compare the characteristics of the lifelong combined personal income tax burden (including income taxes and mandatory levies) for private-sector employees in Poland and in the Czech Republic.

1. Sources and Method

The simulation model combines several factors in its input assumptions, explained in more detail by Vlachý (2015). The underlying intertemporal income function is assumed to follow an exponential, determined by the sample's age and mean expected income. Its parameters are calibrated to empirical earnings data observed in the population. Furthermore, two stochastic functions describe particular income behavior within the sample, the one determining initial taxable income, the other representing volatility of an individual's taxable income in time. Income statistics for calibration are sourced from GOS (2015) and MPSV (2015).

The model in its present version also applies a minimum wage parameter, which – as part of the simulation - temporarily excludes individuals from the workforce, and thus results in their unemployment. Different factors can thus be readily analyzed, including e.g. the impact of the individual's or population segment's mean income endowment or income volatility on tax progression, the impact of the minimum wage on projected unemployment, or inflationary effects (bracket creep).

This paper compares the distributional characteristics of the effective lifelong tax burden, which is understood to include the combined impacts of the income tax liability, individual deductions, as well as mandatory healthcare and social levies. The fiscal systems in the two countries under consideration differ in several aspects. Since its 2008 tax reform, the Czech Republic has used a flat tax rate, combined with a "super-gross" rate calculation, which increases taxable incomes by the levy costs borne by the employer (Vlachý, 2008a); since 2013, a "solidarity" tax surcharge applies for high earners. On the other hand, Poland uses a more common two-tiered progressive schedule. Details on the particular systems and their current parameters can be found in e.g. PWC (2015) and Šíroký (2013).

2. Results and Discussion

Table 1 lists the simulated mean $\mu(\tau)$ and percentile values $P\tau$ of the effective lifetime tax burden for both countries. As expected, both distributions display a positive skew with their means higher than the medians 50% τ .

TAB. 1: Percentile Distribution of the Lifelong Effective Tax Rates

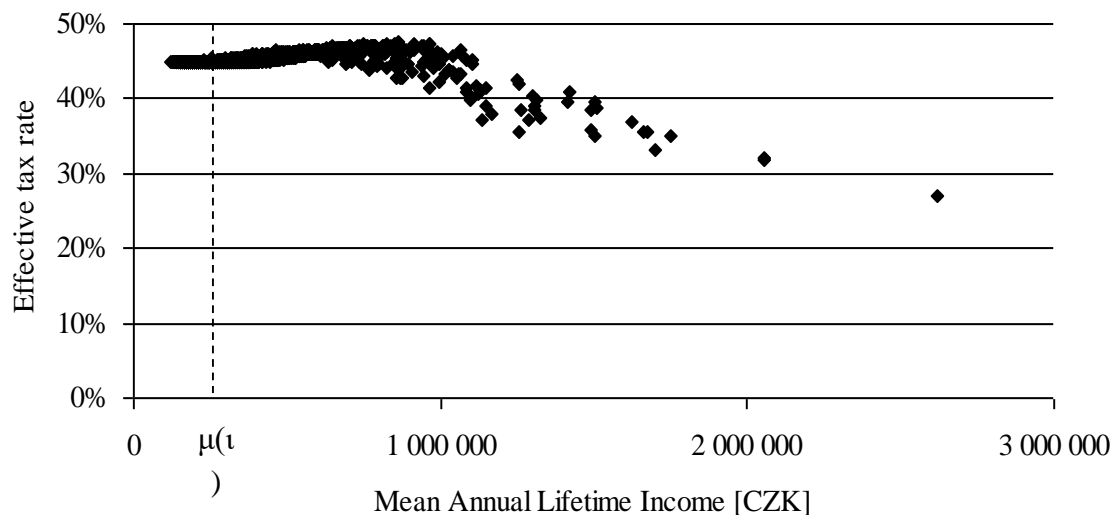
	$\mu(\tau)$	1% τ	5% τ	25% τ	50% τ	75% τ	95% τ	99% τ
CZ	45.15%	43.95%	45.00%	45.00%	45.00%	45.15%	46.28%	46.87%
PL	35.02%	33.78%	34.02%	34.44%	34.75%	35.39%	36.90%	37.36%

Source: author

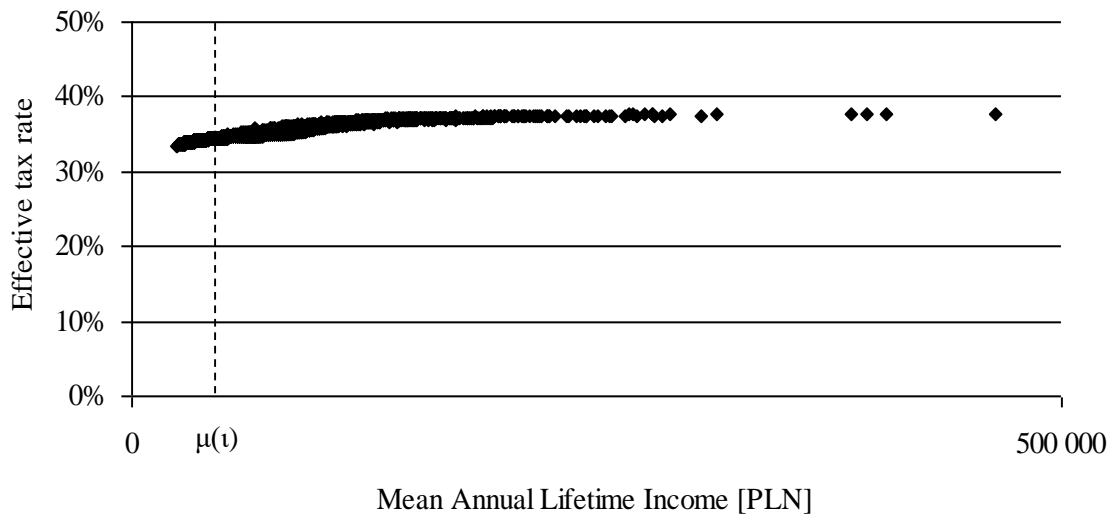
The results indicate substantially lower effective taxation of labor in Poland, which is due to very high mandatory levy rates in the Czech Republic (Tanning and Tanning, 2012). Based solely on percentile distribution, there seems to be a somewhat higher dispersion of the effective tax burden in Poland, while the majority of Czech employees are expected to pay approximately 45 percent of their incomes, which would be commensurate with the conventional calculation for non-risky incomes.

This kind of breakdown, however, is not particularly useful for further insights, because the outliers may include both high earners (exceeding the social security level ceiling), and low earners (more likely to become unemployed, thus paying no tax). Figures 1 and 2 address this inadequacy by charting the effective tax burdens as functions of mean lifelong incomes.

FIG. 1: Effective Tax Burden Simulation (Czech Republic)



Source: author

FIG. 2: Effective Tax Burden Simulation (Poland)

Source: Author

This illustration of the simulation results demonstrates a fundamental difference in the nature of the two fiscal/parafiscal systems. Even though there does appear some vertical dispersion of effective rates (of around 2 percentage points) in the range of slightly above-average incomes for the Polish data, similarly to the Czech ones (mean population incomes $\mu(\iota)$ are indicated by the dotted lines in both figures), the Polish system clearly features a reasonably smooth and unequivocal progressive characteristic over all income levels.

In contrast, the Czech system is distinguished by generating a number of outliers. For example, annual incomes of around CZK 1 million bear an effective annual taxation in the broad range of approximately (38%; 47%). At the same time, while being modestly progressive at average and moderately high incomes, there is a pronounced convex digression at higher incomes, due to the social levy cap.

These two factors suggest that the Czech system of personal income taxation is much less efficient than the Polish one. On the one hand, it may be perceived as unfair, due to the steep and convex digression in the high-income range, on the other hand, the outliers for comparable incomes indicate a much higher potential for optimization, as well as a lower predictability of the overall tax burden. Besides, it is to be noted that more inefficiencies would appear in an analysis of the Czech system, if its application were to be considered for persons other than employees, due to mandatory minimum charges (for details, see Vlachý, 2007, and Vlachý, 2008a).

Conclusions

The presented research results clearly show that a dynamic analysis of the lifelong tax burden may result in conclusions that are different and with deeper implications than conventional static analyses. Even though the digression in the Czech personal income taxation system is a known fact among practitioners, its erratic nature demonstrated herein can serve as strong argument for reappraisal.

The statistical simulation method used here also seems highly suitable for a number of related applications in the domain of quantitative tax-incidence analysis. One interesting feature pertains to its capacity to easily incorporate various behavioral and feedback characteristics (of which just the minimum-wage driven unemployment has been applied in the current model), suggesting potential for further research opportunities as diverse as considering tax-avoidance or tax-optimization incentives, or including the effect of net social transfers.

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ACCOUNTING DATA QUALITY DETERMINED BY AHP METHOD IN CONTEXT WITH OTHER CRITERIA

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Abstract:

The basic element for the evaluation of accounting information is the level of quality perceived by the user of accounting information. The quality of accounting data also depends on their presentation and conformity with reality and laws. In this article is used the analytic hierarchy process (AHP) to get an overview to the quality of the accounting data. The first step is to define the criteria which negatively affect the quality of accounting data and then their assignment to the groups according to the context. Subsequently, determine the weights of the negative criteria in each group and then evaluate their importance. On the drafted model, the quality of accounting data in 78 companies are determined and there are found out positive statistically significant relationship with other criteria or circumstances based on the statistical methods.

Introduction

Accounting is a system of reality, which it is characterized by using the accounting principles and methods. Quality accounting information enables measuring the business performance and financial position. The basic objective of financial accounting is to provide relevant information regarding the property, sources, costs, revenues and profit or loss based on the principle of fair and true view of accounting.

Accounting is defined as a structured system of information that is recorded in monetary terms, and shows the process of the business. Accounting is showing the reality on the basis of accounting principles and methods. Quality accounting information reduces the risk for potential investors, encourage investment and increase the ability of companies to obtain finance at a reasonable cost of capital. Poor, incomplete information cannot make an accurate basis for the decision making. In many organizations, it is seen that for successful management the quality information system highly contributes.

The main goal of this paper is based on a survey determining the criteria that negatively affect the accounting data quality. The concentration of interest is to determine the

quality of the financial data of companies on the basis of established criteria and then determine whether there is a correlation between the accounting data quality with others criteria as a number of employees and financial values as a total assets, common stocks, loans, cash flow, profit or loss.

1. Methods, literature overview

The quality is set in a company in accordance with the comprehensive determination of quality in the company (Kanji & Yui, 1997; Kanji & Wallace, 2000). Quality according to Agus (2005), Corbett and Rastrick (2000) and others is one of the essential and key success factors in the company. The role of accounting is to provide information necessary for the management of businesses and prepare reports. Accounting should be a valuable information system and could be a valuable source of data for further analysis. This is mainly because of its accessibility, understandability and clarity, persuasiveness and a high truth value. From the perspective of the user requirements, the quality is defined as suitability to use in the economic calculations (Juran, 1992). It is generally known that the quality of accounting information in the companies is usually not in very good condition and at the same time there is a reduction in the ability of managers.

Increased focus on compliance with the financial discipline and internal control of accounting data can significantly contribute to improving the quality of accounting information, especially with respect to making further decisions. For certain decisions may be enough available financial information, but the same data can be inadequate for different decisions (Neely & Cook, 2011). Donnelly, Gibson and Inancevich (2008) write that the more quality information the managers have, the better is their decision-making and reducing the degree of risk and uncertainty. The managers have to transform information into the information-decision systems. Managers usually complain these shortcomings:

- a) the existence of many low-quality information, and contrarily a lack of information with good quality,
- b) information is scattered across the organization and it's hard to get a quick answer to simple questions,
- c) important information are concealed by subordinates or managers in other segments, where the information comes too late.

There are searched methods through which it would be possible to evaluate accounting data quality to meet the requirements for management. One of these methods is the AHP method.

The method AHP (Analytic Hierarchy Process), which was used to determine the significance of individual weights of negative criteria, is a method that solves tasks of multi-criteria decision making. This method uses the decomposition of complex

unstructured situation into simpler components that will be arranged to a hierarchical structure. At each level of the hierarchical structure, pairwise comparisons method is used in a way that each component is compared with the other components. The result of this mutual comparison is the weights of individual criteria. These weights determine which criteria have the biggest influence on the quality of accounting data (Saaty, 2006). The hierarchical structure is divided into several levels, and each level contains several elements. The method used in pairwise comparisons follows a nine-point scale from 1 to 9. The value 1 means that the criteria are equivalent, value 3 means that one criterion is weakly preferred to another, value 5 means that one criterion is strongly preferred over the other, value 7 means that one criterion is very strongly preferred over the other and value 9 means that one criterion is absolutely preferred over another. It is also possible to use intermediate stage.

The decision makers decide about the preferences by the pairwise comparison and the results should be written to the matrix subsequently:

$$W = \begin{bmatrix} w_1/w_1 & w_1/w_2 & \cdots & w_1/w_n \\ w_2/w_1 & w_2/w_2 & \cdots & w_2/w_n \\ \vdots & \vdots & \ddots & \vdots \\ w_n/w_1 & w_n/w_2 & \cdots & w_n/w_n \end{bmatrix} \quad (1)$$

where w_{ij} are Saaty's matrix element, $w_{ii} = 1$ and $w_{ij} = 1/w_{ji}$.

Weights of the various criteria can be calculated based on the normalized geometric mean lines of Saaty's matrix. It is a logarithmic method of the least squares given by:

$$b_i = \sqrt[n]{\prod_{j=1}^n w_{ij}}, \quad (2)$$

where b_i is geometric mean of the i -th row and n is number of rows.

By normalization of b_i is then calculated weights according to the following:

$$v_i = \frac{b_i}{\sum_{i=1}^n b_i} \quad (3)$$

For the weight have to be valid that sum of all weights is equal to one and the weights are between the interval (0, 1).

In this method, it is necessary to respect the consistency index. This index indicates the consistency degree of subjective pair evaluation. This index should reach a maximum value of 0.1 and is given by the following formula:

$$I_s = \frac{\lambda_{\max} - n}{n - 1} \quad (4)$$

where λ_{\max} is maximum number of inherent matrix and n is number of rows.

2. Results and discussion

Based on the study of professional and scientific literature which was ranked as crucial for example Agus (2005), Corbett and Rastrick (2000) and others, but also based on consultations with auditors and managers, the groups of data quality in accounting were compiled and within these groups the various negative criteria were created. These are the negative criteria which have the biggest impact to the quality of accounting data and to the management as well. For more information you can see Vlčková (2014). After combining these two perspectives and understanding their relation the items can be divided to the following groups and criteria:

- a) Group 1- Errors and fraud
 - I. Criterion C11 - Accounting fraud by management, unethical behaviour
 - II. Criterion C12 - Accounting fraud by employees, unethical behaviour
 - Criterion C13 - Creative accounting
 - III. Criterion C14 - Accounting errors arising out ignorance, human accounts error
- b) Group 2 - Accounting Methodology
 - I. Criterion C21 - Methods of depreciation
 - II. Criterion C22 - Methods of valuation
 - III. Criterion C23 - Methods of accounting organization, processing
 - IV. Criterion C24 - Internal directive
 - V. Criterion C25 - Internal control
- c) Group 3 - Influence to information system in a company
 - I. Criterion C31 - Lack of information, poor internal communication
 - II. Criterion C32 - Legislation - too wide or narrow, confusion, frequent changes
 - III. Criterion C33 - Requirements for managers to information system

A survey was conducted on the basis of structured interviews with 78 managers, CFO's and accounting leaders. Interviewed respondents identified the importance of individual ratios of criteria within each group; these ratios were then compiled to Saaty's matrix (3 matrix for each respondent) and points and weights for the criteria were designated. In next step, the AHP method was applied. On the basis of structured interviews with auditors (mainly from KPMG and private external auditors) 12 Saaty's matrix were compiled. By applying the AHP method, there the model of the quality of accounting data (QAD) was proposed:

$$\text{QAD} = 0,3955 * (0,2756 * C11 + 0,1787 * C12 + 0,4641 * C13 + 0,0816 * C14) + 0,4278 * (0,2072 * C21 + 0,3391 * C22 + 0,1135 * C23 + 0,0818 * C24 + 0,2584 * C25) + 0,1767 * (0,5021 * C31 + 0,1344 * C32 + 0,3635 * C33) \quad (5)$$

where C11...C33 are individual criteria within the specified groups.

By this model were found out the values of accounting data quality in 78 companies. The research was applied to companies from South Bohemian region, with number of employees from 10 to 1999, with annual sales from 10 to 1000 mil. CZK and principal activity in according to CZ NACE was Section C – Manufacturing. The higher the value of QAD is the worst quality of accounting date in the company is. It is on base that the criteria have negative impact to the company. The value of QAD could be from 0 to 4. Zero means that the accounting data quality is on the best level and four means that the accounting data quality is on the worst level. The summarized results from research in 78 companies are:

- a) the average value of QAD is 1,38,
- b) the minimal value of QAD is 0,36,
- c) the maximal value of QAD is 2,74,
- d) standard deviation is 0,47.

In the next step, there were found out if the correlation between accounting data quality and other context exist. Other examined contexts were - number of employees, and financial data as a total value of assets, common stocks, loans, revenues, EBIT and cash flow. The analysis was made by the statistical methods and the results are in the followings tables.

TAB. 1: Linear regression analysis

	Unstandardized Coefficients		Stand. Coeffic.			95% Confidence Interval for B	
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
Constant	1,34	0,07	0,00	19,72	0,000	1,21	1,48
Number of employees	0,00	0,00	0,07	0,38	0,707	0,00	0,00
Total assets	0,00	0,00	-0,05	-0,09	0,931	0,00	0,00
Common stocks	0,00	0,00	0,23	1,83	0,071	0,00	0,00
Loans	0,00	0,00	-0,27	-1,54	0,127	0,00	0,00
Revenues	0,00	0,00	-0,29	-1,32	0,190	0,00	0,00
EBIT	0,00	0,00	0,16	0,37	0,716	0,00	0,00
Cash flow	0,00	0,00	0,45	0,61	0,542	0,00	0,00

Source: Own processing

By the linear regression analysis was found out the highest statistical dependence QAD with common stocks. Other values, which are not in the table, are $R = 0,45$; $R \text{ Square} = 0,21$; $\text{Adjusted } R \text{ Square} = 0,13$ and $\text{Std. Error of the Estimate} = 0,44$. On the base of linear regression analysis, these variables are insignificant. Because of this, in the next step, the statistical method correlation was used. The results are in the following table.

TAB. 2: Correlation

		Num. of empl.	Total assets	Comm. stocks	Loans	Reven.	EBIT	Cash flow	QAD
Number of employees	Pearson Corr.	1,00	0,55	0,48	0,29	0,69	0,12	0,32	0,03
	Sig. (2-tailed)		0,000	0,000	0,011	0,000	0,303	0,004	0,767
Total assets	Pearson Corr.	0,55	1,00	0,29	0,70	0,76	0,49	0,86	0,10
	Sig. (2-tailed)	0,000		0,011	0,000	0,000	0,000	0,000	0,371
Common stocks	Pearson Corr.	0,48	0,29	1,00	0,09	0,33	-0,01	0,14	0,19
	Sig. (2-tailed)	0,000	0,011		0,437	0,003	0,912	0,230	0,104
Loans	Pearson Corr.	0,29	0,70	0,09	1,00	0,33	0,11	0,49	-0,12
	Sig. (2-tailed)	0,011	0,000	0,437		0,003	0,322	0,000	0,280
Revenues	Pearson Corr.	0,69	0,76	0,33	0,33	1,00	0,54	0,70	0,10
	Sig. (2-tailed)	0,000	0,000	0,003	0,003		0,000	0,000	0,384
EBIT	Pearson Corr.	0,12	0,49	-0,01	0,11	0,54	1,00	0,84	0,33
	Sig. (2-tailed)	0,303	0,000	0,912	0,322	0,000		0,000	0,004
Cash flow	Pearson Corr.	0,32	0,86	0,14	0,49	0,70	0,84	1,00	0,25
	Sig. (2-tailed)	0,004	0,000	0,230	0,000	0,000	0,000		0,026
QAD	Pearson Corr.	0,03	0,10	0,19	-0,12	0,10	0,33	0,25	1,00
	Sig. (2-tailed)	0,767	0,371	0,104	0,280	0,384	0,004	0,026	

Source: Own processing

For EBIT and cash flow versus accounting data quality index the Pearson correlation coefficient values show weak positive statistically significant relationship. Due to the fact that for accounting data quality index higher values mean worse quality it has to be interpreted that with increasing EBIT and cash flow accounting data quality decreases. This result could be caused by fact that the Criterion C13 - Creative accounting, Criterion C22 - Methods of valuation and Criterion C25 - Internal control have the highest impact to QAD model. With creative accounting and methods of valuation is possible to affect the profit or loss and indirectly cash flow as well. Analyzing 12 criteria in connection with the results of correlation is the other step of research in this field.

Conclusion

The article is primarily concerned with analysis of the accounting data quality. In the first step the criteria, which have the negative impact to the data quality, were determined, they were assessed and the quality determination model was compiled by AHP method. Consequently, the values of the accounting data quality in 78 companies were determined and the values were analysed if there is a connection with number of

employees and some financial data. It was found that there is a positive statistically significant relationship between quality of accounting data and EBIT and cash flow.

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REGIONAL COMPETITIVENESS AND ANALYSIS OF ITS FACTORS

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Abstract:

In the context of the set objectives of European Union, competitiveness is considered as one of the most important indicators of economic success of areas. Factors that have influence on the competitiveness form a complex system of interrelated elements. This paper will define the most important factors and it will depict their impact on competitiveness by using dynamic model.

Introduction

Competitiveness or ability to succeed in the competition with other subjects is not a narrowly defined phenomenon, which could be measured with one indicator and which could be viewed from just one angle. It is a sum of mutually interconnected quantitative and qualitative indicators, which are used to evaluate the development of an area and its position among other compared areas. The resulting competitive ability of a defined area is determined by economic, social and political factors and relations among them. The effect of these factors creates an environment for lives of people and activities of companies.

With regard to the increasing emphasis, which is given to the role of regions for the economic development of a state, both entire states and their individual regions are evaluated from the perspective of competitiveness. The aim of this article is to use the system dynamics, in order to compile a model of competitiveness of a selected region of the Czech Republic, and to use the simulation analysis to outline potential impacts of changes of selected indicators on the competitive ability of the region in the next five years. The region will be defined at the level of higher territorial self-governing units and the simulation analysis will be performed on the basis of data available from 2010 – 2014.

1. Theoretical Definitions of Competitiveness

The requirement of competitiveness or an ability to assert oneself among others is a criterion, which has been used as a criterion to evaluate both nations and regions

increasingly more often. As this is a very frequently used term, there is no clear and generally accepted definition. The reason for this is that the concept of competitive ability in relation to a territory was taken over from the corporate sphere, where competitiveness can be clearly defined and its absolute or relative form can be distinguished. A company with an absolute competitive ability is the company, which is successful in the market. The relative definition is based on the comparison of companies, so it is an ability of a company to provide products and services at the same or higher level of efficiency than its competitors. (Hančlová, 2010) However, to define competitiveness in relation to a territory, we need a more complex approach. A manifestation of competitiveness is often perceived as economic performance, which can be viewed from many angles and explained by means of many different scientific fields. (Wokoun, 2010) This is why this concept is so hard to define. The committee of the European Union, in the Sixth Report about Social and Economic Situation and Development of Regions in EU from 1999, defines the competitive ability at the national level as “the ability to produce products and services, which comply with conditions of international markets and at the same time to achieve high and sustainable revenues...” (Maouqué et. al., 1999; in Hančlová, 2010) According to (Wokoun, 2008), the competitive ability is defined as a measure of a long-term success of companies or states, regions, cities and municipalities.

The above-mentioned definitions of competitive ability on the macroeconomic level follow from the assumption that the territory (states, lower territorial self-governing units) can compete among each other. However, this assumption is refused by e.g. (P. Krugman, 1994), who condemns the use of the term competitive ability at the macroeconomic level claiming that states or other territorial units are no companies and they work on other principles than profitability or necessity to maintain a market share. He adds that an insufficient development of states at the macroeconomic level does not lead to their dissolution, as normally happens with companies, where an unsuccessful company is excluded from the market by the market mechanism.

1.1. Regional Competitive Ability

As regards the increasing importance of regions and their economic growth, which is considered a drive of the economic development of a nation by experts, competitiveness is usually defined both at the national and regional level. As Wokoun (2010) says about regions, that is lower territorial self-governing units, they compete with each other within one state by means of their attractiveness of the business environment, human resources and capital. Therefore, he defines regional competitiveness as a sum of synergies and complementarities, which occur within business and other socioeconomic activities developed within the given region. The regional competitive ability is on the border between the microeconomic and macroeconomic competitive ability, so we can view the regional competitiveness from two perspectives as well – microeconomic and macroeconomic. The microeconomic concept of regional competitiveness is based on

the fact that in any region there are companies, which produce products in compliance with requirements of the regional market. Nevertheless, when compared with companies, competitiveness of a region is given by other objectives than just efforts to reach a maximum profit. (Tvrdoň & Šurenová, 2007) The macroeconomic concept is based on the fact the region should be able to ensure such conditions, which attract new companies, ensure a stable or growing standard to all subjects. (Storper, 1997) However, the macroeconomic approach cannot be fully applied at the regional level, there are many tools, which cannot be used at the regional level, e.g. exchange rate differences or price policy.

1.2. Factors of Regional Competitive Ability

Regional competitiveness depends on a series of mutually interconnected factors, which reflect working of the economy of the given territory. Even classic economists already dealt with defining the competitive ability at the national level. According to their theory, the source of competitiveness was specialisation in the form of labour division, which brought economies of scale and the possibility of international trade and business with products, where one country applies an absolute advantage against another during a production of such products. (Kubicová et al., 2010) The new approach to the theory of defining of main factors of competitiveness was brought by Porter (1990), who compiled the model of the diamond of the competitive ability, by means of which he defined the basic determinants, which included: factors generated by the demand, factors degenerated by presence of affiliated sectors, factors generated by strategies and character of competitiveness of companies, factors of government and factors of coincidence. Sources of competitive advantage are factors, which create a favourable environment for the existence and activities of companies and lives of people. According to Berman Group (2006), the most important factors include human resources, research and development, economic infrastructure, direct foreign investments, transport and telecommunication infrastructure. It is a multidimensional problem, which results in an ambiguity in approaches towards defining the basic factors and manners of their evaluation. This also follows from the fact that mere cost reduction cannot guarantee a competitive advantage of a region in the consequence of a rapid technological development, modernisation of information technologies and decrease in transportation costs. What is necessary is to focus our attention on creation and use of new knowledge, innovations, human resources quality and mutual cooperation of individual components of the society. (Dunning, 2000)

Definition of competitiveness factors plays an important role for their subsequent evaluation. World organisations such as World Economic Forum, International Institute for Management Development use disaggregation of summarised macroeconomic indicators to evaluate the competitive ability. The Czech yearbook of competitiveness follows a long-term development of economic indicators.

2. Analysis of Factors of Regional Competitiveness

The analysis of competitiveness factors will be performed by means of the model of system dynamics. The system dynamics is one of the tools suitable for the analysis of behaviour of a system and its development in time. It is an approach, which takes into account relations between individual elements, feedback and time delay. The object of system dynamics is to create models, where a model is a reflection of the real world.

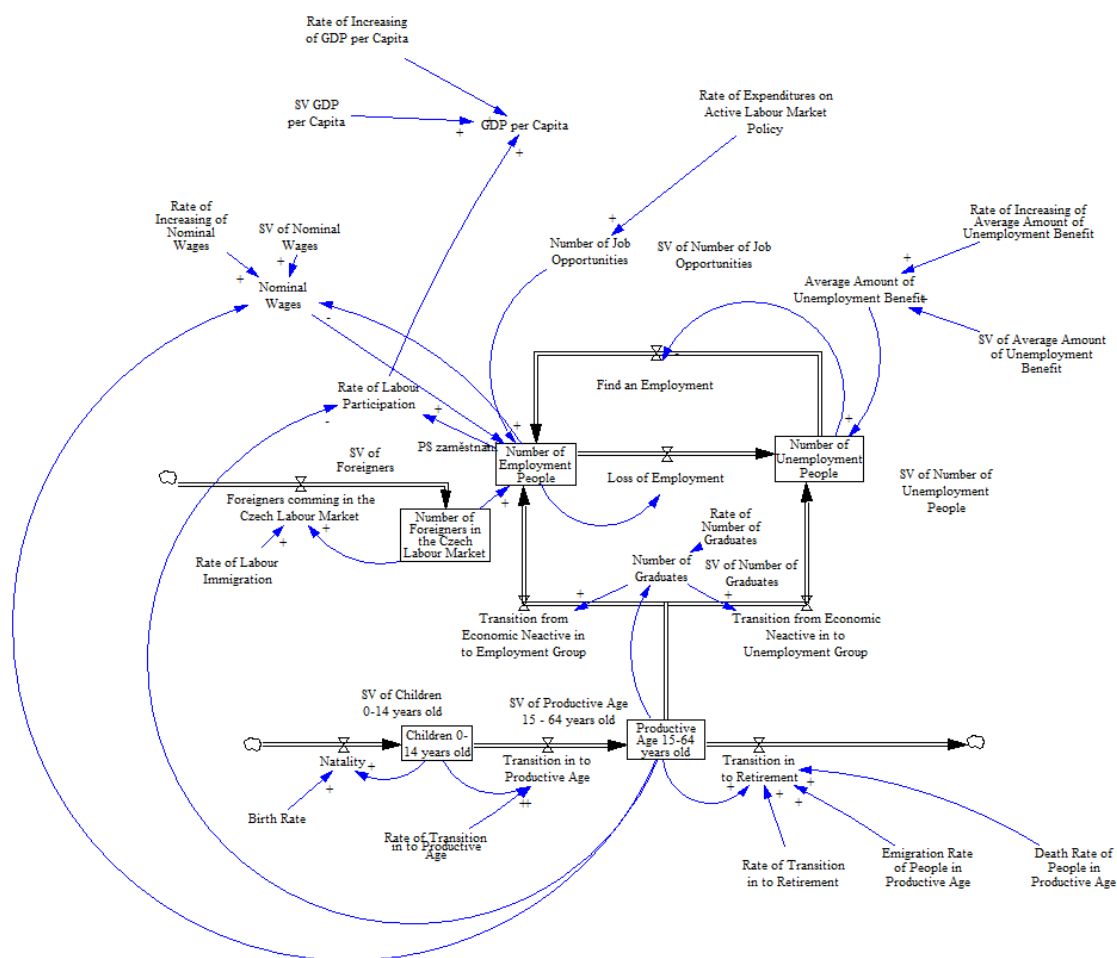
The System Dynamics approach is based on the assumption that the real environment can be captured as a system; i.e., as a set of elements and relationships between them. This is not a single process with a fixed start and end; it is a continuous reaction between components of the system, showing also feedback. According to Burianová (2007), a dynamic system is “a set of interrelated elements whose values evolve over time and affect each other”. The system dynamics is based on system thinking. As Vojtko and Mildeová (2007) claim, system thinking is a specific way of viewing the world, which attempts to respect and surpass limits of everyday thinking, which can be given by nature, education, upbringing.

In this paper, a model will be compiled on the basis of a state and flow diagram that graphically illustrates the interconnection of individual elements of the system and records all the variables that enter into the modelling. In the modelling itself, the state and flow diagram is supplemented by quantifying expressions where relations between elements are recorded by a system of nonlinear differential equations. The model will be created with the computer program Vensim. The analysis will be based on known data for the past five years, and subsequently a simulation analysis will predict possible development in the following five years.

Factors of competitiveness, which enter the model, are based on the study of Martin and his hat model of factors of regional competitiveness, where individual factors of the regional competitive ability are divided into three main areas – factors affecting the production factor, factors affecting the capital and productivity. As the entire issue is very complex and extensive, only a partial area of the entire system will be modelled: the area concerning labour and its effect on the competitive ability. The level of regional competitive ability will be expressed in the indicator GDP per capita.

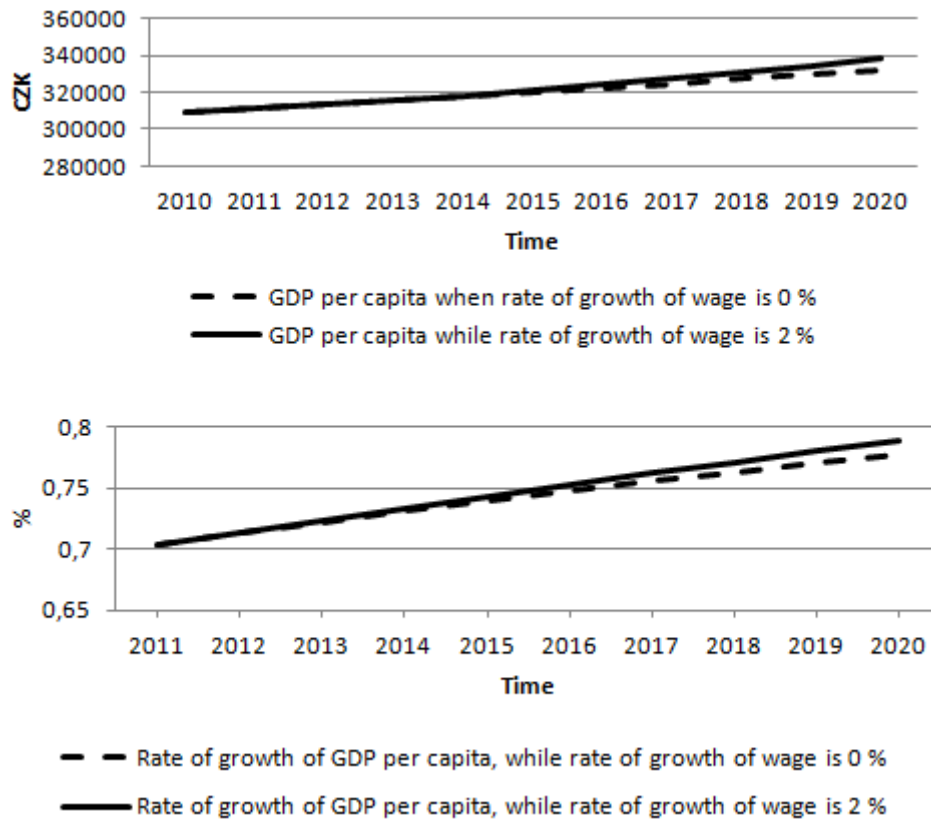
The chart of statuses and flows, according to which the model of competitive ability was created, is illustrated on the picture no. 1. The model is created on the basis of a natural process of ageing of the population and transition of people from the pre-productive age into the group of economic active inhabitants, who enter the labour market and thus represent the available amount of work of the given region. It is a model, which captures potential factors affecting the competitive ability of the region in the area of labour, is abstracted from the external environment and so it represents a simplified reality.

FIG. 1: Model of the Competitive Ability of the Region – labour market



Source: own processing

The Pardubice Region, which shows a relatively low unemployment rate in comparison with other regions and where there is enough available job positions, was the region chosen for the following simulation analysis of the development of the regional competitiveness within the context of changes in the development of active indicators. This means that this particular labour market is not affected by the unfavourable trend of its main indicators. With regard to the factors, which enter into the model, the impact of the wage increase on the competitive ability of the region will be modelled in the following part. The competitive ability is manifested by means of the GDP indicator per capita. According to predictions of economic experts, we can expect an increase in both nominal and real wages of inhabitants. The anticipated increase in nominal wages in the Pardubice Region should be around 2.1 % (ČSU). The impact of the increase in wages on the competitive ability is illustrated on the following picture no. 2. When we compare the charts, it is obvious that the annual increase of wages by 2% could lead to an increase of GDP per capita. The increase is less than 2% but we can see here a positive influence of the given factor on the economic development of the country.

FIG. 2: The effect of the nominal wage growth change on the GDP per capita

Source: own processing

Conclusion

The level of competitiveness of the region is an important indicator of the economic, social and political environment in the region. The result value is determined by many factors, which are complementary and mutually dependent. Although it is a current topic, generally accepted definition of competitiveness or of the factors do not exist. The situation is given by many approaches and concepts of it. This paper dealt with the factors of regional competitiveness. Their effect on the competitiveness of the region was analysed by using system dynamics model. This tool can capture not only the effects of individual factors on the endpoint, but also their interactions and feedback. The aim of the paper was to analyse the factors of regional competitiveness and their impact on the development of the selected region. For the analysis was chosen Pardubice region and by given the magnitude of the issue only factors related with labour market were chosen. The simulation analysis of possible future development of competitiveness in Pardubice region was investigated in dependence on the development of wages in the area. In the next years, it can be expected positive relation between the variables. Rising wage growth should lead to increasing of GDP per capita with represented rate of competitiveness in the region.

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QUALITY MANAGEMENT VERSUS PROCESS APPROACH

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Abstract:

Process management is a dynamic method of company management. In process management takes place the reorientation of the space of perception and functioning of economic organization from vertical to horizontal. The main advantage of process approach to the management of economic organizations is the possibility to conduct an analysis of company's actions in terms of generating the added value. The effectiveness of processes is one of the most important variables that have an influence on the achievement of goals of an organization. The measurement of results is a basis of process management and a systematic management of an organization, which constitutes an infrastructure that is necessary for a continuous improvement of processes.

Introduction

The development of Poland in the European Union is connected with integration of Polish economy with European structures. The nature of environment is changing, which is manifested by the increase of client's importance, the increasing competition between economic organizations resulting from the liberalization of market, the progress in the field of new products and technologies. These changes cause that adjustment of management systems to the changing environment is necessary. This situation forces Polish companies to search for new management conceptions and the tools that will allow their application. One of these conceptions is the conception of process management.

1. Process management

Process management is a dynamic method of company management. In process management takes place the reorientation of the space of perception and functioning of

economic organization from vertical to horizontal. Process management denotes: the rejection of static and acceptance of dynamic research perspective, resignation from “work positions” in favour of “organizational roles” in the description of organizations, the change of organizational structure from a vertical to horizontal system, an interactive communication with the environment, formalizing of processes in the form of scenarios: decisions, behaviours, actions and undertakings, flattening the organizational structure (the reduction of management levels). According to K. Perechuda (Perechuda,1998) the process management is an answer to: the growing turbulence of company’s environment and interior, the increase of complexity of internal and external processes, deregulation of market competition system, customization of client’s needs and expectations, shorter life cycle of products, the increase of importance of immaterial resources, communication possibilities formed by new information technologies and the requirements of new marketing: establishing long-term relations with a client, direct contact with a client, keeping current clients, customizing a client, direct dialogue with a client, transfer of immaterial values (philosophical, aesthetic, ethical), creating an ecological image of a company, creating “atomized” added value, forming the feeling of a client’s belonging to a company, the reduction of “communicative distance” between a company and a client, a company solves clients’ problems, the removal of boundaries of an economic organization enabling ‘the absorption’ of market segment.

Process management is a modern approach in the management of economic organizations. It constitutes a turning point in thinking and acting of managers. The main advantage of process approach to the management of economic organizations is the possibility to conduct an analysis of company’s actions in terms of generating the added value. An added value in the theory of organization and management is defined as an activity which a client is willing to pay for. All remaining activities performed in an economic organization are activities that support the formation of an added value and/or activities that don’t form an added value and that don’t support its formation (Cieśliński, 1999; Witkowski, Cieśliński & Stefaniak, 2011). According to Oxford English Dictionary a process is “a continuous and regular human action or courses of successive actions undertaken in a specific way and leading to obtaining a certain result; constant action or a series of operations” (Peppard & Rowlana, 1997). On the other hand, PN ISO 8402 standard defines a process as “a set of related supplies and activities, which transform entrance state in exit state” (Peppard & Rowlana, 1997). Resources can embrace staff, financial means, installations, equipment, technology and methods. Therefore, a process can be defined as a logical sequence of activities that aim at an intended production or delivering a product or a service to an internal or external client. The order of performed activities is specific in relation to particular processes. Every product or service requires a client. Therefore the result of a process should satisfy a particular need. If this is not the case, the discussed activities should be abandoned since they serve a useless aim. Processes can be usually divided into:

- a) operational (business process), also called central processes, which create the value for a client and for other concerned parties,
- b) supplementary, creating the conditions for the realization of operational processes, they refer to internal clients. In this group some authors also identify supporting processes and management processes.

In accordance with International Benchmarking Clearinghouse (IBC) at American Productivity and Quality Centre (APQC) as a rule a company consists of six main operational processes (Brilman, 2002), that differ depending on whether a company deals with industrial production or the provision of services: understanding markets and clients, developing a vision and a strategy, production of goods and services, marketing and sales, production and deliveries in production/services companies, invoicing and customer support, and six supporting processes and management processes; human resource management and staff development, computerised system management, financial resources and asset management, implementation of environmental programs, management of relations with the outside, improvement and changes management.

A company will be process-organized only if it is restructured and when the processes taking place in that company will be identified and named, but also when particular contactors will be assigned to these processes (Rączka, 2000). When defining a process in a company one must specify: the beginning and end of a process, entrance and exit of a process, the owner and the leader of a process, supplier and a client of a process.

One must also specify all activities of which a given process consists of. In relation to each of these processes a company should: specify the way in which every process influences the chances of meeting the requirements concerning a product or a service, establish the methods and practices appropriate for activities connected with processes to an extent that is necessary to obtain consistent functioning of a process, specify the criteria and methods of controlling the processes, specify the way of monitoring a process, ensure a proper documentation of a process and records related to it, ensure the resources necessary for effective functioning of a process.

Conceiving a management process as a cybernetic system one can discern the following elements: planning, navigating, controlling, monitoring. The aims of process management in a company are (Perechuda & Cieśliński, 1999): identifying the processes that have taken place in a company, segregation of processes, verification of processes according to the following criteria: reduction of time, restricting the number of trajectories in which decision-making and implementation processes take place, costs reduction, the reduction of number of organizational actors engaged in process management, increasing the quality of a process, the reduction of physical and financial resources, engaged in particular processes, creating the maps of processes, training the organizational actors and implementing the processes, process monitoring.

To sum up, process management consists in systematic evaluating of their effectiveness, picking up the gaps in handling the processes, making corrections, continuous improvement of processes considering the formation of values for a client and other concerned parties. Moreover, a very important aspect in process management is also the flexibility of an organization, since it aids the company in a fast and effective adjustment to a changing demand and a fast change of products and services introduced to the market.

2. Process approach model in quality management

In the initial period of formation of quality assurance systems based on the ISO 9000 series standards a dominating approach was “a production” approach, complying with the requirements that are present in ISO 9001/9002 standards (Witkowski & Cieśliński, 2013). Introducing quality standards in non-production organizations forced the application of process approach that meets best the specificities of these companies’ functioning. Process approach in quality management is more often applied in manufacturing companies. The advantage of this system is its better adjustment to specificity of an organization, shorter construction time and documentation structure less sensitive to organizational changes.

There is a widespread awareness that the quality of a product is a result of not only a manufacturing process and the actions of a direct contractor. Important for the quality are also processes connected with a formation and later possessing a product. Therefore quality management system is a collection of elements and relations between them. These relations play a decisive role in the quality of a product in pre-production, production and post-production phases. Actions concerning the quality system according to E. Kindlarski should take place in all processes in a company (Kindlarski, 1988): basic manufacturing processes, supplementary manufacturing processes, processes of preparation of production, processes related to management, information processes. Quality system can be perceived as “a process that is above” is of the highest level in hierarchy and it influences the main groups of processes. In order to make this system operational, it must encompass all vital processes at various levels of hierarchical system of an organization.

A process method of implementing the quality system has been developed by KMEA, a Dutch company having also its branch in Poland. This method consists of 6 stages: 1) Setting up a project and an analysis of a process, 2) Specifying critical activities, 3) Formulating the politics of a process, 4) Making a diagram of a procedure, 5) Specifying the tasks, powers and responsibilities, 6) Developing working instructions.

The first stage includes specifying the sub-processes and determining the actions forming a process. A process usually consists of 6-8 actions. At this stage it is necessary

to order the structure of a company, determining the actions connected with planning, implementing, verifying and adjusting actions, based on Deming cycle (PDCA: Plan-Do-Check-Act). The end of the first stage involves making an outline of a process and determining all participants of a given process. The second stage includes the identification of hazards that may occur in processes and determining the so-called critical actions (so actions that may pose a danger for a process or that have a significant influence on the factors of a process. When necessary preventive actions can be specified. The third stage includes the formation of a policy of process management that is already directed towards the dangers that have been identified. The aim of such a policy should be concrete, measurable, accepted, real and time-restricted. The fourth stage includes making the diagrams of procedures that specify what, who and when does particular things. The fifth stage includes specifying the tasks, powers and responsibilities. The last, sixth stage includes the development of “working instructions” (agreed upon documents, e.g. procedures).

This method is tested in practice, nevertheless building the system of quality management according to process approach can take place in a different way. In process approach the documentation should be adjusted to the specificity of an organization’s functioning. Current documentation systems created according to process approach mostly manifest a mixed structure, i.e. the documented procedures describe particular processes and a Quality Book is usually complies with points of ISO 9001 standard.

3. Testing the effectiveness of processes as a mechanism of continuous quality improvement

An organization is insofar effective as effective are its processes. The effectiveness of processes is one of the most important variables that influence the achievement of goals of an organization. According to the conception of Rummler and Brauche the effectiveness of an organization is influenced by three factors, the so-called needs of effectiveness. These needs of effectiveness result from (Rummler & Brache, 2000):

- a) the aims of a process – they must be determined with the use of standards reflecting the expectations concerning quality, number, delivery deadline and time of execution and the cost of a product or a service,
- b) projecting mode – organizing a process requires necessary elements configured in a way that enables the effective implementation of aims,
- c) management mode – a process requires a proper mode of management that allows for implementation of aims.

Every basic and supportive process contributes to the implementation of aims of an organization. Therefore the effectiveness of these processes should be measured basing on the aims. The aims of processes are based on three sources: the aims of an organization, a client’s requirements and comparing oneself to the best (benchmarking).

Due to completion of aims of a process that have been set, the implementation of key vision of the whole company will be possible.

3.1. The Designing a process

Upon specifying an aim for key processes, one should check whether the mode of designing a process will allow for an effective implementation of defined objectives. The analysis and checking the particular processes should be carried out with the use of a map of a process. The map of a process describes a course of a process, transformations of particular supplies in subsequent activities, until the moment of creating a final result of a process. Such presentation of the map enables finding all main connections in a process, enables specifying the time that is necessary to carry out particular activities and to identify all drawbacks in a process (illogical, unnecessary or missing activities). Preparing the map of a process is a significant element of improving processes.

3.2. Process management

A designed process is not able to be managed on its own. There are four constituent elements of process management.

- a) management of objectives – general objectives of the whole process should form a basis for determining the partial objectives of particular sub-processes. Within a process one should define partial objectives for all activities, such activities that have an influence on the implementation of objectives of a process that are based on the expectations of clients. Upon specifying the partial objectives of a process we proceed to the objectives of particular functions. Since the aim of every function is supporting a process, this function should be evaluated in terms of its contribution and final result of a process;
- b) management of effectiveness – upon designing a process one should prepare a system for monitoring the results of a process. This system involves collecting internal and external opinions from clients concerning the results of a process, comparing them with main and partial objectives, submitting the actual results of process' functioning to all participants engaged in a process, introducing the mechanisms of problem solving and constant improvement of processes and adjusting the aims to new needs of clients. In order that processes may be managed in a continuous manner (and not only remedied on an occasional basis, when problems occur) one must create an appropriate infrastructure which in many organizations is called process management;
- c) management of resources – distribution of resources in a process approach involves specifying what financial means and how many employees are needed for implementation of objectives of a process;
- d) management within contact points between departments – on a map of a process one can see the places where the departments hand over a product or a service to each other. At that time we are facing a relation: a supplier - a client. These contact points are places in which the greatest improvements occur. They should

be constantly monitored in order to eliminate any obstacles in increasing the effectiveness and output of processes.

4. Conclusions

The measurement of results is a basis of process management and systematic management of an organization that includes the infrastructure that is necessary for a continuous improvement of processes. The choice of appropriate measuring devices and connected with them objectives is the most important factor determining the effectiveness of an organization. We carry out a measurement in order to monitor, control and increase the effectiveness of a system. Without measurements managers have no grounds to: setting particular requirements for their subordinates, identifying the gaps in which the objectives are not implemented, carrying out an analysis of this state of facts and its improvement, providing feedback based on a comparison of actual results to a standard, evaluating and rewarding employees, making decisions that allow for an effective management of resources, creating plans, deadlines of procedures and designing an optimal structure.

Without the measurements employees at every level of an organizational structure: don't know what they are expected to do, don't have the grounds for monitoring the results of their work and its improvement, don't know how to work in order to receive a higher wage, don't have the grounds for finding the areas where an increase of effectiveness is still possible.

However, the introduction of measures themselves does not necessarily lead to the improvement of effectiveness. The following actions should be undertaken:

- a) introducing appropriate financial results, owing to which we will be sure that the assessed factors have an influence on effectiveness,
- b) creating an overall measuring system and not a collection of inconsistent measures, that can possibly decrease the effectiveness of an organization,
- c) introducing a process of effectiveness management that will allow for transferring the results of a measurement into intelligent actions. For measuring the effectiveness one can use the following procedure of introducing the measurements:
 - d) identifying key work results on a process level,
 - e) defining key criteria describing each of these results (for quality it may be: preciseness, ease of use, modernity, reliability, easy to be repaired and appearance). These criteria should be based on expectations of internal and external clients and on financial objectives of the whole organization,
 - f) developing the measurements of evaluation of every key criterion,
 - g) developing objectives and standards for every measurement. By specifying an objective we know about particular requirements concerning effectiveness.

The increase of effectiveness of an organization as well as the process itself involves the development of a collection of measurements. Owing to it we will be able to: monitor

the effectiveness and eliminate current mistakes and problems and determine the contribution of each of the departments in the results of the whole organization.

The collection of introduced measurements is based on a company's strategy and on the expectations of clients. It allows to monitor the results of a process and to solve current problems that have an influence on the results that are the most important for a functioning of an organization. The collection of measurements gives as several indexes of evaluation of effectiveness of processes functioning. There are three types of measurements: regularly collected on the basis of a formalized procedure, regularly collected on the basis of a non-formalized procedure, not regularly collected, that are used in extraordinary situations.

In order to manage the effectiveness at process level one should: introduce appropriate measurements and objectives that should be interconnected with measurements and objectives of an organization, follow current results of an organization, find the gaps between results and objectives, identify their causes and undertake appropriate corrective actions, use information as a basis for decision-making and for continuous increase of effectiveness.

In an organization that went from designing the improvement of processes to a constant process management, each of the processes should have:

- a) a map of a process showing the activities and departments (functions) responsible for their implementation,
- b) a collection of measurements based on the expectations of clients, connected with measurements and objectives of an organization and have an influence on the measurements and objectives of departments. A good process management should prevent the correction of a department's result to the detriment of other departments or the whole process,
- c) the owner of a process,
- d) a process team that functions all the time, that meets regularly in order to develop and introduce the subsequent improvements within a process,
- e) a new business plan with specified (for each of the processes) expected results, objectives, budgets and non-financial requirements
- f) tools (e.g. a control chart of a process) aiming at current monitoring of results of processes,
- g) procedures in which there is a description of methods (e.g. an analysis of a problem's causes) and who (e.g. a process team) is to solve current problems and to propose further improvements.

In order to check whether a given process fulfils the expectations of effectiveness criteria, the formalised criteria of process evaluation are being used: constant improvement of processes by teams and their owners, it should replace an approach that is based on an occasional problem solving, directors should use maps of relations and process for planning and implementing the changes, introducing new workers to

companies, the evaluation of strategic options of actions and improvement of service level of internal and external clients, needs and expectations of clients should constitute a landmark for formulating the objectives and for decision making, managers are constantly interested in the effectiveness of processes within their departments and within inter-functional processes which their departments are engaged in. In order that the effectiveness of processes is possible (one should introduce a measurement system based on processes) resources are distributed on the basis of requirements resulting from processes, directors of departments function as the owners of processes, the work of inter-functional teams lets to understand the functioning of particular departments, explaining and ordering all the connections and agree upon objectives, effectiveness of processes is ensured owing to the system of employees' effectiveness.

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MANAGEMENT OF INTERNATIONALIZATION PROCESS: RESEARCH STUDY FROM THE CZECH REPUBLIC

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Abstract:

The decision on internationalization of company activities counts among key long-term strategic decision; these decisions bring significant changes in running a company and are conditioned by them as well. The purpose of this paper is to present the management of internationalization process of Czech companies. The companies included in the study are those that have already undertaken internationalization activities and are incorporated in the Czech Republic. The main primary data collection instrument was a questionnaire-interview. The findings of the analysis of the internationalization process management of Czech companies show that the level and degree of companies' internationalization is still relatively low.

Introduction

Until political and economic changes in 1989 foreign entrepreneurial activities were a monopoly of the state and only a limited number and type of state companies referred to as 'foreign trade enterprises' were privileged to operate directly abroad. Expectedly, some Czech companies have served in international markets before that time, but it was mainly exports to other socialist or ideologically similarly countries, which was not such a challenge as it would have been when exporting to developed market economies. The growing interest in doing business in foreign markets gives rise to interests in internationalization in a broader context. One of the main reasons of the interest of Czech companies to expand to foreign markets nowadays is a limited market size of the Czech Republic and, consequently, the increasing competition in the domestic market. The main research question of the research study is to find out what are the specifics of the management of Czech enterprises on the foreign markets. The objective of this paper is to present the internationalization process management of Czech companies on foreign markets. The paper is organized into three parts. The first part of the paper outlines selected theories dealing with management of entrepreneurial activities on foreign markets. The second part of the paper aims to present and interpret results of the

survey carried out among Czech entrepreneurial subjects. Finally, the last section provides conclusion of the research and offers discussion of most important implications.

The term internationalization of entrepreneurial activities refers to all those entrepreneurial activities which involve cross-border transactions of goods, services, resources between two or more nations. The problems of the internationalization of entrepreneurial activities have seen a considerable interest among a number of significant who have fundamentally contributed to the rethinking of the concept of internationalization theory. The internationalization of entrepreneurial activities is represented by geographic expansion of entrepreneurial activities cross national borders (Lopez, Kundu & Ciravegna, 2009). The management of internationalization process is management of entrepreneurial operations for an organization conducts business in more than one country. Management of internationalization process requires knowledge and skills above and beyond normal business expertise, such as familiarity with the business regulations of the nations in which the organization operate, understanding of local customs and laws, and the capability to conduct transactions that may involve multiple currencies. The companies that decide to enter the international market undergo particular stages of internalization. The progress and speed of business activity internalization depends on the importance and role that is assumed to the international entrepreneurship within entrepreneurship strategy of the company. Among some fundamental strategic decisions accompanying the internationalization of entrepreneurial subjects are included timing of entering foreign markets (speed of internationalization); geographical diversification of entrepreneurial activities (geographic scope of internationalization); and ways of entering foreign markets.

The speed of internationalization can be described by two different time spans (Varma 2009), namely: the time span between founding and the first foreign market entry and the time span between the first and the following market entries.

The geographical diversification represents the distribution of the internationalization process. The internationalization of companies is approached from two perspectives to geographical diversification: the wider geographical diversification (spreading strategy) and the concentration on a key destination market (concentration strategy). The spreading strategy is based on the strategy of operation in multiple markets that is in geographic regions. The strategy is typical especially for large companies and for born global companies. Luostarinen and Gabrielsson (2004) suggest that a born global company must have business activities in at least two geographic regions. Katsikea et al. (2005) identified long-term advantages of this spreading strategy when companies used to improve the effectiveness of sales management and personal selling activities. The spreading strategy means that the process of accumulating diversified knowledge and experience has been accelerated, thus improving the competencies of the staff involved in international operations. The concentration strategy is based on the strategy of

operation on one key market, or rather one key geographic region. Beleska-Spasova and Galister (2010) suggest that smaller companies are less able to absorb the costs associated with international expansion. When confronting the spreading versus concentrating strategy choice, the negative correlation between the number of markets served and the percentage of markets that are significant seems evident: the larger the proportion of goods that are channeled to a smaller number of key markets, the less remains for sale to other markets (Cieřlik, Kaciak & Welsh, 2012).

The ways of entering international market are influenced by company strategic analysis and target international business analysis. The choice of a particular way of entering international market has been influenced by several factors such as investment demands of a company's entering international market, company's disposable sources, target market potential, the level of business activities control, potential event risk when entering the market, and company competitiveness on the market. The ways of entering foreign market are usually divided into three dominant groups: export methods, contractual methods, and investment methods.

1. Methods

The main objective of this research study is to present an overview of the internationalization process management of the selected entrepreneurial subjects from the Czech Republic. This study presents selected findings of the empirical research that focused on the internationalization process of Czech companies. The research was carried out in the Czech Republic between June 2015 and August 2015. In order to fulfill the aim of this study the following hypotheses were suggested:

Hypothesis 1: The time span between foundation and the first foreign entry is influenced by the size of the company. The hypothesis supposes that SMEs entering foreign markets earlier than large enterprise.

Hypothesis 2a: The company size at the first foreign entry relates positively to the number of geographical sub-regions. The hypothesis supposes that larger companies enter more geographical sub-regions at the first foreign entry.

Hypothesis 2b: The choice of a particular geographical sub-region at the first foreign entry is influenced by the size of the company. The hypothesis supposes that SMEs choose geographical sub-regions that are close (both in terms of physical distance and cultural distance) to their domestic geographical sub-region.

Hypothesis 3a: The number of entry modes at the first foreign entry is influenced by the size of the company. The hypothesis supposes that larger companies use more entry modes (and different entry modes) at the first foreign entry.

Hypothesis 3b: The choice of a particular entry mode is influenced by the size of the company. The hypothesis supposes that larger companies choose entry modes demanding on the investments.

The companies under research were selected with the method of non-probability purposive sampling, or more precisely on the basis of assumption and occasional selection. The companies included in the study have already started their internationalization operations, they are incorporated in the Czech Republic and all of them are private companies. The research then covered 600 companies. A total of 490 valid questionnaires were collected, which provided a response rate of 82 %. The research was carried out in the Czech Republic between June 2015 and August 2015. There was a wide range of industries that participated in the research: in the sample there were 54 % of companies representing manufacturing and 46 % of service companies. The companies differed as to their size assessed by the number of employees so that 53 % of the sample consists of small companies, 29 % medium ones and large ones 18 %. The Eurostat (2011) classify enterprises by a wide range of variables such as sales revenues and the number of employees.

The internationalization of entrepreneurial subjects has been researched with the method of oral questioning and the main instrument was a questionnaire. In order to ensure a representative sample, the questionnaire was submitted to the selected top managers and directors of enterprises. The instrument used in the survey was a structured questionnaire containing 16 questions of varying degree of complexity relating to the area internationalization. The questions are based on information offered due to personal communication with selected experts from business and universities and on the basis of previous researches. In some questions, particularly those related to entry mode choice and market choice, simple and complex scales were used, mostly the Likert-type scale (5 = strongly agree to 1 = strongly disagree). In addition to the interview questions the questionnaire also included 5 questions related to the company background itself. This exploratory study is based on the information from two groups of variables. The first group was related to the internationalization process. The group was investigated with the help of these measures: the geographical sub-regions penetrated at their first foreign entry (hereinafter referred to as geographical sub-regions); the number of years between the founding of the company and the first foreign entry (hereinafter referred to as timing of entry); the entry mode at the first foreign entry (hereinafter referred to as entry mode). The second group of variables measured effects of company characteristics: the company size at the first foreign entry (hereinafter referred to as the company size); the company age at the first foreign entry (hereinafter referred to as the company age at the first foreign market entry); the branch of business activity (hereinafter referred to as business activity). The research study includes these analytical methods: correlation analysis (Pearson correlation coefficients), ANOVA analysis, categorical analysis, regression analysis.

2. Results

The research findings were interpreted in two stages. The analysis began by examining the correlation between variables. All variables were screened to reveal their distribution through Pearson correlation coefficients. The focus has been on the validity of the overall framework by examining the impact of the identified relevant entry mode variables operated together on the final entry mode choice. It is important to recognize that while each of the identified variables influencing the entry mode choice. The second stage includes categorical analysis and regression analysis.

The hypotheses 2b and 3b were tested through categorical data analysis. Hypothesis 2b assumes that the choice of a particular geographical sub-region at the first international entry is influenced by the size of the company. This hypothesis has been confirmed: the strength of this relationship is medium ($V = 0.560$). In Hypothesis 3b it was assumed that the choice of a particular entry mode is influenced by the size of the company. This hypothesis has been confirmed: the strength of this relationship is medium ($V = 0.586$).

The hypotheses 1, 2a and 3a were tested through Regression Analysis. The dependent variables are: the number of geographical sub-regions at the first foreign entry, speed of internationalization (the number of years between founding of the company and the first foreign entry) and the number of entry modes at the first foreign entry. The independent variable is the size of company. Model 1 has been based on the number of years (speed of internationalization). Model 2 has been based on the number of geographical sub-regions. Lastly, in Model 3, one interaction has been incorporated: the number of entry modes.

The regression equation in Model 1 (value of the Durbin-Watson is 1.910) is statistically significant ($F = 67.722$, $p < 0.01$). The independent variable explains 18.7 % of the variance in Model 1. Hypothesis 1 proposed that the company size relates to the increasing speed of internationalization (measured by the number of years). This hypothesis is supported ($\beta = 0.432$, $p < 0.01$). The relationship has shown that with increasing number of employees grows the number of years between the founding of the company and the first entry into foreign markets. The overall regression equation in Model 2 (value of the Durbin-Watson is 1.981) is not statistically significant ($F = 0.716$, $p > 0.10$), which suggest that the company size does not explain the number of geographical sub-regions at the first foreign entry. The independent variables explain 0.2 % of the variance in Model 2. In Hypothesis 2a it has been hypothesized that larger companies enter more geographical sub-regions at the first international entry. This hypothesis is not supported ($\beta = 0.049$, $p > 0.10$). The overall regression equation in Model 3 (value of the Durbin-Watson is 1.950) is not statistically significant ($F = 0.991$, $p > 0.10$), which suggest that the company size does not explain the number of entry modes at the first foreign entry. The independent variables explain 0.00 % of the variance in Model 3. In Hypothesis 3a it has been hypothesized that larger companies

use enter more entry modes at the first international entry. This hypothesis is not supported ($\beta = 0.001$, $p > 0.10$).

3. Discussion

The Czech companies entered the foreign market for the first time after three years from founding the company; this stands for 44 % companies. The companies which entered the foreign market for the first time within three years from the time of founding stand for 56 %. The average time needed for a Czech company to enter foreign markets since its foundation is 8 years. The fastest on entry into foreign markets are microenterprises.

The investigated Czech companies operated during the initial stage of internationalization process approximately in one market (mostly in Slovakia, Poland and Germany), in one geographic region (mostly in Europe), in one geographic sub-region (mostly in sub-regions of Eastern Europe and Western Europe) and in one cultural cluster (mostly in cultural clusters of Eastern Europe and German). The research findings among Czech companies clearly show that the typical Czech diversification strategy is realized by a concentration strategy. The concentration strategy is dominant in most companies regardless of their age and size. In the case of geographical coverage are not among particular size categories more significant differences. The greatest geographical expansion exhibits large enterprises. This is quite logical. The large enterprises have greater resources (financial and personnel resources).

This study shows that Czech companies have a higher preference for export entry modes. The most widely used mode has been accidental direct exporting (51 % of respondents). In general, companies do not prefer the investment entry modes and contractual entry modes when risks are higher. Also in the field of entry modes we can see similar results among particular size categories. All respondents have chosen export methods as the first entry modes and respondents mostly took advantage of only one input method.

Conclusion

The Czech entrepreneurial subjects have been increasingly taking part in international market since the beginning of the 21st century and this trend seems to be growing. Most companies are aware of the necessity to develop their business and entrepreneurship activities internationally. The necessity of active participation of Czech large enterprises and SMEs at international market is conditioned primarily by the character of Czech economics and its foreign political orientation.

The major objective of the paper was to present an internationalization process management of Czech companies. In the internationalization process attention was paid to the three indicators: the speed of internationalization; the geographical coverage at the first foreign entry; the entry modes at the first foreign entry. This study has shown

that the company size is not a significant factor affecting the internationalization process of Czech enterprises. The influence of company size was seen only in the case of the speed of internationalization. In the case of speed of internationalization, has shown clearly that with increasing company size increases the number of year between the founding of the company and its first foreign entry (decreases the speed of internationalization).

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RESEARCH PERFORMANCE OF UNIVERSITY PATENTING IN CZECH REPUBLIC

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Keywords:

university patenting – university industry partnerships, – intellectual property valuation
– quality of ideas – impact of patents

JEL classification: O3, I28, H4

Abstract:

The Government of Czech Republic considers the development of science and research as one of its priorities. To ensure the quality of results and the efficiency of public support, the best R&D results are particularly considered to be patent or utility model applications. The aim of the study is to analyse the patent and utility model activities in relation to national stage filing under Industrial Property Office of Czech Republic. The analysis of patent statistics allows assessing profile of the impact of university patents on follow-on innovation, geographical filing breadth, and commercialization potential of university patents and assesses collaboration between university entities and other partners.

Introduction

In the area of patents and utility models are among the traditional and, at the same time, the most important tool of legal protection for technical solutions. Translating patent data into intelligence service allows gauging its current technical competitiveness, to forecast technological trends, and to plan for potential competition based on new developed technologies. This study adopts metrics for determining the scope and impact of patents originating from the 19 Czech universities. The primary purpose of this study was to use patent metrics to assess university research. A secondary purpose was to explore the linkages across existing data sets from the innovation and research portfolio.

1. Methods, literature overview

Market-based on international flows of technology has expanded over the 1990s. On the contrary, the total number of inventions developed by Czech universities decreased after year 1990. Although university patenting increased enormously over the last decade, reliable and internationally comparable evidence about quality of patents remains rare.

It seems, that patent activity in public sector is highly influenced by methodology of evaluation of research organizations and evaluation, where the patents and also utility models has been highly rated (Zdralek et al., 2015). Evaluation is one of the important strategic instruments for obtaining feedback and testifying on the functionality of the management system of research and development (R&D). Based on evaluation results, top officials usually make decisions and then allocate and redirect funds to support public research. The plans of science policy, research priority direction proposals, R&D system reform, and the reorganization of R&D institutions all proceed from the obtained analytical findings and outcomes under the evaluations (Stemberkova et al., 2014). Improved understanding of the interdependence among different stages of the inventive/commercialization activity would help policy makers to design more complex and comprehensive innovation policies (Mana et al., 2007). Recent years have seen an increased use of patent metrics to evaluate innovation and research performance (Box, 2010). The greatest occurrence in Czech university patenting is „Measuring, optics, photography followed by “health, life-saving, amusement” (Zdralek et al., 2015).

This study evaluates the patent activity of 19 Czech universities filed from 1990 and published till July 2015. At first only data from Czech patent database has been mined per university according to the names of applicants listed on patent applications. The study identified 4,506 university inventions or technical solutions published at database of the Industrial Property Office of Czech Republic. Than duplicated patent documents have been removed. The study identified 4,414 university patent families. Patent information dataset about patent family members has been consequently mined from database Thomson Innovation based on matching the application number. The study identified 4,396 these university documents. Any specialized software has been used to examine patent information and ‘track’ technological knowledge. Analysis has been carried out only by using spreadsheet software. On the base of limited software, funds and available datasheet, obtained results should be taken into consideration with room to spare, because uncertainty is elevated. This study adopts following metrics:

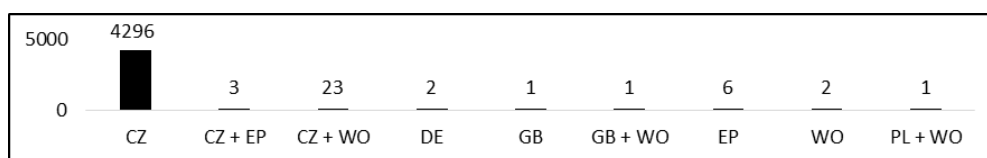
- a) Metric 1 – Origin patent application: a proxy for patent filings by country of origin with the aim of providing an overview of priority patent activity.
- b) Metric 2 – Patent families per universities: a proxy for the number of inventions disclosed in university patent documents during the study period. It represents collaboration on academic level.
- c) Metric 3 – Type of Intellectual Property Protection. The distribution of national patent applications and utility models.
- d) Metric 4 – Legal status event. From number of documents related to information on the events during the lifetime of a patent application or patent can be count the success rate of patent applications by patent granting.
- e) Metric 5 – Geographical filing breadth: the total number of published documents per patent family.
- f) Metric 6 – Collaboration measured through co-applicants.
- g) Metric 7 – Commercial potential measured through geographical filing breadth

2. Results

2.1. Origin patent applications.

Figures by filling office of origin show where the Czech universities seek protection at first to gain priority date. The study find out, that Czech universities are not using only home office (CZ) and/or a regional office (EP, WO), but also national offices in Europe. But the figure by origin doesn't correspond to the total sum of priority filings made at national offices across the world, because the study is including only patent documents, if some Czech documents exists in patent family. It means that in study are not included patent documents, with priority filing in abroad and during the patent prosecution has not been filed application valid for Czech republic. In this cases patent documents are not available at database of the Industrial Property Office of Czech Republic (UPV CR).

FIG. 1: Distribution of patent filings according to country of origin



Source: own Processing based on database of UPV CR and Thomson Innovation

2.2. Patent families per universities

This metric represents a proxy for the total number of inventions disclosed in patent documents. Where multiple individuals from different universities, their respective employers may be listed on patent documents as co-applicants. Co-application is therefore an indicator of collaboration on academic level. This section doesn't includes metrics that are indicative of the likelihood of a university patent being developed by third parties. The study identified 92 duplicated cases developed by two or more universities. It means, that only 2% of inventions disclosed in university patents result from cumulative and/or collaborative work on academic level between two independent universities. It shows that Czech universities are not in habit of cooperate and supplement each other.

2.3. Type of intellectual property protection.

An invention must meet several criteria if it is to be eligible for patent protection by patent prosecution. It resembles a patent in that the technical solution must be new it must possess "novelty" and must display a measure of inventive achievement it must involve an "inventive step", though generally the level of inventiveness required is not as great as it is in the case of patents. A utility model is a registered right which confers exclusive protection for a technical solution. Unlike in the Czech Republic utility models are granted as a rule without a preliminary examination to establish novelty and

inventive step. This means that protection can be obtained more rapidly and cheaply, but that the protection conferred is less secure. The most interesting result of this study is fact that the universities are not focused on patents (1642 cases), but on utility models (2677 cases) or patent application and utility model together (77 cases). It shows that universities are increasingly filing “lower” type of intellectual property rights, which is using mainly for technical solution with lesser economic importance or short-term use or way of defence publication.

2.4. Legal status event

The legal status data can give you a good indication of whether examination of a patent application is still pending; the application has been withdrawn or was rejected; a patent has been granted and is still valid; or granted patent has expired, lapsed or been revoked (WIPO). The study contains legal status records only from Czech patent authority UPV CR available till 1st July 2015. The success rate of patent applications varies substantially between nations, however, because of differences in evaluation standards, the resources of various patent offices and the qualities of the submitted inventions. From number of documents related to information on the events during the lifetime of a patent application, and patent can be count the success rate of patent applications by patent granting. The study identified that the success rate of university patenting by UPV CR is 90% (from 1331 patent applications only 130 patent application has been withdrawn or was rejected and 1201 patents have been granted). It means that inventions developed by Czech Universities are achieving general patentability requirement present in Czech law, according to which an invention should be sufficiently inventive and non-obvious.

2.5. Geographical filing breadth

The geographical filing breadth represents the number of filing countries in which a university entity filed applications for the same invention. As such, geographical filing breadth is an indicator of commercialisation potential (Commonwealth of Australia, 2013). Study identified INPADOC Family ID for 4330 patent families (1701 patents and 2629 utility models). We found 5124 patent documents of different legislations in which the members of a family are filed. It means that university entities seek patent protection for the same invention in up to 1.2 jurisdictions and 91.8% of patent families have only one patent family member.

FIG. 2: Distribution of patent family members in family, all disclosures

Nr of members	1	2	3	4	5	6	7	8	9	10	11	12	17	20	24
Nr of cases	3975	189	69	48	20	7	4	6	3	2	2	2	1	1	1
%	91,80%	4,36%	1,59%	1,11%	0,46%	0,16%	0,09%	0,14%	0,07%	0,05%	0,05%	0,05%	0,02%	0,02%	0,02%

Source: own Processing based on database of UPV CR and Thomson Innovation

If we removed utility models, we found 2471 patent documents of different legislations in which the members of a family are filed. It means that for one inventions have been filed 1.45 patent applications and 80.1% of patent families has only one patent family member. Study identified 42 country codes for 4330 patent families of different legislations. The most favourite legislations for secondary filing is the Patent Cooperation Treaty (PCT) patent applications with kind code (WO, 240 cases). By filing one international patent application under the PCT, applicants can simultaneously seek protection for an invention in 148 countries throughout the world. The top patenting offices for patents originating from Czech universities are also: The European Patent Office (EP, 186 cases), United States Patent and Trademark Office (US, 87 cases), The German Patent and Trade Mark Office (DE, 39 cases).

2.6. Collaboration measured through co-applicants

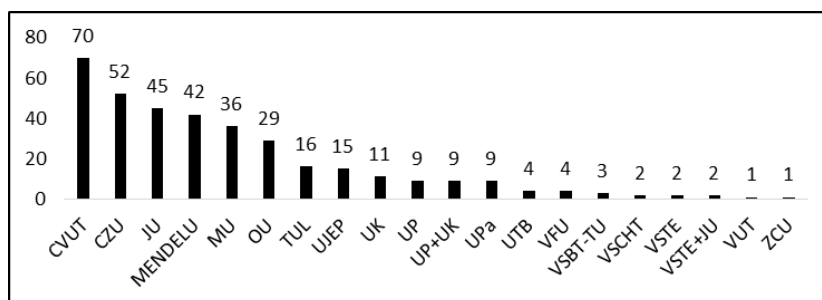
The inventions disclosed in university patents often result from cumulative and collaborative work. Where multiple individuals from different universities, research centres or companies collaborate to invent, their respective employers may be listed on patent documents as co-applicants. Co-application is therefore an indicator of collaboration (Commonwealth of Australia, 2013). Study identified 4506 patent families per universities, where 5868 applicants are listed. It is circa 1.3 applicant for one invention disclosure. The figure 9 shows that Universities Charles University in Prague, Masaryk University in Brno and University of Veterinary and Pharmaceutical Sciences Brno are a little be more active collaborators than the other universities (1.7 applicant per document). Non active collaborators are Tomas Bata University in Zlín, University of West Bohemia in Pilsen, VŠB - Technical University of Ostrava (1.1 applicant per document). These results shoes, that the engagement and collaborations with industry and other off campus entities is very low.

2.7. Commercial potential measured through geographical filing breadth and patent granting.

This results should be interpreted with caution, because commercial potential of innovative idea does not depend only on patent filings. But purpose of this metric is identified the patent cases with higher value for university itself. University has increased costs in these cases, when funds to file application in other territories. Study identified 265 patents with INPADOC family members with two or more patent family members and patent has been granted or lapsed. 925 patents with only one patent family member and it can be supposed. It means that circa 22% patent application has been evaluated by Universities with higher commercial potential and during priority period university decided to file more patent application for the same invention and patent has been granted later on (pending patent applications are not included). Utility models and inventions protected only on one territory have the most probably no or low commercial potential. This invention disclosures have for university different value or

impact. It can be filed as basic research publishing, way of propagation of university/inventor, type of result with value for methodology of evaluation of research organizations. The most active university on other territories is The Czech Technical University in Prague (CVUT), followed by The Czech University of Life Sciences Prague (CZU) and The University of South Bohemia in České Budějovice (JU).

FIG. 3: Distribution of patents per university with more than two patent application in patent family.



Source: own Processing based on database of UPV CR and Thomson Innovation

3. Discussion

There is very much open questions and find easy and right answer is very difficult. The number of university patents is growing, but is this patent activity focused to gain commercial benefit in future or it is caused by other reasons? The number of registered utility models is too high. What is the benefit of this type of legal protections? The greatest occurrence is „Measuring, optics, and photography”(Zdralek et al., 2015). Has this technology field, especially measuring, any economic potential? Why health, life-saving, amusement technology field is not on first place as in other countries, for example in Australia (Commonwealth of Australia, 2013)? The success rate of patent granting is 90%. Why the success rate is so high? Is the range of protection narrow (too much specific) or invention is really novel? University entities seek patent protection for the same invention in up to 1.2 jurisdictions and 91.8% of patent families have only one patent family member. What is the optimal breadth of patent protection? Why only 22% patent application has been evaluated by Universities itself with higher commercial potential during priority period? Czech universities are not in habit to cooperate and supplement each other or with industry. What is a reason of it?

Conclusion

The results of this study show that new approach of university patenting should be require to stimulate translational research with industry. Basic research could be based on open access principles to all stakeholders (companies, institutions, and academics), because getting idea to the product is far away. It is known, that only 5% of invention are economical successfully and this success depends on many factors, not only on ideas itself. If universities want to protect these type of inventions, it will bring higher

cost, because PCT applications must be filed to gain time for negotiation with third parties (circa three years). Filing of Czech patent application only has absolutely no reason and it is only limitation for Czech spin-offs entities, because inventions are on other territories freedom to operate. The different situation is in case of collaborative and contract research. The principles for collaborative and contract research are meant to concern all kinds of research activities conducted or funded jointly by a public research organisation and the private sector, including in particular collaborative research (where all parties carry out R&D tasks) and contract research (where R&D is contracted out to a public research organisation by a private company). There universities has unutilized potential especially in contract research. Wording “unutilized” has been used, because we are not sure, if academic sector fully understand to needs of private sector. Private sector is strictly focused on results and effectiveness. The private companies are able to spend some money till the moment, that economic potential from inventions/investment is high. There is absolutely no space for any risk. If company has already decided to spend some money as investment, there is absolutely no space to lose competitive advantage. To keep technical information as much secret as much is possible is strictly required. Publishing of non-disclosure information is causing defeat of investments. It means the failure of their future prospects.

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SOCIAL RESPONSIBILITY IN ECOTOURISM

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Keywords:

social responsibility – ecotourism – mental mapping – DPSIR – market externalities

JEL classification: Z3, R1, J8

Abstract:

The article deals with the application of generalised social responsibility concept in the ecotourism case study, which is based on the review of studies and original ideas of article authors. The chosen managerial, economic, environmental and socio-cultural aspects and concepts of their operability are discussed. The generalized findings on the common basis in the form of key ideas, aspects, internal and external factors (conditions) and development directions (trends) for ecotourism are offered by using the mental mapping approach, and DPSIR model.

Introduction

Generalised social responsibility concept, as described by Pásková and Zelenka (2016), includes economic, socio-cultural and environmental dimensions at different geographical levels (local, regional, global). This concept is crucial for tourism sustainability but not all the tourism forms which nowadays (mis)use the “sustainability” title, meet the key principles of tourism sustainability. One of the most important tourism sustainability principles is an adequate level of social responsibility of tourism actors. As it is shown further in the text, the driving forces leading to the implementation of the social responsibility concept as well as the achieved level of social responsibility can be described with the help of DPSIR and mental mapping methods. These methods are applied for the description of the enhancement process of the ecotourism social responsibility.

1. Theoretical background

In the whole world, the misuse of the “label” of ecotourism is an undesirable but widespread phenomenon on the tourism market. Many even “hard tourism” activities use the modernity and sustainability index of ecotourism “label” in their marketing to increase their position in the tourism market and to succeed in the tourism competition. Some authors illustrate this situation with the description of the wide range of “ecotourism” activities and products by the so-called “commercial” ecotourism (misuse of ecotourism

“label” Acott, La Trobe & Howard, 1998, “shallow ecotourism”; Medina, 2005 – certification as a tool of distinction between misused ecotourism “label” and real ecotourism; negative ecotourism impacts see Das and Chatterjee, 2015) through “right ecotourism” (according Acott, La Trobe & Howard, 1998 “deep ecotourism”) to volunteer ecotourism and community-based or indigenous ecotourism, which they represent by a continuum of “commercial” – real/”deep” - community-based ecotourism/volunteer ecotourism (see Graya and Campbella, 2007) with a recognizable aspect of the degree of social responsibility. Definition of the real/”deep” ecotourism is based on the principles of The International Ecotourism Society (TIES, 2015), Donohoe and Needham (2006), and Cobbinah (2015). According to these authors, the essence of ecotourism lays in the authentic visitors experience and social responsibility of all tourism stakeholders. Ecotourism represents a typical part of responsible tourism and promotes environmental conservation and long term economic profit for the local community and includes education and interpretation in the both monument care and nature conservation. As shown by Zambrano, Broadbent and Durham (2010) in their case study realised in Costa Rica, where they used for the study of ecosystems changes the remote sensing methods, ecotourism can create environmental, economic and social positive effects. Overview of different ecotourism case studies is provided in TAB. 1.

TAB. 1: Overview of level of social responsibility and other aspects of ecotourism in chosen destinations

location	source	level of social responsibility	involvement of local community	comments
Lapa Rios, Costa Rica	Zambrano, Broadbent and Durham (2010)	high	high	example of succesfull ecotourism
Kimana, Kenya	Ondicho (2012)	high	high	community ecotourism
Tianmushan Nature Reserve, China	Li (2004)	high	not reported	indicators for ecotourism state and sustainability
Rio Coco, Nicaragua	Pásková and Dowling (2014), Pásková (2015)	high	high	ecotourism as a part of geotourism activities, use of indigenous knowledge
San Pedro, Belize	Lindberg, Enriquez and Sproule (1996)	high	high	high support for environment protection
Gales point, Belize		medium	medium	medium support for environment protection
Maya Center, Belize		high	low	high support for environment protection
Caye Caulker, Belize		high	medium	high support for environment protection

Source: Lindberg, Enriquez and Sproule (1996), Li (2004), Zambrano, Broadbent and Durham (2010), Ondicho (2012), Pásková and Dowling (2014), Pásková (2015)

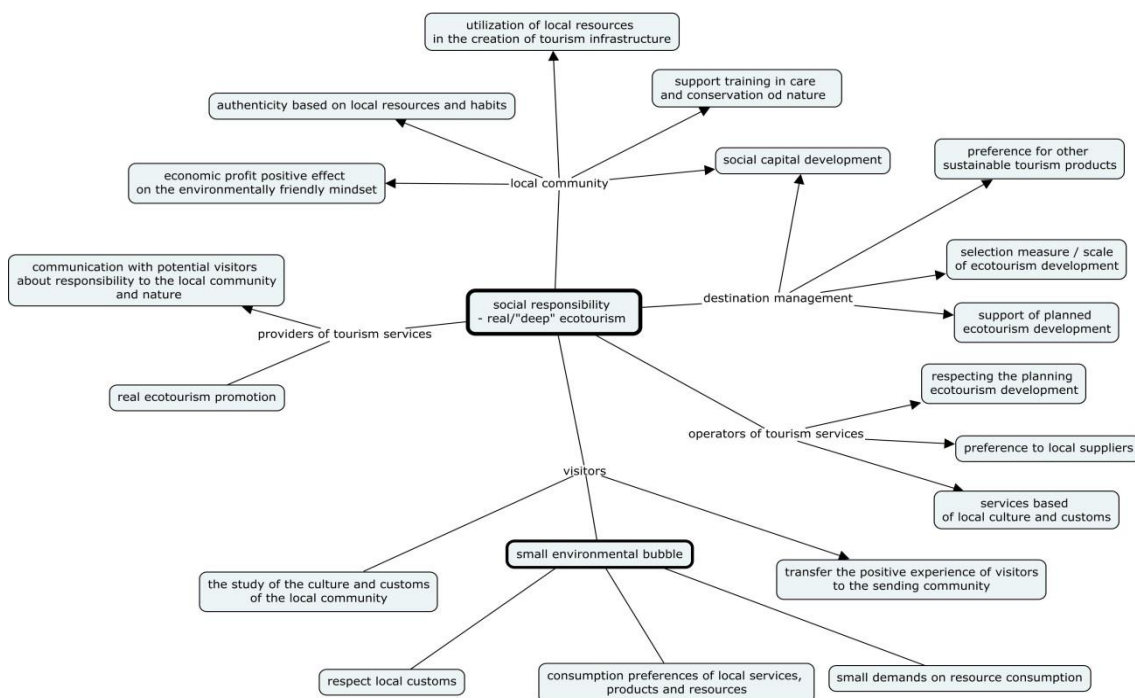
2. Methods

Mental mapping of social responsibility aspects of ecotourism is based on content analysis of academic writings (see sources for figures and mental map), mainly on case studies of ecotourism destinations as well as on the knowledge based on authors personal experience and published articles (see TAB. 1) and application of typical sustainable tourism instruments (according for example Pásková, 2012). As a software environment the IHMC CmapTools was applied. For the causal description of the social responsibility use in the ecotourism market, the so called DPSIR method (for detailed description see Pásková, 2014) is applied.

3. Results

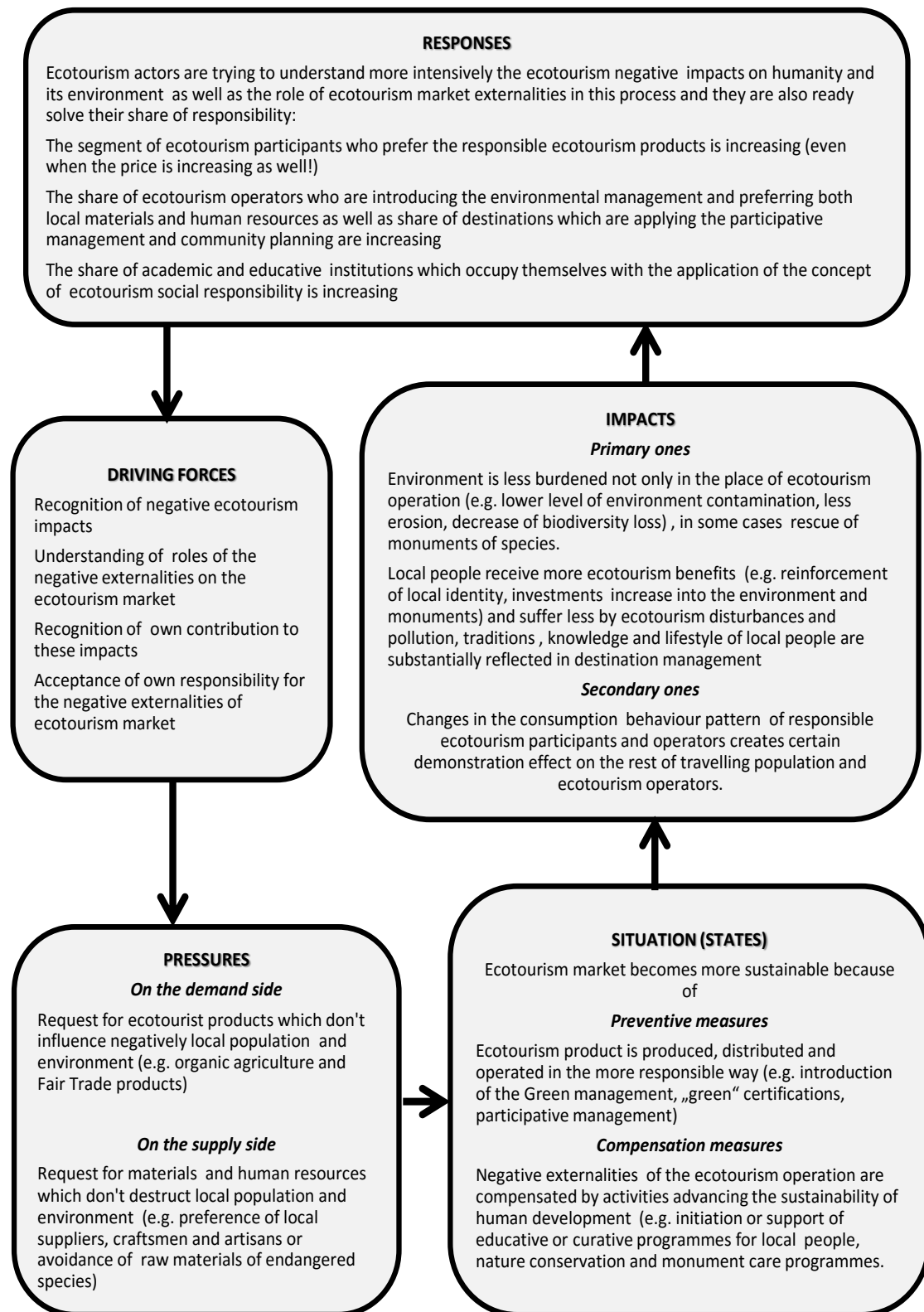
The mental map elaborated on the FIG. 1 represents the main attributes of social responsibility of key ecotourism actors (visitors, local community, destination management organization, operators and providers of tourism services). It reflects also actor's activities, which directly influence level of fulfilment of intended and/or declared social responsibility. Among very important aspects, which describe an aggregate basis visitor's thinking and behavior and which influences the degree of her/his social responsibility, is the magnitude of her/his environmental bubble as well as her/his position in the tourism psychographic continuum (Pásková, 2012).

FIG. 1: Mental map of social responsibility of ecotourism actors and their corresponding activities



Source: Zelenka, Pásková, inspired by Thomlinson and Getz (1996), Scheyvens (1999), Stem et al (2003), Situmorang and Mirzanti (2012), Liu et al (2014).

FIG. 2: Ecotourism social responsibility, described by DPSIR method



Source: Pásková

The social responsibility concept is at the very core of the ecotourism philosophy from the very beginning of the introduction of this essentially environmental tourism form. Actually, each ecotourism activity has to be realised in responsible way and its effects has to be optimised (for detailed discussion of tourism effects optimisation, see Pásková, 2012). As described on the FIG. 2, there is some causality in the gradual enforcement process of the social responsibility concept into the ecotourism reality. This process illustrated in the form of DPSIR scheme stems from the gap between the theory of the ecotourism social responsibility and its practice. The certain level of understanding of the undesired impacts of the negative ecotourism market externalities creates the basic condition for the enforcement of the social responsibility into the ecotourism performance (for detailed explanation of tourism market externalities, see Pásková & Zelenka, 2016). However, many both internal and external factors are influencing the willingness and preparedness of ecotourism actors to request and accept changes caused by the application of the social responsibility into the ecotourism life.

Conclusion

In reality, it is very difficult to measure effects of the ecotourism social responsibility both in quantitative and qualitative way, which will be necessary for the future enhancement of this concept in the ecotourism practice. However, before that, the system and causality of this social responsibility concept has to be correctly understand and seriously described both in the theory and practice of ecotourism reality.

For the desired increase of the effects of the ecotourism social responsibility, it is of extraordinary importance to understand its causal, cognitive and emotional background. Authors suggest further studying the conditions, factors, processes, (inter)relations and patterns of social responsibility for all the tourism forms of its “sustainability” spectrum.

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CREATION OF ALTERNATIVE SOURCES OF INCOME FOR AGRICULTURAL FAMILIES WITH THE SUPPORT OF EUROPEAN UNION SUBSIDIES

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entrepreneurship – agricultural areas – subsidies – investments

JEL classification: D220, R230

Abstract:

The aim of the presented paper is the analysis of the course and effects of using European Union subsidies for the support of rural areas residents' non-agricultural entrepreneurship related to agricultural holdings. Research has shown that beneficiaries prefer to undertake or develop operations related to farming or in developing businesses in rural areas. The carried out investments were mostly of a simple nature and were targeted at the modernisation of the machine park. This resulted in many positive changes in the beneficiaries' operations related to, among others, product and service offers, and basic characteristics of the run business.

Introduction

At present, one of the priorities of the rural development policy in Poland is the development of farming and improvement of the rural residents' quality of life, which is possible thanks to the increase in the business diversity of the rural areas (Krakowiak-Bal, 2010). One of the significant factors supporting these processes is entrepreneurship, the development of which is seen as a chance to overcome disadvantageous phenomena occurring in rural areas, such as unemployment (Żmija, 2013), low level of income, depopulation or marginalisation of these areas (Kłodziński, 2012).

Entrepreneurship in the countryside may relate to both agricultural and non-agricultural operations (Sikorska-Wolak & Krzyżanowska, 2010). The non-agricultural entrepreneurship might be divided into two aspects. The first is embodied in farmers looking for new, non-agricultural sources of income, gained through extension of the agricultural business they run by new, non-agricultural forms of business, such as: processing, crafts, trade, services or agrotouristic farms. The second category of entrepreneurs developing non-agricultural businesses in rural areas constitute countryside residents who are neither owners nor are related to an agricultural holding

and people not living in the countryside but engaging their capital in the creation of new businesses, mainly on a micro scale, in rural areas (Żmija, 2014).

The proof for a high priority given to the issue of supporting rural entrepreneurship is a multitude of EU programmes targeted at this objective. In Poland in 2007-2013, the program ensuring direct support for the development of non-agricultural entrepreneurship in rural areas was, predominantly, the Rural Development Programme for 2007-2013, however, the remaining operational programmes also included help within this scope. The aim of the presented research was the analysis of courses and chosen effects of using EU subsidies allocated for the support of non-agricultural entrepreneurship of rural areas residents related to agricultural holdings.

1. Materials and methods

The subject of the study is the analysis of courses and effects of using EU subsidies destined for the support of rural areas residents related to agricultural holdings in undertaking or developing non-agricultural businesses in these areas. The study used results of own survey research carried out on beneficiaries of measure No. 311 Diversification into non-agricultural activities of the Rural Development Programme for 2007-2013 (PROW 2007 – 2013) (Ministerstwo Rolnictwa i Rozwoju Wsi, 2015).

The research was carried out among beneficiaries, who finished projects and were granted subsidies within the discussed operational programme in 2007 – 2012. It targeted beneficiaries from rural areas of the Lesser Poland Province, which are characterised by a vast fragmentation of the structure of agricultural holdings, agrarian overpopulation, a lack of specialised production and low level of marketability and productivity in farming.

2. Results

Courses of using subsidies within supported projects

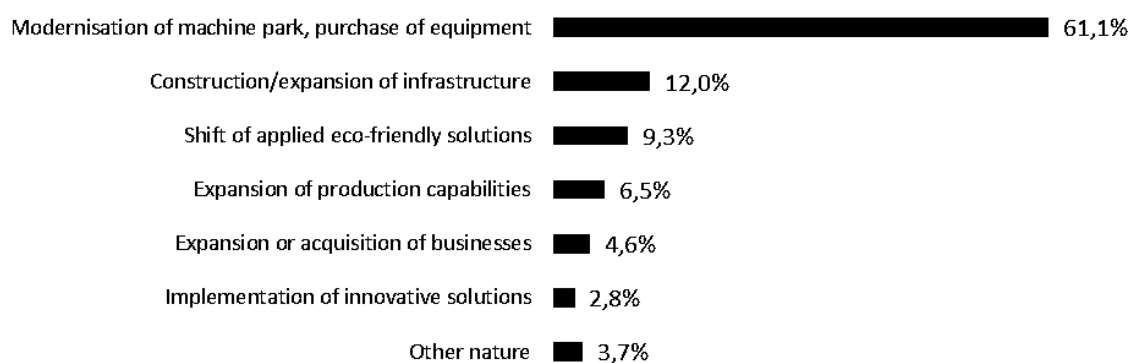
One of the major aims of the researched measure Rural Development Policy 2007-2013 was the diversification of entrepreneurship in rural areas. The carried out study showed that the industry structure of the supported investment projects indicates a noticeable dominance of the service sector (figure 1). Within the researched projects, the most often developed types of non-agricultural activities included services related to agriculture and forestry or construction. These two kinds of businesses amounted to almost 70% of the studied projects. Those were also the industries, in which the developed projects were mostly capital intensive. Non-agricultural entrepreneurial projects were dominated by services targeting agricultural holdings dealing with crop production, heavily relying on leasing machinery and farming equipment along with their use. The study brought to light the fact that beneficiaries prefer launching or

developing an activity related to farming, partially using the owned technical equipment of their agricultural holding. The support given to construction entrepreneurs mainly focused on helping enterprises tasked with preparing construction sites (ground works).

Another highly popular activities among beneficiaries were related to accommodation and food services, especially agrotourism at the beneficiaries' farms, as well as retail and wholesale sales, and vehicle repair. Other significant directions of support include the help offered for projects aiming at development of industrial processing activities, mainly in well-developed branches in rural areas such as production of wooden and metal items and furniture. Other types of activities included singular projects.

The study showed that the subject of the undertaken investment endeavours was most often modernisation of the machine park or purchase of new equipment used in the beneficiary's agricultural operation (figure 1).

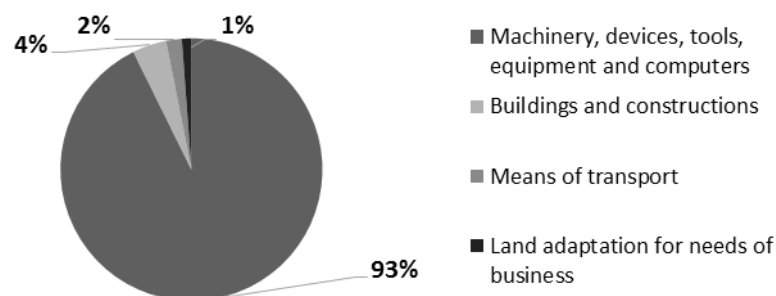
FIG. 1: Nature of projects undertaken within measure 311 Rural Development Policy 2007-2013



Source: own study based on the carried out research

Over 61% of respondents indicated an undertaken project of such nature. Investments quite often involved a construction or an expansion of infrastructure for the needs of the run business or a shift towards more eco-friendly solutions. Considerably fewer investments related to an expansion of production capabilities, the enterprise (e.g. opening of a new branch, an office, or facility), an implementation of innovative solutions or of another kind. The indicated courses of investment determined the typical structure of the expenditure investments (figure 2). Machinery, devices, tools, equipment and computers were the subject of purchase in 97.4% of endeavours, simultaneously amounting to 93% of the total investment expenditure value used within the studied projects. The remaining types of expenditure were incurred far less often. Investment in buildings and constructions were the subject of only 9.3% of projects, and their contribution to the total expenditure value amounted to 4%.

FIG. 2: Structure of investment expenditure values



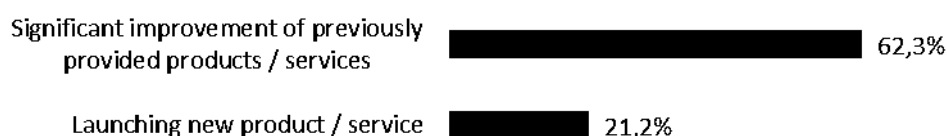
Source: own study based on the carried out research

Land adaptation for the needs of the business run was the investment task of 8.6% of all projects, and 1% of the incurred investment expenditure was used for that aim. However, only 4.0% of projects was related to the purchase of new means of transport, and their value amounted to 2% of the total value of incurred expenditure. It is worth noticing, that over 82% of endeavours related solely to investments in machinery and devices, and a further 2.6% encompassed only investments in building and constructions, and different kinds of expenditure was incurred simultaneous within other endeavours.

Selected effects of investments co-financed by measure 311 RURAL DEVELOPMENT POLICY 2007-2013 subsidies

The study showed that the undertaken investments made the scope of products and services provided within the developed non-agricultural activities wider and more attractive. Based on the received answers it was found, that project implementation enabled to significantly improve products and services provided so far in the group constituting 62.3% of the total number of beneficiaries. More than one fifth, namely 21.2% of respondents launched a new product or service on the market thanks to the executed investment. In total, a change in their product (service) offer was implemented as a result of the project was implemented by 122 out of 151 beneficiaries, it is 80.8% of respondents.

FIG. 3: Number of beneficiaries declaring a change implemented in their product (service) offer as a result of an investment



Source: own study based on the carried out research

Apart from changes in the product (service) portfolio, the implemented investments had a significant impact on basic characteristics of the businesses run by the beneficiaries (table 1). Having evaluated the influence of the investment on the level of beneficiaries' income from non-agricultural operations, it was noted that a positive influence of the project on income was observed by 87.4% of respondents. Only 12.6% of respondents claimed, that the endeavour had no impact on the level of income.

The analysis of beneficiaries' responses about the influence of the carried out investment undertakings on the level of costs of the business run showed that 41.1% of the respondents noted an increase in costs as a result of the project realisation. Over 56% of the beneficiaries stated that the investment had not influenced the amount of costs of non-agricultural operations, whereas 2.6% of the respondents pointed out a positive influence of the project on the costs in the form of their reduction. We may therefore assume that the implemented developmental projects generally aimed at an increase in income from the businesses run by an increase of revenue rather than a decrease in costs incurred due to the needs of the business.

The aforementioned changes in the scope of revenue and costs of an enterprise reflect in the level of profitability of the business. A vast majority of the respondents, namely 70.2%, stated that the implemented investment had a positive effect on the profitability of their businesses in the form of its growth. However, over 28% of the respondents did not notice the project's influence on the profitability. It should be noted, that although half of the respondents noticed an increase in costs caused by the implementation of the project, in most cases it was compensated by an accordingly high increase in the revenue, which is why the beneficiaries preserved the previous level of profitability or even increased it. The proof for this is the fact, that only 1.3% of the respondents indicated a drop in the profitability of the business run during the realisation of the project.

TAB. 1: Influence of the implemented investment endeavour co-financed through measure 311 Rural Development Policy 2007-2013 on the basic characteristics related to beneficiaries' non-agricultural operations

Specification	Percentage of beneficiaries' indications		
	Increase	No change	Decrease
Income	87,4%	12,6%	0,0%
Costs	41,1%	56,3%	2,6%
Profitability	70,2%	28,5%	1,3%
Market share	80,1%	19,9%	0,0%
Work efficiency	77,5%	22,5%	0,0%

Source: own study based on the carried out research

The implemented project enabled the vast majority of beneficiaries to initiate actions of an expansive nature, thanks to which they managed to increase their share on the market they operate on. In the case of every fifth respondent, the implemented investment had no influence on the market share of their businesses. The beneficiaries of measure 311 Rural Development Policy 2007-2013 also pointed to positive effects of the implemented investment endeavours in the form of an increase in efficiency. Only 22.5% of the respondents noticed no influence on this aspect of their businesses.

Having analysed the influence of the projects on employment within non-agricultural activities it needs to be stated, that as the result of the implemented investments, the respondents created 121 new jobs. Men dominated in the structure of the newly employed, amounting to 76.9% of people who found employment. The structure of the beneficiaries according to the number of created work stations showed that almost two thirds of the implemented endeavours resulted in the creation of new work places, however, in the vast majority of cases it was only one new position. On average, almost one new work place was created per each project. Most new work stations were created in the agricultural (45% of the new work places) and the construction sector (18.2% of the new work places), i.e. in the sectors where most projects were carried out.

Conclusion

Based on the results of the study carried out among the beneficiaries' of measure 311 Rural Development Policy 2007 – 2013 it may be concluded, that the range of activities, satisfying needs of rural residents and people visiting those areas was very limited among the studied projects. The beneficiaries most willingly initiated additional actions in the domain which was known to them, hence, investments related to agricultural services were most popular. One may also assume, that the beneficiaries running businesses related to agricultural services, by carrying out investments co-financed by EU subsidies, simultaneously retrofitted their agricultural holdings with indispensable equipment and improved the level of use of previously owned machinery by engaging them additionally in non-agricultural operations. Having analysed the remaining types of activity, which the beneficiaries invested in, it may be stated, that the choice was somewhat determined by the economic tradition of the region, which made the beneficiaries choose those sectors which were represented in the rural areas of the province the most: construction, agrotourism, trade and servicing vehicles, and in industry – production of wooden and metal items. The implemented investments mostly aimed at modernisation of machine parks, consequently, their subject was generally a purchase of machinery, device, tools, equipment or computers.

The implemented investments fuelled many positive effects in the beneficiaries' operations. The effect of the co-financed projects was the improvement of the product and service portfolios and making them more attractive, as well as the occurrence of positive tendencies in the scope of creating basic characteristics of the business run,

such as revenue, profitability, efficiency and employment. In light of the gathered results, one may conclude that projects implemented thanks to the support of subsidies of measure 311 aid social and entrepreneurial activation of people living in rural areas by supporting the development of non-agricultural activities and employment, hence enabling partially moving away from work in farming. They aim to improve the economic situation of people living in rural areas thanks to the diversification and increase in income, and to increase the quality of life in rural areas thanks to more complex and improved product and service offers, as well as the creation of entrepreneurial attitudes among people in rural areas.

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THE MEAT INDUSTRY IN POLAND

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Keywords:

meat industry – market – changes

JEL classification: L11, L16

Abstract:

The meat industry in Poland in the years 1945-1989 was entirely centralized. The major producers of meat and meat products were state enterprises. The introduction of market economy in 1989 caused that within three consecutive years nearly 7 thousands new meat companies were created. The majority of them were small local establishments. The accession of Poland to the European Union resulted in the need to adapt our economy to the EU standards. These changes were connected with high costs. Not all meat processing plants met this challenge. The companies, which were not able to meet all requirements, had to shut down their business activity. Currently, there are less than 2,000 meat processing plants in the market.

Introduction

The meat sector is the largest segment of the food industry and at the same time a significant part of the entire Polish economy. The value of production in meat and poultry industry presents 25% of the sold production in food industry. The export of livestock, meat and meat products is 21% of the agri-food export. The meat production includes approx. 25% of total employment in the food industry (Urban, 2012).

Meat industry in Poland over the period 1945-1989 was completely centralized. The State had a monopoly. The major producers of meat and meat products were state-owned enterprises. Cooperative sector was treated as a complementary sector for supplying the rural population. Butchery and charcuterie were treated marginally, and even with hostility. In the Socialist Poland, the demand for meat and meat products exceeded the supply. This led to the rationing of meat products in the eighties of twenty century. The purchase of these products in shops was possible only for food ration coupons. This work presents changes in the market of meat processing plants in Poland after 1989.

1. The meat industry in Poland in the years 1989-2003

The breakthrough was the year 1989. As a result of political changes, after the fall of communism, the economy was marketed. In 1990, the Polish meat industry was composed of (Pisula, 1992):

- a) 68 large state-owned enterprises,
- b) 1000 small factories of agricultural cooperatives,
- c) 290 small and medium-sizes factories of consumer and producer cooperatives
- d) 1200 small private enterprises.

Within three consecutive years (1989-1992), almost 7000 new meat processing enterprises were created. The vast majority of these plants were small, private slaughterhouses and processing plants with a local range, employing up to five people. Production in these enterprises was realized in primitive conditions, without complying with sanitary and technological requirements. Their products were anonymously sold mainly on bazaars.

In the years 1990-1992, there was a decrease in the production of smoked meat products and tinned meats by almost 20%, and the industrial slaughter by more than 50%. The result of this situation was the reduction in the use of production capacity. In 1993, the use of meat industry's production capacity amounted to (Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej [IERiGŻ], 1994):

- a) Approx. 30% for industrial slaughter,
- b) Approx. 55-60% for smoked meat production,
- c) Approx. 70% for the production of canned meats,
- d) Approx. 25% for the production of hams.

Therefore, the fixed costs of companies increased. This unfavorable situation on the meat industry market, intensification of competition from new private companies and delays in adjusting the state sector to market conditions led to the deep crisis of the industrial part of the meat processing industry in 1993. This condition continued until 1995. The meat industry lost the ability to generate profits, the profitability was negative (in 1994: -1.9%), and investments fell below the rate of depreciation (IERiGŻ, 1998; IERiGŻ, 2001).

The above-described financial problems forced deep transformations of the sector. They relied primarily on:

- a) acceleration of the state-owned enterprises' privatization,
- b) change the strategy of companies for market orientation,
- c) reduction of employment to the real needs,
- d) sale of unnecessary assets, e.g. recreation centers,
- e) effective use of owned production and storage places,
- f) development of marketing,

- g) rebuilding of distribution channels – development of own and umbrella wholesales and shops,
- h) introduction of promotional activities,
- i) ensuring the aesthetics of packages,
- e) enrichment of the offered products' portfolio.

Since 1994, we are faced with the reversal of a downward trend in the industrial meat production, and in 1995 – the number of slaughters begins to increase. Starting from the mid-nineties, we can observe a return to the industrialization of the sector, because the trust of buyers to large and well-known companies was growing. Moreover, the number of large meat processing plants employing more than 50 employees systematically increased. In early 1995, there were 225 of such companies (93 companies in 1990) and 270 companies with a permanent crew (from 6 to 50 people) (Urban, 1995).

2. The meat industry in Poland after the EU accession

The accession of Poland to the European Union in 2004 caused the need to adapt out economy to the EU regulations. This meant the implementation of new standards in terms of hygiene and food safety. All above-mentioned conditions are regulated in the Regulation of the European Parliament and the Council No. 853/2004 of 29 April 2004 laying down specific hygiene rules for food of animal origin.

The mandatory systems in the European Union include:

- a) Good Hygienic Practice (GHP),
- b) Good Manufacturing Practice (GMP),
- c) Hazard Analysis and Critical Control Points (HACCP).

For many meat companies, the implementation of principles from these systems was a huge challenge, because it was connected with high financial expenditures. Therefore, there was negotiated a transition period, which expired on 31 December 2009. The structure of red meat processing plants in Poland in 2004 according to the data from the Ministry of Agriculture and Rural Development (Senat Rzeczypospolitej Polskiej, 2004) was as follows:

- a) Companies adapted to the EU requirements:
 - I. 572 slaughterhouses and refrigeration plants,
 - II. 351 processing plants,
 - III. 182 plants dealing with minced meat and meat preparations.
- b) Companies covered by the transitional period – 413 plants, including:
 - I. 244 plants under the Accession Treaty,
 - II. 169 plants under a decision of the European Commission.
- c) Companies with the authority to trade on the domestic market:
 - I. 985 plants dealing with the meat processing,
 - II. 1177 plants dealing with the slaughter (low production capacity).
 - III. 487 companies performing the direct sales.

However, a part of enterprises was not able to meet EU requirements and had to end business activity. From about 7000 meat companies, which had operated in the first half of nineties of the XX century, only half of them remained on the day of Polish accession to the European Union.

In the years 1999-2012, the number of meat processing plants decreased by 1/3 in small companies and 1/5 in medium-sized companies (Mroczek, 2013). According to the National Veterinary Inspectorate, there were about 2,000 meat plants approved in accordance with the Regulation (EC) No. 853/2004 and approx. 60 meat plants approved on the domestic market in 2013. Currently, this sector is significantly fragmented, because only approx. 30% of companies employed more than 9 employees (IERiGŻ, 2013).

In 2011, GHP and GMP systems were implemented by about 99% of food plants processing animal products (meat, dairy and fish), while HACCP system was introduced in 52% of meat processing plants (Szczepanik & Firlej, 2015). Not all meat processing plants must implement the HACCP system. It is not obligatory for business entities, which conduct a marginal, local and limited business activity, i.e. primarily micro companies.

Implementation of GHP, GMP and HACCP systems by food producers is dictated not only by legal requirements. Other reasons include: concern for the health safety of consumers, attitude of competitiveness, the building of the company's reputation (Kołużyn-Krajewska & Sikora, 2004).

Despite the large drop in the number of meat processing plants in Poland, there is still a great competition in the market. The implementation of mandatory systems is not enough. More and more companies implement voluntary quality standards:

- a) Quality management system in accordance with ISO 9000 (ISO 9001),
- b) Food safety management system according to ISO 22000 (ISO 22000),
- c) International Featured standards IFS Food (IFS),
- d) BRC Global Standards for Food Safety (BRC).

BRC Global Standards for Food Safety – directed to entities, which produce food and deliver it under their own brand to the British hypermarket chains. International Featured Standards IFS Food – owners of this standard are German retailers association HDE and the French federation of retailers and wholesalers FCD. These standards must be implemented by companies, which supply products to French, German or Swiss retail chains.

The quality becomes a factor, which largely determines the selection of a certain product by the customer. Quality certificates should be a guarantee of a high quality of purchased products for consumers and suppliers. Due to the lack of complete data (not

all certification companies operating in Poland provide information about granted certificates), it is estimated that the percentage of food industry companies having implemented voluntary quality systems ranges from 2 to 5%. These systems are implemented mainly in leaders of food industry. We can observe a greater interest in the implementation of ISO 22000 system and BRC standard, and the smaller interest in the ISO 9001 standard (Szczepanik & Firlej, 2015).

In 2009, 56 meat companies had certificates of voluntary systems and quality standards. In 2012, the number of meat processing plants with the BRC certificate amounted to 106, while in the entire food industry – 505 (Mroczek, 2012).

Conclusion

During the socialist economy in Poland, meat products were a scarce product, available only for coupons. The breakthrough for the market was year 1989, when the market rules were introduced in the economy. The release of the economy meant that in the first years (1989-1992), nearly 7,000 new meat processing companies were established. They were mostly small plants, which not always respected sanitary standards. Despite this, they were a strong competition for the industrial part of the sector. Therefore, this part of the sector has been affected by the crisis. Difficulties of large, concerning the maintenance on the market, forced the realization of restructuring actions.

Another important year was the years 2004, when Poland joined to the European Union. A large part of companies was not able to adapt to the EU standards, despite the transitional period negotiated for the meat industry. These companies had to shut down their business activity.

Currently, there are about 2,000 plants on the market. About 1/3 of these companies are industrial plants, which employed more than 9 employees. Although the number of meat producers significantly dropped, there is still a great competition in the market. Companies, which want successfully develop their business contacts, rely on the high quality of their products. As a result, there are more and more business entities that receive certificates of voluntary quality systems. These systems confirm the high quality of products produced in these plants. This tendency is likely to continue in the coming years.

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THE EU BUDGET AND STABILIZATION FUNCTION

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Keywords:

reform of EU budget – stabilization function – debt crisis – bailout insurance

JEL classification: O23

Abstract:

The specificity of the EU budget and its weaknesses was fully shown after the outbreak of the crisis. The major issue is the absence of the stabilization function of which theories are saying as absolutely necessity in public finances. Despite its past ignorance politicians were able to approve non-budgetary packages. It gives us hope for permanent incorporation of this function into the official EU budget. The easiest way how to do it is to move existing non-budgetary packages into a new heading of multiannual financial framework with parameters which have been already accepted in past. In addition, a new system of payments into this heading should work as bailout insurance in future.

Introduction

The European Union budget is characterized not only by its size, but also by the failure to observe the theory of fiscal federalism or basic assumptions of budgetary theory itself. The biggest difference is the absence of stabilization function of EU budget. While the theory of public finance is taking it as one of the basic budgetary function, the theory of fiscal federalism transfer stabilization function to the competence of highest budgetary level. Nevertheless, Member States have not yet found the political will for incorporating these theories into the EU budget. One of the reasons is uncompleted federalism and therefore the specificity of the EU project with specific budgetary needs. The recent economic crisis has shown that these expectations may be insufficient. The Council had to deal with new situation and for several days they were approving new stability support. As the results two temporary EU funding programmes were founded as well as new organization - The European Stability Mechanism (ESM) which holds last resort help for all euro zone Member States. Unofficially, this is something what we may call a new stabilization function in Euro zone. However, this is only a temporary solution. Hopefully, we will be able to open discussion on what mechanism will be sufficient enough and how big it needs to be.

1. Methods, literature overview

As Musgrave (1983) define, in basic theory of budgetary system every budget have to perform three main functions of public finance: allocation, redistribution and stabilization function. The stabilization function helps to keep the economy in balance due to smoothing the business cycle. Macroeconomic tools in the form of variety automatic stabilizers, packages of pensions and social insurance or additional direct redistribution to areas affected by economic fluctuations are able to temporary help in a given area to cope with the negative impact of the economic shock. Often, this can be made only with reflection of solidarity, since it basically means financial flow from richer regions or those less affected by shock into the areas affected by the economic shock much more. The stabilization function is thus an essential part of economic policy designed to ensure the least possible fluctuations of whole economy, represented as fall in GDP and employment together with their prompt return to a stable state.

The theory of fiscal federalism, first developed by Oates (1999) defines the most effective way of distribution of three budgetary function between multiple levels of governments, or by other words "understanding which functions and instruments are best centralized and which are best placed in the sphere of decentralized levels of government" (Oates, 1999). By this theory, stabilizing function should be in hold on the centralized decision-making level. Regional governments are often less effective and cannot independently, timely and efficiently respond to business cycle fluctuations when they are part of an open-economy federation. According to the principle of economies of scale, it is apparent that the higher level of federation has more force if necessary to pull together than separate regions. Finally, there is also an important effect of externalities when one region decline and others are negatively reflected due to strong economical coherence as well. If purchasing power decreases in one region it will reduce industrial production in all other regions. In summary, asymmetric shocks in one country of connected region will soon move to other regions of federation.

For all these reasons the theory of fiscal federalism unequivocally recommends centralized stabilizing function. The theory of fiscal federalism also defines the conditions under which is the efficiency higher. The easiest way is to delegate whole monetary and fiscal policy from regional power to the central government. Oates added afterwards (1999) that strong synchronization of cycles in all regions of the centralized government is needed as well.

Although the theory of public finance considers the stabilization function as irreplaceable for every public budget and despite the fact that the theory of fiscal federalism strongly recommends to left stabilizing function delegated on the higher federation level of government, the current European Union has been ignored all of recommendations and stabilizing is directed by individual Member States without any methodical cooperation. Both theories are broken in EU.

The problems of missing stabilization function of the EU budget were fully demonstrated in the recent economic crisis in 2008, especially for countries in euro zone. Because of monetary policy is holding by one central bank for the whole euro zone, the only possibility how to deal with an asymmetric shock was their own fiscal policy. But one can use it if and only if there is any room for that - which means you need to have public finance in good conditions. This was not the case of all Member states.

Member states with high debt have no other chance than bailout or direct transfer from other Member states. As the bailout of one region in monetary union basically means break-up of the whole union, this could be the last resort only. Much cheaper and effective would be the second option - transfer from other Member states which is part of macroeconomic stabilization function as we mentioned before. This example shows that such a stabilization function, at least in form of fund of last resort, is absolutely needed in all types of monetary union and euro zone is not (and was not) an exception.

2. Results

We understand why permanent stabilization function in EU budget is needed and that both theories have to be followed in Europe as well. Then, the very next step is to answer two questions: How big it has to be? and How to make it acceptable in EU level?

2.1. How big a new stabilization heading should be

If we want to define a new budgetary heading it has to be said in advance how big it should be. The answer for this is quite difficult. There are some tools which can be used e.g. advanced DSGE modelling of some scenarios which can happened in future with implicated certain and different stabilization tools. This is quite complicated way without any guarantee that it will be accepted by politicians.

The other way is to find what was acceptable for some Member states in past and try to extend such a tool for whole European Union into form of EU budget heading. We know from previous part that after crisis three stabilization mechanisms for euro area have been already approved by Member states. Two temporary mechanisms - The European Financial Stability Facility (EFSF) and The European Financial Stability Mechanism (ESFM), and one permanent mechanism - The European stabilization mechanism (ESM) in 2012. If the ESM was accepted in Member states of euro area, which is also the core of European Union with a qualified majority, there is also a good chance to be accepted in EU law as well.

TAB. 1: Financial composition of all non-budgetary fund help

EU member state	EFSM	ESFS	ESM	Help together ¹
(in million €)				
Cyprus	-	-	9 000	9 000
Greece	-	130 900	86 000 ²	216 900
Ireland	22 500	18 400	-	40 900
Portugal	24 300	26 000	-	50 300
Spain	-	-	41 300	41 300
Total payment	46 800	175 300	136 300	358 400

Numbers in million of Euro. Dataset from ESM (2015).

¹ There was other program which helped in some of these countries – IMF, Bilateral or GLF. We don't count this in our work.

² Greece has promise of to receive up to 86 billion € until 2018.

Source: Eurostat, 2015.

It may seem that non-budgetary help from EFSF, ESFM or ESM were efficient enough for Ireland, Portugal, Cyprus and Spain. We can also agree that it helped to Greece to delay certain bailout. Five years later we may say that non-budgetary funds were indeed quite successful tool with profit for every Member state. The problem is that we have no evidence if those funds will be enough in future as well. Honestly, there were also no evidence of validation when Maastricht fiscal criteria (Government deficit < 3% and Government debt < 60% of GDP) has been set. Then, if we want to show a new budgetary heading with some number we need to base our calculation on previous non-budgetary funds and we have to take last crises as benchmark for any future crisis.

TAB. 2: Comparisons of selected parameters

EU member state	GDP as % of total EU-GDP ¹	Debt as % of national GDP ¹	Help as % of national debt ²	Help as % of national GDP ²
(in %)				
European Union (28 countries)	100.00	86.90	0.59	0.51
Cyprus	0.13	107.49	9.57	10.28
Greece	1.28	177.08	13.68	24.22
Ireland	1.36	107.48	4.03	4.33
Portugal	1.24	130.17	4.46	5.80
Spain	7.59	97.66	0.80	0.78
Total	11.60	-	-	-

Numbers as % of origin in million of Euro. Dataset from Eurostat (2015).

¹ GDP and Debt of 1/Q – 4Q/2014.

² ESFS, ESMS and ESM work from 2010-2015. We will count an average help for 1 year.

Source: Eurostat, 2015.

To stay in the terms of past event, all EU countries which have received money from these funds, represents 11.60% of EU GDP. They needed 358 400 million Euros in 7 years to stabilize their economy in crisis. With easy calculation we found that every 1% of EU-GDP needs 30 896 million Euros in one MFF period when same crisis arises.

If we want to apply such a Total stabilisation function into new heading of Multiannual financial framework of EU budget, we need to cover situation for every Member state in the same time. In one MFF period this means around 3 089 600 million Euros. Last MFF (2014 - 2020) has all together size of 1 082 555 million Euros which is 2.85 times lower than a new Total stabilization heading.

Good news should be that even ESM is based on just 10% of paid-in capital. The rest is collateral or obligations at the capital markets. This means that Member states need to increase MFF by 308 966 million Euros which represents +22% of actual MFF. The actual MFF with stabilisation heading would then be 1 391 521 million Euros which is 1.64% of EU-GDP instead of actual 1.28%.

2.2. How to make it acceptable in EU level

As we mentioned before, it is hard to define the right appropriate number and instead of this we should set minimum and maximum size of heading in short run. Then, the amount of 308 966 million Euros with collateral and obligations up to 2 780 634 million Euros is the minimum stabilization heading for next MFF 2021-2027. The maximum amount is 3 089 660 million Euros paid-in in this heading. Shown numbers are just the first and easiest step of selected reform. We can imagine that minimum size could be adopt in EU law quite fast and it should work from very next MFF. Almost one third has been already paid-in in ESM.

If we want to make this heading independent in long-run and if it should work as normal stabilization function by the theory and not just a last resort fund against bailout, we also need to define a tool for increasing paid-in part and decreasing collateral part of this heading in futures MFF. Following Oates (1999), we should also find the way how to make fiscal policy more convergent before we accept full common monetary and fiscal union. In other words we need to cut down the risk of bailout. We also need to find the way how to rid of moral hazard as well. Electors are worried that temporary help will become a permanent one. This was not the case in non-budgetary funds by now but it could be with defined parameters.

Taking all three points together, the second step is to accept common rules which will lower the difference in national fiscal debt and which will force local parliaments not to use this tool if it is not needed. The way to do this is to create an ex-ante insurance system with payments when those rules will be broken. After short period every Member state will make their own bailout fund included in EU budget heading.

As we can see from Table 2, comparing Help as % of GDP and Help as % of debt, those numbers are suspiciously similar or doubled for Greece. This correlation is not a coincidence from mathematical point of view and it could be a very good outline for setting the benchmark for our ex-ante insurance system. Then, our variables are % of national debt and % of national deficit as we already know it from Maastricht fiscal criteria. And because of these two criteria have already been accepted by Member states, once again, it will make such a reform more acceptable by their transformation into EU law for Budget.

TAB. 3: Criteria and levels of insurance system for stabilization heading

Criteria / Levels	Level 1	Level 2	Level 3	Level 4	Level 5
Debt	< 40%	40% - 60%	61% - 80%	81% - 100%	> 100%
Deficit	< 5%	< 3%	< 2,5%	< 2%	1%

Numbers as % of national GDP.

Source: own proposal.

Both criteria has to be met in the time of economic growth without any national exceptions. How does it work? For example, Germany had a government debt of 75% of their national GDP in 2014. This means that they were not allowed to make deficit for next year higher than 2.5% of their GDP. If they set their upcoming budget with deficit higher than 2.5% they have to calculate in advance with direct payments into stabilization heading of EU budget. The fixed amount is as much as they extend this level. If they calculate their deficit for next year around 3%, they already know that another 0.5% will have to be paid into EU budget and their official government deficit for 2015 will be 3.5% of GDP.

The advantage of this system is that it also works as federal bailout insurance system. If local government extend their level regularly there is a good chance that in certain period they will need stabilization help. In other words they are prepaying their own bailout fund in advanced. The chance is higher and the time to possible bailout lower when actual debt is already big, which means that also the limit for deficit has to be set lower and risk-premium is then automatic higher as well. Thank to Table 2 we saw that Help as % of GDP is almost equal to Help as % of debt which means in two 7-year periods every Member state will be able to set their own fiscal stability or to make their own bailout fund. Actual paid-in part of our stabilization heading will then become just a backup for unexpected events and will represent the maximum solidarity for transfers.

3. Discussion

We have shown that stabilization function in form of budgetary heading might be effective tool for better stability and strict fiscal discipline in EU. We were not focused on classic tools of stabilization function in federation as we know it from theories. An acceptance of this proposal is only half-way to full stabilization function of EU budget.

It should be noted that the current European Union does not constitute a complete integration stage of economic and monetary union (EMU) and that not all EU countries are members of common monetary union. One may argue that all theories mentioned in first chapter are applicable on completed Economic and monetary union (EMU) and thus might be necessary for euro zone Member states only. This is of course a good point. Nevertheless, Member states of European Union which have not applied for an exemption have to entry monetary union "as soon as possible" which means "just when they meet Maastricht criteria". Probably no one was expecting it will take so much time. Nowadays, Euro zone needs to move on - with or without them. There is no more space for non-budgetary funds or any other additional tools which have to be approved every time in such a complicated vote system. Even during last crises it took too much time to find the political compromise and we lost our credit and confidence which on financial markets means money - in terms of higher interest rates on government bonds etc.

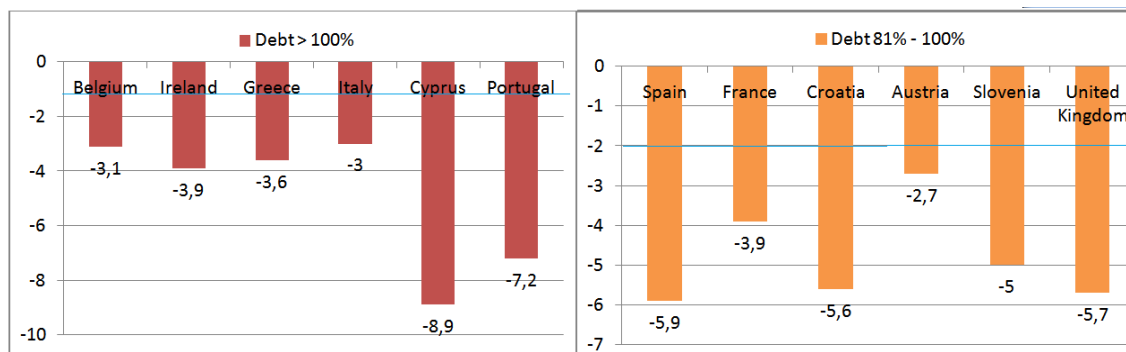
Another issue could be different view on further European integration of national parties in future. There is no warranty that even successful tool which was temporary accepted by Member states in past will be choose again in future. Politicians somehow implement difficult and not popular tools easier during or after time of crises than in time of economic boom. Thus, we need to implement them while the memory is still fresh and the discussion is wildly opened. Therefore, it also has to be done only once - for every Member states in EU and not just for actual euro zone Member states.

Last issue could be the adaptation of new heading into EU budget. This is always very sensitive process and Member states which will have to pay more into this heading will not be happy at all. Specially, Member states with government debt higher than 100% of their GDP. We would strongly recommend not to change deficit criteria just because of that. Member states with debt over 100% and deficit more than 1% of GDP have higher possibility to use bailout funds in very next crises. As we calculated deeply, the only way how to meet all Member states with government debt around 80% until the year 2033 is to use selected criteria strictly. The logic behind progressive deficit level is the same as we can find in commercial life insurance products - people with higher age have to pay higher payments for their life insurance.

Cyprus, Portugal, Greece, Italy, Belgium, Ireland, Spain, Croatia, France and Slovenia will have to change their fiscal discipline in very short period to meet the level of their deficit otherwise they will have to pay a lot into our insurance system of a new

stabilization heading. If we calculate it with data for 2015, it could be together 233 300 million Euros.

TAB. 4 : Member states with broken criteria



Source: Eurostat, 2015; own calculations.

Conclusion

This paper work indicated the problem of missing stabilization function in European Union budget which has increased specially after last crises. Accordingly, three new non-budgetary tools which helped to stabilize public finance in problematic Member states were found. Five years later we can confirm that these tools were quite successful. Therefore a new question arise - should we implement these temporary non-budgetary funds into permanent EU budget? The proposal of this paper work is to create a new budgetary heading which will hold stabilization function in future. Minimum paid-in level have been set to 308 966 million Euros which represents +22% of actual MFF. Second proposal is to rise this heading by new EU federal bailout insurance system. As we saw from last non-budgetary funds there is a correlation between needed help for Member states and their debt or GDP. Therefore, we recommend two criteria which are shown in Tab. 2. The payment into a new stabilization heading is depend on difference between actual deficit and set criteria of deficit and level of government debt which we call risk-premium of future bailout. Member states will then prepare their own fund depending on the possibility of their future problems. It also makes system more clear and strict for local governments which do not meet fiscal discipline. Member states with public finance in good condition will probably never use this insurance system in future if they will not increase their public deficit up to selected level. For them insurance system works as motivation not to increase their government deficit too much. Last but not least we expect to meet all Member states in more similar level of government debt in less than 20 years. This proposal is just a first step to common Fiscal union which is needed to complete Economic and monetary Union.

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E-LEARNING AS PART OF A LEARNING ORGANISATION

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Keywords:

e-learning – learning organisation – sharing knowledge – effectiveness

JEL classification: M21, O31, A29

Abstract:

In the current "knowledge" society, education plays an important role, and it's receiving more and more attention. Along with the development of society, there is also ongoing development and increased use of information technology. Evaluation of the degree of information technology utilisation in education - especially e-learning and the method of obtaining information about education in general - is the subject of this paper. The finding that individual and group trainings are currently more popular than e-learning in the Czech Republic is significant. Despite the fact that the Internet is used almost every day by the respondents and information about education is usually gained from websites or e-mail.

Introduction

Training of workers has become increasingly important in recent decades, and it's getting more and more attention in the context of the current - knowledge society. (Prelovský, 2012)

The knowledge society is closely related to the concept of the so-called learning organisation where learning is no longer seen as a separate function, unlike some models of human resource development, where educational activities can be fragmented. (Šuleř, 2003) In the case of a learning organisation, the whole organisation is considered as a system in which individuals learn from the activities undertaken in the organisation and the organisation learns from the interaction of individuals. (Prokopenko & Kubr, 1996)

In a learning organisation, individual learning as well as the learning organisation is supported. Individuals' learning is supported by education aimed at further development and, among others, the acquisition of skills based on experience from work. (Šuleř, 2003) For an organisation, therefore, staff training is one of the key activities leading to success and its development. A mutual exchange of information works among workers in a learning organisation and they are partners to each other in the learning process. (Tichá I., 2005) (Adamec, 2010) For example, in the research of Sedláček (2012), which

was primarily aimed at students and teachers mainly in secondary schools, 53.77% respondents couldn't imagine learning without the Internet. Internet use for teaching or studying was the third most common response to a query regarding using the Internet. (Sedláček, 2012)

In general, according to the survey of Šiler (2010), 69.84% of respondents agree with the statement that using the Internet is an indispensable part of life for them, while 75.32% of the respondents spend 1-5 hours a day actively on the Internet (searching for information, surfing, chatting, etc.). (Šiler, 2010)

The specific roles played by information technology in education, are the subject of investigation of this paper.

1. Methods, literature overview

Learning in organisations can take place at individual, group and organisational levels. These levels are linked together and learning at an individual level is ended with the development of the entire organisation. If the goal of a company is learning throughout the organisation, it cannot focus only on individual learning, but it is necessary to teach the entire organisation. (Ropes & Thölke, 2010) Individual learning is indeed important for an organisation, but organisational learning is not a simple sum of individual learning. Unlike individuals, organisations develop and maintain training systems, which not only affect close members but they are then transmitted to others through the history and standards of the organisation. (Fiol & Lyles, 1985)

Information systems are used in a learning organisation same as in most organisations with other types of management for data processing, but for a learning organisation to a large extent it also serves to access and share information on major storylines that take place daily inside and outside the company. Internal exchange of information and knowledge in these organisations is characterised by a high frequency of internal exchange of information and experience that takes place between different departments, functions, units and other parts of the organisation. Thanks to that, workers from different organisational units perceive each other as partners in the learning process (Tichá I., 2005) (Cranfield University, 2009)

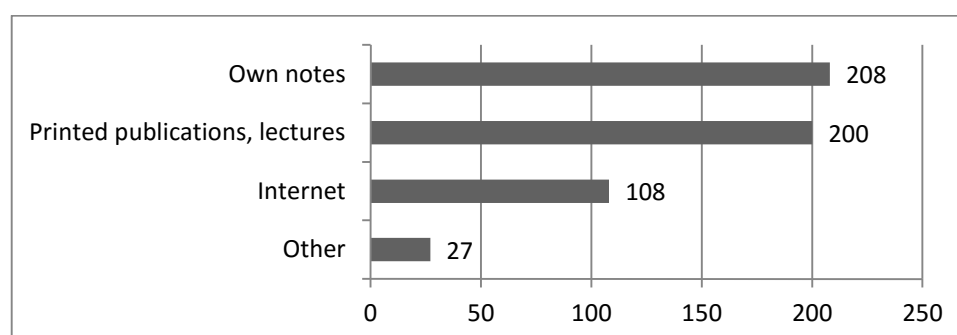
However, the Internet is not only used to share information between learners, it can also be used as a source of teaching material, information on training courses and it allows to learn from the comfort of home in the form of e-learning or relatively new type of training - webinar.

The advantage of using information technology in education is among other things the possibility of a joint supply of videos and other supportive teaching materials online, a stream of new information directly to target people without the need to issue new printed editions of study materials. Online learning then allows adults to learn from

anywhere and at almost any time. Teaching adults is more comprehensive through e-learning and online materials allow people to rethink or add information even after qualification. (Kaplanis, 2013)

Despite all the advantages that online learning and the use of information technology in education brings, according to the research of Bartoníková (2013) the Internet as a source of curriculum belongs in third place after custom-made notes and printed publications.

FIG. 1: Most often I learn from these materials



Source: Bartoníková (2013)

A similar result is also presented in the survey of Tichá (2015), in which the respondents identified the use of professional publications in classic form as the most common form of learning; the use of electronic books, online magazines and articles was covered by fewer respondents; e-learning wasn't used as much by the respondents.

TAB. 1: Which form do you choose for self-education?

Sub-question	Average	Dispersion
The study of scientific publications in classic form, rather than electronic media (books, journals, etc.).	1.104	1.228
The study of scientific publications in electronic form (e-books, e-magazines, technical articles online, blogs, discussions, etc.).	0.905	1.329
Participation in professional lectures/chats/courses	0.320	2.001
E-learning courses available on the Internet, online programs, DVD tutorials, open universities	-0.234	2.017
Watching nature programs on TV	0.185	1.862

Source: Tichá (2015)

According to e-learning statistics for 2014, it is estimated that approximately 46% of university students takes at least one course online. In the same survey it is also noted that companies report e-learning as the second best-rated teaching method. (Pappas, 2013)

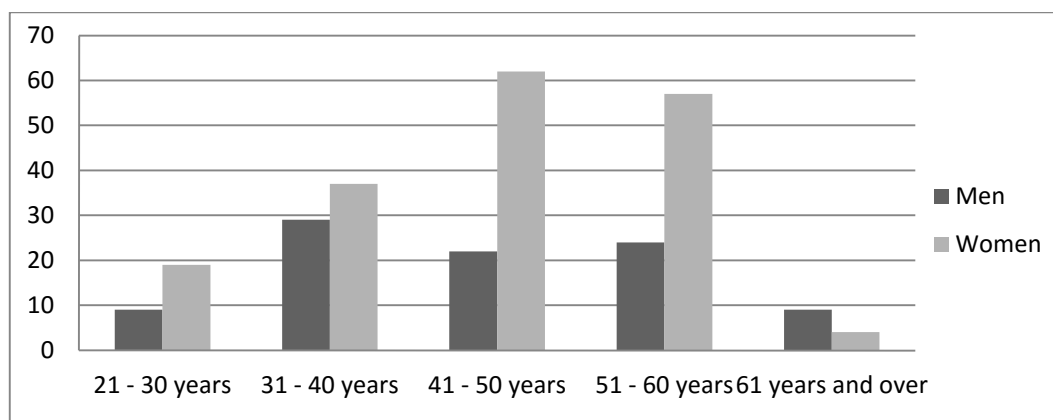
E-learning offers many advantages, among other things, for example reducing instruction time by up to 60%, the possibility of learning in large groups, easy access, cost effective, etc.

The survey was conducted by interviewing the teaching staff of primary and secondary schools in the Hradec Králové and Pardubice regions. Based on the structured interviews with pedagogical workers in February 2013, an electronic questionnaire was compiled using web service of "docs.google.com." This questionnaire was sent to approximately 1,000 respondents whose e-mail addresses were obtained on the websites of primary and secondary schools randomly selected using the "maps.google.com" service. Approximately 5-10% of e-mails returned with an error message regarding inactive or inaccessible e-mail address. The questionnaire was completed by 272 respondents during the follow-up month (April 2013).

2. Results

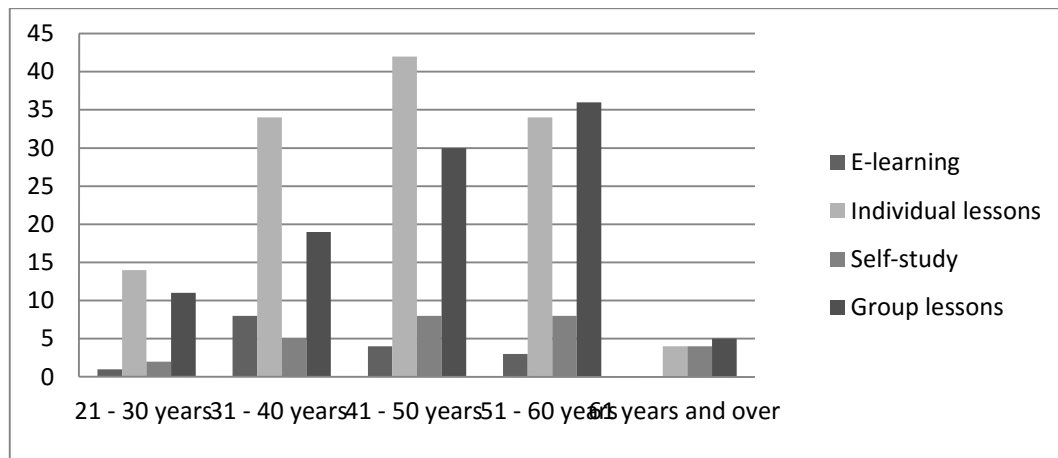
The questionnaire survey was attended by a total of 272 respondents, the most represented age group was 41-50 years (84 respondents), 51 - 60 years (81 respondents) and 31-40 years (66 respondents). In all age groups except the group of 61 years and more were represented by more women than men.

FIG. 2: Gender and age of the respondents



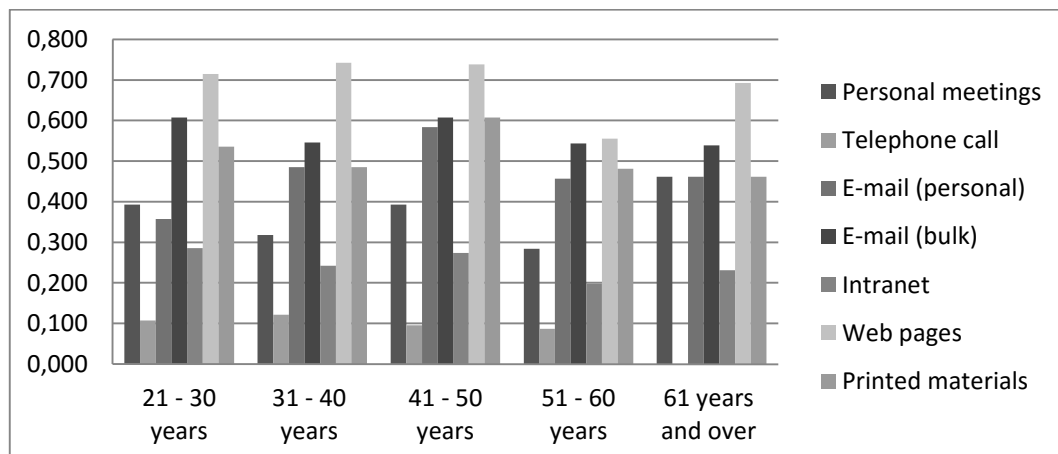
Source: own research

The respondents aged 21-50 years considered individual lessons and then group lessons as the most effective type of training, among the respondents aged 51-60 years the preference is the opposite.

FIG. 3: The most effective type of education

Source: own research

Teachers gain information about education mostly from websites, e-mail (personal as well as collective) and printed materials.

FIG. 4: Way of obtaining information on education

Source: own research

3. Discussion

If we need to reach an emerging and thriving organisation in today's knowledge society it is necessary to promote the learning of individuals within the organisation as well as the organisation itself. Sharing information in a learning organisation uses information technologies. (Tichá, 2005)

The results of the survey shows the preferences of individual and group lessons, a surprising result is related to the use of e-learning, which is not too popular among the respondents. This result directly corresponds with the results of the survey conducted by

Tichá (2015), in comparison with statistical results for 2014, which show a relatively frequent use of e-learning, this result is startling. (Pappas, 2013) The preference of individual and group lessons can be influenced by the age of respondents, who were largely made up of people aged 40-61 years. These respondents were struck by the full development of new information technologies during their lives, but their application in practice, however, caught the respondents in the older age when they might be less willing to learn something new, or adapt to changes.

The result concerning the method of obtaining information about education was very surprising. Although e-learning was among the less preferred methods of study, all respondents preferred websites as a source of information on education. This fact testifies the use of Internet by the respondents and the widespread use of the Internet was also proved by the speed of replies to the questionnaires. Based on this it can be deduced that the reason for prioritising individual and group teaching versus e-learning is not because of low Internet usage, but, for example, poor interaction of a tutor with a student during an e-learning course.

Conclusion

E-learning is quite frequently a sought form of education nowadays. According to the survey, however, it showed that in the Czech Republic the respondents prefer a printed form of study, individual or group lessons and e-learning stands in the background. In comparison with world statistics, the use of e-learning in education in the Czech Republic is lower, but it is possible to assume that with emerging technologies its use is going to increase.

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