University of Hradec Králové
Faculty of Informatics and Management

Hradec Economic Days

Vol. 3(1)

Double-blind peer-reviewed proceedings part III.
of the International Scientific Conference
Hradec Economic Days 2013

February 19th and 20th, 2013
Hradec Králové, Czech Republic

Hradec Economic Days

Vol. 3(1)

Double-blind peer-reviewed proceedings part III.
of the international scientific conference
Hradec Economic Days 2013
Economic Development and Management of Regions

February 19th and 20th, 2013
Hradec Králové, Czech Republic

Hradec Králové University of Hradec Králové
2013

Edited by: Pavel Jedlička.

ISSN 2464-6059 (Print)
ISSN 2464-6067 (Online)
ISBN 978-80-7435-251-5

Proceedings were not a subject of language check.

CONTENT

FOREWORD

The Faculty of Informatics and Management, University of Hradec Králové organised on 19. – 20. 2. 2013 11th international conference Hradecké ekonomické dny 2013 (HED 2013), which was held under the auspices of the Czech national Bank governor Miroslav Singer**.**

The HED 2013 conference is one of the major events held to mark the 20th anniversary of establishing the Faculty of Informatics and Management, an institution which, in these 20 years has gone through a dynamic development. The traveling CNB exhibition called " 20 years of protecting the Czech crown" started in connection with the conference.

The aim and intention of the conference are to present the results of scientific research activities in the fields of economics, business economics and management, creating a platform for regular encounters of experts of related fields, strengthening relationships and research, establishing personal contacts so important for submission of joint research projects and creation of space for presentation and publication of young teachers. The HED 2013 conference meets all these requirements.

The conference registered 186 participants, there are 81 papers in Czech, 77 in English, and 28 in Polish and Slovak published in the proceedings.

The papers were divided thematically and discussed in eight sections.

1. Current issues in banking and financial markets
2. Macroeconomic context in regional development
3. Management a financing of regional development
4. Economy a management of enterprises
5. Economy and management of regions and enterprises
6. Ekonomia i zarządzanie regionów i przedsiębiorstw
7. Mathematical models in economics
8. Modern trends in management

Most papers were registered in the section of Economy and Management of Enterprise and in the section of Current issues in banking and financial markets focused on 20 years since the birth of the Czech national Bank, the banking system in the Czech Republic since the establishment of the Czech crown.

Two parts of the reviewed HED 2013 conference proceedings include 109 papers (in Czech, Slovak and Polish), another part of the proceedings presents 77 papers in English.

I would like to thank all those who contributed to the preparation of the conference, members of the scientific, organisational and programme committee. Many thanks go to the reviewers and editor for the preparation and publication of the proceedings.

I believe that the Hradecké ekonomické dny conference contributed to the exchange of professional knowledge, establishing and strengthening collegial relationships.

Significant achievement and appreciation for the Department of Economics, Department of management and the entire team was the inclusion of the Hradecké ekonomické dny conference proceedings of the years 2005-2011 **in the CPCI database** (Conference Proceedings Citation Index) on the Web of - Science. We will also strive to implement the HED 2013 conference proceedings in this database.

Hradec Králové of 11. 1. 2013
Ing. Jaroslava Dittrichová, Ph.D.
Head of the Department of Economics
Faculty of Informatics and Management
University Hradec Králové

IMPLEMENTATION OF THE BRAND HERO IN BUDWEISER PROMOTIONAL CAMPAIGN ON THE POLISH MARKET – CASE STUDY

Patrycja Andrzejewska
University of Economics in Cracow
patrycja.andrzejewska@poczta.fm

Key words:
Brand hero – promotional campaign – Budweiser – Polish market

Abstract:
The extremely fast changing environment in marketing field, forces the companies operating the brewing industry, to revise their strategies and adapt to new promotional trends. Brand hero seems to be one of the methods used to build the brand personality, the element responsible for its emotional reception in the customers' minds. The case of promoting Budweiser in the Polish beer market is chosen as one of the most interesting campaigns created on the brand hero strategy and worth a deeper research. The paper covers the brand hero concept, describes Budweiser image and campaign objectives. Finally, it presents an expert analysis of the chosen evaluation criteria in order to make an assessment of the idea, the results and formulate recommendations.

Introduction

Changing character of marketing operations conducted by most of the companies result in situation when differentiating the brand from many similar ones seems to be the main objective of all promotional actions taken by the company [5, 5-7; 10, 11]. More attractive, more intensive and sometimes more agressive promotional campaigns of the compatitive products, force companies to make an effort in order to find a characteristic, specific feature of the brand that will be easy to remeber for the customer and communicate main values of the brand [1, 26-28; 6, 32]. Creating the brand hero seems to be one of the possibilities [7, 14]. It is simply the way to build the personality of the brand, which is responsible for emotional approach to the brand [4, 489-490; 11, 149-152].

1. Brand hero implementation as a brand promotion tool

Observing the growing competition and intensive usage of modern marketing tools by most of the companies, marketers try to find out more sophisticated ways of starting an interaction with their customers [8, 38-54; 9, 412-415]. Brand hero seems to be a very creative and effective element of

promotional strategy. By choosing a hero, the company can easily express the character of the brand, emotions and values. It is obvious that people tend to identify themselves with specific characters or simply it is easier to familiarize with the personalized brand [2, 347-349].

There are plenty of examples on the Polish markets that some companies, which did not have an excellent image among customers, applied a brand hero strategy to gain trust and positive approach of their customers [3, 157-160]. Among them, we should mention a Polish company operating in telecommunications that created a couple of brand heros – Heart and Brain and it turned into a great success. Even though the customers had sometimes bad opinion about the company due to the problems that occurred during their presence on the market, everybody loved the brand heros from the beginning and the company image gained a lot on the strategy. The second example is brand hero invented by Danone – Small Hunger. This small, yellow character is incredibly popular among all groups of people. The company is producing gadgets, toys and making spots with the brand hero. Also, there is a Fan Page on Facebook, where it is possible to talk to the 'Small Hunger'.

2. Analysis of Budweiser beer marketing strategy on the Polish market

Budweiser beer is present on the Polish market since the 90', but the significant increase of an interest in the brand can be noticed from 2008. In overall view, import beer brands have only 2% market share on Polish market, however the aim of the company is to make Budweiser the most popular one in import beer segment [13].

As Budweiser is often described as a national Czech beer, the campaign was designed in order to emphasize Czech character of the product. The promotional strategy was based on the idea of breaking the generic language type often used in beer advertisements. While most of breweries emphasize the tradition, long history of the brewery, original recipes and experienced beer experts, Budweiser chose a way of differentiating from the others. The main objective was to break the rules, show different approach and convince about the special character of the beer brand. The core of the campaign was created on the basis of funny way of translating Czech language into Polish phrases and the other way such as: mother in law – *'szpetna maminka'* or flag - *'smaticka na paticku'.* They sound very funny in Polish and have very nice, easy to remember undertone. The company believes that this approach will guarantee that Polish customers will fall in love with the brand. However, the idea was clearly missing something. This gap was filled with the brand hero proposal, which played a very important

role in the promotional activities. Brand hero born for Budweiser was a small, funny squirrel similar to the cartoon character popular in 80' and 90'-ties in Czech Republic [12].

The promotional strategy was also innovative in case of marketing tool selection. Most of the expenditures were located in the Internet, especially social media. In the first step, four movies with the brand hero – Drevny Kocur, were created. Each of them was telling a different story with the use of funny, Czech words and expressing Czech character of the brand at the end. The spots were widely promoted on Youtube, the most popular video website in Poland. The second channel of communication covers social network Facebook, which has over 8,5 millions of users on the Polish market. The fan page of the brand hero was popularized among the target group and activities taken in order to engage them in the discussion about the Czech character of the beer. The next step was based on the idea of organizing a contest for the most interesting scenario for the fifth movie. The last cartoon was realized on the winner description [13].

3. Expert evaluation of the campaign execution and results

The campaign of Budweiser beer conducted form June to September 2010 on the Polish market was with no doubts, one of the most creative and innovative beer campaigns in the past few years. Both, the idea of the brand hero creation and the tools selected were very well chosen and adapted to the target group. The objective of the research made in the paper is to evaluate the main criteria of the campaign.

Campaign results:

- Fan Page on Facebook reached an amount of 40 000 fans observing adventures of the brand hero
- Facebook Ads campaign reached 103 billions displays of the advertisements on Facebook, while the average cost per click was almost two times lower than the average amount for campaigns in Poland
- Contest app encouraged 11 000 people to send their proposals of slogan translations and comments
- Fan Page reached level of the highest average number of comments under the information posted on Facebook wall among 20 biggest Fan Pages in Poland
- Viral movies uploaded on Youtube reached 500 000 views [12].

An expert analysis was based on the chosen criteria, which were evaluated in a scale of 1- the worst note to 5 – the best note as presented below. An expert in Internet marketing conducted the analysis from 10 to 12 December 2012.

TAB. 1: **Evaluation of the campaign elements**

Evaluation criteria	Evaluation rate
Marketing tools matched properly to the campaign goal and brand identity	4
Character of the brand hero invented for the promotional needs and connection with emotional code of the brand	5
Range of the campaign	4
Idea of the campaign	5
Promotional tools realized for the needs of the campaign	4
Level of target group acceptance for the concept	4
Engagement of customers in the campaign, especially Facebook contest app	5
Results of the campaign in numbers	4
Total rate	**4.4**

Source: Research conducted in the paper

Conclusions

An expert analysis of the campaign shows that is was a successful step in the company's strategy. The total rate of the campaign is 4.4, so definitely very high. The main conclusions can be defined in the following statements:

1. The company clearly stated its objectives – they aimed to emphasize the Czech character of the beer and make it different from other, traditional brands. The idea of creating brand hero seems to be perfect to achieve the goal as the character of Drevny Kocur gives the idea of Czech personality to customers. In this situation, the decision made to allocate most of the resources in the Internet seems to be reasonable. Video websites such as Youtube applied and Facebook have a great power as viral marketing tools, where users themselves easily promote the content. The only weak point of the campaign was that it was targeted to younger group of customers, while Budweiser is a beer with a long history also appreciated by older people. As a recommendation, the parallel campaign targeted to other group could have been conducted in the same time or later, not to loose this type of customers and make them feel the brand change its target and now is only focused on young people.

2. The brand hero created for the campaign is a big success and it fulfills the role of presenting brand values and emotional code. Drevny Kocur is an incredibly sympathetic, amusing character, which was loved by customers and communicated the message about the brand in an innovative way with the use of promotional spots and contest among Fan Page users.
3. The range of the campaign was wide and covered the expected group of customers. Achieving 40 000 fans on Facebook and 500 000 views of videos in Youtube is a significant campaign. It is important to say that this numbers were achieved with a moderate budget. However, as mentioned before, the target group present in social media mostly excludes older customers, whose loyalty can be higher that new and looking for amusement ones.
4. The creative concept of the campaign is evaluated with the highest note as it is definitely different from other beer brand images, innovative and provoking positive emotions. Brand hero made Budweiser easy to remember and special brand for the customers on the Polish market.
5. The promotional tools were chosen with a great focus to maximum use of viral marketing possibilities of the brand hero character and promotional movies. Focusing on the social media tools is a creative and economic way of achieving a wide target group.
6. When it comes to the level of campaign acceptance in the group, the assessment based on the numbers achieved in the promotion and the buzz in Polish media is rather high. Polish customers were willing to get to know, like and discuss with the brand hero, they observed his adventures and actively participated in creating the last spot.
7. The main goal of the campaign was achieved when the concept appeared to be catchy and attracted user in the Internet to join the Fan Page and participate in the contest. The number of 11 000 scenario proposals for the movie with the brand hero is an impressive number. However, the campaign was very visible during the predicted few months and suddenly disappeared after this time. Creating an active group of beer passionates could be used in a better way by redirecting their focus and engagement to other activities after the campaign was finished such as creating stories about the brand hero or choosing brand ambassadors who can animate the whole group.
8. The results of the campaign measured in different indicators and given in numbers prove that the idea of bringing in a brand hero and presenting the brand as less formal, friendly and personalized was a good path to create a positive image of the brand on Polish market.

References:

[1] AAKER, D. *Building Strong Brands*, Simon &Schuster, London 2002, ISBN: 0743232135 / 0-7432-3213-5

[2] AAKER, J. L. Dimensions of Brand Personality, *Journal of Marketing Research*, 1997, no. 34, pp. 347-356, ISSN: 0022-2437

[3] DE CHERNATONY, L. Brand Management Through Narrowing the Gap Between Brand Identity and Brand Reputation, *Journal of Marketing Management*, 1999, no. 15, pp.157-179, ISSN: 0267-257X

[4] EAGAR, T. Defining the Brand Hero: Explorations of the Impact of Brand Hero Credibility on a Brand Community, *Advances in Consumer Research (Volume 36),* Australian National University, Australia, pp. 488-493, ISBN-10: 9990155550, ISBN-13: 978-9990155556

[5] GOBÉ, M. *Emotional Branding: The New Paradigm for Connecting Brands to People*, New York, Allworth Press, 2001, ISBN: 1581150784, 9781581150780

[6] KAPFERER, J-N. *Strategic Brand Management*, Great Britain, Kogan Page, 1997, ISBN-10: 0749420693, ISBN-13: 978-0749420697

[7] KOTLER, P. *Marketing Management. The Millennium Edition*, Upper Saddle River, Prentice Hall, 2000, ISBN 0–536–63099-2

[8] MC ALEXANDER, J. H., SCHOUTEN, J. W., KOENIG, H. F. Building Brand Community, *Journal of Marketing*, 2002, no. 66, pp. 38-54, ISSN: 0022-2429

[9] MUNIZ, A. M., O'GUINN, T. C. Brand Community, *Journal of Consumer Research*, 2001, no. 27, pp. 412-43, ISSN 1537-5277

[10] SCHMITT, B. H. *Experiential Marketing: How to Get Customers to Sense, Feel, Act and Relate to Your Company and Brands*, New York, Free Press, 1999, ISBN-10: 0684854236, ISBN-13: 978-0684854236

[11] SHOCKER, A.D., R.K. SRIVASTAVA, AND R.W. RUECKERT Challenges and Opportunities Facing Brand Management: An Introduction to a Special Issue", *Journal of Marketing Research*, 1994, no. 31, pp. 149-158, ISSN: 0022-2437

[12] http://www.facebook.com/DrevnyKocur [2.12.2012]

[13] http://interaktywnie.com/kreacja/artykuly/trendy/case-study-jak-drevny-kocur-porwal-facebooka-18180 [4.12.2012]

DE MINIMIS AID IN THE YEARS 2008-2010 - ANALYSIS OF GRANTED SUPPORT

Bartosz Bartniczak
Wroclaw University of Economics
bartosz.bartniczak@ue.wroc.pl

Key words:
state aid – de minimis aid – analysis

Abstract:
De minimis aid is the kind of state aid that because of the low unit value threaten to distort competition on the Community market. Note, however, that the total value of the aid of this kind is quite large which makes it necessary to monitor it. Monitoring granting de minimis aid in Poland is done by the Office of Competition and Consumer Protection.

This article analyzes this type of aid granted in 2008-2010. The specific form in which support was given, defined the main group of beneficiaries and donors. Also shown is the spatial diversity of the support provided.

1. Introduction

The de minimis aid because of the low unit value, not are a threat to competition disruption to the market European Union. Aid of this kind does not constitute state aid within the meaning of Article 107 Paragraph 1 TFEU[1]. Matters relating to de minimis aid are governed by the Council Regulation on the application of Articles 87 and 88 of the Treaty to de minimis aid [2]. According to this regulation:

1. the total value of the de minimis rule for a beneficiary cannot exceed 200 thousand euro in the period of three years,
2. support the entrepreneur cannot get threatened by the guidelines on State aid for rescuing and restructuring firms in difficulty[3],
3. aid must be "transparent", ie it must be possible to calculate the ex ante gross grant equivalent without the need for risk assessment,
4. in some sectors (agriculture, fisheries, aquaculture, transport and coal) to grant de minimis aid shall be subject to special rules, exclusionary or limiting the possibility of granting it.

[1] Consolidated version of the Treaty of the functioning of the European Union, OJ C 115/2008.
[2] Commission Regulation (EC) No 1998/2006 of 15 December 2006 on the application of Articles 87 and 88 of the Treaty to de minimis aid, OJ L379/2006
[3] Communication from the Commission Community guidelines on state aid for rescuing and restructuring firms in difficulty, OJ C 244/2004

The purpose of this article is to analyze the de minimis aid granted in Poland in the years 2008-2010. This analysis relate to the value of the support provided, the form in which aid was granted, the size of the beneficiary, granting authority and regional diversity of aid.

2. Analysis of de minimis aid granted in 2008-2010

The value of de minimis aid for the period 2008-2010 shows an increasing trend (tab.1). In 2009, the value of the support compared to 2008 doubled in 2010 compared to 2008 tripled. In total, during the period given over PLN 9.1 mld PLN aid. Among the reasons for a rapid increase in the value of de minimis aid can replace the start, and then continue to provide aid from new sources, mostly co-funded by the European Union. The second reason is the expiration of certain assistance programs with the result that the support instruments covered by these programs already started to implement some extent as de minimis[4].

It should also be noted that in the same period, the value of state aid granted satisfies the conditions of art. 107 of the Treaty on the Functioning of the European Union amounted to almost PLN 57,5 mld PLN. The value of the de minimis rule, therefore, was less than 16% of the aid granted. This is due to the size constraints of the de minimis obtainable by a single trader.

TAB. 1: **The value of state aid and de minimis aid in 2008-2010 (mln PLN)**

specification	2008	2009	2010
de minimis aid	1 159.5	3 335.2	4 618.6
State aid	14 383.1	19 016.2	24 087.3

Analysis of the forms in which support is provided is based on five groups in which are placed the concrete forms of assistance. The forms in which the movement of funds from the budget are marked as 1, while those where support is related to depletion of budget revenue as 2.

In each of the years dominate form referred to as grants and tax subsidies (table 2). The share of this group is amounting to over 92% in 2008 to over 96% in the next two. Among this group strongly dominated by the support given in the form of grants, which accounted for less than 76% in 2008, close to 90% in 2009 and over 92% in 2010. The share of other groups was small. It should also be noted that the vast majority of support was granted in the form of direct budgetary expenditure - 88%. The share of different types of depletion budget did not exceed 12%.

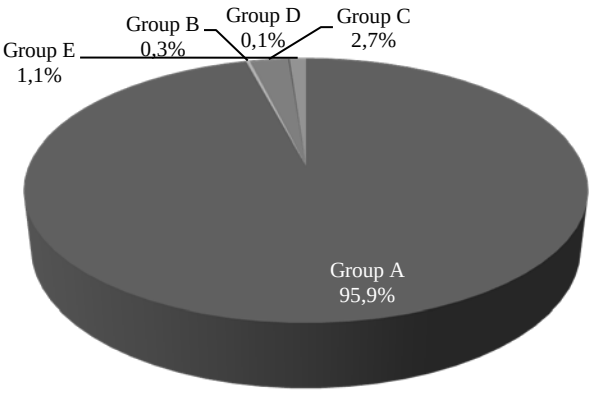
[4] Pomoc de minimis w Polsce udzielona przedsiębiorcom w 2010 r., Urząd Ochrony Konkurencji i Konsumentów, Warszawa 2011, s. 5

TAB. 2: **The value of de minimis aid granted by form (mln PLN)**

specification	2008	2009	2010
Group A – Capital grants and grants in which:	1066.9	3208.6	4462.3
A1 – grants	815.9	2865.3	4148.5
A2 – tax subsidies	241.0	343.3	313.8
Grupa B – Capital and investment subsidies in which:	0.9	0.8	21.1
B1 – the capital	0.9	0.8	21.1
Grupa C –Soft loan in which:	67.6	89.7	85.2
C1 – preferential loans and conditionally discontinued	38.4	41.1	39.3
C2- deferral and payment in installments of payments to the budget and fund	29.1	48.6	45.9
Grupa D – Guarantees and loan guarantees total	0.1	0.3	6.5
Grupa E - Others	23.9	35.9	43.5

Structure for the whole period according to the form in which the supports were given shows Figure 1. It shows exactly overwhelming dominance of grants and tax subsidies, the share was close to 96%. In second place were included in the form of soft loans, ie the preferential loans and conditionally waived and the postponement and rescheduling of payments to the budget and fund their share stood at 2.7%.

FIG.1: **The structure of de minimis aid in 2008-2010 (%)**



By examining the value of the aid due on the location of the beneficiary may notice an important pattern. Because the largest amount of aid granted to

entrepreneurs from the provinces with the largest populations. In each of the years most support went to companies established in the province of Mazovia, Wielkopolska and Silesia (table3). The value of de minimis aid granted in these provinces accounted for 1/3 of de minimis aid.

TAB. 3: **De minimis aid, broken down by province according to the residence of the beneficiary of the aid (mln PLN)**

voivodships	2008	2009	2010
dolnośląskie	101.7	213.1	293.7
kujawsko-pomorskie	56.8	228.0	281.6
lubelskie	49.2	177.9	244.0
lubuskie	36.3	87.3	126.0
łódzkie	91.3	211.3	318.0
małopolskie	84.0	280.2	386.6
mazowieckie	132.2	456.7	561.7
opolskie	33.7	109.8	185.2
podkarpackie	62.1	229.7	322.5
podlaskie	27.5	82.0	132.1
pomorskie	88.5	245.1	268.2
śląskie	118.7	322.9	444.2
świętokrzyskie	49.0	137.0	164.6
warmińsko-mazurskie	56.8	145.9	183.1
wielkopolskie	124.7	286.1	545.2
zachodniopomorskie	46.9	122.1	161.9

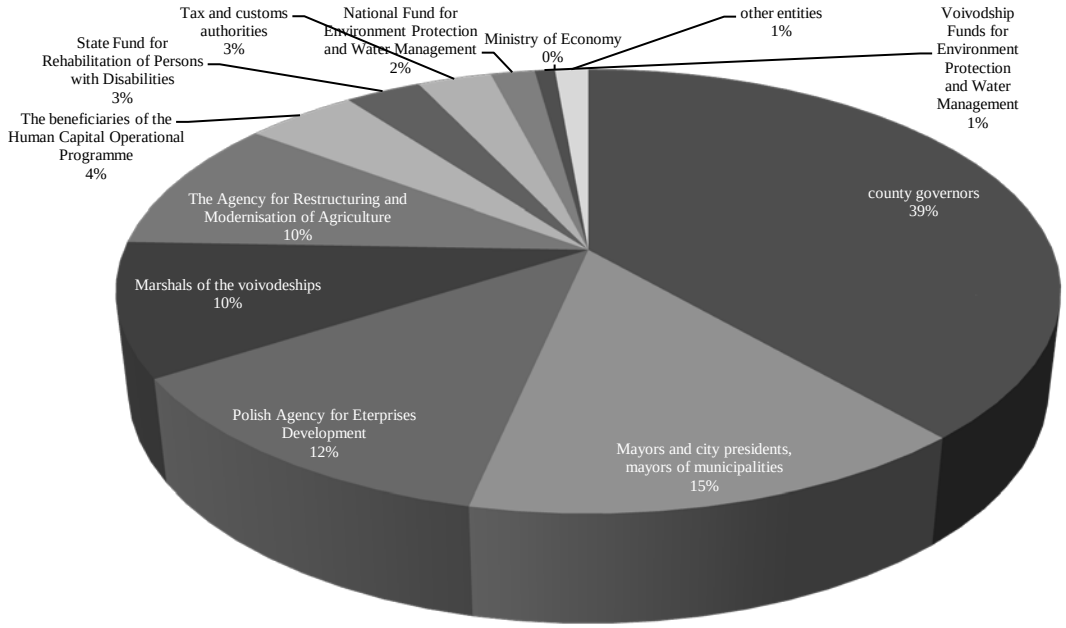
Among the donors' de minimis leading role played local government bodies (Table 4). In each of the years since the biggest part of the support has been granted by the governors of counties. The share given their support ranged from 37% in 2009, 39% in 2010 to over 47% in 2008. The share of the support given by the mayors and presidents amounted to nearly 15% in 2010, 17% in 2009 and 27% in 2008. The vast majority of support given by them was granted on the basis of the Act on employment promotion and labor market institutions. Support was provided by them in the form of grants and reimbursements.

TAB. 4: **The value of de minimis aid granted by the principal (million PLN)**

The contracting entity	2008	2009	2010
County governors	547.9	1230.9	1784.5
Mayors and city presidents, mayors of municipalities	312.0	555.7	680.3
Polish Agency for Eterprises Development	.	451.9	576.9
Marshals of the voivodeships	31.9	.	449.4
The Agency for Restructuring and Modernisation of Agriculture	14.8	325.5	448.3
The beneficiaries of the Human Capital Operational Programme	.	151.2	210.6
State Fund for Rehabilitation of Persons with Disabilities	.	128.6	143.5
Tax and customs authorities	110.5	147.6	140.0
National Fund for Environment Protection and Water Management	40.1	66.9	83.7
Voivodship Funds for Environment Protection and Water Management	25.9	31.2	38.4
Ministry of Economy	26.6	.	.
Other entities	49.8	47.1	62.9

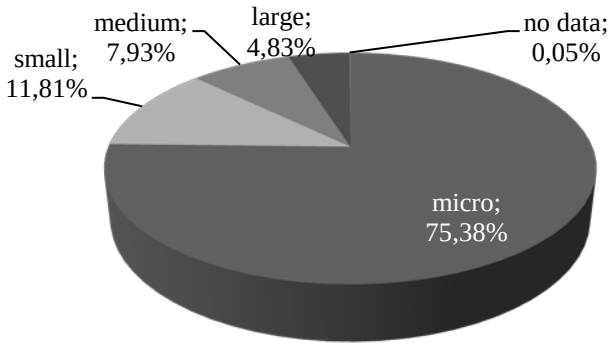
Throughout the period the most support was granted by governors counties - 39% (Fig. 2). Another party provider of support were mayors, presidents and mayors - 15%. Support provided by the Polish Agency for Enterprise Development consisted of 12% of the aid.

FIG. 2: **The structure of the support provided by donors (%)**



During the study period, three-quarters of de minimis aid - nearly PLN 6.9 mld went to the micro (Fig. 2). Nearly 12% of small - PLN 1.1mld. To average less than 8% or over 722 million PLN. In total, so for small and medium-sized enterprises received over 95% of the aid de minimis. This is due largely to the fact that the amount of this support is limited in amount, and so interested in this type of support are primarily smaller companies.

FIG. 3: **The structure of the support provided by the size of the beneficiary (%)**



Providing support to SMEs is also in line with the policy of the European Union in the field of state aid. This indicates the fact that a group of entities which should be preferred for providing support are the SMEs.

2. Summary

The analysis allows to draw the following conclusions:

1. value of de minimis aid granted is systematically increasing,
2. dominant form of assistance from grants are,
3. most support went to beneciejentów from Mazowieckie,
4. major donors were governors counties,
5. more than three-quarters went to support micro-entrepreneurs.

References:

[1] Consolidated version of the Treaty of the functioning of the European Union, OJ C 115/2008.

[2] Commission Regulation (EC) No 1998/2006 of 15 December 2006 on the application of Articles 87 and 88 of the Treaty to de minimis aid, OJ L379/2006.

[3] Communication from the Commission Community guidelines on state aid for rescuing and restructuring firms in difficulty, OJ C 244/2004.

[4] Pomoc de minimis w Polsce udzielona przedsiębiorcom w 2010 r., Urząd Ochrony Konkurencji i Konsumentów, Warszawa 2011 r., p. 5.

[5] Pomoc de minimis w Polsce udzielona przedsiębiorcom w 2008 r., Urząd Ochrony Konkurencji i Konsumentów, Warszawa 2009 r., p. 5.

[6] Pomoc de minimis w Polsce udzielona przedsiębiorcom w 2009 r., Urząd Ochrony Konkurencji i Konsumentów, Warszawa 2010 r., p. 5.

INSIGHT INTO SOCIAL NETWORKS WITH FOCUS ON CORPORATION SETTING

Miloslava Černá, Libuše Svobodová
University of Hradec Králové
Cerna.miloslava@uhk.cz, Svobodova.libuse@uhk.cz

Key words:
social networks – technologies – corporation – communication

Abstract:
The article deals with social networks; global phenomenon which has significantly influenced both private and professional lives. An insight into current situation in technical innovations, which are summed up under the terms 'Web 2.0' or 'social software', is provided together with a highlight of a wave of new applications connected with the influx of smart phones. Latest statistical data on utilization of social networks from global and local perspective and description of selected applications enable readers to create a solid idea on the issue, think of the challenges, pitfalls and benefits in private and corporation environment.

Introduction[1]

Fast developing Information technologies affect all spheres of human activities; anywhere and anytime they are applied they bring changes, benefits and pitfalls. Communication and interaction among people are experiencing incredible changes as communication has expanded into the virtual world. Thanks to virtual environment new communication platforms are arising, like social software applications where communication with new possibilities, ways, tools and channels forms their main mission of existence. The article deals with social software applications; global phenomenon which has significantly influenced both private and professional lives. An insight into current situation in technical innovations which are summed up under the terms 'Web 2.0' or 'social software' [7] is provided, with a highlight of a wave of new applications connected with the influx of smart phones. The magic word going through the whole contribution like a red thread is communication.

[1] Communication and interaction among people are experiencing incredible changes as communication has expanded into the virtual world (motto)

1. Methodological Frame

The goal of the article is to present current social media landscape. The sub-goal is to highlight unique features of virtual communication which brings an added value to this issue. The article is based on a deep literature review enriched in statistical studies. As for the structure of the article, the core part is formed by presentation of selected social networks accompanied with a review of literature and latest statistical analyses focused on rating of social networks from global and local perspective. The chapter dealing with social networks is followed by 'Uniqueness of virtual communication' where specific features of virtual communication are described with references to other sources. Final chapter brings enumeration of several examples corporation use of social networks.

2. Current Social Networks – history and statistics

This chapter brings an insight into social media, briefly introduces history and mission of key networks, description is enriched with statistical data from Global, US and local Czech studies. The biggest players on today's social media landscape are Facebook, Twitter, Myspace, Google+, LinkedIn, YouTube. The history of social networks goes back to 1997 to the Sixdegrees project that had only ephemeral life lasting nearly 4 years. The oldest and still currently widely used social networks my Myspace and LinkedIn were set up in 2003. The youngest and extremely quickly growing social net is Google+ which entered the virtual world in June 2011.

- Facebook originally designed in 2004 for students of Harvard University dominates all polls on use of social networks. It offers a wide range of user´s options, both private and corporation profiles can be created, etc. Facebook is generally accepted as synonym to social network [5].
- Twitter is two years younger and is characterised by its micro-blogging. Limitation of messages by 140 signs guarantees briefness. Applications on smart-phones have brought to this social network stimulation and strengthened its position.
- Myspace ranks among biggest social networks but in our country it stays far behind its rivals Facebook and Google+ with comparative mission serving as a virtual platform for profiles, saving and sharing contents.
- Google+ is currently the youngest social network and strong rival of Facebook. Google+ profiteers from a unique structure which enables its users go through all services smoothly without individual registrations. This advantage gets consequently reflected in personalization of services tailored to user´s or perspective customer´s needs.

- Last inhere presented social net is LinkedIn. Its slogan is 'Connecting the world's professionals to make them more productive and successful'. This network is designed to serve professional interests. Over 175 million professionals use LinkedIn to exchange information, ideas and opportunities; on its sites are stated 3 main areas directly addressing users: Stay informed about your contacts and industry, Find the people & knowledge you need to achieve your goals Control your professional identity online see more [6].

Statistical perspective is a speech of numbers which can be seen accurate in individual studies within their individual concept and settings. It is not possible to make general conclusions based on findings from all studies in a blanked manner. Findings should be perceived in a sense of trends, illustration, and main concern of researchers but not as an unwavering dogma.

Firstly we illustrate how the social media landscape can get changed within 2 years, see two studies from United States. In February 2010 a survey on utilization of social nets and age distribution was run, see [9]. Full list of 19 sites in this study: Facebook, LinkedIn, MySpace, Twitter, Slashdot, Reddit, Digg, Delicious, StumbleUpon, FriendFeed, Last.fm, Friendster, LiveJournal, Hi5, Tagged, Ning, Xanga, Classmates.com, Bebo. What was interesting that not teenagers dominated visits of social sites but it was the age group 35-44. The authors called the group as the *most "social" age* group out there. That was the *generation of people who were in their 20s as the Web took off in the mid '90s*. Two years later the same survey was run. The social media landscape got changed, the study brought answers to the age and gender distribution on twenty-four of today's most popular social networks and online communities see more [10]. The problem is that there are no data relating to widely expanding Google+**.** The sites included in this survey were: Facebook, Twitter, LinkedIn, Pinterest, Tumblr, Reddit, Hacker News, Slashdot, Github, Stack Overflow, Orkut, Quora, WordPress.com, Blogger, Flickr, Myspace, Tagged, Hi5, LiveJournal, Yelp, deviantART, StumbleUpon, Goodreads and Last.fm.

Finding which relate to age category follow:

- The oldest users - LinkedIn has the oldest user base, with the average user being 44.2 years old.
- The average Facebook user is 40.5 years old and the average Twitter user is 37.3 years old. Compared to a previous survey, the age of the average Facebook user has gone up two years, while the age of the average Twitter user has gone down two years. In other words, Twitter's user base is getting younger, while Facebook's is getting older [10].

3. Uniqueness of virtual communication

Communication and interaction among people have a lot of forms, and can be examined from various perspectives. Some forms are eternal, some have to be adapted or even developed to fit changing environment. This chapter reveals selected specific features of virtual communication.

a. Spatiotemporal barriers

Social communication which is run in a virtual space surmounts spatiotemporal barriers. Up to now overcoming barriers has been underlined, on the other site currently plenty of businesses with their services and potential customers profiteer from the possibility to localize themselves. We speak about *Location Based Services*; development of especially mobile applications often accompanied with a web site is currently experiencing growth. When we know where we are is helpful not only for playing GPS – based games, thanks to applications like Foursquare [3] or Google Latitude [13]. We can find new places to go, and check in to tell friends where we are and what's great [12 - Glossary]. Applications like Foursquare are tightly connected to social nets so your friends can be informed and recommended via Twitter or Facebook or Google+. Google Latitude has recently added visualization of your friends position in the map [13].

Generally speaking *Location Based Services* enable getting information on nearby shops, places of interest, serve as standard navigation, provides information on transport, offers mobile advertisement, finding position of friends and colleagues (of course in case they have this application), enable tracking company cars as well, etc. In this case it can be clearly visible how tightly business and private *interests might be connected.*

There is promising future for businesses as these applications enable them to "get discovered and get connected with customers. The latest data [12] show that 25,000,000 people and 1,000,000 businesses use Foursquare worldwide.

b. Who is on the other side, problem of fictional identities and loss of privacy

Surmount of spatiotemporal barriers was mentioned as the first unique feature of social communication in virtual space. In the following section the differences in human interaction will be slightly described. In comparison with real face to face communication the communication partner in virtual world – the partner on the other side is specific, due to the fact that *rather often it is not clear who will get to the conveyed information* even if somebody, see more [11]. The problem of fictional

identities affects a number of social network users and when some of them are going to leave social network environment and commit co called 'virtual suicide' they state beside wrong influence on personal well-being, distorted relationships – mistrust, limited ways of control, not respectable behaviour of other stakeholders, see more [4].

We are approaching one of key issues of social network phenomenon. On one side mingling of private and professional lives is considered as positive, beneficial, challenging opening of new ways in communication in the area of cooperation and interaction and on the other side some social net users suffer from this professional-private life connection and loss of anonymity.

c. Self-presentation

People engaged in social networks create first impression via profiles they communicate their self with the world in their specific unique way, see more [1, 59]. Self-presentation in social virtual environment arises a problem of one´s disclosure which might be perceived both positively and entirely negatively. The following example can serve as illustration of an extreme view. Bumgarner [2] adopts rather negative posture Self-presentation on social websites perceives as combination of voyeurism exhibitionism depending on each other. He believes that people strive for confirmation and increase in their social credit; so smooth accessibility in virtual space and accumulation of 'friends' are tools which make this effort easy but at the same time they get easily out of control.

d. Social computing

Communication Uniqueness in virtual space got reflected in a new trendy computer science Social computing covering social networking, online communities and user contributed content. Social science deals with two distinctive areas social behaviour and computational systems. Blogs, social bookmarking, wikis, social network services and other social software applications are typical examples from social computing, see more [8]. Businesses utilize *social computing* in: creation of reputation systems, prediction markets, social network analysis, online communities and computer-supported cooperative work.

4. Utilization of social network in corporation environment

Several examples on this issue have already been stated in part dealing with Location Based Services like Foursquare or Google Latitude applications.

The other discussed topic was importance of social computing. Businesses utilize *social computing* in creation of reputation systems, prediction markets, social network analysis, online communities and computer-supported cooperative work.

Conclusion

Phenomenon of social networks comprises two main aspects social and technical which vitally influence each other. New applications are developed and new ways of communication, cooperation and interaction are adopted. This phenomenon has become an inseparable part of our professional and private lives but as the literature review reveals not only benefits accompany use of social networks. When social networks are connected only with a private life and some kind of discomfort arises there is always way to leave this unsatisfactory environment, But what to do if social networks are part of a man´s or woman´ s professional life and badly affect them? That problem might be starting point for a study on awareness and satisfaction with social applications in corporate setting.

References:

[1] BOYD, D., HEER, J. Profiles as conversation: Networked identity performance on Friendster. In *Proceedings of Thirty-Ninth Hawai'i International Conference on System Sciences*. Los Alamitos, CA: IEEE Press. 2006, p. 59–69

[2] BUMGARNER, B. A. You have been poked: exploring the uses and gratifications of Facebook among emerging adults. *First Monday*, 2007, vol. 22, no. 11. URL: http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/viewArticle/2026/1897 [cit. 2012-04-25]

[3] DOČEKAL, D. Foursquare je prý "příští Twitter" [cit. 2012-12-20]. URL: http://www.lupa.cz/clanky/foursquare-je-pry-quotpristi-twitterquot/

[4] JUSTICE, E. Facebook suicide: The end of a virtual life. *The Times (UK)*. URL: http://women.timesonline.co.uk/tol/life_and_style/women/body_and_soul/article2452928.ece [cit. 2012-05-01]

[5] LAUSCHMANN, J. Znáte 5 + 1 největších sociálních sítí? [cit. 2012-12-19] URL: http://cdr.cz/clanek/nejvetsi-socialni-site-dneska

[6] *LinkedIn 2012*[cit. 2012-12-28] URL: http://www.linkedin.com/static?key=what_is_linkedin&trk=hb_what

[7] O'REILLY, T. *What Is Web 2.0*. O'Reilly Media. [cit. 2012-12-28] URL: http://oreilly.com/pub/a/web2/archive/what-is-web-20.html?page=5

[8] ROUSE, M. *What is social computing?* [cit. 2012-12-28] URL: http://searchwinit.techtarget.com/definition/social-computing-SoC.

[9] *Study: Ages of social network users.* Posted on February 16th, 2010 by Pingdom, from http://royal.pingdom.com/2010/02/16/study-ages-of-social-network-users/

[10] *Study: Social network demographics in 2012*. Posted in Main on August 21st, 2012 by Pingdom, from http://royal.pingdom.com/2012/08/21/report-social-network-demographics-in-2012/
[11] TURKLE, S. Cyberspace and identity. *Contemporary Sociology*, 1999, vol. 28, no. 6, s. 643–648
[12] Foursquare [cit. 2012-12-28] URL: http://business.foursquare.com/, 20. 12. 2012
[13] Google latitude, [cit. 2012-12-28] URL: http://www.google.com/intl/en_us/mobile/latitude/index.html)

THE IMPORTANCE OF TERRITORIAL MARKETING IN ACHIEVING COMMUNITY TARGETS

Włodzimierz Deluga, Anna Wallis
Koszalin University of Technology
wlodzimierz.deluga@tu.koszalin.pl, wallis@tlen.pl

Key words:
territorial marketing – community – local government – competitiveness – local development

Abstract:
As a result of political changes communities have become independent entities that operate on the market. Modern civilization challenges resulting from progress in the field of production and increasing globalization, and thus increased competition, make local governments of cities and communities face the necessity to more actively involve in the processes of development management of these units. Communities wishing to better manage their resources and achieve a better competitive position should make use of marketing instruments. This material presents the concept of territorial marketing that is useful in the management of territorial unit. Discussion was based on the example of Mielno.

Introduction

For a long time marketing was seen as a superfluous concept in operation of non-profit organizations. It was the subject of harsh criticism, and regarded as an instrument of manipulation in funds acquiring. Today, marketing is considered as an effective way of solving problems in local government units. Each subdivision, including communities is subject to the market rules. Therefore, communities are forced to compete in order to attract potential investors to meet the needs of residents, provide the local societies and guests arriving with satisfaction of and at the same time ensure the sustainable development of the area.

The purpose of this article is to identify the place of government in the implementation of the marketing strategy and development of local government units.

1. The Nature and Objectives of Territorial Marketing

The word marketing comes from the English word "market". According to PWN Encyclopedia marketing means action to determine the possibility of selling the product, taking into account the needs of existing and potential

customers in the short or long term and the associated possibility of distribution, advertising, product planning, and market research [8]. Marketing is a company or region policy oriented to market or recipient. This is the recognition of what the customer expects, producing and reselling it for a profit. One could say that it is a struggle for the minds [9, p. 271]. In the world literature one can find many interesting definitions of marketing. For example, according to the Ph. Eur. Kotler marketing is a social and managerial process through which specific individuals and groups get what they need and want to achieve by creating, offering and exchanging products of value [5, p. 6].

If we assume that marketing is a specific way of thinking about success in modern business, then in accordance with such recognition, territorial marketing is a philosophy to achieve the goals by the settlements under conditions of competition for limited resources, which has a foundation in the belief that the correct orientation to the clients-partners has a decisive influence on the achieved results [12, p. 16]. The main goal of territorial marketing is to influence opinions, attitudes and behaviors of internal and external groups of interested customers by forming the right set of measures and instruments to stimulate the interchangeable relationships. Such stated objective of marketing and administrative-spatial units indicates the important features of the projects undertaken, such as the development of particular ideas, attitudes and behaviors of customers in line with the interests of the city, village or region [12, p. 22].

Separation of territorial marketing was the result of the adoption of "place" factor as a subject of the sales process. Marketing as a management function refers to a variety of objects: companies, organizations, social groups and other institutional forms, and in the case of territorial marketing management is related to an isolated area, a well-defined territory forming the whole organization and space unit. "Place" as a reference object of marketing activities can be determined as an area characterized by different size and spatial shape, varying levels of employment, management system, and the degree of development of a variety of natural conditions. The concept of territorial marketing was sourced from the idea of social marketing that assumed that the business task is to determine the needs, requirements and target markets and to provide the desired satisfaction more effectively than competitors, while maintaining or improving well-being of society. The elements of territorial marketing are the consideration of so-called public interest, obtaining long-term objectives, improving well-being, protection of natural and cultural environment.

The concept of place's marketing is often used in the English-language literature. In Polish this concept is synonymous with territorial marketing. In addition to the notion of territorial marketing also similar concepts, such as: marketing, regional, local, municipal, city marketing, marketing in rural areas are used. But:

- territorial marketing refers to any area, regardless of the nature, size or administration membership;
- regional marketing is associated with the region, which administratively is associated with the voivodship, but it can also be considered in relation to the association of municipalities;
- local marketing includes local self-government level and the local level consist of counties and communities;
- communal marketing refers to all types of communities.

The concept of territorial marketing is the result of expansion and deepening of marketing knowledge. Territorial marketing emerged as another attempt to transfer and adapt the concept of sales and management developed for the typical consumer products market in the private sector to the public sector. One could say that it is the approach towards the need for professionalizing the management of territorial units [7, p. 211].

In many cases marketing is seen as a management process that allows recognizing, anticipating and meeting the needs and desires of customers. Thus, territorial marketing can be defined as a market concept of settlement unit management – as management aimed at fulfilling the needs and desires of residents. At the same time it is necessary to predict the direction of changes and the rational use of all available resources [12, p. 17].

In terms of its recipients two components of territorial marketing can be distinguished, namely: internal marketing and external marketing. Internal territorial marketing covers all coordinated projects focused on a group of people and institutions consistently associated with a particular territorial unit (residents, non-profit and profit organizations). However, external territorial marketing is aimed at the target markets of cities, villages, communes, districts and provinces. A constant supply of developmental factors such as technology, financial capital, information and labor is necessary for the development of territorial subdivisions.

The main goal of territorial marketing is to influence opinions, attitudes and behaviors of interested customers through the development of the right set of tools to stimulate changeable contacts [6, p. 40]. The consequence of these interactions is the change in state of awareness, a system of evaluation and decision-making by the target groups. Thus, territorial marketing

entities such as: local authorities, public utilities, private companies (acting on behalf of local authorities), and specially designated institutions should protect the life of society, meet their needs, i.e. create decent living conditions for the inhabitants of the territory. In addition, other key areas of marketing objectives can be the following: shaping a positive image and reputation of the region, increasing its attractiveness and strengthening its position on the market. An important element is the problems leveling between the target group and the public institution, through continuous improvement and development of the services provided to the community. These goals can be considered strategic, and their implementation is associated with the need to achieve a number of operational objectives of different nature. To speak of territorial marketing effectiveness, it is necessary to conduct a thorough analysis of the needs and expectations of citizens regarding the scope of the quality of services provided by public institutions. This will allow for the creation of an adequate community offer, improve the flow of information, which in turn should increase satisfaction of target groups. It is important to know the motives of external recipients who can really contribute to the development of the region.

2. Characteristics of the Mielno Community

Mielno municipality is located in the middle of the Baltic Sea coast, 6 km north of Koszalin. The northern border of the municipality constitutes the shore of the Baltic Sea with a length of 25 km. The community area is 63 km^2 = 6,254 ha, out of which: 2,424 ha is Jamno lake, 2,328 hectares is agricultural land, 618 hectares is forest and 884 hectares are built-up areas. Jamno Lake is one of the largest lakes in Poland, takes 8^{th} place in terms of area. The community has 13 cities. The tourist destinations located on the Baltic Sea coast include:

- Mielno is the capital of the community, located 12 km from Koszalin. The biggest attraction of Mielno is clean, guarded beach, which is surrounded by cafes, restaurants, fish fries and other food and shopping venues. A promenade is located along the beach. Safe exit from it allows easier access to the beach for people with strollers and the disabled. On the south side part of Mielno has access to the Jamno lake [1].
- Unieście is the second most populated city of the Mielno community, charmingly situated on the spit between the Jamno lake and the Baltic sea. The advantage of staying in Unieście is the proximity of the sea and the relative calm, so necessary for the recuperation of health.
- Lazy are located on the eastern shore of the Jamno Lake, 6 miles east of Unieście. It is the smallest parish in the community of Mielno,

a typical holiday village. The owners of resorts and the accommodation centers intensively modernize and raise the standard of holiday and travel services. Lazy has beautiful, wide beach, which can be seen from the observation deck at the main entrance to the sea. During the autumn and winter storms, huge tree trunks appear under the eluted sand, which also confirms the existence of old forest in those areas centuries ago. You can walk to the nearby Bukowo lake from the village.

- Sarbinowo is a true gem among the villages of Mielno community, as well as among the bathing sites on the Baltic coast. The new and the old part of the buildings were established in the early post-war years and are right beside the dunes and boardwalk. Long ago Sarbinowo was nearly a mile away from the Baltic Sea coast. Unfortunately, the land is still losing the fight against the sea's element, and storms took up the land meter by meter, so that just before World War I the village was threatened by the rising sea. Exemplary farmhouses are run in the village.
- Gaski is a holiday village, situated 12 km to the west of Mielno.
- Mielenko, a quite dynamically developing village, is located 2 km west of Mielno. Mielno and Mielenko are connected by an avenue of over 150 years old lindens, three rows of old trees are especially beautiful in spring and autumn. You can also walk or take a bike path through the forest, which is starting at the post office [4].
- Other areas – Niegoszcz, Radzichowo Komorniki, Pękalin, Paprotno, Barnowo are basically remains of the old villages.

Mielno community and the most attractive areas on the Polish coast in terms of tourism and the natural environment are its vicinity. This is due a number of factors, and the most important are:

- location in close proximity to the sea and the lake,
- good transport links
- the status of investment and availability of tourist accommodation,
- large areas of forest,
- attractive hiking trails,
- microclimate [10, p. 3].

Natural features of the natural environment in the area of Koszalin coast do a good tourist base and make it very attractive for a variety of leisure activities. Numerous beaches, tourist and leisure facilities, marinas, hiking trails, an abundance of marine and freshwater fish, good conditions for fishing, a wide range of cultural and entertainment – all this makes Mielno and surrounding coastal villages: Gaski, Sarbinowo, Chlopy, Mielenko,

Unieście, Lazy, provide each holidaymakers and tourist with something particularly interesting. It is a good place for relax, and what is important in a healthy climate, characterized by a very favorable concentration of marine aerosol in the air. The specific microclimate of Mielno and surroundings is characterized by: a long bathing season (average seawater temperature above 15º C lasts from mid-June to late September, and exceeds 20º C in July and August) and high insolation (average of 8.5 hours in June., about 7 hours of sunny weather in August).

The attractions of Mielno and the surrounding area is not only the sea, sun and climate. There are mud and mineral water in the form of brine. Since the mid-seventies Unieście and Mielno have conducted sanatorium treatment. Here thyroid disease, infections of the upper respiratory tract, diseases of the nervous system, locomotor system diseases are treated. For the purpose of spa treatment in Mielno and Unieście about 700 places are used throughout the year. In some places, in the summer, prevention activity is run.

3. The Practice of Marketing of the Mielno Community

Mielno community is very tourist oriented, possessed tourist attractions significantly impact the economy of the community. The main objective of tourist promotional activities is to seek to ensure that the region is best presented outside i.e. in the country and abroad and to persuade the residents to actively join the creation of the image of the community.
Promotional activities in the community can be divided into two groups:

- internal, aimed at residents, companies and other local and regional institutions,
- external, aimed at tourists, investors, foreign and domestic entrepreneurs.

Implementation of programs of the internal promotion lies in popularization of new ideas and directions of development among the existing businesses and residents. They should be supported by intensive promotion, winning the approval and interest of the public and businesses for these activities.

As a result of the political changes taking place since 1989 cities and communities have transformed from the entities implementing the directive from above (in the centrally planned economy) into economic entity belonging to the group of non-profit organizations, taking into account the requirements of the market, looking for answers to the question: "How to act in order to provide the local community with satisfaction to meet its needs and still be competitive and ensure the development of the city".

The mission of the authorities of Mielno, resulting from the development strategy are: Community of Mielno as tourist sanatorium resort. The mission is reflected in the following aspects [11]:

I. Mielno community as center of economic growth.
II. Mielno community as tourist-sanatorium resort.
III. Mielno community as ecological area.
IV. Mielno community as open, safe and comfortable community.

The overall strategic goal of the community is a sustainable economic growth with care for the environment in a rational manner using the natural resources of the community. And the specific objectives are:

for I. Mielno community as center of economic growth:

- supporting the community labor market,
- supporting the economic development of the municipality.

for II. Mielno community as tourist-sanatorium resort:

- supporting the development of the specific nature of the individual villages for tourist services,
- supporting the development of a modern, year-round hotel accommodation, B & Bs and sanatorium base,
- development of tourism infrastructure,
- the development of sport and recreation base,
- the acquisition of spa status,
- adaptation of the events and activities in the community to meet the needs of tourism development.

for III. Mielno community as ecological area:

- community that is fully electrified, canalized, with waterworks and supplied with gas,
- care for nature - planting, maintaining squares, parks and forests,
- care for the purity of the sea, lakes and waterways,
- maintaining cleanness.

for IV. Mielno community as open, safe and comfortable community:

- the development of transport infrastructure in the community adapted to the needs of the whole community development in close cooperation with the country, neighboring communities, West Pomeranian Regional Road Administration, Office of Maritime and other managing entities,
- raising the level of education in the community,
- care for architectural and spatial order,
- supporting the development of health services in the community,

- improving accessibility to the means of transport, external communications, telephone, the Internet, cultural, sports and recreational facilities, and others,
- continued efforts to improve the level of safety of persons and property,
- promoting activity of community residents - supporting non-governmental organizations, sports clubs and associations,
- support for people at risk of marginalization and social exclusion and the development of social housing,
- the development of council housing.

The “Mielno community as center of economic growth” objective can be achieved by implementation of one of the strategic objectives set out in the Strategy for Integration and Social Problems Solving in Mielno Community for 2006-2013: Building a support system for the unemployed and job seekers. The tasks resulting from the realization of this strategic goal include: continuous cooperation with the County Labour Office in monitoring and solving the problems of unemployment in the community:

- organizing graduate traineeships and profession preparation,
- organizing the emergency and public works,
- promoting employment clubs and trainings,
- supporting the economic development of the community.

As part of the above-mentioned strategic objective of the Strategy for Integration and Social Problems Solving in Mielno Community for 2006-2013 the following tasks are listed, which may have a significant impact on the promotion of economic development in our community:

1. supporting small and medium-sized businesses through tax incentives,
2. the creation of favorable climate for potential investors who could create new jobs, and cooperation with local tourist organizations of Mielno that associates businesses, which carries out joint actions such as:
   - organization of training for entrepreneurs,
   - help and support in raising funds for investments,
   - preparation of investment areas (e.g. road infrastructure),
   - promotion of community is vital to the economic development of the Mielno community.

Implementation of the "Mielno community as tourist-sanatorium resort" is to support the development of a modern, year-round hotel accommodation, B & Bs and sanatorium base. Mielno Community is a typical tourist community, which faces the problem of seasonality. Activities aimed at encouraging tourists to visit it throughout the year, not just in the summer are undertaken in the community. Running a number of investments in

tourist infrastructure is linked to this. In addition, various kinds of promotion of Mielno community contribute to overcoming the problem of seasonality. The promotional activities are organized within the community, which are designed to encourage tourists to visit our city throughout the year. Supporting the development of a modern, year-round hotel accommodation, B & Bs and sanatorium base is also visible through help in raising funds for the development and upgrading of accommodation facilities of tourist infrastructure.

In pursuing the "Mielno Community as ecological area" target help is obtained from the implementation of investments in water, sanitation and road infrastructure (including storm water drainage). In addition, the community area offers interesting green spaces that attract people who want to breathe fresh air and spend their spare time in nature.

The "Mielno community as open, safe and comfortable community" target is carried out through a number of specific objectives. The main task is to eliminate communication barriers. This will allow both residents and tourists to easier move around the community. Removal of communication barriers will lie in adapting routes to disabled people to enable them to fully participate in community life and enjoy the beauty without limits. Achieving this objective is possible through the implementation of road and tourist infrastructure projects. Another task is to improve level of education in the community. Mielno community constantly tries to modernize education and sports base and its facilities, which is a great convenience for children and young learners. The building a support system for people that are unemployed and look for work include taking action in cooperation with NGOs in the direction of an independent consultancy jobs, providing training to learn a new profession in accordance with the requirements of the labor market and foreign language teaching and the organization of labor exchanges. The next target is caring for the spatial and architectural order. Strict enforcement of the findings should in the necessary extent ensure in the coming years a controlled development of land use, taking into account the spatial order and help to increase the attractiveness of the local B & B housing and public facilities in terms of quality architectural solutions. The priority tasks shall include the implementation of the marina and development of recreation and tourism facilities around the Jamno Lake. The specific objective, support for the development of health services in the community, is carried out mainly through the organization of prevention medical tests cycle, which are aimed at prevention or early detection of diseases.

The community takes care of the development and improvement of the infrastructure that serves the residents and guests visiting our community. Community of Mielno as a tourist community must be developed in every way to meet the increasingly higher requirements of the guests. The community organizes a number of high level cultural, educational, entertainment, and sports events, with a range of regional, national and international level. It constantly strives to improve the level of safety of persons and property. Construction of an integrated system of prevention and resolution of problems of addiction in the community is one of the strategic objectives, which can be implemented through the implementation of the following tasks:

1. building effective forms of legal and social control over the harmful conduct forms of people who overuse alcohol;
2. implementation of appropriate forms of alcohol and drug prevention directed specifically to children and young people;
3. development and implementation of local drug prevention program;
4. prevention of domestic violence and negligence – the development and implementation of the local domestic anti-violence program.

Under the auspices of the mayor of Mielno in 2004 the Communal Guard Preventive Programme "Safe School" was developed. This program was created in response to parents councils' in educational institutions existing interest in the cooperation with the Mielno Communal Guard. The aim of the program is to prevent juvenile criminality and providing students, teachers and parents with security and peace.

Conclusion

Territorial marketing refers to the different areas: villages, communities, counties, cities, regions, and countries. The main aim is to ensure a high level of development of the spatial unit and gaining competitive advantage. Since "place", "area" are treated as a product, marketing can play a similar role like in an enterprise, while there is a peculiarity here, depending on whether we consider the city, town, region, country, a special economic zone or a national park. Taking into account the specificity of place certain instruments are adjusted. These instruments are derived from the economic or social marketing or eco-marketing.

Based on the analysis of territorial marketing actions with the example of Mielno general conclusions can be drawn for other settlements. The most important of these are the following:

- Through internal marketing communities create a favorable climate of cooperation with interest groups, among which residents and local businesses are the most important.

- Using external marketing communities contribute to the development of their units by attracting new residents, businesses and tourists.
- Communities that want to improve their competitive position should undertake actions that lead to professional implementation of the marketing concept and the key thing here is to develop a vision of the development taking into account the available resources.
- With the rise of marketing activity of the community one should expect an increase in the level of competitiveness.

Although territorial marketing is gaining in popularity, it is not widely used. It is used mainly in the promotion of territorial units, shaping the identity, as well as brand and image building. Limited approach of authorities and local government employees to the concept of marketing is a problem in many units of local government. This also results from the fact that territorial marketing is relational, based on the long-term, direct relations of the authorities with the local community. Marketing orientation is the philosophy of achieving objectives.

References:

[1] BIP – URZAD GMINY MIELNO. *Plan rozwoju lokalnego*. Mielno, 2004.
[2] DELUGA, W. (red.). *Nowoczesne i tradycyjne instrumenty promocji*. Wydawnictwo Uczelniane Politechniki Koszalińskiej: Koszalin, 1999.
[3] DELUGA, W*. Rola marketingu w rozwoju regionów turystycznych*. Wydawnictwo Uczelniane Politechniki Koszalińskiej: Koszalin, 2000.
[4] KONARSKI, B. *Przewodnik turystyczny Mielno*. Wydawnictwo SKAN: Koszalin, 2004.
[5] KOTLER, P. *Marketing: Analiza, planowanie, wdrażanie i kontrola*. Wydawnictwo Gebethner & Ska: Warszawa, 1994.
[6] MARKOWSKI, T. (red.). *Marketing terytorialny*. Komitet Przestrzennego Zagospodarowania Kraju Polskiej Akademii Nauk: Warszawa, 2006.
[7] MARKOWSKI, T. *Zarządzanie rozwojem miast*. Wyd. Naukowe PWN: Warszawa, 1999.
[8] *Multimedialna Encyklopedia Powszechna PWN*. Wydawnictwo Naukowe PWN: Warszawa, 2009 (wydanie CD).
[9] OLEKSIUK, A. *Marketing usług turystycznych*. Difin: Warszawa, 2007.
[10] SOLOWIEJ, D., CHOIŃSKI, Z. *Mielno i okolice*: *Charakterystyka turystyczno- przyrodnicza*. Oficyna Pomorska S.A.: Bydgoszcz, 1992.
[11] *Strategia rozwoju gminy Mielno do roku 2013*. Załącznik do Uchwały Nr VII/48/2007 Rady Gminy Mielno z dnia 29. marca 2007r.
[12] SZROMIK, A. *Marketing terytorialny: Miasto i region rynku*. Oficyna a Wolters Kluwers Business: Kraków, 2008.

REGIONAL DEVELOPMENT AND SPORT FINANCING

Jaroslava Dittrichová
University of Hradec Králové
jaroslava.dittrichova@uhk.cz

Key words:
sport financing – public budget – public goods – public support – regional development

Abstract:
Public versus privately offered products ratio has, for a long time, been an issue frequently discussed by economists. Sport is public and private product, it is dynamic and fast-growing sector with an underestimated macro-economic impact. Currently, opinions concerning these problems are polarised. In the Czech Republic, sport and physical education have a long tradition. However, standing between the private and public, this sphere has been undergoing major changes which have transformed not only the character of sport, but also the traditional conception of sport and physical education as such. One of the key issues having to be addressed is therefore the role of the State, regions and municipalities in the process of setting unified grant policies rules and the role of grant beneficiaries.

Sport as public goods

The Czech Act of No. 115/2001 Coll., §1, on the promotion of sport, describes sport as a public beneficial activity [1]. According to the bearer of the costs, which are related to the operation of any specific kind of sport, we can distinguish sport into three main categories: pure public goods, mixed public goods and private goods.

As a public goods are meets these important requirements: nonexclusion (cycling in the countryside), shared consumption and zero margin cost for further consumption. Positive externalities are beneficial to the economy and the society.

We can classify sport as mixed public goods if there are any fees collected for keeping good quality of the goods (sport club membership fees).

Sport became a private good if the consumer doesn't want to obey the regulations in consumption (e.g. construction of a private tennis court) [2].

The word "sport" comes from the Latin word "disportare" which means: pleasantly spend time, relax or have fun.

The supply is created by many different kinds of subjects, both private and public. There are two basic ways for the support: institutionally (through the specialized subjects) or financially, furthermore the support can be either direct (grants, subventions) or indirect (taxation policy).

1. Evaluation of sport

Sport is an activity affecting the cultivation of the human capital in both ways – psychical and physical. Reasonable physical activity is one of the determining factors for good health and long life. This cannot be compensated in any other way.

An active way of life, especially due to sport, is one of the most important and effective part of the children's prevention of alcoholism, drug addiction, criminality and several other negative social phenomena.

Sport has a good impact on local economy, including the creation of new job opportunities due to the activity of the sport industry.

This is one of many reasons why the governments of highly developed countries attend to the sport policy. That is primarily focused on participation in different kinds of sport activities. The supply is created not only by the sport clubs but also the local government can become a coordinator of these activities within its region.

The Act No. 115/2001 Coll., §5, §6, on the promotion of sport, specifies the tasks for self-governing units. According to this Act: "Self-governing units keep the expansion of sport for everybody and preparing talents, including disabled people. These units also build, reconstruct, finance and take care of its facilities [1]."

The definition of sport is (according to the Council of Europe): "all forms of physical activity, which seek for an expression or an improvement of physical and psychical condition, creating social relations, achieving results in competitions at all levels, performed casual or organized."

2. Social role and economic importance of sport

Sport is an area of human activity which has an ability to gather and address everybody regardless his age and social origin. It fulfils the educational, social, culture and recreational function of a human being. Amateur associations organize different kinds of sport events. Professional sport helps to run this activity as well.

Sport presents dynamic and rapidly growing sector of the economy which can be used as an instrument for regional development, urban renewal and development and tourism development.

Economic importance is related to the intellectual property rights. These rights refer to the copyright law, business communication, trademarks and media law.

Corruption, money laundering and other forms of criminal activities have very negative influence on the whole sport sector.

3. Public support for sport in the Czech Republic

Sport organizations are funded several different ways. The most common ways are club fees, ticket sales, advertisement, sponsorship, broadcasting rights, sports federation income redistribution, public financial support etc.

Public financial support is aimed into these three categories: national teams and talented sportsmen, physical education and expenditures on property development.

Some sport organizations are funded better than the others. In some cases there is a well working system for distribution of the funds. Equal opportunities and open access to all sporting activities can provide strong public interest. Another important aspect is to realize the importance of public support for local sport organizations and sport in general.

Subsidy recipient has to always co-finance the subsidy which makes it sometimes more difficult due to the lack of own funds. We can observe very negative trend in expenditures of Czech sporting organizations. Direct expenditures are falling due to the increases in indirect expenditures, especially operating costs such as increases in energy, water and labour prices.

Public subsidies for the maintenance and operation are being reduced while the minimum expenditures are at least 2 % property value per year [3].

Combined demands would be 1 065 million CZK, while in 2010 only 177 million CZK has been allocated (in the budget of the Ministry of Education, Youth and Sports), optimum would be 3.5 % property value which is 1 864 million CZK [6].

4. Sports funding and subsidy policy

Conditions for the conception of multiple source civil organizations financing has been progressively created.

The income of sporting organizations is created by their own activity, membership fees, gifts, sponsoring, and the city budgets. Since 2001 they can be also funded by the regional budgets.

Crucial part of the income (60 – 75 %) is used to fund the maintenance and operation of their facilities. Just small part of the income has been left to fund the actual activity of these organizations.

Negative trend of funding from the nation budget has been expressed in legislation. Restrictive subsidiary policy has not been compensated by any tax allowances. The main problem generates the law, especially income, inheritance, donation and real estate-transfer tax law.

The distribution of provincial and municipal funds to the physical educations and sports is subject to these acts: on regions, on municipalities, on the promotion of sport. Regions and Municipalities have to fund the sport from their budget according to these acts and thus is their own responsibility to choose the subsidy policy.

TAB. 1: **Financing of sport in Hradec Králové** (in thousand CZK) [4]

Outgoings/year	**2011**	**2012**	**2013**
Upkeep sports of sports ground	667	1 400	2 000
Support action	700	828	1000
Benefit for club	52 357	51 102	23 062
Benefit for leisure activities	2 578	2 578	2 578
Benefit for top sport	46 862	37 967	43 567
In total	105 175	95 887	74 220

Source: http://www.hradeckralove.org/folder/185/display/

Conclusion

However, just as the unbridled globalisation of finance has lead to a monetary crisis, so in its search for capital growth, he unregulated penetration of money in professional sport risks or losing its ethical sense, being transformed into a mere spectacle offered by professional performers, in which sporting values are less and less present. More seriously, the evermore internationalised financing of professional sport, if uncontrolled, could embroil it in the laundering of dirty money, under-the-table transfers of dubious capital, corruption and embezzlement, as in other areas of international business. In this confrontation between the logic of finance and the ethics of fair competition in sport, the latter must be preserved by the application of a double regulation, the one seeking to curb the uncontrolled lust after money of sport organisations, the other financialy guaranteeing the good conduct of the major financial investors in sport. Otherwise, by default, the power of finance could choke and kill the commercial value of sport as a spectacle, and through capital flowing directly and indirectly through the system, at base affect the financing of mass sport/ Sport for All [6].

Sports financing from the public budgets brings us several problems which we have to solve. The most important are legislation, focus of sport for all,

financing, educational, scientific and research problems, physical education in elementary and middle schools. Individual sport organizations are underfunded and ask for any available support but all of their requests cannot be satisfied. The process of getting any available support from the public gadget is very complicated. In fact it is very hard to promote any project for funding sport organizations. The whole process then corresponds to the applicable laws and several internal directives.

The entire domain of sports financing is the subject of public interest. The reason is large investments in construction, maintenance and administration.

We can observe a trend of transferring ownership rights to the city councils and sports organizations, and then they have to manage the property according to their internal directives.

Important sources of financing are grants from the public gadget but not all of the subjects can take this opportunity. Analysis of the current situation reflects the lack of any sophisticated concept of development. The abilities of voluntary workers are extremely important for the development of civil associations.

References:

[1] Czech Act of No. 115/2001 Coll., *Zákon o podpoře sporu*

[2] DITTRICHOVÁ, J. *Financování sportu jako veřejného statku*, National and Regional Economics VIII, International Conference. Technical University of Košice, Herlany 13. - 15. 10. 2010. Sborník abstraktů, 13 s., text CD, ISBN 978-80-553-0517-2

[3] DIMITROV, D., HELMESTEIN, A., KLEISSNER, B., MOSER, J. *Die makroökonomischen Efekte des Sports in Europa*, Studie im Auftrag des Bundeskanzleramts. Sektion Sport, [online], Wien, 2006. Available: http://ec.europa.eu/sport/index_en.html

[4] Budget of Hradec Králové 2011, 2012, 2013, Available: http://www.hradeckralove.org/folder/185/display/ [online13.12.2012]

[5] ANDREFF, W. *Financing modern sport in the face of a sporting ethic*, Available: http://www.ekospor.com/Sports-Finance/05.pdf

[6] Studie, *Koncepce financování sportu v České republice*, Available: http://www.cstv.cz/zpravy/ostatni/studiefinancovanisportu_kpmg.htm online13.12.2012]

[7] Studie MŠMT ČR*, Analýza financování sportu v České republice,* Available: http://ec.europa.eu/ceskarepublika/doc/ks3_analyza.pdf [online13.12.2012]

CHANGES IN THE ALLOCATION OF FINANCIAL CAPITAL IN ENTERPRISES- LOCAL LEVEL

Paulina Filip
State School Higher Vacational Education in Tarnobrzegu
paola@univ.rzeszow.pl

Key words:
Small and medium enterprise – capital – allocation of capital – financial behavior

Abstract:
Contemporary companies are experimenting with new models of organizational, changes their procedures and processes of capital, try to increase productivity and opportunities of rapid growth. During this process they are changing the scope of the business, raising a new ways of external funds. Also allocation of capital is new defined. Companies decide which sources of funding to keep or strengthen and which obtain. The main research problem is the question of whether and why small and medium enterprises are changing capital structure, as reason for suggesting increase in global competition and changes in the system.

Introduction

Due to the existence forms of capital distinguish between real capital, referenced to specific tangible that allows the existence of the production process and financial capital, which occurs in the form of cash, loans, and securities. This is the real source of capital funding. Financial capital is important for start-up businesses and provides further development and operational functioning [2]. Financial capital is the source of financing real capital and the expansion of the production process. In group polish companies in the possibilities of external sources of capital beliefs, values and standards of proceedings are still changed. Among these changes, there are some predictable, significant relationships that allow on growth and improved business performance and improve its competitive advantage. The main objective of the paper is to identify and present the impact of capital decisions in small and medium enterprises in province Podkarpackie, showing the existing choices and consistent with the financial and capital decisions. The paper presents the results of research carried out under the grant team on a topic ,,Attitude and behaviour change in the allocation of financial capital in enterprises-local level", implemented by Faculty of Entrepreneurship and Management at State School Higher Vocational Education in Tarnobrzeg, no DzWPZ/53 BZ-7/13.

1. Sources of financing for development of SME enterprises

Business activity is a process of systematic changes that requires a significant commitment of capital. Capital usually is obtained from many diverse sources. The sources of financing for investments is an expensive action, requiring engagement of Acquiring and seeking money for conducting business entrepreneurs most often pay attention to their availability, cost and terms of repayment [1]. The expenditures which are connected with financing of particular phases and components of the investment task may be financed from two main basic sources - own and foreign capital. Within the framework of these two basic sources, more specific forms may be indicated [7]. From the other point of view they are known as internal and external sources. The table below presents these sources in details.

TAB. 1: **Type of financing investments and development of enterprises**

Internal financing	External financing	
	Commercial loans	Initiatives of the local state and EU found
Partners' contributions	Bank credits ,Trade credit	Credit warranty
Retained profit	Settlement of bills and debt compensations	Credit subsidies
Sales of unneeded assets	Issuing securities	Domestic subsidies and grants
Depreciation write-offs	Loan funds	EU subsidies and grants
High-risk funds - Venture capital	Leasing	Foreign subsidies and grants
Issuing shares	Factoring, Franchise	Loan guarantees

Source: [7, p. 23]

Internal financing sources, in case of small companies not having legal personality, there are mainly the sources of an owner invested in the activity at the moment of its establishing and generated by the firm during its functioning. In case of sole trader companies and civil partnerships there is a problem of dividing the resources possessed by the firm from the resources possessed by the owner. That is why, internal sources of financing may be perceived as the ways of financing which engage the capital of third parties, except for the owners [3]. In case of the companies having legal personality, internal sources of financing rely on the resources gained by the company during the activity. Introducing important investment projects by enterprises requires the application of external sources of its financing [4]. Own re-

sources are not sufficient and an enterprise has to get credit from the suppliers of machine or lease them, using medium and long term banking credits, applying for the support from the government, international financing institutions, various foundations and funds supporting the development of entrepreneurship etc. Financing sources of such investments are various and their disproportion is a significant problem, allowing for the reality of paying debts of the firm [5]. Apart from simple forms of financing, there are also the kinds of financing which combine the features of financing with own and loan capital e.g. increased turnover of the capital as well as the optimisation of taxation obligations. They are a combination of financing based on internal and external capitals and their basis regards knowledge and skills allowing for proper management of an enterprise.

2. Programs supporting activity of small and medium-size enterprises

In the European Union countries a significant amount of the national income is generated by the small and medium sized enterprises. They also create more work places than large firms. The European Union, appreciating their role in the economy, carries on with many activities leading to strengthening this sectors on the market. These actions are directed towards the small and medium-sized enterprises receiving profits from the globalization of the European market, providing informative services, promoting cooperation between firms, granting financial support, and many other initiatives [9]. Support programs help small and medium-sized firms adapt to the requirements of the homogeneous European Market. Support for the European's small and medium-sized enterprises is realized in various forms, such as grants, loans, and in some cases – security. Available support is both direct, and also by mediation of programs managed on the state and regional level, such as financing programs from the European Union's Structural Funds. SMEs can benefit from sources from the non-financial help, in the form of programs and business support services. Support programmes are realized in follow categories-possibilities of financing SME sector, Structural Funds, financial instruments and supporting internationalization of the SME. The most important European Union program supporting small and medium-sized enterprises is the currently realized Competitiveness and Innovation Framework Programme. This programme is targeted towards promoting competitiveness of European enterprises. Its task is supporting innovative activity, providing a better access to financial resources and supporting business on a regional level. Another important program is Entrepreneurship and innovations programmes, making access to financing resources easier. These resources are designated

for the founding and developing of economic activity, and encouraging invest in innovative activity. Programme promoting all forms of innovations in enterprises and supporting administrative and economic reforms connected with entrepreneurship and innovativeness. This program consists of two components. The first relates to eco-innovations. The budget of the second component is designated for financial instruments. There are three important instruments. First is instrument for a high growth and innovations of SMEs. Its target is to increase the availability of equity for innovative SMEs, in both the development phase and the expansion phase. The second component is guaranty system for small and medium-sized enterprises which provides extra guarantees for guarantee programs in order to increase the availability of funds for SMEs. It deals with the market defects on four areas: access to loans (or loans substitutes, such as leasing) for SMEs with a high potential of growth, financing by means of micro-credits, access to equity, or "quasi-equity"capital, securitization. The last instrument is system -SMEs capacity building system, which supports capacities of financing mediation institutions in some of the member countries.

3. Changes in forms and structures of financing SME- analysis of the research results

The studies performed are a part of results research project. Attitude and behaviour change in the allocation of financial capital in enterprises-local level, DzWPZ/53 BZ-7/13. Survey research was conducted among group 250 small and medium enterprises in the Voivodhip of Podkarpackie. The results present attitudes Polish enterprises in long term, in a moment access with UE structures and seven years later. Until 2005 small and medium enterprises acted using mainly own capital and from family and friends and bank credit, within the short-term period of time. They used their own resources and then they launched investments, what was required at extending differential form of capital. They were not interested in introducing new financial products [8]. The only competing strategy relied on the cutting costs of owned capital. Innovations as tools for building the competitive position were of interest by less than 2% of firms. SME introduced new external sources of capital.

TAB. 2: **Forms of financing small and medium enterprises - comparative analysis (% of answers)**

Form of financing	2005			2012		
	micro	small	medium	micro	small	medium
Credit in current account	51	34	42	53	38	46
Trade credit	17	21	37	19	24	34
Medium term credits and loans - by 3 years	26	11	37	28	21	42
Long-term credits and loans - more than 3 years	2	2	3	4	7	14
Leasing	1	7	14	5	28	35
Loan funds	8			9		
Credit subsidies	1	2	2	5	6	6
EU subsidies and grants	2	2	5	11	14	19
Loan guarantees	6	7	8	7	7	13
Franchise	-	2	6	-	4	9
Factoring	1	1	3	2	2	7
Increase of share capital	-	1	1	-	1	4
High-risk funds, Venture Capital	-	-	2	-	-	3

Source: Author's own study

The last years indicate the change in the strategy of small and medium enterprises. More profound significance in building their competitive position in the market has diversity, specialisation, ability to posses new products and their features. They are mostly interested in investing, though, they invest in new technologies and products. More than 37.6% of SME answering the question what it is more important to development their activity and investment, they pointed out external capital. The most typical ways of the means of financing the activity of enterprises from external sources are bank credit, trade credit and leasing. Credit in current account is attractive for more 50% micro enterprises and more 40 % medium sized companies. From many years the significant role of financing is played by trade liabilities. This is not a favourable situation, as it increases the risk of enterprise's insolvency and it does not contribute to the capital accumulation which is indispensible for its development. Greater and greater role is played by subsidies from the European Union, what is directly connected with the

fact of Poland's entry to EU structures and gaining an access to structural funds. Structural funds were be used by 11% micro, 14% small and 19% of medium SME. Subsidies were obtained by many of them. Now it is a important sources of financing. Bank credit is still the most important sources, though losing its position sources of external financing of investments. Nowadays is a much easier access all sources of bank loans. Financial institutions required smaller extent than in previous years security or deposit. The great number of SME has an opportunity to increase the long term credits. Short term credits and loans by 3 years are used by the same percent of micro enterprises -28%.In the group of small firms this indicator raised from11% to 21% and in medium companies from 37% to 42 %.Small and medium enterprises are also eager to selecting leasing. It is used by 35 % medium sized firms in region.

Conclusion

One of important barriers in the small and medium enterprises sector is the financial barrier. In Poland the main institutions financing small and medium enterprises are commercial banks. Banking system is the main supplier of money, especially in such forms like credit in current account and medium or short term credits and loans. From years trade credit is still popular form of financing among polish enterprises. A very important position after bank credits and loans is held by leasing and subsidies from the EU. Subsidies and grants are so attractiveness for local enterprises and a great change to resist the position of SMEs. Access to foreign subsidies and grants is directly connected with the fact of Poland's entry to EU structures. Polish SME in Podkarpackie focus on building their prosperity. They invested in assets and new product, allowing for increasing production and rendering services. They were interesting from introducing new financial products, like franchise, factoring, VC funds.Integration with the EU market raises hopes for broader development of financing of this type of sources of capital.

References:

[1] ALIŃSKA, A., LATOSZEK, E. *Financing SME in Poland from EU financial resources as the factor influencing competitiveness of enterprises*, Szkoła Główna Handlowa, Oficyna Wydawnicza, Warszawa 2008,

[2] GRZEBYK, M. *Ocena kondycji finansowej firmy TuBis,* ZN Uniwersytetu Szczecińskiego, nr 492, Szczecin 2008, ISSN 1640-6818, p.385-387

[3] GRZEBYK, M*. Finansowanie działalności małych i średnich przedsiębiorstw* [w:] Uwarunkowania przedsiębiorczości, pod red. K. Jaremczuka, Tarnobrzeg 2004, ISBN 83-917293-6-2, p. 344-354,

[4]HUTTMANOVÁ, E., KISEĽÁKOVÁ, D. *Support of entrepreneurship of small and medium enterprises through financial resources from EU funds*. [in] PJMS Polish Journal of Management Studies, volume 1, University of Technology, Częstochowa, 2010, p. 5-14.
[5]ŁUKASIK, G., SKÓRNIK, A. *Finansowanie małych i średnich przedsiębiorstw na rynkach europejskich-wybrane problemy*, Zeszyty Naukowe Uniwersytetu Szczecińskiego, seria Ekonomiczne problemy usług no. 34, Szczecin 2009, p. 70
[6]*Monitoring of the condition of the SME sector*, report, the Polish Confederation of Private Employers Lewiatan, Warsaw 2011, p.74
[7]MOLO, A., BIELÓWKA, M. *Review of available sources of financing economic activity as well as the assessment of its attractiveness* [in:] Financing the development of small and medium enterprises", Polish Foundation of Promotion and Development of Small and Medium Enterprises, Warsaw 2000,p.23
[8]SMOLEŃ, M. *Procesy zmian rozwojowych w gospodarce regionu Podkarpacia,* Wydawnictwo Difin, Warszawa 2009, p.47
[9]SZYMAŃSKA, A. *Fundusze UE 2007-2013 dla mikro, małych i średnich firm*, Wydawnictwo PLACET, Warszawa, 200,p.37

INNOVATION IN THE EUROPEAN UNION IN THE LIGHT OF LISBON STRATEGY AND EUROPE 2020 STRATEGY

Krzysztof Adam Firlej
Cracow University of Economics
chriskrk2@yahoo.pl

Key words:
program development – innovation and the Lisbon Strategy

Abstract:
This article attempts to characterize the programming issues of innovation development in the European Union described in the Lisbon Strategy and Europe 2020 Strategy. It discusses the role of innovation in the long-term development of the economy of the European Union. The author attempts to analyze the level of innovation of the EU economy on the basis of selected indicators in 2010, which allowed the separation of the countries with the highest and lowest potential for innovation.

Introduction

The experiences of the world, especially Europe indicate that market mechanisms do not have self-pro-innovative structural transformations in the economy of all countries and regions [2, 9]. This is evidenced by the relatively low level of innovation in the European Union compared to the United States. For this reason, the European program of economic, social and territorial development aims to boost the innovation processes determining increase of its competitiveness. In the European Union's development programming, aspects of the development of human capital and the creation of knowledge-based economy, which are the main carriers of innovation, are the most important instrument of structural transformations in the economy and, consequently, maintaining, or even increasing the European standard of living. The role of innovation in the development and progress of the socio-economic development is extremely important, because innovation is an indispensable condition for the development of a dynamic and efficient economy [1, 27]. The condition of the innovation is the existence of a tendency to innovate, which is innovativeness. Innovation can be defined as the tendency to create new or improve existing products and processes, and new systems of organization and management, as well as other creative and imitative changes, leading to the creation of new values in the various subsystems of the economic system to assimilate foreign companies and scientific and technical achievements. Innovation management is defined as

the ability and motivation of entrepreneurs to constantly seek and use in practice the results of research and the research and development of new concepts, ideas and inventions [5, 9].

1. The purpose, methodology and research area

The purpose of this paper is to present both theoretical and empirical aspects of innovation development programming in the European Union. This paper attempts to diagnose the level of innovativeness of the member states on the basis of quantitative analysis of indicators such as the level of expenditure on R & D in relation to GDP, number of people employed in science and technology as a percentage of total employment in the national economy and the number of patent applications European Patent Office.

2. Programming the development of innovation in the European Union

Development programming is the process of setting goals, priorities and objectives of European development policy, organizing and financing their implementation carried out in several stages, and their joint implementation by the Member States and entities operating in them [2, 16-17]. The programming process is carried out in the framework of long-term cooperation and joint actions of the community and Member States as well as economic and social actors, resulting in the preparation of program documents applicable in the Community during a whole programming period. Development programming in the European Union is seen as a modern form of socialized planning and economic, social and ecological market economy. Its main objective is to create the development of a knowledge-based economy (KBE) and the so-called intelligent sectors of the economy (*new economy*) that benefit from the development of science and technology, and produce innovative products and services with a high proportion of added value, so they are very cost-effective. The European Union, in its attempt to respond to the challenges of globalization, formulated the main directions of development of the EU for the years 2000-2010 in the Lisbon Strategy [2, 16-17]. Its main objective was to overcome the internal structural barriers, as well as causing the EU economy the most dynamic and competitive on a global scale, based on knowledge and innovation, capable of sustainable development and forming an increased number of jobs and greater social cohesion. These objectives were to be achieved by 2010. The Lisbon Strategy was implemented using the so-called *open method* of coordination in the European Union, which has proved to be ineffective in practice [3, 7-8]. The main objectives of the Lisbon Strategy, in particular the increase of innovation, entrepreneurship and employment, labour market reforms and pension systems depended on political and economic decisions at the na-

tional level, with particular emphasis on those taken by private operators and not by the EU itself. According to the Lisbon Strategy, the private sector was obliged to cover 66% of expenditure on research and development in each member state, and the public sector 33%, so that their overall level was at least 3% of the GDP of the country. This task has been carried out by the private sector, which was not too compelled by the authorities of the Member States, since they implemented the neoliberal economic model and support it for political reasons, no matter the cost to the economy and society of the European Union, and at the same time, contrary to the assumptions of Lisbon Strategy, as well as long-term interests of the private sector. Unrealized fully Lisbon Strategy objectives remain valid, because the concept of the development of the European Union on the basis of its economy and increased innovation seems to be the only reasonable solution [2, 18-21]. This view is reflected in the new EU development strategy for 2011-2020 called the *'Europe 2020. "A strategy for smart, sustainable and inclusive growth".* This strategy is a modification of the Lisbon Strategy, and is adapted to the new conditions of development resulting from the global economic crisis, as well as changes in the global economy. The main objective of the Europe 2020 Strategy, in spite of the unfavourable conditions of globalization and crisis, points to maintain the successful model of the social market economy, which will be possible thanks to the development of a knowledge-based economy. The Europe 2020 Strategy shows the same goal in the desired level of investment in research and development activities of the Member States of 3% of GDP [2, 23]. The essential task, formulated in the Europe 2020 Strategy, is to increase investment in this activity by the private sector, and to improve the conditions for private R&D activities in the European Union.

4. Level of innovation in the EU economy

One of the most popular measurement methodologies for innovativeness testing is the Oslo methodology, developed more than 40 years ago [4, 48]. The basic ratio used in this methodology is the indicator called GERD, showing gross domestic expenditures on R&D activities. GERD to GDP ratio is one of the most important indicators used in international comparative statistics. Other frequently used measures of the level of innovation include, among others, rate employed in science and technology in relation to the total employment in the national economy and the ratio and number of patent applications submitted to the European Patent Office per million inhabitants. Analysis of the level of expenditure on research and development in the countries of the European Union in 2010 shows wide variation (Table 1). The undisputed leader in this area is Finland, where expenditure

on R&D sector reached 3.9% GDP and much higher than 3%, indicated as a target in the Lisbon Strategy and Europe 2020 Strategy. This level has been also reached or exceeded only by Sweden (3.39%) and Denmark (3.07%). High expenditure on R&D has also been noted in the economies of Germany (2.8%) and Austria (2.79%). The lowest value of the ratio was observed in Romania (0.46%) and Cyprus (0.5%). Another indicator is the share of people working in science and technology in relation to the total employment in the national economy (Table 1). In this area, we observe dominance of Luxembourg (55.9%) and three Scandinavian countries - Denmark (51%), Sweden (50.8%) and Finland (50.6%). Note the high position of Belgium (49.3%), Ireland (45.9%), the UK (45.1%), Estonia (45%) and Germany (44.8%). The lowest value was recorded in Portugal and Romania, 23.9% and 24.4%, respectively.

TAB 1. **Selected indicators of the level of innovation in the European Union in 2010.**

Country	Expenditure on R&D (as % of GDP)	Employment in science and technology (as a % of total employment in the national economy)	Number of patent applications submitted to the European Patent Office (per million inhabitants)
The European Union 27	2.01 *	40.5	108.59 *
Belgium	2.01	49.3	130.49 *
Bulgaria	0.6	31.6	1.61 *
Czech Republic	1.55	37.8	25.52 *
Denmark	3.07	51	241.71 *
Germany	2.8	44.8	265.57 *
Estonia	1.63	45	38.07 *
Ireland	1.71 *	45.9	79.13 *
Greece	-	32.4	6.72 *
Spain	1.39	39	31.61 *
France	2.24 *	43.8	135.11 *
Italy	1.26	33.8	73.31 *
Cyprus	0.5	43.9	12.97 *
Latvia	0.6	37.8	-
Lithuania	0.8	42.7	6.49 *
Luxembourg	1.48	55.9	165.91 *
Hungary	1.17	33	20.23 *
Malta	0.67	31.9	-

The Netherlands	1.85	51.9	193.42 *
Austria	2.79 *	39.2	188.3 *
Poland	0.74	36.3	8 *
Portugal	1.59	23.9	10.19 *
Romania	0.46	24.4	1.86 *
Slovenia	2.09	40.8	81.69 *
Slovakia	0.63	33.5	6.04 *
Finland	3.9	50.6	217.69 *
Sweden	3.39 *	50.8	306.74 *
Great Britain	1.8 *	45.1	76.51 *

* Estimate

Source: own study based on [6], access 17.11.2012.

Concerning the number of patent applications to the European Patent Office per million inhabitants, the clear leader is Sweden, which was the only of EU countries that exceeded the barrier of 300 applications (exactly 306.74) (Table 1). It is worth noting that this is the result nearly three times higher than the EU27 average of 108.59. Next to Sweden were Germany (265.57), Denmark (241.71) and Finland (217.69) applications. Close to achieving barrier of 200 applications were Netherlands (193.42) and Austria (188.3). At the opposite extreme were the countries that were not able to get up to 10 applications, namely: Bulgaria (1.61), Romania (1.86), Slovakia (6.04), Lithuania (6.49), Greece (6.72) and Poland (8).

Summary

The European Union in a number of areas relevant to the development of innovative economy is weaker than the United States and also develops more slowly. At the same time the EU economy suffers increasing pressure from the growing China. In the area of innovation in the European Union it is necessary to permanently increase spending on research and development, as a key determinant of the direction chosen in European development strategies. This action should allow not only to maintain but also to strengthen its competitive position. Based on the analysis in the area of innovation management in the light of the EU's Lisbon Strategy and the Europe 2020 Strategy, one can make the following conclusions:

1. In the era of globalization, innovation is an important determinant of competitive economy building in and entities functioning within it;
2. Innovation development programming in European Union is a reasonable action, because market mechanisms alone are not able to self-drive pro-innovative structural transformations in the economy;

3. The innovation aims of the Lisbon Strategy that were not fulfilled are the result of ineffective "open" coordination method and the lack of tools of economic pressure, which could be determining the innovativeness of private sector;
4. The realisation of Europe 2020 Strategy and its aims concerning innovation will largely depend on the private sector involvement in R&D activities;
5. The realisation of Europe 2020 Strategy is endangered by world economic crisis influencing public finance in European Union Member States, the tendency of budget limitations, high unemployment rates, slow economic development and consequently, problems of private sector;
6. Innovativeness of European Union differs by country. Some of the Member States have high innovative potential, for example Denmark, Finland, Germany or Sweden. At the same time, innovativeness of countries such as Bulgaria, Latvia, Lithuania or Romania remains dramatically low.

References:

[1] MARCINIAK, S. *Innowacyjność i konkurencyjność gospodarki/ Innovation and competitiveness of the economy*, Wydawnictwo C.H. Beck, Warszawa 2010, ISBN 978-83-255-1531-7.

[2] PRUSEK, A. *Innowacyjność jako główny instrument strategicznego programowania rozwoju w Unii Europejskiej/ Innovation as a key instrument in the development of a strategic program of the European Union*, [w:/in:] Prusek A. (red.), *Konkurencyjność i innowacyjność gospodarki polskiej w Unii Europejskiej/ Competitiveness and innovativeness of the Polish economy in the European Union*, Katedra Polityki Ekonomicznej i Programowania Rozwoju Uniwersytetu Ekonomicznego w Krakowie, Kraków 2011, ISBN 978-83-934124-0-2.

[3] PRUSEK, A. *Ocena skuteczności modelu kreowania innowacyjności w Unii Europejskiej i Polsce oraz jego konsekwencje ekonomiczno-społeczne/ Evaluation of the effectiveness of creating a model of innovation in the European Union and Poland as well as its socio-economic consequences*, [w:/in:] Mikołajewicz Z. (red.), *Wyzwania dla polityki rozwoju gospodarczego i społecznego w warunkach integracji europejskiej i światowego kryzysu gospodarczego/ Policy Challenges for economic and social development in the context of European integration and the global economic crisis*, Wydawnictwo UN, Opole 2011, ISBN 978-83-7395457-1.

[4] SZMIGIEL, K. *Determinanty innowacyjności krajów Unii Europejskiej na przykładzie Szwecji/ Determinants of innovation, the European Union countries - the example of Sweden*, [w:] Prusek A. (red.), *Konkurencyjność i innowacyjność polskiej gospodarki w Unii Europejskiej*, Katedra Polityki Ekonomicznej i Programowania Rozwoju Uniwersytetu Ekonomicznego w Krakowie, Kraków 2011, ISBN 978-83-934124-0-2.
[5] WISZNIEWSKI, W. *Innowacyjność polskich przedsiębiorstw przemysłowych/ Innovativeness of Polish enterprises*, Wydawnictwo Instytutu Organizacji i Zarządzania w Przemyślu Orgmasz, Warszawa 1999, ISBN 83-86929-67-7.
[6] www.epp.eurostat.ec.europa.eu

THE IMPACT OF SERVICE OFFSHORING ON THE RISE IN EMPLOYMENT IN A POST ACCESSION PERIOD

Krzysztof Firlej, Andrzej Pisulewski
Cracow University of Economics
krzysztof.firlej@uek.krakow.pl, andrzej.pisulewski@gmail.com

Key words:
offshoring – outsourcing – service centres – employment – investment attractiveness

Abstract:
In this paper the similarities and differences between outsourcing and offshoring processes in the economy have been discussed. This has allowed a synthetic overview of the key factors influencing and determining the location of offshoring investments in a post-accession period. Furthermore, the evolution of offshoring investments in Poland through the prism of their expansion in the number of centres and an increase in their employment has been described. Additionally, the factors which are seen as opportunities for further development of the sector in Poland have been presented.

Introduction

Considering the functioning of the world economy it can be seen that it is perceived today by many authors as a global business conducted on the basis of large corporations and states that is unstoppable. The main incentive for business development on a global scale has become a global consequence of market trends and customer needs diversified in different parts of the world. The role of transnational corporations (TNCs) is still growing and is becoming increasingly important in the global economy. Transnational corporations operating on an international scale need to perform their own growth by making acquisitions and mergers with smaller and larger organizational units. Structural diversity and multiplicity of business lines located in different countries imply a lack of standardization and unification of systems and processes [7, 313]. The impact of economic globalization, understood as the increasing importance of foreign trade, capital flows, international finance, migration, information technology and the internet [6, 11] has enabled relocation services in international markets. Transnational corporations engage in search capabilities to extract and move to cheaper locations in support of their vital operating functions. As a rule, this requires processes, accounting, as well as back-office support. In the Polish

economy post-accession period, the area and complexity of the activities entrusted to a separate external entities have expanded significantly. One has also seen a trend moving abroad more complex processes that require the employment of specialists in the field, which is commonly known as Knowledge Process Outsourcing, as well as the release and transfer abroad of departments of research and development (R & D).

In this paper, the main objective is to demonstrate the impact of outsourcing and offshoring on employment growth in Poland.

1. Outsourcing vs. Offshoring

Several definitions of outsourcing and offshoring can be found in the specialised literature. It is important to distinguish these two concepts according to geographical location of the operating business service and the ownership of the economic entity contracted to execute business processes [5, 13]. The relation between outsourcing and offshoring has been presented in the table 1.

TAB 1: **Relation between outsourcing and offshoring**

		The geographical location of the transferred business activity		
		Location within the country	Location abroad in the same part of the world	Location abroad in a different part of the world
The form of ownership of the entity implementing outsourced business processes	Under the ordering company	Captive onshoring	Captive nearshoring	Captive offshoring
	Outside the contracting company	Onshore outsourcing	Nearshore outsourcing	Offshore outsourcing
		Onshoring	Nearshoring	Offshoring

Source: [3, 11]

Outsourcing (outside-resource-using) is to be understood as a form of separation from the organizational company structure and transfer into another economic entity [8, 13].

According to Liberska, offshoring is the transformation in functioning of an international business influenced by ICT (Information and Communication

Technology) and stronger global competition, heading towards separating the part of services dealing with customer services or business service. The above mentioned services are offshored into the countries which offer lower labour costs. To be more precise, the process is called international service outsourcing or offshoring [1, 20]. Further, one can read [1, 18] that it is actually difficult to distinguish between outsourcing and offshoring due to some rapidly expanding enterprises and their IT development.

Two types of offshoring can be distinguished [1,21]:
- captive offshoring (corporate owned offshoring) – internal operations which aim to establish a branch or a subsidiary in a foreign country that would enable the control over business or production process.
- offshore outsourcing – transferring a part of business to an external company which operates in the foreign country.

There are ten aims which outsourcing and offshoring help to achieve [2, 16]: Cost control and reduction, Developing the focus on the company's core business, Access to high quality production capacity, Releasing the companies' own resources for other purposes, Obtaining resources which the organization does not have, Accelerating the emergence of the benefits of restructuring, Dealing with functions difficult to perform or impossible to control, Raising capital, Risk-sharing, Inflow of cash.

2. Investment attractiveness of Poland for service offshoring

The most important factors which determine investment attractiveness for service offshoring are [1, 66]:

1. Costs: workforce - the average wage of employees and managers in the country, infrastructure - expenses related to communication, internet access, electricity, etc., property - the cost of hiring or purchasing headquarters, corporate taxes - an estimate of the overall tax burden, tax breaks and other incentives used to attract foreign investment
2. Access to skills: workforce with the required education and skills, estimated size of the offshore sector in the country, as well as participation in international trade in services in the country's exports, number and size of companies specialising in IT or BPO services
3. External sector: government policy towards foreign direct investment, the complexity of tax law, the level of bureaucracy and corruption, business environment - compatibility of business norms and principles of conducting business and cultural similarity, conditions of living and GDP per capita, percent of persons infected with HIV, the number of crimes per capita, accessibility - distance flights, travel time, time differences

4. The market potential: attractiveness of the market - the amount of GDP and its growth temperature, access to nearby regional markets
5. Risk: the risk of unforeseen events such as natural disasters, political upheaval and strikes, threat to personal safety and property, exposure to terroristic attacks, fraud and crime, macroeconomic risks - inflation rate, freedom of movement of capital, risks associated with exposure to intellectual property - the level of protection of intellectual property
6. Infrastructure: level of telecommunications services, access to the Internet, speed and coverage of services, property - availability and standard, transportation - roads and their network, electricity - power supply reliability

Another factor that attracts companies to this location is the development of regional industry clusters or clusters. Dynamic Clusters, unlike a traditional cluster of urban centres and industrial complexes are clusters of high-tech industries. Clusters of this type attract and integrate knowledge-based resources and qualified companies seeking new business solutions [7, 208].

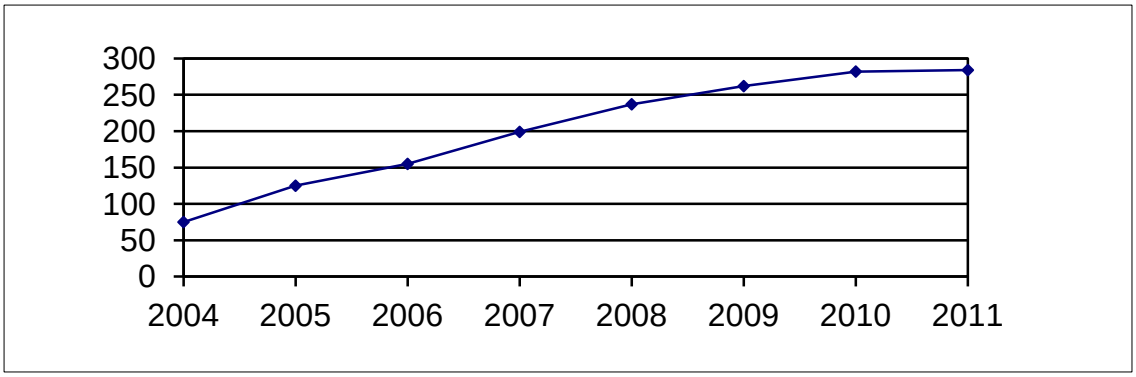
The main advantages of Poland as an investment location for service offshoring are [5, 56]:young and well-educated personnel, availability of qualified specialists speaking foreign languages (besides English), geographical localisation - excellent location for nearshoring from Western Europe, cost attractiveness in comparison to Western Europe, political and economic stability, over a dozen academic centres, well developed infrastructure, graduates well-adjusted to the needs of the labor market, existence of branch organisations, representing the companies in their contacts with authorities.

Additionally, the following factors are seen as opportunities for further development of the sector in Poland [5, 56]: dynamic development of knowledge-based services (Knowledge Process Outsourcing), growing share of companies from Western Europe including nearshoring in their operational strategies, unstable political situation in some competitive localizations.

3. Development of service offshoring in Poland from 2004 to 2010

The amount of service centres in Poland has grown systematically from 2004 to 2010 (graph 1.). There are currently 282 service centres in Poland. A continuing growth in the number of service centres is forecast for 2011. Employment in service centres has grown from 46 500 in 2008 to 69 000 in 2010. The estimated number of the employees of the sector at the end of 2011 is 75 500.

GRAPH 1**: The number of service centers in Poland from 2004 to 2010**



Source: compiled by author basing on data from [3]

Interesting is the structure of BPO market in Poland, where the largest share of services is in customer relationship management (32%) and in financial and accounting (29%). The smallest share of the market are payroll services (22%) and the lowest HR services (8%), purchasing management services (5%) and other (4%) [4].

TAB 2: **Comparison of number, size of employment and growth in the size of employment in service centers in the main locations**

City	Number of centers	Size of employment	Growth in the size of employment (%)	Growth in the size of employment (thousands)
Warszawa	>40	>10	<40%	3-4
Kraków	>40	>10	<40%	3-4
Łódź	30-40	5-10	60-80%	2-3
Wrocław	30-40	>10	>100%	>4
Poznań	10-29	2,5-5	80-100%	1-2
Trójmiasto	10-29	5-10	40-60%	2-3
Szczecin	2-9	1-2,5	80-100%	>1
Bydgoszcz	2-9	1-2,5	40-60%	>1
Katowice	10-29	2,5-5	40-60%	1-2
Lublin	2-9	1-2,5	<40	>1

Source: compiled by author basing on data from [3]

Most service centres are located in Warszawa (54 centres), followed by Kraków (43), Wrocław (38) and Łódź (31). In the table 2 the size of the sector in the key locations for offshoring was compared. The comparison shows that since 2008 most new jobs were created in Wrocław (more than

5000). Significant job growth was also recorded in Kraków and Warszawa (over 3000), Łódź, and Trójmiasto (over 2000).

Conclusions

The economic analysis of offshoring and outsourcing processes and its results indicate the financial and economic crisis impact on employment growth in the sector. The development of services of this nature has contributed to the occurrence of the following changes in the Polish economy:

1. The economic downturn on the global markets has led to a drop in demand for outsourcing and offshoring and the negative financial results of companies therefore they are forced to search for new savings;
2. Outsourcing and offshoring appear to be the most effective processes to reduce costs by extending the scope of services provided to comply with external suppliers, which subsequently broaden the outsourcing companies offer;
3. In the coming years further development of offshoring services is expected to happen and should concern advanced services based on knowledge and research and development departments, which provide greater value added. Poland due to its strong academic centres, which provide a steady supply of young and educated workforce, meets the conditions to become a major location for offshoring knowledge-based services and research and development departments.

References:

[1] CIESIELSKA, D. *Offshoring usług: wpływ na rozwój przedsiębiorstwa*, Oficyna a Wolters Kluwer business, Warszawa 2009, ISBN 978-83-7601-925-3

[2] GAY, CH. L. *Outsourcing strategiczny*, Oficyna Ekonomiczna, Kraków 2002, ISBN 83-88597-64-7

[3] GÓRECKI, J., BARTOSZEWICZ - WNUK, A., KARPIESIUK, Ł., KIJONAKA, R., *Sektor nowoczesnych usług w Polsce*, Association of Business Service Leaders in Poland, Warszawa 2011

[4] JADCZAK. A, http://www.computerworld.pl/news/367523/Roku.2011.ma.byc.przelomowy.dla.outsourcingu.uslug.biznesowych.w.Polsce.html

[5] MICEK, G., DZIAŁEK, J., GÓRECKI, J. *Centra Usług w Krakowie i ich relacje z otoczeniem lokalnym*, Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków 2010, ISBN 978-83-233-2872-8

[6] RADŁO, M-J. (ed.), *Delokalizacja w rozszerzonej Unii Europejskiej – perspektywa wybranych państw UE. Wnioski dla Polski*, Urząd Komitetu Integracji Europejskiej, Warszawa 2006, ISBN 83-89972-84-0
[7] SZYMANIAK, A. (ed.), *Globalizacja usług. Outsourcing, Offshoring i Shared Services Centers*, Wydawnictwo Naukowe INPiD UAM, Poznań 2007, ISBN 978-83-60677-21-6
[8] TROCKI, M. *Outsourcing. Metoda restrukturyzacji działalności gospodarczej*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2001, ISBN 83-208-1340-9

FRANCHISING AS A MODERN BUSINESS MODEL FOR SMALL AND MEDIUM-SIZED TRADE ENTERPRISES IN POLAND

Firlej Krzysztof, Rydz Agnieszka
Cracow University of Economics
krzysztof.firlej@uek.krakow.pl, agnieszka_rydz@wp.pl

Key words:
franchise – retail chains – small and medium-sized stores

Abstract:
The paper presents the structure of trade in Poland, shaped in the last two decades as a result of the expansion of strong capital traders. Currently, an important place in the economic space is occupied by both large-space outlets, mainly hypermarkets, supermarkets, discount shops as well as small shops owned by local entrepreneurs. In the empirical part, based on the results of the survey conducted in institutions belonging to the Carrefour Express and Leviathan, the author presents the benefits and limitations resulting from franchise systems and their influence on the development of small and medium-sized traders.

Introduction

The foundation of the modern market are coexisting with each other, both large retail outlets (hypermarkets, supermarkets, discount stores), as well as small retail stores belonging to the individual owners. The latter face numerous problems resulting from strong competition of the dominant, large retail outlets in the market, so that their independent activities on the market is likely to decline in importance, and consequently is replaced by various forms of integration. Trade cooperation with strong commercial capital, having an established position in the market brings survival and the ability to develop for small and medium-sized enterprises. New and innovate business model, which is a particular type of franchise business relationship that allows to strengthen the competitive position of each firm brings tangible benefits to both partners and creates opportunities for implementing synergies [1]. Currently, *franchising* has become not only acceptable, but actually an integral way of doing business, both at state level, as well as on a global scale [2].

Problems concerning traders and franchising was the subject of research for many theorists and practitioners, among which are worth mentioning: A. J. Sherman, J. Mathews, A. McMillan, L. Stecki, R. Kowalak, B. Pokorska, M. Sławińska, M. J. Żółkowska and many others.

1. The objective, factual material and methods of research

The purpose of the article was to show the importance of franchise agreements activities and the development of small and medium-sized firms as well as their rating in the opinion of franchisees. Empirical part presents the results of a survey conducted in 2012, in selected retail outlets located in the Malopolska province, operating under the Carrefour Express and PSH Leviathan. The questions included in the questionnaire were addressed to the owners of small and medium-sized retailers who made the franchise cooperation with Carrefour Poland sp., and Leviathan Holding SA. The survey was conducted in 187 of 228 stores operating at the time of the survey in the Malopolska province, which is 80.02% of regional stores and 6,45% of stores in the entire country. Research sampling was conducted in a targeted manner to show the business strategy based on the model of the franchise in terms of two different market players, which is an international network of Carrefour, and Leviathan built with the Polish capital. The company Carrefour Poland Ltd. in present in the market since the mid-90ties and has an established position among the leaders of large trade, and develops a network of franchise stores from 2010. The PSH Leviathan in turn has many years of experience in building an integrated network of trade, as it is operating in the market since 1994. Currently it is one of the largest franchise networks in the Polish market, as under the brand name of the company operates over 2,730 outlets.

2. The development and structure of retail trade in Poland

The current shape of the Polish trade, its structure and form are a direct consequence of changes that began in our country along with the period of transition. In the trade sector, much faster than in other sectors of the economy, there has been a general mastery of market mechanisms, fixation of client-oriented elements and acquisition of the fundamental principles of marketing behaviour [3]. Appearance of foreign brands in the Polish market, such as Carrefour, Real, Tesco, Geant, Auchan, E'lecler and the related transfer of foreign capital and marketing strategies has made changes in the trade progress rapidly, with the development of large retail outlets (hyper- and supermarkets). The development of large outlets was quickly joined by the development of discount shops, mainly networks as Biedronka and German companies: Lidl, Aldi and Kaufland, which offered its customers a smaller choice than supermarkets, but with significantly lower prices. Principles of the market economy meant that indigenous companies, which were characterized by high fragmentation had to meet the new rules dictated by the high level of competition from foreign retail outlets. The realities of today's marketplace meant that many small and medium-

sized enterprises collapsed, and those that survived have had to apply different strategies, which gave them an advantage over its competitors, particularly in pricing, assortment and service.

According to the data from the Central Statistical Office at the end of 2011, the estimated number of stores in Poland amounted to 345 thousand and was a lower than last year by 0.3% [4]. The data collected in Table 1 show that in the period 2003-2011 the total number of stores decreased by 12.02%, but not all formats recorded declines in number.

TAB. 1: **Retail outlets in Poland by organizational form.**

Item	2003	2005	2007	2009	2011
Shops in total: including:	386468	384001	3 71328	371839	344982
Department stores	102	95	76	60	66
Trade Stores	517	462	372	314	280
Hypermarkets	293	374	396	495	565
Supermarkets	2,043	2,716	3,506	4,041	5,006
Other shops	383513	380354	366978	366929	339065
Gas Stations	9,173	10036	9,807	9,738	9,603

Own study based on CSO data.

The most rapidly growing is the sector of supermarkets in Poland, as their number increased during the specific period of 145%. High dynamics also characterizes the hypermarket form, the number of which since 2003 has increased by 92.83%. In contrast, the number of stores classified as other decreased by 13.11%, which category includes small and medium-sized domestic traders. Sector of commercial small and medium-sized enterprises is still differentiated, both in terms of size, organization, product range, the legal form and location [5]. It should be noted that the large retailers can operate only in a suitable location for them, and this is major cities. Small grocery stores do not have the limitation and therefore can operate out of large cities, especially in small towns, settlements and villages. These observations have been made by the big chain stores, which in the diversification of portfolio begun to invest in small local shops and convenience stores. At the same time, the owners of small shops saw their chance, for which the preferred solution is franchise agreement. Manifestation of the modern market is trading network that provides retailers with the opportunity to develop individual and large trade networks, giving both Polish and foreign owners the possibility of expansion on an unprecedented scale.

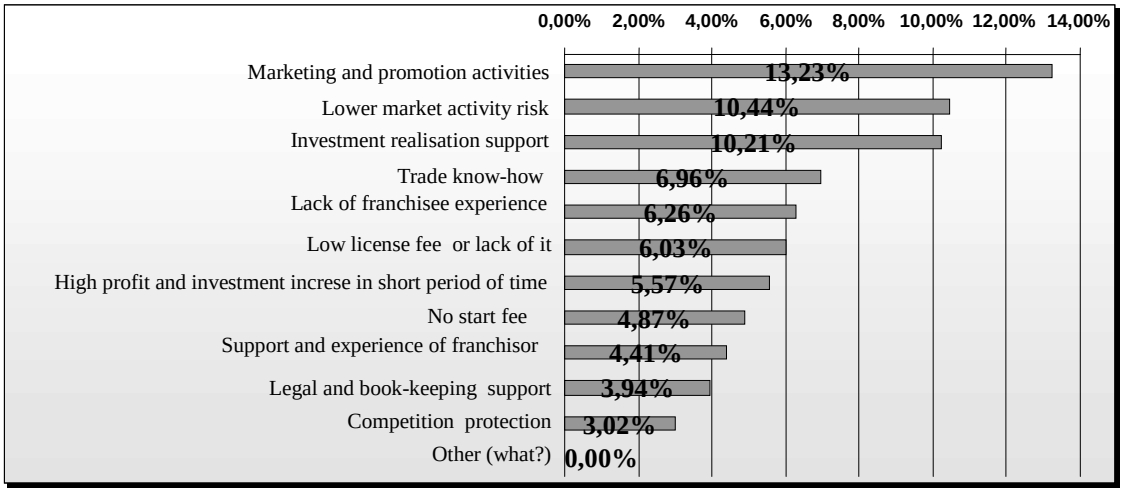
3. Benefits and limitations associated with participation in a franchise system for individual traders - the results of empirical research

Franchising in commercial activities is defined as a system for the sale of goods, services, or technology, based on the close and continuous co-operation between legally and financially separate and independent enterprises (franchisor and individual franchisees) [6].

The cradle of the system is believed to be United States and that's thanks to *Singer Sewing Machine Company,* who created a network of dealers in the second half of the XIX century [7]. Then the franchise leaders such as *Coca-Cola* and *McDonald's* joined. First franchise system began to operate in the Polish market in 1989 through a French network Yves *Rocher.* According to the latest research, in 2011 in Poland operate 746 franchise systems, of which a significant portion is operating in trade. The greatest interests in such agreements have independent grocery store owners who are willing to enter into cooperation with a strong partner. In the last year in Poland, more than 21 thousand of such facilities were operating based on franchise [7].

Research was done in the group of the owners of retail stores, who have entered into a franchise agreement with Carrefour Poland Ltd. and PSH Leviathan. The owners were in 71.23% men, with higher education (53.47%) or high-school level (42.36 %), with at least 5 years of experience in business (55.88%). The respondents were asked which elements of franchise agreements are most favourable to them (Fig. 1).

FIG. 1: **The benefits of a franchise agreement.**



Own study based on questionnaire survey.

Respondents clearly indicated that the possible benefits from the promotion and marketing offered by a partner (13.23%) was the main factor motivating them to work with the commercial network. Next were the risk reduction

activities (10.44%), support of the implementation and realisation of investment (10.21%), and access to the trade know-how (6.96%). Less important was the aspect of protection against competition (3.02%). The next question asked was what kind of support offered by the franchisor before the start of action they deem most important (Table 2).

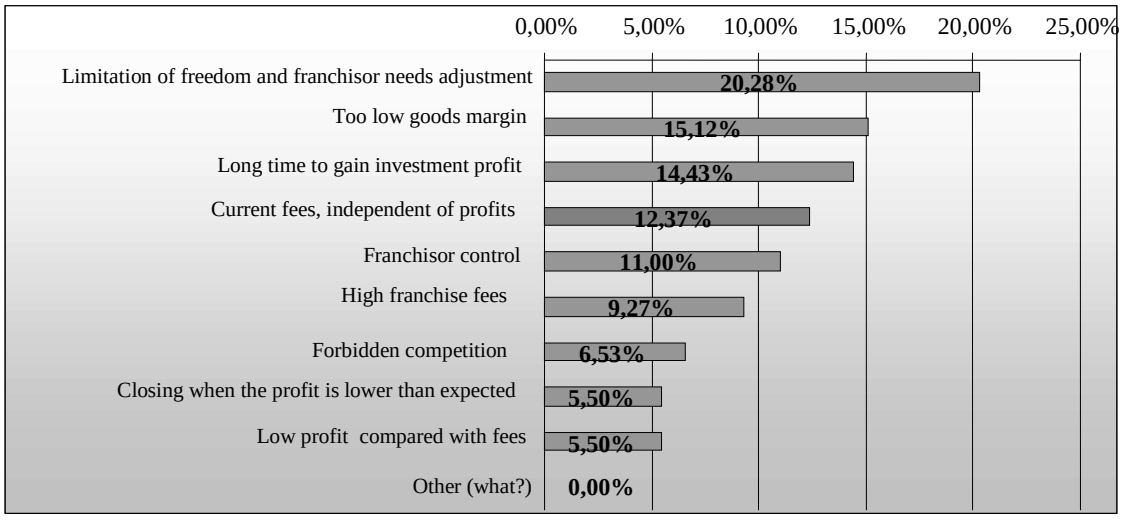
TAB. 2: **Types of activities and support offered by the franchisor**

What kind of assistance received before the beginning of the activity offered by franchisor you think is the most important?	Number of answers	%
Help in preparing the interior of the facility and the opening of	73	27.55%
Training package	56	21.13%
Working with suppliers of Carrefour / Leviathan	56	21.13%
Access to a network of private label products	45	16.98%
Help in decision-making	35	13.21%
Other (what?)	0	0.00%
In total	265	100.00%

Own study based on survey.

As shown by the data collected, respondents most appreciate help of franchisors in the equipment inside the facility and the preparation of opening (27.55%), training package (21.13%), ability to work with network providers (21.13%) and the access to own brand products (13.21%). Bearing in mind that each partnership brings not only benefits but also a number of obligations and commitments, respondents were asked to indicate which elements of the franchise agreement are impediment for them (Fig. 2).

FIG. 2**: Limitations and problems arising from the franchise agreement**



Source: Own study based on survey.

Among the limitations of franchise agreements with a trade network, the shop owners most frequently cited: lack of freedom of action and the need to adjust the requirements of the franchisor (20.28%), excessive control (11.00%), imposing too low level of margins (15.12%), long-term return on their investment (14.43%) and the current fees for the franchisor, often regardless of performance (12.37%). In the context of an overall assessment of competitiveness level, respondents were asked for an opinion, did joining the trade network affect the market position of the store (Table 3).

TAB. 3: Competitive position of the store after joining the franchise

What is the competitive market position of the store after joining the franchise?	Number of answers	%
Better/improved	61	47.66%
I see no difference	8	6.25%
It's hard to say / I do not know	59	46.09%
In total	128	100.00%

Source: Own study based on survey

The majority of respondents (47.66%) confirmed that joining the franchise system had a positive impact on the competitive position of the store. Large part of the respondents (46.09%) was not able to clearly identify, and 6.25% of the respondents considered that join the network had no impact on the competitiveness of their store.

Summary and Conclusions

Previously collected data, the analysis and the research results gained allowed for the formulation of the following conclusions:

1. The opening of the economy and the Polish presence in the European structures led to positive changes in the trade sector. The supermarket format in the trade structure now dominates and has the highest rate of growth. Small and medium-sized shops of private owners adapted to modern competition conditions, what strengthened their position in the market, mainly due to the convenient location for the customer (small towns, settlements, villages).
2. Manifestation of the modern market is trading network that allows expansion into new markets of large retail chains, due to smaller format of stores and individual owners of businesses are provided with support and growth prospects and strengthening the competitive position.
3. Individual entrepreneurs are willing to cooperate in the franchise framework, what is confirmed by the number of available systems on

the market and the number of stores operating under the well-known brand names.

4. The results of the study show that the owners of small and medium-sized stores included in Carrefour Express and Leviathan are positive about working with the franchisor and competitive position in the market store, which was confirmed by 47.66% of the respondents.
5. The biggest benefit for owners of retail stores, resulting from a franchise agreement is the ability to use marketing and promotional activities offered by the partner. Among other incentives to cooperate with trade network are: risk reduction activities, support in the implementation of investment and access to the trade know-how.
6. Of the support received from the franchisor, shop owners value most: help with equipment inside the facility and preparing the opening, training for business, the opportunity to work with network providers and access to own label products. All of these elements make economic activities easy to small retailers, reduce cost and differentiate themselves from the competition in the market.
7. Activity in the trade network structures brings not only privileges and benefits, but also a number of obligations and duties imposed by franchisors that are perceived by the franchisees as a serious limitation of the rights of ownership and a source of additional cost, which was confirmed by 20.20% of respondents. Other problems arising from the franchise agreement are: excessive control, the need to impose too low margins, long-term return on the investment and the high level of current fees for franchisor.

***References*:**

[1] ŻÓŁKOWSKA, M. J. *Franczyza. Nowoczesny model biznesu / Franchise. Modern way of doing business*. CeDeWu, Warszawa 2010, s. 7, ISBN 9788375562200.

[2] POKORSKA, B. *Leksykon franszyzy/ Franchise lexicon*, Difin, Warszawa 2002, s.7, ISBN 8372512388.

[3] STRUŻYCKI, M. *Polski handel wewnętrzny na przełomie XX i XXI wieku – warunki i kierunki rozwoju/Polish internal trade at the turn of ages – conditions and development ways* [w:/in:] *Warunki funkcjonowania i rozwoju handlu w Polsce/Conditions of trade functioning and development in Poland*, red. A. Szromnik, Akademia Ekonomiczna w Krakowie, Kraków 1998, s. 11, ISBN 8387239801.

[4] *Rynek wewnętrzny/Internal market*, Główny Urząd Statystyczny, Departament Usług i Handlu, Warszawa 2012, s. 43, publikacja dostępna na http://www.stat.gov.pl(data pobrania 03.11.2012).

[5] *Koszty w zarządzaniu małym i średnim przedsiębiorstwem handlowym/The cost in small and medium-size trade enterprise management*, pod red. R. Kowalaka, Wydawnictwo Akademii Ekonomicznej we Wrocławiu, Wrocław, 2007, s. 30, ISBN 9788370118563.
[6] KOSICKA–GĘBSKA, M.,TUL-KRZYSZCZUK, A., GĘBSKI, J. *Handel detaliczny żywnością w Polsce/Food retail trade in Poland*, Wydawnictwo SGGW, Warszawa 2011, s. 37, ISDN 9788375832518.
[7] *Kompendium wiedzy o handlu/Concise trade knowledge*, red. M. Sławińska, PWN, Warszawa 2008, s. 306, ISBN 9788301154462.
[8] *Raport o franszyzie w Polsce 2012/Franchise in Poland report 2012*, http://profitsystem.pl/raport-o-franczyzie (data pobrania 03.11.2012).

STRUCTURAL CHANGES IN EMPLOYMENT IN THE POLISH ECONOMY OVER THE PERIOD 2005-2010

Bianka Godlewska-Dzioboń
Cracow University of Economics
biankadz@interia.pl

Key words:
labor market – employment – employment structure – structural change

Abstract:
Socio-economic transformation led to structural changes in the Polish economy, considered as one of the priority economic processes. Many Polish economists consider that the impetuses for deep structural changes were associated with a number of disruptive events. The main objective of this paper is to show regional differences in employment structure according to the various sectors in Poland. The analysis carried out in this paper indicates that during the period 2005-2010 regional differences (by voivodship) diminished in employment patterns in the three-sector economy system.

Introduction

One of the most important economic issues in reference books is research done on the static and dynamic structural changes in certain economic categories that exist between voivodships (provinces) in Poland, including various structural systems in the labor market. In reference to Poland many economists believe that the impulses for deep structural changes were associated with a number of ground-breaking events, among which worth mentioning are: the socio-economic transformation, the Russian crisis, the country's accession into the European Union and the recent crisis in global financial markets. The main objective of this paper is to show regional differences (by voivodship) in employment structure according to the various economic sectors in Poland through the years 2005-2010.

1. Structural Divisions of the Economy

When assessing the structural adjustment of economies implementing the transformation process, on one side the direction and rate of change in structures of the same kind can be analyzed, while at the same time examining the effectiveness and efficiency of economic institutions and their impact on the structure of production [1]. According to W. Jakobik [3], in the first case qualitative and quantitative structural changes are evaluated and in the later stages correlations between these changes become evident as

well as the impact of various institutional factors such as market or state regulations. Alternatively, in the second approach emphasis is focused on a different point: the subject of concern becomes the direct cause-effect relationship between institutional changes and the subsequent progressive structural adjustments. Acceptance of the process of transformation by society, would in fact mean consenting to a systematic acclimatization to the new structural, legal and institutional arrangement, as well as acknowledging the new system as appropriate for the implementation of the economic process. Z. Hockuba [2] believes that in the transition from one system to another, a period of chaos is inevitable. The transformation occurring in Poland facilitated the forging of an employment structure from one dominated by agriculture and industry to one in which services play a crucial role. In addition, the continuing globalization process in our modern economy together with the technological revolution, have had a significant effect on the change in the structure of production and process management, which in turn determines the transformation of the employment structure [4]. Interesting conclusions can be provided by an analysis of structural changes in employment in a three-sector economy system. Such divisions within this system would consist of three economic sectors: agriculture, industry and services as proposed by C. Clark, A. Fisher and J. Fourastie. Research conducted also examined the four-sector system. The transition from the three-sector to a four-sector is achieved by establishing two types of services: market and non-market. Yet another proposal tends to isolate the fourth sector - information technology [4] – from the three traditional sectors. Despite this, the system still remains a three-sector one, which is subjected to numerous comparative analyzes.

2. Research Method

In evaluating changes in the sectorial structure of employment in Poland data was taken from the 'Local Data Bank " database of the Central Statistical Office in Warsaw. These data are presented for the 16 voivodships in Poland over the period 2005-2010, taking into account all three sectors of the economy namely: agriculture (agriculture, forestry, hunting and fishing), industry (industry and construction) and services. The term "employed" is defined as a person performing work providing earnings or income [5], omitting economic entities employing up to 9 people. To calculate regional differences in the sectorial structure of employment the Euclidean distance scale was used for measuring individual regions from the reference object (the sectorial structure of employment in the economy) according to the following formula:

$$d = \sqrt{\frac{\sum_{i=1}^{k}(x_i - x'_i)^2}{k}}.$$

where: d – Euclidean distance; x_i – share of employment in the i-th economic sector in the economy, for $i = 1, .., k$ (k is the number of pending economic sectors); x_i' – share of employment in the i-th base economic sector in the economy. In interpreting this indicator, the higher (lower) the value of d, the greater (shorter) the distance of the employment structure in any given economic sector of a region was from the standard employment structure. The value of coefficients of variation allow us to determine the aforementioned Euclidean distance for a given year in the group of 16 voivodships.

3. Transformations in the structure of employment in the Polish economy in the period 2005-2010

During the period of time examined, the total number of people employed in Poland increased from about 9.9 million (2005) to around 10.9 million (2010), representing an increase of over 10%. The largest increase was observed in the service sector (13.3%), followed by agriculture (11.2%), while the smallest figure to increase was in the industrial sector (4.9%) (Table 1). In 2010, the agricultural sector employed about 2.4 million people (21.6% of total employment), in the industrial sector - about 3.1 million people (27.9%), while in the service sector - 5.5 million (50.5%) (Table 1 and 2). The structure of employment in the various sectors presented in Table 2 demonstrates the contribution of each of the three economic sectors in creating demand for employment. Based on these results, it appears that the biggest changes in the number of employed occurred in the service sector (an increase of 1.3 percentage points in 2005-2010). Only a very minimal increase was noted in the agricultural sector (0.1 percentage points), while the same figure for the industrial sector decreased significantly (by 1.5 percentage points). It should be noted that the number of persons employed in the service sector accounted for more than half of total employment in the economy, which signifies the important role this sector plays in absorbing a great portion of the labor force, and in terms of generating jobs in Poland. Moreover, looking at the changes in the structure of employment in the various economic sectors in Poland through the years 2005-2010, it appears that varied dynamics were at work in the transformation of employment trends.

TAB. 1: **Employment Figures in the Various Sectors in the Polish Economy during the period 2005-2010 (thousands of people)**

Sector	Year						Changes %
	2005	2006	2007	2008	2009	2010	
I	2125,5	2124,6	2123,9	2125,0	2108,1	2362,6	11,2
II	2907,3	3007,8	3145,9	3190,0	3023,2	3050,1	4,9
III	4863,1	4965,8	5162,5	5369,2	5421,5	5512,0	13,3
TOTAL (I+II+III)	9895,9	10098,3	10432,3	10684,3	10552,7	10924,7	10,4

Source: own research on the basis of [6].

TAB. 2: **Structure of Employment According to Economic Sectors in Poland in the years 2005-2010 (%)**

Sector	2005	2006	2007	2008	2009	2010	Changes in the period 2005-2010 (% points)
I	21,5	21,0	20,4	19,9	20,0	21,6	0,1
II	29,4	29,8	30,2	29,9	28,6	27,9	-1,5
III	49,1	49,2	49,5	50,3	51,4	50,5	1,3

Source: own research on the basis of [6].

These results are consistent with the general trends experienced by developed economies of the world, allowing for a positively assessment of the direction of the ongoing changes in the sectorial structure of employment in Poland. However, these data indicate that the current state of Poland's employment structure differs significantly, despite positive changes and visible progress, from corresponding structures in other developed economies of the world. Because of this, it is necessary to continue to stimulate this process in order to be able to take advantage of its competitive edge in the international arena.

4. Characteristics of Regional Employment - Analysis by Voivodship

Geographical, economic and social conditions formed a specific regional structure to labor resources in Poland over the course of time. An analysis of employment figures for each voivodship in the three economic sectors brings to light some specific features. The largest average employment figures in the agricultural sector were noted in the voivodship of Lublin and Podlasie, while the smallest – in Silesia and Lower Silesia. Subsequently, also the leaders in the industrial sector in terms of employment were regions such as: Lubusz, Silisia and Lower Silesia (Table 3). The lowest employment figures in the industrial sector were noted in the Lublin and Podlasie

districts. There was even a stronger concentration in terms of numbers employed in the service sector compared to the two previously mentioned. The largest number of employed occurred in the services sector in the Masovian and Western Pomeranian voivodships (Table 3). The lowest percentage of employment in services in 2005-2010 occurred in regions typically agricultural in nature namely, Swietokrzyskie and Lublin.

TAB. 3: **Employment figures in the various economic sectors by voivodship (average values in % for the years (2005-2010)**

Voivodships	sector I	sector II	sector III
Lodz	25,8	29,6	44,5
Masovian	18,5	20,4	61,0
Lesser Poland	22,8	26,4	50,6
Silesian	6,0	42,0	51,9
Lublin	44,2	17,7	38,1
Subcarpathian	29,9	28,4	41,4
Podlasie	40,4	19,0	40,5
Swietokrzyskie	39,2	23,1	37,7
Lubusz	11,7	35,8	52,4
Greater Poland	20,6	34,1	45,2
Western Pomeranian	12,1	30,0	57,9
Lower Silesian	10,2	35,0	54,7
Opole	20,5	32,5	47,0
Kuyavian-Pomeranian	21,4	31,6	47,0
Pomeranian	11,3	32,5	56,2
Warmian-Mazurian	20,0	31,4	48,5
ogółem	20,7	29,3	50,0

Source: own research on the basis of [6].

To evaluate the differences in the structure of employment by economic sectors in the various regions, the values of Euclidean distances are presented (Table 4). The highest average degree of deviation from the standard value during 2005-2010 was characteristic in the Lublin, Podlasie, Swietokrzyskie and Silesia regions. Thus, these regions differed the most from the standard pattern in employment structure according to economic sectors. Structures differing the least from the standard pattern were observed in the Warmian-Masurian, Lesser Poland, Kuyavian-Pomeranian and Opole voivodships. As far as changes in distances within regions from the standard structure,

TAB. 4: **Values of Euclidean distances from the standard pattern**

Voivodships	2005	2006	2007	2008	2009	2010	Average value	Changes during 2005-2010
Lodz	0,050	0,047	0,045	0,048	0,046	0,025	0,043	-0,025
Masovian	0,079	0,077	0,080	0,087	0,082	0,092	0,083	0,013
Lesser Poland	0,018	0,020	0,020	0,017	0,016	0,046	0,023	0,028
Silesian	0,118	0,116	0,112	0,113	0,112	0,106	0,113	-0,013
Lublin	0,165	0,165	0,166	0,166	0,165	0,170	0,166	0,005
Subcarpathian	0,063	0,062	0,063	0,062	0,065	0,125	0,073	0,062
Podlasie	0,149	0,148	0,143	0,141	0,142	0,113	0,139	-0,036
Swietokrzyskie	0,135	0,136	0,135	0,132	0,135	0,127	0,133	-0,008
Lubusz	0,068	0,069	0,067	0,068	0,064	0,058	0,066	-0,010
Greater Poland	0,042	0,038	0,039	0,039	0,038	0,038	0,039	-0,004
Western Pomeranian	0,071	0,069	0,065	0,063	0,068	0,071	0,068	0,001
Lower Silesian	0,075	0,075	0,074	0,074	0,075	0,075	0,074	-0,001
Opole	0,023	0,019	0,025	0,025	0,030	0,029	0,025	0,006
Kuyavian-Pomeranian	0,022	0,022	0,023	0,027	0,026	0,024	0,024	0,002
Pomeranian	0,069	0,068	0,066	0,065	0,067	0,073	0,068	0,004
Warmian-Mazurian	0,013	0,015	0,018	0,013	0,014	0,021	0,016	0,008
współczynnik zmienności (w %)	65,1	66,1	64,4	64,5	64,1	59,7	*	*

Source: own research on the basis of [6].

No overwhelming trend was observed with about half the voivodships deviating from the standard, while the other half was closer. Over a period of time it was possible to notice a systematic reduction (from 65.1% to 59.7%) in the coefficient of variation calculated for each of the voivodships from the standard pattern in terms of employment structure in their economic sectors. This means, therefore, limiting the regional differences of employment structures in an economic sector system with the passing of time.

5. Conclusions

The analysis of regional differences in changes in the structure of employment in Poland in the years 2005-2010 allows for the formulation of some final observations:

1. During the period 2005-2010 three-sector structure of employment in Poland was subject to further transformation from one typical of underdeveloped economies with agriculture and industry dominating, to one of structures characteristic of developed countries, where employment in services is most prevalent.
2. It is most probable that in the coming years there will be further developments in this direction stemming from the ongoing process of globalization and the revolution in information technology.
3. The diversification in the structure of employment by voivodships in the three-sector economy showed a downward trend during the period, meaning that there were signs of further convergence of regions in terms of employment structure by economic sectors.

References:

[1] ADAMCZYK, A. (2005) *Makroekonomiczne uwarunkowania bezrobocia transformacyjnego w Polsce, Czechach, Słowacji i na Węgrzech*, Zeszyty Naukowe, Seria Specjalna: Monografie, Wydawnictwo Akademii Ekonomicznej w Krakowie, Kraków, nr 170. ISBN 83-7252-289-8

[2] HOCKUBA, Z. (1995) *Droga do spontanicznego porządku. Transformacja ekonomiczna w świetle problemu regulacji*, PWN, Warszawa. ISBN 85-01-11851-2

[3] JAKÓBIK, W. (1997) Państwo i rynek a proces dostosowań strukturalnych, Gospodarka Narodowa, nr 10. ISBN 83-86759-34-8

[4] KOTLORZ, D. (2005) *Zmiany w działowej strukturze zatrudnienia w Polsce w latach 1995-2001* [w:] *Wzrost gospodarczy, restrukturyzacja i rynek pracy w Polsce. Ujęcie teoretyczne empiryczne*, red. S. Krajewski, L. Kucharski, Wydawnictwo Uniwersytetu Łódzkiego, Łódź. ISBN 83-7171-850-0

[5] *Roczniki Statystyczne Rzeczypospolitej Polskiej z lat 2002-2011*, GUS, Warszawa. ISSN 1506-0632

[6] Bazy Danych Lokalnych – Local Database (www.stat.gov.pl).

MOTIVATING AND SATISFYING THE NEEDS OF SELF-GOVERNMENT ADMINISTRATION EMPLOYEES

Mariola Grzebyk, Przemysław Leończyk
State School Higher Vacational Education in Tarnobrzegu
mgrzebyk@op.pl

Key words:
Motivation, development, management, needs of employees

Abstract:
Motivating is a basic function of management within an organisation. It relies on using the mechanisms of financial and non-financial motivation and so as to provide engagement of employees for the benefit of the organisation and at the same time, satisfied their needs. One of the conditions of effective motivating employees is developing and adjusting the motivational system to the expectations of employees and following the changes in this capacity. Thus, the main aim of the studies is an attempt made to define and underline the factors motivating employees at Municipality Offices from the voivodship of podkarpackie.

1. Introduction

At present, the studies on public management including territorial self-governments in Poland, are getting more and more important. Territorial self-government (including communes) are complex and difficult organisations to be managed, which act in rapidly changing organisational, political and economic conditions. Understanding the specificity of management in territorial self-government units plays an important role.

The management process within self-government administration includes, similarly as in typical economic organisations, four main functions, i.e.: planning, organising, motivating and controlling. Motivating constitutes one of them, maybe the most important, as it would be difficult to imagine the fulfilment of the aims and missions of an organisation by its employees as well as effective competition with other organisations. However, the studies on functioning and fulfilment of particular functions by self-government administration are very limited [1].

The actions of people, their desire to perform a better work, changes and development are conditioned by their motivation, constituting the process of selection made among various behaviours and forms of activity in order to

make their goals real and having a given value, able to satisfy their needs or aspirations.

Achieving this state of compliance among expectations of an employee and the employer has always been very difficult. From one side, the employer requires from the employee to devote to their work all efforts and possessed skills, one the other hand, the employee expects maintenance at a decent level from the employer. Each of the parties has motivation, though, completely different.

The aim of the article is an attempt to separate and analyse the factors motivating Municipality Office employees from the voivodship of podkarpackie to better work. It shall be the basis for building the motivating system adjusted to the needs of employees and achieving the goals of an organisation.

2. Theoretical basis for motivating employees within municipality administration

In literature, there are many definitions of motivating but in all of them there is a interaction on a human being so as to act in a given manner, according to the expectations of the motivating party. Motivating is possible when a person wants (or has to) satisfy their needs and, at the same time, sees the correlation between their own interests (needs) and benefits offered by the motivating party. The level of physical or intellectual engagement of an employee for the benefit of his organisation depends on the force of the motivation offered by the employer.

Motivation has had and will always have a great importance for people because it gives sense to their life. It is a complex issue, as the human behaviour is complicated and not always understandable [4].

In motivating, there is much feedback among its main subjects. In staff motivation, the motivated subject is an employee, however, the motivating party - organisation management. The impact of management staff on the scope of employee motivation has a double character [3]:

- Direct - means taking certain decisions; it is mainly about the decisions of superior management regarding the aims of an organisation as a whole and conducted personnel policy;
- Indirect - connected with the person of a manager, resulting from its personal predisposition (skills) in the scope of understanding people and influencing their behaviours within the working process.

Effectiveness of the motivational system, defined as the level of the correlation of expectation of an employee as well as the benefits that may be gained

acting in compliance with assumed principles, it requires that material and non-material stimulants: were appropriately, skilfully combined, strengthened concurrently the same behaviours and acting effects, had a subject value for an employee, satisfy the needs of employees and, at the same time, favour the fulfilment of the mission and vision of an organisation [5].

It indicates that applying non-material incentives is a significant element of an effective motivational system for employees as they increase loyalty and engagement in company affairs, however, the significant meaning have material incentives. Pursuant to the theory of Maslow, material needs must be satisfied firstly so as to activate the needs of higher rank. It must be emphasised that material consideration obtained by an employee as the "value coefficient" for an organisation, satisfies the need of status, recognition and sense of their own value [3].

It must be sought more and more ideal manners and forms of motivating, focusing on various professional situations and their broad determinants. All organisations must rely on using the instruments of stimulating labour accepted by employees [2]. It requires understanding of motivation as it stimulates behaviours not only by the management of the organisation but also the employees themselves.

3. Methodology of studies

Survey research was conducted at the end of 2012 in twelve Municipality Offices from the voivodship of podkarpackie. It included 242 persons, out of which 65% constituted women. Among the surveyed, 1/4 are managers of various ranks.

The voivodship of podkarpackie came into being as the one of 16 voivodships, as a result of the transformation of the administrative division of Poland as of 01 January 1999 and is the most south-eastern region of Poland. It borders with Ukraine in the East and Slovakia in the South.

The questionnaire regarded i.a. gaining answers to questions: what motivates employees of a given Municipality Office regarding satisfaction of their different needs, which motivating factors have a significant meaning, which, pursuant to them, are effective and those regarding creation and importance of the motivational system acting in a given organisation.[1]

[1] The presented results of studies come from the implemented group research project titled "Motivating of self-government administration employees on the local level-the map of motivating factors" by the Faculty of Enterpreneurship and Management at State School Higher Vocational Education in Tarnobrzeg no. DzWPZ/53BZ-6/13.

4. Analysis of the results

The basis for motivating employees relies on understanding their needs and value systems.

Firstly, the surveyed were asked which motivating tools have a greater material and non-material significance. Almost 82% of the surveyed answered that material ones, including various forms of financial gratification. The majority of the surveyed almost 65% admitted that they feel motivated to work along those means which are applied by municipalities.

The further question relied on assessing their engagement in the work performed. Very much engagement in the work performed was assessed by 60% of the surveyed, much - 30% and satisfactory engagement was represented by 10% of the respondents. None of the persons defined a minimum personal input in their work.

Another question was to present the forms of motivating, having a great significance for an employee (the surveyed were to rank answers from 1- the less motivating to 10-the most motivating) - Table 1.

TAB. 1: **Forms of motivating having a great significance for an employee (%)**

Form of motivating	**Rating scale**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Rise of a basic pay	-	-	-	-	-	5	-	-	35	**60**
Free medical scheme	5	-	5	**45**	10	-	10	5	10	-
Company car	5	**45**	10	15	10	-	5	-	10	-
Company laptop	10	15	**65**	5	-	5	-	-	-	-
Company telephone	**55**	15	10	5	5	5	-	-	-	-
Promotion	-	-	-	10	10	**35**	30	-	15	-
Opportunity to develop		5	5		5	20	**25**	20	5	15
Public praises, diplomas	25	10	5	10	**45**	-	5	-	-	-
Good relations with colleagues	-	-	-	5	-	30	5	**35**	15	5
Stability of employment	-	-	-	5	10	-	20	**35**	10	20
Other	5	-	-	-	**10**	-	-	-	-	-

Source: Author's own study

The obtained results state the majority of the surveyed as the greatest importance, among various forms of motivating, perceive a “rise of a basic pay” (60% of the respondents ranked it with 10). The second position had non-financial motivators - “stability of employment” and “good relations with colleagues” (35% each ranked with 8), “opportunity to develop” (25% each ranked with 7) and “promotion” (35% each ranked with 6). The fifth position was indicated by the respondents as non-financial material motivators such as “free medical scheme” (45% ranked with 4), “company laptop (65% ranked with 3), “company car” (45% ranked with 2) and “company telephone” (55% ranked with 1).

The significant question is whether the existing motivational system within a given unit is pursuant to the expectations and needs of the employees. This must be emphasised that the compliance of the motivational system with the expectations of employees was declared by 45% of the surveyed. A great number of persons did not have any opinion on this - 25%. Moreover, in the scope of the necessity of changing an existing system of motivation, the majority of the surveyed had an opinion (60%). The other part (40%) of employees claimed that there is no need of introducing changes.

In the further questions, the surveyed were asked what they would change in the existing system of motivating, if they had such an opportunity. As one of the most desired change in the system of motivating, the surveyed indicated “more often use of financial stimulants” (80% of the respondents) and each tenth employee would introduce a greater opportunity to educate and developing their skills. Also 10% of the respondents claimed that nothing is to be changed as the existing motivational system is satisfying for them.

The tools of motivation may be divided as financial and non-financial. The surveyed defined the most effective in the process of motivating employees as: a great majority of the surveyed (65%), claimed that both financial and non-financial forms of motivating are effective as well, for 1/4 more effective are mainly financial motivators, however for 10% - non-financial forms.

Important questions in the survey were also those which regarded the influence of the motivating system on the work effects or if motivating is an effective tool in human capital management. In both cases, the participants claimed unanimously that motivating systems are important and the play a significant role in effective human capital management.

5. Conclusion

Developing a motivational system relies on selecting a proper instrumentation among the tools constituting three main groups: financial tools - money; non-financial tools - whole of obtained subjects and benefits which may be valued in money and non-financial tools - regarding those benefits whose value is not possible to be established. The selection and providing the proportion of the tools among those groups shall be based on the knowledge of needs and the value system of the employees as well as the specificity of work on a given post.

The results confirm a great significance of financial tools, however, there is a slight interest in the non-financial stimulants.

Properly created system of motivating shall allow employees to earn money which is enough to live a decent life and on the other side gives them a sense of work importance, affiliation to the team, use their skills and self-developing by performing a given job. The existence of these factors influences enthusiastically the attitude of an employee to work, contributes to its full engagement and creates a loyalty bond with the organisation. It must be remembered that it is not possible to devise a motivating system once and for all. In long term, the goals of the organisation change as well as the manner of their achieving and needs and values of employees. These changes must be reflected in the motivating system which should be updated depending on the needs.

References:

[1] FILIP, P. *Audyt wewnętrzny jako narzędzie wspomagające procesy zarządzania w jednostkach sektora finansów publicznych* [w:] Sprawozdawczość i rewizja finansowa w procesie poprawy bezpieczeństwa obrotu gospodarczego, wyd AE Kraków, Kraków 2005, p. 139-146, ISBN 83-922067-2-X

[2] FILIP, P. *Systemy kontrolne stosowane w jednostkach samorządu terytorialnego"*[w:] E.Chilicka, P.Filip i inni "Zarządzanie finansami lokalnymi", Fundacja Współczesne Zarządzanie, Białystok 2005, p.86-89,ISBN 83-9182218-6-2

[3] KOWRYGO, B., GÓRSKA-WARSEWICZ, H., ŚWIĄTKOWSKA, M. *Podstawy organizacji i zarządzania przedsiębiorstwem,* wyd. SGGW, Warszawa 2008, p. 120-121

[4] KOŻUCH, B. *Zarządzanie publiczne: w teorii i praktyce polskich organizacji*, Placet, Warszawa 2004, p.68-70

[5] PIETROŃ-PYSZCZEK, A. *Motywowanie pracowników – wskazówki dla menedżerów*, wyd. Marina, Wrocław 2007, p. 36-40

FACTORS DIVERSIFYING INNOVATIVENESS OF FOOD INDUSTRY IN POLAND

Barbara Grzybowska
University of Warmia and Mazury in Olsztyn
barg@uwm.edu.pl

Key words:
innovativeness – innovations – food industry – region

Abstract:
In the paper, we focused on the regional aspects of food industry innovation in Poland. Particular attention was focused on the diversification in the food sector innovation activity level in voivodships. It was found out that enterprise size was the basic factor diversifying the scale of innovative activities. Operating in the geographically near space also proved a stimulant. On the other hand, it was not confirmed that the status of the economy in the given voivodship (measured as *per capita* GDP) determined the innovativeness of food sector enterprises in the area of a given voivodship.

Introduction

In the theory of economy, the relation between innovation and development (of enterprises, regions, countries) had not been so obvious, at least until a certain moment. J. A. Schumpeter [6], who introduced the notion of innovation to economic sciences, noticed it. He also developed the theory of economic growth and market cycle induced by breakthrough innovations. His views, however, did not attract much interest in the community of his contemporary economists (the first half of 20th c.). This resulted, among others, from the domination of the neoclassic approach during that time, the difficulties in modelling the concept, lack of correlation with general equilibrium and rather verbal character of that theory [3]. It was somehow "discovered" and appreciated much later (generally only during 1980's).

Currently, the subjects of innovation and innovativeness represent a very important flow in the economic studies. During the recent years, that direction gained particular importance as a consequence of the increasing development of regions[1]. The search goes on for factors that would contribute to regional convergence. Innovation is one of such factors with positive influence on the shape and rate of changes taking place in enterprises, regions, countries, industries, sectors, etc. Innovation is becoming one of the more important sources for achievement of competitive

[1] they have their place in the wider context of challenges for the future of the European and global economic space: globalisation, demographic changes, climatic changes and energy security [4].

advantage [7]. The regional dimension of innovativeness, combined with its industry related aspect, has been highlighted in, among others, the research and innovation strategies for intelligent specialisation (the so-called RIS3 strategies). In the European Commission proposal concerning the cohesion policy, possession of such strategies will represent the initial condition for using the European Regional Development Fund – (ERDF) funds during the years 2014-2020.

In the paper, we focused on the regional aspects of food industry innovation in Poland. Particular attention was focused on the diversification in the food sector innovation activity level in voivodships[2]. Analysis of the factors is preceded by a short characteristic of food industry including, among others, the export activities of food processing (its current status and success factors).

1. Importance of food industry in Poland

Food industry is among the more important sectors of the Polish economy. This is, among others, evidenced by the volume of production (16% of the total industrial products sold value), the number of enterprises (20% of the total number of enterprises in the country) or employment (15% of the total workforce) [5]. The industry also achieves good results in foreign trade. It is an active exporter mainly to the EU countries. During the Poland's membership in the Community, exports of agricultural-food products increased by over 3-fold [9]. The export results, indicating high demand of the Union market for Polish products, prove at the same time the competitive edge of the range of products offered. It should be highlighted, however, that the current success of food producers in the foreign markets was influenced significantly by the labour costs, production costs and food prices lower than in the EU-15. Advantages of that type are not lasting and they get exhausted over time. In the future, they may even prove a threat to the Polish food processing – this time from the developing countries that will have cheaper labour and cheaper raw materials, as compared to Poland, available. In those circumstances, improving the product range and introduction of innovations offers an opportunity for development and retaining position in the competitive food market. This also applies to the offer of exports in which, so far, new products are of low importance (they are targeted at the domestic market mainly) [2].

The innovative activity in the Polish food industry is relatively low (e.g. the percentage of innovative companies is just 12%). That activity is also diversified regionally (tab. 1).

[2] regions in this case are equivalent to 16 voivodships – administrative division units corresponding to the regional level NUTS 2.

TAB. 1: **Diversification of food industry innovativeness in voivodships of Poland**

Voivodship	Regional structure of the number of enterprises (%)	Innovativeness level
Mazowieckie	14,9	high
Opolskie	2,1	
Kujawsko-Pomorskie	6,8	moderate
Lubelskie	5,8	
Małopolskie	7,6	
Podlaskie	3,3	
Warmińsko-Mazurskie	4,0	
Wielkopolskie	14,5	
Zachodniopomorskie	4,6	
Lubuskie	2,4	low
Pomorskie	5,7	
Śląskie	10,1	
Świętokrzyskie	2,2	
Dolnośląskie	4,3	very low
Łódzkie	8,3	
Podkarpackie	3,4	
Total	100,0	x

Source: [1]

Systematic evaluation[3] of the potential for creating and implementing innovative solutions (the innovation capacity) and the outcomes achieved following innovation implementation (the innovative position) shows two outstanding voivodships: Mazowieckie and Opolskie. The best results of food industry enterprises positioned in those regions were a consequence of both their high capacity for creating innovations and the dominating innovative position. In total, 9 (out of 16) voivodships belonged to the group representing high and moderate innovation level. This means that almost 64% of food enterprises in Poland are characterised by at least moderate innovativeness. The lowest results were recorded in Świętokrzyskie, Łódzkie and Podkarpackie voivodships (16% of enterprises).

During characterisation of interregional diversity in the food industry enterprises level of innovativeness the question emerges: what influenced

[3] the evaluation was conducted on the base of the synthetic innovativeness indicator for the design of which 12 partial indicators were used. The detailed information concerning the measurement method and procedure is presented in paper [1].

that diversity? Can any common characteristics specific for the economic space of individual voivodships that could be considered symptoms of their correlation with innovativeness of that industry be identified?

2. Factors of food industry innovativeness diversification

Food industry enterprises from different voivodships did not possess identical capacity for creating innovations. Hence, they differed in the intensity of their involvement in the processes resulting in implementation of innovative solutions. The enterprise size was the basic factor influencing that situation. Voivodships with the larger enterprises situated in them were characterised by generally higher innovativeness of entities producing food products. The involvement of smaller enterprises was lower and resulted in lower level of innovativeness. Simultaneously, enterprises representing higher levels of innovativeness were also involved in exports more extensively. This is confirmed by the revenues generated from sales of innovative products in foreign markets.

Operation in the geographically close space represents an important factor supportive to innovative development of both individual enterprises and regions. That closeness and higher confidence of partners originating from the same region create opportunities for contacts and establishing relations, which may transform into cooperation relations (e.g. cluster type structures). Innovativeness of enterprises increases when they undertake cooperation with other entities. That cooperation represents an important source of innovations [10]. Regional cooperation networks, in addition to the possibility of implementing joint undertakings, also offer the channel for transfer of knowledge and information. Geographic closeness of food industry enterprises in voivodships of Poland represented a factor that influenced the innovativeness of the food industry positively. Voivodships characterised by high spatial concentration of enterprises were among those with high or at least moderate level of innovativeness. This is a positive phenomenon as it means that the regions, in which food industry was an important (or even the most important) industry within the internal structure of industry (high concentration level), were focused on development of that industry through innovations.

In analysing the factors diversifying the innovative activity of food industry in regions of Poland, the relation of it to the general level of development of individual voivodships (expressed by *per capita* GDP) was also considered. Studies by D. Strahl [8] show the existence of clear correlation between those aspects. Innovativeness of the economy influences its competitiveness, which in turn determines its overall development. That situation is

characteristic not only for Poland but also for many other countries of the European regional space. However, in case of the food industry that correlation was not determined. In the regions with relatively higher *per capita* GDP than in the others, no evidently higher level of innovation for entities producing food products was observed (except for Mazowieckie voivodship). And vice versa, the "poorer" voivodships were not "convicted" for low innovativeness of that industry. Hence, the results of the innovative activities of the entities analysed had no direct influence on the economic situation of the regions. It does not mean that they were not involved in that situation, but probably, as the food industry is a low technology sector, that influence was rather moderate or even low.

Conclusion

The fool industry enterprises level of innovativeness in Poland is regionally balanced. The most innovative entities are positioned in Mazowieckie and Opolskie voivodships. The diagnose for seven other voivodships showed their moderate level of innovativeness. This means that high or moderate level of innovativeness is characteristic for more than a half of the domestic food industry enterprises (64%). The enterprise size was the basic factor diversifying the scale of innovative activities. Larger entities showed higher propensity to undertake activities in that direction, which translated into high ratings of their innovativeness. Operation in close geographic space also proved a stimulating factor. Regions with high concentration of entities dealing with food processing were characterised by higher levels of innovation in the analysed industry. On the other hand, no correlation between the food industry innovation level (high/moderate/low/very low) and the level of overall economic development of the voivodship ranked according to the same scale was determined. Higher economic results of the region did not translate into higher level of innovation in the sector (and vice versa).

References:

[1] GRZYBOWSKA, B. *Innowacyjność przemysłu spożywczego w Polsce – ujęcie regionalne*. Wyd. UWM, Olsztyn, 2012, ISBN 978-83-7299-773-9

[2] GRZYBOWSKA, B., RUTKOWSKA-ZIARKO, A. *Znaczenie eksportu innowacyjnych produktów w działalności przedsiębiorstw przemysłu spożywczego*. Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu, 2012, vol. XIV, no. 1, pp. 176-180, Warszawa-Poznań-Białystok, ISSN 1508-3535.

[3] PIECH, K. *Technologie, edukacja i innowacje w teoriach wzrostu gospodarczego*. Polityka Gospodarcza, 2004, no. 9, pp. 133-159, ISSN 1508-6453
[4] *Regions 2020. An Assessment of Future Challenges for EU Regions. Commission of the European Communities.* Brussels, 2008, SEC(2008) http://ec.europa.eu/regional_policy/sources/docoffic/working/regions2020/pdf/regions2020_en.pdf (15.09.2012)
[5] *Rocznik Statystyczny Przemysłu 2011.* GUS, Warszawa, 2012, ISSN 1231-8957
[6] SCHUMPETER, J. *Teoria rozwoju gospodarczego.* PWN, Warszawa, 1960
[7] SCHWAB, K. *The Global Competitiveness Report 2010-2011*. World Economic Forum, Geneva, 2010. ISBN-13: 978-92-95044-87-6
[8] STRAHL, D. *Próba pomiaru zależności między rozwojem a innowacyjnością europejskiej przestrzeni regionalnej*. Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, 2008, no. 29, pp. 17-28, ISSN 1899-3192; ISSN 1732-0690
[9] SZCZEPANIAK, I. *Wyniki handlu zagranicznego produktami rolno-spożywczymi.* W: I. Szczepaniak (red.) *Monitoring i ocena konkurencyjności polskich producentów żywności (1).* Wyd. IERiGŻ-PIB, Warszawa, 2011, ISBN 978-83-7658-190-3
[10] *The OECD Innovation Strategy. Getting a Head Start on Tomorrow*. OECD, Paris, 2010, ISBN 978-92-64-08347-9

BIBLIOMINING LIBRARY USERS AND THEIR WILLINGNESS TO PAY – EMPIRICAL EVIDENCE FROM MUNICIPAL LIBRARY OF PRAGUE

Petr Hájek, Jan Stejskal, Tomáš Řehák
University of Pardubice, Municipal Library of Prague
petr.hajek@upce.cz, jan.stejskal@upce.cz, tomas.rehak@mlp.cz

Key words:
bibliomining – cluster analysis – public library – willingness to pay

Abstract:
This paper aims to present an application of clustering methods on real data from a public library to obtain representative library users. The process of bibliomining is used to investigate the results of a research conducted in 2012 in the largest public library in the Czech Republic – the Municipal Library of Prague. Eight representative users are identified in this paper. Their WTP differs significantly. The main source of this difference is in the economic activity and income level of the library users. The results of this work can be implemented to achieve more efficient management of public libraries.

Introduction

Bibliomining is defined in the context of the provision of library services as the process of applying data mining techniques to extract patterns of behavior from library databases [5], [6]. Nicholson [6] introduced a conceptual framework for bibliomining. This process consists of several steps, namely, target identification, collection and preprocessing of data sets, discovery of knowledge in data, result evaluation, and application of the acquired knowledge in practice. The aim of this process is to obtain behavioral patterns of library users that enable more efficient management of customer relations and continued improvement in the quality of services offered by libraries. Bibliomining is becoming an important tool for supporting library management's decision making processes.

Bibliomining applications have hitherto been focused on bibliometric data analysis, web usage mining, and the optimal allocation of budgetary resources based on the past circulation of documents, see e.g. [3], [5]. Recently, we applied clustering methods and methods of extracting attributes of real data of a public library in order to find similarities in the services provided by public libraries based on a representative set of behavior patterns of users [3]. In addition, we have also used bibliomining

methods to identify key categories of library services from a database of library users [2].

Our objective is to determine the typical consumers of public library. This identification will enable for the library management to ensure the provision of the appropriate level of public services. Additionally, we measured the willingness to pay (WTP) of the users. We expect that this evaluation will help donors to better target funds and control their use.

The rest of the paper is structured as follows. Section 1 describes research methodology. Section 2 characterizes the results of our research. The paper ends with a summary of the conclusions.

1. Research Methodology

The survey was carried out within the project Methodology for measuring the value of library services. The library users were surveyed using an online questionnaire (CAWI type) during July and August 2012. Previously this questionnaire was tested on the panel members during October and November 2011 [8]. The method of questioning comes from foreign studies [1], [4], [7], which use WTA and WTP procedures to determine the respondents' opinions on the value of the services.

The Municipal Library of Prague is the biggest public library in the Czech Republic (4 billion absent loans yearly). A population was chosen from the database of the library. The respondents had to meet the following criteria: age 15 +, loaned at least one item in 2012, and gave an email address. We carried out a random sample from this population. The return rate of the questionnaires was 20% (2 227 from 11 397). The survey was conducted as a representative one. Thus, the results can be generalized.

The sample of users was aged 40 years on average (TAB. 1). The average number of household members was 2.3 adults and 0.8 children. An average user loaned 5.3 books a month. The length of the stay in the library and the degree of user activity was estimated based on the last visit values. The average stay took 31 minutes. During this time, an average user worked with 6.5 books (or other documents).

TAB. 1: **Socio-economic and demographic characteristics of the users**

Variable	Description	Mean	Std. Dev.	Min	Max	*N*
Age	Age	39.9	16.4	18	90	2 227
Adults	No. of adults in the household	2.3	1.0	1	5	2 116
Children	No. of children in the household	0.8	1.0	0	9	1 462
Loans	No. of loaned items per month	5.3	5.3	0	60	2 207
LastTime	Length of the last visit [min]	31.1	26.8	1	360	2 210
LastBooks	No. of items used during the last visit	6.5	6.4	0	50	2 180
WTP	Willingness to pay	642	562	0	3 000	1 773
Gender	Gender	Male: 549 (24.7%) Female: 1678 (75.3%)				
Educ	Education	Basic: 140 (6.4%) Secondary: 744 (34.0%) Post-secondary: 98 (4.5%) Technical institute: 97 (4.4%) University: 1107 (50.6%)				
Econ	Economic activity	Student: 469 (21.4%) Housewife, maternity leave: 151 (6.9%) Economically active: 1286 (58.6%) Pensioner: 276 (12.6%) Unemployed: 14 (0.6%)				
Income	Household income	1) Less than 15 000 CZK: 204 (12.1%) 2) 15 000-29 999 CZK: 689 (41.0%) 3) 30 000-44 999 CZK: 419 (24.9%) 4) 45 000-59 999 CZK: 237 (14.1%) 5) 60 000-74 999 CZK: 69 (4.1%) 6) 75 000 CZK and more: 64 (3.8%)				
Visits	Visit frequency	1) Less than once per half year: 6 (0.3%) 2) Once per half year: 21 (1.0%) 3) Once per three months: 92 (4.2%) 4) Once per two months: 287 (13.0%) 5) Once per month: 835 (37.8%) 6) Once per three weeks: 336 (15.2%) 7) Once per two weeks: 396 (17.9%) 8) Once a week: 168 (17.6%) 9) Once per week and more: 62 (2.8%) 10) Daily: 7 (0.3%)				

Source: own calculation

About 75% of the users were women. Regarding education, about 43% had graduated from secondary school and 51% had a university degree. Most users were economically active (59%). In addition, students are represented (21%) and pensioners (13%), housewives (7%) and the unemployed (less than 1%). The most frequently, the income level of households was in the range 15 000 – 29 999 CZK (41%). The frequency of visits was dominated by the readers who visit the library about once a month (38%). About 18.5% of the users visited the library less than once a month.

The WTP was detected using the following elicitation questions:

1. The library is currently funded from the budget of the capital of Prague. When recalculating current costs per reader, it is 1 400,- CZK. Imagine that the system of the library funding has completely changed. In the new system, the library would be funded from yearly member contributions only. Would you be willing to pay this amount, i.e. 1 400,- CZK yearly?
2. And, under this situation, would you be willing to pay even more for the operation of the library? Yes/No
3. And what amount would you be willing to pay to the library?

We used K-means algorithm for the identification of the representative users of the public library. This method belongs to the group of unsupervised learning methods as well as clustering methods. Clustering methods are used in data mining to identify certain groups of objects with similar characteristics.

The K-means method is a non-hierarchical clustering method. These methods are preferable for discovering knowledge in databases because they allow more efficient processing and interpretation of large data sets. In the case of K-means algorithms initial cluster centers are set first and then the samples, located within a given distance from the center of the cluster, are assigned to the cluster.

Specifically, we used the K-means algorithm for which a fixed number of clusters m=8 was chosen. This number was determined based on the shape of utility function J for a varying number of clusters m. In the area behind m=8 there was no further significant decrease in the utility function J.

2. Experimental Results

The representative users of the eight clusters c_1, c_2, ... ,c_8 can be interpreted based on TAB. 2. The average values for each cluster can be compared with a total average user.

Students represent the cluster c_1. They live with parents, visit the library once a month to loan 3.4 books on average. The frequency of the library use

is the lowest one for this cluster. As a result, this cluster has the lowest WTP for the library services. Similarly, university students in cluster c_2 have also a below-average WTP. Students are also typical for cluster c_7. However, these students use the library more frequently and, thus, evaluate the library services with the second largest WTP (789 CZK on average). Clusters c_3 and c_8 are represented by economically active respondents with an average usage of the public library. Their income is not high and the only differences between them are education level and average age. Young economically active users are present in cluster c_4. Their income is above-average and so is their WTP. Their WTP is high in spite of they did not use the public library frequently. Cluster c_5 represents older economically active users. They used the services frequently and, thus, their WTP is high. The highest WTP is typical for cluster c_6. A typical user, who is present in this cluster, has university education and an above-average income. These users work with many books in a relatively small amount of time. A higher income and frequent usage was, as a result, associated with the highest WTP.

TAB. 2: **Characteristics of the representative users**

Attribute	Aver. user	c_1	c_2	c_3	c_4	c_5	c_6	c_7	c_8
Age	39.9	20.4	31.9	38.5	36.3	55.2	42.4	27.5	46.4
Gender	Fem.	Fem.	Fem.	Fem.	Fem.	Fem.	Fem.	Fem.	Fem.
Educ	Univ.	Secon.	Univ.	Univ.	Secon.	Univ.	Univ.	Secon.	Secon.
Econ	Econ.	Stu.	Stu.	Econ.	Econ.	Econ.	Econ.	Stu.	Econ.
Adults	2.3	3.0	2.4	2.0	2.4	2.1	2.2	2.6	2.1
Children	0.8	0.7	0.6	0.9	0.9	0.6	0.9	0.9	0.8
Income	2	2	2	2	3	2	3	2	2
Visits	5	5	5	4	4	6	5	7	5
Loans	5.3	3.4	4.5	5.0	4.1	6.5	5.3	8.0	5.4
LastTime	31.1	33.3	30.7	30.7	26.8	30.2	29.8	41.2	29.3
LastBooks	6.5	4.9	4.8	7.3	5.5	6.6	7.3	6.7	7.2
WTP	642	441	465	542	700	736	915	789	519
N	2227 (100%)	220 (10%)	217 (10%)	316 (14%)	144 (6%)	355 (16%)	363 (16%)	181 (8%)	431 (19%)

Source: own calculation

Conclusion

The sample results can be used in practice to change the attitudes of library management. Specifically, it is possible to assume from the result that: (1) typical users (and also not-typical users) were identified; (2) these users differed in age, education, income and usage frequency especially; (3) each typical user assigned a different value (WTP) to the public library; (4) income and economic activity are the crucial determinants of the WTP.

We believe that these results may affect the marketing mix of public libraries. In addition, these results may have broader political implications. The benefits of public libraries can be assessed using our methodology. Thus, the importance of public libraries can be stressed out publicly, and the managers of public libraries may try to increase the value of their library through marketing and other decisions.

In our future research we will compare the typical users of the Municipal library of Prague with those from other public libraries in the Czech Republic. In addition, we will investigate the willingness to accept compensation (WTA) and compare it to the WTP results.

Acknowledgements:
This paper was prepared as part of the research project No. 3052/2012 SOKL entitled "Methodology for measuring the value of library services" funded by the Ministry of Culture of the Czech Republic.

References:

[1] BRITISH LIBRARY. *Measuring our Value*. British Library Annual Report 2003/2004, 2004, available online at: http://www.bl.uk/pdf /measuring.pdf.

[2] HAJEK, P., STEJSKAL, J. Bibliomining Analysis of the Portfolio of Services of Public Libraries - The case of the Municipal Library of Prague. *3rd Int. Conf. on Arts and Culture* (ICAC '12), Montreux, 2012, in press.

[3] HAJEK, P., STEJSKAL, J. Analysis of User Behavior in a Public Library using Bibliomining. *3rd Int. Conf. on Arts and Culture* (ICAC'12), Montreux, 2012, in press.

[4] LYNCH, T. *A Study of Taxpayer Return on Investment (ROI) in Florida Public Libraries: Part III - REMI Details*. Tallahassee, FL: State Library and Archives of Florida, 2004.

[5] NICHOLSON, S. The Bibliomining Process: Data Warehousing and Data Mining for Library Decision-Making. *Information Technology and Libraries*, 2003, vol. 22, no. 4, pp. 146–151.

[6] NICHOLSON, S. The Basis for Bibliomining: Frameworks for Bringing together Usage-based Data Mining and Bibliometrics through Data Warehousing in Digital Library Services. *Information Processing and Management*, 2006, vol. 42, pp. 785–804.

[7] OHIO. *Value for Money: Southwestern Ohio's Return from Investment in Public Library*. Columbus, OH: Driscoll & Fleeter, 2006.

[8] STEJSKAL, J., KOTATKOVA STRANSKA, P., MATATKOVA, K., HAJEK, P. Public Services Value Determining – Case of Public Libraries. *4th WSEAS World Multiconf. on Applied Economics, Business and Development* (AEBD 12), Porto, 2012, pp. 140–145.

SOLUTION OF SECURITY ASPECTS WITHIN MICRO-REGIONAL DEVELOPMENT

Aleš Horčička
University of Pardubice
ales.horcicka@upce.cz

Key words:
area security – strategic management – regional development – (micro)regions – threats

Abstract:
Area security ensuring belongs to the major activities undertaken by territorial authorities. Area security management includes legislative, administrative, economic, sociological and managerial elements, which are usually suitably mixed. Safety aspect within the strategic management at the level of territorial units at present - wrongly - is still quite underestimated, although it is necessary to understand that the provision of security in all circumstances must be one of the basic daily tasks for local governments.

The aim of the article is to define the focus of safety management as an important real part of strategic management and strategic planning of territorial units, to identify the most important threats to the Czech regions in the early 21st century and to outline the possibilities of implementation this issue into the strategic micro-regional development documents, which these problems are still in most cases lacking in.

Introduction

Throughout his previous existence, mankind interferes with emergencies that threaten the lives and health of people, their property or the environment. Human society is trying to prevent the occurrence of such events, or minimize their effects to acceptable levels. It builds different effective defense and protective mechanisms depending on the degree of its development.

Large-scale natural disasters, extreme environmental and industrial accidents, terrorism and extremism lead not only to an imminent threat to both people and the environment, but also may affect internal security, public order and state and local authorities operations.

The Czech Republic as a sovereign state has the duty to care for the welfare of its people. It uses all democratic tools for it. One of the most important areas is to ensure the safety and protection of the population.

1. Strategic management of area security and major contemporary threats

Area security management is an important and integral part of strategic management and strategic planning of all territorial units (in particular at regional level).

Area security management can be defined as [4] a set of activities carried out (not only) by territorial units in order to prevent the security threats or minimize their consequences if the threat occurs.

Strategic regional management includes legislative, administrative, economic, sociological and management elements, which are often mixed. As such, it represents a demanding discipline in which experts from different disciplines enter for its further specifying. They unite in the opinion that it is necessary to continually improve management skills of managers and elected officials in management positions.

Strategic planning, an initial part of the strategic management, provides a way how to organize changes and create a broad consensus in society on a common vision for a better economic future. This is a set of gradual and quite specific steps that will lead to improve the socioeconomic environment in this solved area, area development plan, which sets out the principles of sustainable development. Strategic planning of cities and municipalities, respectively regions, has evolved from strategic planning of manufacturing and commercial enterprises and serves to coordinate the development of regions as a sociopolitical organism.

Area security issues and the choice of a correct conception of access to businesses and public administration organizations, is highlighted after the disappearance of the bipolar division of the world. Termination of the bipolar world has opened the door for phenomenon called "globalization". As a result of scientific and technological development, today's world is ever closer communication, transportation, economically and culturally linked.

Globalization is an inevitable historical process, which is useless to resist, particularly in connection with the fact that this process is in many ways desirable, and has beneficial effects on the majority of mankind. But like any social phenomenon, globalization has its downsides. One of them is that it opens the door to an era in which violence and chaos can prevail. This risk, however, the society must prevent and in the defense must be everyone involved - from citizens, through businesses, to representatives of public and political life. Even strong and well-organized state or any other regional grouping in isolation cannot ensure the safety of all subjects on its territory.

The term "threat" [1] indicates speeches, gestures, actions or actions, which express the will to cause someone smaller, larger or even irreparable damage. Every threat creates a greater or lesser concern or fear of who he/she is exposed to it. Threats operate independently on the interests of the threatened person and therefore they are a phenomenon with an objective nature. To face the risk, the entity (person, country or coalition) may take measures and steps to mitigate or eliminate the threat. Likewise, but it may exaggerate it or even inadvertently cause it.

The threat from the environment is not only a social construction, created by HR management of some organization. It is a social reality and its deal requires a relatively large effort and costs.

The major threats of the 21st century include:

- proliferation of mass destruction weapons;
- international terrorism;
- global warming of the planet and the related emergence of an emergency due to natural phenomena;
- migration of the population.

2. Cooperation in ensuring area security

Therefore, all bodies must today ensure the security against threats themselves or thanks to effective coordination (e.g. professional support from the external experts). Efforts to ensure the area security must respect the three basic elements:

- there is a direct causal link between the security and threats from the outsider;
- ensuring the area security is usually expensive, even though it often may not be immediately visible;
- risk resources - a dangerous entities of world chaos - are poorly visible and interventions against them are difficult.

The role of the region, respectively micro-region, lies in [3] policy and executive activities of self-governing municipal bodies in the area of local development, their initiation activities in dealing with micro-issues and defining micro-programs and activities and their participation in the implementation of regional programs. Regions and micro-regions process development strategies to identify needs, determine the direction of development, development activities and strategic decision-making.

It should be noted that area security is one of the basic daily tasks of local government and it plays a vital role in strategic (micro-)regional development plans. Indeed, it is one of the key areas for each territory development.

Despite significant shortcomings, mainly resulting from insufficient levels of used technology, the CR Police achieved the following accomplishments:

- better search, detection and classification of crimes;
- (subsequent) increase in the intensity of interventions;
- successful detection and prosecution of crimes committed through publications and modern media.

3. Ensuring area security at the level of (micro)regions and cities

Management from the perspective of state administration at the lowest level, also the village degree, is marked by the complexity of addressing the likely threats, since all the statutory laws, decrees, regulations, guidelines and instructions are mixed here.

The task of city management can be formulated in this field as follows [2]: •to protect the lives and health of citizens and not to allow degradation of their life; •to protect property, environmental and cultural values in the existence of an emergency; •to participate in creating a safe space and to ensure sustainable development by eliminating the risks, effective and efficient solution of possible emergency situations.

To ensure this set of tasks, it is necessary to process, prepare and implement a series of tasks and measures, to create the rescue system and the system of crisis management authorities, to equip and train emergency foyer, to find enough financial, material and human resources to ensure the functionality of the system within the available resources. This task is indeed primarily in the responsibility of the government (government and central government), but its implementation must be clearly shared by the local government within the delegated powers.

The city play a key role in the fulfillment of the specified tasks and measures in the field of defense, security and protection, as a part of crisis management ensures their implementation and performs the tasks of state administration within the delegated powers in their locality.

For city management is crucial to ensure the cooperation:

- all components of the integrated rescue system (fire brigade, emergency medical services, the Police, ...);
- emergency services (telecommunications companies, water and sewer systems, power and gas companies, district heating companies, ...);
- selected local government bodies (school office, office work, management of road maintenance, district social security, tax office, ...);
- self-government bodies (municipal authorities);

- selected legal persons (businesses, social organizations);
- selected individuals (engineers, statics, pilots, mountaineers, speleologists, ...).

In order to quality ensure the area security (municipality, micro-region, region), it is important to ensure effective cooperation between all elements involved in the exercise of services (concentration of certain services to certain places, increasing quality, good directing funds to training, etc.).

The cooperation should include:

- implementation of preventive measures and targets to eliminate and to mitigate the emergency situation;
- implementation of measures and tasks performed by the state administration and self-government bodies with other organizations in emergency situations;
- defense and civil emergency planning;
- preparation of civil sector for the implementation of economic measures within crisis conditions;
- liquidation of emergency situations consequences;
- security the functional capacity of the Integrated Rescue System;
- exchange of experiences and measures available for dealing with emergencies.

4. Area security management issues implementation into the strategic (micro-)regional development documents (concept design)

Area security management issue is still missing in the most strategic development documents. The basis for possible implementation is the exact definition of the safety management focus, like e.g. quality management. Area security management is an important part of the strategic management and strategic planning at regional level (security features in spatial planning, area recovery planning, ...).

Subsequent mapping of key development areas and their critical factors should provide new knowledge that can be used for better performance of public administration to encourage the development of the region.

Obtained findings should be formulated as specific measures to jointly addressing one of the key areas, namely area security management. The proposed strategy must necessarily correspond with the conclusions of the current situation and should accentuate particular:

- plans and directions of regional development and security policy of the Czech Republic;

- plans and directions of regional development and security policies of the region;
- an integrated view on the issue of security in the (micro-)region (measures to improve the situation, measures for sustainable situation).

Connecting link of the whole "security strategy", which should always be called "a spiral of continuous improvement", is resulting from knowledge, analysis, implementation, monitoring and evaluation in the field of area security management.

In relation to the safety of the territory is also necessary to pay greater attention to new methods of work. This is essentially a definition of the relationship between local and regional development, strategic planning, including designs how to ensure the security as well as the basic principles applied in the production of documents in the area of safety management.

Conclusion

However, experience shows that the importance of the area security management in our country and in the world is constantly growing and will continue to grow.

The main threats in the world today can be considered extremist and terrorist activities and facts related to natural phenomena (floods, torrential rain, storm, tornado). In all the examples above depends, provided an adequate legislative and financial support of course, the abilities and skills of the institutions and relevant workers of cities, (micro-)regions and countries, who by the events facing. Their readiness is an important factor that helps eliminate the incurred risks and generated damages, and also speeds up the recovery process.

The task of the area security management in this area is to be ready to deal with such events through all concerned institutions and workers as much as possible, what is closely related to the successful application of public administration modernization.

References:

[1] EICHLER, J. Jak vyhodnocovat bezpečnostní hrozby a rizika dnešního světa. In: *Obrana a strategie.* 2/2004, s. 13-18, ISSN 1214-6463

[2] HORÁK, R.; KRČ, M.; ONDRUŠ, R.; DANIELOVÁ, L. *Průvodce krizovým řízením pro veřejnou správu.* Praha: Linde, a.s., 2004. ISBN 80-7201-471-4.

[3] REKTOŘÍK, J. a kol. *Krizový management ve veřejné správě – teorie a praxe.* Praha: Ekopress, s.r.o., 2004. ISBN 80-86119-83-1.

[4] *Sborník z konference Bezpečnost v podmínkách organizací a institucí ČR.* Praha: Soukromá vysoká škola ekonomických studií, s.r.o., 2005

FAIR VALUE IN COMPANY TRANSFORMATIONS

Eva Hýblová, Zuzana Křížová, Jaroslav Sedláček
Masaryk University
hyblova@econ.muni.cz, krizovaz@econ.muni.cz, sedl@econ.muni.cz

Key words:
company transformations – merger – measurement – goodwill – adjustment to acquired assets

Abstract:
At some types of mergers of trading companies, these are obligated to revalue the assets of the companies being dissolved by their fair value. The measurement of the fair value depends on the method used, the market development, and an expert's subjective view. The assets of the company being dissolved and the successor company are reflected in the opening balance sheet; the differences arisen from the revaluation are expressed as goodwill or adjustment to acquired assets. The amount of these items in dependence on the balance sheet total can affect the assessment of the financial performance and position of the company. The paper discusses the consequences of revaluation to the fair value.

Introduction

Mergers of trading companies are important transactions, which represent combinations of companies both economically and legally. Mergers can take two forms: either a successor company takes a company being dissolved and no new company is created (first type) or two or more companies are dissolved without going into liquidation and a new successor company is created (second type).

Reasons for a merger can be based on business or speculation. Business reasons include a situation when a company seeks new progress and thus it needs to grow, change its structures, expand its market share or enter new markets. Speculation reasons are e.g. an effort at a maximum appreciation of capital during a short time, in which case the gained companies may be gradually sold up. Another significant effect is tax savings [1, 14].

1. Measurement of assets and liabilities in mergers

As of the decisive day of the merger[1], the assets and liabilities of the successor company and the company being dissolved are reflected in the opening balance sheet of the successor company.

Act on accounting, art. 24, section 3, defines two possible procedures for transferring a company or its part that can be applied to mergers. The accounting unit can take the assets in accounting values in which it was registered with the original owner. The other possible way is to have the assets and liabilities revalued by an expert based on a special regulation, which is Act no. 151/1997 Coll., on valuation of property, as amended [2, 45].

The company being dissolved has the obligation to adjust the assets and liabilities to the fair value in some types of mergers of joint-stock companies and limited liability companies[2].

The opening balance sheet of the successor company shows the difference caused by the new valuation as:

- adjustment to acquired assets;
- goodwill.

The adjustment to acquired assets contains a positive or a negative difference between the measurement of assets and liabilities within the transformation and the sum of measurements of its individual components of assets in the accounting of the contributing and the dissolved accounting unit reduced by the accepted liabilities.

Goodwill is a positive or negative difference between the measurement of assets and liabilities within the transformation and the sum of its separately revaluated components of assets reduced by the accepted liabilities.

The difference between the adjustment and the goodwill depends on the selected way of revaluation; if:

- the acquirer performs an individual revaluation of separate assets components, the difference is considered the goodwill,

[1] The decisive day of a merger is the day starting from which all activities of the companies being dissolved are considered activities performed on account of the successor company from the point of view of accounting.

[2] The revaluation to the fair value is necessary when the merger of the first type leads to issuance of new stocks by the successor joint-stock company for partners of the dissolved company; or if the partners of the dissolved company are awarded contributions and the related business share of the successor limited liability company; or if the current contributions of successor limited liability company partners are increased and the source of the increase is assets of the dissolved company. Each participating company is obligated to have its equity measured by an expert for a merger of the second type.

- the acquirer does not perform an individual revaluation, this is the adjustment to acquired assets.

Whether the accounting unit will choose the procedure of taking the accounting values or the individual measurement of separate assets items, will depend on:

- the structure of assets, their age and the age of their "historical measurement",
- future intentions of the successor accounting unit (sale of assets, restructuring, continuing production),
- assessment of the fair view of reality in the accounting of the legal successor,
- tax reasons [3].

Example: The value of company total assets before revaluation is 1000 (property X 750 and property Y 250); the expert measured the value of net business property to be 1500.

The two possible solutions are presented in tables 1 and 2. The statement of financial position of the successor company will involve "Adjustment to required assets" – separate revaluation of individual items was not carried out, the adjustment is a part of tangible assets (Table 1). The statement of financial position of the successor company will involve "Goodwill" – individual items of assets were revaluated separately, the goodwill is a part of intangible assets (Table 2). The difference will be reflected in the equity.

TAB. 1**: Adjustment to acquired assets**

Extract from the statement of financial position of the successor company			
Assets		Equity and liabilities	
Property X	750	Equity	1500
Property Y	250		
Adjustment to acquired assets	500		
Assets in total	1500	Equity and liabilities in total	1500

Source: Authors

TAB. 2: **Goodwill**

Extract from the statement of financial position of the successor company			
Assets		Equity and liabilities	
Property X	800	Equity	1500
Property Y	300		
Goodwill	400		
Assets in total	1500	Equity and liabilities in total	1500

Source: Authors

1.1 Adjustment to acquired assets and goodwill

The value of the goodwill/adjustment to acquired assets is the amount established by the expert's estimate; the purchase price of a company as a unit is affected by a number of factors determined and measured by the factor of future development. A company is not usually measured by the substance-value method only, i.e. the sum of values of individual assets reduced by the sum of measured liabilities. Earning power methods or market value method are applied where there is a developed capital market. Also the measurement of individual assets and liabilities, which are the basis for the value of net assets of the company, always involves some subjective estimation, as the prices of individual assets and liabilities are not individually objectified during acquisitions or mergers [4, 84].

Quantification of items is accurate from the perspective of the difference between the original price of business property and its revaluation; but the other factors reduce their stability and information capacity.

Goodwill or the adjustment to acquired assets can reach negative values as well but their recognition in the statement of financial position does not correspond to the definition of assets. An asset is a result of past activities, in the future it will contribute to economic benefits, it is reliably measurable. The fact that at the moment of revaluation the fair value of a property was lower than its accounting value does not guarantee any economic benefits for the present, neither their duration for the time these items will be depreciated[3]. This solution has no substantiation within the definition of assets, a negative asset cannot be defined, the result in this case is only based on the quantification of differences between the original price of the business property and its revaluation and it balances the balance sheet total.

Example: The value of company total assets before revaluation is 1000 (property X 750 and property Y 250); the expert measured the value of net business property to be 800. The negative adjustment to acquired assets is exemplified in Table 3 and the negative goodwill in Table 4. The negative difference reduces the value of the equity.

[3] A positive adjustment to acquired assets/goodwill is depreciated in costs, a negative one in earnings.

TAB. 3: **Negative adjustment to acquired assets**

Extract from the statement of financial position of the successor company			
Assets		Equity and liabilities	
Property X	750	Equity	800
Property Y	250		
Adjustment to acquired assets	-200		
Assets in total	800	Equity an liabilities in total	800

Source: Authors

TAB. 4: **Negative goodwill**

Extract from the statement of financial position of the successor company			
Assets		Equity and liabilities	
Property X	700	Equity	800
Property Y	200		
Goodwill	-100		
Assets in total	800	Equity and liabilities in total	800

Source: Authors

1.2 Devaluation and depreciation

The adjustment to acquired assets is depreciated evenly for 180 months; the goodwill is depreciated evenly for 60 months. When the value is positive, they are depreciated in costs; when the value is negative, they are depreciated in earnings.

Considering the fast development of prices and the changes in the market, the even depreciation of the adjustment to acquired assets and the goodwill does not reflect the development of their real values; it would be more suitable to conduct an annual test whether the accounting value of these items corresponds to reality. An inspiration could be the impairment test within the International Financial Reporting Standards. However, even this testing is liable to subjectivity and its procedures are not elaborated sufficiently.

Conclusion

The adjustment to acquired assets/goodwill can form a substantial part of the value of company property. Authors of this paper performed a verification using the data published in the Trade Register concerning the companies where a merger was implemented in 2009 and 2010. The data from opening balance sheets showed that the value of goodwill/adjustment to acquired assets ranges between 0 and 35% of the balance sheet total. Considering the insecurities, subjective factors and development of prices

dependent on the performance of a national economy, an accurate definition of these items is nearly impossible. If they reach a higher share within the balance sheet total, they can significantly affect the information on the financial position and performance of the company. When assessing them, it is necessary to approach them subjectively and be aware of the risk following from their reduced reliability; and in some cases, even exclude them.

Acknowledgement:
The paper was prepared with the support from Grant Agency of the Czech Republic project no. P403/11/0447 "The Analysis of Taxation and Accounting Practices during Mergers".

References:

[1] MAŘÍK, M. *Koupě podniku jako součást podnikové strategie*: *(akvizice a fúze podniků).* 1st ed. Praha. Vysoká škola ekonomická, 1995. 176 p. ISBN 8070795581
[2] SEDLÁČEK, J. *Účetnictví přeměn obchodních společností*. 1st ed. Brno. Masarykova univerzita, 2009. 149 p. ISBN 9788021049628
[3] SKÁLOVÁ, J. Oceňování reálnou hodnotou při přeměnách. *Daňový expert 2007/5,* retrieved from: http://www.danarionline.cz/archiv/dokument/doc-d10039v12939-ocenovani-realnou-hodnotou-pri-premenach/
[4] VOMÁČKOVÁ, H. *Účetnictví akvizicí, fúzí a jiných vlastnických transakcí* (vyšší účetnictví). 4th updated and extended ed. Praha. BOVA POLYGON, 2009. 560 p. ISBN 978-80-7273-157-2
[5] Act no. 563/1991, on accounting, as amended
[6] Act no. 125/2008 Coll., on transformations of trading companies and cooperatives
[7] Act no. 151/1997 Coll., on valuation of property, as amended

DETERMINANTS OF FINANCIAL EXCLUSION IN POLAND IN THE OPINION OF CONSUMERS AND BANKS

Marcin Idzik
Warsaw University of Life Sciences – SGGW
marcin_idzik@sggw.pl

***Key words*:**
financial exclusion – retail banking – banking services

Abstract:
This article presents the perception of the factors determining the use of the banking services in the opinion of consumers who do not use the banking services and of the directors of the bank branches. Bankers emphasize the lack of habit and the need to save money, the habit of keeping cash at home, hiding incomes and financial assets. In the opinion of the consumers, what makes people wary and reluctant to use the banking services is the fact that it is difficult to access banks and too expensive. As a result, the customers avoid banks. The research encompassed a sample of N=1000 of people who did not use banks as well as N=200 directors of bank branches.

Introduction

The banking market in Poland in terms of many technological standards does not differ from the standards applied in Western Europe. The process of technological changes in banking has been very dynamic. The first bank card was issued in Poland in 1992. 2000 witnessed the introduction of telephone banking, in 2003—the Internet banking and in 2011—mobile banking. This, however, did not change the fact that having a current account at a bank was declared by 66% of the residents of Poland in the third quarter of 2012 who were aged 15 and over. This was four times more than at the beginning of the 90s, but still much lower than in the other countries of the European Union. Every third Pole (10 560 400 people aged 18+) do not have their own account; and, as a result, they are financially excluded [1]. For comparison, the level of financial exclusion is approximately 1% in Denmark and Holland, and in Poland it is about 20-30 %. Financial exclusion refers to a situation when social units experience difficulties in accessing or using financial services and products [2]. In theory, the main reasons of the financial exclusion in the society are: a) social reasons (changes on the labor market, social inequality, demographic changes, fiscal policy), b) supply reasons (limited access to banks, methods of managing

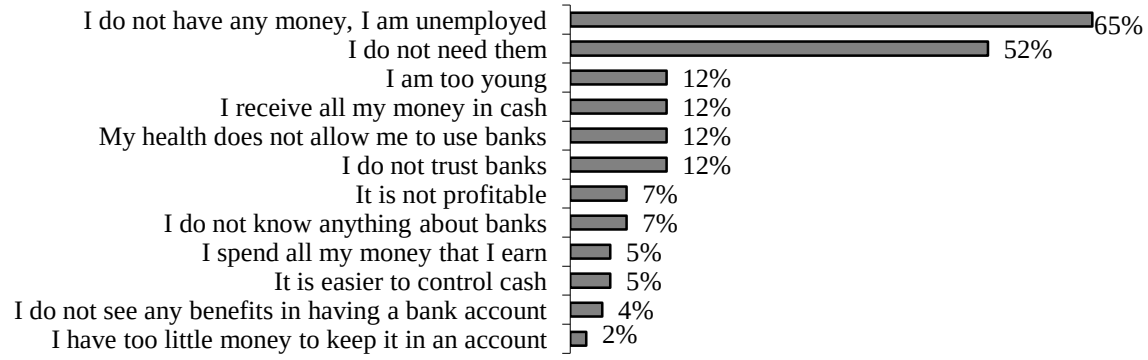
banking risk, prices of banking services, banks' activities that exclude the poorest people or the construction of banking products), c) demand reasons (a self-excluding attitude – "this bank is not for me," a low level of financial education, fear of losing control over one's finances, and fear of costs of the banking services).

The objective of this work was to identify and appraise the selected reasons that were behind the issue of the unbanked from the standpoint of supply and demand. We analyzed the opinions of the people who did not use the banking services and the opinions of the bank employees. The source of the empirical data were the results of TNS Polska own surveys. The surveys encompassed a nationwide representative sample of N=1000 of the country's residents aged 15 and over who did not use the banking services. The surveys were conducted in September-October 2012 using computer aided personal interviews (CAPI). Additionally, the survey included a sample of the bank branch directors of N=200 who represented all banks in Poland which offered services for retail customers. The research was conducted using computer aided telephone interviews in September 2012.

1. Selected demand-related determinants of the financial exclusion

The catalogue of the reasons for not using banks declared by consumers is strongly saturated with a stereotypical and incomplete picture of the banking services. Most frequently, the unbanked spontaneously say that they do not have enough financial assets or do not have regular incomes (65%) which, in their opinion, would prevent them from entering the market of the financial services (Figure 1). However, we can assume that in the case of 60-70% of the unbanked, the bad financial situation cannot serve as an excuse for not using banks [3]. One-fifth of the unbanked (20%) save their financial surplus at least from time to time. According to the declarations, if the unbanked were to save some money, they would save PLN 170 on the average from their monthly incomes. In the group of those who use the banking services, it was PLN 530. It is common knowledge among the unbanked that in order to be a bank customer one needs to have a financial surplus. The unbanked have a feeling of being financially unattractive for banks by classifying themselves as a group of people who are unbanked out of their own volition. However, it should be added that the unbanked share the opinion that the bank offer is broad but they add that it is not for them. In this place, we can also put a question whether the bank offer is inadequate to the needs of these people, or whether this offer is relatively adequate but improperly communicated; and, additionally reaching "substantially and mentally unprepared ground," or whether this is also a conscious choice of these people [3].

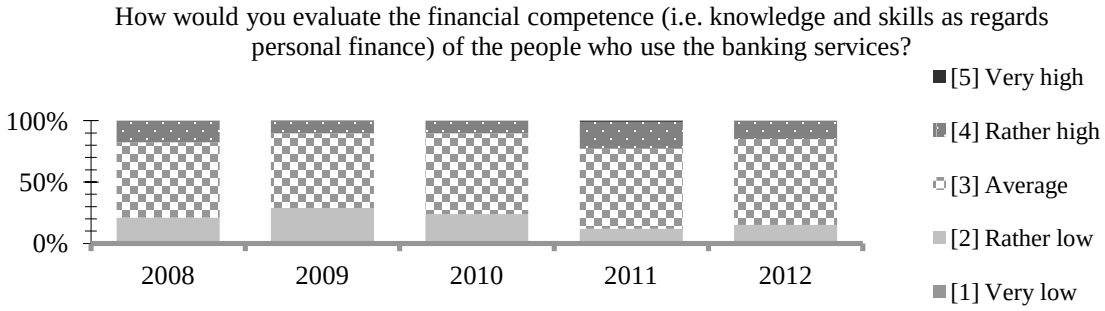
FIG. 1: **Declared reasons for not using the banking services in the group of the unbanked**



Source: [3]

The second most frequently indicated reason for not using the bank services is the lack of the need (Figure 1). One-third of the unbanked openly admit that they do not feel any need to use the banking services. They also add: *"you can live without an account and a card and you can make most of the transactions, but you CANNOT live without cash."* They justify that you can "normally" function in Poland without a current account. These consumers do not see any benefits for themselves of having a bank account. Managing one's own finances for that group means is having cash in their "pockets." Each "zloty," more often than not, has its purpose, and everyday shopping is precisely calculated. Even in the case of having some surplus cash, it is kept at one's home, so that it is not endangered in any way (even if it is a deposit account). On the average the savings of the unbanked amounted to PLN 6800 [1]. Among the spontaneous answers which Poles use to justify why they do not use the banking services, they very seldom indicate the lack of trust in banks, the unsatisfactory offer or high prices of the banking services. Some of the people also reveal that they do not use the banking services because they are afraid for the safety of their finances which they understand as the possibility of revealing how much money they have on their accounts to the fiscal authorities, or the risk of money theft from the account. Financial security also means fear of losing control over one's expenditures. "*I will not spend more than I have in my pocket, and I always know how much I have on me.*" The unbanked do not share the opinion that banks are not available for the consumers as regards the physical access to the bank branches. When consumers justify the fact that they do not use the banking services they also completely disregard their own low level of knowledge about finances and the inability to use the banking products.

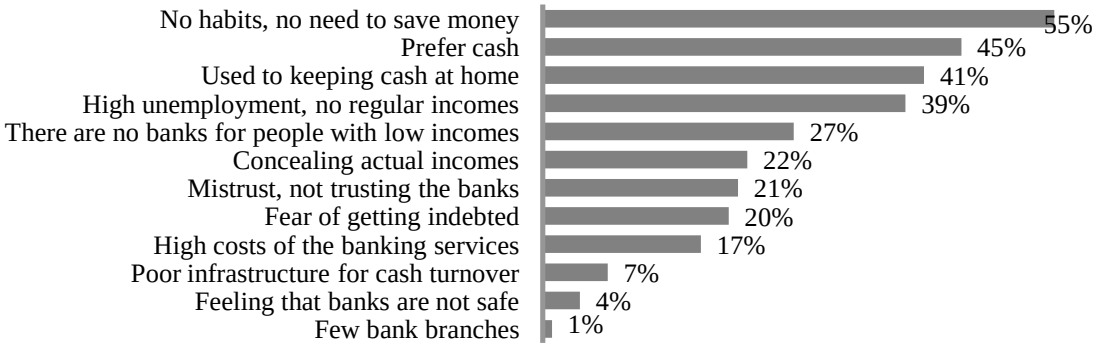
FIG. 2: **Evaluation of the financial competence of the Poles in the opinion of bankers**



Source: [4]

In the opinion of the banks' employees, barely 15% of the bank customers are quite highly competent as regards the ability to use the banking services. In the case of the unbanked, these figures are much worse. More than 80% of them do not have any reservations to admit openly that they do not know anything about banks [1]. The unbanked are also not interested in banks: 7% of them are unable to mention a single name of a bank, and 47% of the unbanked are unable to evaluate the security or profitability of the deposit accounts. 13% of the unbanked have heard about contactless payments in comparison with 53% of those who use banks. 60% of the unbanked have not come across an advertisement of any bank recently; whereas in the case of the bank users this figure is only 26%. 70% of the unbanked are unfamiliar with the brand of any bank offering Internet banking (spontaneous familiarity), and 74% are unable to mention any bank offering a free current account (for PLN 0,-) [1]. Another social determinant is a very slow process of penetrating the members of households by the standards of using banks. In the group of the unbanked, the negative stereotypes of the perception of financial institutions are deeply rooted. These attitudes change only at the moment of starting a relation with a financial institution and/or through experience. 89% of households in Poland have a bank account (any of the members of the household), whereas only 66% of the country's residents declare having a current account. Among the people from their surroundings, it is frequently not only them who do not use banks. The awareness that it is not only them who avoid banks decreases the motivation and confirms the conviction that it is also good without banks. Moreover, the people who use banks use only the basic financial services. For the unbanked, it is an additional justification of the correctness of their choice. *"Why should I tie myself to a bank if the only service that I am going to use is a low-interest current account."*

FIG. 3: **Reasons for financial exclusion in the opinion of bankers**



Source: [5]

Bankers indicate similar reasons for not using the banking services in comparison with the opinion of consumers despite the fact that they use different words [5]. Bankers emphasize the lack of habit and habitual need for saving, the force of habit of Poles to keep cash at home and concealing their actual incomes and financial assets (Figure 3).

2. Selected supply-related determinants of financial exclusion

The opinions of the indispensable role of banks in economy are equally frequently accompanied by comments that the role of banks in decreasing the issue of the unbanked is insufficient [1]. The striving of the banks to achieve the highest profitability is one of the key factors determining the banks' strategies. Banks close less profitable branches by moving the majority of the services and their sales to the Internet. The number of bank branches per million residents puts Poland below the average for the European Union [2]. Additionally, the significance of the effectiveness of promotions is important. For a bank it is easier and cheaper to acquire a customer who already uses the banking services by winning such a customer over from another competitive bank than to try to get a person who still does not have any relation with any bank. In the opinion of some analysts, "*the banks fight over the same 10% of the customers who already use the banking services."* Most of all, banks would like to take care of affluent customers or well-to-do customers or those which high prospects [5].

Banks do not undertake any measures to educate the current customers. "Banks do not mold the customers for their own needs." The word-of-mouth marketing concerning the banking services aimed at the unbanked does not work. Banks provide education aimed at "the superficial economic awareness." As a result, the consumers register pictures, facts and slogans mostly from the media. Banks are not interested in the education that reaches the deep awareness which results from the long and complex process

of education, first of all, on the school level (formal education). More and more frequently, the emphasized issue is the lack of municipal banks which are non-profit organizations. Non-profit municipal banks in Holland offer social accounts. Apart from the strictly banking activities, they deal in preventing and decreasing excessive indebtedness of households by holding workshops and providing consulting services on planning home budgets and how to manage money. In justified cases, they also offer low social credits which should help the people who are excluded from the financial market to return to normal life.

Conclusion

Bankers and the public opinion unanimously mention the insufficient level of using banks by the Poles. For many consumers who avoid banks, they are difficult to reach or they are available but too expensive, what makes them wary and, as a result, these consumers avoid them. However, we constantly speak of the social perception of banks among the unbanked, as well as notions and the stereotypical perception of a bank that the majority of the unbanked have never had anything to do with, and finally inadequate perception of oneself in relation to a bank.

The determinants of being the unbanked are of a complex character, and each of the segments of the unbanked provide different determinants of this situation. A remedy to decrease this problem cannot involve simple and routine activities. In order to prevent the occurrence of the unbanked, it is necessary to identify them well using the right studies and using adequate tools. In order to be effective, the whole process should have a coordinated character and be carried out on the basis of a good program. Its performers should be motivated—this should be simply profitable for banks, and the other participants of the program should also have some social and macroeconomic benefits in the long run. This process should be also positively supported by the macroeconomic changes in the economy, systematic increase in wealth of the society with all positive effects of this process for the banking sector.

References:

[1] Audyt bankowości detalicznej, TNS Polska, 2012, vol. 3, pp.45-49.
[2] ANDERLONI, L., BAYOT, B., BŁĘDOWSKI, P., IWANICZ-DROZDOWSKA, M., KEMPSON, E. *Financial Services Provision And Prevention Of Financial Exclusion*, European Commission, 2008 march, pp. 9-11.
[3] Nieubankowieni, TNS Polska, 2011, pp. 37-40.
[4] Monitor bankowy IX, 2012, ZBP, TNS Polska, pp. 3-4.
[5] Monitor bankowy XI, 2011, ZBP, TNS Polska, pp. 6.

KNOWLEDGE MANAGEMENT AND ORGANISATIONAL EFFECTIVENESS

L N A Chandana Jayawardena, Ales Gregar

Tomas Bata University in Zlin, University of Peradeniya, Sri Lanka
chandanacj@gmail.com, gregar@fame.utb.cz

***Key words*:**
knowledge management – organizational effectiveness

Abstract:
Knowledge is recognized as an important tool in sustaining competitive advantage and value creation to stakeholders of organisations. There is increased attention on adopting Knowledge Management (KM) initiatives in organisations. KM is the practice of capturing and developing the knowledge of organisational members for it's' benefit. It involves collecting, transferring, storing, and disseminating knowledge. Culture is found to influences the beliefs, values, and norms of knowledge generation, sharing, and utilization in an organization. Empirical evidences suggest that KM facilitates innovation, and contributes to add value to stakeholders. KM has been a decisive practice to stay competitive in achieving corporate goals.

Introduction

There is a lot of debate surrounding the role of Knowledge Management (KM) among the practitioners and academics alike. There has been lot of discussion of the twenty first century as the era of knowledge economy. Knowledge is recognized as an important weapon of sustaining competitive advantage and improving performance. An organization is defined largely as a 'cognitive enterprise that learns and develops knowledge'. This is signified from the importance given to professionals as 'Knowledge Employees'. Organisational Effectiveness depends on the ability of the management to adapt to environmental events. Organizational strategic behaviours have been found to have a direct impact on organisational performances. The shared perspective of organisational abilities and their strategic behaviour in adapting to environmental events is described as a general knowledge structure that incorporates dominant management logic [1, 486]. Organisations get exposed to knowledge structures through environment. As they gather more exposure, learning opportunities become wider. Complex situations facilitate expertise in the related knowledge structures. Enhancing organizational capabilities to improve internal performances to stay competitive through the effective KM is vital. Recent research interest in

the information systems literature indicates that infrastructure capability (e.g., structure, culture, etc.) can enhance the KM processes. Enterprise knowledge management also focuses on the connection of KM and organizational innovation.

1. Concept of Knowledge Management

KM is the practice of capturing and developing (individual and collective) knowledge within an organization, and using it to promote innovation through transfer of it, and continuous learning [2, 45]. The term KM has been discussed as the process of collecting and identifying useful information (i.e. knowledge acquisition), transferring tacit knowledge to explicit knowledge (i.e. knowledge creation or transfer), storing the knowledge in the repository (i.e. organizational memory), disseminating it through the whole organization (i.e. knowledge sharing), enabling employees to easily retrieve it (i.e. knowledge retrieval) and exploiting and usefully applying knowledge (i.e. knowledge leverage) [3,19]. KM can also be seen as a means of developing organizational effectiveness and competitiveness. Grizelj [4, 375] has viewed it as "an approach for identifying, capturing, creating, and applying knowledge with the aim of improving competitiveness through new innovative KM strategies". Research has distinguished several forms of Knowledge with different implications for strategic decision-making. Baumard [5, 19] elaborated that "knowledge is the object of a continuum that extends from interpreted information such as a simple pencilled diagram, to the non-representable such as intuitions and hunches".

2. Knowledge Management Development

KM has been identified with two components, namely knowledge sharing, and knowledge storing [6, 250]. There are three threads that are incorporated with the development and emergence of knowledge sharing and storing. Social interactions are the first thread. Social interactions and networks play a foremost role in accelerating knowledge sharing, in assembling divergent resources from dispersed locations within an organization, and in enhancing the effectiveness in storing individual and organizational knowledge. Technologies are employed next for nurturing knowledge sharing and storing practices. Managerial support is the third thread, which removes all obstacles for the development of the KM best practice, fostering a desired organizational culture for promotion. It has been found that sharing of knowledge speeds up when an individual volunteers to assist as well as to learn from others in the development of new competencies. Senege [7, 12] mentions that to ''learn'' means to ''digest'', to ''absorb'', and to ''apply''. Knowledge sharing effectively transfers all

the employees' experiences and knowledge to organizational assets and resources, which facilitates the overall organizational effectiveness. Knowledge sharing is followed up by knowledge storing. Literature suggests that an organization itself would not ''remember'' things so that ''organizational memory'' describes which information and knowledge are processed by an organization, the process and where the knowledge could be obtained, resided and retained by its members. Research [8, 599] cites the significance and relevancy of organizational memory to KM. It elaborates "firstly, the repository exemplifies past success and failure stories, in order to prevent the same mistakes from happening again; and secondly, it stores a conglomeration of collective competencies, information, knowledge and experience, in order to enable organizational members to acquire relevant resources".

3. Empirical Evidences of Knowledge Management

The development of knowledge-based factors is crucial to the value creation of products and services, and most of these factors are related to the company's orientation towards the market and its purposes. Therefore, both knowledge management and market orientation focus on innovation. That leads to improved organizational effectiveness, ensuring to stay ahead of competitors and to anticipate the needs and desires of consumers. KM is of extra significance to the service industry and customer interface (with employees) provides invaluable knowledge about market and customer satisfaction. ''Knowledge'' in hospitality operations can be defined [8,595] as the knowledge related to company's customers, products and services, operational procedures, and key stakeholders. It could be found in employees, stored in documents/papers, or located in types of electronic devices. Where the employee turnover rate is high, establishing knowledge sharing and storing is the primary step of pursuing the KM best practices. Marriott International Hotel chain provides an example for the application of ''knowledge sharing and retention'' practices. They installed a ''codification System'' to virtually convert what all its employees knew about hotel day-to-day operations and standard operation procedures, in order to provide consistent customer services [9, 73]. The company also designed a reward system for those who shared, created and mobilized new knowledge relevant to their business. Another instance of real-world operations includes the Ritz Carlton Hotel. These are good examples of enhancing customer loyalty by paying 'attention to details' in customer encounters and providing personalized attention when they return.

However, the "KM" system not only includes customers, but also consists of competitors, suppliers, local contracted companies, other key stakeholders, and focus the trends of the external environment. There was a case study [10, 390] related to the development of a knowledge based system, that combines hotel managers' judgments about future room demands with traditional statistical forecast techniques for room forecasting. Findings indicate that a system incorporating hotel managers' knowledge (qualitative elements) could forecast more precisely compared with pure statistical forecasting systems based on historical data. Findings indicate the need for more 'soft forecasting models', and highlight the importance of the tacit knowledge of hotel managers and employees about the future state of their companies from a demand perspective. With the advent of KM, organisations have to think of more interactive (non-linear) forecasting systems for greater organisational effectiveness. The significance of innovation in managing the uncertainty facing organizations and creating added value is focussed with the dynamic knowledge capabilities underpinning it. Organisational effectiveness is enhanced from ensuring that both tacit and explicit knowledge within an organisation is shared and converted to collective outputs; i.e. using the intimate knowledge about customers, and technologies to innovate products and markets. Empirical studies have been conducted relating to how mangers in the hospitality sector understand the use of e-mail along the four dimensions of namely: information management, influence of people, corporate culture and KM. A model that can be used to purposively change the position within the four dimensions had been developed (and agreed). Findings reveal of an instance [8, 596] that one hotel in the group had a negative position in respect to acknowledging the strategic importance of e-mail systems as a tool for knowledge sharing. Hotel management had not recognized the strategic importance of employees' knowledge concerning the state of their workplace. Here it emphasizes the importance of enlightening the managers of the virtues of KM for organisational effectiveness. Many studies have focused on the relationship between organizational culture and organizational effectiveness. There are successful organisations using knowledge platform such as exhibition seminar, focus group, organization structure to offer internal corporate knowledge sharing and to promote learning among members [11, 6176]. Knowledge flows between upstream and downstream increase the interaction between members and therefore the purpose of knowledge sharing is achieved. In a study [12, 769], it was found that organizational culture's influence on organizational effectiveness is negligible, when KM was considered as a mediator. It provided insights in integrating the resource-based view and knowledge-based view. KM was found to mediate organi-

zational culture's influence on organizational effectiveness. It concluded that KM can influence organizational effectiveness when it is in alignment with organizational culture, structure, and strategy.

Conclusion

The positive contribution of KM for the development of organizational effectiveness are effects of the processes that facilitate the capture, creation, organization, dissemination, sharing and application of knowledge, that improves the relationship with customers, key stakeholders in establishing markets [13,106]. Resources in an organization may be hierarchical. Knowledge may be one step closer to organizational effectiveness in the paths leading from organizational resources to organizational effectiveness. Management practices, such as providing KM tools, and supporting KM initiatives, would contribute to the organisational profits. Research findings [12, 770] suggest that how well knowledge is managed is linked with how well cultural values are translated into value in an organization. Culture has a greater contribution to KM. It influences the beliefs, values, and norms of knowledge generation, sharing, and utilization in an organization. This underlines the value of organizational culture that is conducive to learning and KM. KM practices need to centre on incorporating culture-building activities to foster a knowledge-friendly environment. The four dimensions of organizational culture; viz; adaptability, consistency, involvement, and mission contribute to KM in harmony [12, 769]. It is imperative to have a smooth interflow and storage of knowledge to develop an organizational culture where knowledge sharing is explicitly encapsulated into all the job descriptions. An effective organizational culture is one of the key components influencing organizational ability to survive and succeed in the long term [8, 599]. Knowledge is perceived as a resource and identified as a catalyst of other resources. The processes thereto related, such as capture, creation, sharing, dissemination, organization, application of knowledge etc., should have a differentiated treatment in the management of companies. It is logical to consider that the employees, who bear and transmit knowledge, receive the same treatment. An organization can amplify KM advantages (over competitors) by utilizing information technology to revolutionize the processes in greater flexibility assuring greater customer delivered value. Research indicates [8, 598] evidences in the influence of the characteristics of corporate management on KM processes. Organizations use business strategies internally with various methods of KM and ascertain effective management system through the use of knowledge. “It is obvious that knowledge management processes have positive and outstanding influence on firm performance”. [8, 599] Empirical evidences have shown

that knowledge is a decisive resource in achieving corporate goals. Despite the intangibility or non-measurability of knowledge, the impact of KM for organisational effectiveness is vital. It facilitates the quality of goods, and services, improvements of operational efficiency, and ensures achieving optimum results in the creation of value.

Acknowledgements:
This contribution was written within the framework of the TA ČR (Technology Agency of the Czech Republic) grant-maintained project TAČR OMEGA TD 010129 and with the financial support of TA ČR.

References:

[1] PRAHALAD, C. K., BETTIS, R. A. The dominant logic: a new linkage between diversity and performance. *Strategic Management Journal*, 1986, Vol. 7, No 6, pp. 485–501.
[2] DAVENPORT, T. H., DE LONG, D., AND BEERS, M. Successful knowledge management projects, *Sloan Management Review,* 1998, Vol. 39, pp. 43–57.
[3] MARTIN, B. Knowledge management within the context of management: An evolving relationship. *Singapore Management Review*, 2000, Vol. 22, No 2, pp. 17–36.
[4] GRIZELJ, F. Collaborative knowledge management in virtual service companies—approach for tourism destinations. *Tourism, 2003*, Vol. 51, No 4, pp 371–385.
[5] BAUMARD, P. *Tacit knowledge in organizations*. London: Sage,1999, pp. 18-22
[6] LESSER, E., PRUSAK, L. Communities of practice, social capital, and organizational knowledge. In J. W. Cortada, and J. A. Woods (Eds.), *The knowledge management yearbook 2000–2001,* 2000, pp. 251–259, Woburn: Butterworth-Heinemann.
[7] SENGE, P. M., Sharing knowledge, *Executive Excellence*, 1998, Vol. 15, No 6, pp. 11–12.
[8] YANG, J. T., WAN, C. S. Advancing organizational effectiveness and knowledge management implementation, *Tourism Management*, 2004, Vol. 25, pp. 593–601
[9] GUPTA, A. K., GOVINDARAJAN, V. Knowledge management's social dimension: Lessons from nucor steel, *Sloan Management Review*, 2000, Vol. 42, No 1, pp. 71–80.
[10] GHALIA, M. B., WANG, P. P. Intelligent system to support judgmental business forecasting: The case of estimating hotel room demand. IEEE Transactions on Fuzzy Systems, 2000, Vol. 8, No 4, pp. 380–397.

[11] CHANG, T., CHUANG, S. Performance implications of knowledge management processes: Examining the roles of infrastructure capability and business strategy, *Expert Systems with Applications,* 2011, Vol. 38, pp. 6170–6178, doi:10.1016/j.eswa.2010.11.053

[12] ZHENG, W., YANG, B., McLEAN, G. N. Linking organizational culture, structure, strategy, and organizational effectiveness: Mediating role of knowledge management, *Journal of Business Research*, 2010, pp. 763-771, doi:10.1016/j.jbusres.2009.06.005

[13] FERRARESI, A. A., SANTOS, S. A., FREGA, J. R., PEREIRA, H. J. Knowledge Management, Market Orientation, Innovativeness and Organizational Outcomes: A Study on Companies Operating in Brazil, *Journal of Information Systems and Technology Management,* 2012,Vol. 9, No. 1, pp. 89-108, DOI: 10.4301/S1807-17752012000100005

INNOVATION STRATEGIES OF FOOD INDUSTRY ENTERPRISES IN POLAND

Małgorzata Juchniewicz
University of Warmia and Mazury in Olsztyn
malgorzata.juchniewicz@uwm.edu.pl

Key words:
food industry – innovation strategies – innovation types – objectives of innovative activity

Abstract:
The paper discusses the evolution of food industry enterprises' innovation strategies in Poland during the years 2002-2010. We focused on identifying the types of innovations applied by entities producing food products and objectives of innovation activities. It was found out that to the increasing extent food producers are increasingly often applying the price competition strategies (production costs decrease) and product diversification (as a consequence of product innovations) simultaneously.

Introduction

The concept developed by Porter [6, p. 50], which identifies two factors conditioning the competitive advantage of competitive advantage of enterprises: the low cost – the enterprise should maintain the costs at the lowest level possible and avoid, and uniqueness – differentiation of the offer of the enterprise in the market from the offer by the competitors, is the best known and the most frequently quoted model of competition in the market. The competition strategy assumed by the enterprise should be compatible with the innovation activities undertaken. The paper focusses on discussing the innovation strategies in food industry enterprises. That industry is one of the more important industries in the economies of both Poland and the European Union. In the Union, production of food and beverages represents the largest manufacturing industry segment (in 2009 it was responsible for 12.9% of that sector turnover) and the leading employer employing 13.5% of all people employed in industrial enterprises [7]. In the EU-27 food industry structure, food producers from Poland represent almost 11% as concerns the employment and 5% as concerns the number of enterprises [9, p. 13]. The competitiveness of the here discussed sector in the international market is also increasing. During the initial 5 years of Poland's membership in the EU, the share of foreign sales in the total sales of food industry increased by ca. 22%, i.e. was twice higher than before

the accession [8, p. 3]. The success attained so far by the domestic food producers resulted from assuming the competitive strategy based on lower production costs (mainly the labour costs). In the further perspective search for new solutions as well as designing and implementing new rules of competing is necessary. Presentation and evaluation of the innovation strategies applied by food producers may reveal the trends of changes in that area.

1. Innovation types in food industry enterprises

The innovation strategy of the enterprise should create an innovative product (different from the products of competitors and at the same time offering better satisfaction of the specified client needs), create new channels of access to the client (more effective for the enterprise or more convenient to the clients), provide new arguments attracting clients to use just that offer, create the image and add values that are not offered by competitors and generate such market segments (market niches) than nobody noticed and developed earlier [5, p. 41]. Then, the type of innovations implemented reflects the competition strategy assumed by the enterprise. Product innovations represent an instrument of implementing the product diversification strategy. The value of revenues from sales of new and modernised products represents in that case the direct indicator of the enterprise innovation activities results. Process innovations represented by implementation of new or significantly improved methods in production and distribution have in turn a larger influence on the enterprise effectiveness and on assuming the production costs decreasing strategy. Hence, the choice of the innovation type is of major importance for the enterprise innovation strategy.

During the initial period, process innovations played a significantly more important role in the food enterprises' innovation and competitiveness strategy (tab. 1). The common focus on process innovations in the food economy sector resulted from the general trends in the Polish economy. Process innovations were implemented much more frequently than product innovations in low technology industries (of which food industry is one).

TAB. 1: **Innovative enterprises by innovation type implemented (in % of total enterprises)**

Years	Food industry	Industrial processing
Product innovations		
2002-2004	15.6	17.9
2004-2006	14.4	16.2
2006-2008	13.3	15.9
2008-2010	8.5	12.8
Process innovations		
2002-2004	24.6	20.5
2004-2006	16.6	19.0
2006-2008	13.3	16.8
2008-2010	8.7	12.6

Source: [1]

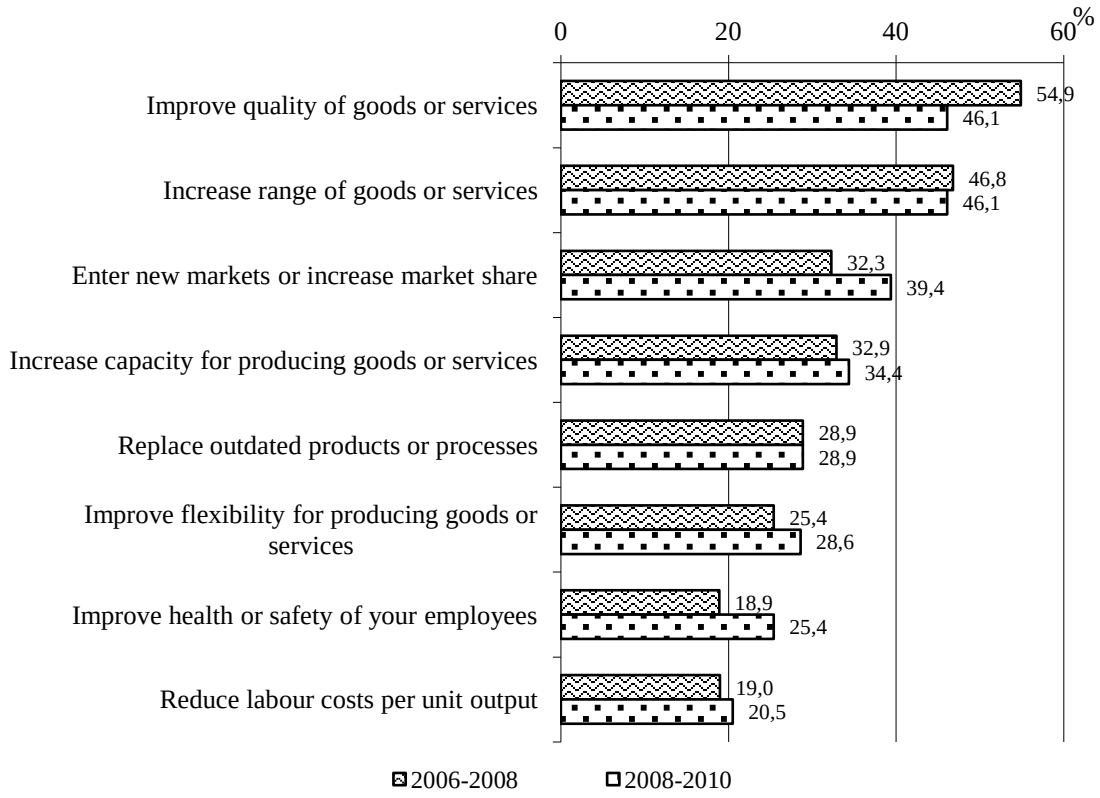
Considering the changes in the strategy of innovation types implemented over the years one should conclude, however, that the percentage of innovative enterprises that implemented process innovations decreased significantly among food industry enterprises while the percentage of enterprises implementing product innovations increased (tab. 1). Hence, during the years 2006-2008 and 2008-2010 the proportions between the here discussed innovations equalised. The situation was similar among the manufacturing industry enterprises. The presented situation shows that implementation of process innovations during the earlier period resulted in not only a decrease in production costs but also an improvement in product quality. Hence, food producers apply the strategies of diversification and production costs decrease in parallel increasingly frequently. Considering the food product life cycle, they do not have to be concerned with rapid development of generally understood substitutes for their products. On the other hand, the clients are all the time searching for something new highlighting at the same time the importance of food safety. Consequently, in their innovation strategies, food industry entities focus on creating novelty product solutions while taking into account the quality assurance and certification systems as well as innovative activities in the areas of logistics, marketing or building the positive image of the enterprise and its brand. In that way, they adjust their offer to changing consumer needs that are not focused entirely and exclusively on the needs related to basic existence [3, p. 129].

2. Objectives of innovation activities in food industry enterprises

The outcomes of innovation activities represent another element indicating the innovation strategy type in the enterprises. They may cover products, processes or other aspects of innovation activity. Among the outcomes concerning products the expanded range of products, entrance into new markets or increasing the share in the current markets as well as product quality improvement can be listed. The process related objectives encompass increasing production flexibility, increasing production capacity, decreasing the labour costs per unit of production and decrease in material and energy intensity per unit of product. The other objectives include decreasing the environmentally harmful impacts and improvement in occupational health and safety [1, 2002-2004, p. 72].

Product quality improvement and extended products range were the most frequent outcomes of innovation activities in food industry enterprises (fig. 1). They were recorded in almost every second innovative enterprise meaning that they played the fundamental role in the innovation strategy. Goods quality improvement may be a consequence of both product and process innovations. Hence, it is impossible to determine the innovation strategy type on that base. The situation is different in case of expanding the products range. It seems that it results from applying the products diversification strategy.

FIG. 1: **Objectives for innovation activity in food enterprises during 2008-2010 (enterprises, which marked "high" degree of importance relevant objective as % of active innovation enterprises)**



Source: [1]

Entering new markets or increasing the share in the market as well as increasing the production capacity and production flexibility improvement played the important role among the objectives of food industry enterprises. The high importance of those innovation activity outcomes during the years 2008-2010 was indicated by every third entity. It should be highlighted that entering new markets or positioning a product in the market for the purpose of increasing the sales were among the most important objectives of marketing innovations implemented by food industry enterprises. In most cases, they involved significant changes in the product design and packaging [4, p. 217-221]. Increasing the production capacity and improving production flexibility in turn represent outcomes of process innovations. His confirms the thesis concerning combination of product diversification strategies with decreasing the costs of production in the innovation activities of food industry enterprises.

Innovations resulting in decreasing the unit direct costs of production or the fixed costs of the enterprise may also offer an increase of current or future

competitiveness of the enterprise [2, p. 451-452]. They result from implementation of process innovations. However, only every fifth enterprise indicated high importance of such outcomes. This means that decreasing the labour costs as well as production material and energy intensity is not the major objective of the innovation strategies in enterprises. Oh those grounds, however, it may not be stated that the innovation activity does not lead to decreasing the costs of manufacturing the products. Innovative changes in products and processes of manufacturing them lead in most cases to decreasing the costs or improving the quality. The situation is similar when quality improvement is accompanied by increasing the manufacturing costs. The new product has a chance for market success when the quality increase is higher than the increase in costs. Higher product quality represents then the source of additional consumer satisfaction and contributes to improvement in the competitive position of the enterprise in the market.

Conclusion

Innovation strategies of food industry enterprises in Poland evolved gradually. During the initial period, entities manufacturing food products used the price competition strategy (consequence of process innovation) more extensively. During the recent years, the balanced approach to product and process innovations (mixed innovations) has been observed. Consequently, manufacturers of food product apply simultaneously the price competition strategy (production costs decrease) and the product diversification strategy (consequence of product innovations) increasingly often. Such activities support maintaining or improving competitiveness of the food industry in the foreign markets.

References:

[1] *Działalność innowacyjna przedsiębiorstw przemysłowych w latach: 2002-2004, 2004-2006, 2006-2008, 2008-2010*, GUS, Warszawa, ISSN 2083-2672

[2] GRUDZEWSKI, W., HEJDUK I. *Projektowanie systemów zarządzania*. Difin, Warszawa, 2001, pp. 451-452, ISBN: 83-7251-119-5

[3] GRZYBOWSKA, B. *Innowacyjność przemysłu spożywczego w Polsce – ujęcie regionalne*. Wyd. UWM, Olsztyn, 2012, ISBN 978-83-7299-773-9

[4] JUCHNIEWICZ, M., ŁUKIEWSKA, K. *Regionalne zróżnicowanie produktywności pracy przemysłu spożywczego*. Roczniki Naukowe SERiA, Warszawa-Poznań-Białystok, Wydawnictwo Wieś Jutra, 2012, pp. 217-221, ISSN 1508-3535

[5] KALETA, A. *Innowacyjność strategii jako czynnik sukcesu przedsiębiorstw* [w:] *Przedsiębiorczość i innowacyjność. Wyzwania współczesności*. red. A. Kaleta, K. Moszkowicz, L. Woźniak, Prace Naukowe Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, nr 1116, Wyd. AE im. Oskara Langego we Wrocławiu, Wrocław 2006, p. 41, ISSN 0324-8445
[6] PORTER, M. E. *Strategia konkurencji: metody analizy sektorów i konkurentów*. Polskie Wydawnictwo Ekonomiczne, 1994, Warszawa, p. 50, ISBN 83-208-0893-6
[7] *Supporting the Competitiveness of the European Food and Drink Industry. FoodDrinkEurope Competitiveness Report 2011*. Brussels, http://www.fooddrinkeurope.eu/publications/category/reports (18.11.2012)
[8] SZCZEPANIAK, I., DROŻDŻ, J. *Kryzys gospodarczy a inwestycje w polskim przemyśle spożywczym*. Przemysł Spożywczy, 2010, vol. 64, no. 4, pp. 3-6, ISSN 0033-250X
[9] WIGIER, M. *Przemysł spożywczy w Polsce obecnie i w przyszłości*. Przemysł Spożywczy, 2011, vol. 65, no. 7-8, pp. 13-16, ISSN 0033-250X

ANALYSIS OF COMPETITORS FOCUSED ON SUSTAINABLE TOURISM SERVICES

Jana Kalabisová
The Institute of Hospitality Management in Prague
kalabisova@vsh.cz

Key words:
analysis of competitors – innovation vouchers – Karlovy Vary Region – sustainable tourism services

Abstract:
The Institute of Hospitality Management in Prague acts as a knowledge provider in a project realized within the grant *"Innovation vouchers"* of The Business Development Agency of the Karlovy Vary Region for year 2012. The main output of the project is en elaboration of a business plan and the analysis of competitors is one stage for creation of this plan. The analysis has shown that the provider is the only three stars accommodation provider to offer sustainable tourism services in the area and has a big potential in this domain.

Introduction

The Institute of Hospitality Management in Prague acts as a knowledge provider for a specific provider of accommodation services in a project realized within the grant *"Innovation vouchers"* of The Business Development Agency of the Karlovy Vary Region. *Innovation vouchers* represent a one-time grant to an entrepreneur intended for the purchase of services or knowledge from their providers – universities. The knowledge obtained should be new to the entrepreneur and should facilitate innovation of their product, process or service. The main output of the project is en elaboration of a business plan. The analysis of competitors is one stage for creation of the business plan.

In order to survive in the market place, service organizations have no other choice than to successfully develop new services. However, the failure rate for new service projects is high, because the knowledge about how new services should be developed is limited [1, 1]. Bolwijn & Kumpe [2, 48] described four patterns of the competition among companies in the developed economies in the 1990s and competition under the pressure of innovativeness become important. Innovation in services is a relatively new field of analysis, but one which is not to be disregarded because of its

increasing role and importance in the world economy. Among service industries, tourism and hospitality can be considered as a crucial sector, as it is one of the fastest growing areas of the global economy [3, 1].

1. Analysis of competitors

The analysis of competitors is a part of every change in business strategy. For the purpose of this article, the attention is paid to competitors that are located in the Czech Republic. Due to a fact that the examined provider is situated very close to the Germany; the analysis of German competitors will be executed in the next stage of the project.

The examined accommodation provider has a status of three star hotel that implies that the analysis was carried out only for three star accommodation providers (hotels, pensions, hostels, auto camps etc.). In the area, there are two big towns – Cheb and Františkovy lázně, what is an important fact for the analysis. With regard to the proximity of The West Bohemian spa triangle, the density of accommodation providers in the area is therefore very high.

For the analysis of competitors, the selected characteristics that are important for the objective have been chosen. At first, a total of 29 other three stars accommodation providers in the area have been selected. They are divided into 3 groups – location in very close surroundings to the accommodation provider, close surroundings in or near Cheb and close surroundings in or near Františkovy lázně (see TAB. 2). The selected characteristics are described in TAB. 1.

TAB. 1: **Selected characteristics**

S	Subject
T	Type
P	Price for double room in high season [CZK/EUR]
C	Capacity
ST	Offer of sustainable tourism services
M	Own meals offer (restaurant, bistro etc.)
W	Wellness services
S	Other services
D	Distance from examined site [km]
N	No
Y	Yes
NS	Not specified

Source: own

First is the type (T) of accommodation provider - an important characteristic from the point of view of a consumer that influences his choice. Another very

important characteristic for consumer choice is the price. The price for a double room in high season (P) was chosen to ensure unified comparison among all the providers. The capacity (C) is observed as an important factor of every analysis of competition in hospitality. The own meals offer (M) is another important item influencing consumer choice, especially for those preferring half-board or full-board offers. The distance from examined site (D) is significant for promoting and targeting promotion and marketing plans.

The specific characteristics for the analysis are an offer of sustainable tourism services (ST), wellness services (W) and other services (S). For the purposes of the article, the sustainable tourism services (STS) is considered as sustainable development-friendly services. Because an universally acceptable definition of sustainable tourism services does not exist due to an existence of a vast range of policy instruments promoting adoption of more sustainable tourism practices, we take into consideration sustainable tourism services offered only by a given provider. In the given location in The West Bohemian spa triangle, there are many accommodation providers offering their own wellness services or mediated wellness services in Františkovy lázně, Mariánské lázně or Karlovy Vary. For the purposes of the study, only own wellnesses services consider are considered. Other services means other services apart from own wellness and sustainable tourism services offered by the accommodation provider. The results of the analysis of competition are in TAB. 2.

TAB. 2: **Analysis of competition**

N	T	P [CZK] ([EUR])	C	ST	M	W	S	D
A – Examined accommodation provider								
A	Hotel	1 378 (55)	71	Ecofarm	Y	Complex services	Playground Horse barn, bicycles	X
B – Very close surroundings								
B1	Pension	840 (34)	34	N	Y	N	N	2.9
B2	Pension	700 (28)	16	N	N	N	N	2.8
C – Close surroundings - Cheb								
C1	Hotel	1 250 (50)	NS	N	Y	N	N	5.6
C2	Hotel	1 250 (50)	79	N	Y	N	N	6.0
C3	Hotel	1 100 (44)	48	N	Y	Complex services	Bicycles	8.8
C4	Hotel	2 430 (97)	34	N	Y	Complex services	Conferences	14.6
C5	Hotel	1 920 (77)	NS	N	Y	N	Packages offer in cooperation with suppliers	5.6
C6	Hotel	1 200 (48)	21	N	Y	N	N	11.5
C7	Pension	1 015 (41)	14	Nordic walking	Y	N	Packages offer in cooperation with suppliers	8.3
C8	Hotel	2 430 (97)	66	N	Y	N	Conferences	14.6
C9	Hostel	490 (20)	12	N	N	N	N	14.7
C10	Pension	790 (32)	6	N	N	N	N	5.7
C11	Auto camp	250* (10)	NS	N	N	N	Playground	21.3
D – Close surroundings - Františkovy lázně								
D1	Pension	1 070 (43)	12	N	N	Massages	Packages offer Playground	4.8
D2	Pension	780 (31)	28	N	Y	N	Tennis, Minigolf	5.3
D3	Hotel	1 580 (63)	54	N	Y	Massages	Bicycles	3.3
D4	Pension	700 (28)	16	N	N	N	Large garden	5.5
D5	Pension	950 (38)	26	N	Y	N	N	4.8
D6	Hotel	1 650 (66)	32	N	Y	Complex services	N	8.3
D7	Pension	950 (38)	18	N	N	N	N	4.7
D8	Hotel	1 230 (49)	128	N	Y	N	N	4.0
D9	Pension	NS	20	N	N	N	N	4.7
D10	Hotel	1 150 (46)	103	N	Y	Complex services	N	4.7
D11	Hotel	1 230 (49)	155	N	Y	Complex services	N	5.6
D12	Hotel	1 230 (49)	100	N	Y	Complex services	N	5.7
D13	Hotel	1 470 (59)	108	N	Y	N	N	5.0

D14	Hotel	950** (38)	111	N	Y	Complex services	N	4.0
D15	Hotel	1 400 (56)	33	N	Y	N	N	5.0
D16	Pension	1 000 (40)	14	N	N	N	N	3.3

Notes: * price for a cottage (for 2 or 3 persons),
** price only for one bedroom, 1EUR = 25,50 CZK
Source: own

As we can see from TAB. 2, the examined accommodation provider *(A)* has at its disposal an offer of a sustainable tourism service – ecofarm, as a value-added to its complete service offer. In wellness it offers complex services – different kinds of sauna, spas, baths, whirlpool, massages and therapeutic and recondition workout. *A* offers as well its own playground, horse barn and bicycles.

There are two other providers in the very close surroundings *(B)*, which means within a distance of 3 kms. *B1* is located very close to the Skalka water reservoir similar to *A*, *B1* is in the Cheb surroundings. Both of them are pensions *(B1, B2)* with no comparable offer in services (regarding sustainable tourism, wellness or other services), only one of them has its own meal offer *(B1).* Considering the analysis of competition, an important fact is that both of them have lower prices for double rooms in the high season.

Another group is located in the close surroundings near Cheb *(C)*. A total of eleven three star accommodation providers belong to this group and as we can see, there is a wide variety in distance from the examined site – between 5.6 and 21.3 kms. Most of them are hotels (7), 2 pensions, 1 hostel and 1 auto camp. The average price for a double room in the high season is 52 EUR in this area. Almost no provider has comparable capacity in comparison to *A*, only *C2* and *C8*. Most of them have their own meal offer. As for services, only *B7* can offer Nordic walking as a sustainable tourism service, just two – *C2* and *C4* – offer their own wellness program. Most of the others propose mediated wellness services in other cities. A large number can offer other supplementary services as diverse packages services offer in cooperation with suppliers *(C5, C7)*, conferences organization *(C4, C8)*, playground *(C11)* or bicycles *(C3)*.

The last group is located in the close surroundings near Františkovy lázně *(D).* Sixteen three star accommodation providers are in this group and their destination from *A* varies between 3.3 and 8.3 kms. There are in total nine hotels and seven pensions; six of them have bigger room capacity them *A* and only five do not have their own meal offer. The average price for double room in the high season is 46 EUR in this area. No one offers what we consider as sustainable tourism services but there are a lot of wellness

services in the offer – complex services *(D6, D10, D11, D12, D14)* or diverse kinds of massage *(D1, D3)*.

Conclusion

The analysis of competition has shown some important and interesting facts. At first, most of the three star accommodation providers are located directly in towns (Cheb, Františkovy lázně) or in its very close proximity. Only pension *B1* directly competes by its location with *A*. Despite relatively short distances to the others, no one else directly competes with *A*. An advantage is the bigger room capacity in comparison with the others, especially for organization of conferences, workshops, team buildings or marriages in attractive setting with a possibility of outdoor activities. Another big advantage is its own meal offer and the vast variety of other services. *A* is able to take advantage of its position near the Skalka water reservoir, cycle tracks and other natural phenomena and invest into a playground, a horse bar and buying its own bicycles. As a result, it has a greater potential as a provider of its own sustainable tourist services. It is the only three star accommodation provider to offer such services. The location, which can be an advantage, could be on the other hand, a certain kind of barrier due to its isolated location but with the help of suitable promotion and marketing this could be overcome. Another barrier is the high price for a double room in the high season – 55 EUR in comparison with prices in urban and suburban areas – 52 EUR in the Cheb area and 46 EUR in the Františkovy lázně area, overall the average is 47 EUR per night.

References:

[1] OTTENBACHER, M. *New service development in the hospitality industry: an exploratory study.* Paper presented at Conference of the Australian and New Zealand Marketing Academy ANZMAC 2001. Available at: http://anzmac.info/conference/2001/anzmac/AUTHORS/pdfs/Ottenbacher.pdf [10. 6. 2012]

[2] BOLWIJN, P. T., & KUMPE, T. Manufacturing in the 1990s - productivity, flexibility and innovation, Long Range Planning. *Long Range Planning*, Vol. 23, 1990, No. 4: 44 – 57

[3] YUCELEN, M., & YIGITBAS, K. *An Exploration of Knowledge Management and Service Innovation Strategie in the Turkish Hotel.* Conference paper for CHRIE 2010. Available at: http://eurochrie2010.nl/publications/111.pdf [15. 6. 2012]

ECONOMIC DISPARITIES AMONG REGIONAL CITIES OF THE CZECH REPUBLIC

Tomas Kala
University of Hradec Kralove
tomas.kala@uhk.cz

Key words:
economic parameters – financial parameters – regional sites – disparities – management

Abstract:
Consequently to our previous studies, we have gathered and analyzed data on incomes, expenditures and assets recalculated per hectare of cadastral area per capita of all the regional cities of the Czech Republic in the span of years 2001 – 2009. We have found that the total incomes per hectare and capita among the regional cities ranged from 12 to 184 CZK[1], median was 57 CZK. The assets per hectare per capita (at Jan 1st 2009) ranged from 6 CZK to 39 CZK, median value was 13 CZK. Disparities among the regional cities related per hectare of the cadastral area per capita were lower higher than those per capita, but of the same range as those per hectare of the cadastral area, we had found earlier. The disparities have been met in the same outer economic, political, social, etc. environment of the Czech Republic.

Introduction

Elected municipal politicians, i.e. members of municipality councils, qualified officers and experts should have got extensive theoretical knowledge and practice in the field of legislative acts, politics, theory of public finances, macro-economy, micro-economy, strategic management, project management, regional and local marketing, change management, risk management, time management, etc., as well as their practical experience in solving the strategic, intermediate, and ad hoc topical tasks to reach it. These topics were discussed in details in works listed in [1], [2].

The municipal top managers should pay special attention to the economy and financing aspects of their activities, because an amount of financial resources is evidently one of the most decisive factors for successful fulfilling of all duties of the municipal and regional managements. Theory of the fiscal

[1] Currency ratios (at Dec 31st 2009) were 26.465 CZK/€, 29.798 CZK/GBP, 19.875 CZK/100 JPY, and 18.368 CZK/USD. (Czech Statistical Office)

federalism [3], [4] gives us some notion what possibilities are at disposal to acquire necessary financial resources and how to use them optimally for ensuring the long-term sustainable development of municipalities and regions.

In the Czech Republic, there were 6,249 municipalities on January 1st 2009 with population ranging from 19 to 1.233,211 inhabitants [5]. The municipalities are relatively independent on the central and regional governments in the Czech Republic, without adequate references to economic consequence. That is why it is very difficult to apply modern fundamentals of fiscal federalism in such conditions. Besides, there are numerous complicated laws regulating tax collection and their reallocation into central, regional and local government budgets. Thus, the situation in the Czech Republic can illustrate well the advantages and disadvantages of the fragmented public government theoretical concepts, described in many works (see [1], [2]).

In this work, we have studied a range of disparities in economy and finances per hectare of the cadastral area and per capita of the regional cities of the Czech Republic in span of 2001-2009 years and we have compared them with the disparities among all the municipalities in East Bohemian Regions found in our previous research [6] - [8].

1. Methods

We have analyzed structures of incomes, expenses, and assets in all of the 14 regional cities of the Czech Republic in the span of years 2001 – 2009. The source data were obtained from the ARISweb internet server of the Ministry of Finance of the Czech Republic [9]. The data were recalculated per hectare of the cadastral area and per capita of the individual city, i.e. they were divided by values of the cadastral area and by the number of inhabitants in related city.

We have also calculated values of so called "Own Income" as a sum of Tax Income, Non-Tax Income, and Capital Income, a "Rate of the Financial Independence" as a ratio between the sum of the Tax Income, Non-Tax Income, Capital Incomes, and Total Expense, expressed in per-cents, and a "Rate of Self-Financing" as a ratio between Total Income and Own Income, expressed in %.

We have analyzed and visualized the gathered data by means of SPSS® and Microsoft Office standard software procedures.[2]

[2] Note: All the further data and figures shown are own results.

2. Results

In the Table 1, there is given a survey of disparities in financial and economical parameters (per hectare per capita, in the span of years 2001-2009) of regional cities in the Czech Republic (in CZK). The average value of the total incomes was 62 CZK (per hectare per capita in the span of nine years), while its maximal value reached 184 CZK, the minimal one was 12, and median value 57 CZK. The structure of the incomes was following: Tax incomes reached 11 CZK in average, whereas the maximal value of the tax incomes was 18 CZK, the minimal one was 5 CZK, and the median value was 10 CZK. The average value of the non-tax incomes was 2 CZK, its maximal value reached 5 CZK, minimal one was 0 CZK, and median value was 1 CZK. The capital incomes achieved 1 CZK in average, their maximal value reached 2 CZK, minimal value was 0 CZK, and median value 1 CZK. The average value of the transfers accepted was 49 CZK, its maximal value attained 166 CZK, while the minimal one was 7 CZK, median value was 45 CZK.

The own incomes achieved 14 CZK in average, their maximal value reached 24 CZK, minimal value was 6 CZK, and median value 13 CZK.

The average value of the total expenses was 63 CZK (per hectare per capita in the span of nine years), while its maximal value reached 184 CZK, the minimal one was 12, and median value 58 CZK. The structure of the incomes was following: Current expenses reached 57 CZK in average, whereas the maximal value of the current expenses achieved 178 CZK, the minimal one was 10 CZK, and the median value was 39 CZK. The average value of the capital expenses was 6 CZK, its maximal value reached 12 CZK, minimal one was 3 CZK, and median value was 6 CZK.

The average value of the rate of financial independence was found as 26.4 %, while its maximal value reached 45.7 %, the minimal value was 9.5 %, and median value 25.6 %. The average value of the rate of self-financing was 29.8 %, its maximal value achieved 58.1 %, the minimal value was found 9.8 %, and median value 29.9 %.

TAB. 1: **Survey of Disparities in Financial and Economical Parameters (per hectare per capita, span 2001-2009) of Regional Cities in the Czech Republic (in CZK)**

	Average Values (in CZK)	Share, in %	Maximal Values (in CZK)	Minimal Values (in CZK)	Median (in CZK)	Rate of Max./Min. Values	Correlation to the Number of Inhabitants
Tax Incomes	11	17,4	18	5	10	3	
Non-Tax Incomes	2	3,1	5	0	1	17	
Capital Incomes	1	1,8	2	0	1	331	
Transfers Accepted	49	77.8	166	7	45	25	
Incomes Total	62	100.0	184	12	57	15	-0.39
Current Expenses	57	91.5	178	10	51	18	
Capital Expenses	6	9.7	12	3	6	5	
Expenses Total	63	100	184	12	58	15	
Own Incomes	14	22.2	24	6	13	4	
Rate of Financial Independence	26.4		45.7	9.5	25.6	5	
Rate of Self-Financing	29.8		58.1	9.8	29.9	6	
Assets (31.12.2009)	15		39	6	13	6	- 0.42
Inhabitants	218242		1233211	51143	95289	24	

Resource: own

Average value of the municipal assets of regional seats in the Czech Republic was 15 CZK (per hectare per capita at 31.12.2009), while the maximal value reached was 39 CZK, minimal one was 6, median value was found as 13 CZK.

Correlation coefficient between incomes total and the number of inhabitants in the regional seats was - 0.39, and that between assets (at 31.12.2009) and the number of inhabitants was found as low as - 0.42.

In the Table 2, there given are some figures on incomes and assets per hectare per capita in the individual regional cities. The first place took Plzen, the West Bohemian regional city, while Prague, the Capital of the Czech Republic took the last place in this comparison.

Conclusions

On the basis of the results of our research, we can state that we have found considerable disparities in the structure and in volume of the total incomes, assets, expenses, rates of financial independence, rates of self-financing, and other parameters per hectare of the cadastral area per capita among the regional seat cities of the Czech Republic related to the span of 2001-2009 years. For example, the total incomes per hectare per capita differed in their maximal and minimal values 15 times. Also the ratio of the maximal and minimal value of assets per hectare per capita was about 6.

We have also found that the economic and financial parameters studied - per hectare per capita - did not correlate significantly with the number of inhabitants (see the Table 2).

The expectations that disparities in economy and finances per hectare of the cadastral area per capita of inhabitants of the regional cities were of the same range as those related per capita, and/or per hectare of the cadastral area has not been either confirmed or disproved unambiguously. Nevertheless, the disparities among the municipalities and towns related per hectare per capita were higher than those related per capita in the same region and span of time we had found and described earlier [6]. For example, the total incomes per capita differed in their maximal and minimal values about 5 times. The ratio of the maximal and minimal value of assets per capita was less than 5. On the contrary, the extent of economic and financial disparities per hectare per capita found was of the same range as the disparities of per hectare of the cadastral area of the municipalities, reaching 10 for the ratio between maximal and minimal value of the incomes total per hectare, and 11 the ratio between maximal and minimal value of the assets per hectare described in our previous works [6], [8].

TAB. 2: **Survey of Financial and Economical Parameters (per hectare per capita, span 2001-2009) of Individual Regional Seats in the Czech Republic (in CZK)**

Rank	Town	Number of Inhabitants	Tax Incomes	Non-Tax Incomes	Capital Incomes	Transfers Accepted	Incomes Total	Rate of Fin. Independence, %	Rate of Self-Financing, %	Assets, at Jan 1st 2009
1	Plzeň	169273	13	3	2	166	184	9,5	9,8	17
2	České Budějovice	94936	18	5	1	64	89	27,5	30,5	23
3	Karlovy Vary	51459	18	2	1	62	84	25,6	29,9	39
4	Jihlava	51143	12	3	2	55	72	23,6	25,9	13
5	Pardubice	89892	12	1	2	45	61	24,9	27,5	18
6	Ústí nad Labem	95289	10	0	0	47	58	18,5	19,6	9
7	Olomouc	100373	11	1	0	45	57	20,7	23,1	14
8	Liberec	100914	9	1	2	33	45	26,3	30,3	14
9	Hradec Králové	94497	9	3	2	31	45	29,9	33,0	12
10	Zlín	77803	9	2	2	27	40	31,7	32,7	11
11	Brno	370592	7	1	1	27	36	25,3	28,5	9
12	Ostrava	307767	8	1	1	20	30	33,3	38,2	8
13	Praha	1233211	5	0	0	7	12	45,7	58,1	6

Resource: own

The inter-municipal disparities – in all three cases - were often met in the same micro-region, i.e. in the same outer economic, political, social, etc. environment.

All of these findings cannot be easy logically explained. We have got some evidences from discussions with experts on spot that they might be explained by differences in ability and quality of municipal managers, i.e. elected members of municipal councils and qualified officers and experts. It is a matter of fact that the scale of factual topics – obligatory and facultative ones which have to be managed and solved by municipal managements is really very broad [1], [2]. As we found in our works [1], [2], [10], not all of the municipal councils focus their attention to a generating and usage of own resources to finance their sustainable municipal development.

We believe that the results of this and related works will provide a good orientation and knowledge on the "best" and also the "worst" practice in real managerial processes in municipalities to regional and state officers and authorities and help them to solve the disparities and backwardness in some part of their territory.

References:

[1] KALA, T. et al. *Management for Solving of Disparities among Municipalitieas and Regions,* Professional Publishing, Prague, 2011, ISBN 978-80-7431-073-7.

[2] KALA, T., LACINA, K. *Management for Disparities Solving; Modern Managerial Approaches in State and Local Government and Self - Governmet*, Gaudeamus, Hradec Kralove 2009. ISBN -978-80-7435-034-4.

[3] OATES, W. E. Towards a Second-Generation Theory of Fiscal Federalism, *International Tax and Public Finance*, 12,349-373, 2005.

[4] PEKOVA, J. *Public Finances*, ASPI, 2008, ISBN 978-80-7357-358-4.

[5] Czech Statistical Office, http://www.czso.cz/eng/ edicniplan.nsf/aktual/ep-1, October 2010.

[6] KALA, T. Inter-Municipal Disparities in the Czech Republic, *China-USA Business Review*, Volume 10, Issue 4, 2011.

[7] KALA, T. *Inter-Municipal Disparities in the Hradec Kralove Region of the Czech Republic*. In: 5th WSEAS International Conference on Management, Marketing and Finances (MMF´11) Playa Meloneras, Gran Canaria, Spain: WSEAS Press, 2011. s. 192-199.

[8] KALA, T., KOMARKOVA, J., SEDLAK, P. *Management for Disparities Solving; Disparities in Municipal Economy among the Municipalities in the Kralovehradecky and Pardubicky Regions,* Gaudeamus, Hradec Kralove, 2008. ISBN-978-80-7041-395-1.

[9] Ministry of Finance of the Czech Republic, http://wwwinfo.mfcr.cz/cgibin/aris/iarisusc/index.pl, January to June 2009, March 2010.

[10] KALA, T. *Research on the Satisfaction of the Population with the Local Government in Municipalities in the Czech Republic*, Proc. 2nd International Conference on Urban Sustainability, Cultural Sustainability, Green Development, Green Structures and Clean Cars (USCUDAR ´11), Prague, Sept. 26-28, 2011, WSEAS Press, 2011, ISBN 978-1-61804-037-4, ISSN 1792-4871, s.70-75.

ENTREPRENEURIAL ORIENTATION OF LOCAL SELF-GOVERNMENT AND ITS INDICATIONS

Lidia Kaliszczak
University of Rzeszów
lidia.kaliszczak@neostrada.pl

Key words:
entrepreneurship – business climate – local development

Abstract:
The article tackles an important and valid issue of local government entrepreneurship. This issue is explored to a small extent, in comparison to the common identification of this category, with reference to individual business activity. The justifiability of research, essence, conditions and symptoms of entrepreneurial orientation of commune self-governments relates to the entrepreneurial society postulated by P. Drucker.

1. Introduction

The imperative of entrepreneurship, pursuant to the opinion of P. Drucker, indicating the necessity of evolution of the approach from individual entrepreneurship to entrepreneurial society, implicates functioning of local societies as well. The standards of entrepreneurship culture in a local society constitutes a reflection of climate, atmosphere, this what J. Schumpeter defined as the "spirit" of entrepreneurship, promoting proactive and innovative attitudes. As a result, the aim of this work is to explain the conditions and the essence of entrepreneurial orientation of a municipality, identified by the actions of self-government, which shape a modern attitude in stimulating local development, in the scope of supporting business activity.[1].

2. Essence of entrepreneurial orientation of local self-government

Necessity for an entrepreneurial orientation of self-government authorities was noticed by American researchers on functioning of local authorities D. Osborne and T. Gaebler, authors of the book titled *Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector* [6]. According to the aforementioned authors, an entrepreneurial attitude of self-

[1] The survey studies were performed in 2011 on 36 municipalities in the voivodship of podkarpackie. They constituted 23.1% of the total, which may be defined as a representative sample. The answers were analyzed within the group of municipalities due to their urban and rural character which constitute a certain reflection of the specificity and level of development resulting from the state of economy, its structure as well as social, cultural, technical and institutional determinants [5, p. 24].

governments is not only displayed in direct investing activity, but also in the role of a manager activating the social and economic development of a given area. The similar opinion is expressed by S. Barczyk [1]. In the context of functioning of self-government authorities, they should go beyond the following issues: e.g. local taxes, costs of energy or lease rents. It is about the fact that self-government authorities assume responsibility for creating the indications of entrepreneurship and subjectivity in the process of exercising authority. It may be indicated on essential areas of actions of self-government authorities in the context of entrepreneurial governance of a municipality and it is needed to assume the following dimensions of self-government's entrepreneurship [4]:

a) Developing innovation culture,
b) Creation of a strategic development plan of a municipality
c) Shaping a proper climate of entrepreneurship by means of creating a positive image of an entrepreneur as well as extending knowledge of principles of performing economic activity (information, consulting, training activity),
d) Initiating and engaging in the process of creating and functioning institutions for support and development of entrepreneurship such as: local guarantee and loan funds, entrepreneurship incubators, agencies of local development etc
e) Activity in gaining external funds in order to equalise the level of social and economic development (mostly development of human capital, infrastructure, especially technical one),
f) Care for natural environment within the implementation of social and economic development pursuant to the concept of *sustainable development*.

It shall be emphasised that shaping the culture of entrepreneurship requires an increase in entrepreneurial awareness of the entire society, promotion of proactive attitudes and establishing cooperation relations between enterprises and local and external partners: customers, suppliers, public administration entities, higher schools and research centres, support institutions. The cultural acceptance of entrepreneurial activity is expressed by means of shaping the climate of entrepreneurship [5], favouring the creation of new economic entities and pro-developmental structural changes both in local economy and enterprises [5, 2][2].

[2] As noticed by P. F. Drucker, "innovation and entrepreneurship are assigned for the society to the same extent as for public administration and enterprises" [2, p. 271 – 272.

3. Results of the studies and discussion

Entrepreneurial orientation of a local self-government is conditioned by an awareness of meaning and interpreting the notion of entrepreneurship itself. From the methodological point of view, there are two attitudes in interpreting this category of entrepreneurship: 1) Attributive, which connects entrepreneurship with the set of specific personal qualities (creativity, innovation, change, flexibility, risk, bravery, level of aspiration); 2) functional - entrepreneurship relies on assuming business activity and its effective performance in the conditions of risk and competition (phenomenon of the number of increase in small and medium enterprises). The analysis of the phenomena of identifying the notion of entrepreneurship in studied municipalities conditions the interpretation of entrepreneurship, mostly in the category of attitudes and thus on its interpretation in the reason aspect (table 1).

Mostly, such answers were given by the authorities of urban municipalities (63.6%) than rural ones (60%). On the second position, the respondents define entrepreneurship as a process - assumption and conducting a business activity at one's own risk. Such an attitude is emphasised in the environment of rural municipalities (56% of the surveyed towards 48.6% in urban municipalities). The opinions of the surveyed confirm a profound acceptance of defining entrepreneurship by means of individual business activity and presenting an entrepreneur as the main actor of creating a potential of local society's competitiveness. Moreover, ¼ of the respondents identify entrepreneurship in

its organisational, formal and legal dimension as the sector of small and medium enterprises. Innovative ideas and solutions which lead to achieving specific profits (referring the Schumpeterian definition of entrepreneurship) were mentioned only by 19.4% respondents from the total of surveyed municipalities, more frequently in rural ones (20%). A positive of attitudes of self-government authorities towards entrepreneurship shall rely on a slight percentage of answers identifying entrepreneurship with go-getting energy or smartness (2.8% of answers, however, such an attitude is visible in rural municipalities). This interpretation is usually assumed in preliminary periods of shaping new conditions of economic freedom and competitiveness.[3].

[3] Such a type of entrepreneurship, in which there are such determinants, is defined as impetuous entrepreneurship [3, p. 85].

TAB. 1: **Comprehension of the notion of entrepreneurship by the municipality authorities (% responses)**

Description	Municipalities in total	Municipalities	
		urban & urban and rural	rural
a) Attitude of a human being towards the reality featured with initiative, smartness, ability of solving problems	61.1	63.6	60.0
b) Individual business activity at one's own risk	55.6	48.6	56.0
c) Innovative ideas, projects leading to achieving particular profits	19.4	18.2	20.0
d) Go-getting energy, smartness,	2.8	0.0	4.0
e) Sector of the small and medium enterprises	25.0	27.3	24.0
f) Development of economic undertaking and firms	16.7	18.2	16.0
g) other*	2.8	9.1	0.0

Source: own study based on the basis of survey research.

*One respondent presented the comprehension of entrepreneurship as an action directed at gaining the most benefits (incomes) (The respondents provided more than one answer, thus the values do not sum up to 100).

An attitude towards entrepreneurship, resulting from a cultural pattern of social acceptance is also seen by positive and sceptical attitude towards an entrepreneur. Within the course of empirical verification of dwellers and authorities of municipalities towards entrepreneurs, certain expression used in informal language have been identified. In Poland, the word for an entrepreneur which seems to have a pejorative connotation is "private shopkeeper" [a small business owner] indicated by more than 40%. It has been created by the previous system. It is particularly seen in rural municipalities (44% towards 36.4% in urban as well as urban and rural municipalities). The positive fact is that there is a definition of an owner of an enterprise as an entrepreneur (75% of indications in total, 90.9% in urban municipalities and urban and rural municipalities as well as 68% in rural municipalities).

Comprehension of the essence of entrepreneurship by self-government authorities and perceiving the role of an entrepreneur is very significant as it determines promoting certain values such as creativity, innovativeness, aiming at flexible reaction to changes in the environment. Analysing the entrepreneurial orientation of the authorities of municipalities in the causative aspect, there were studied attitudes in the scope of displaying acceptance for new, ideas, innovative solution of problems, which creates a

proper climate for activity. The study results confirm the awareness of such a role in this attitude, on average, 66.7% of the surveyed municipalities, with majority in rural ones. The sign of such an attitude is portrayed in 33% of the surveyed municipalities which organise, at least once a month, meetings of all employees who discuss over the future of a given municipality, share ideas how to improve work of the office so as to be perceived by interested parties better.

An important indication of shaping the entrepreneurship climate in the local aspect relies on promoting cooperation with various institutions, especially acting for the benefit of stimulating activity. The research results, presented in table 2, indicates that every third municipality presents such attitudes. Almost half of them does not undertake such activity (however, no answer may be also treated as lack of activity in this capacity).

TAB. 2: **Undertaking cooperation with various institutions, especially acting for the benefit of stimulating activity (% of indications)**

Answers	Municipalities in total	Urban & urban and rural	Rural municipalities
Yes	33.3	27.3	36.0
No	47.2	27.3	56.0
No answer	19.5	45.4	8.0

Source: own study based on the basis of survey research.

Each municipality should work out an effective system of stimulating development of entrepreneurship. It mostly includes so called "hard" instruments" (e.g. decreasing taxes, building roads, separating land for economic activity etc.) and "soft" instruments, based on education, training for the entire local society (table 3).

TAB. 3: **Initiatives of self-government authorities supporting the development of entrepreneurship (in %)**

Description	Municipalities total	Municipalities	
		urban & urban and rural	rural
Organisation of informative meetings with entrepreneurs and candidates for entrepreneurs	30.6	36.4	28.0
Financing / co-financing training on increasing qualifications of local people	19.4	36.4	12.0
Organisation of training in running businesses	22.2	12.2	25.0

Financing / co-financing training on making it easier to run a business	8.3	-	12.0
Aid in developing investment projects regarding obtaining aid funds from the European Union	19.4	18.2	16.7
Separating, in spatial development plans, lands for business activity	75.0	90.9	68.0
Establishing contact with domestic and foreign organisations in the scope of experience exchange among entrepreneurs	27.8	27.3	28.0

Source: own study based on the basis of survey research.

4. Conclusion

Theoretical studies and research results in selected municipalities of the voivodship of podkarpackie indicate a preliminary process of developing an entrepreneurial orientation of self-government. It is mainly expressed in the scope of entrepreneurship supporting policy in which there is a domination of "hard" instruments over "soft" ones. That is why, it is indispensible to change the attitude towards "investments" in the person of an entrepreneur, directed at shaping entrepreneurial attitudes, especially with reference to rural municipalities.

References:

[1] BARCZYK, S. *Przedsiębiorczy samorząd lokalny i jego instytucje.* Wyd. AE w Katowicach, Katowice, 2010.

[2] DRUCKER, P.F. *Innowacja i przedsiębiorczość. Praktyka i zasady*. PWE, Warszawa, 1992.

[3] HABER, L. H. *Management. Zarys zarządzania małą firmą.* Wyd. Profesjonalnej Szkoły Biznesu, Kraków, 1998.

[4] KALISZCZAK, L. *Przedsiębiorczość władz samorządowych w rozwoju gminy – kontekst niwelowania nierówności społecznych,* "Nierówności społeczne a wzrost gospodarczy. Uwarunkowania instytucjonalne", Zeszyt nr 15, M. G. Woźniak (red.), Wydawnictwo Uniwersytetu Rzeszowskiego, Rzeszów 2009.

[5] KUCIŃSKI, K. (red.) *Przedsiębiorczość a rozwój regionalny w Polsce.* Difin, Warszawa, 2010.

[6] OSBORNE, D., GAEBLER, T. *Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector* Media Rodzina of Poznań, Poznań, 1992.

APPLICATION OF AHP METHOD IN THE EVALUATION OF THE DEVELOPMENT OF DISTRICTS IN THE WEST POMERANIAN VOIVODESHIP

Grażyna Karmowska
West Pomeranian University of Technology, Szczecin
grazyna.karmowska@zut.edu.pl

Key words:
AHP method – regional development – ranking of districts

Abstract:
One of the main priorities of regional policy is the equalization of regional disproportions in economic development. This paper presents the evaluation of the region's development based on an analysis using the AHP method. In the analysis a comparison of the development of West Pomeranian poviats (districts) according to 4 criteria and 12 subcriteria was carried out and a ranking for 2005 and 2011 was created. The poviats' development was not uniform as 6 of them advanced in the ranking and 7 remained in the same position.

Introduction

Spatial differentiation of development is becoming one of the fundamental issues of present-day management of regional development. Leveling out of regional economic disproportions is the main objective of regional policy. The actions taken do not always yield desired effects which are reflected in the changing trends for convergence and divergence. Regional disproportions can be attributed to spatial differentiation, i.e.: natural environment, accessibility, distribution of large settlements, location of enterprises in operating in the same industry, grouping of businesses from various sectors, access to investment capital, presence of infrastructure and facilities, level of entrepreneurship, capacity to absorb innovation, access to knowledge and technological development.

The goal of this paper is to evaluate the development of the poviats in West Pomeranian voivodeship[1] using the Analytical Hierarchy Process (AHP) method which belongs to multiple criteria decision making tools.

[1] Polish administrative-territorial units: gmina – powiat – województwo: commune –district – province. Alternatively: gmina – poviat – voivodeship.

1. Description of the West Pomeranian Voivodeship

The total area of the West Pomeranian voivodeship is 7.1% of the country's territory and the population is approx 4.5% of Poland's population. The region might be considered averagely urbanized with the urbanization index at 68.9%.

TAB. 1: **Dynamics of GDP and GVA per capita in West Pomerania in the period 2002-2009 [PLN]**

Regions	GDP per 1 inhabitant		GVA per 1 inhabitant	
	a	r^2 [%]	a	r^2 [%]
West Pomerania	1 618	94.56	3 525	95.95
Poland	2 088	95.11	4 574	97.85

a – regression coefficient
r^2 – determination coefficient
Source: own study based on data from the Polish Central Statistical Office

Annual average GDP growth rate in the years 2002-2009 in the voivodeship was 1 618 PLN per one inhabitant. Another positive phenomenon was the growth of average gross value added (GVA) per one person. The average annual growth was 3 535 PLN. However, both indexes are approx 29% below the country's average. [4] The number of national economic entities (entered into the National Register of Business Entities) operating in the public sector does not show any dynamic change (Tab. 2).

TAB. 2: **The number of national economic entities (entered into the National Register of Business Entities)**

National economic entities	Minimum	Maximum	a	r^2
Total	195 282	220 404	2 836	0.9747
Public sector	6 842	8 538	-	-
Private sector	187 566	213 447	2977	0.9861

a – regression coefficient
r^2 – determination coefficient
Source: own study based on data from the Polish Central Statistical Office

At the beginning of the research period (2002) there were 7,7 thousand economic entities and their number grew to 8.5 thousand by 2007. However, from 2007 a decline to 6.9 thousand was observed and since then, the numbers have remained at the same level. Unlike the public sector, the private sector showed a dynamic growth in the number of economic

entities. In 2002 187.6 thousand business entities were registered and the total increased by 14% by 2009 (annual average growth of 2.976 entities). Similarly, the employment rate in the private sector was increasing until 2008, with annual average of approx 10 thousand persons. In 2008 it fell by 20 thousand persons to reach the level of 365 thousand [3].

2. Poviats[2] of the West Pomeranian Voivodeship

The West Pomeranian voivodeship encompasses 18 rural poviats and 3 urban poviats. The population structure is such that as much as 24% (410 thousand people) live in the township of Szczecin. It was here that the biggest population decline was recorded in the period 2002-2010, with annual average of 1241 persons (r^2=0.9745). Population growth was seen only in 4 rural poviats, with the highest growth rate in Police rural poviat, where the population grew by 1314 persons on average per annum (r^2=0,9970). Among all rural poviats the largest population can be found in Stargard poviat, that is 7% of the voivodeship's overall population.

Moreover, there is a significant difference in revenue and expenditure across the poviats (Tab. 3).

TAB. 3: **Poviat budget revenue and expenditure [in PLN per 1 inhabitant]**

Characteristics	Minimum value	Maximum value	a	r^2
Total revenue	528	1 022	60	0.8698
Local revenue	54	282	29	0.9303
Expenditure	546	1 111	66	0.8424

a – regression coefficient
r^2 – determination coefficient
Source: own study based on data from the Polish Central Statistical Office

Average annual expenditure exceeds poviat budget revenue. Annual average total revenue per one inhabitant increased by 60 PLN and the expenditure grew by 10%.

3. Research method

The AHP method is a multi-criteria decision-making approach introduced by Thomas L. Saaty. It is a decision support tool used to solve decision problems with more than one decision criterion. The method allows users to define and organize the decision problem by presenting it in a multi-level hierarchical structure and by assigning relative weights to particular criteria.

[2] Poviats (districts) are divided into: rural poviats (country districts) and urban poviats (townships)

This enables users to reduce complex choices to a sequence of simple paired comparisons of factors or variants, and such approach is always more efficient. Pairwise comparisons are converted into a set of numbers (hierarchy) which represent the relative priority of given factors or variants.

The AHP method consists of two stages:

a) Stage I focuses on structuring the problem. The problem is decomposed, structured and represented in a hierarchical form. First the main goal is defined and put at the topmost level of the 'tree' as the most general element. It represents the state one wants to achieve by solving that particular problem. The next level embraces auxiliary objectives which support the achievement of the major goal. Below that , at intermediate levels, one places criteria and subcriteria, usually aggregated. This stage is purely analytical. The final result depends on how well and how accurately this analysis is performed.
b) Stage II consists in evaluation of the criteria and objectives in the hierarchical structure by assigning weights to criteria distinguished in the previous stage and their evaluation (weighing). The weights indicate how given criteria will contribute to the achievement of the main goal. Relative priorities are obtained through pairwise comparisons of option on each criterion. The evaluation (scoring) is an attribute of importance of a given criterion for the performance of the objective immediately superior to the criterion. The scoring is conducted according to the nine point scale of importance introduced by Saaty. (Tab. 4)

TAB. 4: **Saaty's scale of preferences in the pairwise comparison process**

Intensity of importance of decision criteria	Descriptive articulation of importance of decision criteria	Scoring
Equivalence	Equal importance	1
Minor or moderate	Insignificant importance	3
Significant, fundamental, strong	Distinct importance	5
Decisive or very strong	Very distinct importance	7
Absolute	Absolute importance	9
Intermediate values	Intermediate values	2, 4, 6, 8

Source: own study based on Saaty, T.L. [1]

A comparison matrix is constructed from these scores:

$$A=\begin{bmatrix} 1 & a_{12} & \dots & a_{1n} \\ \frac{1}{a_{12}} & 1 & \dots & a_{2n} \\ \vdots & \vdots & \dots & \vdots \\ \frac{1}{a_{1n}} & \frac{1}{a_{2n}} & \dots & 1 \end{bmatrix}$$

Where:

a_{ij} – if no assessment;

$a_{ij}=1$ if $i=j$;

$a_{ji}=1/a$ if $a_{ij}=a$;

$a_{ij}=a_{ji}=1$ if not rating.

Next, the ratings are normalized:

$$\bar{a}_{ij}=\frac{a_{ij}}{\sum_{i=1}^{n} a_{ij}} \qquad \text{where } i=1,2,\dots,n.$$

and option scores, relevant to the superior objective, for each option are computed:

$$v_i=\frac{b_i}{\sum_{j=1}^{n} \bar{a}_{ij}} \qquad \text{where} \qquad b_i=\sum_{j=1}^{n} \bar{a}_{ij} \qquad \text{and } i=1,2,\dots,n.$$

Then option scores o_{ij} are combined with criterion weights to obtain an overall score for every option. The judgment of the option takes into account the satisfaction of the criteria weighed against its impact on the overall goal:

$$S_i=\sum_{j=1}^{n} o_{ij} \cdot v_j \qquad \text{where } i=1,2,\dots,n.$$

Final judgment of every option is used to create a classification of options. The option at the top of the classification is the one with the highest value towards goal achievement. [2], [5]

4. Application of the AHP method in the evaluation of regional development

For the purpose of evaluating regional development the following criteria have been assumed (second level): economic, social, environmental, technological.

The third level (subcriteria) is constituted respectively of:

- with regard to the economic criterion: unemployment rate, poviat budget revenue per inhabitant, economic activity expressed in the number of business entities per 10 thousand working age inhabitants;
- with regard to the social criterion: demographic dependency ratio, migration balance, employment ratio per 1000 of the population;
- with regard to the environmental criterion: proportion of arable land [in % of overall poviat's area], proportion of forests [in % of overall poviat's area], people with access to sewage systems [in % of overall population];
- with regard to the criterion of infrastructure the following consumption rates have been assumed: water from water supply systems [m^3 per 1 inhabitant], electric power [kWh/1 inhabitant, gas from the gas grid [m^3/1 inhabitant].

Based on the experience gained during numerous research projects and subject studies, a matrix of comparisons was constructed and a criteria ranking determined (Tab. 5).

TAB. 5: **Pairwise comparison matrix with regard to the main goal**

Criteria	Social	Economic	Environmental	Infrastructural	Weights
Social	1.00	3.00	4.00	3.00	0.4691
Economic	0.33	1.00	5.00	3.00	0.3367
Environmental	0.25	0.20	1.00	5.00	0.1285
Infrastructural	0.33	0.33	0.20	1.00	0.0658

Source: own study

The analysis shows that the most important criterion in the evaluation of development was the social criterion (weight 0.4691), the weight for the economic criterion was slightly smaller (weight 0.3367). Undoubtedly, the weights for the environmental (0.1285) and infrastructural (0.0658) criteria were the smallest. The consistency index C.I.= 0.09 is below the critical limit of permissible error.

Subsequently, matrices were constructed for particular criteria and their results applied to evaluate the development of West Pomeranian poviats in the years 2005 and 2011. This allowed to construct a ranking of poviats and check, whether the hierarchy in both years was just the same.

In 2005 the highest weight was obtained by the urban poviat of Szczecin (0,1648). (Tab. 6)

TAB. 6: **Ranking of poviats of the West Pomeranian voivodeship in 2005**

Poviats	Criteria				Weights	Ranking
	Social	Economic	Environmental	Infrastructural		
urban Szczecin	0.2703	0.0831	0.0497	0.0562	0.1648	1
urban Koszalin	0.0841	0.1005	0.0595	0.0599	0.0849	2
urban Świnoujście	0.0360	0.1296	0.0546	0.0563	0.0713	3
stargardzki	0.0555	0.0339	0.0501	0.0456	0.0469	4
szczecinecki	0.0408	0.0432	0.0560	0.0416	0.0436	5
drawski	0.0369	0.0466	0.0495	0.0430	0.0422	6
kołobrzeski	0.0431	0.0370	0.0435	0.0589	0.0421	7
myśliborski	0.0401	0.0358	0.0590	0.0415	0.0412	8
wałecki	0.0354	0.0389	0.0621	0.0372	0.0401	9
świdwiński	0.0387	0.0396	0.0437	0.0424	0.0399	10
gryfiński	0.0382	0.0367	0.0416	0.0442	0.0385	11
białogardzki	0.0339	0.0387	0.0498	0.0415	0.0380	12
gryficki	0.0333	0.0395	0.0389	0.0524	0.0374	13
koszaliński	0.0200	0.0513	0.0569	0.0460	0.0370	14
goleniowski	0.0330	0.0358	0.0460	0.0487	0.0366	15
choszczeński	0.0341	0.0358	0.0448	0.0427	0.0366	16
pyrzycki	0.0290	0.0427	0.0341	0.0410	0.0351	17
łobeski	0.0291	0.0328	0.0375	0.0477	0.0326	18
kamieński	0.0258	0.0346	0.0401	0.0557	0.0326	19
sławieński	0.0300	0.0329	0.0334	0.0417	0.0322	20
policki	0.0128	0.0310	0.0492	0.0559	0.0264	21

Source: own study

The social criterion turned out to be the most essential (weight 0.2803), whereas the weight for the economic criterion was more than threefold lower (0.0831). Other urban poviats showed weights lower almost by half and the most important criterion here was the economic criterion (for the urban poviats of Koszalin 0.1005, for Świnoujście 0.1296). For the latter township, the least important was the social criterion with weight 0.0360.

Among the remaining poviats, Stargard came top of the ranking (with weight 0,0469), closely followed by Szczecinek poviat (0.0436) and succeeded by Drawsko poviat (0.0422), Kołobrzeg (0.0421) and Myślibórz (0.0412). At the bottom of the ranking there was Police urban poviat (with weight 0.0264) for which infrastructure was the most important criterion (0.0559) and social criterion the least important (0.0128).

In 2011, similarly to 2005, the urban poviat of Szczecin takes the first place in the ranking (with a slightly higher weight of 0.1664), with the social criterion as the one of biggest importance (0.2564) (Tab. 7).

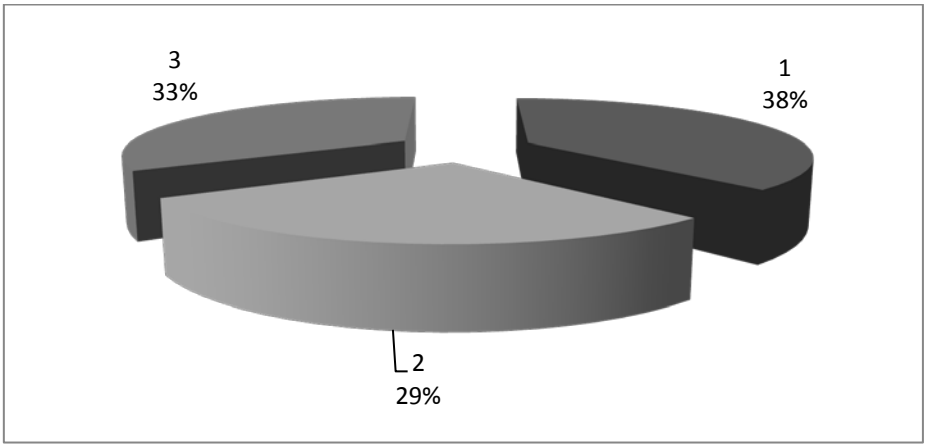
TAB. 7: **Ranking of poviats of the West Pomeranian voivodeship in 2011**

Poviats	Criteria				Weights	Ranking
	Social	Economic	Environmental	Infrastructural		
urban Szczecin	0.2564	0.0989	0.0716	0.0557	0.1664	1
urban Koszalin	0.0889	0.0978	0.2276	0.0544	0.1075	2
urban Świnoujście	0.0270	0.1315	0.1150	0.0560	0.0754	3
stargardzki	0.0571	0.0340	0.0487	0.0425	0.0473	4
myśliborski	0.0485	0.0334	0.0772	0.0422	0.0467	5
szczecinecki	0.0466	0.0406	0.0331	0.0454	0.0428	6
kołobrzeski	0.0424	0.0474	0.0183	0.0590	0.0421	7
drawski	0.0411	0.0393	0.0289	0.0480	0.0394	8
białogardzki	0.0392	0.0377	0.0340	0.0397	0.0380	9
świdwiński	0.0412	0.0376	0.0214	0.0415	0.0375	10
gryficki	0.0330	0.0422	0.0281	0.0524	0.0367	11
gryfiński	0.0411	0.0319	0.0278	0.0449	0.0365	12
łobeski	0.0382	0.0343	0.0329	0.0409	0.0364	13
kamieński	0.0294	0.0402	0.0340	0.0556	0.0353	14
choszczeński	0.0345	0.0349	0.0336	0.0446	0.0352	15
wałecki	0.0369	0.0337	0.0288	0.0393	0.0350	16
goleniowski	0.0345	0.0335	0.0316	0.0469	0.0346	17
pyrzycki	0.0379	0.0348	0.0054	0.0388	0.0327	18
sławieński	0.0321	0.0340	0.0199	0.0482	0.0322	19
koszaliński	0.0096	0.0404	0.0377	0.0491	0.0262	20
policki	-0.0156	0.0416	0.0444	0.0550	0.0160	21

Source: own study

The urban poviats of Koszalin and Świnoujście also gained in importance and took the 2nd and 3rd position in the ranking. The importance of criteria changed. In 2011 for the township of Koszalin the environmental criterion carried most importance (0.2276). Among the remaining 18 poviats only 4 maintained their place in the 2005 ranking, and these were: Stargard, Kołobrzeg, Świdwin and Police poviat towns. Two urban poviats, Wałcz and Choszczno, dropped by 7 places compared to 2005, and so did Koszalin poviat which dropped by 6 places. Urban poviats of Łobez and Kamień Pomorski advanced in the ranking by 5 places (chart 1).

CHART 1: **Changes poviats places in the ranking [%]**



1. dropped.
2. advanced.
3. no change.

Source: own study

Summary

The analysis allowed for a comparison of the development of West Pomeranian poviats according to 4 criteria and 12 subcriteria, on basis of which a ranking was formed for the years 2005 and 2011. The findings are sufficient to conclude that the development of the above poviats was not uniform as 6 poviats advanced and 7 remained in the same position in the ranking.

The Analytical Hierarchy Process method is a very valuable analytical tool that facilitates and supports difficult decision-making processes, faced by local government. with regard to future poviat development. AHP also helps to determine which factors are particularly worth considering. Another tool that could be useful in this respect is the task sensitivity analysis. which has not been presented here due to the limited scope of this paper.

References:

[1] ADAMUS, W., GRĘDA, A. *Wspomaganie decyzji wielokryterialnych w rozwiazywaniu wybranych problemów organizacji menedżerskich*. Badania operacyjne i decyzje 2/2005. Warszawa, s. 5-36

[2] DINC, M., HAYNES, K. E., TARIMCILAR, M. 2003. *Integrating models for regional development decisions: A policy perspective*. The Annals of Regional Science. Springer-Verlag. 37; s. 31-53. ISSN 1432-0592

[3] KARMOWSKA, G. *Rozwój gospodarki komunalnej w województwie zachodniopomorskim w latach 2002-2010*. Roczniki Naukowe

Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu Tom XIV. Zeszyt 8. 2012. Warszawa Poznań Białystok. s. 44-49. ISSN 1508-3535

[4] KARMOWSKA, G. *Comparative Analysis of Socio-Economical Development of Northern Regions of Poland*. Annals of the University of Bucharest Economic and Administrative Sciences Series. 5-2011. Bukareszt, s. 29-50. ISSN 1842-9327

[5] WOTA, A. K. *Próba zastosowania metody AHP do oceny wielofunkcyjności obszarów wiejskich.* Infrastruktura i ekologia terenów wiejskich nr4/2005. PAN O/Kraków, s. 157-169

POLISH INCOME INEQUALITY COMPARED TO OTHER EUROPEAN UNION IN 2006-2010

Beata Kasprzyk, Aleksander Kasprzyk
University of Rzeszow, State Higher Vocational School in Tarnobrzeg
bkasprzy@univ.rzeszow.pl, aleksanderkasprzyk@gmail.com

Key words:
income inequality – the Gini index – economic growth – social groups – region

Abstract:
The paper presents the theoretical elements of the economic debate on the relationship between inequality and prosperity and economic growth. Quantitatively, the derogation from the egalitarian distribution of income shows the Gini coefficient. The work concerns the comparison and evaluation of income inequality based on the Gini index and other measures for the EU-27 in 2006-2010. Moreover, income inequality is shown in the long term and for the Polish international, making the assessment of inequalities for certain social groups and Polish regions.

Introduction

It is accepted that inequality leads to the conclusion comparing people in some way. The most general inequality is defined as the lack of equality or disparity, and the scope of this category is very broad. You can talk about the inequality of material (economic), social, professional, educational, legal, political, cultural, religious, etc. The object of each type of inequality is 'specific good' in a broad sense.

Economic literature narrows the concept of inequality to the strictly economic inequality, setting narrowly defined proportions and economic disparities and economic (e.g. inequalities in the economic development of countries or regions, the conditions and quality of life, income, etc.). Economic inequalities are often determinant of social inequality and vice versa. Economic inequality refers to material goods, creating a diverse individual people access to it, where one pole of inaccessibility is complete and the second overall to availability. Sharpest character then take the inequality, when there are such poles [8, p. 15-20].

For their part, integral part of the economic theories of economic prosperity is the stratification and differentiation and polarization of society. In general, the issue is controversial not only the distribution of inequalities

that are inevitable and even to some extent necessary and fair, but dangerous deepening of inequalities. The main discrepancy arises, therefore, discuss the relationship 'inequality - economic growth'.

Current literature on the subject is widely divergent views on the matter. As a result, the study aimed to determine the direction of the impact of income inequality on economic growth to meet the extreme interpretations is three. There was, therefore, a negative impact of rising inequality on economic growth, confirming the conclusions formed the positive impact of inequality on the GDP growth rate. On the other hand, other studies done for most of the global economy, not confirmed any impact (positive and negative) on the growth of inequality. However, separating the studied countries rich and poor draws the conclusion that there is a positive effect of inequality among the poor countries, but negative in wealthy countries. Denninger and Squaire'a research, which included 90 countries have shown that the incidence of negative and positive correlation between economic growth and social inequalities are almost exactly the same common [9, p.1-3].

1. Quantitative measurement of inequality-Gini's factor

The implication for empirical studies utilitarian approach is not possible. The individual utility is empirically observable. Comparisons of prosperity for different societies or social groups must be linked with a comparison of inequality of income distribution. The most commonly used measure of inequality is called Gini coefficient [5]. Gini coefficient of concentration factor identified Lorenzo, has a value in the range [0,1] which is properly balanced (equal to the value of egalitarian 0) and uneven (a value of 1) allocation of resources (income). By definition, means the relationship between the average absolute difference in income couples were randomly selected units to the average dual-income[7, p.71-72]. In addition to this measure are estimated to be some other measure of income inequality measures, i.e. identify the fractions and depth of the risk of poverty or social exclusion or differentiation factors of quintals and others known in the literature [2, p.41-42].

2. Gini ratio for countries EU-27 in 2006-2010

For the evaluation of the phenomenon are taken quantifying the so-called. The degree of income inequality, which is measured according to the methodology determined based on disposable income levels of the population. Measures of income inequality is calculated on the basis of annual data from household budget surveys conducted by Eurostat, the World Bank, the Central Statistical Office. Empirically determined inequality of income distribution can be interpreted in relation to the scale, extent and differentiating factors

polarizing economic standard of living. It should be noted, however, that the methodology, selection of specific tests or studies provide slightly different but comparable value. Referring to the study by Eurostat for the years 2006-2010 for 27 EU countries the Gini coefficient values are summarized in tab.1.

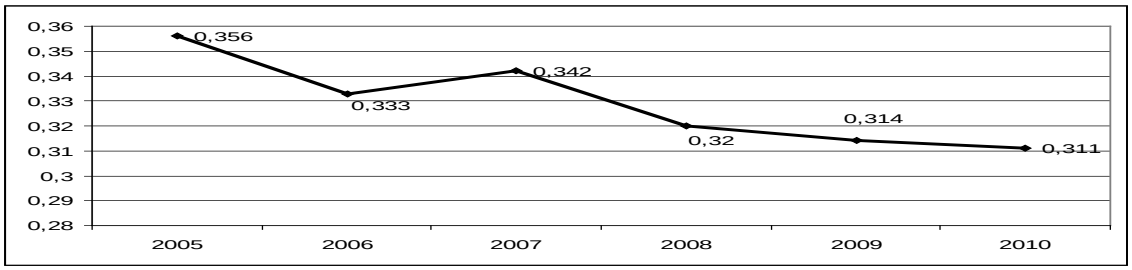
TAB. 1: **Ratio Gini between 2006-2010 in selected UE-27countries**

Country	2006	2007	2008	2009	2010
UE -27	**0,302**	**0,306**	**0,308**	**0,304**	**0,305**
Czech Republic	0,253	0,253	0,247	0,251	0,249
Denmark	0,237	0,252	0,251	0,269	0,269
Germany	0,268	0,304	0,302	0,291	0,293
Spain	0,312	0,313	0,313	0,323	0,339
Italy	0,321	0,323	0,310	0,315	0,312
Netherlands	0,264	0,276	0,276	0,272	0,255
Poland	0,333	0,322	0,320	0,314	0,311
Sweden	0,240	0,234	0,240	0,248	0,241
Great Britain	0,325	0,326	0,339	0,324	0,330

Source: [5]

In the period 2006-2010 the average Gini index received 0.305 level for the 27 countries of the European Union. In Poland, was slightly higher than the EU average. There are countries with both a lower power inequalities (e.g. Sweden, Finland, the Netherlands, Austria, Czech Republic) and more (United Kingdom, Spain, Lithuania, Latvia). Poland therefore belongs to the countries with rather higher level of income inequality index (in 2010, 15 countries had lower income inequality as Poland). In terms of temporal variation in household income for Polish households expressed by the Gini coefficient in 2003 is quite stable and remained at a similar level (see Figure 1) [2, p.144, p.150].

FIG: 1. **Ratio Gini for Poland between 2005 – 2010**



Source: [3, p. 146].

Knowledge about income inequality be developed further by analyzing other measures such as diversity quintal index. The values of this index for selec-

ted EU countries in 2010 are summarized in the tab.2. On average in the EU overall disposable income of the top quintile (one-fifth of the population with the highest income) were five times higher than the disposable income of the bottom quintile (20% of the population with the lowest income).

TAB: 2. **Indicators diversity quintal in countries UE in 2010**

Specification	Indicators diversity quintal	Specification	Indicators diversity quintal
UE -27	5,0	Spain	6,9
Belgium	3,7	Deutschland	4,5
Czech r.	3,5	Poland	5,0
Finland	3,6	Sweden	3,5
France	4,5	Great Britain	5,4
Greece	5,6	Italy	5,2

Source:[2, p. 150].

According to the data, Poland is a country with a medium level as defined indicator of income inequality (5.0 in 2010). The smallest income inequality took place in Belgium, Finland, Slovenia, the Czech Republic and Hungary (the rate was more than 3), the largest - in Latvia, Romania, Lithuania, Spain and Greece (the level indicator in the range 6-7). Please note that these statistics indicate the overall intensity of inequality, which does not mean that there are no inequalities internal (inside the country, region, or social groups). You can also accurately assess the degree of inequality for certain social categories (an analysis of comparative socio-economic groups) and depending on the income of the differentiating factors. In Poland, are the most diverse farmers' income (G = 0.53), while the smallest income differences exist among households of pensioners (0.25) and pensioners (0.29). Consequently, the higher the Gini coefficient values for households in rural areas as in cities (tab. 3).

TAB. 3: **Ratio Gini for Poland between 2003-2010**

Specification	2003	2004	2005	2006	2007	2008	2009	2010
Poland in all	0,343	0,344	0,345	0,340	0,340	0,339	0,336	0,342
cities	0,330	0,331	0,333	0,329	0,325	0,315	0,312	0,323
village	0,325	0330	0,336	0,331	0,341	0,343	0,338	0,339

Source: [1, p. 278].

Income inequality are also characteristic of the regional (NTS1 classification), as evidenced by the different values of the Gini coefficient and quintile ratio (tab. 4). As is clear from empirical measures of the highest inequality

of income distribution are associated with the central region (respectively 0.343 and 5.7) and the southwest (0.317, 5.2). These findings relate to 2010, although these trends by analyzing the statistical data, did not undergo significant changes in the last decade.

TAB. 4: **Selected indicators inequality income by regions in Poland in 2010**

Specification	Factor Gini	Indicators diversity quintal
Poland	**0,311**	**5,0**
Central	0,343	5,7
South	0,283	4,4
East	0,299	4,6
Northeast	0,298	4,6
Southwest	0,317	5,2
North	0,299	4,6

Source: [2, p. 144].

These results are not only quantitative dimension economic theory. It's a very clear signal to the bodies of economic and social policies, at both national and regional levels. Presented above statistical measures of inequality are called in the literature as a measure of positive (descriptive), because it does not explicitly describe the concept of social welfare, but as noted by A. Sen every measure of inequality, however, is always linked to the social welfare function [9]. Analysis of this type allows for a realistic assessment of the level of 'equality-inequality' in the economic prosperity and material living standards of the population.

Conclusion

The need for counting measure of income inequality is inevitable and necessary. These measures provide an indicator for the state, as it looks redistributive policies protecting the interests of the poorer part of society. It follows that the need to quantify the inequality of income, their degree, scale and level. Polish population income inequality over time are similar to the results of the EU average. This means, therefore, that the Polish population in terms of income inequality is loaded moderately profitable. The average value of the Gini coefficient is about 0.33. The most egalitarian countries in the European Union: Denmark, Sweden, Slovakia, Finland and the Czech Republic.

In the literature, there are many solutions and economic theories, but there is no satisfactory and clear ideology used throughout the world. There is no

single measure of the most perfect and the choice it depends mainly on the purpose of the study. The functioning of the theory and empirical multiplicity of measures of inequality is certainly multifaceted and complex issue.

References:

[1] *Budżety gospodarstw domowych w 2010 roku*, Informacje i Opracowania Statystyczne, GUS, Warszawa, 2011

[2] *Dochody i warunki życia ludności (raport z badania EU-SILC 2010)*, GUS, Warszawa, 2012

[3] *Dochody i warunki życia ludności Polski (raport z badania EU-SILC 2010)*, Informacje i Opracowania Statystyczne GUS, Warszawa, 2010

[4] http://epp.eurostat.ec.europa.eu/ (access on: 22.08.2012)

[5] KAKWANI, N.C. *Income Inequality and Poverty*, Oxford University Press, New York, Oxford, London, 1980

[6] KOT, S.M., MALAWSKI, A., WĘGRZECKI, A. *Dobrobyt społeczny, nierówności i sprawiedliwość dystrybutywna,* Wyd. AE, Kraków 2004

[7] PANEK, T. *Ubóstwo, wykluczenie społeczne i nierówności. Teoria i praktyka pomiaru*. Oficyna Wyd. SGH, Warszawa, 2011

[8] RUTKOWSKI, W. *Nierówność i wzrost gospodarczy,* „Polityka Społeczna" no. 5-6, Warszawa, 2008

[9] SEN, A. K. *On Ignorance and Equal Distribution*, "American Economic Review", vol. 63, 1973

DETERMINATION OF MAGNITUDE OF POLICY INTEREST RATE BY FUZZY CONTROL APPROACH

Jan Kodera, Tran Van Quang
University of Economics, Prague
kodera@vse.cz, tran@vse.cz

Key words:
monetary policy - 2W repo rate - fuzzy control

Abstract:
In this paper, we propose a new approach using fuzzy control to quantify the magnitude of interest rate instrument for monetary policy under an inflation targeting framework. Inflation targeting is the prevailing monetary policy in developed economies. In the inflation targeting regime, the objectives of monetary policy are hierarchized with price stability objective being of the highest importance. Central bankers operate monetary policy by manipulating interest rate to direct the economy toward desirable targets. When conducting monetary policy, central bankers often claim to use sophisticated models and justify their decisions on interest rate by the output of these models. Since the underlying economic processes are not fully known to us, complicated mathematically defined models cannot provide satisfactory results, we never know based on which rule the interest rate is set. The approach we propose can give the answer to this question as it can solve a complex problem without using a mathematical model and seems to be a suitable tool for monetary conduct. As a result, fuzzy control approach converts well-accepted qualitative rules of type IF ... THEN ... in monetary economics into an exact control strategy which is the size of interest rate to be set. We also verify the approach we propose on the 2W repo rate of the Czech Central Bank for a period from 2000 to 2011.

1. Introduction

Since the end of the eighties of the last century, central bankers around the world have abandoned controlling money stock in the economy and switched to conducting monetary policy by using interest rate instrument. Today every self-respected central bank maintains that its decisions on interest rate setting are (DSGE) model based. But in reality, we never know how they come to these decisions. Qualitatively, no one argues against what should be done with interest rate. When inflation is high, the interest rate should be increased and vice versa. Similarly, if we want to support economic growth, the interest rate should be lower while if we want to prevent

the economy from overheating, we should raise the interest rate. The only question is how much it should be raised or lowered. As the model based approach cannot give us the answer, we suggest a new approach based on the fuzzy control. The essence of this approach is as follows. From the regulation point of view, monetary policy is a standard control problem. When operating monetary policy, the central bank manipulates the interest rate in such a way in order to steer variables of interest in the economy toward desired values. Since all the underlying processes are not fully known, traditional control methods do not help while fuzzy control can convert correct but vague expert knowledge into a successful control strategy. As a result, the approach we propose can quantify the size of interest rate to be set by a central bank which no other approach can do properly. To demonstrate our approach to do so, we will verify it on the case of the 2W repo rate of the Czech National Bank. Our paper is structured as follows: the next section is devoted to the basics of fuzzy control. After that, we will show how fuzzy control is applied to monetary policy. Then we will verify to show how monetary policy would have looked like with the fuzzy control technique and it will be compared to how it has been actually run by the Czech National Bank for the last eleven years in the Czech Republic. Finally, concluding remarks will be made in the last section.

2. Fuzzy logic and fuzzy control

As it has been mentioned, monetary policy is an optimal control problem. In many real-life cases, if the problem is mathematically well defined and precisely formulated, then the optimal control strategy is the solution of optimization problem and the optimal controls can be found. But it is not always the case. In such situations, one can only rely on the experience of experts which is generally correct, but not easily quantified in some exact formula. Fuzzy control is a control method which changes these vague rules into an exact control strategy. A fuzzy control process dealing with a not mathematically well defined problem can be divided into four parts. First, the real inputs should be changed into fuzzy values, which is called fuzzification. Then, we choose a set of rules expressing common knowledge on what should be done in order to achieve the goal. After that, we should combine these sometimes contradicting rules in order to choose the best action to be done to reach the goal of the controlled process. Finally, we have to convert the fuzzy values back to real values of the controlled process, which is called de-fuzzification to set an exact control procedure.

Fuzzification

Fuzzification is based on fuzzy set theory invented by Zadeh (1965). It can be defined as the mapping a value v of quantity V into interval [0.1], or formally: $\mu : V \rightarrow [0; 1]$. The mapping μ is called the membership function which measures the degree of membership of v to a certain set (category). Unlike a conventional set, where the degree of membership of any object in the set is either 0 or 1, the membership function can be Z-shaped, triangular or trapezoidal and it can attain any value between 0 and 1. For fuzzy sets (A and B), the following operators are defined:

the fuzzy intersection operator $\wedge$ (AND connective):

$$\mu(A \wedge B) = \min\{\mu(A), \mu(B)\}, \quad (1)$$

the fuzzy union operator _ (OR connective):

$$\mu(A \vee B) = \max\{\mu(A), \mu(B)\}, \quad (2)$$

the fuzzy complement (not operation):

$$\mu(\text{not } A) = 1 - \mu(A). \quad (3)$$

The fuzzy implication is an important rule, which is defined as:

$$\mu(A \rightarrow B) = \mu(\text{not } A \vee B) = \max\{1 - \mu(A), \mu(B)\}, \quad (4)$$

where statement A is an antecedent and statement B is a consequent of implication.

In our paper we will use the following decision rule,
which will be an implication:

$$\mu(A \wedge B \rightarrow R) = \mu(\text{not } (A \wedge B) \vee R) = \max\{1 - \min\{\mu(A), \mu(B)\}, \mu(R)\}. \quad (5)$$

Fuzzy rules

Fuzzy rules come from the experience of experts and include a series of IF - THEN statements which are characteristic to human thinking and perception. Each if-then statement is in fact a fuzzy implication. An antecedent and a consequent forms a fuzzy proposition. An antecedent can also contain a combination of propositions connected by logical operators $\wedge$ AND and $\vee$ OR. For example, a rule can look like this:

$$\text{IF } v_1 \text{ is } A_1, \ \ldots \text{ and } v_I \text{ is } A_I, \text{ THEN do } B_1,$$

which is a more general statement than the implication in (5).

Rules combination

Since there is a set of experts' rules, we have to determine the grades of fulfillment of each rule. Usually, we evaluate the consequent of each individual rule by using the minimum implication, but sometime the product implication is also used. Finally, all partial individual consequences are aggregated into an overall result.

De-fuzzification

As the outputs from the previous part are fuzzy numbers presenting the final consequent from a set of rules of form if - then. These fuzzy numbers need to be converted back to a crisp number as the value of the control which should be set. There are many ways to do so, but the most often one is the so called center of gravity method (COG). The sought crisp value is the centroid of the area under the graph of the membership function of the output set (see Figure 3). For more convenient calculation, the center of gravity is often defined as average value as follows:

$$c = \frac{\int_V v\mu(v)\mathrm{d}v}{\int_V \mu(v)\mathrm{d}v}. \tag{6}$$

To find more information on fuzzy logic and fuzzy control,
see Novák (2000), Jantzen (2007) and Ross (2010).

3. Application of fuzzy control to monetary policy conduction

In this section, the fuzzy control principle presented in the previous part is applied to managing monetary policy of the Czech National Bank. In the Czech Republic, according to its constitution and Act No. 6/1993 Coll. on the Czech National Bank, monetary policy is mandated to the care of the Czech National Bank (CNB). The primary CNB's objective is to maintain price stability in the Czech economy. At the same time, the CNB may support the general economic policies of the Czech government, basically in terms of economic growth, if its primary goal is not compromised. To achieve its objectives, the CNB have been using inflation targeting regime since 1998. In this regime, the CNB makes an explicit public announcement on the inflation target it wants to reach. To achieve this goal, the CNB has to manipulate its key monetary policy interest rate 2W repo rate according to the development of the Czech economy in order to keep the real inflation rate as close to its preset target as possible. The CNB can also support the growth of the Czech economy by using this tool if the primary goal is not affected. So far the decisions on the desired level of this rate have been made by the CNB's Board and they claim that these decisions are based on

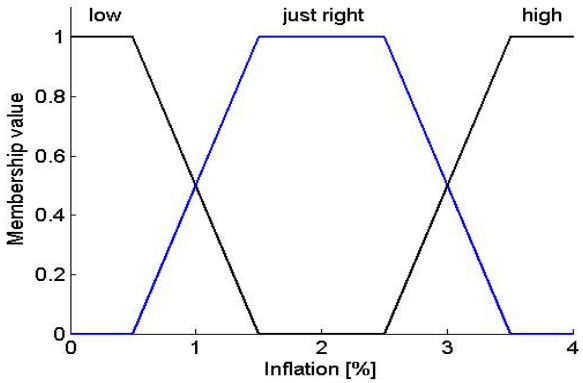
the output of macroeconomic modeling as well as on their judgments on the future development of the economy which is totally undisputable, but at the same time still very vague.

The CNB's monetary policy as described above is clearly a typical control problem. The CNB has an inflation target, it uses its 2W repo interest rate as a tool to drive the real inflation in the economy to its target value. Since it does not exactly know the nature of all underlying economic processes, the CNB cannot rely only on the model output and it has to take into account the experts' knowledge which is not unquantifiable. But the fuzzy control approach can help. In this case, the CNB's monetary policy has two objectives: to keep the inflation level stable, for example, around 2 % and to support economic growth at a sustainable rate while the inflation objective is superior to supporting economic growth. We assume that the sustainable growth rate is the long-term growth rate which is the average of a long period. Using fuzzy control approach, first the crisp economic data on inflation and economic growth available to the CNB has to be converted to fuzzy data via their corresponding membership functions.

If the inflation target is 2 %, then we can define inflation is just right meaning the membership value is 1 when it is in interval 1.5 – 2.5 %. The grade of just rightness decreases toward value 0 when it falls or grows towards 0.5 or 3.5 respectively. Inflation is not just right definitely when it is out of interval (0.5, 3.5). Similarly, inflation is definitely low when it is below 0.5. The grade of lowness of inflation is decreasing toward 0 when inflation rises towards 1.5 % and it is not low any more if it is higher than 1.5 % (membership value is 0). As far as the highness of inflation is concerned, it is not high if it is less than 2.5 % (membership value is 0). Then the grade of highness increases when it rises towards 3.5 %. And the inflation is surely high (membership value is 1) if it is higher than 3.5 %. The membership function of inflation is shown in Figure 1.

By the same token, we construct the membership function of economic growth. In this case the average growth rate from the ten-year period 2001 - 2011 which is 3.0% is considered to be the sustainable rate The membership function of economic growth rate is shown in Figure 1. With these two membership functions, the crisp inputs in terms of inflation and economic growth rate can be fuzzified.

FIG. 1: **The membership function for inflation**

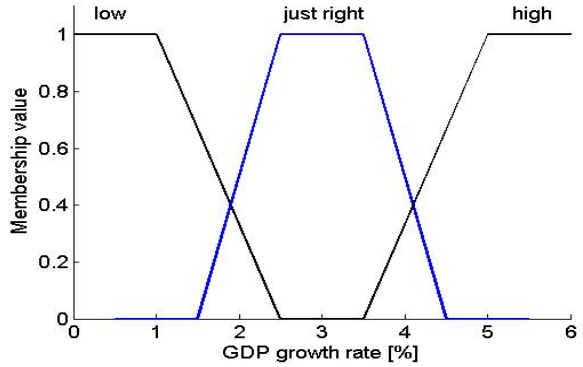


Now, as the fuzzy control method suggests, the fuzzy rules are needed. In accordance with monetary theory (for example, see Walsh, (2010)) and with respect to the objectives of the CNB, the following rules can be constructed:

IF inflation is low and GDP growth rate is also low, THEN the CNB reduces the 2W repo rate to support economic growth because the lower repo rate leads to lower other market interest rates via transmission mechanism which discourages savings and encourages spending and eventually leads to higher output with-out compromising inflation target,

IF inflation is low and the GDP growth rate is just right, THEN the CNB reduces the 2W repo rate to support economic growth,

FIG. 2: **The membership function for GDP growth rate**



IF inflation is just right and the GDP growth rate is low, THEN the CNB reduces the 2W repo rate to support economic growth,

IF inflation is high and the GDP growth rate is also high, THEN the CNB increases the 2W repo rate to lower inflation because the higher repo rate leads to higher other market interest rates via transmission mechanism which discourages spending and encourages savings and eventually leads to lower inflation to meet the inflation target.

IF inflation is high and the GDP growth rate is just right, THEN the CNB reduces the 2W repo rate to meet its inflation target because price stability objective is superior to economic growth objective,

IF inflation is just right and the GDP growth rate is high, THEN the CNB keeps the 2W repo rate should be raised,

IF inflation is just right and the GDP growth rate is also just right, THEN the CNB keeps the 2W repo rate unchanged,

IF inflation is low and GDP growth rate is high, THEN the CNB keeps the 2W repo rate unchanged,

IF inflation is high and the GDP growth rate is low, THEN the CNB keeps the 2W repo rate unchanged because low economic growth will amend the inflation rate to the lower level.

These rules are summarized in TAB. 1.

From TAB. 1, it is clear that the CNB can lower its key interest rate either when inflation and growth rate are low or when inflation is low and growth rate is just right or when inflation is just right and growth rate is low. On the other hand, the CNB should increase its key interest rate either when inflation is high and growth rate is also high or when inflation is high and growth rate is just right. Finally it does not change its monetary interest rate when it does not have to increase and to decrease it.

TAB. 1: **The set of monetary policy rules**

	Low Inflation (IL)	Just right Infln (IJR)	High Inflation (IH)
Low Production (GL)	decrease	decrease	do not change
Just right Production (GJR)	decrease	do not change	increase
High Production (GH)	do not change	increase	increase

For completeness, we also build a set of rule for the case when the CNB is an inflation fighter. In this case, the CNB will care only about inflation and increases its repo rate if inflation is high, decreases the repo rate if inflation is low and keeps it unchanged when the inflation is just right regardless of the development of the economic development.

Fuzzy interference

Since there are nine monetary policy rules and inflation and GDP growth rate can fall into one of these possibilities. The final rule is the combination of possibilities required the same action from the CNB connected by

operator OR. For operator OR, the minimum rule is used to get an output fuzzy number. As we see, the CNB decreases the interest rate when either inflation and economic growth rate are low or inflation is just right and growth rate is low or inflation is low and growth rate is just right, hence:

$$\text{DECR} = (\text{IL} \wedge \text{GL}) \vee (\text{IL} \wedge \text{GJR}) \vee (\text{IJR} \wedge \text{GH}).$$

Similarly, the increase of the interest rate happens when either inflation and growth rate are high or when inflation is high and growth rate is just right.

$$\text{INCR} = (\text{IH} \wedge \text{GH}) \vee (\text{IH} \wedge \text{GJR}) \vee (\text{IJR} \wedge \text{GL}).$$

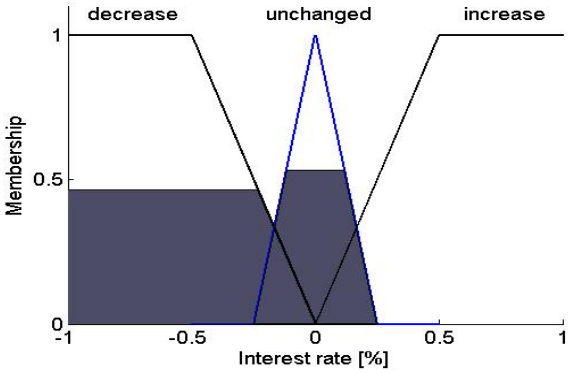
And the interest rate is kept unchanged when both previous cases do not happen, which means:

$$\text{UNCH} = 1 - \text{DECR} - \text{INCR}.$$

De-fuzzification

The output fuzzy number from the previous part needs to be converted to a crisp number. In accordance with the changes of the repo rate taken by the CNB so far, we define the membership function for the interest rate change as follows. Since the size of the biggest change so far is 0.75 %, the membership for sure decrease or increase is set for interval (0.5, 1) respectively. Then it decreases towards 0. Keeping the interest rate unchanged ranges from -0.25 to 0.25 % with the just right value equal 0 (see Figure 3). The resulting crisp value then is calculated by the center of gravity method (COG) proposed by Mamdani and Assilian (1975) which is the value of the ratio of the abscissa of the center of gravity of the shaded area to the area covered by the membership function. For example, for the inflation = 1.1 % and the growth rate = 1.8 %, we calculate the membership values for inflation and growth as follows: $\mu_I^L = 0.4$, $\mu_I^{JR} = 0.6$ and $\mu_I^H = 0$ and $\mu_G^L = 7/15$, $\mu_G^{JR} = 0.3$ and $\mu_G^H = 0$. Using the experts rules and fuzzy interference we get the following membership values of the interest change: $\mu_{\text{DECR}} = 7/15$, $\mu_{\text{INCR}} = 0$ and $\mu_{\text{UNCH}} = 8/15$. This values are then de-fuzzified and the crisp value of interest rate change is roughly 0.2564 (see Figure 3). Since the CNB changes its 2W repo rate in multiples of a quarter percent, in this case the CNB lowers its key interest rate by one quarter percent if the rate is not zero already.

FIG. 3: **Membership function for interest rate change**

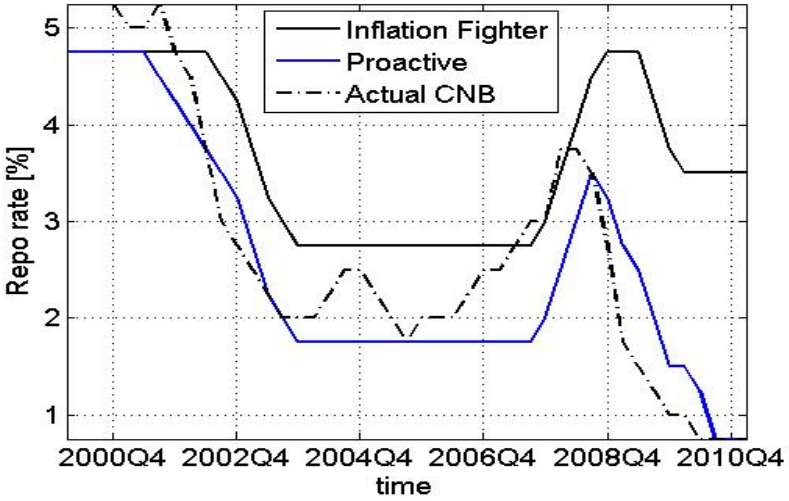


4. Verification of the CNB's monetary policy by fuzzy control

In this part, the fuzzy control approach is used to verify the monetary policy having been conducted by the CNB from 2000 to the second quarter of 2011. For this purpose, we use the data on quarterly inflation and GDP growth rate published by the Czech Statistical Office [9]. To determine the membership values of inflation and GDP growth rate, the data from each quarter is used for the same quarter. The reason for it is that though this data was not available to the CNB yet, but at those moments it could be well aware of their trends and could forecast them with reasonable accuracy. As far as the inflation target of the CNB is concerned, since their values were changed over the course of time, we have to adjust them correspondingly. The CNB's inflation targets are set as follows [8]: first, until the end of 2000 the target was set as a band from 4 to 5% and the price stability was measured in terms of pure inflation. In 2001 the target band was extended to 3.5 to 5.5 %. Since the beginning of 2002, the price stability had been measured by the Consumer Price Index (CPI) and the target interval was 3 – 5 %. This target interval was gradually reduced to 2 - 4% towards the end of year 2005. From the beginning of 2006 the target interval was changed to a point target value and the value was 3 % for period 2006 - 2009. Since the beginning of 2010 this value is 2 %. As we have only data on Czech CPI for the whole period, 1 % is added to the target value when it is set in pure inflation term. When determining the membership values, 0.5 % is always added to both sides of the target values or target bands for the just right case. Otherwise the membership functions are constructed as shown in Figure 1. Otherwise, the remainder of the procedure is the same as it was in the previous section. Finally, when calculating the size of changes of the key CNB's interest rate, we proceed as follows: we calculate only once for a quarter while the CNB could change it several times in a quarter (and actually it did happen four times during the examined period). The size of a change is 0 if it is less than

0.125 %, it will be 0.25 % if it is in interval (0.125, 0.375) and it is 0.5 % if it is greater than 0.375 % since the CNB changes its interest rate in multiples of a quarter of a percent if it does change. The calculation was carried out in the Matlab environment and is available on request.

FIG. 4: **The development of 2W repo rate: calculated and actual**



The result of the verification is shown in Figure 4. We reexamine two possible policies. One is called as the proactive policy which is in line with the official CNB's policy (the lower and thicker line in Figure 4), the second one is dubbed as the inflation fighter policy (the upper and thinner line in Figure 4). The actual interest rate policy is the dotted line in the lower part of Figure 4. Visually inspecting this figure, it is clear that both examined policies can capture the development of the Czech economy and have similar course as the actual CNB's policy. If the emphasis is put on inflation fighting, the interest rates are higher while the proactive policy does not substantially differ from the actual one. The differences might result from the forecast available to the CNB when they had to make decisions on interest rate or they might act more aggressively than needed.

5. Conclusion

In this paper we have proposed a new approach based on fuzzy logic and applied this approach to monetary policy conducting in the inflation targeting regime. As the underlying mechanism controlling economic activities are not exactly quantifiable, running monetary policy by a central bank still is an intuitive matter rather a mathematically well-defined control problem. This characterization makes monetary policy a suitable candidate for being applied fuzzy control approach on it. In order to quantify the magnitude of the short-term interest rate, we have used the simplest model

of a central bank operating monetary policy in inflation targeting regime. The results of our work show that a fuzzy control system is capable of converting well-accepted qualitative monetary policy principles into quantitative response in terms of the size of the monetary policy interest rate of a central bank. Unlike the Taylor rule which is supposed to be a quantitative rule but fails to do so due to its linear a unbounded nature, fuzzy control approach is a nonlinear and bounded. This enables the fuzzy control based approach deal with the quantification task very effectively. This hypothesis is confirmed by the results of our verification on data of the Czech Republic in a period from 2000 to 2011. Since we have used a model-free approach to quantify the decisions of the CNB on its interest rate, it would be interesting to combine this technique with a DSGE model to examine whether this approach can improve the outputs of the often used DSGE model.

Acknowledgements:
The authors are grateful for the financial support of Czech Science Foundation No. P402/12/G097.

References:

[1] JANTZEN, J. (2007). *Foundation of Fuzzy Control*. Wiley: West Sussex.
[2] MAMDANI, E. H., ASSILIAN, S., An experiment in linguistic synthesis with a fuzzy logic controller. *International Journal of Man-Machine Studies* 1975, vol. 7, 1 – 13,
[3] NOVÁK, V. *Základy fuzzy modelování,* Praha: BEN Technická literatura, 2000, 175s.
[4] ROSS, T. J. (2010). *Fuzzy Logic with Engineering Application,* 3rd edition. Wiley: West Sussex.
[5] TAYLOR, J. B. Discretion versus policy rules in practice. *Carnegie-Rochester Conference Series on Public Policy* 1993, vol. 3, 195-214,
[6] WALSH, C. E. *Monetary Theory and Policy, 3rd* edition. Massachusetts: MIT Press, 2010.
[7] ZADEH, L. (1965). Fuzzy sets. *Information and Control* 8, 338 – 353.
[8] *Inflation reports* 2000 - 2011. The Czech National Bank.
[9] The Czech National Bank Statistics.
[10] The Czech Statistical Office database.

MATHEMATICAL MODELS IN AGRICULTURE - THE RURAL FARM

Tomasz Kondraszuk
Warsaw University of Live Sciences
tomasz_kondraszuk@sggw.pl

Key words:
rural farm – optimization model – economic calculation – management

Abstract:
A rural farm encompasses both the activities of an agricultural farm and a household directly related to it. A rural farm thus understood should serve as a basis for constructing decision models aimed at carrying out the following objectives: ecological (as part of the agricultural farm), social (as part of the household) and economic (referring to the whole). The need to balance these three groups of objectives has become a fact and is carried out through the common European Union policy by using various financial instruments. The basic purpose of the constructed business models is not only to answer the question of what should farm development lead to and which of the conducted activities should be developed, but also how should a household (family) manage its resources.

1. Introduction

Attempts to optimize production decisions in agricultural farms go back a long way. The special important for agriculture has a linear programming. Opinions as to the usefulness of linear programming to describe economic events vary. The greatest advantage of linear programming is the simplicity of model representation and the universal character of the computing algorithm. Generally, linear programming plays an auxiliary role in scientific research and is often used to confirm and illustrate a preconceived thesis. We assume that the decision maker guided by the objective presented in the model should behave in a rational manner expressed by the adopted objective criterion. The obtained optimum solution allows correct assessment of any regularities occurring in the object (farm) being modelled and shows the proper behaviour of decision makers. Using the above assumptions, Ziętara and Kondraszuk [1984] used models to elabourate methodical foundations for dividing costs into fixed and variable ones depending on the scope of decision and whether the farm resources are stable or varying.

At the present moment, it seems that the role of and need for modelling economic reality in agriculture will increase as the farming environment is becoming more complex. For many years, the main focus of industrial

agriculture was put on increasing the scale of production, with an assumption that one can both exploit natural resources and exceed limits resulting from plant and animal biology with impunity. Faced with the reality of sustainable agriculture, one should take into account limits resulting from degradation of natural environment, including biodiversity, landscape, non-renewable resources, as well as preserve the well-being of animals and other limiting factors set by ecology. The objective is transformed into an optimization of net benefits from economic development while preserving natural resources and the global balance of ecosystems. In case of an individual (family) farm, which is also an enterprise, the entire focus of economic calculations was traditionally put on the activities of an agricultural farm, treated as a manufacturing plant. A personal income category taking into account income not related to agricultural farms was indeed introduced, but severed from any personal assets held. Many authors emphasize that an agricultural farm thus understood is only a tool to realize personal objectives of its owner and accordingly becomes fused into a single whole with the household [Gędek 2009]. In such case one should attempt to include in all kinds of financial liquidity balance sheets the expenses necessary for running a household, but also non-farm related income. There is, therefore, a need for a wider view of activities of rural farms, also for the purposes of agricultural econometric studies. The author [Kondraszuk 2006] presented methodical aspects of economic calculations and making yearly closing balances in a rural farm, believing that many of the decisions taken by farmers become understandable only when viewing a rural farm as an inseparable whole.

Intending to correctly reflect the behaviours of farmers, the paper attempts to describe selected problems related to constructing a linear model for the rural farm, understood as a fusion of two entities: the agricultural farm and the household.

2. Selected problems related to constructing linear models for the rural farm

The rapid changes in the agricultural setting, forced by the varied economic outlook, as well as the changing agricultural policy of the European Union, compel farmers to constantly evaluate the possibilities of better usage of available resources. What is essential is to treat all elements of both the committed assets and the P&L statement together. This is especially important in case of agricultural farms, as European Union assistance will be increasingly diverted from pure production activities to households or to non-agricultural activities as part of multifunction development of rural

areas [Wilkin 2003]. The basic means of production such as land, capital and labour may be committed not only for purely agricultural activity but also to produce benefits as part of other activities. In these circumstances, income from non-agricultural activities can considerably complement income from the farm. The need to integrate economic calculations and examining activities in agricultural farms (enterprises) in a systemic manner has been presented in the author's previous publications [Kondraszuk 2003, 2004, 2005]. Decision models allowing integration of strategic and operational objectives in farms are an important tool to correctly determine the consequences of mechanisms of introduced agricultural policies and the changing economic outlook [Majewski et al. 2000]

In order to cover the entirety of an agricultural farm and household, the author introduced the notion of a rural farm which takes over all of their objectives and tasks. Agriculture is a particular domain in which the economic, ecologic and social objectives of human activities converge. The destiny of farming families is tied to agricultural farms, and on the other hand the conducted agricultural activities are dependent on the situation of the farmer and their family. To ensure constant development, a farming family sets certain team and individual goals related to the participation system, delegation of competences and motivation of family members. The participation of each family member in carrying out these tasks is often restricted by other duties. In the model, this phenomenon will be reflected as limited labour resources. Additionally, alternative costs of labour may exceed the income obtained from farming. This can happen if there is a prospect of other, more attractive jobs outside agriculture. The model should include decision variables describing the opportunities of undertaking and conducting activities from the household's point of view. They will be competitive compared with conducting agricultural activities and their choice will be prompted by the availability of limited resources and relative profitability. The resources and structure of means of production in a rural farm may vary depending on the currently prevailing economic outlook and leveraging emerging development opportunities, not only for the agricultural (production) farm itself, but also for the household and each member of the farming family. When constructing decision models, we should leverage all opportunities to increase income which result from production specialization and concentration, but also preserve the limitations resulting from the requirements of sustainable development and maintaining the household. In such manner, we should manage to harmonize the material and non-material objectives. These objectives can take the form of multi-criteria models, taking into account several models simultaneously. The objectives

derive from motives of human actions such as the motive of obligation, income and prestige [Kondraszuk T., Ziętara W. 1988]. A similar view is given in Woś [2004]: "A farmer does not, however, maximize their profit from capital, but family income. At the same time, they must provide work to all family members who have no other job. They also realize various social, existential, environmental and cultural objectives. They must maintain their farm as a going concern, and thus establish conditions for succession. In a word, the farmer realizes a multi-factor objective function and such peasant reality cannot be reduced to maximizing profit on the scale of an individual."

Agricultural farms form an organic whole interlaced with multiple quantity and quality relationships [Manteuffel 1965]. Using live plants and animals, the farmer aims to achieve stable, economically feasible and socially accepted production in a manner that does not threaten the environment. An agricultural farm disposes of assets which are the property of the farmer and their family and includes items comprising both the agricultural farm and the household. If we allow the possibility of mutual flow of available resources within the farm and farming family, including labour and capital, but also land, then the analysis of effective husbandry and held assets should treat the agricultural farm and household together. From a formal point of view, in case of an enterprise run by a natural person the owner is liable for debts incurred in connection with conducted economic activities with its own private assets (including in particular fixed assets). Banks which grant credits analyze private assets very carefully and often use them as the main collateral. In conditions of changing economic outlook the development of an agricultural farm will be dependent on the ability to take into account the following perspectives: financial (increased production through product development and technological refinements, ensuring solvency, increasing the income of owners), social (producing healthy food, but also self-improvement and acquiring knowledge), ecological (protecting the environment, ensuring the well-being of animals, protecting the landscape etc.).

In a linear model for a rural farm that treats the agricultural farm and the household together, the assessment of means of production (land, capital, work) should be based on lost opportunity costs. The correct determination of contractual remuneration of an entrepreneur and their family and interest from the farm's capital is essential for calculating and assessing the obtained results. These express the conditions in which the farm operates and its relationships with the setting. The value of using own means of production will be assessed according to the appropriate shadow prices. In case of own labour expenditures, a principle to omit its costs in agricultural calculations

was adopted. For the point of view of an agricultural farm, this solution is acceptable, provided that the actual costs of maintaining labour resources (the farming family) are taken into account in costs.

When calculating the costs of committed capital, the assessment of own capital cost, which is the balance difference between the value of all assets and of all liabilities, was replaced with assessment of the cost of farm assets, which consists of selected prime cost items. It was assumed that the assets include fixed assets without land and those current assets that cannot be monetized straightaway, such as field crops (short and long-term) and non-breeding livestock. Because the majority of stocked own products is kept by farmers due to a possible increase in prices, it can be assumed that these represent “cash on the way”. The cost of farm assets is assessed as equal to interest which the farmer might obtain by depositing their equivalent in a bank. It was assumed that the basis for assessment should be the long-term interest rate, adjusted by the tax on profits from bank deposits. The value of a farm's assets which the interest rate thus calculated is multiplied by is given as the arithmetic average of values of the relevant assets at the beginning and end of the year. The total cost of unpaid own means of production is the sum of assessed cost of own labour, own land and own committed capital. The linear model also gives the possibility of evaluating the committed resources in an indirect manner by adopting decision values which represent alternative means of managing the resources of a rural farm, including those of a household. The optimal solution will generate the best production structure (size of decision variables) and indicate means which are at a minimum. These variables will have a dual price which allows analysis and searching for opportunities to increase them or changing the production technology to use them more rationally.

3. Summary

A rural farm is a notion which allows a mathematical model to simultaneously comprise social, ecological and economic objectives of business entities operating in a rural setting. The need to balance these three groups of objectives has become a fact and is carried out through the common European Union policy by using various financial instruments. The basic purpose of the constructed business models is to answer the question of what should farm development lead to and which of the conducted activities should be developed. Or, perhaps, whether it would be more profitable to abandon any currently conducted activities and utilize the available resources in another manner.

Mathematical models for an agricultural farm adopting the principles of sustained development should thus not only cope with specific aspects of agricultural activities, but also integrate all areas of conducted activities. When modelling economic activities, it is necessary to view the farm as a system, and therefore take into account both the existence of internal relationships and the impact of the external setting on conducted activities. A rural farm is an especially complex system which needs to be assessed using multi-criteria methods. At the micro scale, we need to deal with extensive social, societal, biological, technical and economic relationships.

The problems of sustained development will therefore apply not only to the potential conflict between the production technology utilized and the protection of the environment, but also between individual and society-wide objectives in both the short and long-term perspective. This involves a specific challenge for mathematical modelling and economic calculation methods, which allows farmers to constantly develop and shape correct attitudes compliant with the principle of sustainable management.

References:

[1] GĘDEK, S. *Optimization of annual plans of a family agricultural farm,* 2009, Wydawnictwa SGGW, Rozprawy Naukowe i Monografie, Warszawa.

[2] KONDRASZUK, T., ZIĘTARA, W. *An attempt to assess the usefulness of single- and multi-criteria optimization for the purposes of making decisions in an agricultural enterprise,* 1988, Komputerowe systemy i metody wspomagające podejmowanie decyzji. PAN IBS Warszawa, 188-198.

[3] KONDRASZUK, T. *Problems of integrating economic calculations in an agricultural enterprise,* 2003, Roczniki Naukowe T.5, Z.5. Warsaw-Poznań-Koszalin. 71-75.

[4] KONDRASZUK, T. *Integrated spheres of economic calculation in an agricultural enterprise,* 2004, Roczniki Naukowe, T.6, Z.5, Warsaw-Poznań-Koszalin. 60-64.

[5] KONDRASZUK, T. *A system of economic information in the planning, implementation and control process of an agricultural enterprise,* 2005, Roczniki Naukowe, T.7, Z.1. Warsaw-Poznań. 134-138.

[6] KONDRASZUK, T. *A rural farm as a basis for economic calculations – a methodical approach,* 2006,Roczniki Naukowe, T.8, Z.1, Warszawa-Poznań. 80-84.

[7] MANTEUFFEL, R. *Agricultural accounting, T1,* 1965, PWRiL. Warszawa.

[8] MAJEWSKI, E., DALTON, G., ZIETARA, W., KONDRASZUK, T., WĄS, A., MICHNOWSKI, S. (2000) *Impact of agricultural policy on the production structure and income of agricultural farms,* 2000, Strategiczne opcje dla polskiego sektora agrobiznesu w świetle analiz ekonomicznych, SGGW, Warszawa. 255-268.
[9] WILKIN, J. (et al.) *Foundations of an integrated agriculture and rural areas development strategy,* 2003, Uniwersytet Warszawski, Warszawa.
[10] WOŚ, A. *Looking for a model of development of Polish agriculture*, 2004, IERiGŻ, Warszawa.
[11] ZIĘTARA, W., KONDRASZUK, T. *The role and importance of fixed and variable costs in making planning decisions in an agricultural enterprise,* Nowe Rolnictwo, 1984, no. 7-8, 20-23.

CHANGES OF A BUSINESS MODEL AS A WAY FOR CO-OPERATIVES TO ADAPT TO THE NEW ECONOMIC ORDER

Izabela Konieczna
Jan Kochanowski University in Kielce
irud@interia.pl

Key words:
cooperative – business model – new economic order

Abstract:
The aim of the article is to explain the specificity of the co-operatives, changes in the number connected with the entry to a market economy and try to find the answer to the question, how co-operatives that are a specific type of business can survive and develop in times of financial crisis and during the formation of the new economic order. Co-operatives, as well as and other economic organizations must find in the new economy how to adapt to new requirements. For co-operatives, one of the roads might be change of business model, which will allow the creation of larger and stronger enterprises, which will be able to face the new demands of the market.

Introduction

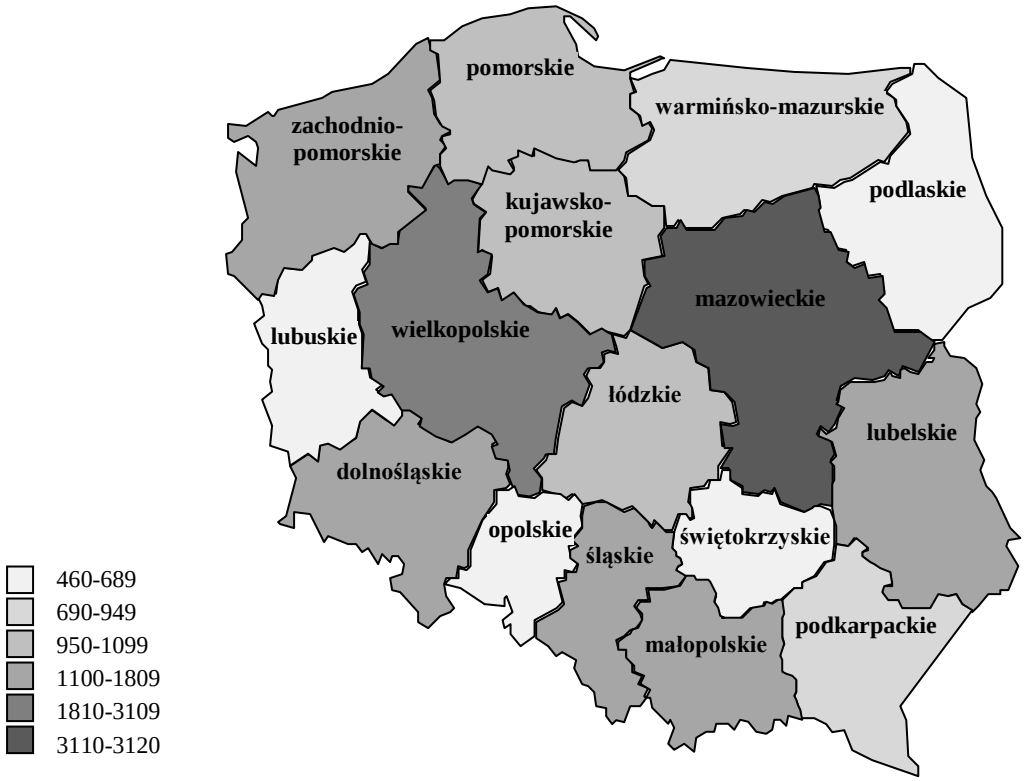
The whole world, including Poland also faces the necessity of finding a new economic order which is a consequence of the resulting financial crisis, which was the result of globalization and the integration of national financial markets. In the new economy, enterprises have to find an appropriate way of skillful adaptation to changed circumstances. This situation particularly affects the co-operatives that have to act as enterprises and generate profits, but also are designed to meet the needs of its members which mean that the functioning on the market in such a organizational and legal form becomes more difficult.

1. The specificity of co-operatives and their way of survival and development in the new market economy

The cooperative is a specific form of business, because it differs from other organizational and legal forms, namely, it is a combination of association and company. Cooperatives may differ from each other in size and pace of growth, but generally operate in local environment, understood in a broader sense as the area of the country. In this way, they participate in the creation and strengthening of socio-economic relations of their region (Fig. 1).

Cooperatives, despite the fact that they are located in the local context, often are developing their activities abroad, which have an impact on trade and economic growth. They also maintain social cohesion in the areas developing at a slow pace or demanding economic restructuring. Cooperatives also create a greater chance of development through mutual sharing of resources, responsibility and risk.

FIG. 1: **Number of cooperatives in Poland as at 30 June 2012**



Source: [7].

Small businesses operating in an increasingly competitive and concentrated markets through co-operative structure, can gain power in negotiations, while maintaining independence and control over their operations.

Most of the cooperatives in Poland after the transition from a socialist system to a market economy has been closed or taken over. They were not prepared to operate in a new environment and have not been able to adapt to market requirements. After the liquidation of trade union centers they have been deprived of organizational consulting, economic and legal counseling as well as vetting and personnel training system. According to data from Polish Central Statistical Office, the number of co-operatives from year to year decreases with increasing number of other economic entities (Tab. 1).

TAB. 1: **Changes in the number of selected business entities during the period from 31 December 1992 to 30 June 2012**

Years	Co-operatives	Commercial companies	Civil law partnerships	Natural person conducting economic activities
31 December 1992	**19372**	69907	99331	-
31 December 1993	**19746**	83283	186433	1625640
31 December 1994	**19816**	95017	205849	1718381
31 December 1995	**19822**	104922	207021	1693427
31 December 1996	**19868**	115739	223113	1949986
31 December 1997	**19775**	126465	245374	2090013
31 December 1998	**19638**	136497	272008	2274493
31 December 1999	**19328**	146859	288956	2417737
31 December 2000	**19011**	159660	302717	2500952
31 December 2001	**18812**	177085	290890	2600127
31 December 2002	**18682**	196681	280547	2714118
31 December 2003	**18548**	208753	279208	2795860
31 December 2004	**18435**	220162	276897	2763380
31 December 2005	**18303**	230588	277422	2776459
31 December 2006	**18200**	243338	278337	2765348
31 December 2007	**18128**	258299	280890	2787650
31 December 2008	**17352**	268942	276112	2845321
31 December 2009	**17193**	283712	267615	2815617
31 December 2010	**17156**	303040	271869	2942965
31 December 2011	**17067**	322474	276380	2871457
30 June 2012	**17120**	334668	278232	2883703

Source: [7].

However, many cooperatives operates on the market, but some of them are in a situation of uncertainty, whether they are able to survive and continue functioning in a market economy, and the other are still evolving and are a major competitor in the market. This is due to the fact that some of them were able to adapt to the operation on the open market in the face of competition, as is the case in other European countries. Acting on the market, they must find a way to adapt to the prevailing conditions and mechanisms.

A new economic order determine, in fact, skillful adaptation of the cooperatives to the requirements of the market economy, especially since many cooperatives operating in an increasingly competitive market must mobilize substantial resources in order to remain competitive, while maintaining its characteristics and identity. However, implementation of the aims pursued and delivery of the expected benefits to members depends on many factors.

These include the management efficiency, flexibility in the operation of cooperatives and quickness in responding to changing market situations.

2. The essence of the business model concept

The concept of the business model is relatively new. The dynamic growth of interest of this concept was in the mid 90-ies of XX century, especially among practitioners [4]. The design of the business model is a key decision for an entrepreneur who creates a new firm - and a crucial - perhaps more difficult - task for general managers who are charged with rethinking their old model to make their firm fit for the future [10]. The business model concept offers strategists a fresh way to consider their options in uncertain, fast-moving and unpredictable environments. In contrast to conventional assumptions, recognizing that more new business models are both feasible and actionable than ever before is creating unprecedented opportunities for today's organizations [5].

The business model concept generally refers to the description of the articulation between different business model components or 'building blocks' to produce a proposition that can generate value for consumers and thus for the organization [3]. The concept refers to the ways of creating value for customers, and to the ways a business turns market opportunities into profit through sets of actors, activities and collaboration [9]. It thus reflects management's hypothesis about what customers want, how they want it, and how the enterprise can organize to best meet those needs, get paid for doing so, and make a profit [8]. According to H.Chesbrough and R.S. Rosenbloom [2] a business model fulfils the following functions:

- Articulates the value proposition (i.e., the value created for users by an offering based on technology);
- Identifies a market segment and specify the revenue generation mechanism (i.e., users to whom technology is useful and for what purpose);
- Defines the structure of the value chain required to create and distribute the offering and complementary assets needed to support position in the chain;
- Details the revenue mechanism(s) by which the firm will be paid for the offering;
- Estimates the cost structure and profit potential (given value proposition and value chain structure);
- Describes the position of the firm within the value network linking suppliers and customers (incl. identifying potential complementors and competitors); and
- Formulates the competitive strategy by which the innovating firm will gain and hold advantage over rivals.

Conclusion

The new economic order, that needs to be created, is a consequence of the global financial crisis. It poses to enterprises, but especially for the co-operatives new challenges. It is not a simple matter to meet these challenges, especially as the economy in the current period is subject to significant fluctuations and different pressures. In the new economy, companies have to find an appropriate way of skillful adaptation to changed circumstances. The only way for co-operatives may be changing the business model, which will allow them to cope with the new conditions and in consequence they will be able to fulfill the functions for which they were created.

However, business model innovation, that is vitally important, is very difficult to achieve because of the barriers that exist. If companies want to make changes in the business model, they will have to change organizational processes and must adopt an effectual attitude toward business model experimentation. With discovery driven planning, companies can model the uncertainties, and update their financial projections as their experiments create new data. In the process of changes, organizations will need to identify internal leaders for business model change, in order to manage the results of these processes and deliver a new, better business model for the company. At the same time, the organization's culture must find ways to embrace the new model, while maintaining the effectiveness of the current business model until the new one is ready to take over completely. Only in this way can business model innovation help companies escape the 'trap' of their earlier business models, and renew growth and profits [1].

References:

[1] CHESBROUGH, H. Business Model Innovation: Opportunities and Barriers. *Long Range Planning*, 2010, Vol. 43, pp. 354-363, ISSN 0024-6301.

[2] CHESBROUGH, H., ROSENBLOOM, R.S. The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spinoff companies. *Industrial and Corporate Change*, 2002, Vol. 11, No. 3, pp. 529-555, ISSN 0960-6491.

[3] DEMIL, B., LECOCQ, X. Business Model Evolution: In Search of Dynamic Consistency. *Long Range Planning*, 2010, Vol. 43, pp. 227-246, ISSN 0024-6301.

[4] KONIECZNA, I. Rozwój koncepcji modelu biznesowego, *Studia i Prace Kolegium Zarządzania i Finansów*, 2012, Nr 116, pp. 105-117, ISSN 1234-8872.

[5] MCGRATH, R.G. Business Models: A Discovery Driven Approach. *Long Range Planning*, 2010, Vol. 43, pp. 247-261, ISSN 0024-6301.
[6] *Zmiany strukturalne grup podmiotów gospodarki narodowej wpisanych do rejestru REGON, I półrocze 2011 r.,* Warszawa: GUS, 2011, 175 p., ISSN 2082-8748.
[7] *Zmiany strukturalne grup podmiotów gospodarki narodowej w rejestrze REGON, I półrocze 2012 r.,* Warszawa: GUS, 2012, 182 p., ISSN 2082-8748.
[8] TEECE, D. Business Models, Business Strategy and Innovation. *Long Range Planning*, 2010, Vol. 43, pp. 172-194, ISSN 0024-6301.
[9] WESTERLUND, M., RAJALA, R. Innovative business model and offerings based on inconclusive evidence, *Innovative Marketing,* 2006, Vol. 2, Issue 2, pp. 8-19, ISSN 1814-2427.
[10] ZOTT, C., AMIT, R. Business Model Design: An Activity System Perspective. *Long Range Planning*, 2010, Vol. 43, pp. 216-226, ISSN 0024-6301.

VERIFICATION OF THE LINDER HYPOTHESIS OF THE FOREIGN TRADE BETWEEN THE US AND EU

Jana Kovářová
VŠB – Technical University of Ostrava
Jana.kovarova.st2@vsb.cz

Key words:
European Union – United States of America – Linder hypothesis – foreign trade – gravity model

Abstract:
The basic assumption of the Linder hypothesis is that the countries with similar level of the income will trade more than countries with dissimilar level of the income. On the contrary, the Hecksher-Ohlin theory of the international trade is based on the idea that countries with dissimilar level of the income will trade more than countries with similar level. Using the gravity model cross-section data this paper determines that foreign trade exchange of goods between the United States of America and the European Union countries is consistent with the Linder hypothesis.

Introduction

The United States of America and the European Union represent the biggest world exporter and importer of goods, services and capital (in the form of foreign direct investment). Their share on the world exports of goods is more than 25%, on the world imports of goods more than 31%. Their common share on the world exports of services is about 43%, world imports of services at about 34%. Traded volume of goods and services between these economies is approximately 1.7 billion Euros on a daily basis. Almost 41% of the world foreign direct investments flow on the EU and US markets. On the contrary, 61% of the world foreign direct investments come out from these economies. Despite the above mentioned statistics, a decrease of their influence in the world economy can be observed. New impulse might cause a recurrence of their importance in the global economy. This impulse may be closer cooperation between them based on the regional economic integration.

The aim of this paper is to investigate whether the Hecksher-Ohlin or the Linder hypothesis of the mutual trade exchange between the United States and the EU countries was valid in 2011. To achieve this aim the gravity model of international trade is used, in which the trade potential of the United States with the EU countries in 2011 is also estimated.

1. Methodology

The gravity model represents a simple empirical model for analyzing bilateral trade flows between geographical entities. This model originates from the Newtonian physics notion. The gravity model for trade is analogous: the trade flow between two countries (integration units, trading block etc.) is proportional to the product of each country's "economic mass", generally measured by GDP (national income) and inversely proportional to the distance between the countries respective "economic centers of gravity", generally their capitals. [5, 5] The original gravity equation proposed by Tinbergen is as follows [1, 2]:

$$Trade_{ij} = \alpha \cdot \frac{GDP_i \cdot GDP_j}{Dis_{ij}}, \tag{1}$$

where $Trade_{ij}$ is the value of the bilateral trade between country i and j, GDP_i and GDP_j are country i and j's respective national incomes, Dis_{ij} is the geographical distance between the countries and α is an intercept. The original equation (1) transforms to the linear form using natural logarithm:

$$\ln\left(Trade_{ij}\right) = \alpha + \beta_1 \ln\left(GDP_i \cdot GDP_j\right) + \beta_2 \ln\left(Dis_{ij}\right) + \varepsilon_{ij}, \tag{2}$$

where $Trade_{ij}$ is the value of the bilateral trade between country i and j, GDP_i and GDP_j are country i and j's respective national incomes, Dis_{ij} is the geographical distance between the countries, α is an intercept, β_1 and β_2 are the regression coefficients, ε_{ij} is the random component.

This equation represents so called core gravity model. In addition, the augmented gravity model is widely used. This type of gravity model includes various dummy variables which affect bilateral trade (common language, common border, inland location, regional agreements effect, exchange rate, foreign direct investments, cultural differences etc.).

The Hecksher-Ohlin theory of trade is based on prediction that countries with dissimilar levels of output will trade more than countries with similar levels. The Linder hypothesis assumes that countries with similar levels of per capita income will have similar preferences and similar but differentiated products, and thus will trade more with each other. [1, 7] The variable determined the validity of the Hecksher-Ohlin or the Linder hypothesis of the mutual trade exchange between the US and the EU countries is included in the original equation (2):

$$\ln\left(Trade_{ij}\right) = \alpha + \beta_1 \ln\left(GDP_i \cdot GDP_j\right) + \beta_2 \ln\left(Dis_{ij}\right) + \beta_3 \ln\left(PCGDPD_{ij}\right) + \varepsilon_{ij}, \tag{3}$$

where $Trade_{ij}$ is the value of the bilateral trade between country i and j, GDP_i and GDP_j are country i and j's respective national incomes, Dis_{ij} is the geographical distance between the countries, α is an intercept, β_1, β_2 and β_3 are the regression coefficients, ε_{ij} is the random component, *PCGDPij* is absolute value of per capita GDP differential between country i and j. A positive sign of the regression coefficient β_3 confirms the validity of the Hecksher-Ohlin hypothesis (influences of factor endowments differences), a negative sign confirms the validity of the Linder hypothesis (influences of style taste differences).

2. Data

The gravity model is estimated with 27 EU member countries in 2011. The dependent variable is the natural logarithm of total bilateral trade (exports plus imports) measured in current USD. Independent variables are the natural log of the gross domestic product measured in current USD, the natural log of the absolute value of the difference between the per capita GDP measured in current USD and the natural log of distance between the capitals measured in kilometers. The distance between the US and selected EU country is measured using the great circle formula, which takes into account the longitude and latitude of the capitals. [3, 5] All data were obtained from the database of the United Nation Conference on Trade and Development (UNCTAD).

Gravity model can be solved with using panel data or cross-section data. Although panel data have certain advantages (for example panels can capture the relevant relationships among variables over time), classic gravity model generally uses cross-section data. In this paper the gravity model with cross-section data is used. An estimation method used is the ordinary least square method. The applicability of the gravity model using cross-section data is confirmed, for example, by Sohn [422], Hassan [119] etc.

3. Estimated model

The overall performance of the model is very good, with high R-squared (0.91) for the estimated equation (2). All explanatory variables are significant, indicating that the gravity model is appropriate in explaining US bilateral trade flows of goods with EU countries. Estimated results are presented in the table 1

TAB. 1: **Estimated coefficients**

Variable	Coefficient	t-Statistic	Probability
$\ln(GDP_i \cdot GDP_j)$	0.841876	14.67328	0.0000
$\ln(Dis_{ij})$	-2.744178	-6.091717	0.0000
$\ln(PCGDPD_{ij})$	-0.267761	-2.901227	0.0078

Source: self-elaboration with using EViews 7

Presented results confirm that the bilateral trade between the US and the EU countries positively depends on their size measured by GDP and negatively depends on their distances measured by distances between their capitals. The estimated coefficient can be interpreted as follows. When the GDP's increased by 1 %, the bilateral trade exchange of goods increased by 0.84 % in 2011. On the contrary, when the distance increased by 1 %, the bilateral trade exchange of goods decreased by 2.74 %. The coefficient of the absolute value of per capita GDP differential between the US and EU countries is negative. This result confirms the validity of the Linder hypothesis of the mutual exchange trade between the US and the EU countries in 2011. The Linder hypothesis was confirmed in the study of bilateral trade between the US and NAFTA, European Union and ASEAN countries in 1995-2008 using a panel data [4, 95], too.

Next step is the identification of trade potential between these economies. The trade potential between the US and the EU countries in 2011 is determined using estimated equation (3). Results by the EU countries are presented in the Annex 1. The intensity of the mutual trade shows the high percentages of the utilization of the estimated potential. The worst utilization of the estimated trade potential was between the US and Cyprus, Finland, Greece, Latvia, Portugal, Spain and Sweden. For example the US exports of goods to Cyprus were 129 million USD. On the contrary, the US imports of goods from Cyprus were only 13.2 million USD. Thus the US was in surplus in the value 115.8 million USD. It points to the fact that an untapped trade potential in the exports from Cyprus to the US existed. On the other hand, the US exports of goods to Sweden were 5.3 billion USD and the US imports of goods from Sweden were 11.1 billion USD. In other words, the US was in deficit in the value 5.8 billion USD. It can be observed, that an untapped export potential of the US existed.

Conclusion

The United States of America and the European Union are the world biggest exporter and importer of goods, services and capital. Furthermore, they are also mutually major trading partners. This fact has been confirmed using

gravity model with cross-section data for one selected year (2011). Estimated equation was used to determine the trade potential between them. The utilization of the estimated trade potential between economies is very good. The untapped export potential of the US existed with Austria, Finland, Greece, Latvia, Portugal and Sweden. These countries had a surplus in trade with goods with the US. The untapped export potential to the US existed with Cyprus and Spain. These countries had a deficit in trade with goods with the US.

Mutual trade exchange of goods between the US and the EU countries is realized according to the Linder hypothesis. This hypothesis postulates that the countries with similar income level will trade more than countries with dissimilar income level. The income level is measured as the gross domestic product per capita.

References:

[1] BATRA, A. India's Global Trade Potential: The Gravity Model Approach. *ICRIER Working Paper No. 151*, 2004.

[2] HASSAN, M., K. Trade Relations with SAARC Countries and Trade Policies of Bangladesh. *Journal of Economic Cooperation Among Islamic Countries*, 2000, vol. 21, no. 3, pp. 99-151, ISSN 0252-953X.

[3] HEAD, K. *Gravity for Beginners*. Vancouver: University of British Columbia, Faculty of Commerce, 2000.

[4] LEITÄO, N., C. The Gravity Model and United States Trade. *European Journal of Economics, Finance and Administrative Sciences,* 2010, vol. 21, pp. 92-100, ISSN 1450-2275.

[5] RAHMAN, M., M. Australia's Global Trade Potential: Evidence from the Gravity Model Analysis. *Oxford Business and Economics Conference*, 2009. ISBN 978-0-9742114-1-9.

[6] SOHN, CH. Does the Gravity Model Explain South Korea's Trade Flows? *The Japanese Economic Review,* 2005, vol. 56, no. 4, pp. 417-430, ISSN 1468-5876.

Ing. Jana Kovářová
VŠB-TU Ostrava
Sokolská třída 33
701 21, Ostrava 1

This paper is supported from the SGS research project SP2013/122 "Modelování zahraničně obchodních vztahů vybraných světových ekonomik".

ANNEX 1: Percentage utilization of the trade potential between the US and EU countries

State	%	State	%	State	%
Austria	98.3	Germany	102.8	Netherlands	101.9
Belgium	99.9	Greece	98.7	Poland	100.3
Bulgaria	99.0	Hungary	102.9	Portugal	96.5
Cyprus	95.0	Ireland	102.4	Romania	99.1
Czech Republic	100.9	Italy	101.5	Slovak	99.9
Denmark	99.5	Latvia	95.0	Slovenia	100.5
Estonia	103.7	Lithuania	100.8	Spain	97.9
Finland	97.0	Luxembourg	101.8	Sweden	96.5
France	99.5	Malta	105.6	United Kingdom	101.9

Source: self-elaboration.

EVALUATION LUNCH MENUS, SCHOOL CANTEENS OFFERED BY PRIMARY SCHOOLS IN SELECTED IN LOWER SILESIA

Anna Kowalska
Wroclaw Uniwersity of Economics
anna.kowalska@ue.wroc.pl

Key words:
food ingredients – food rations – diet

Abstract:
This paper presents an assessment of lunch menus served in selected school cafeterias in Lower Silesia. The analysis of the data shows that all diets were poor in calcium and also most of the B group vitamins, particularly B_2. Most of them were incompatible with the standards of fat content mainly due to an excess of this component in the diet. All tested diets were poorly balanced.

Introduction

A few years ago, school canteens have been under the care of the directors who were responsible for securing food for the students during their stay in school. Currently, in the school foodservice market there are also private entities such as food service agents, catering companies and other organizations[2].

For diet to be healthy and rational, consumed products must provide the body with adequate amounts of nutrients. For each component so range of concentration in the diet is determined. Safe range of intake of individual nutrients dependents on various factors, such as the body's ability to adapt to changes in their supply, age, sex, nature of work, health, etc. [1]. Needs in the field of nutrition are determined by the standards of nutrition. Nutritional standards determine the amount of energy and essential nutrients per 1 person, which according to current knowledge, the different groups of people should receive in the daily diet to ensure proper physical and mental development, and full health.

1. Purpose, research materials and methods of research

Data on the food of children and adolescents in selected primary schools was obtained from the Provincial Sanitary and Epidemiological Station in Wrocław. An analysis of the implementation of standards by a collective statement of nutrients was conducted. The aim of the study was to assess dietary adherence of elementary school students selected by the staff at

school cafeterias in Lower Silesia. The data apply only to school lunches. This was due to the inability to obtain data on food consumption by children and young people in their family homes. Due to the protection of personal information Provincial Sanitary - Epidemiological in Wrocław released data without giving the names and the numbers of schools. Other information has been derived from studies on the analyzed issues.

2. The results

The author analyzed 10-day menus of 11 school canteens, which were marked with numbers from "1" to "11". Table 1 provides a summary of the nutrients in tested portions in primary schools. Calorie contents of the menus ranged from 449.9 to 1296.1 kcal. Energy value in the five analyzed food rations were in accordance to norm. In the next five they did not cover the demand for energy (even up to approx. 40%). Calorific content of 1 of the diets exceeded the norm by more than 42%. Improper energy value of the tested food was associated with inadequate structure of the products used and, consequently, inadequate intake of specific nutrients.

The meals offered by the institutions indicated in the table by the numbers "8", "9", "10" and "11" were too low in carbohydrate content of the products. Most of the analysed menus fulfilled, the demand for proteins set in the standards. Low protein content was found in lunches offered in the school cafeterias 8, 9, 10 and 11 on average, which implemented the standards for students in 55.8%. However, the proportions of animal and vegetable proteins were incorrect in the menus served in five school cafeterias. Errors made in devising the menus resulted from the under-representation of animal protein to total protein. Proteins present in the products of animal origin have higher biological value than vegetable protein, which is deficient in one or more essential amino acids. Each lunchtime meal for school children should contain 28g of total protein in a proportion of 50% of plant and animal proteins. For menus, the proportions of proteins were undermined to the detriment of animal protein.

The menus "6" and "7" were meeting the required standards for fat content. Estimated fat in lunches: "1", "2", "3" and "5" on average exceeded the recommended value for students by more than 41%. The largest deviations from the norm were on the menu, "1" in which the standard has been exceeded by almost 100%. Deficiencies in fat content observed diets, "4", "8", "9", "10" and "11", which covered a total average demand for the asset in less than 64%. Analysed 10-day menus showed that in six cases the implementation of standards for carbohydrates, while in other cases

the nutrient content was too low and covered an average of 66% of the recommended standards. A very important mineral in every person's diet is calcium, which is an important component for the construction and operation of the bones and teeth. It is essential for maintaining healthy heartbeat and is required, among others, for the proper functioning of the immune system. In the analysed diets the calcium deficiency was found in all cases, its portions were understated by an average of 51% and, in extreme cases, the content of this component was only 0.1 mg.

Another essential mineral nutrient is iron. Component of red blood cells and muscle helps to distribute the oxygen in the body. Analysed menus did not meet the standard set in the norms for iron, which in a lunch should be about 6.5 mg. In only four menus, i.e., "1", "3", "6" and "7" iron content complied with the norm.

The estimated content of vitamin A in the analysed diets, "2", "9" and "10" was too low and did not meet the recommendations of standards for school-age students. In the case of diet "1" of the vitamin content was not included in the minutes of control. In terms of the content of this vitamin only menus "8" and "11"included sufficient amount set in the norm. In other cases, the content of vitamin A was higher than the standard recommended dose. In particular, very high levels were observed in the diets, "3", "6" and "7". The excess supply of this vitamin is harmful, because it is stored in the body and its symptoms include heaviness, muscle weakness, swelling of the eyelids.

TAB. 1: The energy value and nutrient content of lunches in selected schools

Nutrient	Norma standard	Primary Schools																			
		„1”		„2”		„3”		„4”		„5”		„6”		„7”		„8”		„9”		„10”		„11”	
		Nutrient intake	%	Nutrient intake	%	Nutrient intake	%	Nutrient intake	%	Nutrient intake	%	Nutrient intake	%	Nutrient intake	%	Nutrient intake	%	Nutrient intake	%	Nutrient intake	%	Nutrient intake	%
energy [kcal]	850	1296	152	832	98	868	102	675	79	883	104	777	91	850	100	517	61	450	53	427	50	485	57
protein [g]	28	45	160	28	100	29	102	27	95	28	101	26	92	29	102	18	64	13	47	16	56	17	61
inc. animal. [g]	14	-	-	-	-	12	89	16	114	17	119	12	84	17	118	10	73	-	-	10	69	9	61
fats [g]	27	58	216	34	127	33	123	21	79	38	139	24	87	29	106	18	67	14	50	16	61	17	62
carbohydra. [g]	110	161	146	111	101	114	104	95	86	117	106	116	105	119	108	70	64	74	68	58	53	66	60
calcium [mg]	260	210	81	168	65	156	60	158	61	190	73	140	54	180	69	100	38	80	31	78	30	0,1	0,04
iron [mg]	6,5	8	117	4,6	70	8	123	6	88	5	72	7	101	6	95	4	58	3	46	3	48	4	62
Vit. A [ug]	500	-	-	246	49	1285	257	934	187	562	112	1024	205	1348	270	826	165	169	34	842	168	567	113
Vit. B_1 [mg]	0,5	0,9	183	0,7	132	0,5	108	0,6	118	0,6	120	0,7	132	0,7	132	0,4	80	0,3	60	0,3	60	0,4	80
Vit. B_2 [mg]	0,5	0,9	184	0,4	80	0,6	126	0,6	120	0,5	92	0,4	72	0,4	88	0,3	50	0,3	60	0,4	80	0,2	40
Vit. C [mg]	38	84	220	36	94	22	59	32	83	29	75	31	83	40	106	27	71	20	51	13	35	23	59

* Permitted tolerances in calorie count is 90 ÷ 110% of the standards, 85-110% fat other components min. 90% of the norm. - No data

Source: own study based on data from the Sanitary-Epidemiological Station from LOWER SILESIA

TAB. 2: The percentage of energy from protein, fat and carbohydrates in energy-average food intake (%)

Group of components	recommendations (%)	Primary Schools										
		„1”	„2”	„3”	„4”	„5”	„6”	„7”	„8”	„9”	„10”	„11”
carbohydrates	50÷65%	45,6	49,4	52,4	56.0	48,9	60	56,2	54	61,1	50,8	55
protein	min. 13%	13,9	13,4	13,1	15,7	12,9	13	13,4	14	11,7	14,6	14
fats	max. 33%	40,5	37,2	34,5	28,3	38,2	27	30,4	32	27,2	34,6	31

Source: Source: own study based on data from the Regional Sanitary-Epidemiological Station

Another important vitamin in the human body is vitamin B_1. Day safe standard intake for vitamin B_1 for children and young people of school age depends on the age and sex and is 1 to 1.5 mg. However, Ziemlański [3] recommends that students intake of this vitamin in amounts of 1.2 ÷ 1.7 mg, as is the amount fully satisfying the needs of the young organism. The need for vitamin B_1 was covered in most of the menus. A deficiency of this vitamin in the diets was observed, "8", "9", "10" and "11". For lunch, the recommended standard for vitamin B_2, depending on the age and sex ranges from 0.56 to 0.8 mg. This standard was observed in the 10-day menus: "1", "3", "4" and "5". In other cases, the vitamin content was too low and in average the standards in these menus have been implemented only in 68%.

Safe living standard for the intake of vitamin C for the analysed age group is 60 mg. The recommended daily consumption of vitamin C is 65 to 70 mg. In the studied diets demand was not met by most of the 10-days menus. Diets "1", "2" and "7" were the only ones which contained the correct ammount of this vitamin. Vitamin C deficiency can cause bleeding or irritation of the gums, general fatigue and easy bruising. The primary energy source for man is food, especially fats, and carbohydrates obtained from it. Protein is the building block component, but due to the changes occurring in the body also provides energy. This is due to the growth and development of the young organism. It is important to fully meet the energy needs of the fats and carbohydrates from the diet, because only this protein will be used as building blocks. When the energy delivered from these components is lower than the demand, protein derived from food intake in the body is burned in order to cover the shortage of energy, so it does not fulfill its proper function of being building blocks of the body's tissues. The percentage of energy from protein, fat and carbohydrates in the analyzed menus is shown in table 2.

Some of the menus had an abnormal structure of energy from fat, protein and carbohydrates. The largest variation was observed in the menu "5". The structure of the energy closest to the recommended was observed in menus "4", "6", "7", "8" and "11".

Conclusion

After analyzing menus the author came to the following conclusions:

- Analyzed meals in a few cases did not meet the recommendations for energy. The menus were found often too low in calorific value, only in one case calorific content has been significantly to high. High calorie meals are often cited as one of the factors leading to overweight and obesity. Therefore, one should strive for the greatest possible variety of foods and products, and make better use of seasonal products. The analysed diets were incompatible with the standards of the fat content, primarily due to the excess.

- In most of the meals carbohydrate content was in norm, or even above it. Deficiency of these compounds was found in the analysis of two ten-day lunch menus. There is no standard that recommends specific carbohydrates intake in the diet. Its content is determined by the structure of energy and it should be 50% to 66% of daily energy needs.
- All analysed menus were very low in calcium. Calcium intake should be at least 1250 mg/day. It has a number of beneficial effects on bone health, also lowers blood pressure in patients with hypertension, and reduces the risk of polyps and colon cancer. Sources of calcium are milk drinks, cheese rennet, sardines, herring, and beans. The menus surveyed did not meet any standards set in this regard. This is a very disturbing phenomenon.
- Most of the lunch sets contained enough iron. Only three analysed sets were too low in this element. To enrich the menus in iron, beef, liver, onion, cereals and legumes should be introduced into meals. Absorption of iron is low, so it is important to provide it in sufficient quantities.
- The lunchs were too low in vitamins from group B, and particularly B_2. Deficiency of these vitamins in the diet for a long period of time can cause flaking of the skin and inflammation.
- Majority of analysed lunch sets did not cover the need for wit. C. Vitamin C deficiency in extreme cases can cause a disease called scurvy. Vitamin C deficiency appears to be common among children and adolescents in the early spring.
- Analysed diets had incorrect energy structure. This is bad, because in this case, it causes cumulation of fat in the tissues. The body uses less energy to process another component – carbohydrates into fat.
- Looking at these menus it should be noted with concern that not one of them was properly balanced. After all, it can be assumed that out of all of them menus "6" and "7", turned out the best which is 2 out of the 11 analyzed as the amount of nutrients contained in them was the most similar to the recommended standards.
- Tested diets cannot fully illustrate the content of the ingredients consumed by students, since it is only one out of the 4 or 5 meals the student should eat throughout the day. People responsible should arrange the menus so that it is best suited in terms of energy and nutrition. It should also be noted that very often the 10-day menus are repeated again, and with them the excess or deficiency of the same nutrients.
- Reasons for the menus not being properly arranged were often eplained by the canteen by high prices of the products. This is not true, especially since there are computer programs to lay menus that allow you to create a low-cost and well-balanced meal.

References:

[1] ROSZKOWSKI, W. Normy żywienia. [w:] *Żywienie człowieka. Podstawy nauki o żywieniu*, red. GAWĘCKI J., HRYNIEWIECKI L., PWN, Warszawa 2004, s. 428÷429, ISBN 83-01-13947-1

[2] KOWALSKA, A. *Ocena funkcjonowania stołówek szkolnych prowadzonych przez podmioty zewnętrzne na przykładzie szkół województwa dolnośląskiego*. Prace Naukowe UE we Wrocławiu, nr 114, 2010, s. 65, ISSN: 1899-3192

[3] ZIEMLAŃSKI, Ś. I IN., *Normy żywienia dla ludności w Polsce*. Nowa Medycyna, 1998, 4, s. 324, p-ISSN**:** 1233-5991; 2080-6000

CROSS-CULTURAL HUMAN RESOURCE DEVELOPMENT: EMPIRICAL STUDY

Vilmante Kumpikaite, Kestutis Duoba
Kaunas University of Technology
vilmante.kumpikaite@ktu.lt, kestutis.duoba@ktu.lt

Key words:
human resource development – culture – students

Abstract:
Intensive global competition, higher customer expectations and greater focus on quality have resulted in much greater requirements placed upon employees today than decades ago. Undergoing globalisation process it is important to draw attention that it influences organization employees too, thus human resource development as well. In this paper authors analyse factors impacting human resource development in cross-cultural context. The empirical research is based on theoretical background and presents investigation of students' skills developing factors and differences according to students' nationality in Spain, Portugal, Lithuania, Turkey, and Iran.

Introduction

Looking to the broader context of research that explores concepts and theories of the field in a cross-cultural context, it is likewise important to look at a definition of human resource development (HRD) that may not fit in the context of a specific culture or in a specific national environment, but rather relates to how we understand the field when it is applied in an international or cross-national context.

Nowadays students are more international than they were few decades ago. But students from different countries represent different attitudes and behaviour still. For enterprises it is important to see the difference of young generation, because they are future employees and employers. For this reason empirical research of this paper was done with students.

The purpose of this paper is to analyse cross-cultural aspects of human resource development and to present results of intercultural empirical study of university students' skills developing methods evaluation. Methods of the research are analysis and synthesis of the scientific literature and empirical study.

1. Theoretical Background

1.1. The Understanding of Cross – Cultural Human Resource Development

Scientists still discuss how to describe human resource in national, cross - cultural, transnational and global context. However all authors provide such factors as culture and it is a matter of central importance for cross - national HRD. Variations in HRD practices and systems are directly linked to the socio-cultural variations among countries and regions around the world [1]. Culture influences every aspect of HRD. Diagnosing and understanding learners' cultural values is as important as understanding their development needs. Hofstede believes that national culture is the strongest influence on the behaviour of employers and employees, customers and citizens – stronger then differences in professional roles, education, age, or gender [2]. Laurant discovered that the impact of culture was greater in global companies than in domestic ones, that a multinational environment causes people to cling even more strongly to their own cultural values [3]. Moreover Wang & McLean keep international HRD, cross-national HRD, transnational HRD, and global HRD as synonyms and give us such definition [4]. The authors of this paper take in to account position of Wang & McLean and their study provides corresponding with it [4].

1.2. Development methods

Looking in employees' skills development we can speak about different types of training. These methods could be developed in accordance of their techniques as traditional and modern computer based methods or number of people involved in learning process. We, based on Noe, Mankin, Kumpikaite & Sakalas analysed methods, could provide following training methods' [5; 6; 7; 8] (see Figure 1).

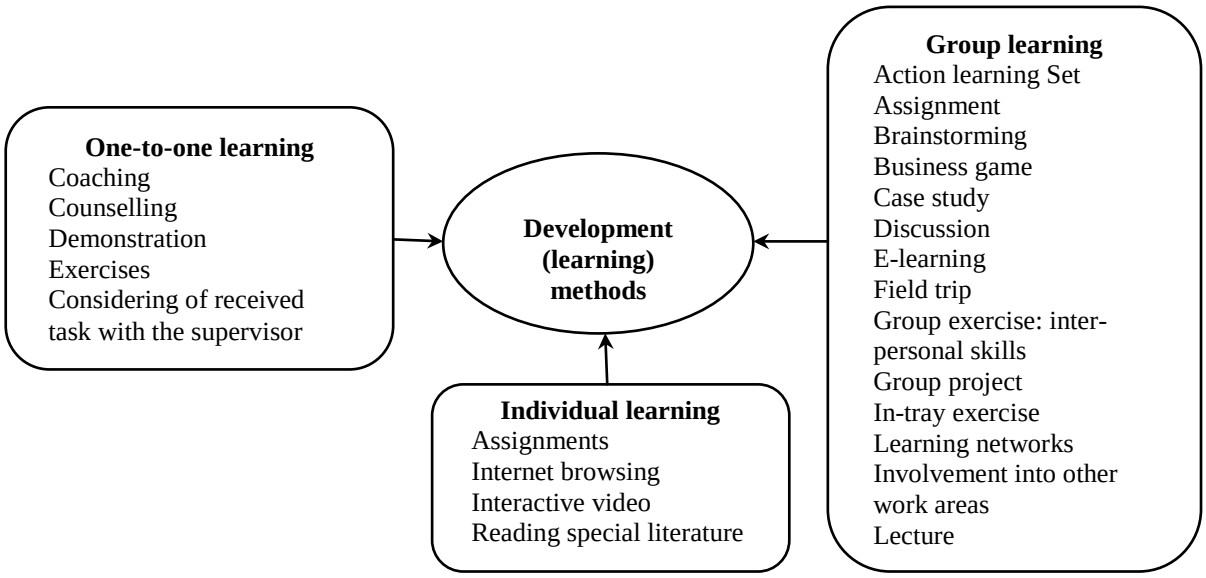


FIG. 1: **Development (learning) methods**

Individual or self-learning methods are such, which allow trainees to learn alone, independent from others. One-to-one learning methods are such methods when a trainee is involved to the learning process together with other person, which could be a teacher or other trainee too. Group learning methods are such methods when several participants are involved in to learning process. Group methods are described as the best developing methods [9; 10; 11]. Based on earlier described learning methods research methodology was prepared and presented in next section.

2. Empirical research and its results

A survey was carried out by distributing questionnaires, which was designed and tested for this purpose earlier [12]. The study was provided in 2011. The survey was provided in Lithuania (203 respondents), Turkey (162 respondents), Spain (125 respondents), Portugal (35 respondents) and Iran (196 respondents) [13]. Total 389 females and 326 males participated in this poll. Students had to select 3 the most developing factors, where the most developing was evaluated by 3, the second by 2 and the third -1. The main questions formulated in this study were: (1) What skills' development methods do students evaluate the best and the worst? and (2) What are differences among students' answers in cross-cultural context?

According to study's results Lithuanians, Turks and Iranians are most developed by one-to-one learning methods, Spanish and Portuguese prefer group learning at the same time. However these methods are at least developing for Turks and Iranians. The highest evaluation of common results are for one-to-one learning methods (Mean=2.22), individual learning is on

the second place (Mean=2.11) and group learning – on the third place (Mean=2.08).

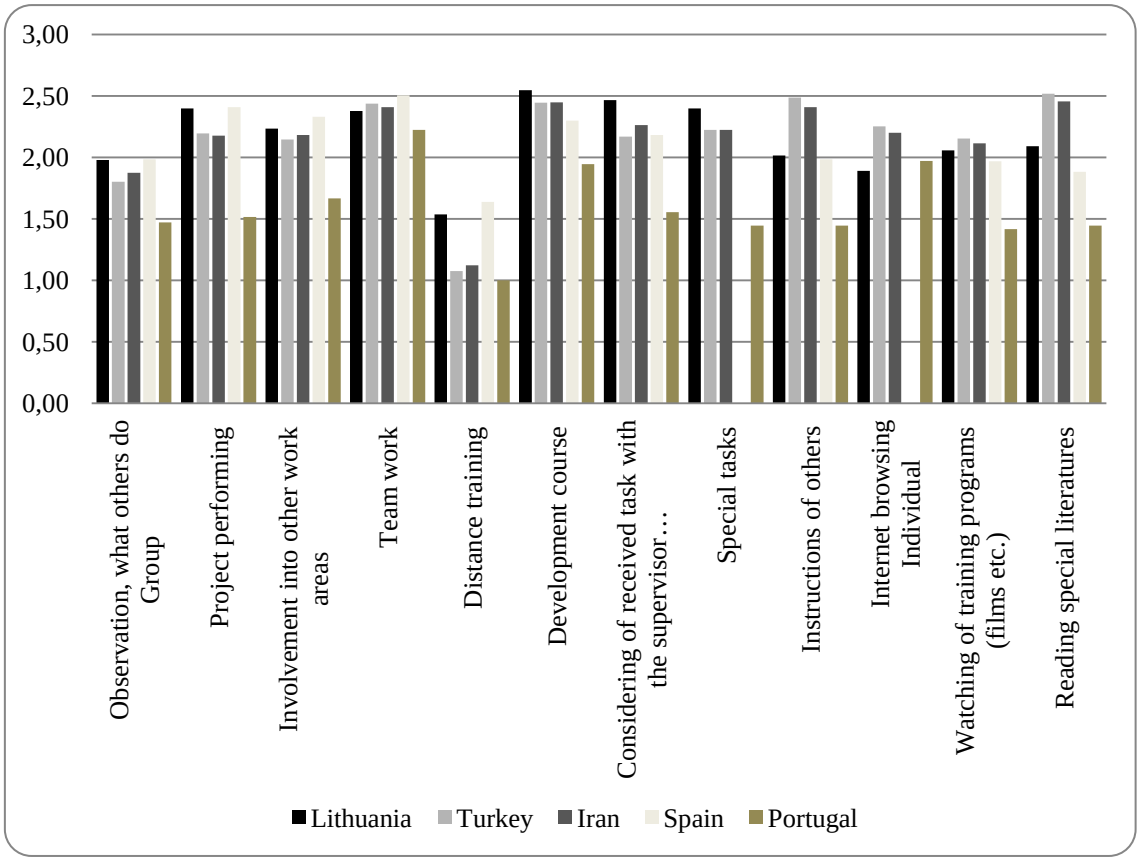


FIG. 2: **Evaluation of skills development methods by countries**

Figure 2 gives evaluation of every method by country and we can see very different results among them. Team work gets one of the highest evaluation and the lowest difference among countries' answers. Results showed that distance learning was selected as developing at least. However we could think that not all students used this method of learning before therefore cannot know its effort.

Comparative analysis of pair countries was made and no statistical difference among development methods between Turkey and Iran was found. Portuguese data for statistical comparison analysis was not used, as sample is too small. Statistical significant differences were found between other countries. None Spanish evaluation was better than Lithuanians.

Spanish are more developed by distance training and worse by watching training programs, instructions of others, development courses and Reading literature in comparison with Turks. Spanish are more developed by distance training and project performing and worse by watching training programs, instructions of others, development courses, reading literature and considering

tasks with supervisor measuring them with Iranians. Lithuanians evaluated their skills development by reading special literature, considering of received task with supervisor and development courses better than Spanish. However Lithuanians are more developed by distance training and considering of received task with supervisor Instructions of others and worse by reading of educational literature, Instruction of others and Internet browsing than Turks. Moreover Lithuanians are more developed by project performing, special tasks, distance training and considering tasks with supervisor and worse instruction of others, reading literature and Internet browsing comparing with Iran.

Conclusion

Domestic and cross-cultural human resource development has some basic differences, which we could classify as political economic and cultural environment. Culture is very important in working with people and developing them.

Results of our empirical research showed that Spanish and Portuguese prefer group learning the most. However these methods are at least developing for Turks and Iranians. They prefer one-to-one learning methods, as well as Lithuanians. It could be related with respondents' culture. Empirical study also showed that learning methods differ on respondents' gender a bit. Females are developed by special tasks, and distance training and less by instructions of others than males.

All received results could be useful for professors teaching students and for every person identifying their week sides and necessity to develop skills. However it should be noted that more detail research is needed to look at students' used development methods as study conditions are various in different classes and different countries and students face with different teachers and methods.

References:

[1] DIRANI, K. Exploring Socio-Cultural Factors that Influence HRD Practices in Lebanon. *Human Resource Development International*, 2006, vol. 9, no 1, pp. 85 – 98.
[2] HOFSTEDE, G. Cultures and Organizations. London: McGraw-Hill, 1991.
[3] LAURANT, A. The cultural diversity of western conceptions of management. *International Studies of Management and Organization*, Spring-Summer, 1983, pp. 75-96.

[4] WANG, X., MCLEAN, G. N. The Dilemma of Defining International Human Resource Development. *Human Resource Development Review*, 2007, vol. 6, pp. 96-108.
[5] NOE, R.A. *Employee Training and Development* (Third Edition). The McGraw Hill, 2005.
[6] MANKIN, D. *Human resource development*. Oxford university press, 2009.
[7] KUMPIKAITE, V., SAKALAS, A. The Impact of Globalization on Human Resource Development. *Changes in Society, Changes in Organizations, and the Changing Role of HRM: Managing International Human Resource in a Complex World.* Conference Proceedings. The 9th International Human Resource Management Conference, 2007.
[8] KUMPIKAITE, V., SAKALAS, A. Human resource development system evaluation in companies in the furniture trade in Lithuania. *EBS Review: Organizational Change and Development in Transitional Countries*, 2008, vol. 1 no. 24, pp. 63-82.
[9] KUMPIKAITE, V., CIARNIENE, R. New training technologies and their use in training and development activities: Survey evidence from Lithuania. *Journal of Business Economics and Management*, 2008, vol. 9 no. 2, 155-159.
[10] KUMPIKAITE, V., CIARNIENE, R. New training technologies developing human resource. *Economics and Management = Ekonomika ir vadyba*, 2008, vol. 13, pp. 368-373
[11] GIZIENE, V., SIMANAVICIENE, Z., PALEKIENE, O. Evaluation of Investment in Human Capital Economical Effectiveness. *Inzinerine Ekonomika-Engineering Economics.* 2012, Vol. 23, Issue: 2 pp. 106-116.
[12] KUMPIKAITE, V. Human resource training and development importance in post communist countries in cross-cultural context. *Transformations in Business & Economics*. 2009, vol. 8, no. 3, pp. 131-144.
[13] KUMPIKAITE, V., MIHI RAMIREZ, A., RITO RIBEIRO, H. N. Evaluation of Skills Development Methods: Intercultural Study of Students' Attitudes. *Ekonomika ir vadyba-Economics and Management*. 2012, vol. 17, no 1, pp. 381-389.

COOPERATION AND COOPETITION AS A RESPONSE TO CHALLENGES IN THE ICT SECTOR IN POLAND

Irena Łącka
West Pomeranian University of Technology in Szczecin
irena.lacka@zut.edu.pl

Key words:
cooperation – coopetition – conditions – ICT sector – strategic alliances

Abstract:
The article discusses the impact of market, technological and economic factors on the use of the strategy of cooperation and coopetition by enterprises of the ICT sector in Poland. The authoress presents therein the examples of strategic cooperation applied by Polish companies which act in the telecommunication, IT and media industries. The case study method allows becoming familiar with the logics for starting cooperation by partners from the same or different industries. This also explains the advantages gained, owing to strategic alliances.

Introduction

The modern economy puts in front of enterprises the challenges, which force them to look for new development strategies adequate to the conditions of the global economy based on knowledge, characterized, among others, by continuous changes in the environment, uncertainty of market position, intensified competition, saturation of traditional markets, effaced boundaries between sectors and the demand for continued innovation. These impacts can be particularly visible in the global teleinformative sector, and in consequence, in its counterpart in Poland. This sector handles the use of information and communication technologies (ICT) in all areas of the economy so as to supply the clients with new products and services, allowing for electronic registration, processing, transmission, reproducing or display of information [15, 21]. More and more frequently, the ICT sector, developing very intensely, starts to go beyond the boundaries of other sectors, the Internet and media convergence occurs, and the activity of enterprises belonging thereto combines not only the information, communication, entertainment, but also the media, finance or logistics [4, 33]. This is a result of changes in the global economy, which take place in the technological, economic, social and market environment. The evolution of the sector, observed not only on the global scale, but also in Poland, causes behavioral and strategic changes of companies on this market, which

lead to the use of mergers, take-overs and inter-organizational cooperation in form of alliances and networks of alliances, as ways of development [14, 105]. The strategic partnership takes the form of both classic cooperation and coopetition (cooperence), or else, the cooperation and competition joined together [2, 13; 8, 77-78]. Enterprises start the cooperation of this type with other firms, scholarly and research institutions, financial organizations and institutions which support innovation and technology transfer [9, 34-36].

Because of a limited framework of this article, it shall focus on the indication of the most important factors which determine the occurrence of strategic alliances (complementary, cross-sector, competitive ones) in the ICT sector, and on a short description of cases where such a strategy has been applied in Poland. The purpose of the article is to present a few examples of strategic cooperation being used in the ICT sector in Poland as a consequence of the impact of modern economy challenges.

1. Conditions for starting strategic cooperation in the ICT sector

The selection of the cooperation strategy is currently a proper and logical response to intense and violent changes in business, technology and globalization which impose on companies of this sector in Poland the participation in the competitive struggle (not only on the domestic market) and competition for the future. Building the grounds for the future success forces the enterprises to enter into unknown markets, to discover new market prospects, to find new solutions for unsatisfied demand of the clients and even to create new, previously not realized demand, and to satisfy it. As indicated by Doz and Hamel [3, 21-25], alliances (concluded with different partners, also with competitors), since the end of the 1990s have become more and more important for the strategies of enterprises in the well-developed countries in many sectors. This phenomenon becomes more popular also amongst firms from post-socialist states, belonging to the industries of new technologies. Changes which determine the cooperation and coopetition in Polish ICT sector may be considered in three dimensions: the market, the technology and the economy [4, 34-35].

2. Market competitive factors

In the market aspect, the market liberalization in the global and domestic dimension influences the cooperation between market participants. It creates opportunities for enterprises to enter new markets and ensures the access to new resources, but also brings about the threat of a larger competitive pressure. Another factor of market nature is the substitutivity of service

distribution channels - mobile telephony competes with the landline one, with the Internet telecommunication (for instance, Skype), TV receivers, as well as other means of communication. A similar phenomenon can be noticed in media. In this case, the printed press rivals with mobile television and with Internet portal information, the electronic versions of press publications generated on computers, iPad tablets or Kindle e-book readers. The competition, becoming stronger and stronger, enforces the search for new competitive prevalence on firms of the sector, and at the same time, for ways to reduce the market risk [13].

A change in the role and significance of information and communication services receivers also takes place. The users become more and more frequently the creators or co-creators of some products and services, as well as the suppliers of information used for the needs of websites or media news. At the same time, the whole activity of the ICT sector enterprise is subordinated to the needs of the client and their satisfying. The technology has ceased to be a superior element of a company's life and has become a tool to meet more and more complicated and complex demands of buyers.

a. Technological factors

Technological changes in the ICT sector are linked primarily with the development of the Internet and mobile technologies [4, 34]. They facilitated the transfer from exclusively voice services to networks and platforms which integrate all services related to the mobile telephony, many applications currently used included. However, this required the digital convergence which allows to combine products which implement functions that used to be separated before, with a multi-servicing facility. A crucial factor for changes has been also the use of the Internet network in mobile telephony (open standards making possible the communication of the receiving facilities, based on the IP protocol).

The mentioned changes enforce a significant change in the network architecture of telecommunication operators. They also contribute to the substitutive manners of satisfying the client's demand and the appearance of competitors. A similar phenomenon is noticed in another segment of the ICT sector – in the area of television (interactive, advanced, on demand, of high resolution, mobile television). The mentioned technological challenges require having at disposition many technological resources, skills and competences. A few global companies are capable of starting an independent competitive fight in this scope, although most frequently they enter into inter-organizational relations. Other subjects decide to conclude strategical alliances, to build coalition, to start cooperation with a competitor in one area, while simultaneously competing therewith in another [9, 87-97].

b. Economic factors

Amongst economic factors, which determine the selection of the strategy of cooperation and coopetition, a drop in the price of products and services is emphasized, as caused by an increase in competitiveness and substitutivity of the offer of the hitherto competitors in the developed countries. This occurs also for more and more numerous firms from Asian countries [4, 35]. This enforces striving at a reduction of costs and, at the same time, increases the trend to cooperate with various partners. This problem becomes particularly important in the period of economic crises. The reduced demand for goods and services offered by entities of the sector, the necessity to reduce the costs of business and, at the same time, the need to introduce the innovation foster the consolidation or the search of partners for strategic alliances [10]. The phenomenon of dramatic reduction in the share of products in the market replaced by services also contributes thereto (eg. strategic and operating consultations, technological consultations, integration of systems, services of maintaining a part of the infrastructure for consideration, outsourcing), which in 2010 covered in Poland as much as 84% of all entities of the sector. Amongst them, the largest per cent of firms (72%) handled information services, 15% provided telecommunication services and 14% ran wholesale [12, 19]. This influences the change in the structure of revenues from sales, costs of business and profits. This also enforces the necessity to enter into alliances between products' manufacturers and companies which offer services.

3. The strategy of cooperation and coopetition in Polish ICT sector – examples

From the end of the 20th century, enterprises which act in Polish ICT sector have searched for the new opportunities to develop, through starting strategical cooperation (alliances) with the entities from outside their direct environment, joining complementary resources and skills so as to introduce the innovation and extending their market and sector boundaries. Another decade characterized by intense market, technological and economic changes brought about the cooperation between the entities of the ICT sector with their direct and potential competitors (competitive alliances). Currently, amongst the strategies of external development of Polish companies one may find both the cooperation, coopetition and consolidation.

a. Interia.pl as an example of complementary alliance

A classic complementary alliance, joining the partners with various resources, skills and competence at their disposal was Interia.pl, founded in mid 1999. The company came into being as a result of ComArch S.A. (an IT company) initiating a joint venture with RMF FM group (a commercial radio station) to

create the first Polish Internet portal. Its initial name was INTERNET FM and in December 1999, it was changed to Interia.pl. The initiator of the strategic alliance took over 45% of shares therein, 50% fell to the radio station, and the remaining 5% was taken over by private persons. The organizational and legal structure of the company evolved in the following years. In 2001, it became a stock exchange company noted in the Polish Stock Exchange, and in 2008, after the majority shares package was taken over by Bauer Media Invest GmbH (ComArch S.A. sold its shares thereto), the documents of the company were withdrawn from the Warsaw Stock Exchange. As a result of the take-over, Interia.pl became a part of a large international media concern composed also of Wydawnictwo Bauer (Bauer Publishing House) and RMF FM Radio [5]. One of the initial founders of the portal - RMF FM Group - remained in the company and still participates in its functioning.

The joint agreement of two partners, originating from various areas of ICT sector, consisted in joining information and technical resources and skills of an IT company with the resources and skills to gather and transfer radio network information in order to create the structure of an Internet portal.

Initially, the prepared website offered to the clients a free of charge access to six thematic services (news, business and economy, motor cars, women, tourism and entertainment) and also an access to the catalogue of Polish Internet resources [1, 53]. At the same time, the users of Interia.pl portal were able to avail themselves of the system of free of charge e-mail accounts. Subsequent years of the portal functioning were linked to the extension of the range of its services. Cooperation in creating the Internet portal by ComArch S.A. and RMF FM group companies met with success both in strategical and financial fields. The complementary alliance brought about the creation of an innovative offer of products and services which ensured competitive prevalence.

In 2012, Interia.pl is a leader of the Polish media market of the new generation, with a very extensive media experience and the unique knowledge on the Internet technologies. Its Internet portal ensures to individual users a full range of information, multimedia, social and communication services of the highest quality. Such a wide spectrum of the offer gives the company a significant share in the publicity market in Poland. Small, medium-sized and large enterprises avail themselves of its services [6].

b. NetWorks! company as an example of competitive alliance

Another example of starting a strategic partnership in the Polish ICT sector is the alliance concluded on 21st July 2011, between two operators of mobile telephony, formerly competing with each other: T-Mobile and Orange. This

is an example of coopetition in the ICT sector. The partners founded a joint venture company NetWorks! whose shareholders - PTK Centertel and PTC (the operators of Orange and T-Mobile networks in Poland) have 50% shares each. The joint venture has a technical nature. Apart from this area, Orange and T-Mobile are still to continue competition in the provision of telecommunication services. NetWorks! company has been managing and developing the network infrastructure of both operators of the mobile telephony since September 2011. The partners have decided to co-utilize their access networks. This shall facilitate a larger range of networks for each of the companies (in the geographical and inside-the-buildings aspect) which is a basis to improve the comfort while using broadband mobile Internet with the use of telephones, smartphones, laptops and tablets. At the same time, the cooperation shall ensure a more effective use of the investment resources for the development of the network infrastructure, owing to the suspension of competition in this area. Individually, each of the partners should have and maintain about 6 thousand base stations, and yet jointly it is sufficient for them to have only 10 thousand of this type of facilities. This shall reduce not only individual expenses on investments, but shall also the operating costs [1, 56-57; 7].

The strategic partnership of competitors, operators of mobile networks in Poland, is a result of the application of the strategy of coopetition in the global dimension of Polish parent companies. Both networks are controlled by global concerns (PTK Centertel is controlled through the intermediary of Telekomunikacja Polska S.A. by France Telecom, and T-Mobile by Deutsche Telecom) which concluded alliances of a similar nature. The founded company handles a joint purchase of telephones, IT equipment and servicing platforms, and their subsequent servicing. The scope of its business covers all countries in which the partners to the agreement are present.

On the other hand, this is also a strategic answer to the strategic cooperation undertaken at the beginning of 2012 (by buy out of shares) by Cyfrowy Polsat company with Polkomtel company, an operator of Plus mobile network. As a result of this transaction, Polkomtel shall control nearly a half of the frequencies at disposition in Poland, used by telecommunication operators, and this means a change in the balance of power in the Polish market of mobile telephony.

c. Strategic alliance of Cyfrowy Polsat and Polkomtel - way to create new opportunities

The cooperation of these entities has the nature of complementary joining resources, skills and competences to achieve a strong competitive position in

consequence of joined forces, acquiring of new markets and supplementing gaps in skills. The alliance is to consist in the introduction of an offer of joint services and mutual sale of standard products of both the partners. Polkomtel shall offer to its 14 million clients the access to the offer of television services of the largest digital platform, and Cyfrowy Polsat (reaches 11 million people in 3,5 million households) is to suggest to its subscribers a special offer of mobile telephony. The new telecommunication media leader in Poland has also an opportunity to acquire new clients who shall be ready to purchase the offer of both the partners. Joining the forces of entities from various areas of ICT sector ensures advantages of synergy in the area of sales, and also an opportunity to share the expertise and experience. This shall facilitate the introduction of mobile television to the offers of both the companies (8 channels), received on smartphones tablets and laptops. However, this requires the purchase of a mobile decoder, broadcasting sound and picture through the local, wireless Wi-Fi network. Additionally, this decoder shall allow to receive three packages of landline digital television. Apart from the offer of the mobile television available free of charge, the subscribers of both the companies shall be able to use also the selection of 12 radio stations [1, 60-61; 11]. The offer for the media telecommunication joint venture constructed in this way makes up the only offer of this type in the Polish market. This means that the alliance ensured to both the partners a significant competitive and strategical prevalence in relation to the remaining participants in the telecommunication and television segment of the market.

Summary

The ICT sector in Poland is one of the most dynamically developing industries of our economy. It has significant developing opportunities to create new jobs and to stimulate innovativeness. It features a high degree of technological innovativeness, the creation of a high added value and competitiveness. It is subject, at the largest possible degree, to the impact of technological, market, economic, social and even political factors, characteristic for the global economy. This contributes to the participants taking up various activities, facilitating the success in the market and an increase in the development opportunities and in competitiveness. One of such manners is starting strategical cooperation with various partners - suppliers, receivers, companies from outside the sector or competitors. The strategy of cooperation or coopetition leads to the creation of strategical alliances, networks of alliances or a consolidation in the sector. It is applied by the Polish companies of the ICT sector, which is confirmed by the examples presented in the paper.

References:

[1] CISZEK, M. *Alianse strategiczne jako strategie rozwoju polskich przedsiębiorstw w "nowej" gospodarce./Aliances as Development Strategies for Polish Enterprises in the New Economy.* Master's thesis under the guidance of Dr Hab. Eng I. Łącka, West Pomeranian University of Technology in Szczecin: Szczecin 2012, p. 53-61

[2] CZAKON, W. Koopetycja - splot tworzenia i zawłaszczania wartości. *Przegląd Organizacji.*/Coopetition - a combination of creation and appropriation of values, *Przegląd Organizacji,* 2009, No 12, p. 11-14, ISSN - 0137-7221

[3] DOZ, Y.L., HAMEL, G. *Alianse strategiczne. Sztuka zdobywania korzyści poprzez współpracę./ Strategical Alliances. The Art of Acquiring Advantages through Cooperation.* HELION: Gliwice 2006, p. 21-25, ISBN 83-246-0156-2

[4] GOLONKA, M. Konwergencja, konsolidacja, koopetycja - jak zmienia się branża technologii informacyjnych i komunikacyjnych (ICT). *Przegląd Organizacji /*Convergence, Consolidation, Coopetition - How the Industry of Information and Communication Technologies Changes (ICT)*. Przegląd Organizacji*, 2012, No 3, p. 33-36, ISSN-0137-7221

[5] http://firma.interia.pl/historia (access 23.11.2012)

[6] http://firma.interia.pl/O_FIRMIE (access 23.11.2012)

[7] KACZMARCZYK, M. *We własnym gronie/In one's own circle* http://www.forbes.pl/artykuly/sekcje/top-500-2011/w-wlasnym-gronie,21716,1 (access 20.11.2012)

[8] ŁĄCKA, I. *Alianse strategiczne. Szansa na rozwój polskich przedsiębiorstw./Strategical Alliances. A Chance of Development for Polish Enterprises.* Szczecin Agricultural Academy: Szczecin 2001, p. 77-78, ISBN 83-915591-5-7

[9] ŁĄCKA, I. *Współpraca technologiczna polskich instytucji naukowych i badawczych z przedsiębiorstwami jako czynnik rozwoju innowacyjności polskiej gospodarki./Technological Cooperation Between Polish Scholarly and Research Institutions and Entetrprises as a Factor for the Development of Innovativenes of Polish Economy.* University Publishing House of the West Pomeranian University of Technology in Szczecin: Szczecin 2011, p. 34-36, 87-97, ISBN 978-83-7663-084-7

[10] PIOTROWSKI, M. Prezes PTC: Wkrótce kryzys mocno uderzy w telekomy./President of PTC: The Crisis Shall Shortly Strike the Telecoms, *Gazeta Wyborcza*, 2012 of 9th September 2012, http://m.wyborcza.biz/biznes/1,106501,12450890,Prezes_PTC_Wkrotce_kryzys_mocno_uderzy_w_telekomy.html (access 18.11.2012)

[11] *Polkomtel i Cyfrowy Polsat będą wzajemnie sprzedawać swoje usługi/Polkomtel and Cyfrowy Polsat shall mutually sell their services*. http://www.telepolis.pl/news.php?id=24481 (access 25.11.2012)
[12] *Społeczeństwo informacyjne w Polsce. Wyniki badań statystycznych z lat 2007-2010. IT Society in Poland. Statistical Research from 2007-2010.* Central Statistical Office: Warszawa 2012, p.19, ISSN 1898-7583
[13] *Springer zawiązuje alians strategiczny z portalem Bankier.pl/Springer enters into a Strategical Alliance with the Bankier.pl portal*, http://imperion.pl/pl/aktualnosci/783/springer_zawiazuje_alians_strategiczny_z_portalem_bankierpl/ (access 25.11.2012)
[14] SROKA, W. *Pomiar efektywności fuzji i przejęć oraz strategii współpracy międzyorganizcynej: aspekty teoretyczno-praktyczne in: W. SROKA, H. CHWISTECKA-DUDEK (red. nauk). Strategiczna transformacja polskich firm.Od restrukturyzacji dostrategii rozwoju zewnętrznego./The Efficiency Measurement of Mergers and Take-overs as well as the Intra-Organization Cooperation Strategy: Theoretical and Practical Aspects.* In: W. SROKA, H.CHWISTECKA-DUDEK (scientific editor) *Strategiczna transformacja polskich firm. Od restrukturyzacji do strategii rozwoju zewnętrznego./Strategical Transformation of Polish Companies. From Restructurising to Strategy of External Development.* Wyższa Szkoła Biznesu/High School of Business in Dąbrowa Górnicza: Dąbrowa Górnicza, 2012, p. 105-125, ISBN 978-83-62897-19-3
[15] *The Economic Impact of ICT Measurement, Evidence and Implications.* OECD: Paris 2004, p. 21, ISBN 92-64-02103-5

THE BUSINESS SOPHISTICATION AND THE INTERNATIONAL COMPETITIVENESS OF THE POLISH ECONOMY

Justyna Łapińska
Nicolaus Copernicus University in Toruń
justlap@umk.pl

Key words:
competitiveness – business sector – Poland

Abstract:
The objective of the present paper is to show the impact of the business sector on the evaluation of the international competitiveness of the Polish economy. The main source of data and information were the rankings on competitiveness published by the World Economic Forum. The areas of interest in the rankings include the conditions for conducting business activity. A definitely negative evaluation was given to the level of the development of entrepreneurship based on clusters and to the character of the competitive advantage of Polish companies operating on foreign markets.

Introduction

Competitiveness is a category that can be understood differently depending on whether the situation of whole of the economy is under scrutiny, of one industry or of a specific company only. The category of companies' competitiveness does not arouse controversies, however, while considering countries, various problems related to the definition occur. Such a situation stems from the differences in the scope of companies' and countries' features and objectives as well as from a different nature of their competing. In general, a company's main objective is to survive on the market and maximise profits in the long run; however, in the case of a single country, *i.e.*, of the whole economy, it is essential to raise its citizens' living standards.

The objective of the present paper is to show the impact of the business sector on the evaluation of the international competitiveness of the Polish economy. The main source of data and information were the rankings on competitiveness published by the World Economic Forum which include evaluations of countries together with the conditions for running business activity.

1. Companies' competitiveness and competitiveness of the economy – selected aspects

The subject literature emphasises that competitiveness of economies is closely related to competitiveness of businesses functioning in this economy [2, 30-44; 7, 21-40]. According to Porter, if an assumption is made that a country's primary purpose is to improve the society's standard of living, then, if it is to be realised, it must be through the efficiency of the use of national labour and capital resources and this is dependent on economic results achieved by companies [9, 198-199]. In his model of analysis of economic competitiveness Porter points out that on the microeconomic level the competitive advantage of a state is conditioned by a few groups of mutually dependent factors. These factors include the following: production factors (resources and infrastructure), nature of domestic demand, sectors, related and supporting industries, strategies, and companies' rivalry [8, 71-72]. During various debates on international competitiveness we can hear some opinions according to which these are not countries that are international competitors but companies that function within their territories [5, 28]. Most researchers dealing with these problems agree that the demanded effectiveness of economic subjects operating at a level lower than domestic is created in a specific environment and not in a vacuum. Mayer-Stamer clearly emphasises that competitiveness is created at the level of companies, however, this does not diminish the role of the factors occurring on the macro and mezzo levels of competitiveness [6, 3].

2. Competitiveness of the Polish economy in the light of selected international rankings.

As indicated by various institutions and organisations that monitor and evaluate national economies, Poland possesses a medium level of competitiveness. As follows from the report published by the World Economic Forum in 2012, Poland is ranked 41st in the world among 144 economies that were covered by the evaluation. However, in the ranking prepared by the International Management Development it occupies the 34th position in a group of 59 countries. In another evaluation worked out by the Heritage Foundation Poland is ranked 64th in a group of 179 countries (see Table 1).

TAB. 1: **Poland's position in the rankings of international competitiveness of economies in the years 2008-2012**

Year of publishing	The WEF ranking	Points (max.=7)	The IMD ranking	Points (max=100)	The HF ranking	Points (max=100)
2008	53	4.3	44	49.0	83	59.5
2009	46	4.3	44	53.9	82	60.3
2010	39	4.5	32	64.5	71	63.2
2011	41	4.5	34	66,9	68	64.1
2012	41	4.5	34	64.2	64	64.2

Source: compiled based on: *The Global Competitiveness Report*, for the years 2008-2012, the World Economic Forum, Geneva; *World Competitiveness Yearbook,* for the years 2008-2012, the International Management Development, Lausanne; *Index of Economic Freedom*, for the years 2008-2012, the Heritage Foundation and Dow Jones & Company, Washington.

3. Companies' functioning and the competitiveness of the Polish economy in the evaluation made by WEF

It must be noted, however, that the methodology applied by the bodies developing the competitiveness rankings is not free from criticism. Some reservations have been made about the work of the International Management Development. The charges concern, among other things, lack of definitions of basic terms and categories, lack of differentiation between the resultant competitiveness and the competitive advantage using composite rates being the sum of advantages and disadvantages [1, 260-261]. Therefore, the data and information used in the further part of the work originate from the WEF reports. In its evaluations the World Economic Forum uses the Global Competitiveness Index which includes both the micro and macro economic basis of the evaluation of the competitiveness of the economy. The method applied by WEF is based on the twelve pillars of competitiveness which were categorized into three groups. The three groups are treated as the complementary dimensions of competitiveness and they include the following: basic requirements, efficiency enhancers and innovation, and sophistication factors. The third pillar is linked to the concept of business competitiveness. According to the concept, an economy's productivity and social welfare are primarily dependent on a few mutually related areas [4, 45]. These areas include the following:

– an economy's microeconomic potential (in the country and in overseas subsidiaries) being largely a consequence the company's possibilities and capabilities of conducting sophisticated forms of its activity,

– the quality of the business environment in which these companies are functioning,
– the level of clusters' development, clusters provide specific benefits resulting from cooperation with related industries, suppliers or institutions.

As follows form the WEF report, there are few areas that contribute significantly to increasing the competitiveness of the Polish economy. One of them is the size of the market and according to that category Poland is ranked 19th in the world. Other important areas include education at the basic and higher levels as well as vocational education, and financial market development. The competitiveness of the Polish economy could have been evaluated much better if it had not been for the limitations occurring in some areas. These limitations concern in particular the infrastructure, institutional environment, macroeconomic stability, efficiency of the labour market and the level of the economy efficiency. The competitiveness area referred to as business sophistication was given a slightly weaker evaluation. As follows from the 2012 report, Poland's position described by means of that factor is lower (by nine positions) than its position determined by the Global Competitiveness Index (see Table 2). According to that factor, positive evaluations were given to the local supplier quantity and local supplier quality (23rd and 48th position respectively in the year 2012) as well as to the production sophistication factor (48th position). During the last five years there has been a certain improvement in those areas. The competitiveness of the Polish economy is decidedly impeded by the state of cluster development. This factor placed Poland on a remote 98th position. Also, a weak evaluation was given to the nature of competitive advantage of Polish companies (the 89th position in the world as designated by that factor). A lot of Polish companies are functioning on foreign markets due to the advantage gained in the level of manufacturing costs which frequently results from lower labour costs or the possession of specific natural resources. A relatively unfavourable position is occupied by Poland in the area of controlling foreign distribution channels (the 80th position in the world in the year 2012). During the last two years the situation in the both areas has deteriorated significantly.

TAB. 2: **Poland's international competitiveness in the area of 'business sophistication' in the years 2008-2012 by the World Economic Forum**

Factor		2008	2009	2010	2011	2012	Change of position in the years 2008–2012
11th pillar	**Business sophistication**	**4.2 (62)**	**4.3 (44)**	**4.2 (50)**	**4.1 (60)**	**4.1 (60)**	**2 ↑**
11.01	Local supplier quantity	5.0 (51)	5.3 (28)	5.4 (18)	5.5 (16)	5.3 (23)	28 ↑
11.02	Local supplier quality	4.7 (59)	5.1 (39)	5.0 (41)	4.9 (44)	4.8 (48)	11 ↑
11.03	State of cluster development	3.1 (92)	2.9 (104)	2.9 (108)	3.0 (106)	3.2 (98)	6 ↓
11.04	Nature of competitive advantage	3.6 (59)	3.6 (53)	3.5 (57)	3.4 (70)	3.2 (89)	30 ↓
11.05	Value chain breadth	4.7 (23)	4.6 (23)	4.0 (39)	3.8 (54)	3.8 (54)	31 ↓
11.06	Control of international distribution	4.2 (53)	4.4 (42)	4.1 (59)	3.9 (77)	3.9 (80)	27 ↓
11.07	Production process sophistication	3.8 (54)	4.1 (45)	4.1 (48)	4.0 (51)	4.1 (48)	6 ↑
11.08	Extent of marketing	4.8 (46)	5.0 (32)	4.5 (44)	4.2 (65)	4.3 (53)	7 ↓
11.09	Willingness to delegate authority	3.7 (90)	3.9 (62)	4.0 (40)	3.9 (52)	3.7 (70)	20 ↑

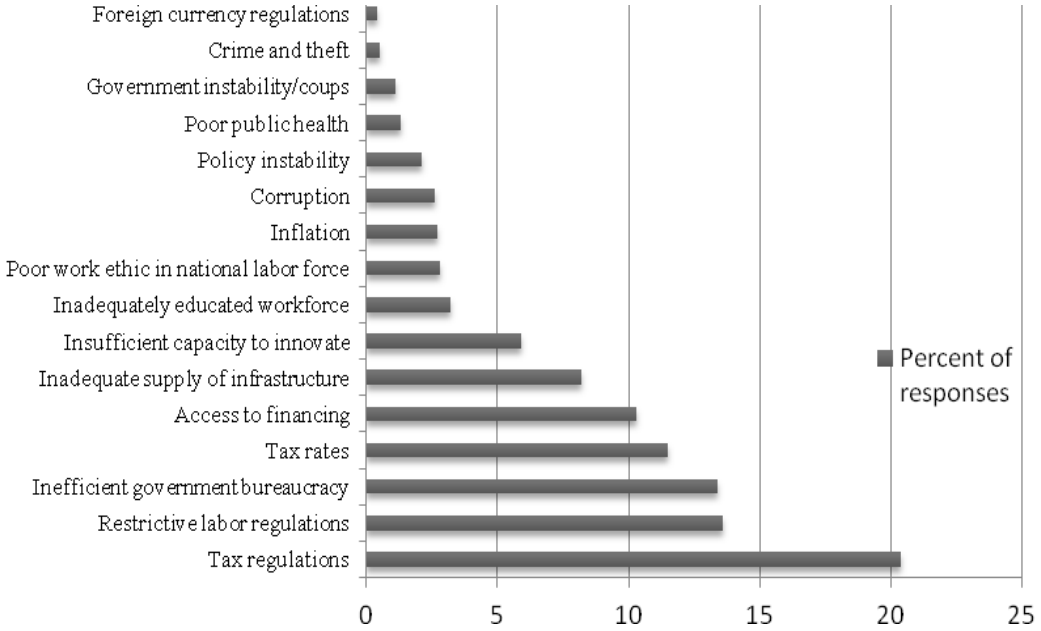
Remarks: Indicators of competitiveness take on values from 1 to 7; the higher the indicator, the higher level of competitiveness. The brackets represent Poland's position in the ranking determined by a specific factor

Source: Author's own compilation based on: *The Global Competitiveness Report*, for 2008-2012, the World Economic Forum, Geneva.

In the research done by the World Economic Forum on the functioning of companies managers were asked to evaluate the factors determining the competitiveness of their companies on a national scale as well as on an international one. Polish managers indicated a number of factors that impede their business activity. The major impediment indicated was 'tax

regulations' (20.4 % of all indications) and other impediments provided included the following: restrictive labour regulations, inefficient government bureaucracy, tax rates, access to financing, inadequate supply of infrastructure, insufficient capacity to innovate (see Figure 1).

FIG. 1: **The most problematic factors for doing business in Poland**



Source: *The Global Competitiveness Report 2012-2013*, the World Economic Forum, Geneva.

Summary

A high position gained in international rankings fosters the creation of a country's positive image and often translates into growth of its investment attractiveness; this is one of the reasons for which they are created. Rankings serve to deliver quick and synthetic information about the condition of a given economy in the form of a specific position occupied within a group of dozens of countries. It must be noted, however, that those reports, though with some drawbacks, allow the performance of profound analysis of causes which decide about a country's position in a ranking. The work analysed the impact of the business sector on the international competitiveness of the Polish economy. It follows from the analyses conducted that the area that characterises companies' activity does not constitute a competitive advantage of the Polish economy. A decidedly negative evaluation is given to the level of the development of entrepreneurship based on clusters and to the character of Polish companies' competitive edge on foreign markets.

References:

[1] BOSSAK, J. *Teoria i metodologia. Krytyczna ocena stosowanych metod analizy*, w: *Polska. Raport o konkurencyjności 2006. Rola innowacji w kształtowaniu przewag konkurencyjnych*, ed. M. A. Weresa, Szkoła Główna Handlowa, Warszawa 2006, ISBN 978-83-7378-233-4.

[2] BOSSAK, J., BIEŃKOWSKI, W. *Międzynarodowa zdolność konkurencyjna kraju i przedsiębiorstw. Wyzwania dla Polski na progu XXI wieku*, Szkoła Główna Handlowa w Warszawie, Warszawa 2004, ISBN 978-83-7378-080-7.

[3] *Index of Economic Freedom*, for 2008–2012, The Heritage Foundation and Dow Jones & Company, Washington.

[4] JAGIEŁŁO, E. M., *Strategiczne budowanie konkurencyjności gospodarki*, Wydawnictwo Poltext, Warszawa 2008, ISBN 978-83-7561-017-8.

[5] KRUGMAN, P. *Competitiveness: A Dangerous Obsession*, „Foreign Affairs" 1994, Vol. 73, No. 2, ISSN 0015-7120.

[6] MEYER-STAMER, J. *Konkurencyjność systemowa*, „Gospodarka Narodowa" 1996, nr 3, ISSN 0867-0005.

[7] MISALA, J. *Międzynarodowa zdolność konkurencyjna i międzynarodowa konkurencyjność gospodarki. Podstawy teoretyczne*, Wydawnictwo Politechniki Radomskiej, Radom 2007, ISBN 978-83-7351-198-9.

[8] PORTER, M. E. *The Competitive Advantage of Nations*, Free Press, New York, 1990, ISBN 0-0292-5361-6.

[9] PORTER, M. E. *Porter o konkurencji*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2001, ISBN 978-83-208-1287-9.

[10] *The Global Competitiveness Report*, for 2008-2012, World Economic Forum, Geneva;

[11] *World Competitiveness Yearbook* for 2008-2012, International Management Development, Lausanne;

EVALUATION OF THE EQUITY MULTIPLIER IN THE MANUFACTURING INDUSTRY

Lenka Lízalová, Petra Kozáková
College of Polytechnics Jihlava
lizalova@vspj.cz, letalov@vspj.cz

Key words:
debt – financial leverage – equity multiplier – ROE

Abstract:
The choice of an optimum structure of capital is the key task of a financial manager. The owner requests that his capital be invested in the best possible manner with regards to the taken risk. This can be carried out by the manager with the aid of the equity multiplier, which evaluates the appropriate rate of debt in relation to a higher profitability of invested capital. The potential of the usage of the equity multiplier in the manufacturing industry was analyzed using the indicators of 'financial leverage' and 'interest burden' on ten years of data from 232 companies. The influence of the financial leverage proved to have the greatest impact on the value of the equity multiplier in the industry.

Introduction

Should the company reach a larger profitability of assets than is the cost of the interest on borrowed capital, the use of foreign capital works as a lever with which the management of the company increases the profitability of equity. Authors [1-6] all agree though, that using debt capital increases the risk also of equity. The financial leverage can in cases of careless usage be reversed and this phenomenon is known in literature [4, 6] as the influence of the 'financial club'. It is the hard task of the financial manager to find such a structure of the used capital, which will enable the company to take advantage of the tax shield and the financial leverage without disproportionally increasing the risk undertaken by the owners and creditors.

The potential of the utilization of debts can be expressed by the equity multiplier. The multiplier, via the indicators of financial leverage and interest burden, demonstrates the contrasting influence of debt on profitability. An increase in debt may (under the above mentioned conditions) lever the profitability of equity but simultaneously the interest can decrease the attained profit [1].

According to [3.6] the equity multiplier can be expressed via the following formula:

$$\frac{EBT}{EBIT} x \frac{A}{VK} > 1$$

where:

	EBT	= earnings before taxes
	EBIT	= earnings before interest and taxes
	EBT / EBIT	= interest burden
	A	= assets
	VK	= private capital
	A / VK	= financial leverage

When the relative reduction in equity is greater than the relative reduction in income, this leads to an increase in the ROE. As is generally known, this occurs when EBIT/Assets (the basic earning power) exceeds the interest rate on debt. Should the value of the multiplier be larger than one, an increase in the ratio of liabilities in the financial structure of the company will have a positive influence on the profitability of private capital. [eg. 1]

The aim of this contribution is the evaluation of the individual influences on the value of the equity multiplier. For the reconnaissance of the influence of both factors of the multiplier, the values of the indicators were analyzed on a data file of 232 statistical units from the sector of the manufacturing industry.

1. Material and Methodology

The analysis was carried out on a defined data sample obtained from the database of company data Albertina from the company CreditInfo. Data was used from the financial statements of the companies from the years 2001 to 2010. The basic file included 232 companies from the manufacturing industry.

All the companies, which during the monitored period ran at a loss or provided incomplete data for one of the years, were excluded from the analysis. Subsequently, the indicators of interest burden ratio (EBT/EBIT), financial leverage ratio (A/VK) and the equity multiplier were determined for the remaining 74 companies for all the years 2000 – 2010. The companies were then split according to the average value of the equity multiplier into four groups A, B, C and D, where group A includes 25 % of the companies with the largest multiplier and on the contrary group D represents 25 % of the companies with the lowest value of the multiplier.

2. Results and Discussion

As the value of the multiplier is determined by the value of the interest burden and the financial leverage, the rate in which these indicators influence the resulting value of the multiplier in the individual groups A, B, C and D was verified. Also in each company the borders for the average values of the interest burden and the financial leverage were defined, which again split these indicators into 4 groups. Related to the indicators, the groups of particular interest were those, where the indicators exceeded the value of the top quartile border and on the contrary, where the value did not even reach the bottom quartile border. This means that the aim was to verify whether the companies, where a larger rate of debts increases the profitability of the equity capital the most (Group A, where the multiplier exceeds the value 2.18), are influenced primarily by the financial leverage or by the interest burden. Therefore to what extent do the companies in the given group show the value of the interest burden to be larger than 0.95 (known as the Top EBT/EBIT) and on the contrary, to what degree are these companies characterized by a value of the financial leverage larger than 3.36 (known as the Top A/VK). Similarly the situation in group D can be tracked, as it is characterised by the value of the multiplier being lower than 1.42. Via the method of analysis it can be verified, whether this lower value is a result of the excessively low value of the interest burden or rather of the financial leverage. This determines the percentage of companies in group D that concurrently belong to the group named Low EBT/EBIT, which is characterised by a value of the interest burden lower than 0.81, and also determines the percentage of companies in group D that concurrently belong to the group named Low A/VK, which is characterised by a value of the financial leverage of less than 1.82. Further statistical characteristics related to the evaluated group can be found in the following table.

TAB. 1: **Statistical Characteristics of the Monitored Indicators**

	EBT/EBIT	A/VK	Multiplier
No. of companies	74	74	74
Maximum	1.00	62.11	4.40
Upper quartile	0.95	3.36	2.18
Median	0.91	2.23	1.71
Lower quartile	0.81	1.82	1.42
Minimum	0.49	1.27	0.80
Average	0.87	3.37	1.88

Source: own evaluation

The multiplier reached a value lower than 1 only in two companies working in the manufacturing industry. This implies that should the share of debts be increased in these companies, it would lead to a negative impact on the profitability of the equity. At the same time both of these companies belong to the group with the lowest interest burden (this means the company's profit is to a large extent influenced by the cost of interest, hence the companies draw paid debts at a larger rate, which then decreases the value of the equity multiplier). Similarly both of the above mentioned companies belong to the group with the largest values of financial leverage (this implies that the company largely finances its activities through debts). Due to the greater share of debts, particularly payable ones, the positive influence of the financial leverage is transformed into the negative influence of the 'financial club', which punishes companies having indebted themselves inappropriately.

The results of the analysis carried out within all the groups, defined by the values of the interest burden, financial leverage and the multiplier indicators, are clearly visible in the following table/graph. Every stripe in the graph or row in the table characterises the individual groups A – D, which are defined by the values of the multiplier.

TAB. 2: **No. of companies according to the EBT/EBIT and A/VK value in the individual groups acc. to the multiplier**

Group	Top EBT /EBIT	Top A/VK	Top EBT/EBIT & Top A/VK	None	Low EBT /EBIT	Low A/VK	Low EBT/EBIT & Low A/VK	None
A	6	13	2	1	6	0	0	12
B	5	5	0	9	6	1	0	12
C	5	1	0	14	2	6	0	12
D	3	0	0	14	5	12	2	2

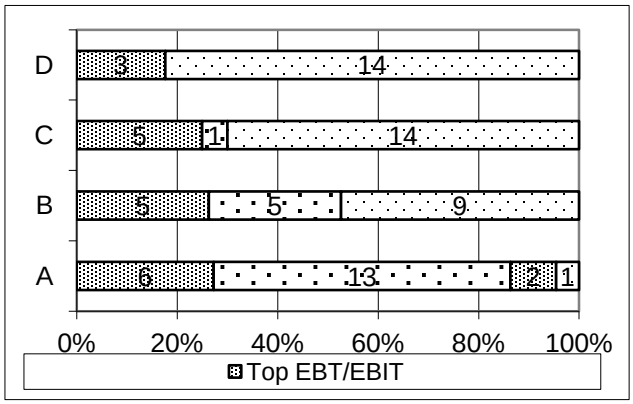
Source: own evaluation

It is evident that group A is predominantly represented by the companies that concurrently reach the highest values of financial leverage, therefore belong to the Top A/VK. On the other hand, approximately half of the number of companies belong to the Top EBT/EBIT, i.e. are characterised by high values of interest burden. Only two companies belong simultaneously to the group with a high value of interest burden and also financial leverage. Only one company from the group with the highest influence of the equity multiplier did not reach the highest values of financial leverage and interest burden. Approximately the same amount of companies is represented in

company groups B and D, which reach the highest values of interest burden. Only in group D has their number decreased also here. On the contrary, we see that in these groups B – D the companies barely reach the values of Top A/VK, thus the value of the financial leverage has decreased. There is an evident increase in the number of companies that do not reach the "top" values in neither the interest burden nor in the financial leverage.

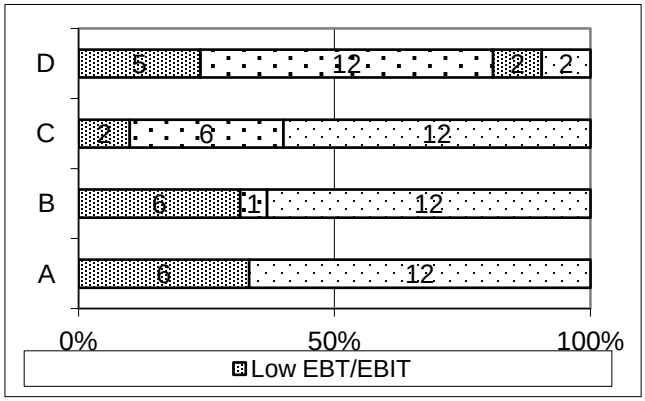
It can be said that throughout the groups A – D companies can be found that though reaching the lowest multiplier values, can reach the highest values of interest burden in the defined group. The lower values of the multiplier are therefore caused by a larger decrease in the values of the financial leverage. This results in thriving companies increasing to a larger extent their share of debts, however this coming from unpaid sources. At the same time this situation shows the risk of excessive use of debts, which can gradually have a negative effect on the equity profitability.

GRAPH 1: **Influence of the highest values of the indicators interest burden and financial leverage in the individual groups A – D**



Source: Own evaluation

GRAPH 2: **Influence of the lowest values of the indicators interest burden and financial leveragein the indiviual groups A – D**



Source: Own evaluation

On the other hand, should we shift our focus of interest on the groups with low values of interest burden or financial leverage in the individual groups A – D, we see that the rate of the companies with the lowest values of interest burden is again very stable. This time the exception is group C, where the rate of companies with a low value of interest burden has decreased significantly. The opposite trend to the previous example of "Top" indicators is visible, where the companies with the lowest multiplier value are simultaneously members of the group with the lowest financial leverage. Noticeable is also the fact that the so called "best" group A does not include a company that would also reach the value of the financial leverage labelled "Low". The stated 6 companies clearly use predominantly debts with interest and this reduces the effect of the financial leverage. Evidently the companies no longer have other debts, as the value of the financial leverage is sufficient enough to even allow the companies to reach some of the highest values of the resulting equity multiplier.

Conclusion

In conclusion we can state that the resulting value of the multiplier is far more influenced by the results of the financial leverage, then that of the interest burden. The companies with the highest values of the multiplier were also the companies with the highest financial leverage. On the contrary, the companies with the lowest values of the multiplier belonged primarily also to the companies with the lowest financial leverage.

It is also very important to keep in mind that the complete analysis is carried out on companies, which during the entire monitored period reached in average values of the multiplier larger than one and in which we therefore expect a positive effect of an increase in debts on the profitability of equity. An analysis of an alternative type of industry could lead to a difference in the development of the share of the interest burden and financial leverage on the overall equity multiplier, this being no less interesting.

References:

[1] ANGELL, R. J., BREWER, B. L. Improving the Coverage of the DuPont Approach of Financial Analysis in Finance Courses Through the Use of the Net Leverage Multiplier. *Journal of economics and finance education*, 2003. Vol. 2/2

[2] BREALEY, R. A., MYERS, S. C. *Principles of Corporate Finance*. 7th edition, New York: McGraw-Hill Companies, 2003. p. 323. ISBN 0-07-115144-3 1

[3] DEO, P., MUKHERJEE, T. K. Using ratio analysis to evaluate financial health of CLECs: a pedagogical note. *Review of Business Research*. International Academy of Business and Economics, 2007. Vol. 7. No. 2. ISSN 1546-2609
[4] KNÁPKOVÁ, A., PAVELKOVÁ, D. *Finanční analýza*. Praha: GradaPublishing, 2010. ISBN 978-80-247-3349-4
[5] NOVOTNÝ, J. *Nauka o podniku. Výstavba podniku*. Praha: Aleš Čeněk, 2007
[6] PAVELKOVÁ, D., KNÁPKOVÁ, A. *Podnikové finance. Studijní pomůcka pro distanční studium*. Zlín: Univerzita Tomáše Bati ve Zlíně, 2008

MANAGEMENT OF QUALITY CONTROL IN THE ECOLOGICAL AGRICULTURE IN POLAND

Barbara Krochmal - Marczak, Magdalena Dykiel, Bernadetta Bienia,
State Higher Vocational School im. Stanisława Pigonia in Krosno,
bkmarczak@gmail.com

Key words:
ecological agriculture – food, control systems – inspection – certification

Abstract:
Production in the ecological agriculture is subject to strictly control, which aims to guarantee a high quality of products. Commercial Quality Inspection of Food and Agricultural Goods, which is authorized by the Minister of Agriculture and Rural Development, check a reliability of producers and products from ecological agriculture and ensures a supervision of a proper running of certification organs. The control system is a basic guarantee for a customer that the food was produced in accordance with binding principles concerning the ecological agriculture and its free from contaminants (residues of plant protection and hormones), and during production, fertilizers and genetically modified organisms (GMO) were not used. Controls in the ecological farm take place once a year and they are carried out on the all stages of production i.e. from farms through processing to selling.

Introduction

In recent years, an interest of the ecological agriculture increases, and also the number of farms, which are run in the ecological system both in Poland and in the world, increases [9]. This results from growing consumers' knowledge about the derogating condition of our environment [10, 4]. Production in the ecological agriculture is strictly controlled. The target of this control is to guarantee the high quality of products. The control system is a basic guarantee for a customer that the food was produced in accordance with binding principles concerning the ecological agriculture and its free from contaminants (residues of plant protection and hormones), and during production, fertilizers and genetically modified organisms (GMO) were not used. Controls in the ecological farm take place once a year and they are carried out on the all stages of production i.e. from farms through processing to selling [7]. The control system of ecological farms also builds the trust of customers, giving guarantee that the product, which is purchased by them, is produced in accordance with criterions of the ecological

agriculture. Hence, the goal of this study is to present the functioning of control systems in the ecological agriculture in Poland.

1. General rules relating to the functioning of control and certification system in the ecological agriculture

The control in an ecological food production concerns a method of production. The full-range control in farms and food processing plants takes place at least once a year and it is conducted by authorized certification organs [6]. In addition, accessory controls are carried out too. The control is realized not only in farm's objects: fields, meadows, pastures, stock buildings, appliances, stores, storerooms, etc., but also a documentation of production: accounting books, purchase proofs of means for production and raw materials, farm book (or records), labels (and advertising materials) and finally, the balance of harvests (and purchased raw materials) and the ecological products' sale. Based on a protocol from the control, the certification organ estimates whether the farm (or food processing plant) meets criterions, and then it issues a certification of conformity, which authorizes to the turnover of ecological agriculture's products. The control system is a basic guarantee for a customer that the food was produced in accordance with binding principles concerning the ecological agriculture and its free from contaminants (residues of plant protection and hormones), and during production, fertilizers and genetically modified organisms [5,10]. The reliability of producers and products from the ecological agriculture is assured by the control and certification system in Poland, which consists of:

- the Minister of Agriculture and Rural Development, who empowers applying entities as certification organs to carry out a control and issue certifications (using a decision)
- the Commercial Quality Inspection of Food and Agricultural Goods, which supervises the correct operation of certification organs, the ecological production and collects and stores data about ecological producers.
- Organs, which certificate the ecological agriculture

2. Inspection principles

In order to authenticate different ecological farms towards people, who want to buy products from these farmsteads, a slow process of controls and inspections has begun, initially with initiative of private producers' organization. Thanks to the IFOAM – International Federation of Organic Agriculture Movements, the control system was unified in the international scale in order to explain rules of functioning. In the regulation of the EEC

(European Economic Community) – 2092/91, an official status was given to the ecological agriculture. This regulation was granted to mark food products and it was a guarantee of products from the ecological farm [4]. The control takes place annually, at least once a year. Usually, the inspection is carried out in the vegetation season, at the turn of May and June. At that time, it is the easiest to recognize whether a farmer does not use chemical fertilizers (for example, evaluates appearance of plants). In order to enable a controller to prepare a competent and detailed report, he or she must be suitably prepared. One day before the inspection, the controller has to prepare a plan of the inspection to know what and how he or she needs to inspect. The plan is created by the review of documentation from previous years. The inspector must become familiar with sizes of fields and the whole farm, because the control should be carried out without any disturbances. Before the inspection, the farmer gets the information about a visit, so that he could participate in it. The notification is sent in order to make sure that the farmer will be present during this inspection. This rule does not apply to additional controls, which are determined randomly or purposely, for example in order to check farms, which pointed out some problems. The farmer cannot only use chemical agents, but also he cannot store them at home. The inspector has the right to check in the whole farm, in basements or attics, whether the farmer has these agents [7]. The inspection is conducted in the entire farm. Inspector's responsibilities include the evaluation of a state and a structure of crops, lustration of fields, becoming familiar with the fertilizer economy and controlling farmer's information about methods of plant protection. Animals are also asses: their living conditions, method of spacing in stock buildings, feeding method, treatment, runs, pastures, appearance and condition of animals. The controller checks also storage conditions, storing of feed, grains and other agricultural products. The inspector always controls spraying machines whether natural manures are used. Packages from used agents are checked too (for example, agents for problems with potato beetles). In case of big doubts about using manures, the inspector takes samples to check them in a laboratory researches. Samples are taken only, when the controller is sure that other agents have been used that those, which are allowed in the ecological agriculture. Soil samples are taken only by the supervisor in the presence of the farmer. The soil is examined only in order to verify the reaction and the humus content and also the presence of heavy metals. It is difficult to become an inspector. Each potential candidate on the inspector has to pass a series of tests. Many years of experience in the ecological agriculture and the certificate of an agronomist are a duty. Beginner inspectors serve professional experiences in more experienced inspectors (controls are

carried out in a group of two persons, where a novice gains knowledge and practice under the skillful eye of the experienced inspector).Inspection of Control was brought into existence by producers. It was done in order to check the credibility and the compliance with the law and norms prevailing in the country and abroad of ecological farms. [4].

3. Certification

In order to confirm the quality and the credibility of ecological farms, the certificate is issued every year (it is valid only 12 months). The certificate is a document, which states whether methods of production are compatible with ecological agriculture's criterions [7]. The certificate is issued on specific products and on the whole farm by the certification organ. To issue the certificate, the inspector must state facts during the control and prepare the report, which is compatible with the farm's state. This report must be signed by the controlled farmer. Then, the report is sent to the certification organ, which after the previous check and careful analysis of the documentation takes an adequate decision determining, whether the farm will get this certification [1]. The ecological farm needs the certificate in order to increase its credibility and efficiency, because this document helps to obtain crowds of customers and their trust. Thanks to controls, which are needed to issue the certificate, the farmer has a chance to get many advises. These tips are necessary to the correct functioning of the farm. The certificate given to the ecological agriculture increases the prestige and the level of farm, it allows to extend and transform this farm into better and more effective place, which helps to create a source of high revenues and profits, and at the same time, produce a healthy food, which gains lots of new adherents and also buyers willing to buy products from the farmer dealing with the ecological production [3].

Summary

In conclusion, we need to state that the increasing interest of products from ecological farms, and the higher prices of these goods, caused that in the "bio" market was full of dishonest producers, who wanted to earn easy money. They were destroying the opinion of true producers. Legal regulations were introduced to protect them and the ecological food market. Therefore, every farmer, who decided to run his or her production using ecological methods and sell products as produced in accordance with principles of the ecological agriculture, must have the obligatory control realized by the empowered institutions. In Poland, these controls of farms and food processing plants will be carried out by certification organs accredited by the Minister of Agriculture and Rural Development.

The Commercial Quality Inspection of Food and Agricultural Goods exercise a direct supervision of these units. The full range of control in farms and food processing plants takes place at least once a year. It is realized by authorized certification organs. On the basis of the protocol, the certification unit estimates, whether the farm or plant meets relevant criterions, and then it issues the certificate of conformity, which entitles to the turnover of ecological agriculture's products. Such a certificate is granted on a one year. After this period, the farm is subject to the re-inspection. The certificate is recognized in all European Union [2]. According to this author, the system guarantees the credibility of products, which come from ecological farms and it assures their accurate labeling. The label of such a product includes: name of product, producer and processor or seller and name or code of certification organ. Since 1 January 2009, principles of the ecological agriculture in EU are regulated in the new regulation of the Community No. 834/2007/WE – 28 June 2007 about the ecological production and the labeling of ecological products. This document cancelled the regulation No. 2092/91/EWG [8].

References:

[1] BABALSKI, M. 2004. Warunki prowadzenia gospodarstwa ekologicznego z perspektyw producenta. Mat. Konf. Nauk. nt.: *Rolnictwo ekologiczne – nowe warunki działania wynikające z członkowstwa w UE.* Warszawa, 28.06., s. 37 – 41.

[2] BARTOSIEWICZ, J. 2003. *Rolnictwo ekologiczne dewizą XXI Wieku*. Aura nr 4, s. 7.

[3] REMBIAŁOWSKA, E. 2006. Analiza cech jakościowych żywności wytwarzanej przez rolnictwo ekologiczne [w:] *Z badań nad rolnictwem społecznie zrównoważonym*. Red. Zegar J.S. Wyd. IERiGŻ, Warszawa, s. 56.

[4] SOŁTYSIAK, U. 1995. *Rolnictwo ekologiczne od producenta do konsumenta*. Wyd. Ekoland, Warszawa

[5] SZYMONA, J. 2004. Rola jednostek certyfikujących w systemie kontroli w rolnictwie ekologicznym. Mat. Konf. Nauk. nt.: *Rolnictwo ekologiczne – nowe warunki działania wynikające z członkowstwa w UE.* Warszawa, 28.06., s., s. 16-18.

[6] SZYMONA, J., SAWICKI, B. 2000. *Perspektywy rozwoju rolnictwa ekologicznego w środkowo-wschodniej Polsce*. Pam. Puł., 120, s. 447 – 452.

[7] TYBURSKI, J., ŻAKOWSKA-BIEMANS, S. 2007. *Wprowadzenie do rolnictwa ekologicznego* Wyd. SGGW, Warszawa, s. 255- 257

[8] Ustawa o rolnictwie ekologicznym z dnia 25 czerwca 2009 r. (Dz. U. nr 116 z 2009 r., póz 975)

[9] WAWIEMIA, W. 2003. *Stan obecny i perspektywy rolnictwa ekologicznego na świeci*e. Wieś Jutra, nr 6, s. 10-11.
[10] ŻAKOWSKA–BIEMANS, S. 2004. Oczekiwania polskich konsumentów wobec żywności ekologicznej. Mat. Konf. Nauk. nt.: *Rolnictwo ekologiczne – nowe warunki działania wynikające z członkowstwa w UE.* Warszawa, 28.06., s. 52 – 59.

MACROECONOMIC DETERMINANTS OF NON – PERFORMING LOANS: AN APPLICATION TO THE CZECH REPUBLIC

Aleš Melecký, Monika Šulganová
VŠB – Technical University of Ostrava
ales.melecky@vsb.cz, monika.sulganova@vsb.cz

Key words:
non-performing loans – macroeconomic determinants – macroprudential policy – vector autoregressive model – Czech Republic

Abstract:
The last financial crisis, as the former crises, highlighted the need of wider regulation and supervision framework of financial system. Correct risk management in financial sector (including credit risk management) as a part of regulation and supervision framework helps to promote economic growth. The goal of this paper is to identify macroeconomic risk factors affecting the development of the non-performing loans (NPLs) in the Czech Republic. The causality of mutual relations of NPLs and their determinants is described in a theoretical way. Subsequently the most important macroeconomic factors influencing the NPLs dynamics are identified using the vector autoregressive model. The empirical results confirm a strong dependence of NPLs on the economic cycle and on the factors determining the external economic relations of the Czech Republic which is a small open economy.

Introduction

The last financial crisis, as the former crises, highlighted the need of wider regulation and supervision framework of financial system. Particularly, macroprudential concept, which supplements microprudential supervision, should be better elaborated.[1]

Financial stability is defined as a situation when financial sector fulfills its functions without serious disturbances and adverse effects on real economy, and at the same time it exhibits a high degree of resilience to shocks. Therefore policies ensuring the financial stability have a macroprudential orientation – i. e. they are aimed against creation of vulnerabilities in financial system, which accompanied with external shocks, might lead to

[1] The microprudential regulation and supervision is aimed to protect debtors or individual institutions in the financial system, i. e. to limit the idiosyncratic risks. The rules of microprudential concept might support the homogeneity in bank behavior, which can lead to the arising and accumulation of the systemic risk.

a financial instability in a form of a crisis. Primarily, the macroprudential policy (MPP) should counteract arising and spreading of systemic risk in order to limit an accumulation of financial imbalances in the future. Secondary, in the case of failure of aforementioned preventive function of MPP, this policy should mitigate impacts of risk materialization on the real economy [5, 97].

The financial system has specific functions such as allocation of resources, accumulation of savings, facilitation and simplification of trading, hedging or risk diversification. Through its deepening and fulfilling its functions, financial system maintains and manages arising risks and helps to promote an economic growth [7, 691]. A portfolio of particular institution might be exposed to the credit, market and liquidity risk. These risks affect an institution (or whole system) directly through the change in the value of assets prices or indirectly through the adverse impact on the financial position of debtors [10, 13]. Extent of exposures to risk in financial sector depends on the attributes such as portfolio structure, systemic importance or interdependence of its individual parts.

If the systemic risks, especially credit risk, in financial system are not correctly managed the financial crisis may occur. Credit risk is a risk that a counter–party (obligor) will default on its contractual obligations [2, 22]. This means that an economic agent is not capable to repay the principal or interests on the principal on time. On the systemic level the credit risk can be measured by non – performing loans which are the asset quality indicator. According to IMF Financial Soundness Indicators the loan is classified as non – performing if (i) payments of principal and interest are past due by three months (90 days) or more; (ii) interest payments equal to three months (90 days) interest or more have been capitalized (re-invested into the principal amount), refinanced or rolled over (i.e. payment has been delayed by arrangement) [1, 47]. The non – performing loans identify a credit risk ex post in the phase of the risk materialization so it is a backward looking indicator.

Systemic bank crisis is defined as a situation when high number of defaults in corporate and financial sector occur (economic agents have problems to repay their contracts on time). As a result, the non–performing loans (NPLs) increase rapidly and the banking capital is exacerbated. The systemic bank crisis can be accompanied with a decline in assets prices, changes in interest rates and slowdown or difficulties in capital flows [6, 5]. Thus credit risk intermediation, retention and management is a core function of the financial system and its individual institutions.

Providing of credit supply and other financial services has a procyclical character which deepens the fluctuation of economic activity. Specifically, in the good times the credit and financial services are easily accessible, on the contrary, in the times of economic downturn the financial restrictions occur. The basic indicator describing the financial cycle development is leverage. It captures a position of real economy in financial cycle through the characteristics such as credit dynamics, accessibility of external financing, interest rates margins or indebtedness of economic agents [5, 99].

For analyzing the non–performing loans the primary role play their determinants. The stylized theory differs between the macroeconomic and banking determinants. Macroeconomic risk factors which influence an amount of NPLs resulted from the macroeconomic imbalances. Thus these determinants are systemic and affect every institution in the financial sector. Banking determinants can be specific for particular institution (i. e. they capture an idiosyncratic risk) or they can be used to analyze the state of a whole financial system.[2]

Empirical findings confirmed the negative relation between the non–performing loans and economic growth [e. g. 8, 318]. In a phase of an economic boom economic agents demand more products and services due to their better financial position what increases credit supply. In contrast, in a phase of economic bust, agents start to have difficulties to repay their debts on time so amount of non – performing loans rises. Generally, as longer is the boom phase of credit cycle, the higher amount of credit is provided to lower–quality debtors (less creditworthy clients).

The increase of interest rates (in the case of loans with floating rate) leads to the higher cost in servicing debt (the interest rates payments go up). Due to the higher debt burden of economic agents the amount of non–performing loans rises. This positive correlation between NPLs and interests rates was confirmed by empirical literature [e. g. 8, 318].

Impact of rising unemployment rate on non–performing loans is also positive. Increase in unemployment limits the households cash flows and exacerbates their financial position, thus their debt burden rises. In the case of companies, the higher unemployment might be a result of a weak effective demand what leads to a declining revenues and more fragile debt condition [e. g. 9, 6].

The impact of inflation on the volume of non–performing loans is not clear. Empirical results are not uniformed due to different economic conditions in

[2] This paper is focused on the macroeconomic determinants of the non – performing loans in the Czech Republic, thus the banking factors are not included in the analysis.

individual countries or different research methodologies. Inflation can improve borrowers' ability to meet obligations by eroding the real value of repayment. Also, it is positively correlated with economic growth, implying that higher inflation is associated with lower default rates and acceleration in credit expansion. This negative relationship between inflation and volume of NPLs was confirmed in the economy of Hong Kong [9, 6]. On the contrary, when examining the panel data, which include large sample of world countries, the directly proportional relationship between inflation and the volume of NPLs was estimated [e. g. 8, 318]. Impact of inflation depends on whether it was anticipated or not, whether it implicates the general economic instability and also whether it reflects a flexibility of lending rates [8, 312].

The exchange rate affects the value of loans denominated in foreign currencies (unless they are secured). Depreciation of domestic currency (i. e. rise in the nominal exchange rate) increases the debt burden of economic agents which can affect the growth of credit losses. Depreciation of the exchange rate is also reflected in the improvement in the terms of trade and changes in competitiveness, which are important factors, especially for export-oriented industries. Firms with better financial situation may thus increase repayment capacity what would indicate a decrease in volume of NPLs [3, 25]. Therefore the relationship between the real exchange rate and NPLs is not clear, and the resulting impact of depreciation of domestic currency depends on whether the positive effect of the improvement of terms of trade outweighs a negative impact on asset quality due to unsecured positions of debtors. The favorable effect of the decline of volume of NPLs is confirmed in the case of increasing exports [e. g. 4, 317].

1. Data

We use statistical data on non–performing loans ratio, measured as a share of non–performing loans to the nominal volume of provided loans. Variables describing the development of macroeconomic environment are: volume of industrial production approximating business cycle, inflation, nominal exchange rate, real interest rate, export, terms of trade and the volume of construction works. Many macroeconomic variables can be quite volatile in the emerging economies, thus it might be beneficial to use year-on-year changes of time series [3, 16]. Detail information about the data used and their sources are presented in Table 1.

TAB. 1: **Elementary characteristic of statistical data**

Variable	Characteristic	Source
NPLs ratio	Share of NPLs to total volume of nominal loans	ARAD, CNB
Industrial production	Volume of industrial production in mil. CZK	CSO
Real interest rate	1M PRIBOR adjusted from inflation	ARAD, CNB
Nominal exchange rate	Nominal exchange rate of CZK to EUR	ARAD, CNB
Inflation	Year-on-year change of HICP	EUROSTAT
Export	Volume of exports in mil. CZK	ARAD, CNB
Terms of trade	Ratio of index of export prices and index of import prices	ARAD, CNB
Construction works	Volume of construction works in mil. CZK	CSO

Source: Self-elaboration.

2. Empirical results

We decide to use VAR model because it allows to fully capture interactions among micro and macro variables what provide a suitable framework for financial stability purposes. For an estimation of effect of the key variables on the NPLs ratio, we use VAR(1) model specification as suggested by Schwartz information criterion (see Table 2).

TAB. 2: **Lag length selection**

VAR Lag Order Selection Criteria
Endogenous variables: DNPLS_R DNER DEX DTOT DPP PI R DSP
Exogenous variables: C
Sample: 2002M01 2012M12
Included observations: 114

Lag	LogL	SC
0	-2593.52	45.83264
1	-1653.02	31.99168*
2	-1585.7	33.46956
3	-1541.01	35.34431

* indicates lag order selected by the criterion
SC: Schwarz information criterion
Source: Autor's calculations.

Now we will discuss our findings. Complete results of the estimated VAR model, including standard errors and t-statistics are presented in Table 3.

Results of estimation of the unrestricted VAR model suggest that there is statistically significant large rigidity in the NPLs ratio, when change of the NPLs ratio depends highly on its previous value (with estimated coefficient 0.97, see DNPLS_R(-1) in the first column of Table 3). The second most important effect comes from change in the industrial production (0.42), which means, that if the change of industrial production decrease by 1% it will increase the change the NPLs ratio by 0.42%. This result is consistent with the theoretical assumption and is also statistically significant based on t-statistics). The estimated coefficient DSP(-1) also shows that construction works positively affect the NPLs ratio, (with the value of 0.06 and conventionally accepted significance). This could be because of the worse payment morale in this sector of the Czech economy (the average NPLs ratio in this sector in the considered period was 12.2%). The effect of change in the exchange rate of the Czech crown vis-à-vis Euro on the NPLs ratio seems to be statistically significant and is estimated to be negative (-0.22). This could be because of the fact that depreciation of the domestic currency causes increase in exports of domestic country which rise firm's revenues, their financial position is stronger and NPLs ratio decrease (this effect prevail over adverse effect of depreciation on the unhedged positions of debtors, probably because of the high openness of the Czech economy)[3]. Our findings also suggest positive impact of the change in exports and terms of trade on the change in the NPLs ratio, but with the low statistical significance. In line with an economic theory change in the NPLs ratio negatively react on the increase of the interest rate, what makes debt service for the customers more costly and positively on the inflation, however both with low statistical significance.

[3] This support findings of [7, 144].

TAB. 3: **VAR estimation results**

Vector Autoregression Estimates
Sample (adjusted): 2003M02 2012M09
Included observations: 116 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	DNPLS_R	DNER	DEX	DTOT	DPP	PI	R	DSP
DNPLS_R(-1)	0.9727	-0.0140	0.0313	-0.003	0.006	-0.001	0.001	-0.133
	0.0148	0.0094	0.0309	0.004	0.012	0.002	0.002	0.0489
	[65.69]	[-1.49]	[1.01]	[-0.84]	[0.54]	[-0.07]	[0.09]	[-2.71]
DNER(-1)	-0.2283	0.8465	0.8656	0.041	-0.011	0.032	-0.027	0.1682
	0.1036	0.0654	0.2159	0.026	0.081	0.017	0.017	0.3422
	[-2.20]	[12.93]	[4.01]	[1.60]	[-0.13]	[1.89]	[-1.60]	[0.49]
DEX(-1)	0.0652	-0.0257	0.2589	-0.005	0.011	-0.007	0.006	-0.231
	0.0427	0.0270	0.0890	0.011	0.033	0.007	0.007	0.1410
	[1.53]	[-0.95]	[2.91]	[-0.44]	[0.33]	[-0.99]	[0.85]	[-1.64]
DTOT(-1)	0.1116	-0.0452	-0.2976	0.843	0.037	-0.026	0.030	1.015
	0.2078	0.1313	0.4332	0.051	0.162	0.033	0.034	0.6865
	[0.54]	[-0.34]	[-0.69]	[16.44]	[0.23]	[-0.77]	[0.88]	[1.48]
DPP(-1)	-0.4172	-0.0769	1.1088	-0.011	0.941	0.033	-0.022	0.5568
	0.0789	0.0498	0.1645	0.020	0.061	0.013	0.013	0.2606
	[-5.29]	[-1.54]	[6.74]	[-0.54]	[15.34]	[2.59]	[-1.71]	[2.14]
PI(-1)	0.1266	-0.4304	1.0283	0.255	-0.671	1.022	-0.015	1.1004
	0.5659	0.3576	1.1798	0.140	0.440	0.091	0.093	1.8696
	[0.22]	[-1.20]	[0.87]	[1.83]	[-1.52]	[11.24]	[-0.16]	[0.59]
R(-1)	-0.0649	-0.1591	0.4837	0.309	-0.364	0.054	0.927	1.3886
	0.6233	0.3939	1.2997	0.154	0.485	0.100	0.102	2.0595
	[-0.10]	[-0.40]	[0.37]	[2.01]	[-0.75]	[0.54]	[9.06]	[0.67]
DSP(-1)	0.0605	0.0078	0.0038	0.001	0.011	0.002	-0.009	0.2795
	0.0281	0.0178	0.0586	0.007	0.022	0.005	0.005	0.0928
	[2.15]	[0.44]	[0.07]	[0.14]	[0.49]	[0.44]	[-0.19]	[3.01]
C	0.1301	1.1051	1.3824	-0.403	1.465	-0.024	-0.044	0.8717
	1.1835	0.7479	2.4676	0.292	0.921	0.190	0.194	3.9101
	[0.11]	[1.48]	[0.56]	[-1.38]	[1.59]	[-0.12]	[-0.23	[0.22]
R-squared	0.98	0.88	0.73	0.92	0.91	0.93	0.91	0.42
Adj. R-squared	0.98	0.87	0.71	0.91	0.91	0.93	0.90	0.38

Determinant resid covariance (dof adj.)	1035.28
Determinant resid covariance	542.58
Log likelihood	-1682
Akaike information criterion	30.24
Schwarz criterion	31.95

Source: Autor's calculations

Based on the residual tests we can reject hypothesis of existing heteroskedasticity and autocorrelation with conventionally accepted confidence (1% resp. 5% level), for more details see Tables 4 and 5.

TAB. 4: **Residual heteroskedasticity test**

VAR Residual Heteroskedasticity Tests: Includes Cross Terms
Sample: 2002M01 2012M12
Included observations: 116

Joint test:		
Chi-sq	df	Prob.
1907.944	1584	0.0000

Source: Autor's calculations.

TAB. 5: **VAR Residual Serial Correlation LM Tests**

Null Hypothesis: no serial correlation at lag order h
Sample: 2002M01 2012M12
Included observations: 116

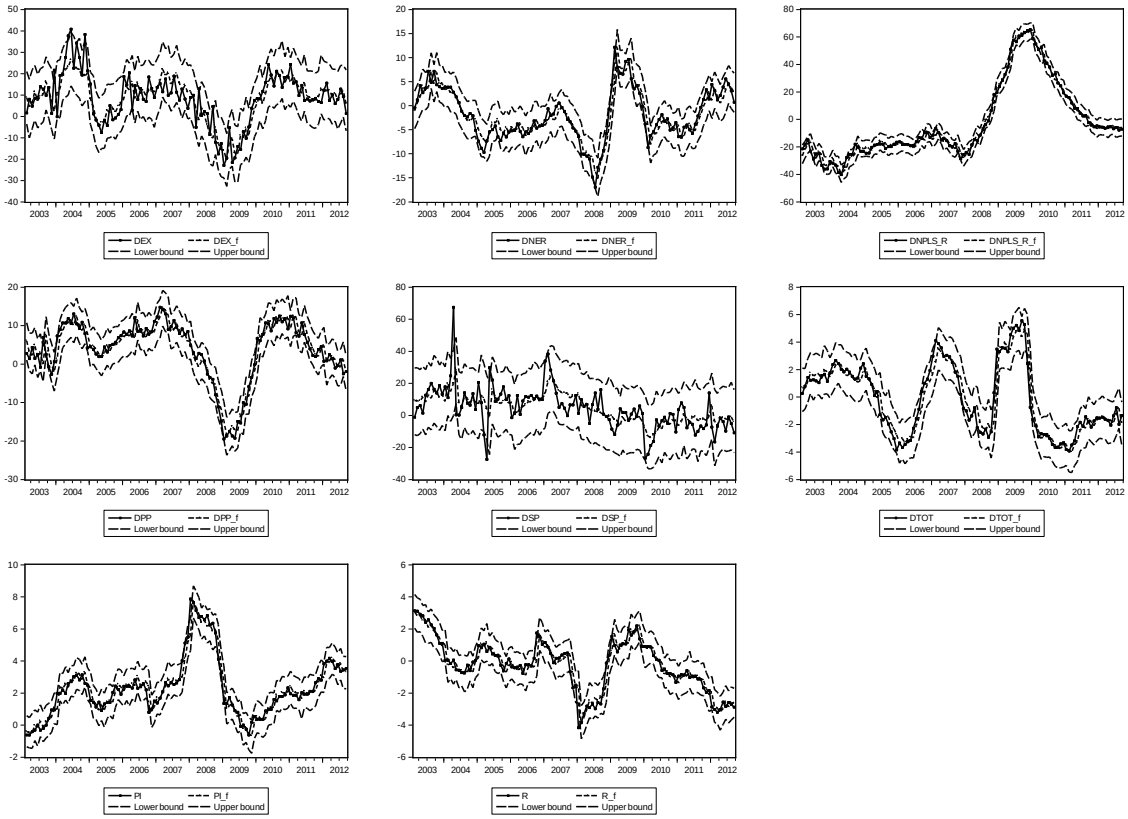
Lags	LM-Stat	Prob
1	113.5841	0.0001
2	88.83761	0.0217

Probs from chi-square with 64 df.

Source: Autor's calculations.

After estimation of the VAR model we tried its forecast abilities. Results of the static (one period ahead forecast) are presented in figure 1.

FIG. 1: **Static forecast**



Source: Autor's calculations.

Forecast shows that most of true values of the variables move inside the confidence intervals so the model seems to have sufficient predicting abilities for used sample period.

Conclusion

This paper, based on literature review, describes main macroeconomic determinants of the NPLs in the Czech Republic. We use vector autoregressive model with VAR(1) structure to empirically find main drivers of the NPLs in the Czech Republic. Based on the estimates of the VAR model, we tried to find the most significant macroeconomic indicators of the NPLs ratio for the Czech Republic. Except of its past value the NPLs ratio is mostly affected by change in the industrial production and change in the exchange rate. There is also a significant effect of the construction works, however other tested determinant do not seem to be statistically significant in the tested sample. Presented results are however only preliminary and we plan to examine the NPLs loans in more detail. In the future research we would like to analyze situation for each sector of the economy separately.

Acknowledgements:
This article has been elaborated in the framework of the project Opportunity for young researchers, reg. no. CZ.1.07/2.3.00/30.0016, supported by Operational Programme Education for Competitiveness and co-financed by the European Social Fund and the state budget of the Czech Republic and as part of Student Grant Competition of Technical University of Ostrava (reg. no. 2013/123).

References:

[1] BARISITZ, S. Nonperforming Loans in CESEE – What Do They Comprise? *Focus On European Economic Integration.* [online]. 2011. [cit. 1. 10. 2012]. Dostupné z: http://www.oenb.at/de/img/feei_2011_q4_studies_1_tcm14-241680.pdf

[2] BLASCHE, W. et al. Stress Testing of Financial Systems: An Overview of Issues, Methodologies, and FSAP Experiences. *IMF Working Paper 01/88.* [online]. 2001. [cit. 29. 9. 2012]. Dostupné z: http://www.imf.org/external/pubs/ft/wp/2001/wp0188.pdf

[3] BUNCIC, D., MELECKY, M. Macroprudenctial stress testing of credit risk: a practical approach for policy makers. *Discussion Paper No. 2011-39.*[online]. 2011. [cit. 12. 12. 2012]. Dostupné z: http://www1.vwa.unisg.ch/RePEc/usg/econwp/EWP-1139.pdf

[4] FESTIĆ, M. et al. The macroeconomic sources of systemic risk in the banking sectors of five new EU member states. *Journal of Finance and Banking.* 2011, č. 2, pp. 310 – 322. ISSN 0378-4266

[5] FRAIT, J., KOMÁRKOVÁ, Z. Finanční stabilita, systémové riziko a makroobezřetnostní politika. *Česka národní banka - Zpráva o finanční stabilitě 2010/2011.* [online]. 2010. [cit. 29. 9. 2012]. Dostupné z: http://www.cnb.cz/miranda2/export/sites/www.cnb.cz/cs/financni_stabilita/zpravy_fs/fs_2010-2011/fs_2010-2011_clanek_i.pdf

[6] LAEVEN, L., VALENCIA, F. System banking crises: a new database. *IMF Working Paper No. 08/224.* [online]. 2008. [cit. 11. 11. 2012]. Dostupné z: http://www.imf.org/external/pubs/ft/wp/2008/wp08224.pdf

[7] LEVINE, R. Financial development and economic growth: views and agenda. *Journal of Economic Literature.* 1997, č. 2 (35), pp. 688–726. ISSN 0022-0515

[8] PODPIERA, R. Does compliance with Basel Core Principles bring any measurable benefits? *IMF Staff Papers* [online]. 2006. [cit. 23. 8. 2012]. Dostupné z: http://www.imf.org/external/Pubs/Ft/staffp/2006/02/pdf/podpiera.pdf

[9] SHU, Ch. The impact of macroeconomic environment on the asset quality on Hong Kong´s banking sector. *Hong Kong Monetary Authority Working Paper* [online]. 2002. [cit. 23. 8. 2012]. Dostupné z: http://www.hkma.gov.hk/media/eng/publication-and-research/research/working-papers/pre2007/RM20-2002.pdf

[10] SUNDARARAJAN, V. et al. Financial Soundness Indicators: Analytical Aspects and Country Practices. *IMF Occasional Papers No. 212.* [online]. 2002. [cit. 4. 9. 2012]. Dostupné z: http://www.jvi.org/uploads/tx_abaeasydownloads/L-12%20-%20Sundararajan-fin-soundness-indicators-OP212.pdf

EVALUATION OF VARIABLE DECISION MAKING SITUATIONS BY MULTI CRITERIA MODELS

Karel Mls
University of Hradec Králové
karel.mls@uhk.cz

Key words:
decision making – multi-criteria method – AHP – local development

Abstract:
Decision making in real world situations or evaluation of complex problems can be mentioned within the context of multiple-criteria decision making methods. Modern information and communication technologies have a capacity to support and improve the final decision of the responsible decision maker in such situations.

An example of the local investment plan and its harmonization due to changes in environment and particular stakeholders' preferences will be presented. Multiple-criteria AHP models and their analysis will be proposed and applied for the strategic decision making support in real world situation.

Introduction

Regional development introduces many complicated decisional problems. There are economic, industrial, social, recreational, ecological etc. aspects that have to be carefully taken into attention during creating, actualizing or changing long term development plans. Even in such case, when there is an actual, accepted document, there are particular situations, when the need of rational, understandable analysis of the decisional situation is vital. To avoid unilateral, bureaucratic or even political solution of problems with long term impacts, the use of some robust, human oriented but formally correct and generally accepted approach is strongly advisable.

Several methods for decision making support were introduced in prior years: decision tables (Fisher, 1966), decision trees (Morgan and Sonquist, 1963), and recommendation of effective decision styles were formalized, too (Vroom & Yetton, 1973).

In the paper, multi criteria decision making (MCDM) based method will be suggested as a basis for creating, evaluating and interpreting a model of the local development problem. The model will be considered as an open, evolving, dynamic system, with variable set of alternatives and kriteria, and of interested groups of decision makers – stakeholders as well.

1. Multi criteria decision making

Simple problems can be handled by standard methods (decision tables, decision trees), while complex problems need more sophisticated approach (Triantaphyllou, 2000). As some authors consider, many techniques for classification and ranking objects have been developer, but most of the methods does not pay serious attention to contradictions and inconsistencies in decision makers' preferences and a problem description (Petrovsky, 2007).

Analytic Hierarchy Process (AHP) is a method developed for creating structured models of multi-criteria decision problems. The method helps to find an alternative which suits best the given needs of the deciding person. Analyzing the set of possible alternatives, the AHP method finds the one with the best rating, based on the structure of the problem and given preferences. The principles of AHP was formulated by Saaty in late 1970s (Saaty, 1980), and the method has been studied from the theoretical aspects, and was applied in many cases since the time.

Formally, AHP models are expressed by matrices and matrix operations:
Let A_1, A_2,.., A_n be a set of variables. The quantified judgments on pairs of variables A_i, A_j are represented by an n-by-n matrix $\mathbf{A} = (a_{ij})$, $i, j = 1, 2, \ldots, n$. Entries a_{ij} are defined as follows: If $a_{ij} = a$, then $a_{ji} = 1/a$; $a \neq 0$ for all i, j. As A_i is considered to be of equal relative intensity to itself, then $a_{ii} = 1$ for all i.

$$\mathbf{A} = \begin{bmatrix} 1 & a_{12} & \cdots & a_{1n} \\ 1/a_{12} & 1 & \cdots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ 1/a_{1n} & 1/a_{2n} & \cdots & 1 \end{bmatrix} \tag{1}$$

Then, relative rankings of variables will be obtained by computing an eigenvector $\mathbf{X}$ of the matrix $\mathbf{A}$.

$$\mathbf{AX} = \lambda\mathbf{X} \tag{2}$$

Finally, by matrix multiplication of matrices of relative rankings of criteria and alternatives relative rankings vector, total rankings of particular alternatives are obtained.

2. Local investment problem

Local urban development belongs to complex and long-term (strategic) decision making problems. There are many points of view, many concerns involved and, last but not least, a lot of money to be spent and gained (in form of government contracts, investment invitations...). Under such conditions it may be difficult to think without prejudice and look for

the solution optimal from the long-term, sustainable perspective (Banai, 2005; Bottero and Mondini, 2008). Within the context of sustainable development of the bounded locality, the problem of shared and limited resources introduced in (Hardin, 1968) should be considered as well.

The presented example is based on the real situation in a medium-sized Czech city. Close to the city outskirts, between existing build-up area and open landscape there are several lands intended for further utilization. Eastern part of the area next to the woodland has been uncultivated for several years and so many wild and protected species inhabited it. Western part, contiguous to the build-up area was built over by modern flat-buildings in 2000's. Now, the decision making is focused to the still unimproved middle part of the area. Data for the presented model and its evolution were obtained from official company's and town municipality's statements, from newspapers and internet news and other public sources.

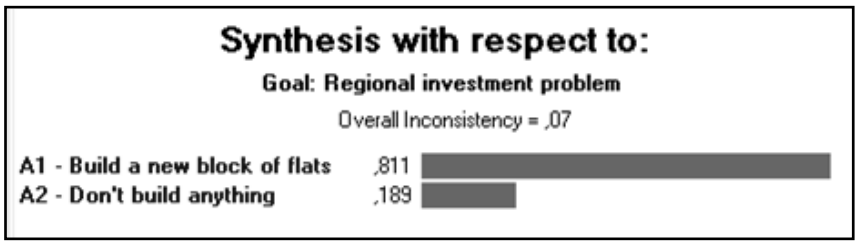
In the presented example, six different groups with different and sometimes contradictory opinion of the problem solution will be considered to be involved in decision making on municipal land utilization:

- G1 Municipality, town representatives,
- G2 Investor, a financial group,
- G3 Construction company,
- G4 Newcomers, people planning to move to new flats,
- G5 Neighbors, people living close to construction place,
- G6 Environmental organization.

Particular groups apply individual sets of criteria to compare and evaluate current alternatives and therefore it is inconvenient to simply merge individual criteria into one general model to put down given differences. It will be proposed to integrate particular groups' estimation of the problem to the decisional hierarchy, instead.

At the beginning of the decision-making process, three groups of interested people – Town representatives (G1), Investor (G2) and Construction company (G3) as well as two alternatives - Build a new block of flats (A1) and Don't build anything (A2) were identified. Strong financial group as a potential investor and town representatives together with a construction company (for our purposes, the process of selection of the construction company will not be dealt with in the paper) have very similar intentions, despite individual sets of criteria and corresponding priorities are not identical. The decision problem may be described as "build or not to build" and the model recommendation looks unambiguously (Figure 1).

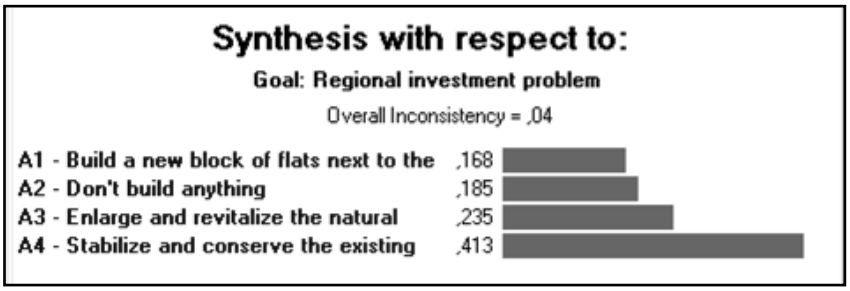
FIG. 1: **Synthesized results for the first model (G1, G2, and G3)**



At the moment, new players in the decision making playground appear. It is a typical situation – in certain period of the project planning affected local inhabitants and non-government organizations are invited to express their opinion, criticism or recommendations. There is often controversy between interested groups consuming available resources more for the support of individual positions then for looking for the best possible solution of the problem.

In our model situation, three new subjects of the decisional process were identified – Newcomers, people planning to move to new flats (G4), Neighbours, people living close to construction place (G5) and Environmental organization (G6). At the same time, two new alternatives were introduced by the environmental organization – Enlarge and revitalize the natural reserve (A3) and Stabilize and conserve the existing state (A4). Now the partial model pictures different view of the problem – profit criteria were replaced with quality of life and environment protection. Comparing relative importance of alternatives, criteria and subcriteria, new evaluation with different ordering of alternatives were obtained by the model (Figure 2).

FIG. 2: **Partial results for G4, G5 and G6**



Such result correlates well with our expectations and demonstrates how different the two groups of interested decision makers approach to the problem is.

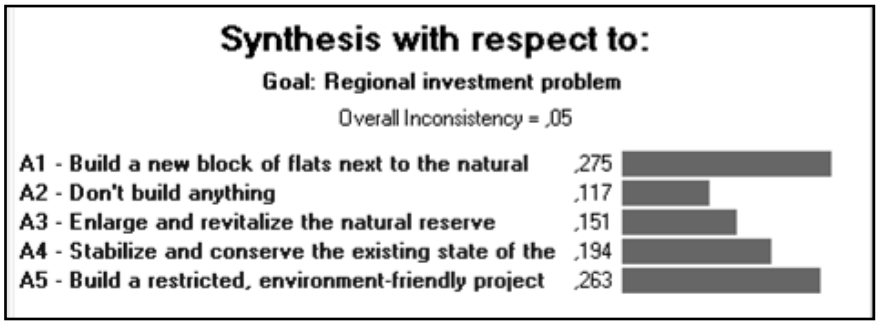
As a next step, we continue with evaluating the actual model by first group of decision makers (G1, G2, G3), but with identical set of criteria it is evident, that the prevailing priority for building a new block of flats will not be

affected. To change the negative approach to others' prioritized alternatives, new and in some degree compromise alternative Build a restricted, environment-friendly project (A5) was offered:

- A1 Build a new block of flats
- A2 Don't build anything
- A3 Enlarge and revitalize the natural reserve
- A4 Stabilize and conserve the existing state
- A5 Build a restricted, environment-friendly project

After finishing the last evaluation of the final model, new and synthesized ranking of all alternatives were obtained (Figure 3).

FIG. 3: **Final ranking of alternatives with respect to goal**



Although the relative importance of two main opponents – Town representatives and Environmental organization - was set to 1 (equal), results from the model prioritize the A1 alternative, though.

The set of alternatives in Figure 3 is definitely not complete, but for our purposes it can be used to demonstrate the evolution in looking for the "ideal solution". Alternatives A1 – A5 are ordered according their real occurrence in time.

Conclusions

Having the complete and consistent model in hands, it is much easier to argue one's reasons or to understand opponent's position. Even more – the model can be further developed and employed for more rational approach to finding consensual and acceptable alternative.

In the presented application of the AHP method to the local development problem, several lessons had been learned. First – setting the model from available data is relatively fast and simple, but the retention of quality and balance of data is required. Next – AHP method can be employed to successfully merge different points of view to one decision making model with regard to find the most suitable solution. And last but not least, there is necessity of some third party, independent and credible facilitator for enabling the faithful transfer of data between decision groups and the model.

Acknowledgments:
This work and contribution were supported by the project of Czech Science Foundation "Development of Non-standard Optimization Methods and their Applications in Economy and Management" no. 402/09/0405.

References:

[1] BANAI, R. Land Resource Sustainability for Urban Development: Spatial Decision Support System Prototype. *Environmental Management*, 2005, Vol. 36, No. 2, p. 282-296. Online ISSN 1432-1009.

[2] BOTTERO, M., MONDINI, G. An appraisal of analytic network process and its role in sustainability assessment in Northern Italy. *Management of Environmental Quality*, 2008, Vol. 19, No. 6, p. 642-660, ISSN 1477-7835.

[3] FISHER, D. L. Data, Documentation and Decision Tables. *Communications of the ACM*, 1966, Vol. 9, No. 1, p. 26-31, ISSN 0001-0782.

[4] HARDIN, G. (1968). The Tragedy of the Commons. *Science*, Vol. 162, No. 3859, p. 1243-1248, ISSN 0036-8075.

[5] MORGAN, J., SONQUIST, J. Problems in analysis of survey data and a proposal. *Journal of the American Statistical Association*, 1963, Vol. 58, No, 302, p. 415–434, ISSN 0162-1459.

[6] PETROVSKY, A. B. Multiple criteria decision making: Discordant preferences and problem description. *Journal of Systems Science and Systems Engineering*, 2007, Vol. 16, No. 1, p. 22-33, ISSN 1004-3756.

[7] SAATY, T. L. *The Analytic Hierarchy Process: Planning, Priority Setting, Resource Allocation*. McGraw-Hill, New York, 1980, ISBN 0-07-054371-2.

[8] TRIANTAPHYLLOU, E. *Multi-Criteria Decision Making Methods: A comparative Study.* Applied Optimization, Vol. 44, Springer, 2000, 324 p., ISBN 978-0-7923-6607-2

[9] VROOM, V. H., YETTON, P. W. *Leadership and Decision-Making*. Pittsburgh: University of Pittsburgh Press, 1973, ISBN 0-8229-3266-0.

INVESTMENTS, ASSETS OF ENTERPRISES AND PRODUCTIVITY OF THE POLISH FOOD INDUSTRY

Robert Mroczek
Institute of Agricultural and Food Economics,
National Research Institute in Warsaw
mroczek@ierigz.waw.pl

Key words:
food industry – investments – assets – assets turnover

Abstract:
The last decade was a period of intensive development of the Polish food industry which was mostly a consequence of Poland's accession to the European Union. It resulted in considerable investment recovery and subsequent increase in the value of fixed assets of the food industry enterprises. It was generally observed in all sectors of food industry. The total capital expenditure in the food industry in 2000-2011 amounted to PLN 75 billion, and the Polish food enterprises became one of the high-tech companies in the Community. Investments in the active part of enterprises, i.e. machines, devices and tools, measurably improved performance in the Polish food industry.

1. Value of investments in food industry

The perspective of Poland's entry to the European Union resulted in increased capital expenditure in the Polish food industry. In the pre-accession period, i.e. from 2000 to 2003, investments increased by nearly 1/5 (from PLN 4.8 to PLN 5.7 billion). High recovery also took place in 2004, when capital expenditure amounted to PLN 6.7 billion and were by nearly 1/5 higher than in 2003. High pace of investment in the food industry was also maintained in the years to come, however, at the end of the decade investment processes slightly weakened due to the world economic crisis. The processing plants invested more carefully, and financial institutions (banks) tightened their credit policies and considered credit applications submitted by potential borrowers in a more conscientious way. Subsequent slight revival in the food industry was observed in 2010 and continued until 2011, when the capital expenditure exceeded PLN 7 billion. i.e. came back to the level from 2006-2007 (Figure 1). It should be underlined that smaller investments in 2009-2010 experienced record-breaking profits of the food sector, which amounted to PLN 7.9 and 7.7 billion respectively.

FIG. 1: **Capital expenditure in the Polish food industry (PLN billion)**

* - estimation,

** - fixed prices corrected by the investment goods index

Source: Own elaboration based on CSO Statistical Yearbooks 2001-2011.

Increase of capital expenditure by the Polish food industry in the period of integrating with the EU resulted, above all, from the necessity of meeting the EU veterinary, sanitary and hygiene standards by processing plants in order to be able to sell their products in the enlarged EU market that became the main selling market for them. The adjustments contributed also to the improvement of competitiveness of Polish enterprises as compared to competition from other Community states and third states. In 2000-2011, the greatest investments were made by the meat sector (PLN 10.5 billion), i.e. 15.3% of investments in the entire food industry[1], and dairy sector (PLN 8.5 billion approximately) and brewing sector (PLN 6.9 billion approximately), as well as fruit and vegetables sector and non-alcoholic beverages sector – PLN 4 billion each approximately (TAB. 1).

[1] Food industry enterprises employing 10 or more permanent workers, which submitted financial statements F-01/I-01. Such enterprises employ ca. 74% of people working in the entire food industry, and their share in the production sold of the food industry exceeds 90%.

TAB. 1: **Capital expenditures in food industry enterprises submitting financial statements (in current prices)**

Branch of industry	PLN million				Total 2000-2011
	2000-2002[a]	2004	2005-2007[a]	2009-2011[a]	
Food industry (with tobacco sector), including:	**4 003**	**6 688**	**6 434**	**6 103**	**68 569**
Meat	572	1 551	1 042	728	10 518
Dairy	455	925	846	711	8 542
Brewing	643	614	608	353	6 860
Fruit and vegetables	144	549	402	339	3 843
Non-alcoholic beverages	278	350	286	314	3 757
Bakery	171	183	248	312	2 920
Sugar	135	251	328	268	2 910
Fodder	178	208	278	256	2 769
Poultry	93	259	222	219	2 230
Fish	72	164	189	204	1 888
Oil-mill	68	77	83	94	993
Spirits	47	86	109	71	948

a – on the average a year

Source: Own elaboration based on unpublished CSO data.

The increasing level of capital expenditure in most of the food industry sectors indicates, on the one hand, relatively good financial condition of individual sectors (investing enterprises) and, on the other hand, that Poland shortens its distance to the most highly developed EU-15 Member States in the field of production technology and technique or even outdistances many European countries in that respect.

2. Assets of food industry enterprises and assets turnover

Following the increase in capital expenditure in the food industry, its assets boosted as well. In 2002-2011 value of assets (both current and fixed) of the food industry enterprises submitting financial statements increased over two times from PLN 62 billion to PLN 128 billion (in real terms by 72%)[2]. Share of fixed assets, i.e. buildings, machines, devices and tools, as well as means of transport, in the structure of total assets increased by 4 pp.

[2] In prices as at 2010, the value of the current assets corrected by the retail goods and services prices index, while the value of fixed assets corrected by the investment goods index.

Machines, devices and tools, i.e. the active part of an enterprise, constitute the highest value of the fixed assets (over 55%).

Turnover measures efficiency of management of the total assets of an enterprise. The higher the turnover is, the higher is the level of the company management [1].

$$\text{Assets turnover} = \frac{\text{net sales revenue}}{\text{total assets}}$$

In 2009-2011 the highest assets turnover in the analysed sectors of the food industry was observed in poultry and meat sectors, in the case of which over PLN 2 of the value of production sold falls per PLN 1 of the value of assets of the enterprise. High turnover was also recorded in the following sectors: fodder, spirits, fish and brewing sectors (from 1.57 to 1.83), while the lowest turnover was recorded in: sugar, non-alcoholic beverages and fruit and vegetables sectors (from 0.61 to 1.03) (Table 2). There was a significant improvement in enterprises' assets turnover in poultry and brewing sectors (by over 30%). It resulted from the annual growth of products sales revenue faster by 4-5 pp. than the annual growth of fixed and current assets (Figure 2). Moderate several percentage points growth in assets turnover (from 6% to 9%) was observed in bakery, oil-mill and fodder sectors. In the meat sector this rate remained stable.

TAB 2: **Assets turnover in food industry enterprises submitting financial statements (PLN/PLN)**

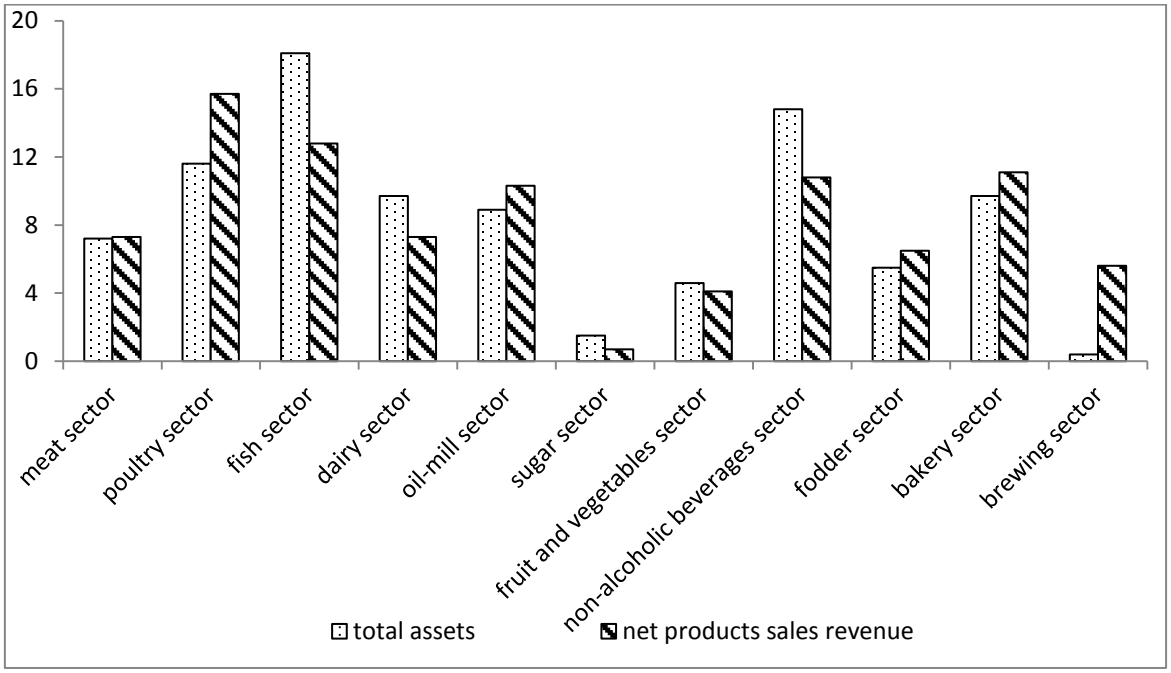
Branch of industry	2002-2004[a]	2009-2011[a]	Dynamics (%) 2009-11/2002-04
Food industry (with tobacco sector), including:	1,48	1,35	91,4
Poultry	1,95	2,55	130.8
Meat	2,01	2,00	99,5
Fodder	1,72	1,83	106,6
Spirits	2,23	1,74	78,0
Fish	2,57	1,68	65.3
Brewing	1,12	1,57	140,5
Oil-mill	1,32	1,43	108,3
Dairy	1,66	1,40	84,4
Bakery	1.,20	1,31	109,1
Fruit and vegetables	1,07	1,03	96,3
Non-alcoholic beverages	1,23	0,84	68,3
Sugar	0,65	0,61	92,9

a – on the average a year

Source: Own elaboration based on unpublished CSO data.

Growth rate for the total assets in the fish and non-alcoholic beverages sectors was higher by 4-5 pp. than growth rate for the products sales revenue. Thus assets turnover is decreased by over 30% in 2002-2011 in these sectors. Total assets turnover in the dairy sector decreased by 15.6%, and slightly by 4% and 7% in fruit and vegetables and sugar sectors respectively (Table 2, Figure 2).

FIG. 2: **Growth in total assets and net products sales revenue in current process in selected sectors of the food industry in 2002-2011[a] (in % per year)**



a – average for 2002-2004 and 2009-2011

Source: Own elaboration based on unpublished CSO data.

Conclusions

1. In 2000-2011 investments in the food sector indicated slow upward trend (on the average by 4.1%, and in real terms – by 2.8% a year). In the analysed period the value of investments in the food industry enterprises submitting financial statements exceeded PLN 68.6 billion, the highest part of which falls on the meat (15.3%) and dairy sectors (12.5%).
2. Capital expenditure increased the value of fixed assets of the food industry enterprises 2.2 times from PLN 32.1 billion in 2002 to PLN 71.5 billion in 2011. Its average share in the total assets of the food industry increased from 52% to 56%, i.e. by 4 pp.
3. The highest total assets turnover was observed in the meat and poultry sectors, in the case of which at least PLN 2 of the net products sales revenue fell per PLN 1 of the assets. In 2002-2011, the highest increase in turnover (by over 30%) was observed in poultry and brewing sectors, while its highest decrease (by over 30%) was observed in the fish and non-alcoholic beverages sectors.

References:

[1] [MROCZEK, R. Inwestycje, majątek przedsiębiorstw i produktywność przemysłu spożywczego i głównych branż, [in:] MROCZEK, R. (ed.) *Procesy dostosowawcze polskiego przemysłu spożywczego do zmieniającego się otoczenia rynkowego*, PW nr 4 (1). IAFE-NRI, Warsaw 2011, s. 64.

[2] *Roczniki Statystyczne* [Statistical Yearbook], CSO, Warsaw 2001-2011.

ECONOMIC ASPECTS OF THE STRAIT OF HORMUZ IN TERMS OF CRUDE OIL SUPPLY

Majid Ziaei Nafchi
University of Hradec Kralove
majid@seznam.cz

Key words:
crude oil – OPEC – Iran – sanctions – The Strait of Hormuz

Abstract:
The Strait of Hormuz is a strategic and important water pathway in the Persian Gulf. It is used to transport (via tankers) 20% of the world's crude oil production. Iran obtains the power to obstruct this pathway, which could result in a possible catastrophic, political and economical, international crisis. In the past, verbal threats were made by the Iranian government, suggesting that they might consider obstructing The Strait of Hormuz, if the United States and her allies continue to impose sanctions against Iran.

Introduction

The Strait of Hormuz is one of the most strategically important choke points in the world, and the only sea passage in the Persian Gulf region. It is located between the Persian Gulf and the Gulf of Oman. It connects Iran, Iraq, Kuwait, Saudi Arabia, UAE (United Arab Emirates), and Qatar to the Arabian Sea. Approximately 20% of world's crude oil and about 35% of traded petroleum is seaborne from this region to the international market. [1] Imagine for a moment that Iran, the most powerful country in this region, would follow through with her threats of suddenly shutting down the Strait of Hormuz. This, without a doubt should cause absolute political and economical chaos, not only for OPEC (Organization of the Petroleum Exporting Countries) but subsequently for the entire world. Let us examine some of the very possible cause(s) and effects of such a scenario; the abrupt 20% drop in crude oil supply.

1. Crude oil production in the region

Since the Iranian revolution of 1979 to present day, U.S. and international sanctions / trade (i.e. crude oil) and monetary restrictions have been imposed against Iran. Recently new sanctions were imposed, designed to prevent Iran from obtaining nuclear capability. These policies have caused increased anger and anxiety, and above all economic difficulties within

the Iranian government. [2] Sanctions and trade embargos are the primary cause for Iran's animosity towards the U.S. and her allies. Therefore, providing Iran with a justifiable reason (from Iran's point of view) to shut down the Strait of Hormuz. Consequently, if Iran were to take such actions, the direct effect to several countries in the region (due to their economic dependency on crude oil trade) would most definitely cause a political and financial crisis. Politically speaking, this could trigger potential war. From the economic point of view, crude oil prices would immediately rise, inevitably causing world-wide panic which could lead to a rapid continuation of rising oil prices.

TAB. 1: **OPEC Crude Oil Production Allocations (1000 b/d) years 1990-1992**

Country / Year	1990	1991	1992
Algeria	827	827	760
Indonesia	1,374	1,443	1,374
Iran	3,140	3,217	3,184
Iraq	3,140	0	505
Kuwait	1,500	0	812
Libya	1,233	1,245	1,395
Nigeria	1,611	1,840	1,751
Qatar	371	399	377
Saudi Arabia	5,380	8,034	7,887
U.A.E.	1,500	2,320	2,244
Venezuela	1,945	2,235	2,147

Source: Author based on OPEC production allocations

Under these circumstances, it would be quite difficult to estimate the rate and volume in which the price of crude oil should rise. At the beginning of 1990's, during the first gulf war, as illustrated in the table below, crude oil production stopped in Kuwait and Iraq (respectively) resulting in an immediate spike in oil prices. [4] Despite the sudden price hike, other OPEC members (Saudi Arabia in particular) were able to bring down prices by increasing their production, allowing the oil market to re-stabilize within 13 months. [5]

Table 1 illustrates OPEC crude oil production during the years 1990 to 1992. It shows the rate of oil production in 1990, as well as the rate during the war in 1991 between Kuwait and Iraq, and post-war production in 1992. The table also confirms that in 1991 Kuwait and Iraq had zero production of crude oil,

which consequently forced the other OPEC members to increase their oil production. In 1992 (post-war period) Kuwait and Iraq began crude oil re-production which allowed the other OPEC members to begin decreasing their oil production. Ultimately, as a result of this gulf war, the price of crude oil increased substantially. [4]

Table 2; illustrates OPEC crude oil production during the years 2004 to 2006. It shows that the production of crude oil has steadily increased during the past 15 years, for all OPEC members excluding Iraq (due to war and sanctions (respectively)).

TAB. 2: **OPEC Crude Oil Production Allocations (1000 b/d) years 2004-2006**

Country / Year	**2004**	**2005**	**2006**
Algeria	830	878	894
Indonesia	1,377	1,425	1,451
Iran	3,817	4,037	4,110
Iraq	0	0	0
Kuwait	2,087	2,207	2,247
Libya	1,392	1,473	1,1500
Nigeria	2,142	2,265	2,306
Qatar	674	713	726
Saudi Arabia	8,450	8,937	9,099
U.A.E.	2,269	2,400	2,444
Venezuela	2,992	3,165	3,223

Source: Author based on OPEC production allocations

When comparing table 1 to table 2, we can see that there was a steady increase in crude oil production with the exception of Iraq (which had no oil production). [5]

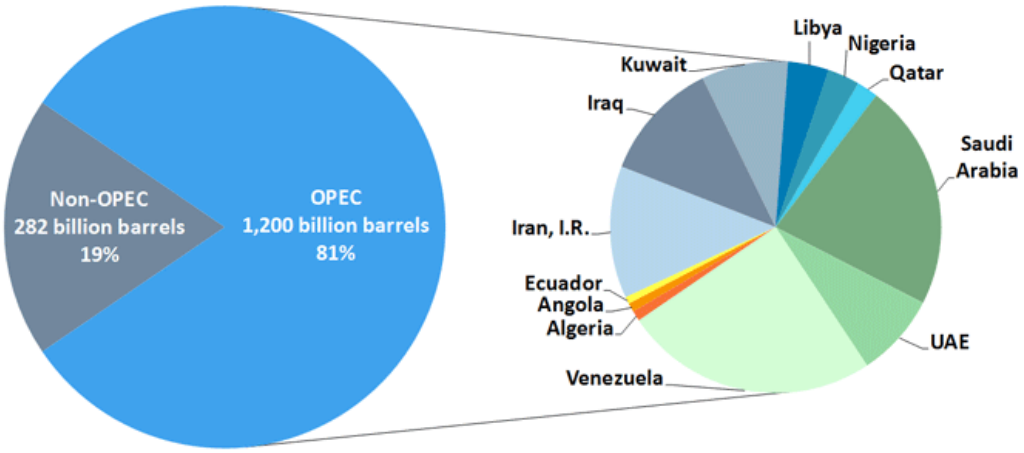
During these 15 years, from 1990 to 2005, the price of crude oil almost tripled, although, oil production has continuously increased, which most likely was caused by higher world-wide demand for crude oil. [4]

2. OPEC oil reserves and alternatives to crude oil supply

Unlike the early 1990's when OPEC was in a position to re-stabilize the spiked oil prices (within a relatively short period) by other members

increasing their production [3], it would not be possible for OPEC to provide the same solution, because under the scenario of Iran's obstruction of the Strait of Hormuz, 6 out of 12 (majority-holding oil reservoirs) members of OPEC, would be directly impacted by such an event, leaving them with only pipelines for the transport of crude oil, thus limiting them from re-stabilizing prices within a timely manner. Therefore, placing most of the burden and responsibility on Venezuela (As shown in Figure 1; a holder of nearly 25% of OPEC's reserves.) [3], and perhaps a few other minor OPEC nations.

Figure 1: **OPEC Share of World Crude Oil Reserves 2011**



OPEC proven crude oil reserves, end 2011
(billion barrels, OPEC Share)

Venezuela	297.6	24.8%	Iraq	141.4	11.8%	Libya	48.0	4.0%	Algeria	12.2	1.0%
Saudi Arabia	265.4	22.1%	Kuwait	101.5	8.5%	Nigeria	37.2	3.1%	Angola	10.5	0.9%
Iran, I.R.	154.6	12.9%	United Arab Emirates	97.8	8.2%	Qatar	25.4	2.1%	Ecuador	8.2	0.7%

Source: OPEC Annual Statistical Bulletin 2012

The question is; "could Venezuela be capable of handling such an enormous task?" Certainly, Venezuela has a substantial amount of crude oil reserved, but under an obstruction of the Strait of Hormuz circumstance (even with pipeline backup, and assistance from the five remaining OPEC members), Venezuela would still, most probably need to immediately increase her oil production by at least 5 times, in order to compensate for the global lack of supply. This however, would be impossible. Because, it would take approximately 10 to 15 years for Venezuela to increase her fleet of tankers, oil rigs, and upgrade her oil-producing technology.

Conclusion

Based on documented facts and past world events regarding crude oil production, one can obviously surmise; in all circumstances (directly and indirectly) which caused instability in the production of oil, there was

an immediate increase in prices. I.e. Kuwait and Iraq (gulf) war. Despite the sudden loss of approximately 4.5 million barrels per day of crude oil from Kuwait and Iraq, the other OPEC nations were more than capable of making up the difference and stabilizing the world market, by increasing their oil production. However, in the scenario (bearing in mind the fact that 20% of crude oil production is seaborne through this strait); were Iran would obstruct The Strait of Hormuz; OPEC would not be in a position to do much of anything! They would not be able to make up the difference. Therefore based on the previous figures and analysis, the price of crude oil would, in all likelihood, sky-rocket over night.

Most should agree that it would behoove The United States, and her allies to make every effort and exhaust every avenue in order to peacefully convince the government of Iran, through negotiations, from making such a catastrophic decision, regarding the willful obstruction of The Strait of Hormuz. Because the fallout could, potentially result in world-wide political, economical, and irreversible damage.

References:

[1] World Oil Transit Chokepoints. U.S. Energy Information Administration. Retrieved 09 December 2012. Accessed from <http://www.eia.gov/countries/analysisbriefs/ World Oil_Transit_Chokepoints/wotc.pdf>

[2] ALIKHANI, H. *Sanctioning Iran: Anatomy of a Failed Policy.* New York: I.B.Tanris & Co Ltd 2000. ISBN 1-86064-626-3

[3] OPEC Annual Statistical Bulletin 2012, OPEC official website. Retrieved 09 December 2012, Accessed from <www.opec.org>

[4] Crude oil prices. Retrieved 08 December 2012, Accessed from <http://www.ioga.com/Special/crudeoil_Hist.htm>

[5] WILLIAMS, J.L. Market share within OPEC. WTRG Economics. 1999. Retrieved on 09 December 2012. Accessed from <http://www.wtrg.com/opecshare.html>

MICRO AND SMALL COMPANIES IN POLAND AND DEVELOPMENT OPPORTUNITIES

Renata Nesterowicz
State School Higher Vocational Education In Tarnobrzeg
rbnester@onet.eu

Key words:
micro and small business – development – innovation – support – grants – bank

Abstract:
In the development of the micro and small companies of their importance is shown for the country's economy, the economic and financial results prepared. Opportunities using support for start-ups and support for business development are also for companies doing their business. Demonstrated the importance of the development of micro and small companies are for the modern socio-economic development. Micro and small enterprises are a very important part of the Polish.

1. Admission

Creating micro and small businesses, as well as management of entrepreneurial (innovation implementation) by daring entrepreneurs entrepreneurship is a sign of respect to the development of the economy. The importance of micro and small companies were marginalized to the 80's of the twentieth century. New insights into the role of the Commission's report presented the famous Bolton (1971) in the UK. He argued that SMEs cope with the crisis stagflations that period better than large corporations [6,139]. The acts constituting the existence of micro and small enterprises in the Polish economic reality is the Act on Freedom of Economic Activity.

In accordance with the definitions contained therein, a micro-company, of which at least one of the last two fiscal years have achieved total asset turnover or balance sheet not exceeding EUR 2 million and fewer than 10 employees, and small businesses are companies for which the threshold income and assets of the balance sheet is the same way 10 million, and the threshold for employment to 50 people [1,105].

Both micro and small enterprises are very important for the Polish economy as generate a total of 46.9% of GDP [9, 28] constitute 41.4% of jobs [4, 134] and represent 99.9% of all businesses [5, 31]. Group of companies are also less stable economically because a large proportion of falls in the first five

years of business, which should be for the owners to carefully premise strong financial management and care of their bodies with their financial situation. Today, however, he confesses to the view that micro, small and medium-sized enterprises are the most important link through which entrepreneurship manifests itself, implements and affects the macroeconomic effects - on economic growth by creating new jobs, innovation deployment, maintaining competition, internationalization of business, creating networking.

The aim of this paper is to show the importance of the activities of micro and small businesses in the economy of our country, to analyze the economic and financial results, and present forms of support for start-ups and those already working.

2. The economic - financial micro and small companies in Poland

Micro and small enterprises are a very important part of the Polish economy. According to data from the Central Statistical Office for the year 2009, the revenue generated by these companies were worth 1 116 billion (36% of total revenues in the corporate sector) and generated a gross profit of EUR 135 billion (53% of gross profit in the business sector).

In addition, as mentioned by the Central Statistical Office in the amount of assets invested 38.3 billion (27% of all investment in the corporate sector), and administrated fixed assets of the gross value of PLN 290 billion (21% of the assets of the business sector) [2]. When it should be noted that despite the fact that in this group of companies make the biggest changes resulting from the opening and closing a business is in the general population is dominated by mature companies operating five or more years. More than one million active micro and small businesses fall into this group (representing 61%). In the group of small companies operating five or more years are as much as 90% of the population (more than 45 thousand. smaller companies), and for comparison, 60% of micro firms (which is 966 thousand entities). The active micro-and small operating in the 2 to 4 years were 26%, Young functioning of 1 year and 13% of the population less (more than 215 thousand companies) [2].

TAB. 1: **Budget financial and income micro and small enterprises (expressed as the average size of indexes)**

Assessment of the financial result	*Last Future 12 months 2011*	*Future 12 months 2011*	*The average of the indices in 2010*	*Average of indexes in 2011*
Poland	87	94	91	91
Micro	87	94	91	91
Small business	90	94	98	92
Assessment of the company's revenue	*Last 12 months 2011*	*Future 12 months 2011*	*The average of the indices in 2010*	*Average of indexes in 2011*
Poland	86	94	90	90
Micro	85	94	90	90
Small business	91	95	97	93

Source: Own calculations based on data from the report on the situation of micro and small enterprises in 2011

As follows from the data set size medium indices for revenue and earnings in 2010-2011 were at the same level. Analyse of the year 2011 shows the huge growth expectations for the next 2 months. The decline in revenue in the 12 months particularly affected because the value of micro-index is about 6 points lower than the corresponding ratio calculated for small businesses.

The results of the evaluation of the financial result are slightly different from the values of the revenue. The average of the indices for the year 2010 and 2011 financial result is one point higher than the ratios of revenue, which allows the formulation of the thesis that the micro and small companies are trying to reduce the cost of business, which is reflected in the higher earnings. This applies especially to micro-enterprises.

3. Support programs for micro and small business start-ups

Micro and small enterprises in the years 2007 - 2013 may use different types of collaboration from public funds. This support also applies to start-ups (start - ups). Funds are allocated such investment projects associated with research - development and exploitation of the results of research and development, multi-dimensional consulting, training, warranties and other activities [3, 88].

The main source of funding is the operational programs for the period 2007 -2013 co-financed from EU funds and the state budget. In addition, there are also programs financed from the budget only.

Also plays an important role the banking sector offering beneficial products bank [9, 76] and the broad advice and information about support options.

For forms of support for start-ups include:

- Loans for start - ups with a guarantee of EF

Example is the Bank's loans with a guarantee of the European Investment Fund (EIF) under the EU's Framework Programme for Competitiveness and Innovation Programme (CIP). The agreement applies to sureties for the amount of 200 million zł, and 75% of the EIF guarantees the principal and interest.

- Support for self-employment

This action is directed to the people who want to start a business. In the first instance are selected local or regional entities that receive funding for projects related to the support of people who want to start a business.

- Creation and development of micro-enterprises in rural areas

This type of support is for people setting up or running their own business as a micro-enterprise in rural areas, thus creating new jobs.

- Support young companies providing e-services

Funding for the projects is n involving the provision of e-services. The desired effect of the project is the preparation, implementation and provision of at least one e-services.

- Incubation and capital support for new innovative companies

This type of assistance is designed to support the creation of innovative companies in the early stages of development and equity investment in start-up companies.

- Venture Capital

The activities of the funds are belonging to the high degree of risk is to allocate funds by a group of investors for investments that carry a high risk, but can yield high returns.

4. Forms of support to the business development of micro and small businesses

In addition to these forms of support for start-economic prowess there is a second group of business development support to micro and small businesses.

This includes:

- Investment grants

The main source of financing for investment projects of micro and small businesses are operating programs under the National Development Strategy for 2007-2013 Rural Development Programme for 2007-2013, as well as other programs funded by the state budget. Grants are awarded on various investments - investments for innovative environmental investments in R & D, corporate relations, and more.

- Credit Union

For the financing of investments co-financed by the EU, and its advantage is the free security in the form of assignment of receivables from grants and better credit conditions in comparison to the standard offer.

- Loan of Technology

A specific feature of this instrument is that it is sovereign by commercial banks which have signed an agreement with Bank of National Economy. It is the only instrument in Poland in EU programs for 2007-2013, on which commercial banks have been incorporated directly into the support system.

- Other banking products

These are used by companies in EU projects, for example, is a bill for the Union to handle all the financial flows associated with the project receiving support from EU funds.

- Support from international financial institutions

Given the limited funding opportunities for SMEs from national EU programs, Bank dished financial support to these companies at European level, and is currently implementing refinanced loans by the European Investment Bank (EIB) and a guarantee by the European Investment Fund (EIF) under the Framework Programme Competitiveness and Innovation Programme CIP.

5. Summary

Micro and small enterprises are a very important part of the Polish economy. According to GUS statistics in the first half 2011roku economic growth rate was 4.3% and was similar to that recorded in 2010, 3.8%, and at the same relatively high compared to other European countries.

Note, however, that the modern world is constantly changing. These changes are due to the dynamic nature of the processes involved. These processes, social, economic, political and cultural each of which is subjected to the process of globalization is treated primarily as a phenomenon or state of the world economy [7, 47].

The analysis of economic performance of micro and small enterprises calculated indices showed values below the neutral 100, which means their deteriorating financial situation. Also, the average index values calculated for the years 2010 and 2011 confirm this condition, especially for small businesses. Comforting is the fact that many micro and small businesses develop the use of EU and national aid programs.

References:

[1] Art. 104 i 105 Ustawy o swobodzie działalności gospodarczej z dn. 02.07.2004, DzU 173,poz. 1807 z późn. zmianami implementującej Recommendation 2003/361/EC Komisji Europejskiej z dn. 06.05.2003 r.

[2] Dane GUS 2011

[3] FILIP, P, GRZEBYK, M, KALISZCZAK, L. *Development of the small and medium enterprises in Poland in comparison with European Union Member States*, Prace Naukowe Wydziału Ekonomii Uniwersytetu Rzeszowskiego, Seria: Monografie i Opracowania, nr 10, Rzeszów 2010, ISBN 978-83-7338-607-5, p.88

[4] ŁAPIŃSKI, J. *Liczba pracujących oraz przeciętne zatrudnienie i wynagrodzenie w sektorze MŚP* w: *Raport o stanie małych i średnich przedsiębiorstw w Polsce w latach 2008–2009,* red. A. Wilmańska, PARP, Warszawa 2010 oraz *Mały Rocznik Statystyczny Polski 2009*, Zakład Wydawnictw Statystycznych, Warszawa 2009

[5] ŁAPIŃSKI, J. *Zarejestrowane i aktywne MŚP w latach 2008–2009*, w: *Raport o stanie małych i średnich przedsiębiorstw w Polsce w latach 2008-2009,* red. A. Wilmańska, PARP, Warszawa 2010

[6] KALISZCZAK, L. *Holistic concept of entrepreneurship as the basis for development, [in:] Hradec Economic Days 2011. Economic Development and Management of Regions,* University of Hradec Králové 2011, pp. 138-142. ISBN 978-80-7435-101-3

[7] NESTEROWICZ, R. *Rynki finansowe i banki w dobie procesu globalizacji i kryzysu gospodarczego [w:]Korzyści i koszty wprowadzania euro przez Polskę w świetle doświadczeń Słowacji* Kitowski J (red.) Wyd. UR Rzeszów. 2010

[8] Raport o sytuacji mikro i małych firm w roku 2011, wyd. Bank Pekao SA, Warszawa 2011

[9] SKINNER, CH. *The future of banking In a globalised Word*, John Wiley & Sons, Ltd, Chichester 2007

[10] ZAKRZEWSKI, R. *Udział małych i średnich przedsiębiorstw w wytwarzaniu PKB i wartości dodanej brutto*, w: *Raport o stanie małych i średnich przedsiębiorstw w Polsce w latach 2008––2009*, red. A. Wilmańska, PARP, Warszawa 2010

INTERNAL MARKETING – CONCEPT, TOOLS, CONSIDERATIONS

Dorota Bednarska-Olejniczak, Jarosław Olejniczak
Wroclaw University of Economics
dorota.olejniczak@ue.wroc.pl; jaroslaw.olejniczak@ue.wroc.pl

Key words:
internal marketing – personnel marketing – internal communication

Abstract:
Among all resources which the modern enterprises have at their disposal personnel is the most difficult to imitate and recreate. Internal marketing is a concept ensuring appropriate positions to employees of an enterprise. This paper aims at describing the internal marketing and personnel marketing concepts, presenting their addressees and tools, indicating the role they play in organisations and factors affecting their implementation success.

Internal marketing concept

The today's market reality – strong competition, economic crisis and reduced demand related thereto, dynamic changes in the sphere of consumption and environmental turbulence – pose a challenge to marketing activities taken by enterprises. Not only the issue of attracting and retaining the external customer but also the issue of attracting and retaining the most qualified employees for a long term is becoming a problem.

When seeking the sources of competitive advantage, enterprises have begun to notice the significance of the human factor. According to M. Stolarska, it is people who are the most valuable capital of every organisation by exerting a considerable influence on its activities and condition [12]. Employees directly participate in creating and delivering value to the customer, are responsible for the quality of service and therefore they have a significant influence on shaping customer satisfaction by being a link between the customer and the enterprise. From the viewpoint of the purchaser, employees impersonate the enterprise, which means, among others, that they shape its image. Hence, the issue of attracting and retaining qualified staff capable of ensuring the desired level of customer service and engaged in creating value of a given offer is becoming extremely important.

The significance of internal marketing was initially emphasised in the service area. Due to the specific characteristics of services and the significant role of the human factor in the process of their provision, marketing activities of service providers cannot be restricted to the traditional external marketing. Internal marketing (addressed to employees) and interactive marketing

(existing in the employee-customer relationship) need to be taken into consideration alongside. Internal marketing includes the enterprise's activities aimed at training and motivating employees to provide a better customer service focused on satisfying customer needs as well as possible. Interactive marketing, in turn, concentrates on the quality of interactivities between the customer and the service provider, assuming that the purchaser's perception of the quality of services depends mostly on this factor [6]. Service marketing combines the three mentioned types of marketing, assuming that the internal customer (i.e. employee) satisfaction is equally important as the external customer satisfaction. In the context of internal marketing, employment is viewed as an internal product which should satisfy the needs of internal customers as well as possible. A. Payne points to two significant principles related to internal marketing [9]:

1. all employees are at the same time internal customers and internal suppliers, and the corporate operations are best when all employees both provide and receive services of the highest quality;
2. the enterprise's personnel works in accordance with the corporate declared mission, strategy and goals. Internal marketing aims at stimulating the entire personnel of the enterprise such that employees represent the enterprise as well as possible during telephone conversations, correspondence, and electronic and personal contacts with customers.

TAB. 1: **Internal marketing concept**

Goals	Activities
General goals	The personnel should be motivated and customer-oriented
Strategic level	Creating an internal environment supporting customer orientation and encouraging sales among the personnel with the use of: • management method, • personnel policy, • training policy, • procedure planning and control.
Tactical level	Selling services and supportive services to employees. The personnel is the first market of the service providing enterprise and therefore: • employees need to understand why they are expected to perform work in a specific manner and be active in a particular situation, • employees need to accept the enterprise's services and other areas of its activity to support them in contacts with customers with conviction, • the service needs to be developed and internally accepted before it is provided, • internal information channels need to be launched.

Source: *Marketing usług,* A. Styś (ed.), PWE, Warsaw 2002, p. 78,
after: D. Cowell, *The Marketing of Services, Heinemann, Oxford 1987, p. 63*

The internal marketing concept, which provides for its strategic and tactical implications, is presented in Table 1. The division into strategic and tactical activities pursued within internal marketing is indicated also by Ch. Grönroos. He classifies the activities which create the corporate culture, are customer-oriented and motivate employees as **strategic** ones. In his view, these include among others: personnel policy (recruitment, career planning), employee trainings (directed at customer support), adapting the supportive management style, introducing planning procedures which will ensure that all employees will understand and support the corporate mission, goals and strategy. Grönroos distinguishes the following activities among the **tactical** ones: internal segmentation, internal market research, formal communication, establishment of informal interactive communication, internal trainings [8].

1. Internal marketing and personnel marketing

Internal marketing is not a new phenomenon – it was first proposed over 30 years ago by L. Berry as a solution enabling the delivery of services of an invariably high quality [4]. With time the internal marketing idea being a response to special requirements of the service sphere found its place also in other areas. It was accompanied by a certain terminological confusion – the terms "internal marketing", "personnel marketing" and "employee marketing" can be found in the relevant literature.

There are multiple definitions of **internal marketing**. In his approach to internal marketing, L. Berry, who was mentioned above, focuses on motivating employees and discerning internal customers in them. He believes that employees should be treated as customers of the organisation and the tasks ascribed to them – as internal products which satisfy their needs and expectations, at the same time pursuing the corporate goals [3]. Ch. Grönroos defines internal marketing as a certain philosophy of managing human resources of the organisation from the viewpoint of marketing [8]. According to M. Rafiq and P. A. Ahmed, internal marketing is planned efforts based on the marketing approach and aimed at combating the organisational resistance to changes, motivation, punctuation coordination, integration and pro-consumer orientation of the personnel within the implemented strategy in order to provide satisfying consumer service [11]. Ch. Michon defines internal marketing as a marketing conduct inside the enterprise which permits the creation and promotion of ideas, projects and values that are useful to the enterprise, communication through dialogue with employees so that they could express or select them freely and, ultimately, support their introduction to the enterprise [13]. When analysing other definitions, it is impossible not to notice that perceiving employees as valuable internal customers constitutes their cores.

The term **personnel marketing**, in turn, is defined as "the entirety of internal and external activities of the enterprise related to managing the organisation's social potential, shaping its size and structure, as well as improving due to creating favourable conditions for employee engagement in the activities of the enterprise and increasing its market effectiveness as well as attracting proper employees from the labour market" [10]. The following two areas of marketing activities can be noticed in the quoted definition: internal, addressed to the current employees, and external, addressed to prospective employees. Hence, a personnel marketing is a much broader notion than internal marketing, which is restricted to the intra-organisational area. The main assumption of personnel marketing is creating the image of the enterprise as an attractive, honest and reliable

employer, both in the group of the current employees and in the group of future employees. The modern personnel marketing assume that [16]:

- all employees of the enterprise are perceived as its customers,
- the enterprise as a whole is open to the customer needs, interests and expectations,
- internal customers of the enterprise, as members of the employee community, shape the positive image of the enterprise and are concerned about its development,
- the enterprise is also concerned about its prospective customers, that is future employees (e.g. it is interested in students in the early years of their studies, trains them, sponsors them and thus it attracts the best of them).

Treating employees in the above described manner brings certain consequences [14]:

- the enterprise influences the employee market actively, guides, manages, evaluates and improves their qualifications and skills,
- the enterprise identifies the requirements of the internal market and adapts to them,
- the activities pursued by the enterprise within personnel marketing are not restricted to attracting employees.

2. Internal and external personnel marketing

At the same time, treating personnel marketing as a specific system deserves attention – the activities taken within it should not be ad hoc and random but they ought to form a consistent system. This **system** is composed of two basic subsystems [2]:

1. **internal personnel marketing** comprising: the system of internal communication between the management staff and employees, and between individual employees; the motivation system; the training system; the system of creating and establishing the image of the enterprise as an employer through activities related to internal marketing propaganda, particularly public relations; internal recruitment and selection system;
2. **external personnel marketing** comprising: the system of external communication between the enterprise and prospective employees; the external recruitment system; the system of creating and establishing the image of the enterprise as an employer through activities related to external marketing propaganda, particularly public relations, the recipients of which are prospective employees.

The criterion of the recipients of the activities constitutes the basis of the adopted division of the personnel marketing system. The addressees of the activities related to personnel marketing can be divided into two groups: internal and external recipients. Internal recipients are the current employees of the enterprise. The other group – external recipients, seems to be more complex. According to A. I. Baruk, several narrower sub segments can be distinguished therein [2]:

- prospective employees who do not currently work in the enterprise but who were employed there in the past (former employees),
- prospective employees who participated in the recruitment activities pursued by the enterprise at least once as applicants but were not employed (former applicants),
- prospective employees who have never had any direct contact with a given enterprise but the attraction of whom in the future would be beneficial for the enterprise,
- indirect recipients being members of the employees' families,
- the employees' friends and acquaintances who also form a group of indirect recipients.

3. Internal marketing mix

Pursuing effective activities within internal marketing requires that every organisation develops an appropriate set of tools. Determining the components of the internal marketing mix is one of the stages in the process of creating an internal marketing strategy. With reference to the discussion by Ch. Grönroos [5], the following **internal marketing mix components** can be distinguished:

1. **Internal product**, which includes work and its environment, motivates the employee to implement the corporate strategy as well as attracts and retains good employees;
2. **Internal marketing activities**, which include:
   a) trainings conducted for the purpose of understanding one's own role in implementing the strategy and within the chain of correlations, enhancing the positive attitude of employees as well as developing and improving communication skills;
   b) supporting the management staff actively by: strengthening the skills developed owing to trainings through everyday activities, encouraging employees to participate in the everyday management process and in the planning process, and ensuring appropriate atmosphere in the organisation;

c) internal mass communication and information support, informing about the implemented strategies by developing appropriate tools (e.g. bulletins, tapes, noticeboards, the Intranet);
d) tools used by personnel departments and in personnel management, including: activities related to employee recruitment and selection, planning career paths, remuneration and bonus system;
e) external mass communication, including the presentation of the promotion message to the personnel before its introduction and accounting for the employee opinion in the process of creating the external message;
f) internal marketing research aimed at determining the level of satisfaction and identification of the employee needs as well as examining the quality of internal services;
g) segmentation of the internal market primarily aimed at determining the profile of the desired employee.

4. Goals and factors of the internal marketing success

As shown, the internal marketing tools include both the broadly defined internal product and a range of internal marketing activities. A proper selection of internal marketing tools directly affects the pursuit of its goals. A. I. Baruk points to two principle groups of internal marketing goals: primary goals and secondary goals [2]. Both groups are presented in Table 2. The achievement of the primary goals is a point of departure for pursuing the secondary goals.

TAB. 2: **Personnel marketing goals**

PRIMARY GOALS	SECONDARY GOALS
• identifying current employee needs (internal purchasers) • identifying prospective employee needs (external purchasers) • identifying the changes occurring in the recognised needs, determining their speed, direction and causes • segmenting internal and external purchasers • creating products satisfying the identified needs • positioning the offered personnel products • satisfying the identified needs in the best possible manner • examining the degree to which the needs of internal and external purchasers are satisfied	• creating, shaping and establishing the image of the enterprise as an attractive employer • attracting and retaining the employees whose emotional and intellectual potential determines the unique identity of the enterprise and its total market value • stimulating the activity and creativity of the members of the organisation by providing them with conditions allowing full application of their conscious and subconscious abilities and skills • creating and strengthening bonds with the participants of the enterprise's environment before they become its employees

Source: Own work based on: A. I. Baruk, *Marketing personalny jako instrument kreowania wizerunku firmy,* op. cit., pp. 24-25

Regardless of whether the broader concept of personnel marketing or the narrower concept of internal marketing is in question, it is possible to indicate specific factors affecting the success if their implementation. Among the factors of the internal marketing success, J. Otto points to the following ones [8]:

- developing an efficient communication system inside the enterprise,
- formulating convincing messages capable of reaching the recipients and exerting an expected influence on them,
- creating the corporate culture characterised by open management style, general engagement and cooperation,

- developing a sense of a general co-responsibility among employees and their awareness that each of them makes a significant contribution to satisfying the purchaser needs as well as possible,
- treating internal marketing as a conduct process, and not as an occasional activity,
- making the broadly defined customer care the axis of all activities related to internal marketing,
- ensuring benefits to the recipients of the internal marketing programmes and making them co-owners of these programmes.

The success of internal marketing largely depends on creating an appropriate culture in the enterprise to support activities related thereto. **Corporate culture** is a model of values, standards, convictions, attitudes and assumptions which may not be clearly defined but which shape behaviours of people in organisations and the manner in which tasks are pursued; values are convictions about what is significant in the behaviours of people and organisations, whereas standards are unwritten rules of conduct [1]. Creating an appropriate climate in the organisation significantly affects the implementation of internal marketing programmes and, on the other hand, internal marketing influences the corporate culture. Culture is a certain binder creating the sense of community at the same time counteracting the differentiation processes occurring in the corporate life. It generates the common system of meanings that is indispensable for effective communication and internal understanding. Along with the corporate culture, **internal communication** in the organisation exerts a significant influence on the possibility to implement internal marketing. An efficient internal communication system enables employees to share and communicate the information necessary for proper execution of tasks; it makes employees more engaged in the corporate life because they understand which goals it wishes to achieve and what benefits this will bring to employees, and it contributes to building trust in mutual relations. In terms of the enterprise's influence on the massage, internal communication may be divided into formal and informal (Table 3). Among the conditions for developing a consistent formal communication system, the following need to be enumerated [15]:

- determining the information needs of every position and the information that the employee holding it has at his or her disposal,
- determining the source of information and its addressees,
- indicating the best form of communication between the interested employees,
- specifying the frequency of communicating information.

Standardisation of the basic components of communication, including, among others, the unification of e-mail addresses of employees, unification of the rules of telephone communication, using colours in order to label the nature of information, exerts a considerable influence on the speed and effectiveness of communication activities. The communication effectiveness depends also on whether it is clear, comprehensible and concise. The information should be communicated regularly, it ought to be relevant and up-to-date. It needs to be also remembered that the internal communication strategy should enable communication directed upward through e.g. consulting committees, sets of meetings, and programmes for expressing opinions or the Intranet.

TAB. 3: **Internal communication tools**

<table>
<tr><th colspan="3">Formal communication tools</th><th rowspan="2">Informal communication tools</th></tr>
<tr><th>Downward communication</th><th>Upward communication</th><th>Horizontal communication</th></tr>
<tr><td>Memoranda
Corporate papers
Bulletins
Reports
Noticeboards
Employee handbooks
Meetings</td><td>Open doors
Idea and complaint boxes
Employee opinion and attitude survey
Publications by trade unions</td><td>Interdisciplinary teams
Integration events</td><td rowspan="2">Gossips and rumours (including controlled ones)
Unofficial meetings</td></tr>
<tr><td colspan="3">Corporate radio, internal hotlines, the Intranet, electronic mail</td></tr>
</table>

Source: A. Olsztyńska, *Marketing wewnętrzny jako narzędzie integracji w firmie,* Marketing i Rynek, August 2002, p. 5

The properly implemented internal marketing based on the principles described above can contribute to achieving specific positive effects. They include customer orientation, customer satisfaction arising from better satisfaction of needs and smaller disharmony between expectations and reality, as well as increase in competitiveness being a consequence of a more effective use of information and a greater flexibility when responding to the needs of the environment. Improvement of the financial result and increase in employee satisfaction and engagement in the process of pursuing the corporate strategy and goals also belong to the positive effects [7]. The benefits arising from the implementation of the principles of internal marketing in the organisation include also: arranging the network of internal relations and improving the flow of information, services and

internal products resulting therefrom; increased ability and willingness to share knowledge among employees; improving the image and increasing the number of positive recommendations; productivity growth and reduction of the costs related to recruitment, selection, trainings, errors made, complaint service and high fluctuation of the staff [15].

Conclusion

The internal marketing concept assumes that employees are internal customers of the enterprise, that they should be appropriately motivated and oriented towards the external customer. A slightly broader notion of personnel marketing points to prospective employees as the target group of marketing activities and perceives the significance of building the image of the enterprise as an employer. Therefore, two subsystems operate within personnel marketing: internal personnel marketing addressed to internal customers (employees) and external personnel marketing addressed to prospective employees. It is possible to achieve the goals of personnel marketing with the use of appropriate tools, the so-called internal marketing mix. It comprises the internal product (work and its environment) and internal marketing activities (e.g. trainings, internal communication, remuneration and bonus system). The success of internal marketing depends, among others, on creating a proper corporate culture and an effective internal communication system in the enterprise.

References:

[1] ARMSTRONG, M. *Zarządzanie zasobami ludzkimi,* Oficyna Wolters Kluwer Business, Warsaw 2011

[2] BARUK, A. *Marketing personalny jako instrument kreowania wizerunku firmy,* Difin, Warsaw 2006

[3] BERRY, L. L. The employees as customers, in: Services marketing, Boston 1984

[4] BERRY, L. L., HENSEL, J. S., BURKE, M. C. Improving retailer capability for effective consumerism response, *Journal of Retailing, vol. 42, issue 3/1976*

[5] GRÖNROOS, Ch. *Service Management and Marketing*, Maxwell Macmillian Intern 1990

[6] KOTLER, P., ARMSTRONG, G., SAUNDERS, J.,WONG, V. *Marketing podręcznik europejski,* PWE, Warsaw 2002

[7] OLSZTYŃSKA, A. Rola marketingu wewnętrznego w rozwijaniu orientacji marketingowej przedsiębiorstwa, in: *Ekspansja czy regres marketingu?* E. Duliniec, L. Garbarski, J. Mazur, M. Strzyżewska, W. Wrzosek (ed.), PWE, Warsaw 2006

[8] OTTO, J. *Marketing relacji. Koncepcja i stosowanie*, C. H. Beck, Warsaw 2003
[9] PAYNE, A. *Marketing usług*, PWE, Warsaw 1996
[10] PENC, J. *Leksykon biznesu*, Agencja Wydawnicza Placet, Warsaw 1997
[11] RAFIQ, M., AHMED, P. A. Advances in the internal marketing concept: definition, synthesis and extension, *Journal of Services Marketing, vol. 14, issue 6, 2000*
[12] STOLARSKA, M.Zrządzanie kadrami w przedsiębiorstwach francuskich, analiza przypadków, *Organizacja i Kierowanie, issue 2/1999*
[13] SZOZDA, N. Instrumenty marketingu wewnętrznego w firmach usługowych branży IT, *Zeszyty Naukowe Wyższej Szkoły Zarządzania Ochroną Pracy w Katowicach,* issue 1(7)/2011, Katowice 2011
[14] WIDAWSKA-STANISZ, A. Zarządzanie zasobami ludzkimi w przedsiębiorstwie usługowym, *Zeszyty Naukowe Uniwersytetu Szczecińskiego, issue 438/2006*, Szczecin 2006
[15] *Zarządzanie relacjami w usługach*, K. Rogoziński (ed.), Difin, Warsaw 2006
[16] ZBIEGIEŃ-MACIĄG, L. *Marketing personalny czyli jak zarządzać pracownikami w firmie,* Wydawnictwo Business Press Warszawa, Warsaw 1996

THE INTERGOVERMENTAL EQUALIZATION SYSTEM IN POLAND IN VIEW OF THE DEVELOPMENT LEVEL OF RURAL MUNICIPALITIES IN LOWER SILESIAN AND LUBUSKIE VOIVODESHIPS

Jarosław Olejniczak, Dorota Bednarska-Olejniczak
Wroclaw University of Economics
jaroslaw.olejniczak@ue.wroc.pl, dorota.olejniczak@ue.wroc.pl

Key words:
local government finance – rural development – tax base

Abstract:
The main goals of paper are: to determine the levels of social and economic development specified by means of the Hellwig's taxonomic method of development pattern of rural municipalities; to determine the relation between the level of basic tax income per capita (PDP) of rural municipalities and the levels of their social and economic development. Accordingly to conducted survey it can be observed that differences in the development level between rural municipalities are gradually becoming less prominent. We can observe that there is still a small group of municipalities with low level of development and low level of tax base and PDP despite many years of subsidizing their budgets. Observed increase of development level originates from the improvement in the rural municipality-owned infrastructure resulting from various undertakings, partly financed from external subsidies

Aim and methods of the study

The first aim of the present paper is to determine the levels of social and economic development specified by means of the Hellwig's taxonomic method of development pattern of Lover Silesian and Lubuskie Voivodeships rural municipalities in 2006, 2008 and 2010 years. The second one is to determine the relation between the level of basic tax income per capita (PDP) of rural municipalities and the levels of their social and economic development. The third objective of the study is an attempt to divide examined municipalities into homogeneous subgroups in terms of the two previously mentioned criteria. 119 rural municipalities were subject to analysis – 41 from Lubuskie Voivodeship and the rest – 78 from Lower Silesian Voivodeship. The data referring to particular variables come from the Local Data Bank of the Central Statistical Office, whereas the financial data – from budget reports of the individual municipalities.

In order to achieve aims of the study the following assumptions have been made. Indices of the development level of the rural municipalities in both

voivodeships will be calculated using a procedure comprising: the analysis and choice of the variables that fulfil the above conditions from the years 2006, 2008 and 2010 and that are accessible in the Local Data Bank of the CSO(Central Statistic Office); the analysis and identification of the variables (among the available ones) which are not quasi-constants; the elimination of the remaining variables that are characterised by a high degree of correlation; the standardisation of the features of the variables; the determination and classification of development measures for individual municipalities in compliance with the Hellwig's method[2] (taxonomic development measure). As a consequence, the results achieved will allow the determination whether there is a correlation between the indices of the rural municipality development level and particular income sources in both examined periods. At the same time an analysis on the relation between the examined features will be conducted based on the division of the municipalities into those of high, medium and low development level with the mentioned PDP per capita measure.

Previous studies[1][3][5] pointed to a set of the following 14 variables: the proportion of councillors with a university degree, birth rate, migration balance in relation to the number of inhabitants of a given municipality, general housing stock of the municipality in relation to the number of its inhabitants, the number of housing benefits paid in the municipality in relation to the number of the inhabitants, the proportion of sewage treatment plants users, the proportion of water supply system users, the proportion of sewerage system users, primary school computerisation index, lower-secondary school computerisation index, the share of the registered unemployed in the number of the working-age population, population index per one library, entities registered in the National Official Business Register REGON per 10 thousand people, own income per capita.

Variability index V_j was computed for the selected variables by the formula (1) with the critical value of the coefficient $V^* \leq 0.1$. The absolute values of the indices for all features exceeded the above level and hence were all subject to further analysis.

$$V_j = \frac{S_j}{\overline{x}_j} \tag{1}$$

where:

V_j - variation coefficient for *j*-variable

S_j - standard deviation for *j*-variable, computed according to (2):

$$S_j = \sqrt{n^{-1}\sum_{i=1}^{n}(x_{ij} - \bar{x}_j)^2} \tag{2}$$

$\bar{x}_j$ - arithmetic mean for *j*-variable

Subsequently, Pearson correlation coefficient matrix was built (3).

$$r_{xy} = \frac{\sum_{i=1}^{n}(x_j - \bar{x})(y_j - \bar{y})}{\sqrt{\sum_{i=1}^{n}(x_j - \bar{x})^2 \sum_{i=1}^{n}(y_j - \bar{y})^2}} \tag{3}$$

where: r_{xy} – Pearson's correlation coefficient, *X, Y* – measurable statistical features,

$\bar{x}$, $\bar{y}$ – arithmetic mean, features *X* and *Y*, respectively.

It was assumed that the features which show high correlation, whose correlation coefficient satisfies the condition $| r_{xy} | \geq r^*$ in relation to the critical value $r^* = | 0.75 |$ would not be allowed for in the further study. Therefore, the variable of sewage treatment plants users was excluded. Thus, matrix X was obtained, with successive lines corresponding to particular local government units and columns – to the values of the individual features for the following entities.

$$X = \begin{bmatrix} x_{11} & x_{12} & \ldots & x_{1m} \\ x_{21} & x_{22} & \ldots & x_{2m} \\ \ldots & \ldots & \ldots & \ldots \\ x_{n1} & x_{n2} & \ldots & x_{nm} \end{bmatrix} \tag{4}$$

where x_{ij} – stands for the value of *j*-feature for *i*-object ($i = 1, 2, \ldots, n; j = 1, 2, \ldots, m$). In order to unify the variables, the features were standardised by the formula:

$$z_{ij} = \frac{(x_{ij} - \bar{x}_j)}{S_j} \tag{5}$$

thus obtaining a matrix of standardised values, where z_{ij} stands for the value of *j*-feature for *i*-object ($i = 1, 2, \ldots, n; j = 1, 2, \ldots, m$).

$$Z = \begin{bmatrix} z_{11} & z_{12} & \ldots & z_{1m} \\ z_{21} & z_{22} & \ldots & z_{2m} \\ \ldots & \ldots & \ldots & \ldots \\ z_{n1} & z_{n2} & \ldots & z_{nm} \end{bmatrix} \tag{6}$$

Based on the above data, development pattern with standardized coordinates was determined in accordance with the Hellwig's taxonomic method of

development pattern, including the division into stimulants and destimulants. Primary school computerisation indices, the share of the registered unemployed in the working-age population number, and population index per one library were regarded as destimulants. Subsequently, the development measure for each municipality was computed by the formula:

$$d_i = 1 - \frac{D_{i0}}{D_0} \tag{7}$$

where:

$$D_{i0} = \sqrt{\sum_{i=1}^{m} (z_{ij} - z_0)^2} \tag{8}$$

(deviation from the standard)

$$D_0 = \overline{D}_0 + 2S_0 \tag{9}$$

$$\overline{D}_0 = n^{-1} \sum_{i-1}^{n} D_{i0} \tag{10}$$

$$S_0 = \sqrt{n^{-1} \sum_{i=1}^{n} (D_{i0} - \overline{D}_0)^2} \tag{11}$$

By the above means synthetic indicators in the years 2006, 2008 and 2010 for each of the municipalities were determined. Afterward, the municipallities were divided into three groups. The municipalities of a high development level (type A) included the entities with the development index higher than the mean plus the standard deviation. The municipalities of a medium development level (type B) included the entities with the index falling within the range of +/- standard deviation from the mean. The last group comprised the municipalities of a low development level (type C), where the index achieved was lower than the mean minus the standard deviation.

1. Results of the study - level of municipalities development in the years 2006, 2008 and 2010

The group of municipalities with the lowest level of development in the years 2006, 2008 and 2010 include 15, 12 and 13 local governments. There is a visible change of the territorial distribution of municipalities - from the year 2006 it was dominated by the municipalities of Lower Silesia (12 of 15), but in 2010 year only 7 of total 12 local governments were situated in the province of Silesia. You can also notice that there is a group of local governments that are repeated in the charts - this are: Luban, Marcinowice, Niechlów, Przeworno and Stara Kamienica. At the same time the municipal-

lities such as Domaniów, Cieszków, Gubin, Ciepłowody are in the charts twice. This indicates a constant low level of development index in these municipalities.

TAB. 1: **Municipalities with the lowest level of development in considered period**

v.	2006	v.	2008	v.	2010
D	LUBAŃ	D	LUBAŃ	D	LUBAŃ
D	MARCINOWICE	D	MARCINOWICE	D	MARCINOWICE
D	NIECHLÓW	D	NIECHLÓW	D	NIECHLÓW
D	PRZEWORNO	D	PRZEWORNO	D	PRZEWORNO
D	STARA KAMIENICA	D	STARA KAMIENICA	D	STARA KAMIENICA
L	DOMANIÓW	D	CIEPŁOWODY	L	DOMANIÓW
L	CIESZKÓW	L	GUBIN	L	CIESZKÓW
L	DESZCZNO	L	NIEGOSŁAWICE	L	DESZCZNO
D	CIEPŁOWODY	D	DZIADOWA KŁODA	L	GUBIN
D	KŁODZKO	D	JORDANÓW ŚLĄSKI	L	NIEGOSŁAWICE
D	KONDRATOWICE	D	MALCZYCE	D	LEWIN KŁODZKI
D	SIEKIERCZYN	L	BOGDANIEC	D	MIĘKINIA
D	WALIM			L	PRZEWÓZ
D	WĄDROŻE WIELKIE				
D	WIŃSKO				

v. stands for voivodeship: D – Lover Silesia, L – Lubuskie
Source: Own work based on the results of the study

On the other hand, we could include to the municipalities with the highest rates of development 15 municipalities in 2006 year, in 2008 14 and in 2010 - 24 municipalities. This demonstrates that differences between the various municipalities are “melting down” in times of crisis (2010) and also that there is progressive development of the municipalities. Also among the municipalities with the highest rates of growth municipalities of Lower Silesia are dominating, but 6 of 15 in 2006 and 6 of 14 in 2008, were the municipalities of the Lubuskie.

TAB. 2: **Municipalities with the highest level of development in considered period**

2006		2008		2010			
D	GŁOGÓW	D	GŁOGÓW	D	GŁOGÓW	L	GÓRZYCA
D	JERZMANOWA	D	JERZMANOWA	D	JERZMANOWA	L	PRZYTOCZNA
L	KŁODAWA	L	KŁODAWA	L	KŁODAWA	D	RADWANICE
D	KOBIERZYCE	D	KOBIERZYCE	D	KOBIERZYCE	D	ŚWIDNICA
D	KUNICE	D	KUNICE	D	KUNICE	D	PODGÓRZYN
D	LUBIN	D	LUBIN	D	LUBIN	D	KROTOSZYCE
L	LUBRZA	L	LUBRZA	L	LUBRZA	D	ZGORZELEC
D	RUDNA	D	RUDNA	D	RUDNA	L	ZIELONA GÓRA
L	ŚWIDNICA	L	ŚWIDNICA	L	ŚWIDNICA	D	ZŁOTORYJA
L	ZABÓR	L	ZABÓR	L	ZABÓR	D	ŻÓRAWINA
D	CZERNICA	D	DŁUGOŁĘKA	D	CZERNICA		
D	WARTA BOLESŁAWIECKA	D	WARTA BOLESŁAWIECKA	D	DŁUGOŁĘKA		
L	ZIELONA GÓRA	L	PSZCZEW	L	PSZCZEW		
D	OSIECZNICA	L	GÓRZYCA	D	MŚCIWOJÓW		
L	BOBROWICE						

Source: as in table 1

Here also can be observed a group of the municipalities that are constantly appearing in the ranking, such as the Głogów, Jerzmanowa, Kunice, Kobierzyce, Lubin, Lubsza, Rudna, Kłodawa, Zabór or Swidnica. Only three of the last municipalities are located in Lubuskie.

Analyzing the percentage of municipalities in each voivodeships in the category B municipalities - a medium level of development - it should be noted that between 70% and 79% of municipalities had both provinces in the each year in this category. This means that a small percentage of municipalities is characterized by a relatively low level of development.

2. Results of study - division of local government by the PDP per capita

In accordance with the guidelines set out in the European Charter of Local Self-Government there is implemented an equalization mechanism in the financing of local governments in Poland. Mainly it consist of general subsidies. The basic criteria for the classification of the municipality is the basics tax income per capita which is consists of the following sources: property taxes, agricultural, forestry, on means of transport, on civil law, from individuals, paid in the form of a tax card, receipts from stamp duty ,

receipts from the exploitation fee; share in PIT and CIT paid by local citizens and companies.

Equalization mechanism (grant and Robin Hood Tax) divides municipalities into three basic categories - municipalities with low revenue base for the value of their respective PDP per capita is less than 92% of the national average PDP per capita, municipalities with an average base level - between 92% and 150% of the national average per capita PDP and municipalities with high tax base - for which the index exceeds 150% of the average. At the same time for the first mentioned group of municipalities government has introduced additional sub-division. From the point of view of this publication, it is important to underline the division of municipalities with low income base into three different groups. Each of them has different level of equalization. It is important that this is a progressive system of equalization which preserves stimulus function of grants.

The amount due to the municipality of the basic amount of grant is calculated for the local governments in following way[4]:

G ≤ 40% Gg	Sg=L*[0,99*(0,4*Gg-G)+41,97]
40% Gg < G ≤ 75% Gg	Sg=L*[0,83*(0,75*Gg-G)+12,92]
75% G g< G ≤ 92% Gg	Sg=L*[0,76*(0,925*Gg-G)]

where:

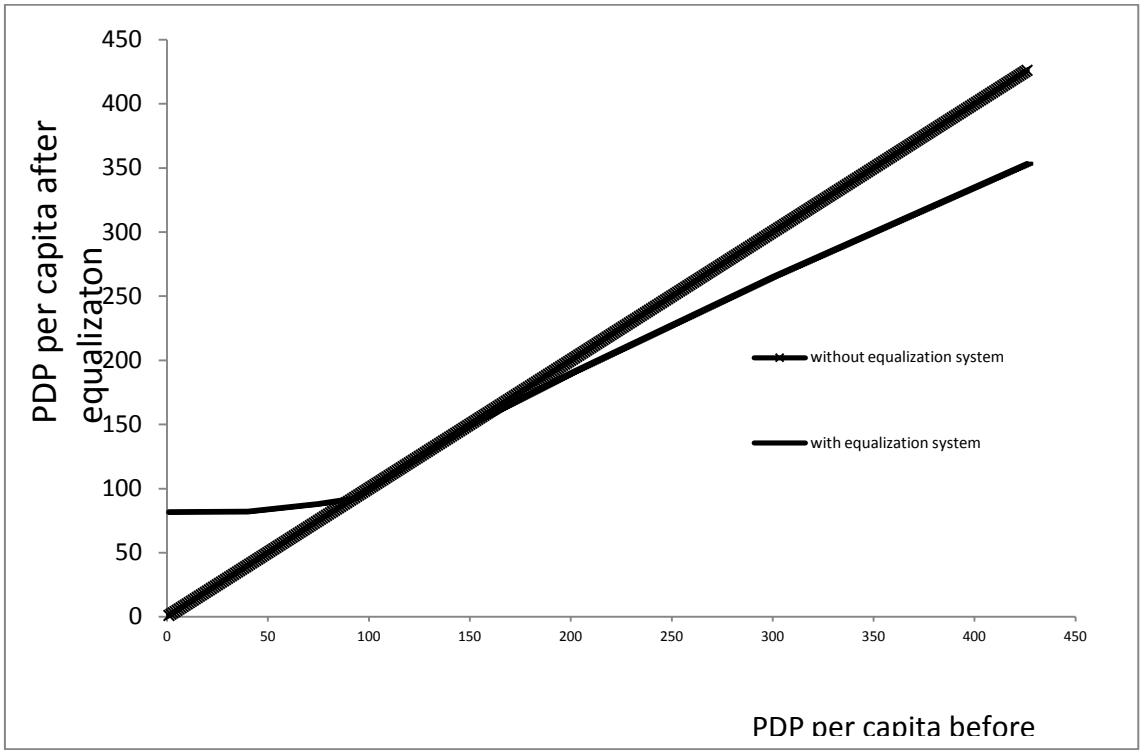
G – PDP per capita in one municipality,
Gg – average PDP per capita in whole country
L – number of citizens of municipality

On the other hand there is progressive Robin Hood Tax for „rich" municipalities (over 150% average PDP per capita). The idea of equalization scheme is presented on chart 1.

The analysis of PDP in the researched rural municipalities in particular years was conducted on the grounds of Ministry of Finance data. Its results are presented in the table 3.

Rural local governments of the surveyed voivodships exhibited a remarkable diversity when it came to PDP per capita in the subsequent years. The municipalities with PDP lower than 75% attract the attention while all the local governments earned the income over 40%. Data from 2008 exhibit the improvement of conditions at the end of business cycle, still 2010 is the proof of business crisis. In spite of the crisis the number of affluent local governments rose from 5 to 7. However, in the majority of local governments the decrease of tax base can be observed. There are obvious differences between voivodships

DRAW 1: **The idea of equalization scheme for municipalities in Poland**



Source: Own work

TAB. 3: **Municipalities by the groups of PDP per capita to the average**

	G>150%Gg	92%Gg<G<150%Gg	92%Gg<G<75%Gg	75%Gg<G<42%Gg	G<40%Gg
2006	5 (4/1)	28 (21/7)	21(12/9)	65 (41/24)	0
2008	5 (5/0)	31(23/8)	29 (19/10)	54 (31/23)	0
2010	7 (6/1)	27 (20/7)	23 (15/8)	62 (37/25)	0

Source: Own work based on the results of the study and local governments financial reports data

The municipalities of Lubuskie voivodship kept a relatively steady level of development as far as income in relation to national average as estimated by Gg is concerned. In the case of Lower Silesia local governments one could observe significant changes in income brackets. It should be emphasized that the situation of Lower Silesia local governments in 2010 improved considerably in comparison to 2006, in contrast to Lubuskie voivodship. The question arises whether local governments with a low PDP remain in the same group in subsequent years? A thorough analysis shows that the majority of low-income local governments occupy the same position in subsequent years. Few Lower Silesia municipalities are an exception. They managed to take advantage of favorable economical conditions in 2007 and 2008 and they increased their income.

3. The relationship between the development of municipalities and PDP per capita.

A basic problem connected with the mechanism of complementing municipal income is a choice of redistribution criteria. Both in theory and in practice a conception of income equalization prevails. The model at use in Poland is the same. However, there exist alternative conceptions, one of which involves the analysis of costs of standardized local services. This article discusses the issue of defining the right recipients of these services. The research on subsidies in the majority of local governments allows us to conclude that these subsidies are of little importance. It does not mean that they are willing to resign from them, but that spending of this money should be well thought-over. Previously conducted research allowed for the comparison of income criteria with the level of local government development. The table below presents the local governments analyzed on the basis of particular criteria.

TAB. 4: **The relationship between the development of municipalities and PDP per capita**

2006 r					
PDP/ Type	G>150%Gg	92%Gg<G<150%Gg	92%Gg<G<75%Gg	75%Gg<G<42%Gg	Total
A	5	7	1	2	**15**
B	0	21	19	**49**	**89**
C	0	0	**1**	**14**	**15**
2008 r					
PDP/ Type	G>150%Gg	92%Gg<G<150%Gg	92%Gg<G<75%Gg	75%Gg<G<42%Gg	Total
A	5	7	2	0	**14**
B	0	24	25	44	**93**
C	0	0	**2**	**10**	**12**
2010 r					
PDP/ Type	G>150%Gg	92%Gg<G<150%Gg	92%Gg<G<75%Gg	75%Gg<G<42%Gg	Total
A	5	13	4	2	**24**
B	2	12	18	**50**	**82**
C	0	2	**1**	**10**	**13**

Source: Own work based on the results of the study and local governments financial reports data

The analysis of the above data proves the relation between the level of income per capita and the level of development. Despite appearances, both the number of low-income municipalites(below 75%) and underdeveloped local governments is tiny when we look at the number of surveyed local governments. It should be emphasized that Lower Silesia local governments (Cieszków, Domaniów, Kłodzko, Kondratowice, Lubań, Marcinowice, Niechlów, Przeworno or Stara Kamienica) prevail in this group. Deszczno municipality is the only one from Lubuskie voivodship.

4. Financial consequences of subsidizing criteria changes

The conception of changing the subsidizing model based on one, PDP per capita, criteria only, into a model based on various criteria, is aimed to increase the efficiency of public funds and to enable the decrease of Robin Hood Tax which is paid by wealthy municipalities. In this model one can assume a division into four groups (tab1)

TAB. 5: **The relationship between the development of municipalities and PDP per capita and need for grant – new taxonomy of equalization beneficiaries**

Municipalities of high level of PDP per capita and high level of development index 75%Gg>G and type A No need of grant	Municipalities of high level of PDP per capita and low level of development index 75%Gg>G and type C Grant needed in specific areas
Municipalities of average or low level of PDP per capita and average or high level of development index 75%Gg<G oraz typ B, A No need of grant	Municipalities of average or low level of PDP per capita and low level of development index 75%Gg<G and type C Big needs for grants

Source: Own work based on the results of the study

The criteria of a new system/model will have obvious financial consequences. To present potential results the 2012 income plan was analyzed and financial consequences of limiting beneficiaries in chosen local governments were calculated.

In 2012 the budget allotted to subsidies in Lower Silesia voivodship was 112 082 817, while in Lubuskie voivodship - 66 952 694 zł. This sum constituted 6.29% i 9.97% of total municipal income. The contribution of subsidies in municipal income constituted between 0.59% and 21.15%. In the local governments taking advantage of a new system of financing, the numbers were different (6,60% to 19,31%) (as the table shows).

TAB. 6: **The relationship between the development of municipalities and PDP per capita**

	Total grants	*Equalization grant*	*Share of equalization grant in total revenues*
CIESZKÓW	6093945	2543165	19,31%
DOMANIÓW	6406784	2117164	14,63%
KŁODZKO	15439842	5960808	12,47%
KONDRATOWICE	4153802	1224613	6,60%
LUBAŃ	6962299	2674179	13,08%
MARCINOWICE	6890696	1760553	8,63%
NIECHLÓW	6415550	2305216	15,71%
PRZEWORNO	5799564	2513288	18,60%
STARA KAMIENICA	5480681	2045375	8,80%
DESZCZNO	7557583	1750864	7,56%

Source: Own work based on the results of the study

Due to the change in financing criteria the redistribution budget would diminish from 179 035 511 zł to 24 895 225 zł , which constitutes more than 85%. Simultaneously one needs to acknowledge that there exists a strong necessity to finance a part of local governments in chosen areas.

Summary

The analysis above pressurizes one to consider the rationality of the functionning of the present subsidizing system of local governments. It is obvious that the research results presented above can only be a reason for the discussion about subsidies as compensatory or equalization mechanisms. One needs to be aware that the research took advantage of arbitrary chosen rates, which can have a crucial impact on the overall picture. The initial assumption of excluding seasonal funds, fe. EU funds stemmed from their unsteadiness in subsequent years. At the same time this very budget and its influence is transparent in material aspects. The results pinpoint the importance of appropriate redistribution because of its scale and its importance for municipalities.

A division of local governments into four categories enables significant decrease in the number of general subsidies beneficiaries to those who need this compensatory mechanisms the most. It is an issue open to discussion what tools should be applied to measure the development to be accepted by municipality representatives.

References:

[1] CHURSKI, P. *Czynniki rozwoju regionalnego i polityka regionalna w Polsce w okresie integracji z Unią Europejską*, Wydawnictwo Naukowe UAM, Poznań, 2008

[2] HELLWIG, Z. *Zastosowanie metody taksonomicznej do typologicznego podziału krajów ze względu na poziom rozwoju oraz zasoby i strukturę wykwalifikowanych kadr*, „Przegląd Statystyczny" 15. 4. 1968

[3] OLEJNICZAK, J. *The Development Level of Rural Municipalities in Lower Silesian Voivodeship in View of Their Income Structure*, 15th International Colloquium on Regional Sciences Conference Proceedings, Masaryk University, Brno 2012

[4] PATRZAŁEK, L. *Finanse samorządu terytorialnego* , Wydawnictwo UE we Wrocławiu, Wrocław 2010

[5] STRAHL, D. (red.) *Taksonomia struktur w badaniach regionalnych* , Wydawnictwo Akademii Ekonomicznej we Wrocławiu im. Oskara Langego, Wrocław 1998

POLISH FOREIGN BEEF TRADE IN THE PERIOD 1990-2011

Anna Olszańska
Wroclaw University of Economics
anna.olszanska@ue.wroc.pl

Key words:
beef – foreign trade – structure

Abstract:
The aim of this paper is to identify trends and changes in the Polish foreign beef trade between1990-2011, as well as changes in the structure of this trade. In subsequent distinguished periods the scale and balance of foreign trade in beef changed significantly. Foreign beef trade, because of its scale and share in domestic production, had in recent years growing influence on the direction of the development of the agricultural activities in Poland.

Introduction

Well-developed export, based on a relatively stable relationship between the contracting parties may give a chance for the development of a type of production over the needs of the domestic market. On the other hand, imports can complement domestic supply of a product group. It also has an important contribution to the stabilization of the internal market by aligning the supply and price of products on the market. [1] Import of raw materials may also provide the basis for the re-export of more processed products. The aim of this paper is to identify trends and changes in the Polish foreign beef trade between1990-2011, as well as changes in the structure of this trade. The period of analysis includes several significantly different in terms of environmental conditions sub-periods:

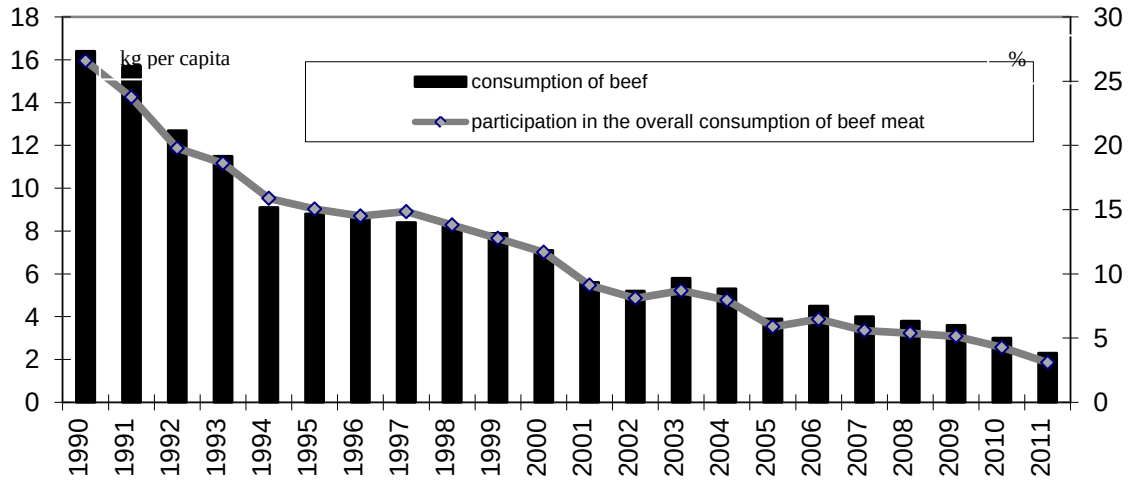
- the period 1990-1994 - the first years of the transformation of the economic system associated with a significant reduction in cattle,
- the period 1995-2002 - a period of relatively stable food markets, but also a time of significant crisis in the beef market linked to BSE,
- the period 2003-2004 - the period prior to accession to the European Union and linked to that economic recovery on the cattle market,
- the period 2005-2011 - the period after accession to the EU and the activities within the common market.

The study used data of state statistics published by the GUS and the IERiGŻ – PIB.

1. Production and consumption of beef in Poland

After a period of very high reduction of cattle in the early 90s Poland continues production of beef and milk. The construction of cattle herd, however, is long, much longer than in other livestock markets.

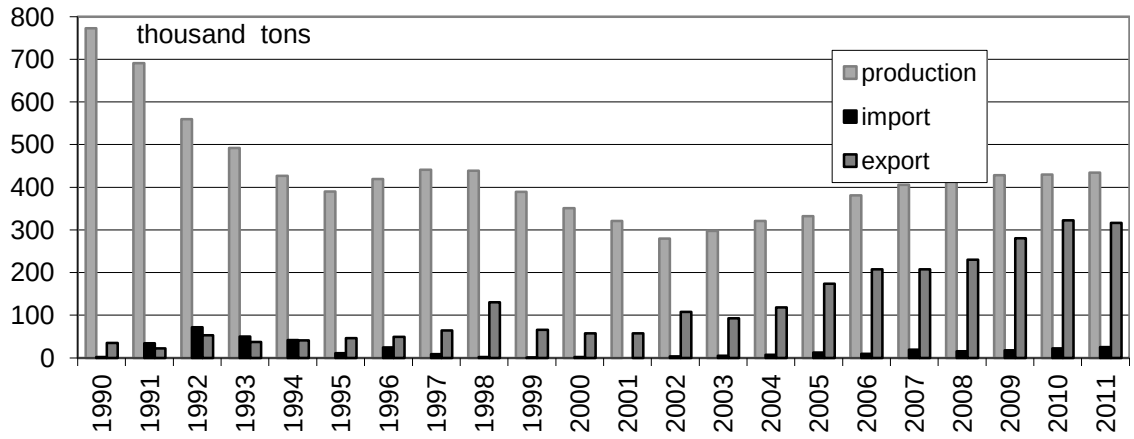
FIG. 1. **Beef consumption and its share in total meat consumption in Poland in the years 1990-2011 (kg / capita,%)**



Source: study based on [2,4]

Domestic demand for beef is limited and relatively small (Fig. 1). However, it will probably increase with the increase in wealth of the society. The annual beef consumption per capita since 1990 decreased steadily from 16.4 kg/capita to 3 kg/capita in 2011. Such a significant drop in the consumption of this type of meat and products was caused by different factors. In the 90s beef in Poland had a relatively low quality. The supply also gradually decreased while physically and economically growing range of substitute products became available. Demand for beef has also been significantly reduced with the news about the potential risks associated with BSE. In recent years, the quality of Polish beef improved significantly. It has become a product of luxury in a sense, more expensive than directly competing with it, pork and poultry products.

FIG. 2. **Production, exports and imports of beef in Poland in the years 1990-2011 (thousand tons)**



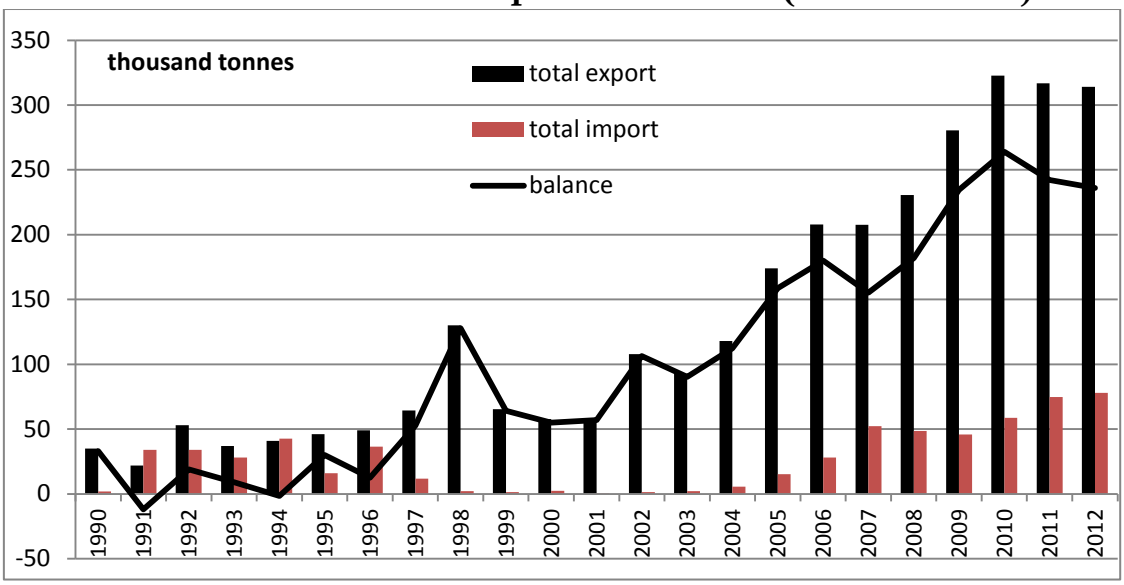
Source: study based on [2,4]

During this period, production of beef after a significant decline in the first three years of the analyzed period (from 793 thousand tons in 1990 to 373 thousand tons in 1994), stabilized (taking into account the scale of fluctuations in the earlier years) it reached a peak in 1997 (401 thousand tons) and the minimum in 2001 (259 thousand tons) (Fig. 2). In the last five years we have seen a small upward trend in beef production, from the level of 363 thousand. tons in 2006 to 434,4 thousand tons in 2011. The number of data and the analysis indicates the positive phenomena occurring in the area of beef production, including increase in the concentration of production, increase in the average weight of purchased items, deepening the processes of specialization in breeding dairy and beef cattle. [2]

2. Export and import of beef in the years 1990-2011

In the years 1990-2011 terms of exports and imports of beef varied significantly. This was due to changes in the regulatory system of the WTO, but also the gradual entry of the Poland into system of organization of the markets of the European Union. This involved first with the gradual liberalization of trade in goods. The first major step was the so-called. Interim Agreement is force since 1 March 1992. Another important agreement concluded on 27 September 2000 in accordance with this agreement, approximately 75% of the beef trade with the EU took place on a duty-free rule. On May 1st 2004, Poland joined the single market organization systems and regulations in force in the EU. [3]

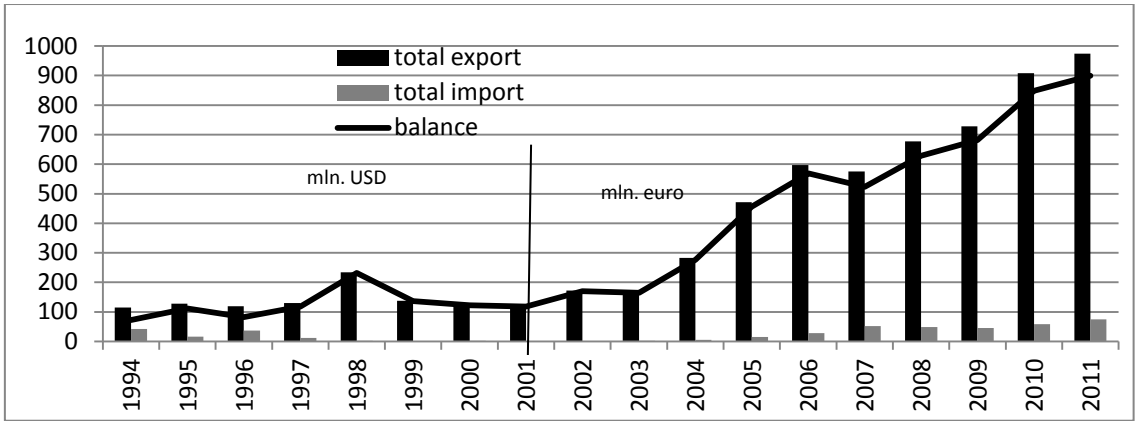
FIG. 3. **Exports, imports and balance of Polish foreign beef trade in terms of volume in the period 1990-2011 (thousand tons)**



Source: study based on [2,4]

In most of the analyzed years, Poland had a large positive balance in terms of quantity and value of beef trade (Fig. 3, 4). Data compiled on these figures indicate that, especially since 2004, export revenues increased significantly. The interaction of exports and imports of beef have changed considerably in the different sub-periods analyzed. In 1990-1994, the scale of exports and imports were similar. In two years (1991, 1994) had quantified negative balance. From 1995 to the end of 2003, Poland exported larger quantities of beef, while at the same time the scale imports was minimal. The opening of the EU market has opened up new perspectives for beef trade in the EU and in external markets. This is reflected in the increase in the scale of international trade, a systematic increase in imports, but also a significant increase in exports. Since 1990, the share of exports in domestic production gradually increased, but until 2001 it did not exceed the level of 18%. The exception was 1998, when it amounted to 29.6%. In 2002, the share of exports in domestic production increased to 38.5% and in 2009 reached 65.5%. This points to the role of exports in the development and processing of beef.

FIG.4. **Exports, imports and balance of Polish foreign beef trade in terms of value in the period 1990-2011 (thousand tons)**

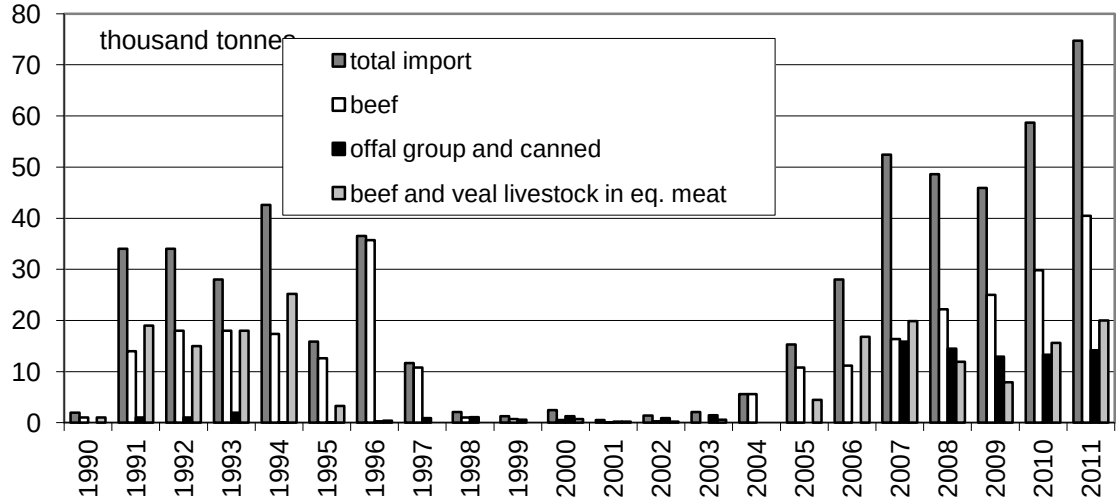


Source: study based on [2,4]

3. Structure of imports and exports

Imports of beef on a more significant scale took place in 1991-1996 and after 2004 (Fig.5), In the first period of relatively comparable amounts of chilled and frozen meat and beef and veal (meat equivalent) and minimum quantities of offal group and canned were imported.

FIG. 5. **Structure of beef imports in the years 1990-2011 (thousand tons)**

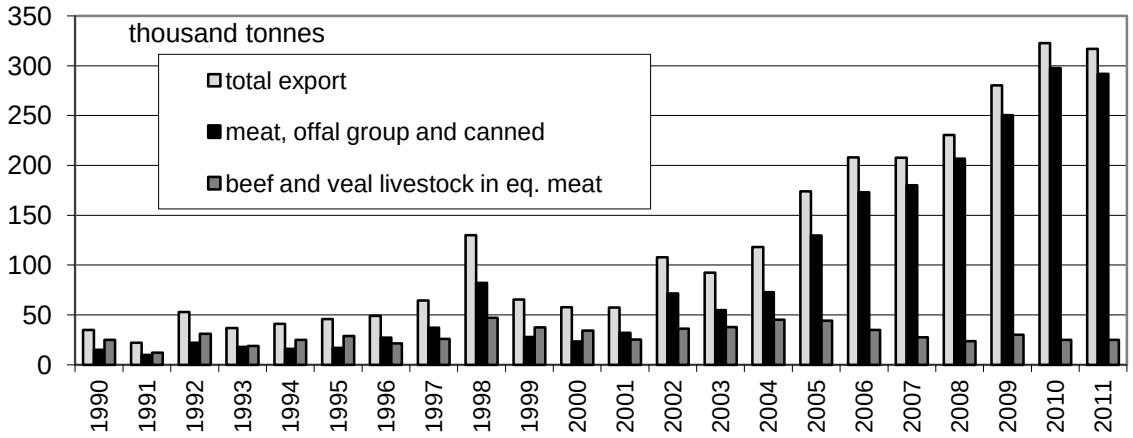


Source: study based on [2,4]

Imports in the second above referred period after 2004 gradually grow more and more. During this period, you can already identify some trends in trade of individual product groups. Imports of frozen and chilled meat is definitely growing, from the minimum amount, close to zero in 2003 to 40.5 thousand. tons in 2011, and that group of products determines the overall growth rate of imports of beef. Since 2007, Poland imports more significant, but comparable in subsequent years, the amount of offal and canned meat (12.9-

15.9 thousand tons). In a relatively large-scale cattle for slaughter is also imported (7.9-20 thousand tons). Data on exports of beef include in most of the analyzed years, only two groups of products - beef meat and livestock (meat equivalent) (Fig.6). From 1990 to 2001, beef exports showed a slight upward trend. Until 1995 and also in the years 1999 and 2000, with a small-scale of export larger quantities of beef and veal were exported.

FIG. 6. **Structure of beef exports in the years 1990-2011 (thousand tons)**



Source: study based on [2,4]

In the following years, until 2004, the export of live cattle increased slightly, but since 2005 the trend is visible for the gradual and systematic decrease. Since 2002, meat had a dominant position in the export. Its exports increased more than 4-fold - from 71.7 thousand tons in 2002 to 297.7 thousand tons in 2010. Available since 2007, more detailed data on the structure of beef products in this group suggest that it was mainly exported chilled beef (in 2011 it accounted for over 71% of the total beef exports in 2008 almost 85%). The increase in turnover, although not as significant as in the case of chilled meat, was also visible in the other distinguished groups during this period - frozen meat, canned beef and offal.

Summary

In subsequent distinguished periods the scale and balance of foreign trade in beef changed significantly. The structure of imports and exports has also changed. Beef production in the country is now relatively small, but has a slight tendency to increase. Demand for beef reported by the processing enterprises is not fully satisfied, mainly due to the long production cycle and a long time that it takes to build the herd. Foreign beef trade, because of its scale and share in domestic production, had in recent years growing influence on the direction of the development of the agricultural activities in Poland. Export provides opportunities for the development of the meat

industry companies (whose profitability for many years was one of the lowest among all sectors of the food industry in Poland), to improve their competitiveness, quality of products and packaging and their marketing. It also creates additional demand for livestock produced in the country, which translates to stimulating the development of this type of animal production. The scale of domestic demand is now relatively small. The annual beef consumption per capita is low and shows no tendency to increase. Turnover in beef trade, and especially exports, increased significantly after the Polish accession to the EU. As a result Poland in the following years to gained higher and higher positive trade balance in these products. The positive changes taking place in the structure of beef exports. The export of live cattle reduces (least processed products), while exports of chilled meat and milk is increasing. Poland imported mostly chilled and frozen meat but import of cattle for slaughter was also a significant.

References:

[1] PLEWA, J. *Polski handel zagraniczny artykułami rolno-spożywczymi. Problemy Integracji Rolnictwa*, FAPA, 1997, nr 1, s. 5-17 ISBN83-88010-11-5

[2] Rocznik statystyczny GUS, Warszawa, 1991-2011 ISSN 1508-0013

[3] GROCHULSKI, A. *Jednolity rynek – droga do integracji europejskiej. Problemy Integracji Rolnictwa,* FAPA, 1996, nr 4, s. 11-20 ISBN83-88010-11-5

[4] Rynek mięsa. *Raporty Rynkowe IERiGŻ -PIB*, 1990 -2011, nr 9-43 ISSN1231-2576

MAPPING REGIONAL INNOVATION STRATEGIES IN CENTRAL EUROPE: A FUZZY COGNITIVE MAP APPROACH

Piotr Pachura, Petr Hájek
Czestochowa University of Technology, University of Pardubice
piotr.t.pachura@gmail.com, petr.hajek@upce.cz

Key words:
regional innovation strategy – fuzzy cognitive map – cognitive economic geography

Abstract:
Regional innovation strategies help decrease the technology gap of the central European countries. This paper maps these strategies using fuzzy cognitive maps. Fuzzy cognitive maps represent the causality between concepts by fuzzy relations. We examined strategic documents and extracted textual knowledge in order to design the fuzzy cognitive maps. Our results suggest that the "cognitive turn" has emerged in the central European countries. Strategic priorities have moved from "Material infrastructure" and "Enterprise / R&D" to "Learning / education" and "Culture of innovation".

Introduction

Innovation policy at the regional level is one of the key factors of socio-economic development, especially in the environment of the European Union. Previous research has indicated that innovations are the result of complex interactions between various regional actors and institutions.

At the same time, the issues of effective and efficient regional innovation strategies (RISs) have become strategically important. Currently, a challenging issue is to develop a methodology for evaluating the effectiveness of both innovation policy and programming strategy. The purpose of this paper is to test the applicability of Fuzzy Cognitive Maps (FCMs) on the analysis of the structure of strategic priorities in regional innovation policy. We examined six RISs in each of the four countries of Central Europe (Czech Rep., Hungary, Poland, and Slovakia). Our research approach was based on a contextual analysis of the priorities of RISs. Then, we employed FCMs to map RISs.

The rest of the paper is structured as follows. Section 1 presents an analysis of the RISs in the Central Europe. We also undertake an issue of the proposed research methodology. Section 2 introduces FCMs as a research approach to RISs' analysis. We develop FCMs for RISs in Section 3. The paper ends with the conclusions.

1. Analysis of Regional Innovation Strategies in Central Europe

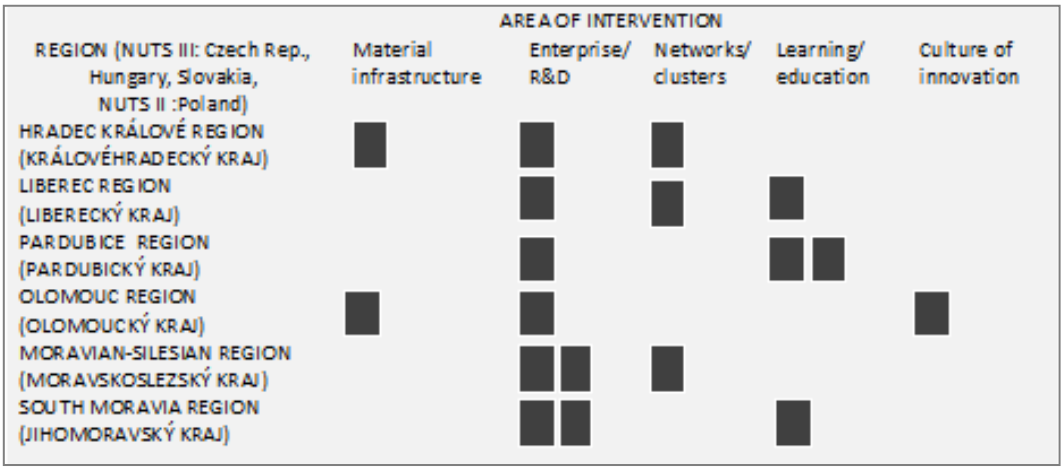
Landabaso [5] suggests that RISs offer a practical approach to deal with the increasing "technological gap" and "cohesion gap", respectively. Kyrgiafini and Sefertzi [3] argue that European regional policy, via the RIS initiatives, has contributed to the reinforcement of regional innovation systems. RISs are developed in three stages [6]: (1) building up consensus, (2) analysing of the innovation potential in a region, and (3) defining priorities and action plan.

We analyzed both the strategic development priorities and policy interventions of regional innovation strategies (NUTS III level):

A) in the Czech Republic: Hradec Králové Region; Liberec Region; Pardubice Region; Olomouc Region; Moravian-Silesian Region; South Moravia Region;
B) in Hungary: North-Great Plain; Central Hungary Region; South-Transdanubian Region; Southern Great Plain; Northern Hungary; Central Transdanubia;
C) in Slovakia: Prešov Region; Žilina Region; Košice Region; Trenčín Region; Banská Bystrica Region; Nitra Region;
D) in Poland (NUTS II level): Lubelskie Region; Śląskie Region; Podkarpackie Region; Małopolskie Region; Zachodniopomorskie Region; Warmińsko-Mazurskie Region.

Our analysis was based on the desk research, namely the study of content (contextual analysis) of strategic priorities (SPs) occurring in regional development and innovation strategies. At the same time, we identified the synthetic areas of regional development and policy interventions (RDPIs) as follows: "Material infrastructure"; "Enterprise / R&D"; "Networks / clusters"; "Learning / education"; and "Culture of innovation". We assigned specific SPs to the RDPIs. Specifically, we determined (1) the relationships between SPs and RDPIs, and (2) the relationships between individual RDPIs. The strengths of the relationships were defined on a scale from zero to three points (0 - no relation, 1 – weak relation, 2 – strong relation, 3 - very strong relation). TAB. 1 presents a matrix showing the relationships.

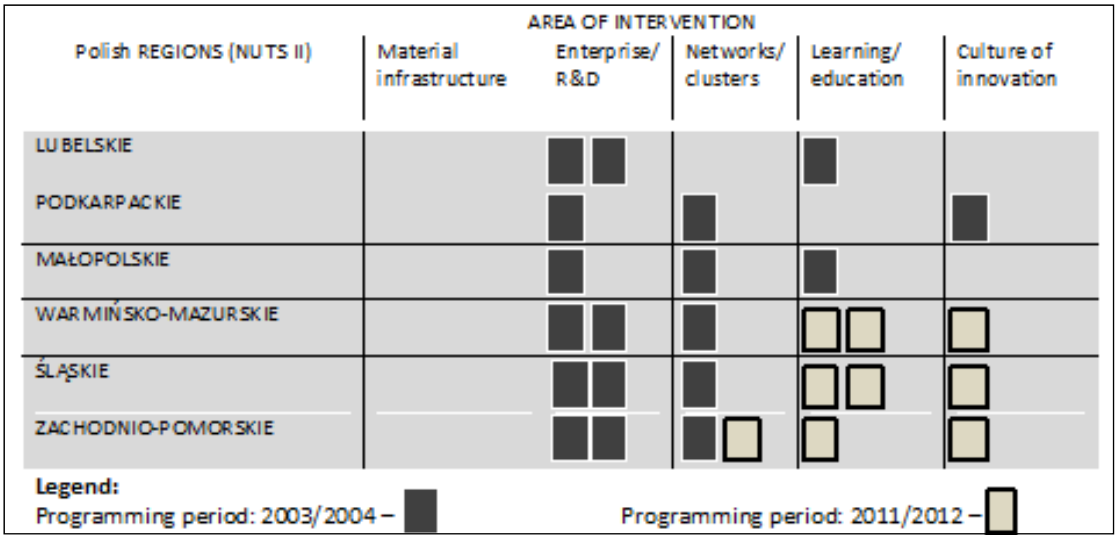
TAB. 1: **The matrix of SPs and RDPIs relationships**



Source: own elaboration

Additional deeper analysis was possible since each RIS was developed for different year (2003 - Hungary; 2004 - Czech Rep., 2007 - Slovakia; 2004 and 2011 – Poland). In fact, we can observe an evolution consisting in transition from SPs related to "Material infrastructure" and "Enterprise / R&D" to SPs related to "Learning / education" and "Culture of innovation". TAB. 2 shows matrixes for selected Polish regions in 2004 and 2011. We can observe a phenomenon that we call "cognitive turn" in regional policy and regional programming theory and practice.

TAB. 2: **Evolution of SPs and RDPIs relationships for Polish regions**



Source: own elaboration

2. Fuzzy Cognitive Maps Approach

Recently, researchers have shown an increased interest in Fuzzy Cognitive Maps (FCMs), see e.g. [1]. FCMs have been introduced by Kosko [4] to generalize the concept of cognitive maps (CMs) [2]. In CMs, nodes stand for variable concepts, and edges denote causal connections. CMs have been designed to represent social scientific knowledge. In many domains, however, the knowledge representation is fuzzy. More specifically, causality between concepts cannot be expressed precisely. In fact, this causality may be represented by a fuzzy relation on causal concepts. Then, a FCM is a fuzzy signed oriented graph with a feedback. Fuzzy weights with positive / negative signs stand for causal relationships in a FCM.

The values of nodes C_i (activation degrees) are calculated as the sum of all incoming edges multiplied with the values of preceding nodes. Then, a threshold function is applied to the activation degrees in FCMs. A directed edge E_{ij} between nodes C_i and C_j shows on how much C_i causes C_j. The edge E_{ij} lies in the fuzzy causal interval [-1, 1], where $E_{ij} > 0$ denotes a positive causality, $E_{ij} < 0$ refers to a negative causality, and $E_{ij} = 0$ indicates no causality. For n concepts C_i, $i = 1,2, \ldots ,n$, an $n \times n$ weighted (adjacency) matrix **E** can be constructed. The activation degree A_i for each concept C_i is calculated as follows:

$$A_i^{t+1} = f\left(\sum_{j=1}^{n} A_j^{t+1} \times E_{ji}\right) + A_i^t, \qquad (1)$$

where A_i and A_j stand for activation degrees of concepts C_i and C_j, respectively, t denotes time, and f is a threshold function.

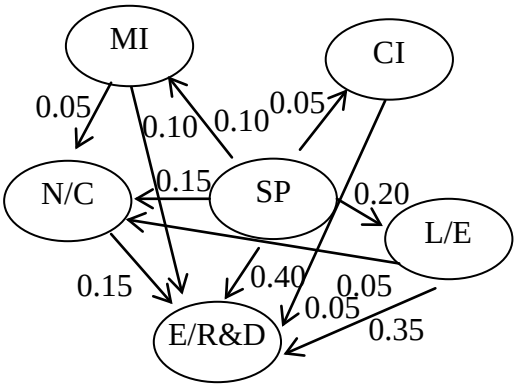
A FCM can be designed in four ways [7]: (1) from questionnaires, (2) by text analysis, (3) by drawing them from data, or (4) via interviews. Specifically, a FCM is drawn first. Second, the FCM is coded into adjacency matrix **E**. Third, the structure of the FCM is analysed using graph theoretical indices. Finally, various policy options can be simulated through neural network computation [7]. We applied the first two steps to define FCMs for RISs.

3. Fuzzy Cognitive Maps for Regional Innovation Strategies

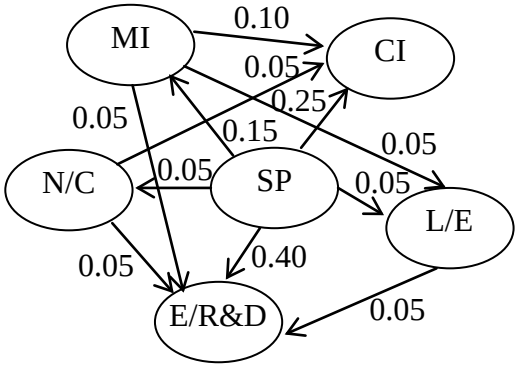
We designed our FCMs using the text analysis of strategic documents. First, we assigned SPs to RDPIs. Second, we transformed the strengths of these relationships into the edges in the adjacency matrixes for each country. Third, we transformed the correlations between RDPIs' term frequencies in each country into the edges and, thus, the adjacency matrixes for each country were completed. The directions of the edges were determined by local experts. As a result we obtained one FCM for each country and, in

addition, two FCMs for Poland since strategic documents for this country were available from both 2004 and 2011. The FCMs are presented in FIG. 1.

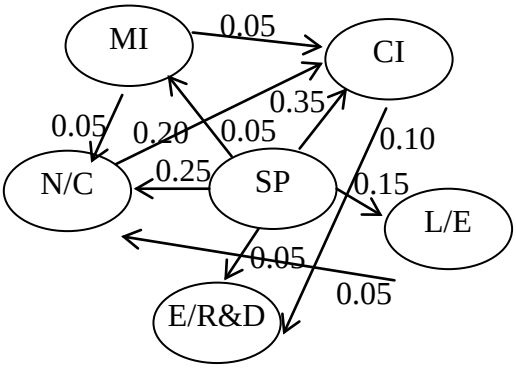
FIG. 1: **Fuzzy cognitive maps for regional innovation strategies in central European countries**



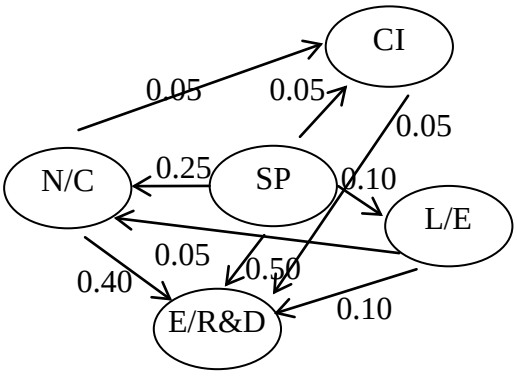
a) Czech Rep.



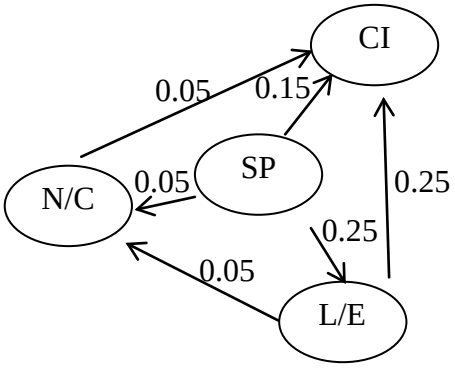
b) Hungary



c) Slovakia



d) Poland (2004)



e) Poland (2011)

Source: own elaboration

Legend: MI – material infrastructure, E/R&D – enterprise / R&D, N/C – networks / clusters, L/E – learning / education, CI – culture of innovation, SP – strategic priority.

Apart from direct effects, indirect effects can be identified in the FCMs. Indirect-effect operator I (as minimum) and total-effect operator T (as maximum) can be defined [4]. For example, in the case of the Czech Rep., SP affects E/R&D in one direct way (with E=0.4) and four indirect ways. These indirect-effect operators are defined as I_1=min{0.20,0.35}, I_2=min{0.05,0.05}, I_3=min{0.15,0.15}, and I_4=min{0.10,0.05,15}. Then, the total-effect operator is defined as T=max{0.4,0.2,0.05,0.15,0.05}=0.4. In this case, the direct effect represents the total effect at the same time. However, indirect effects can be stronger than direct effects (e.g., SP on E/R&D for Slovakia, or SP on CI for Poland in 2011).

Conclusion

We mapped RISs of central European regions using FCMs. This mapping was based on textual analysis of strategic documents. We observed trend towards the areas of "Learning / education" and "Culture of innovation" within RISs. This finding suggests that existing material infrastructure is sufficient and enterprises cooperate in innovation networks. However, this infrastructure and networks should be used more effectively through the development of learning and culture of innovation. The mutual relationships identified in our FCMs support the idea that individual areas of regional innovation systems are interdependent. Thus, the reinforcement of one area may result in the improvement of other subsystems, too.

In our future research, we will simulate the evolution of regional innovation systems using the designed FCMs.

References:

[1] AGUILAR, J. A Survey on Fuzzy Cognitive Maps Papers. *International Journal of Computational Cognition*, 2005, vol. 3, no. 2, pp. 27-33.

[2] AXELROD, L. *Structure of Decision: The Cognitive Maps of Political Elites*. Princeton: Princeton University Press, 1976.

[3] KYRGIAFINI, L, SEFERTZI, E. Changing Regional Systems of Innovation in Greece: The Impact of Regional Innovation Strategy Initiatives in Peripheral Areas of Europe. *European Planning Studies*, 2003, vol. 11, no. 8, pp. 885-910.

[4] KOSKO, B. Fuzzy Cognitive Maps. *International Journal of Man-Machine Studies*, 1986, vol. 24, pp. 65-75.

[5] LANDABASO, M. The Promotion of Innovation in Regional Policy: Proposals for a Regional Innovation Strategy. *Entrepreneurship & Regional Development*, 1997, vol. 9, no. 1, pp. 1-24.
[6] LESÁKOVÁ, L. The Process of Forming the Regional Innovation Strategy. *Acta Polytechnica Hungarica*, 2011, vol. 8, no. 1, pp. 5-22.
[7] OZESMI, U., OZESMI, S.L. Ecological Models based on People's Knowledge: A Multi-step Fuzzy Cognitive Mapping Approach. *Ecological Modelling*, 2004, vol. 176, pp. 43-64.

ROBUST OPTIMIZATION

Jan Pelikán, Maria Kobzareva
University of Economics, Prague
pelikan@vse.cz, maria.kobzareva@vse.cz

Key words:
robust optimization – data uncertainty – robustness – linear programming – allocation problem – knapsack problem – vehicle routing problem

Abstract:
Robust optimization is a modeling tool, which solves problems in which data are uncertain. This problem is frequently solved in many fields in practice and it is more appropriate for real-life applications, because in practice data are hardly deterministic, but tend to change unexpectedly. The paper introduces robust optimization methodology and suggests a possibility of solving different problems with uncertain data set using robust optimization models. To solve the problem we use robust linear programming. We discuss some of the applications, such as allocation problem with uncertain demand, robust portfolio optimization problem with changes in share values and robust vehicle routing problem with uncertain demand. The applications are described on case studies and provided with mathematical models and its detailed description.

Introduction

In optimization problems data are often assumed to be deterministic, which is hardly the case in the real world environment, as uncertainty element tends to be a part of every problem, are we talking about vehicle routing problem, network flows or knapsack problems. When planning the minimum route for a vehicle we have to take into account possible traffic jams, car accidents on the route or even traffic lite malfunction. If we considered the input data to be precisely known and in real life data appear to differ from the assumed nominal values, then generated "optimal solution" may violate critical constraints, solution may even become non-optimal and perform poorly from an objective function point of view. Robust optimization works with uncertain data and optimizes the problem due to the determined number of uncertain cases.

This paper considers robust optimization, a more recent approach to optimization under uncertainty, in which the uncertainty model is not stochastic, but rather deterministic and set-based.

In particular, we introduce robust optimization mechanism on several classic mathematical optimization problems, including allocation problem, knapsack problem and vehicle routing problem. The problems are presented on a case study to show the practice application of presented tools.

Case studies for robust optimization

Allocation problem

Power supply network maintenance company with 12 service centers (subdivisions) solves the problem of allocating two material storages for maintaining electricity net in north and middle Czech. Every center has workers, which eliminate malfunction on electricity net in specific region of Czech Republic. The average year consumption of material calculated from historic data is defined as d_i, d'_i is aditional consumption of center i, where we also take into account that in several years under the unexpected circumstances (flooding, snow calamity, hurricanes, enc.), so the consumption has been greater than usual, the real consumption was $d_i + d_i'$. The aim is to allocate central material storage in one of the centers, from which the other centers will be supplied with material with minimum transportation costs and with possibility to cover the material demand in case two unexpected events in the region will occur.

Mathematical description of the problem

Let us introduce binary variable $x_i \in \{0,1\}$; where $x_i = 1$ in case the central storage is located in center i, $x_i = 0$ otherwise. Variable $y_i \in \{0,1\}$; if $y_i = 1$, then unexpected event will appear at center i, associated with greater demand d_i', $y_i = 0$ otherwise.

Next we consider c_{ij} distance between center i and center j.

Variable z_{ij} is bivalent for $i, j = 1,..,12$; if $z_{ij} = 1$, then center j gets material from storage located in center i, $z_{ij} = 0$ otherwise.

To ensure supply of center j the equation

$$\sum_{i=1}^{12} z_{ij} = 1,$$

must be equal for $j=1,..,12$.

Total transportation costs in ton kilometers are calculated as follows

$$\sum_{i}^{n}\sum_{j}^{n} c_{ij}\left(d_i + d_i' y_i\right) z_{ij}.$$

Maximum over y is minimized under the following condition

$$\sum_{i=1}^{12} x_i = 1$$

which ensures that only one center will be selected where the storage will be built.

Condition

$$\sum_{j=1}^{12} z_{ij} \leq 12x_i, \qquad i = 1,..,12$$

assures that if the storage is not built at center i, that it is not possible to supply other centers from this subdivision.

As the unexpected material demand in center i depended on variable y_i could appear only in at most two cases, let us consider

$$\sum_{i=1}^{12} y_i \leq 2.$$

Portfolio optimization problem

Basic portfolio optimization problem is based on knapsack problem extended on unexpected changes in share profit values, which could appear but are unpredictable and it is not possible to calculate the exact change in value, only guess its possible range.

The model is based on choosing n shares so that their prices would not exceed given investment limit K.

Profit maximization is the aim of the problem. Let us introduce c_i, $i = 1, .. , n$ as the price of share i and r_i as the profit of share i, the loss of profit can be r'_i. The unexpected losses in profits would not accrue all together, and we can consider that the number of those cases will be at most Γ, which is a given number.

Let us introduce variable x_i as a number of selected shares. Then inequality

$$\sum_{i=1}^{n} c_i x_i \leq K$$

ensures that selected portfolio will not exceed disposable investment limit K. Than let us introduce binary variable y_i which is 1 if there is unpredictable decrease in profit of the share i. The number of unexpected decrease of profit is limited by the given number Γ, so it holds $\sum_{i=1}^{n} y_i \leq \Gamma$.

The objective function

$$\sum_{i=1}^{n} r_i x_i - \max_{y} \sum_{i=1}^{n} r_i' y_i x_i$$

will be maximized.

Robust optimization of vehicle routing problem

Classic formulation of vehicle routing problem is defined on complete graph with n nodes and distance matrix C, where c_{ij} is distance between node i and node j. Vehicle with capacity $Q > 0$ has to ensure goods transportation to the graph nodes, the demand in node i is d_i,

$$\sum_{i=1}^{n} d_i > Q\,, d_i \leq V, i \;=\; 1,..,n.$$

Since the increase in demand in node i can occur, considering that

$$d_i + d_i\,' \leq Q,$$

we search for optimal solution considering that increase in demand will not occur in all nodes, but only in Γ cases.

Mathematical formulation comes from binary variables x_{ij} $(i \neq j)$, where

$x_{ij} = 1$, if vehicle will travel from node i to node j, $x_{ij} = 0$ otherwise.

Total transportation costs are calculated as follows

$$\sum_{i=1}^{n} \sum_{j=1}^{n} c_{ij}\, x_{ij}$$

and maximum over y is minimized (over x).

Then standard constrains are

$$\sum_{i=1}^{n} x_{ij} = 1, j \;=\; 1, 2, \ldots\; n,$$

$$\sum_{j=1}^{n} x_{ij} = 1, i \;=\; 1, 2, \ldots\; n.$$

Let us introduce u_i as the size of load which comes to node i, then we must consider

$$u_i \leq Q, i \;=\; 1,..,n.$$

Inequalities that determine the values of variables are modified depending on bivalent variable y_i;

$y_i = 1$, if in node i the demand increase d_i´ will occur, $y_i = 0$

otherwise.

The inequality will be written as follows

$$u_i + d_j + d_j \acute{} y_i - Q(1 - x_{ij}) \leq u_j, i = 1,..,n, j = 2,3,..,n.$$

As the increase in demand will not occur in all nodes, but only in Γ nodes, we should add the constraint

$$\sum_{i=1}^{n} y_i <= \Gamma.$$

Conclusions

This paper offers robust optimization tools to solve linear problem, particularly allocation problem, portfolio optimization problem and vehicle routing problem. We've introduced robust optimization as a modern tool to solve different problems and demonstrated robust optimization models for allocation problem with uncertain demand, robust portfolio optimization problem with changes in share values and robust vehicle routing problem with uncertain demand. Beside detailed description of problems we also present mathematical models to explain the methods of proposed optimization tools.

Acknowledgements:

This research was supported by the project 403/12/1947 founded by the Grant Agency of the Czech Republic and the project F4/18/2011 founded by the Internal Grant Agency of the University of Economics, Prague.

References:

[1] BERTSIMAS, D., WEISMANTEL, R. *Optimization over integers*, 2005, ISBN 0-9759146-2-6

[2] SIM, M. *Robust Optimization by Melvyn Sim*, 2004

[3] DIMITRIS BERTSIMAS, D., BROWN, D. B., CARAMANIS, C. *Theory and applications of Robust Optimization*, 2007, SIAM Rev., 53(3), 464–501. (38 pages)

FINANCIAL ASPECTS OF THE COUNTERACTION OF FLOODS' EFFECTS IN THE KUYAVIAN-POMERANIAN VOIVODESHIP (NUTS 2)

Zbigniew Piepiora
Wroclaw University of Economics
zbigniew.piepiora@ue.wroc.pl

Key words:
flood – effects – financial aspects – counteraction – the Kuyavian-Pomeranian Voivodeship

Abstract:
In the article, there are presented financing aspects of the counteraction of floods' effects in the Kuyavian-Pomeranian Voivodeship (NUTS 2). In the examined area, preventing negative consequences of floods is financed from the budget of the voivodeship and from budgets of Kuyavian-Pomeranian's self-governments. Expenses are assisted by measures from e.g. the central budget, foreign states, ecological funds, credits and loans.

Introduction

In the Kuyavian-Pomeranian Voivodeship, areas near rivers of the Wisła basin are mostly exposed for the occurrence of floods. According to the Water Law, flood is temporal covering by the water the terrain which in normal conditions is not covered by it, triggered by the freshet in the natural water races, water reservoirs, waterways and from the seaside, causing the threat for the life and health of people, the environment, the cultural legacy and the economic activity [7, art. 9].

The aim of this article is to present the issue of financing aspects of counteracting floods' effects. It is presented on the regional level of the Kuyavian-Pomeranian Voivodeship (NUTS 2).

1. Financing the Counteraction of Floods' Effects in the Examined Area

The Kuyavian-Pomeranian Voivodeship is located in the middle-north part of Poland. It is situated in the lowland and lakeland area. The examined region borders with five voivodeships: Pomeranian (north), Warmian-Masurian (north-east), Masovian (east), Łódź (south) and Greater Poland (south-west). Capitol cities of the region are Toruń (the seat of the Marshal – the head of the self-government administration of the voivodship) and Bydgoszcz (seat of the Voivod – the head of government administration of the examined area). The voivodeship occupies 17 970 km^2. The number of

inhabitants is approximately 2.1 millions. The population density is approx. 117 person/km^2. The main rivers of the region are: Wisła (with its tributaries – Brda, Drwęca, Wda, Osa) and Noteć (the basin of the Odra river). [3, p. 13-15, 25-27]. The Kuyavian-Pomeranian Voivodeship is only in 1.9% covered by local development plans. It is very poor result on the background of Poland (19.7%) [6, p. 255- 256].

TAB. 1: **Expenditures for permanent assets serving the water management in the Kuyavian-Pomeranian Voivodeship in the years 1998-2011 – directions of investing (in '000 US dollars indexed to the year 2011)**

1.	2.	3.	4.	5.	6.	7.	8.
1998	34999	17211	8131	2847	2823	3148	840
1999	30388	11905	10358	3561	1190	1171	2204
2000	21030	12223	3196	2321	874	160	2257
2001	16950	12484	2826	17	917	0	706
2002	21951	11282	4011	53	4362	263	1980
2003	23302	11631	4737	182	3067	1171	2513
2004	32534	25597	3269	0	2601	481	585
2005	21948	11159	9553	0	776	94	366
2006	43200	20472	17487	962	1796	1181	1302
2007	38740	23577	8354	850	2622	1609	1728
2008	49739	44222	4086	0	1431	0	0
2009	55542	45000	8953	236	1341	12	0
2010	85701	36182	43034	507	5372	605	0
2011	47683	21832	16630	376	4798	3244	803
total - all years	523708	304777	144626	11912	33969	13140	15283

1. years,
2. total,
3. intakes and deliveries of water,
4. building and modernization of water conditioning stations,
5. water reservoirs and stages,
6. regulation and development rivers and streams,
7. levees,
8. pump stations on breaking downs and depression areas

Source: Own study on the basis of: [1].

Expenses for permanent assets serving the water management in the Kuyavian-Pomeranian Voivodeship in the years 1998-2001 according to the directions of investing are presented in the table 1. As we can see, expenditures for levees (6.) in the years after the flood in the Odra basin in 1997 [6, 7] leveled down in periods 1998-2001 and 2002-2005. In the years 2006-2009, expenses

exceeded yearly 1 mln US dollars. They strongly leveled up after the flood in the year 2010. Total expenses for permanent assets serving the water management in the Kuyavian-Pomeranian Voivodeship in the years 1998-2001 amounted approximately 524 millions US dollars indexed to the year 2011.

TAB. 2: **Expenditures for permanent assets serving the water management in the Kuyavian-Pomeranian Voivodeship in the years 1998-2011 – directions of financing (in '000 US dollars indexed to the year 2011)**

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
2002	21951,0	9183,4	1056,6	1288,6	0,0	186,6	5521,5	3414,4	428,3	871,8
2003	23301,8	8714,1	1346,4	785,1	0,0	73,6	10664,5	834,9	465,9	417,3
2004	32534,0	12100,0	800,1	683,6	1,1	11,4	13582,6	4173,2	439,0	742,9
2005	21948,2	10817,7	361,8	555,0	20,3	159,6	5429,1	2956,6	358,8	1289,5
2006	43199,6	23066,4	249,3	1100,1	0,0	103,9	7543,9	6059,4	2653,9	2422,6
2007	38740,2	12911,9	1140,1	1778,3	0,0	78,1	15320,8	5522,0	1441,6	547,4
2008	49739,4	29488,1	1380,6	685,3	0,0	347,5	10086,6	5674,0	1953,9	123,4
2009	55542,3	18110,7	1084,6	177,2	0,0	389,7	22166,0	3615,0	264,6	9734,5
2010	85700,6	45214,2	439,7	6320,5	0,0	1458,6	11518,0	6091,5	3823,7	10834,5
2011	47683,3	19040,4	172,8	9233,1	11,3	661,5	8044,6	5680,8	3448,9	1390,0
total - all years	420340,4	188646,7	8032,0	22606,6	32,7	3470,4	109877,6	44022,0	15278,5	28373,8

1. years,
2. total,
3. own measures,
4. measures form the central budget
5. measures from the budget of voivodeship,
6. measures from budgets of counties,
7. measures from budgets of municipalities,
8. measures from the foreign countries,
9. ecological funds,
10. country credits and loans,
11. other measures

Source: Own study on the basis of: [1].

Expenditures for the permanent assets serving the water management in the examined area in the years 2002-2011 according to directions of financing sources are presented in the table 2. As we can see, the main source of expenses were own measures. From these source, there were financed nearly half of total expenditures in the examined period which totally amounted over 420 millions US dollars.

Effects of investing in the water management in the years 2003-2011 in the Kuyavian-Pomeranian Voivodeship are presented in the table 3. As we can see, few km of levees (7.) were built only in the years 2003, 2004, 2007 and 2011. In the last year they have been probably started to build after the flood in the year 2010.

In the Kuyavian-Pomeranian region there are executed program to counteracting floods' effects. These programs are e.g. 'Updating program of retention of the surface water of the Kuyavian-Pomeranian Voivodeship' [2] and 'Program for Oder – 2006' [5].

TAB. 3: **Effects of investing in the water management in the Kuyavian-Pomeranian Voivodeship in the years 2001-2011**

1.	2.	3.	4.	5.	6.	7.	8.	9.
units of measure	'000 m^3	'000 m^3	km	unit	'000 m^3	km	unit	km
2001	5350	3468	412	1	15000	0	3	21
2002	17911	3112	400	0	0	0	0	13
2003	4928	2032	208	0	0	7	3	34
2004	14128	3848	379	0	0	7	0	0
2005	2511	3253	401	0	0	0	1	0
2006	7426	5395	481	0	0	0	0	0
2007	8348	5289	341	0	0	5	0	0
2008	4076	3034	512	0	0	0	0	18
2009	15884	2127	321	0	0	0	0	6
2010	4290	11262	510	0	0	0	0	9
2011	4554	20096	283	0	0	1	2	84
total - all years	89406	62916	4249	1	15000	20	9	185

1. years,
2. intakes – efficiency per 24 hours,
3. water conditioning per 24 hours,
4. water supply system,
5. water reservoirs – total number,
6. water reservoirs – total capacity,
7. levees,
8. pump stations on the breaking downs and the depression areas,
9. regulation and development rivers and streams

Source: Own study on the basis of: [1].

TAB. 4: **Investing expenses for the low water retention in the Kuyavian-Pomeranian Voivodeship – investing directions in the years 2003-2011 (in '000 US dollars indexed to the year 2011)**

years	total	man-made water reservoirs	independent staging structures and water intakes on primary water-races	independent staging structures and water intakes on secondary water-races	staging lakes	fish ponds	other
2003	2390	0	293	0	1	6	2090
2004	2170	46	444	3	30	0	1647
2005	556	34	342	0	7	6	167
2006	663	50	587	0	0	11	14
2007	1394	225	964	0	0	0	206
2008	357	0	0	0	0	0	357
2009	328	19	310	0	0	0	0
2010	317	224	92	0	0	0	0
2011	44	0	43	0	0	0	0
total - all years	8219	599	3076	3	38	22	4481

Source: Own study on the basis of: [1].

Investing expenses for the low water retention [4] in the area of examined region in the years 2003-2011 according to investing directions are presented in the table 4. As we can see, investing expenditures for independent staging structures and water intakes on primary water-races exceeded almost 3 millions US dollars. Total investing expenses for the low water retention exceeded 8.2 millions US $.

TAB. 5: **Effects of investing in the low water retention – the range of objects in the Kuyavian-Pomeranian Voivodeship in the years 2003-2011**

years	objects	increasing capacity	staging of lakes		artificial water reservoirs		fish ponds		staging structures	other	surface of irrigation
	1.	2.	1.	2.	1.	2	1.	2.	1.	1.	(ha.)
2003	5	1	0	0	1	1	1	0	3	0	82
2004	4	36	0	0	1	36	0	0	3	0	0
2005	4	20	0	0	4	20	0	0	0	0	5
2006	530	89	0	0	6	12	487	77	37	0	0
2007	14	161	0	0	2	161	0	0	12	0	0
2008	0	0	0	0	0	0	0	0	0	0	0
2009	4	21	0	0	2	21	0	0	2	0	0
2010	25	0	0	0	25	0	0	0	0	0	2
2011	8	0	0	0	1	0	0	0	7	0	0
total - all years	594	328	0	0	42	250	488	77	64	0	90

1. objects (units), 2. capacity ('000 m3)

Source: Own study on the basis of: [1].

Effects of investing in the low water retention are presented in the table 5. The range of objects in Silesian Voivodeship in the years 2003-2011 amounted 594. Total increasing capacity in the examined period is amounted 328 thousands m^3.

According to the settlement of accounts of executing the purpose reserve of the Polands' budget for the 'Program for Oder – 2006' in the year 2011, Part 83 Purpose reserve for executing Program for Oder 2006 in the year 2011 (944 525 US $) were executed in 100%. It is good result on the background of total expenses of Part 83 [5, s. 16].

4. Conclusion

In the Kuyavian-Pomeranian Voivodeship, responsible for financing the counteraction of the floods' effects are mainly the Marshal – the head of the self-government administration and the Voivod – the head of government administration of the examined area. In the examined region there are executed programs to counteracting floods' effects such as 'Updating program of retention of the surface water of the Kuyavian-Pomeranian Voivodeship' and 'Program for Oder – 2006'.

Expenses for permanent assets serving the water management in the Kuyavian-Pomeranian Voivodeship in the years 1998-2001 strongly

leveled up after the flood in the year 2010. In the years 2002-2011, they amounted over 420 millions US dollars.

Few km of levees were built in the examined area only in the years 2003, 2004, 2007 and 2011. In the last year they have been probably started to build after the flood in the year 2010.

Investing expenditures for independent staging structures and water intakes on primary water-races exceeded almost 3 millions US dollars. Total investing expenses for the low water retention exceeded 8.2 millions US $.

References:

[1] GUS. *Bank Danych Lokalnych*. http://www.stat.gov.pl/bdl/app/strona.html?p_name=indeks, 30. 11. 2012.

[2] ŁABEDZKI, L. (ed.) *Aktualizacja programu retencjonowania wód powierzchniowych województwa Kujawsko-Pomorskiego*. Instytut Melioracji i Użytków Zielonych – Wielkopolsko-Pomorski Ośrodek Badawczy: Bydgoszcz marzec, 2005.

[3] *Plan zagospodarowania przestrzennego Województwa Kujawsko-Pomorskiego*, Kujawsko-Pomorskie Biuro Planowania Przestrzennego i Regionalnego we Włocławku: Włocławek czerwiec, 2003.

[4] SMARZYŃSKA, K. (red.) Realizacja i zamierzenia programu małej retencji w województwie kujawsko-pomorskim. w: *Gospodarka Wodna*. Nr. 3/2007, Wydawnictwo SIGMA-NOT. Prasa Fachowa: Warszawa, 2007.

[5] Sprawozdanie Pełnomocnika Rządu do Spraw Programu dla Odry – 2006 za 2011 r., Program Odra, Pełnomocnik Rządu do Spraw Programu dla Odry – 2006, Biuro Pełnomocnika Rządu do Spraw Programu dla Odry, Wrocław 20 czerwca 2012.

[6] ŚLESZYŃSKI, P. (red.) *Stan zaawansowania planowania przestrzennego w gminach*. Wyd. PAN IgiPZ: Warszawa, 2007.

[7] Ustawa z dnia 18 lipca 2001 r. Prawo wodne, Dz. U. 2001 r. nr 115, poz. 1129 z późniejszymi zmianami.

THE UNEMPLOYMENT PHENOMENON IN EUROREGION NEISSE IN THE YEARS 2000-2010

Arkadiusz Piwowar
Wroclaw University of Economics
arkadiusz.piwowar@ue.wroc.pl

Key words:
unemployment – Euroregion Neisse – differentiation

Abstract:
The article presents the results of research on changes in the number and structure of registered unemployed in the Euroregion Neisse in the years 2000-2010. Was presented and analyzed the characteristics of the unemployment phenomenon, including the number of registered unemployed in general and in different parts of the Euroregion. As can be seen from the analysis, a special characteristic of the unemployment in the Euroregion Neisse is a considerable variation of the structure of the unemployed according to age in different parts of the Euroregion. This applies particularly to people till the age of 24 years and above 55 years.

Introduction

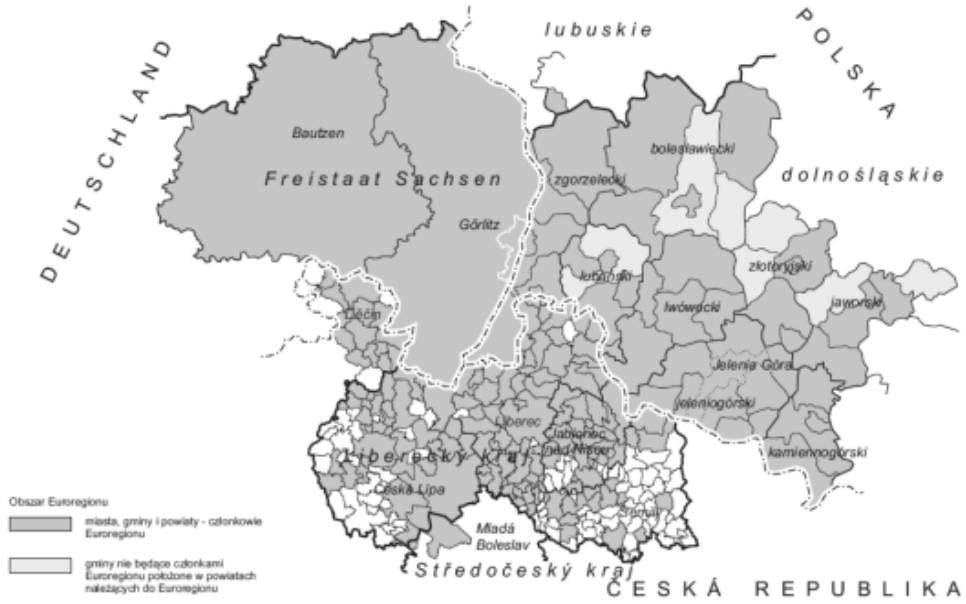
The phenomenon of unemployment is a manifest of imbalance on the labor market and is currently one of the biggest social problems. As indicated by Kwiatkowski [2, 7], the high rank of unemployment results from the economic, social and political significance of this phenomenon. The many-sided character of this issue implies a wide variety of forms, styles and types of unemployment. In the subject literature, there are distinguished several criteria for the classification of unemployment when concerning the cause of this phenomenon. According to this criterion, are distinguished following kinds: frictional, structural and cyclical unemployment. Unemployment can be classified also by the reason of the duration and thus unemployment can be divided to short- and long-term. Unemployment may also take the forms of: explicit, hidden or fictional unemployment [1, 25]. Important is that the phenomenon of unemployment is characterized by a high territorial diversity and various reasons and conditions may underlie the unemployment.

The subject of this publication is the spatial variation of unemployment in the Euroregion Neisse[1]. As shown in other studies, the Euroregion Neisse is

[1] Euroregion Neisse was a first in Central and Eastern Europe, cross-border structure, it was founded on 21th December 1991

a heterogeneous structure, for example, considerable variation of the prices is recorded the individual parts of the Euroregion [3, 385-389]. The territorial range of the Euroregion Neisse covers three border areas located in the heart of Europe, at the junction of Polish, Czech and German borderlines (Figure 1). The Neisse Euroregion is one of the 185 Euroregions in Europe.

FIG. 1**: The area of the Euroregion Neisse-Nisa-Nysa**



Source: *Ceny w Euroregionie Nysa* 2009. Urząd Statystyczny we Wrocławiu, Wrocław 2009, s. 42

Basic data characterizing the Euroregion Neisse in 2010 is presented in table 1.

TAB. 1**: Selected statistical data for the Euroregion Neisse in 2010 (as for 31 XII)**

Specification	Community	Area [km^2]	Population	The structure of the population [%]		
				<18 lat	18-59	>60
Euroregion	307	12436	1 605 547	16,2	58,9	24,9
part:						
Polish	50	5358	569 228	17,8	62,5	19,7
Czech	135	2581	437 884	18,3	59,4	22,3
German	122	4497	598 435	13,2	55,2	31,6

Source: own elaboration on the basis of Rocznik Euroregionu Nysa 2011. Urząd Statystyczny we Wrocławiu, Wrocław 2011, s. 33, 39

In the Euroregion Neisse in 2010 lived over 1.6 million people, the most of them in the German part (over 598 thousand people). The participation of women in the total population of the Euroregion Neisse was 51%. The age

structure of the population in every part of the Euroregion was dominated by people between 18-59 years. From in-depth research material results that the age structure of the population in the Euroregion Neisse significantly changed after 1995. Markedly, the share of people under 18 years of age decreased, and the percentage of elderly people increased.

1. Methodology and sources of materials

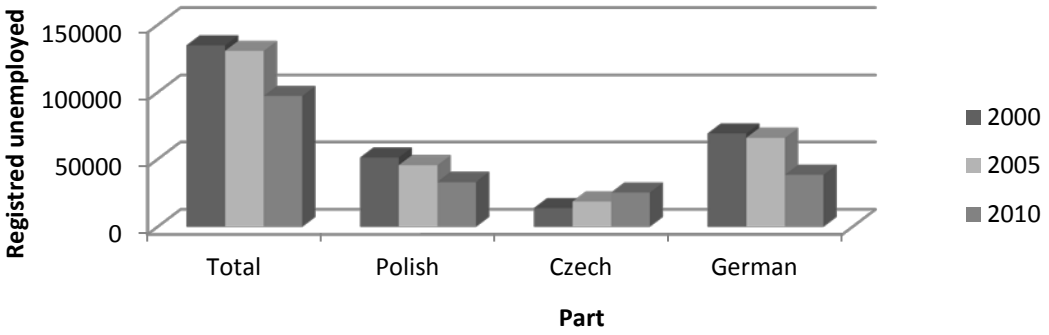
The main objective of this paper is to analyze the phenomenon of unemployment in the Euroregion Neisse. Were presented and analyzed the quantities characterizing the phenomenon of unemployment, including the number of registered unemployed in total and in individual parts of the Euroregion, and the structure of the unemployment in terms of age.

Numerical data presented in the paper are obtained from ongoing research conducted by the departments of statistics in Poland, the Czech Republic and Saxony, published by the Statistical Office in Wroclaw. The basic time interval of the analysis covered years 2000, 2005 and 2010. The collected data was analyzed using descriptive and comparative methods and deductive reasoning.

2. Changes of the number and structure of unemployment in the euroregion neisse

According to the research, the number of registered unemployed in the Euroregion Neisse decreased in the analyzed period by 37 375 people (ie. 28%). As at 31.12.2010 still were 97 409 registered unemployed (Fig. 2) in the Euroregion Neisse.

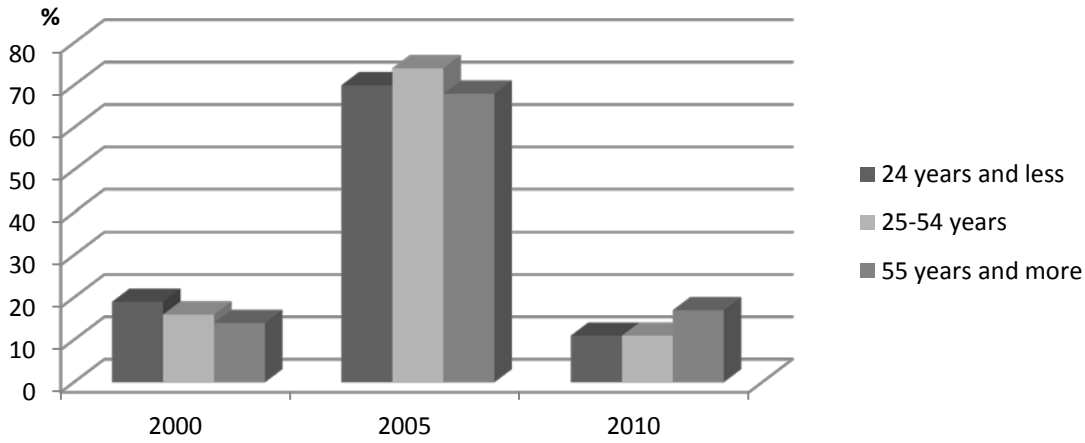
FIG. 2: **The number of registered unemployed in the Euroregion Neisse in 2000, 2005 and 2010 (as at 31 December)**



Source: own elaboration on the basis of *Rocznik Euroregionu Nysa 2011*. Urząd Statystyczny we Wrocławiu, Wrocław 2011, s. 66

Considering the territorial scope of the Euroregion, the highest unemployment in each of the analyzed years lived in the German part. It is also worth noticing that in the analyzed period the number of unemployed in the German and Polish parts of the Euroregion increased, while the number of unemployed in the Czech decreased. Thus changed the structure of the unemployed in the Euroregion when taking into account the place of residence of the unemployed. While in 2000 the share of the unemployed in the Czech Republic was equal to 10.4% of total unemployment in the Euroregion, in 2010 this share reached 26.3%. In the analysis of unemployment is important the unemployment structure according to age (Fig. 3).

FIG. 3: **The structure of unemployed according to age in the Euroregion Neisse in 2000, 2005 and 2010**



Source: own elaboration on the basis of *Rocznik Euroregionu Nysa 2011*. Urząd Statystyczny we Wrocławiu, Wrocław 2011, s. 66

When considering the criterion of age, most of the unemployed in the Euroregion Neisse was noted in the group between 25-54 years of age. In each of the studied years, the share of the unemployed in the age between 25-54 years in the structure of unemployment according to age was dominant, the largest percentage was recorded in 2005 - 74%, the lowest in 2010. – 68%. It is worth noting that in the structure of the unemployed when considering the age criterion in the Euroregion decreased the share of the unemployed in the age group below 24 years, on the other hand increased the share of the age group of people over 55 years. A detailed analysis showed that in the period between 2000 - 2010 significantly decreased the number of unemployed under the age of 25 years (45%). Important from the point of view of present analysis is the structure of the unemployed in different parts of the Euroregion (Table 2).

TAB. 2: **The structure of unemployment according to age in different parts of the Euroregion Neisse in 2000, 2005 and 2010**

Euroregion Neisse	Years	The structure of unemployed according to age [%]		
		24 years and less	*25-54 years*	*55 years and more*
Polish	2000	26,41	71,92	1,67
	2005	19,54	74,27	6,19
	2010	17,79	68,85	13,36
Czech	2000	26,43	69,25	4,32
	2005	19,00	68,77	12,23
	2010	16,65	67,02	16,33
German	2000	11,53	68,30	20,17
	2005	12,30	74,70	13,00
	2010	9,60	68,68	21,72

Source: own elaboration on the basis of *Rocznik Euroregionu Nysa 2011*. Urząd Statystyczny we Wrocławiu. Wrocław 2011, s. 66

In each part of the Euroregion the share of the unemployed in the age group of people between 25-54 years in the structure of unemployed was dominant, in the Polish and Czech part of the region was recorded a slight l reduction during the analyzed period. It is worth noting that during the studied period, in the Polish and Czech part of the Euroregion Neisse, noticeably (by 8.62% and 9.78%) decreased the share of the unemployed under the age of 24 years. In the German part the share this age group decreased slightly (by 1.92%).

A more detailed statistical analysis of the data indicated that in different parts of the Euroregion (Polish, Czech and German) was a high variation in the unemployment rate in 2010. In Czech districts the unemployment rate was lower than in the Polish and German and amounted 10-12% (in German districts 11-14%, and 11-26% in Polish)

Conclusions

The phenomenon of unemployment is one of the major problems in the Euroregion Neisse. Although the number of registered unemployed in the Euroregion Neisse decreased in the years 2000-2010 by 28%, were still registered 97 409 unemployed.

Unemployment is a phenomenon that causes a number of negative consequences for the economical, social, political and psychological level.

According to the research, the problem of unemployment in the studied Euroregion concerns mainly middle-aged people. The analysis indicated that, on the Polish and Czech side of the boarder of the Euroregion Neisse, in the structure of unemployment, relatively quickly increases the proportion of people aged over 55 years. It is a challenge for the government and non-governmental organizations providing labor market services targeted to those people. This is an important problem as far as the low activity of older people on the labor market raises a number of negative consequences for both for themselves and the society. Individual consequences of unemployment for the older people, including apathy and incuriosity, are often highlighted in the analysis of unemployment. However, it should not be forgotten that the unemployed elderly people not only do not increase the Gross Domestic Product, but also do not communicate the knowledge and experience gathered over the years. These are challenges for the national policy and the European Union in the field of labor market and social security system.

References:

[1] KMIECIK-BARAN, K. 2009. *Bezrobocie czynnikiem marginalizacji i ubóstwa*. Wyd. Uniwersytetu Gdańskiego, Gdańsk, ISBN 978-83-7326-577-6

[2] KWIATKOWSKI, E. 2007. *Bezrobocie. Podstawy teoretyczne*. PWN, Warszawa, ISBN 978-83-01-14560-6

[3] PIWOWAR, A. 2012. *Zróżnicowanie cen detalicznych artykułów żywnościowych w Euroregionie Nysa*. Roczniki Naukowe SERiA, t. XIV, z.1, ISSN 1508-3535

[4] *Rocznik Euroregionu Nysa 2011*. Urząd Statystyczny we Wrocławiu, Wrocław 2011, ISBN 978-83-89593-14-6

ENVIRONMENTAL ASPECTS OF ENERGY TAXATION IN THE EUROPEAN UNION AND IN THE UNITED STATES

Michał Ptak
Wroclaw University of Economics
michal.ptak@ue.wroc.pl

Key words:
energy taxes – carbon dioxide – European Union – United States

Abstract:
The aim of the article is to compare environmental aspects of taxes levied on energy products in the European Union and in the United States. The first part of the paper presents data on carbon dioxide emissions in these two economies. The author also examines types of taxes levied on conventional motor fuels (gasoline and diesel oil). The last part of the article presents carbon taxes levied in some European Union member states and in chosen cities or counties in the United States.

Introduction

European Union member states, especially the Scandinavian countries can be considered as forerunners and leaders in the use of taxes levied on energy products in the climate change mitigation policy. Furthermore, energy taxation policy is increasingly harmonized at the EU level. Examples include the 2003 energy tax directive which sets minimum tax rates on energy products in member states and more recent proposals to restructure the energy taxation systems to support the objective of moving to a low-carbon economy.

It is often assumed that energy taxes levied in the United States are relatively low. This opinion applies especially to taxes on motor fuels (gasoline or diesel).

It seems interesting to compare the structure of energy taxation systems in the two economies and to study whether taxes on energy products in the United States are used as instruments for addressing climate change which is one of greatest global environmental challenge.

1. Carbon Dioxide Emissions

The European Union is responsible for 12% of the global emissions of carbon dioxide (table 1). In 2009, the U.S. emissions were 45% higher than in the EU and accounted for 12% of total world emissions. The U.S. CO_2

emissions peaked in 2005 and declined in 2009 to the lowest level recorded in the past thirteen years.

TAB. 1: **CO_2 emissions from fuel combustion (million tonnes) in the EU and in the USA, 1990-2009**

Country/economy	1990	1995	2000	2005	2009
CO_2 emissions (million tonnes)					
EU-27	4 051.9	3 847.5	3 831.2	3 978.9	3 576.8
U.S.	4 868.7	5 138.7	5 698.1	5 771.7	5 195.0
World	20 966	21 792	23 493	27 188	28 999
CO_2 emissions, tonnes per capita					
EU-27	8.57	8.04	7.93	8.09	7.15
U.S.	19.46	19.28	20.18	19.48	16.90
World	3.98	3.84	3.87	4.21	4.29
CO_2 emissions per GDP using PPP (kg CO_2/US dollar, 2000 prices)					
EU-27	0.47	0.42	0.36	0.34	0.30
U.S.	0.69	0.64	0.58	0.52	0.46
World	0.63	0.58	0.51	0.49	0.45

Source: [3]

It should be noted that the United States has a smaller population than the European Union countries (in 2009 the U.S.' population was 307,5 million people and the EU's population was 504 million people). Hence, in the U.S. CO_2 emissions per capita are much higher than in Europe and are one of the highest in the world.

Table 2 presents the structure of CO_2 emissions in two analyzed economies. As one can see, the main sources of CO_2 emissions in both economies are electricity and heat production sectors. However, the sector's share of total emissions in the EU is lower than in the U.S.

TAB. 2: **The structure of CO_2 emissions in the EU and in the USA (%, 2009)**

Country / economy	Electricity and heat production	Manufacturing industries and construction	Road transport	Residential sector	Others	Total
EU-27	36.5	14.2	23.9	12.2	13.1	100.0
U.S.	42.2	10.5	27.0	6.2	14.1	100.0

Source: [3]

2. The Energy Related Taxation Systems in the EU and in the USA

Table 3 presents tax rates and prices of gasoline and diesel fuel in the European Union member states and in the United States. Taxes on fuels in United States are significantly lower than in European countries and than minimum tax levels set by Directive 2003/96/EC. According to the directive the minimum tax level for petrol is 0.359 euro per litre and for diesel – 0.33 euro per litre.

TAB. 3: **Tax rates and prices of gasoline and diesel fuel in selected countries (2010, euro per litre)**

Country/economy	Excise taxes	Total taxes[a)]	Total price
Gasoline (95 research octane number)			
EU-27 (min-max)	0.34-0.72	0.48-0.96	1.02-1.50
U.S.	..	0.09	0.53
Automotive diesel for non-commercial use			
EU-27 (min-max)	0.27-0.63	0.43-0.82	0.98-1.31
U.S.	..	0.10	0.54

a) Excise taxes, goods and services taxes, value added taxes and other taxes.

Source: [4]

As one can see, fuel prices in the United States are generally much lower than in Europe. For example gasoline price in the U.S is half of that in Bulgaria and almost three times lower than in the Netherlands [4]. In all European Union countries gasoline is more expensive than diesel. In the U.S. the price of diesel is a bit more higher than for gasoline.

The energy taxation systems in the EU countries consist mainly of traditional excise duties levied on national level. In some European countries there are also taxes or pollution charges levied on carbon content of fuels or on carbon dioxide emissions (Denmark, Estonia, Finland, Ireland, Latvia, Poland, Sweden). Energy taxes are often allocated to the state budget.

In the United States, energy taxes include inter alia excise taxes, environmental taxes and other taxes. The federal excise tax rate on gasoline is 18.4 cents per gallon. The rate for diesel (24.4 cents per gallon) is 33% higher than that for gasoline (table 4).

TAB. 4: **Fuel taxes in the United States (January 2012, A$ per per litre)**

Fuel	Federal excise	State excise (state average)	Other state taxes (state average)	Total federal and state taxes (state average)
Gasoline	0.049	0.055	0.025	0.129
Diesel	0.065	0.050	0.028	0.143

Source: [3,9]

Federal and state tax revenues are used for road construction and maintenance [10]. Therefore, the taxes are actually user fees to finance transport infrastructure projects [9].

3. Carbon Pricing

The first carbon taxes were implemented in the early 1990s in the Scandinavian countries. Currently, carbon tax rates vary between 0.1 euro (in Poland) to 15 euro (Ireland), 20 euro (Finland) and to more than 100 euro per tonne of CO_2 (Sweden).

In the United States there are carbon taxes levied only on municipal or county level. The first CO_2 tax was introduced in 2007 in Boulder, Colorado (table 5). The revenues from the tax (called Climate Action Plan Tax) are used to finance local environmental investments. The first county-level carbon tax was introduced in Montgomery County. There is also a tax levied on CO_2 emissions in nine counties of California's San Francisco Bay Area.

There are also many propositions of introducing carbon tax in the United States on the federal level. For example: bill (a legislative proposal) Save Our Climate Act of 2007 included proposal of excise tax on the carbon content at rate of $10 per tonne of carbon in fossil fuels (coal, petroleum product and natural gas) [6].

TAB. 5: **Carbon taxes in the United States**

Specification	The City Of Boulder, Colorado	Montgomery County, Maryland	Nine counties around San Francisco
Year of introduction	April 2007	2010	July 1, 2010
Tax rates (2012)	Tax is based on amount of consumed energy. Tax rate for residential users is $0.0049 /kWh, for commercial users: $0.0009 /kWh and for industrial users: $0.0003 /kWh	$5 (3.8 euro) per tonne of CO_2 emitted	$0.044 (0.03 euro) per tonne of CO_2 emitted
Taxpayers	Electricity users (residential, commercial and industrial sector). The average cost for sectors is respectively $21, $94 and $9.600 per year	Stationary sources emitting more than million tons on CO_2 per year (the tax affects only one source – a coal-fired power plant – the Mirant power plant in Dickerson)	2500 companies (refineries, power plants, cement plants, gasoline stations, landfills, large bakeries, supermarkets, restaurants)
Use of the revenue	Measures that improve energy efficiency and reduce emissions	County's greenhouse gas reduction measures	Programs to reduce emissions in the region

Source: [1, 2, 5, 7, 8].

Conclusions

Energy tax rates in United States are substantially lower than tax rates in European Union countries (despite the fact that U.S. impose taxes on energy product both at federal and state level). The United States has also lower fuel prices.

Local carbon tax rates in the U.S. are generally lower than in Western and Northern European countries. Due to the relatively low rates local carbon taxes may not contribute to substantial CO_2 reductions.

References:

[1] AL-FATTAH, S., BARGHOUTY, M., DABBOUSI, B., AL-SHAFEI, K. *Carbon Capture and Storage: Technologies, Policies, Economics, and Implementation Strategies*. Leiden: CRC Press, 2011.

[2] Climate Action Plan Tax, City of Boulder, Colorado, http://www.bouldercolorado.gov/index.php?option=com_content&task=view&id=7698&Itemid=2844.

[3] *CO_2 Emissions from Fuel Combustion. Highlights*. Paris: OECD/IEA, 2011.

[4] *Energy Prices and Taxes. Quarterly Statistics. Fourth Quarter 2011*. Paris: OECD/IEA, 2011.

[5] FURR, J., N. KILBERT, MAYER, J., SENTMAN, S. (ed.) *Green Building and Sustainable Development: the Practical Legal Guide*, Chicago: American Bar Association 2009.

[6] H.R. 2069: Save Our Climate Act of 2007, http://www.govtrack.us/congress/bill.xpd?bill=h110-2069&tab=summary.

[7] JOHANSEN, B. *The Encyclopedia of Global Warming Science and Technology* (Volume 1). Santa Barbara: ABC-CLIO, 2009.

[8] Memorandum, Agenda Item 3.1, http://www.montgomerycountymd.gov/content/council/pdf/agenda/col/2010/100427/20100427_3-1.pdf

[9] State Gasoline Tax Report (January 2012), American Petroleum Institute, http://www.api.org/oil-and-natural-gas-overview/industry-economics/fuel-taxes.aspx.

[10] XU, Y. *Environmental Taxation in China: the Case of Transport Fuel Taxation*, in: CULLEN, R., VANDERWOLK, J., XU, Y. (eds.), *Green Taxation in East Asia*, Cheltenham: Edward Elgar Publishing, 2011.

MILESTONES OF THE TWENTY-YEAR DEVELOPMENT OF THE CZECH CROWN

Jitka Ptatscheková, Jaroslav Kacetl
University of Hradec Kralove
jitka.ptatschekova@uhk.cz, jaroslav.kacetl@uhk.cz

Key words:
The Czech crown (CZK) – currency crisis – the euro – The Economic and Monetary Union (EMU) – convertibility

Abstract:
This contribution focuses on the milestones of development of the Czech crown, which celebrates its 20th anniversary in 2013. This paper describes the history of the Czech crown from February 1993 to the year of 2012. The milestones are approached chronologically. Among the first important events belonged the implementation of its internal and external convertibility, which was reached in 1996. In the following year the Czech crown experienced currency turbulences. Another important milestone was the accession of the Czech Republic to the EU, the formation of Economic and Monetary Union of the EU, the introduction of the euro. The last event treated here is the effect of the Global Financial, Credit and Debt Crises of 2008. At the end there is an analysis of the CZK/USD exchange rate development.

Introduction

In the first part we define the key words and determine theoretical bases of this paper. In the second part we analyse individual milestones of the development of the Czech crown in the chronological order. The last part contains an analysis of basic stages of the CZK/USD exchange rate development.

1. Theoretical bases

Currency is a state-approved and adjusted kind of money which fulfils monetary functions on the area of a given state [5, 33].

Generally speaking, ***money*** can be seen as any asset that is generally accepted as a means of payment for goods and services or as a method of paying off debts [7, 14].

Exchange rate is from the quantitative point of view the rate, in which two mutually foreign currencies are exchanged, or the price of a currency expressed in another currency [8, 262].

Foreign exchange market (forex, FX, or currency market) is a market where foreign currencies appear in the non-cash form, mainly as entries on bank accounts or electronic entries on terminal screens [3, 44]. It belongs to the most developed and globalised financial market segments [4, 214].

Foreign-exchange reserves (also called forex reserves or FX reserves) can be defined as reserves that the central bank can use to ensure the given national economy's international solvency or as a menas of its intervention policy on the foreign exchange market [1, 2305].

Exchange rate systems determine rules for creating individual exchange rates. Basic groups of exchange systems are fixed and floating exchange rates [2, 44].

Balance of payments is usually defined as a statistic record of all economic transactions among domestic subjects and the rest of the world made in a given period of time [6, 353].

2. Milestones of the Czech crown

Modern history of the Czech crown begins with the currency separation of the Czech and Slovak crown in February 1993. Work on the preparation of the Currency Separation Act (*Zákon o oddělení měny*, the original name was *Zákon o měnové odluce*) started as early as in the second week of 1993 and on its morning session on 2nd February 1993 the Chamber of Deputies of the Czech Parliament approved the government proposal of the Currency Separation Act [9, 83]. Despite previous concerns about the separation, it went very smoothly within several February days. In the course of 1993, the Czech crown currency basket composition was changed. From the original five currencies (USD, DEM, FRF, ATS, CHF) only two remained. The new composition was determined in the 65 % DEM – 35 % USD ratio (Chart 1).

The Foreign Exchange Act No. 219/1995 of the statute book ended the important process resulting in the full convertibility of the Czech crown. Internal and external convertibility was implemented in several steps between 1993 and 1996, when a new foreign exchange act came into effect. In 1996 the Czech National Bank extended the oscillatory zone of the Czech crown to +/- 7,5% and it also implemented a spread on deals in foreign exchange fixing at +/- 0,25 %.

CHART 1: **Chronological survey of the 20-year development of the Czech crown**

YEAR	EVENT
1993	The Currency Separation Act 60/1993 comes into effect, The currency separation is done, the Czech crown currency basket composition was changed – two currencies (DEM, USD) remain
1995	The Foreign Exchange Act No. 219/1995 of the statute book is implemented
1996	The official Czech Republic's request for accession to the EU, the Czech National Bank extends the oscillatory zone of the Czech crown to +/- 7,5%, the CNB implements a spread on deals in foreign exchange fixing at +/- 0,25 %
1997	the Czech crown exchange rate system changes to a managed floating system, the Czech National Bank changes monetary policy and adopts the mechanism of inflation targeting
1999	the European System of Central Banks led by the European Central Bank starts to operate, the euro is implemented, The Czech National Bank determines the first CZK/EUR exchange rate at 35,226
2004	the Czech Republic's accession to the EU, the Czech National Bank became a part of the European System of Central Banks
2005	the National Coordination Group for the Euro Adoption in the Czech Republic is established
2006	The Czech Republic's accession to the euro zone is postponed
2008	the Global Financial, Credit and Debt Crises

Source: the authors themselves using data of the Czech National Bank

The following year of 1997 can be labelled as the most dramatic year in the history of the Czech crown. The imbalance of the economic growth of the Czech Republic, which manifested itself already in previous years, culminated in the May 1997 Czech crown crisis. The Czech National Bank responded, among other things, by changing the Czech crown exchange rate system from a fixed one to a managed floating one.

In the monetary policy the Czech National Bank changed to the mechanism of inflation targeting.

Significant external influences were implementing of the euro and establishing the Economic and Monetary Union in 1999. The first CZK/EUR exchange rate was determined by the Czech National Bank at CZK/EUR 35,226.

A decisive step for further development of the Czech crown was the Czech Republic's accession to the EU in May 2004. Back then, the Czech National Bank became a part of the European System of Central Banks.

GRAPH 1: **Development of the CZK/USD exchange rate**

Source: the authors themselves using data of the Czech National Bank

In November 2005, when the National Coordination Group for the Euro Adoption in the Czech Republic was established, the Czech Republic started to strenuously prepare for the accession to the Economic and Monetary Union and the euro adoption.

Nevertheless, in the following year of 2006 it was, due to the fiscal policy of the state, decided to postpone the accession to the Economic and Monetary Union and it was recommended not to determine any concrete date this move.

Since the latter part of the year of 2008, the development of the Czech crown has been strongly influenced by the Global Financial, Credit and Debt Crises. Due to the dependence of the Czech economy on the EU economy, mainly on the economic development of Germany, it is expected that the Czech crown's development in the coming years will be unstable.

Conclusion

At the beginning of 2013 the Czech crown celebrated its 20th anniversary. As Graph 1 shows, we can notice several basic stages of the Czech crown's development in relation to the American dollar. In 1993 the Czech crown devalued in relation to the American dollar. Then a phase of appreciation followed until 1997. It was caused by imbalance of Czech economy, which culminated in currency turbulences in May 1997. After the change of the exchange rate system, the Czech crown started to appreciate once more till 1998 when the influence of imminent implementation of the euro starts to be felt. From 1999, when the euro was introduced, the Czech crown devalued till the 2001 terrorist attacks in the United States of America. It was followed by a long period of strengthening of the Czech crown, which was interrupted by the 2008 Financial Crisis outbreak. Since then periods of strengthening and weakening take turns, which corresponds with the unstable situation caused by the European Credit and Debt Crisis.

References:

[1] DICHTL, E., ISSING, O. *Vahlens Grosses Wirtschaftslexikon.* 2.Ausg. München: Verlag C.H.Beck.1994. 2471 S. ISBN 3800618303

[2] DITTRICHOVÁ, J., PTATSCHEKOVÁ, J., JINDRA, V. *Základy financí*. Hradec Králové: Gaudeamus, 2010, 187 s. ISBN 978-80-7435-074-0

[3] DURČÁKOVÁ, J., MANDEL, M. *Mezinárodní finance*. Praha: 4. aktualizované a doplněné vydání, Management Press, 2010. ISBN 978-80-761-221-5

[4] KULHÁNEK, L., ŠOLTÉS, V. *Finanční trhy*. In POLOUČEK, S. a kol. *Peníze, banky, finanční trhy*. Praha: C. H. Beck, 2009. ISBN 978-80-7400-152-9, s. 206-266

[5] NĚMEČEK, E. *Mezinárodní měnový systém.* Praha: 2000. Nakladatelství KAROLINUM, ISBN 80-246-0081-1V

[6] POLOUČEK, S. a kol. *Peníze, banky, finanční trhy.* 1.vydání. Praha: C.H.Beck, 2009, 415 s. ISBN 978-80-7400152-9

[7] REVENDA, Z., MANDEL, M., KODERA, J, MUSÍLEK, P, DVOŘÁK, P. *Peněžní ekonomie a bankovnictví*. Praha: Management Press, 2012: 423 s. ISBN 978-80-7261-240-6

[8] RADOVÁ, J., DVOŘÁK, P., MÁLEK, J. *Finanční matematika pro každého*. Praha: Grada, 2009. 293 s. ISBN 978-80-247-3291-6

[9] VENCOVSKÝ, F. *Měnová politika v české historii*. Praha: ČNB, 2001, 95 s.

IMPROVEMENT OF AN ORGANIZATION CONSISTENT WITH ISO 9001 REQUIREMENTS

Piotr Rogala
Wroclaw University of Economics
piotr.rogala@ue.wroc.pl

Key words:
quality management system – ISO 9001 – improvement

Abstract:
The article attempts to define to what extent companies make use of opportunities given by ISO 9001 to improve their management systems. The analysis is based on the results of own studies among 97 Polish organizations which were certified with ISO 9001. It found out that in many cases the frequency and the length of the actions taken to improve (i.e. internal audits, management reviews) is relatively low which may result in insufficient development of those organizations.

Introduction

In the past few years there have been many publications which question the usefulness of the quality management system ISO 9001. They point out various problems connected with introducing, maintaining and improving the systems. It has been claimed that merely every fourth system functions correctly [1] and that the usefulness reduces with time [2]. Nevertheless the quality management systems have been equipped with some tools allowing for their self-improvement. The aim of the article is to define how the companies utilize those possibilities to improve their management systems and consequently all their activity.

1. Requirements for improving quality management system

ISO 9001 was created and published by International Organization for Standardization. It states some requirements which are divided into five chapters. They concern:

1. managing processes and documentation of the quality management system,
2. management commitment,
3. resources management i.e. staff, infrastructure and work environment,
4. product realization i.e. production or service provision and lastly,
5. measurement, analysis and improvement [3]. They are the basis and every organization can implement and subsequently certify the system of quality management.

A special group among requirements included in ISO 9001 create those concerning improving the system of quality management and improving functioning of whole organization in the process. They were described in the Improvement chapter. They consist of:

1. Reviewing and updating the quality policy. The quality policy is a document which includes the key objectives of the quality management system. It is meant to provide a framework for establishing and reviewing quality objectives.
2. Reviewing and updating the quality objectives. Top management ought to take care to have quality objectives established for appropriate functions and levels of the organization.
3. Establishing management reviews i.e. regular meetings of top management. Their task is to ensure continuing suitability, adequacy and effectiveness of the quality management system.
4. Conducting internal audits. Audit is a regular independent and documented process of acquiring evidence from the audit and objective evaluation in order to verify achieving audit criteria.
5. Performing corrective actions meant to eliminate detected nonconformities and their causes in an organization so that they are not repeated.
6. Accomplishing preventive actions to eliminate causes of potential nonconformities in order not to let them occur.
7. Measuring, monitoring and analysing data [4].

2. The result of the research

In 2011 there was a suitable study carried out in order to determine to what extent the organizations accomplish the requirements described above. Specially prepared surveys were sent to different (depending on the size, activity profile and the form of ownership) subjects certified with ISO 9001. Their addresses were retrieved in the process of web page search. The taken action resulted in 97 valid responses which accounted for nearly 10% of all sent surveys. Among the respondents there were mostly companies which were almost 80% of the test group. The remaining 20% were represented by civil service (mostly municipal councils). The answers were provided by management representatives for systems of quality management or specialists dealing with the systems. The quality policy is usually reviewed once a year (the review means both evaluation and if it is necessary correction). This practice was declared in almost 76% of surveyed organizations (see table 1).

TAB. 1: **Average frequency of quality policy review**

Frequency of quality policy reviews	It hasn't been reviewed yet.	More than once a year	Once a year	Less than once a year
% of organizations	3	13,1	75,8	8,1

Source: Self-study on the basis of research.

Most of the organizations formulated the key quality objectives in the quality policy.
Using this solution was declared by 63% of the respondents. Therefore it is not surprising that those objectives are reviewed – similarly to quality policy – once a year (see table 2).

TAB. 2: **Average frequency of reviewing the key quality objectives**

Frequency of key quality objectives reviews	Once a quarter	Every 6 months	Once a year	Less than once a year
% of organizations	20,5	19,3	59	1,2

Source: Self-study on the basis of research

The operational objectives are characterized by a much higher rate of reviewing. 60% of the organizations perform this kind of reviews every six months or even more often (see table 3).

TAB. 3: **Average frequency of reviewing quality operational objectives.**

Frequency of quality operational objectives reviews	Once a quarter	Every 6 months	Once a year	Less than once a year
% of organizations	44,2	18,2	37,7	0,0

Source: Self-study on the basis of research

In the test group there were a few organizations which had only one internal audit every year. On the other hand there was a company with as many as 78 audits. The distribution of the internal audits' number is shown in the table 4. It may be concluded that in half of the organizations there are 12 or less audits every year.

TAB. 4: **Number of internal audits every year**

Number of internal audits	0 - 6	6 - 12	12 - 24	24 - 78
% of organizations	25	25	25	25

Source: Self-study on the basis of research

Usually an internal audit lasts from 2 to 4 hours. This practice was declared by 42% of the surveyed organizations. In almost 20% subjects the internal audit lasts 2 hours or less (see table 5).

TAB. 5: **Average length of the internal audit**

Average length of the internal audit [hours]	0 - 2	2 - 4	4 - 6	6 - 8	8 or more
% of organizations	19,5	42,4	13,0	8,7	16,3

Source: Self-study on the basis of research.

It is worth noticing that there is no statistical dependence between the length and number of internal audits every year. It means that although in some organizations there are a few (1 or 2) audits every year, they are short while in those with a big number of audits (40 or more) they are long. As a result of carrying out internal audits nonconformities are identified. Majority of the participating organizations discover from 1 to 10 non-conformities every year. The distribution of the average number of non-conformities identified during internal audits is presented in table 6.

TAB. 6: **Average number of nonconformities identified in the process of internal audits every year**

Number of nonconformities	0	1 - 4	5 - 10	11 - 20	20 or more
% of organizations	4	29	25	19	17

Source: Self-study on the basis of research.

As a consequence of internal audits, corrective actions are taken. Half of the surveyed organizations declared to perform such actions 10 times or less. The distribution of their number is shown in table 7.

TAB. 7: **Average number of corrective actions taken every year as a consequence of internal audits**

Number of corrective actions	0	1 - 4	5 - 10	11 - 20	20 or more
% of organizations	5,1	22,2	23,2	23,2	26,3

Source: Self-study on the basis of research.

According to the requirements of the norm, the management reviews should take place in planned intervals. In practice they are usually organized annually. Following this practice was declared by 94% of the respondents (see table 8).

TAB. 8: **Frequency of management reviews**

Frequency of management reviews [months]	It hasn't been reviewed yet	Every 3	Every 6	Every 12	Less than every 12
% of organizations	0	0	5,7	94,3	0

Source: Self-study on the basis of research.

In straight majority of the organizations included in the research, management review lasted no more than 4 hours. Worth noticing is that there were two subjects with management review lasting more than 8 hours (see table 9)

TAB. 9: **Length of the management reviews**

Length of the management review [hours]	0 - 2	2 - 4	4 - 6	6 - 8	8 or more
% of organizations	29,4	47,1	11,8	5,9	5,9

Source: Self-study on the basis of research.

Summary

The presented research results allow to formulate two key conclusions. First of all practical solutions connected with the accomplishment of ISO 9001 requirements are very diverse. It concerns, among others, the length of management review. In the surveyed group in different organizations it lasted from less than two to more than eight hours. Therefore it might be useful to verify if those parameters depend on any specific characteristics (e.g. the size of the organization or the profile of business activity). Secondly it seems that in many cases the organization's commitment to fulfil those requirements is not high. The frequency and length of individual actions (internal audits, management reviews etc.) is too little to provide the organization adequate development.

References:

[1] BOIRAL, O., AMARA, N. Paradoxes of ISO 9000 Performance: A Configurational Approach. *The Quality Management Journal*, 2009, roč. 3, p. 36-60

[2] KARAPETROVIC, S., FA, M., SAIZARBITORIA, I. What happened to the ISO 9000 lustre? An eight-year study, *Total Quality Management & Business Excellence*, 2010, roč. 21, č. 3, p. 47–57, ISSN 1478-3363

[3] BORYS, T., ROGALA, P. S*ystemy zarządzania jakością i środowiskiem*, 2. Vyd. Wrocław: Wydawnictwo Uniwersytetu Ekonomiczny we Wrocławiu, 2012, 54. ISBN 978-83-7695-158-4

[4] PN-EN ISO 9001 *Quality management systems. Requirements*. Warsaw: Polski Komitet Normalizacyjny, 2009

SMART WORKFORCE STRUCTURES VERSUS REGIONAL DEVELOPMENT IN EUROPEAN UNION COUNTRIES OF NEW ACCESSION (EU12)[1]

Elżbieta Sobczak, Beata Bal-Domańska
Wrocław University of Economics
elzbieta.sobczak@ue.wroc.pl, beata.bal-domanska@ue.wroc.pl

Key words:
smart workforce structure – regional development – European Union

Abstract:
The first objective of the hereby paper is to present dynamic analysis and assessment of workforce structure in EU12 countries based on structural and geographical shift-share analysis (SSA). Workforce structure in economic sectors, distinguished based on R&D work intensity, was the subject of diversification and transformations assessment. The second aim of the paper is to assess relations between smart specialization and economic cohesion by measuring both the intensity and direction of their mutual relations. The study was conducted among countries and NUTS-2 level regions of new accession from 2004 and 2007 (EU12).

Introduction

In 2010, the European Union approved the *Europe 2020 Strategy* [1] defining objectives aimed at providing support for member states to overcome economic crises successfully and ensure smart, sustainable and facilitating social inclusion development. The specified, by the strategy, smart development consists in knowledge-intensive economy and innovation development. It can be demonstrated that smart growth represents the set of instruments stimulating dynamic growth and therefore enhancing economic and social cohesion, which results in upgrading the inhabitants' standard of living. Smart specialization of workforce structure constitutes one of the instruments and components of this development.

Workforce in high-tech manufacturing and knowledge-intensive services presents the domain focused approach covering production and services defined as high-tech in line with criterion of R&D outlays volume against added value. This relation is defined as R&D intensity.

[1] The study was prepared within the framework of NCN nr 2011/01/B/HS4/04743 research grant entitled: *The classification of European regional space in the perspective of smart growth concept – dynamic approach* and constitutes a part of the series of analyses referring to these issues.

Shift-share analysis (SSA) enabled the decomposition of occurring changes into regional, structural and global effects as well as the identification of the, so called, allocation effect resulting in the classification of the studied countries with regard to combinations of local specialization and competitive advantages.

The performed research also allowed for the identification different kinds of workforce structure characterized by smart specialization (significant share of workforce in high-tech manufacturing sector or knowledge-intensive services sector) and the assessment of generated structural and competitive effects.

The third field of analysis is to provide the assessment of relations between smart specialization and economic cohesion by measuring the intensity and direction of mutual relations.

1. Research Procedure and Data

The domain focused approach in defining adequate measures of smart specialization is based on NACE – statistical classification of economic activities in the European Community. The division of high-tech sectors was first published in 1997 by OECD.

Prepared by *Eurostat* and OECD workforce structure in the cross section of the following activities types by R&D intensity levels became the basis for conducting analysis: high-tech manufacturing (HTM), mid-high-tech manufacturing, mid-low-tech manufacturing, low-tech manufacturing, knowledge-intensive services (KIS), less knowledge-intensive services (LKIS), other sectors.

Economic cohesion (*GDP*) is described by means of gross domestic product *per capita* in purchasing power standard (PPS). This indicator is regarded as a relatively good measure of economic result. For comparison these values were calculated per 1 inhabitant.

Statistical data were taken from Eurostat Internet database[2]. In the first part of the article the 12 EU countries were covered by the study. The research of relation which combine smart specialization and economic cohesion was conducted among 43 EU regions at NUTS-2 level of the new accession countries (EU12)[3].

The study was performed following three stages which covered:

[2] http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/.

[3] The study does not cover the following regions: Slovenian, Romanian, Malta, Cyprus, Estonia.

(1.) Applying classical and dynamic shift-share analysis and Esteban-Marquillas model using allocation effect[4] of workforce changes rate in EU12 countries to:
- specifying structural and regional effects of workforce number changes in sectors distinguished by R&D intensity,
- classification of EU12 countries by positive and negative change effects values: structural and competitive,
- classification of EU12 countries by components of allocation effects: specialization and competitiveness.

(2.) Constructing aggregate measures for smart specialization. Therefore the procedure of unitization with zero minimum and aggregate measures (AM) for composite variables was applied. This allowed for presenting each variable value in the range from [0; 1]. In the process of AM construction Euclidean distance and common growth pattern, defined for each variable, were used considering all regions in all studied years [7].

Two qualities were used to construct aggregate measure of the smart specialization (IS): workforce employed in knowledge-intensive services as the share of total employment (%) and workforce employed in high and mid-tech industry sectors as the share of total employment (%). The above variables characterize the scale of employment in enterprises implementing advanced technologies and knowledge as well as requiring ongoing investments into research and development. Therefore it may be stated that they result from market and competition pressure on the development of knowledge and innovation based activities.

(3.) Estimating panel, linear econometric models to describe relations which combine economic cohesion with smart specialization by means of applying panel data in (NUTS-2) regions of EU12 countries, which is presented in the form of the following model construction:

$$GDP_{it} = \alpha_i + \beta_l IS_{it} + \varepsilon_{it} \qquad (1.)$$

where: GDP_{it} - an aggregate describing economic cohesion in i-th region (i = 1, 2, ..., N) and (t = 1, 2, ..., T) t-th year, IS_{it} - variable for smart specialization in i-th region and t-th year, β_l - evaluations of parameters measuring the impact intensity and direction of smart specialization on economic cohesion, α_i constant in time individual effects for i-th region.

In order to estimate evaluations of β_l structural parameters of models adequate estimation techniques, typical for panel data[5], were applied.

[4] For more information about the listed methods check, among others, the following publications: [2], [3], [4], [5], [6].

LSDV (Least Squares with Dummy Variable) model was applied in the study. In the process of econometric models estimation certain problems related to meeting due assumptions, referring to the applied methods, may occur, e.g. autocorrelation, heteroskedasticity. In order to minimize their possible negative effects, in assessing the significance of structural parameters evaluation, robust standard errors (robust Arellando) were used. All estimations were performed in GRETL programme[6].

2. Shift-Share Analysis of Workforce in Economy Sectors Distinguished by R&D Intensity

Table 1 presents the decomposition of overall workforce growth rate, ranked by R&D activities intensity in the period of 2010/2008, preformed in line with the shift-share dynamic analysis rules. Therefore further analysis covered aggregated structural and competitive effects calculated based on the effects for the years 2009/2008 and 2010/2009. Countries were ranked by the declining values of aggregated structural effects.

In two of the analysed countries EU12, i.e. Malta and Cyprus, a positive aggregated structural effect was observed, which means that workforce structure in these countries had a positive impact on workforce size changes. In the countries characterized by positive structural effects the share of workforce in knowledge-intensive services ranged from over 35% in Cyprus to almost 40.5% in Malta.

Table 2 illustrates the classification of the EU12 countries with regard to positive and negative values of aggregated structural and competitive effects. The first group includes countries featuring positive influence of both structural and competitive factors on employment structure fluctuations, which indicates that workforce number changes in these countries may be more favourable for two reasons: because sectoral workforce structure has a positive impact on employment rate growth and also because economic sectors are characterized by higher dynamics of workforce size fluctuations than in other regions. This group covered 2 countries from EU12.

[5] For more information about the listed methods check, among others, the following publications: [8], [9], [10].

[6] www.kufel.torun.pl.

TAB. 1: **Dynamic shift-share analysis results of workforce number growth rate in economic sectors by R&D activities intensity in the period of 2010/2008**

No	Country	Net total effect (in %)	Structural effect (in %)	Competitive effect (in %)	Workforce share in KIS (HTM) in 2010 (in %)
Positive structural effect					
1.	Malta	4.90	0.31	4.59	40.49 (2.58)
2.	Cyprus	2.82	0.24	2.58	35.24 (0.20)
Negative structural effect					
3.	Latvia	-14.55	-0.34	-14.22	34.34 (0.38)
4.	Hungary	-0.22	-0.47	0.25	35.03 (2.77)
5.	Lithuania	-9.66	-0.56	-9.10	33.93 (0.32)
6.	Estonia	-11.12	-0.61	-10.50	35.25 (1.24)
7.	Slovenia	-0.81	-0.87	0.06	33.51 (1.76)
8.	Czech Republic	-0.09	-0.93	0.83	31.84 (1.49)
9.	Slovakia	-2.53	-0.94	-1.58	32.35 (1.46)
10.	Poland	3.34	-0.95	4.29	30.36 (0.78)
11.	Bulgaria	-6.89	-1.13	-5.77	28.86 (0.59)
12.	Romania	0.93	-1.86	2.79	19.95 (0.53)

Source: Author's estimations.

The second group, characterized by positive influence of only the structural factor does not include any country from the, so called, new EU accession. The third group, featuring positive influence on employment changes of only the competitive factor, covered 5 new EU accession countries, including Poland. The forth group lists countries in which both the employment structure and internal regional development determinants exerted negative influence on workforce number changes in the period of 2008-2010. It covers 5 of EU12 countries.

TAB. 2: **Classification of EU countries by positive and negative effect values: structural and competitive (dynamic SSA 2010/2008)**

Group	Criterion of division	Countries	Number of countries
I	effects: structural (+) competitive (+)	Malta, Cyprus	2
II	effects: structural (+) competitive (-)	-	0

III	effects: structural (-) competitive (+)	Hungary, Slovenia, The Czech Republic, Poland, Romania	5
IV	effects: structural (-) competitive (-)	Latvia, Lithuania, Estonia, Slovakia, Bulgaria	5

Source: Author's compilation.

Tables 3 and 4 present the classification of EU12 countries with regard to allocation component effects: smart specialization or its absence as well as the advantage or disadvantage of competitiveness in high-tech industry and knowledge-intensive services sectors, respectively.

TAB. 3: **Classification of EU12 countries by allocation effect components of workforce in HTM in 2010**

Definition	Countries	Components of allocation effect	
		specialization (workforce share in HTM in %)	competitiveness (growth rate of employment in HTM in country less in EU in %)
Reference area	EU	1.08	-8.48
Smart specialization Competitive advantage	Hungary	2.77	5.15
	Malta	2.58	6.54
	Slovenia	1.76	10.02
	Czech Rep.	1.49	6.76
	Estonia	1.24	8.86
Smart specialization Competitive disadvantage	Slovakia	1.46	-13.61
Absence of smart specialization Competitive advantage	Poland	0.78	7.14
	Romania	0.53	3.57
	Lithuania	0.32	1.27
Absence of smart specialization Competitive disadvantage	Bulgaria	0.59	-24.76
	Latvia	0.38	-7.39
	Cyprus	0.20	-40.5

Source: Author's estimations.

A country is characterized by workforce structure featuring smart specialization in high-tech industry sector (knowledge-intensive services) if workforce share in this sector is higher than EU average. On the other hand,

competitive advantage in high-tech industry sector (knowledge-intensive services) is present in the country in which employment changes rate in this particular sector is more favourable than sectoral changes rate in EU.

Based on the information presented in tables 3 and 4 the typology of workforce structure in EU countries was prepared with regard to smart specialization and the presence of competitive advantage, which was illustrated in table 5. As this analysis indicates, both smart specialization and competitive advantage, in both high-tech sectors in 2010, was characteristic for workforce structures in Malta. Two-sectoral absence of smart specialization and competitive advantage occurred in Bulgaria and Latvia.

TAB. 4: **Classification of EU12 countries by allocation effect components of workforce in KIS in 2010**

Definition	Countries	Components of allocation effect	
		specialization (workforce share in KIS in %)	competitiveness (growth rate of employment in KIS in country less in EU in %)
Reference area	EU	38.54	2.12
Smart specialization Competitive advantage	Malta	40.49	2.59
Smart specialization Competitive disadvantage	-	-	-
Absence of smart specialization Competitive advantage	Cyprus	35.24	0.67
	Hungary	35.03	0.61
	Slovenia	33.51	2.00
	Slovakia	32.35	2.04
	Czech Rep.	31.84	2.51
	Poland	30.36	6.12
	Romania	19.95	1.56
Absence of smart specialization Competitive disadvantage	Estonia	35.25	-3.90
	Latvia	34.34	-12.68
	Lithuania	33.93	-3.62
	Bulgaria	28.86	-5.16

Source: Author's estimations.

Single-sectoral smart specialization in high-tech industry sector, as well as competitive advantage in this sector was registered in Estonia, the Czech Republic, Hungary and in Slovenia. Single-sectoral smart specialization in knowledge-intensive services sector and competitive advantage wasn't present in this sector in 2010 in any country.

TAB. 5: **Typology of employment structure by smart specialization and competitiveness in 2010**

Smart specialization	Competitiveness			
	two-sector	single sector in HTM	single sector in KIS	absence
Two-sector	Malta	-	-	-
Single sector in HTM	The Czech Rep., Hungary, Slovenia	Estonia	Slovakia	-
Single sector in KIS	-	-	-	-
Absence	Poland, Romania	Greece, Italy, Lithuania	Spain, Cyprus, Austria	Bulgaria, Latvia, Portugal

Source: Author's compilation.

Poland and Romania were included in the group for which two-sectoral absence of smart specialization, as well as the occurrence of two-sectoral competitive advantage were identified which, while maintaining high employment rate growth in both high-tech sectors, may be the prognosis for workforce structure evolution in these countries towards smart specialization development.

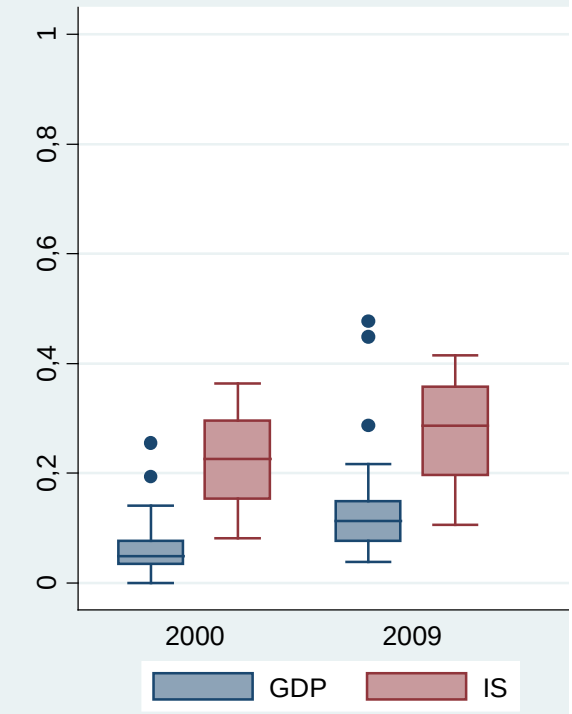
3. The Assessment of Smart Specialization Influence on Economic Cohesion in EU12 Regions

The strengthening of human capital, knowledge, science and innovation potential in a region results, in a long time perspective, in regional economic and competitive position strengthening.

The level of economic cohesion in EU12 regions is diversified in space (figure 1). If GDP aggregate in PPS is considered per 1 inhabitant it appears that the mean value for EU12 group in 2000 was at the level of 9311 and in

2009 – 15305. Major differences are observed in the level of growth regarding the Bulgarian (Yuzhen tsentralen, Severen tsentralen, Severozapaden, Severoiztochen, Yugoiztochen), Polish (podkarpackie, lubelskie) and Czech (Praha), Slovakian (Bratislavský kraj) regions.

FIG. 1: **The distribution of economic cohesion (GDP) and smart specialization (IS) measures in EU12 regions in the years 2000 and 2009**



Source: Author's compilation.

In 2000 Hungarian (Közép-Dunántúl, Nyugat-Dunántúl), Czech (Praha) and in 2009 Hungarian (Közép-Dunántúl), Czech (Jihozápad), Polish (pomorskie) regions were better prepared for smart growth idea implementation. The situation improved significantly in the area of the smart specialization (*IS*). *IS* median value in EU12 regions increased from 0.227 in 2000 up to 0.287 in 2009. Positive development is observed in the growing importance of knowledge-based economy sectors, in the analyzed period, regarding economic structure of EU12 regions.

Table 6 presents estimation results of model which allow for the assessment of smart specialization impact on economic cohesion for regions of the new EU accession countries (EU12).

TAB. 6: **Linear models estimations for smart specialization and economic cohesion for (NUTS-2) regions of the new EU accession countries (EU12) in the period of 2000-2009**

Specification	Parameter estimate [Arellano robust standard error]	Akaike information criterion	Test F (*p-value*)
IS	0.947*** [0.215]	-1215.38	40.26 (*0.000*)

*** significant at the level of 0.001. Arellano robust standard error is quoted in parentheses [].

Source: Author's compilation in GRETL programme.

In case of EU12 new accession regions smart specialization presented positive, statistically significant impact on economic cohesion. The regions featuring an increase in smart specialization by a unit are also characterized by improved economic cohesion by 0.9477 units *ceteris paribus* at each level of statistical significance.

Conclusions

The results of shift-share analysis show that the competitive effect of employment rate changes was of dominating importance, which allows to assess favorably the positive competitive effects of less wealthy EU12 countries, including Poland. The ongoing employment changes were related to economic crisis and their interregional diversification resulted mainly from internal conditions.

The global crisis resulted in the fact that the average employment rate changes in EU were negative and equal -2.31% in the period of 2010/2008. In the period of 2010/2008 the employment rate changes were better than average in UE in four UE12 countries i.e.: Malta, Cyprus, Poland and Romania. These changes resulted mainly from internal changes occurring in the analyzed countries (competitive effect).

10 analyzed countries from EU12 (excluding Malta and Cyprus) were characterized by a negative structural effect, which confirms that in these regions workforce structure had negative impact on employment rate changes. Negative competitive effect occurred in 5 EU12 countries, which means that their sectors were characterized by lower than average dynamics of changes as compared to other EU countries. This group covered following countries – Latvia, Lithuania, Estonia, Slovakia and Bulgaria.

Two-sector smart specialization was identified in Malta. This country was characterized by both higher share and better employment rate changes in

high-tech industry sectors and knowledge-intensive services than in EU. Bulgaria and Latvia were included in the group of countries which featured the absence of both specialization and competitiveness in high-tech sectors. Poland and Romania constituted the target group characterized by the absence of smart specialization and competitiveness in both high-tech sectors which may open an opportunity for smart specialization development in the future.

Smart specialization of regions influences development processes enhancing the improvement of economic cohesion. Therefore it represents the tool of regional policy aimed at ensuring dynamic and self-supporting regional development in a long-term perspective by strengthening their competitive advantage and, at the same time, intensifying economic and social cohesion. While analyzing the influence of smart specialization on economic cohesion in the cross-section of EU12 regions it was noticed that one of the key factor is represented by smart specialization which characterizes regional economy employment structure (workforce employed in knowledge-based economy sectors).

References:

[1] *EUROPE 2020 - a strategy for smart, sustainable and inclusive growth.* European Commission, Communication from the Commission, Brussels, 3. 3. 2010.

[2] BARFF, R. A., KNIGHT III P. L. Dynamic Shift-Share Analysis. In *Growth and Change*, 1988, no. 19/2, pp. 1-10.

[3] DUNN, E. S. A statistical and analytical technique for regional analysis. In *Papers of the Regional Science Association*, 1960, no. 6, pp. 97-112.

[4] ESTEBAN-MARQUILLAS, J. M. Shift and Share analysis revisited. In *Regional and Urban Economics*, 1972, vol. 2, no. 3, pp. 249-261.

[5] MALARSKA, A., NOWAKOWSKA, B. Metoda przesunięć udziałów w analizie dynamiki zmian strukturalnych [Shift-share method in the analysis of structural changes dynamics]. In *Przegląd Statystyczny ['Statistical Review'],* no. 1, 1992, pp. 75-85.

[6] SUCHECKI, B. (edit.) *Ekonometria przestrzenna. Metody i modele analizy przestrzennej [Spatial econometrics. Methods and models for spatial analysis]*. C.H. Beck Publishers: Warsaw, 2010.

[7] WALESIAK, M. *Uogólniona miara odległości GDM w statystycznej analizie wielowymiarowej z wykorzystaniem programu R [General distance measure GDM in statistical multidimensional analysis applying R programme]*. Wrocław University of Economics Publishing House: Wrocław, 2011.

[8] MADDALA, G. S. *Ekonometria [Econometrics].* PWN Scientific Publishers: Warsaw, 2006.
[9] VERBEEK, M. *A guide to modern econometric.* John Wiley & Sons, 2000.
[10] WOOLDRIDGE, J. M. *Econometric analysis of cross section and panel data.* Massachusetts Institute of Technology, 2002.

EVALUATION OF EFFICIENCY OF INVESTMENTS INVOLVING MERGERS/ACQUISITIONS OF SELECTED STOCK EXCHANGE LISTED COMPANIES FROM THE PERSPECTIVE OF MARKET VALUE GENERATION BASED ON STOCK QUOTES

Aneta Sokół, Anna Owidia Surmacz
University of Szczecin
aneta.sokol@wzieu.pl

Key words:
strategy of the company's value – Mergers & Acquisitions

Abstract:
The article discusses the issue related to efficiency of investments involving mergers and acquisitions, which result from enterprises' selection of the internal growth path. Evaluation covered trends connected with creation of market value of resulting entities based on stock quotes. The aim of the article is to present main directions of market value changes and fluctuations for the analysed Polish companies, which are highly diversified, irrespective of motivations behind undertaking M&A decisions.

Introduction to the presented results of research (research methodology - sources of information, main assumptions)

The conducted studies have examined selected public companies of various types of business activity (services - 50%, manufacturing - 31%, commercial - 19%) and ownership structure (foreign - 15% of companies, domestic - 47%, mixed- 38%), meeting the following research criteria. Most of them occurred on the side of the acquiring party and therefore most of the evaluated transactions of the companies concerned capital acquisition, which led to obtaining the position of major shareholder by the inviting party. The studies were partially extended to those entities which, as a result of the acquisition, were withdrawn from public trading after a certain period.

Choosing a research period resulted from the author's conviction that merging operations are of long-term investment nature, yielding the desired results (increase of goodwill) at least after 2 - 3 years after the consolidation or incorporation. Although, in the author's opinion, also a two-year period and the number of analyzed entities are not sufficient to present an objective assessment of the merits of mergers / acquisitions operations and to formulate more specific rather than general scientific conclusions.

TAB. 1: **Selected merger transactions of the companies**

THE ENTERPRISE	TYPE OF CONNECTION	THE DESCRIPTION OF THE TRANSACTION
Bank BPH S.A.	Merger	Merger of BPH S.A.
Boryszew S.A.	Acquisition	Joining Huta Oława S.A. (joint stock company) to the Group
Compensa S.A.	Acquisition	Acquisition by a strategic investor - Hamburg-Mannheimer
DGA S.A.	Acquisition	Merger with Meurs Polska Sp. z o.o. Merger with Polski Instytut Kontroli Wewnętrznej company
Elektrim S.A.	Acquisition	Acquisition of Megadex S.A. by a subsidiary company Elektrim-Energy
Indykpol S.A.	Acquisition	Merger with Lubdrob S.A.
ING Bank Śląski S.A.	Acquisition	Acquisition by a strategic investor - ING Bank N.V.
Nordea BP S.A.	Merger	Merger of Bank Komunalny and BWP-Unibank
Paged S.A.	Acquisition	Merger with Yawal S.A. (now Al-Pras)
Pekao S.A.	Acquisition	Merger with Bank Depozytowo-Kredytowy S.A.
Polimex Mostostal Siedlce S.A.	Merger	Merger of Polimex - Cekop S.A. with Mostostal Siedlce S.A.
Stomil Sanok S.A.	Acquisition	Purchase of shares of Stomil Sanok
Viscoplast S.A. (3M Viscoplast)	Acquisition	Acquisition by a strategic investor - 3M (Minnesota Mining and Manufacturing)

Source: Own analysis on the basis of research results.

Aptly formulated growth strategy of the company's value [5, 45] (through mergers/acquisitions) allows for the consistent implementation of current tasks, as well as stable creation of market position and image of the company in the long run. This is a necessary condition for effective business management and ensuring the prospects of the company's growth. Acquisitions and consolidations are tools, methods of operation characteristic for companies which usually: look for solutions enhancing their competitiveness in the industry, tend to specialize in a particular field, plan increased investments, require restructuring, seek to diversify their business activity, are interested in a comprehensive assessment of the effectiveness of the company and its increase.

The implementation of these objectives/problems (in particular, the improvement of the efficiency of operation) through mergers and acquisitions, consequently, should increase the market and profit value of the enterprise.

1. Assessment of trends in creating market value based on the share price of companies

The market value of the company is not based on actual cash streams generated by the company in the future but on the streams estimated by investors. Therefore, the current enterprise value is derived from investors' expectations about future ability of the company to generate cash. However,

these expectations are shaped under current market conditions and hence subject to large fluctuations.

The investors often suggest the expected or actual behavior of other market participants in decision-making, including their responses to short-term corporate performance. This in turn can lead to erroneous assessments of the actual value and accidental changes in companies rating.

Accordingly, the value of companies is subjected to significant fluctuations in the short term, despite the unchanged fundamental premises. Thus, only in the long and medium term, the market value determined on the stock market is an efficient and reliable measure of the current value of the company.

In the study of the impact of mergers and acquisitions on the market value of companies, one should emphasize the ability of the capital market to anticipate the effects of these transactions.

It is assumed that stock prices are an extremely helpful tool in assessing the value of the company. Thanks to them the owners of the companies receive a picture of their current market value, which is an objective measure of its capabilities and managing quality. This objective assessment, in turn, allows managers to place the company among the competition and draw appropriate conclusions from the comparison. [1, passim] In addition, the stock exchange is a valuable source of information of generating various forms of benefits of mergers for shareholders.

The analysis of stock prices has also its negative side. A major shortcoming is its lack of generating information on how to create goodwilland managing the process of mergers and acquisitions and organizational solutions which allow achieving success or failure of these ventures. [10, 46]

In the analysis of stock exchange rates of the companies, the price of shares in each of them in 1st and 2nd year after the merger was compared with the price in 1st year before the transaction (Table 2).

TAB. 2: **Shaping the average share price and number of shares in companies ***

NAME OF THE COMPANY**	1st YEAR BEFORE THE MERGER (A)	1st YEAR AFTER THE MERGER (B)	2nd YEAR AFTER THE MERGER (C)	CHANGE % (B/A)	CHANGE % (C/A)
NUMBER OF SHARES ISSUED (PIECES)					
BANK BPH	28 716 230,00	28 716 230,00	28 716 230,00	100,00	100,00
BORYSZEW	2244250	11 221 250,00	11 221 250,00	39,08	100,00
COMPENSA	3 505 500,00	8 098 835,00	10 598 835,00	231,03	130,87
NORDEA BP	9 425 333,00	16 925 333,00	33 617 833,00	179,57	198,62
INDYKPOL	3 124 500,00	3 124 500,00	3 124 500,00	100,00	100,00
ING BANK ŚLĄSKI	9 260 000,00	13 010 000,00	13 010 000,00	140,50	100,00
PAGED	10 095 250,00	10 095 250,00	10 095 250,00	100,00	100,00
ELEKTRIM	72 749 100,00	83 770 297,00	83 770 297,00	115,15	100,00
PEKAO	145 340 000,00	165 748 208,00	165 748 208,00	114,04	100,00
POLIMEX MS	9 600 000,00	18 548 633,00	15 248 491,00	193,21	82,21
STOMIL SANOK	4 526 472,00	2 546 142,00	2 846 134,00	56,25	111,78
COURSE OF ACTION (PLN)					
BANK BPH	235,00	271,50	355,00	115,53	151,06
BORYSZEW	24,5	4,7	7,45	19,18	30,41
COMPENSA	25	19,50	18,70	78,00	74,80
NORDEA BP	17,00	11,95	20,00	70,29	117,65
INDYKPOL	36,30	27,00	21,50	74,38	59,23
ING BANK ŚLĄSKI	235,00	383,00	345,00	162,98	146,81
PAGED	5,20	1,06	8,80	20,38	169,23
ELEKTRIM	38,50	50,60	8,95	131,43	23,25
PEKAO	44,10	62,50	79,90	141,72	181,18
POLIMEX MS	4,75	33,60	62,30	707,37	1311,58
STOMIL SANOK	29,50	141,00	133,00	477,97	450,85
			AVERAGE COURSE	181,75	246,91
			MEDIAN COURSE	115,53	146,81

Source: Author's study based on.: Roczniki Giełdowe, (www.gpw.com.pl).

* year-end data

** Viscoplast (excluded from the market in 2002) and DGA (unlisted on the stock exchange in 2002, hence the lack of data in 1st year before the transaction) were excluded from the assessment

This allowed estimating the impact of mergers/acquisitions on the market value of combined companies. Choice of development path based on mergers

and acquisitions by the companies proved to be accurate. These transactions resulted in the increase of the market value of the companies throughout the two year-period after the merger.

11 analyzed entities from the group, in case of 6 companies *in the first year and* 7 *in the second year*, the shares after the merger went up.

Only in case of five subjects there was a decline in the market value in *the first year* after the merger. Respectively *in the second year* after merger/acquisition operation, four companies have a reduced market value measured on the basis of the shares rate.

The confirmation of the above is shaping of the company's share price respectively in case of each company. The share price of all companies *in the first year after,* compared to the year before, rose by an average of 81.75% and in case of half of the respondents by 15.53%. Subsequently, *in the second year after,* compared to the year before, the market re-priced shares better, the asset prices rose by an average of 146.91% and shares of 1/2 of entities of 46.81%. It is clear that after two years of the merger there was a greater increase in price of assets of companies, rather than in the base year.

It is therefore concluded that the *operations* of mergersand acquisitions carried out by specific stock companies ***were successful*** for creating goodwill. While shareholders positively evaluated the actions of the management (mergers/acquisitions) of listed companies and have placed their trust by not selling the shares of the companies. In this way, they achieved notable benefits from the expected synergies.

The obtained evaluation results should be treated with some caution due to a small research sample and insufficient maturity of the domestic capital market (part of the transaction took place in the nineties).

The above analysis shows that ***the stock market recognizes mergers and acquisitions as a tool for creating value***. However, created value is not equally distributed among the participants of the merging operation. Greater benefits measured by the share price are received by the acquired parties. This is confirmed by numerous scientific studies conducted by e.g. A. Rutkowski [10, 61-72], M. Lewandowski and M. Kamiński [7, 89], or McKinsey company. [2, 400]

During the study of literature and observation of the market of companies' assessment it was recognized that the following may have the impact on the share price and market value of companies on fluctuations: the size of the transaction. A lower growth rate is usually reported by larger companies,

often the acquiring parties; speculative activities of the offering parties in many transactions, pushing up the price of the company acquired, at the same time causing higher return rates for its shareholders [3,247; 8, 61-72]; new guarantee techniques against hostile acquiring parties used more often; the moment of taking over the companies. The subject is taken over when its price on the stock market is low because in the period preceding the acquisition they recognize slightly worse rates than the acquiring company (the acquiring party's rates are then relatively high); insufficient amount of information coming from the market, favorable for the assessment of the potential of value creation; [6,205] comments and expert opinions appearing in the media on participants in the transaction (the history of their activities, how they finance mergers/acquisitions, etc.).

Another valuable source of information, and yet another way to study the impact of mergers and acquisitions on the processes of value creation, was the opinion of management acquired from the survey. The results of this study are illustrated in Figure 24. In 69% of surveyed companies the market value resulting from the merger transaction significantly increased, while the remaining 31% did not noticed the change.

To sum up, mergers/acquisitions carried out have brought their participants ***the increase in the market value*** and the investors highly valued the companies (taking into consideration the opinion of the management and shaping of the share price in the period after the merger).

References:

[1] *Droga spółki na giełdę, [w:] portal www.gpw.com.pl.*

[2] COPELAND, T., KOLLER, T., MURRIN, J. *Wycena: mierzenie i kształtowanie wartości firm*, WIG Press, Warszawa 1997

[3] *Fuzje i przejęcia przedsiębiorstw,* pr. zb. pod red. W. Frąckowiaka, PWE, Warszawa 1998

[4] HELIN, A., ZORDE, K. *Fuzje i przejęcia przedsiębiorstw*, Fundacja Rozwoju Rachunkowości w Polsce, Warszawa 1998

[5] HEALY, P. M., PALEPU, K. G., RUBACK, R. S. *Which takeovers are profitable? Strategic or financial?*, "Sloan Management Review" 1997, Summer

[6] KAY, J., *Podstawy sukcesu firmy*, PWE, Warszawa 1996.

[7] LEWANDOWSKI M., KAMIEŃSKI M. *Reakcje stóp zwrotu z akcji na informacje o przejęciach przedsiębiorstw*, Nasz Rynek kapitałowy 1998, No. 3

[8] RUTKOWSKI, A., *Premie za przejęcia na Warszawskiej Giełdzie Papierów Wartościowych*, [w:] Przedsiębiorstwo na rynku kapitałowym, group editing by J. Duraja, Uniwersytet Łódzki, Łódź 2000
[9] SUSZYŃSKI, C. *Restrukturyzacja, konsolidacja, globalizacja przedsiębiorstw*, PWE, Warszawa 2003
[10] WRÓBEL, P. *Fuzje i przejęcia jako narzędzie kreowania wartości dla akcjonariuszy*, [w:] *Ekonomika przedsiębiorstw zagadnienia wybrane*, pr. zb. pod red. L. J. Pawłowicza, ODiDK Sp. z o.o., Gdańsk 2005
[11] WRÓBEL, P. *Wyniki badań wpływu fuzji i przejęć na wartość dla akcjonariuszy*, Przegląd Organizacji 2002, No. 4

VENTURE CAPITAL AND PRIVATE EQUITY MARKETS: A COMPARISON BETWEEN POLAND AND THE CZECH REPUBLIC

Andrzej Sołoma
University of Warmia and Mazury in Olsztyn
soloma@uwm.edu.pl

Key words:
venture capital – private equity – Poland – the Czech Republic

Abstract:
The paper deals with the analysis of the private equity and venture capital investment activities on the market of Poland and the Czech Republic. Publications of the Polish Private Equity Association and reports of the European Private Equity and Venture Capital Association have been used for data analysis. Globalization has increased the number of cross-border deal and the number of private equity funds expanding into different geographic area. Comparing investments activity of private equity funds to GDP, the Central and Eastern Europe region is still far below Europe as a whole. The ratio of private equity investment value to GDP in Poland and the Czech Republic constitutes one half the ratio in Western Europe.

1. Introduction

Globalization has increased the number of cross-border deal and the number of private equity funds expanding into different geographic area. Cross-border activity of the international private equity firms has been a critical factor behind the growth of Central and Eastern Europe markets in recent years. The purpose of this paper is to focus on the investigation of the venture capital and private equity investment process in the markets of Poland and the Czech Republic. Publications of the Polish Private Equity Association and reports of the European Private Equity and Venture Capital Association (EVCA) have been used for data analysis.

2. The notion of venture capital/ private equity investment

According to EVCA, private equity (PE) is equity capital provided to enterprises not quoted on a stock market. 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. EVCA differentiates particular stages for venture capital and private equity. For the VC investment, the following stages are dedifferentiated: seed, start-up, venture, later stage venture. For the PE investment, growth capital, rescue/turnaround,

replacement capital and buyout are differentiated. Venture capital firms specialize in investing in non-public early stage new ventures in return for a stake in the ownership and a share of the profits. Venture capital is characterized by illiquid equity investments involving high degrees of information asymmetries. To guard against moral hazard and ensure that the new company has the best possible chance of success, the venture capitalist keeps a close watch on the managers' actions. A new owner (venture capitalist) who wants to achieve significant value creation and grow a enterprise substantially needs to focus on human potential management [4] as much as the investment objective. VC firms can invest in firms with a high risk/high return profile for a limited period of time. The primary reward is from the potential capital gains achieved at the time of exit.

3. Private equity investments as a percentage of GDP for Poland and the Czech Republic

Institutional investors supplying VC/PE analyze several economic parameters (size of the economy, growth expectations, including legal environment – np. minority shareholder protection, capital gains tax rate), and estimate the future demand for particular countries. GROH at al. [2] point out key drivers that ultimately determine the attractiveness of an individual country for VC/PE investments: economic activity, capital markets, taxation, investor protection and corporate governance, human and social environment, entrepreneurial culture and deal opportunities. Comparison of PE investments activity to gross domestic product (GDP) reveals the growth level of country market. In 2011 the ratio of private equity investment value to GDP in the Central and Eastern Europe (CEE) region was 0.105%, only 32% of the Europe-wide average of 0.326% [1]. Poland with just under 0.2% of investment vs. GDP in 2011, significantly exceeded the CEE region's average. The year 2009 was exceptional for the Czech Republic (1,01%). However, in 2011, the ratio of private equity investment value to GDP in the Czech Republic was only 0.089%[1]. ZINECKER [6] stresses that legal barriers are an important reason behind the limited scope of resources available to domestic VC/PE funds in the territory of the Czech Republic. A great number of VC/PE funds operating in this country is domiciled in a different country and was incorporated in foreign jurisdictions. The development of the VC/PE market in the Czech Republic is obviously adversely affected by the following factors: inflexibility of corporate law (fixed capital level requirements, non-existence of share classes, etc.), tax obstructions and non-transparency of the existing structures.

4. Private equity investments structure in Poland and Czech Republic

A positive effect of a functioning private equity market on the development of economic growth of Poland can be described by the following data. The total amount of venture capital and private equity investment between 1990 and 2007 was equal to about $8 billion. Over 40 venture capital and private equity firms have been actively making investments in polish companies. The total number of companies financed by VC/PE was equal to 1070 of which more than 400 companies were divested in the 1990- 1997 period [5]. Polish companies attracted €680,6m of investment in 2011, a 155% increase from 2009 (Tab. 1). In the Czech Republic, after the exceptional level of investment in 2009 (€1385,6m) that was driven by a very concentrated number of sizeable buyout deals (73,9% of total), investments continued to decrease in 2011 (only 10% of 2009 value).

TAB. 1: **Type of PE investment by stage focus in Poland and the Czech Republic, 2009-2011 (in € million)**

Stage focus	**Poland**					
	2009		2010		2011	
	€	% *	€	%	€	%
Seed	0.0	0.0	0	0,0	0.7	0,1
Start-up	0.0	0.0	1.5	0,2	10.7	1,6
Later-stage venture	0.6	0.2	1.3	0,2	15.2	2,2
Total Venture	0.6	0.2	2.8	0.4	26.6	3.9
Growth	61.6	23.1	114.5	17,4	162.9	23.9
Rescue/ Turnaround	6. 1	2.3	3.1	0.5	1.9	0.3
Replacement capital	0.0	0.0	16.1	2.5	0	0.0
Buyout	198.6	74.4	520.5	79.2	489.2	71.9
Total	266.9	100.0	657.0	100.0	680.6	100.0
	Czech Republic					
Seed	0.0	0.0	0.0	0.0	0.0	0.0
Start-up	0.0	0.0	13,1	6.8	2,7	1.9
Later-stage venture	30.0	2.1	9.9	5.1	2.8	2.0
Total Venture	30.0	2.1	23.0	11.9	5.5	3.9
Growth	192.0	13.9	84.8	44.0	7.7	5.5
Rescue/ Turnaround	0.4	0.0	0.0	0.0	0.0	0.0
Replacement capital	139.9	10.1	0.0	0.0	0.0	0.0
Buyout	1023.4	73,9	85.1	44.1	125.7	90.4
Total	1385.7	100.0	192.9	100.0	138.9	100.0

* % of total

Source: Own research based on [1]

Data included in Table 1 indicate that PE funds operating in Poland and the Czech Republic attempt to reduce risk by avoiding investment in enterprises with a short activity history. The share of transactions into seed and start-up companies, as noted by EVCA in 2011, constituted only 1.7% in Poland and 1,9% in the Czech Republic. Growth capital deals accounted for only 5,5% of investment in the Czech Republic, but 23,9% of the Poland growth capital market in 2011.

TAB. 2: **Sector distribution of investments in Poland and the Czech Republic, 2009-2011 market statistics (in € million)**

Sector focus	**Poland**					
	2009		2010		2011	
	€	N *	€	N	€	N
Agriculture	0.0	0.0	0.0	0	0.0	0
Business and industrial products	33.4	4	43.0	4	12.2	5
Business and industrial services	22.5	2	60.6	1	18.7	3
Chemicals and materials	0.6	2	0.0	0	0.0	0
Communications	0.6	4	69.3	7	210.7	15
Computer and consumer electronics	3.8	3	6.3	3	15.3	5
Construction	0.0	0	1.0	1	8.0	2
Consumer goods and retail	13.2	5	275.3	11	171.0	7
Consumer services	2.2	2	91.5	4	46.4	5
Energy and environment	0.0	0	0.0	0	17.0	3
Financial services	0.0	0	41.8	5	60.1	4
Life sciences	146.3	3	39.0	6	84.8	7
Real estate	44.3	1	1.1	1	0,0	0
Transportation		0	28.1	2	36,4	1
Unknown		0	0.0	0	0.0	0
Total investment	266.9	25	657.0	45	680.6	57
	Czech Republic					
Agriculture	0.0	0	0.0	0	0.0	0
Business and industrial products	0.2	2	0.07	1	80.2	3
Business and industrial services	7.0	2	3.2	1	0.0	0
Chemicals and materials	0.0	0	5.5	1	6.6	2
Communications	62.8	9	19.2	4	12.6	4
Computer and consumer electronics	140.5	2	79,4	2	6.7	5

Construction	0.0	0	5.8	1	4.1	1
Consumer goods and retail	720.0	1	4.2	2	0.0	0
Consumer services	0.0	0	4.0	1	0.0	0
Energy and environment	230.3	3	71,6	2	17.5	1
Financial services	217.2	2	0.0	0	11.2	1
Life sciences	7.7	1	0.0	0	0.0	0
Real estate	0.0	0	0.0	0	0.0	0
Transportation	0.0	0	0.0	0	0.0	0
Unknown	0.0	0	0.0	0	0.0	0
Total investment	1385.7	22	192.9	15	138.9	17

N –number of companies
Source: Own research based on data obtained
from the EVCA Yearbooks 2008 –2011.

In terms of sector activity, consumer goods & retail received the most investment by value in Poland as in the Czech Republic (Tab.2). Between 2009 and 2011, the total amount of €459,5m of investments was made in this sector in Poland, and €724,2m in the Czech Republic. In terms of number of companies financed by sector in 2009- 2011 period, communications remained at the top of the list, with 26 companies in Poland and 17 companies in the Czech Republic(Tab.2). One of the main problems with focusing venture capital funds in specific regions is that it involves a balance between the size of the region and the critical mass of investment opportunities needed to diversify risk. One of the barriers to financing new companies by VC/PE can be ascribed to the lack of information, trust, and competencies between the parties. In the case of Poland the negative aspect is also the low level of support by the state of seed and start-up companies in the area of financing and economic consulting [3].

5. Conclusions

- Data for Poland and Czech Republic PE markets indicate little preoccupation of PE funds with investment into seed and start-up companies (1.7% in 2011 of the total value of investment in Poland, 1.9% in the Czech Republic).
- The ratio of PE investment value to GDP in Poland and Czech Republic constitutes one half the ratio in Western Europe. In the 2009–2011 period, the highest levels of PE investments by volume (1385.7 million €) went to the Czech Republic in 2009.
- Several factors have contributed to the growth of international private equity investing: internationalization of capital sources, need for risk diversification, growth of developing economies, and increasing

opportunities for exiting investments due to development of deep and liquid stock market that permits exit through an IPO.

References:

[1] Central and Eastern Europe Statistics. An EVCA Special Paper. Brussels, 2010,2011 and 2012 (without ISNN) Available from from: http://www.evca.eu

[2] GROH, A. P., LIECHTENSTEIN, H., LIESER, K. The European Venture Capital and Private Equity Country Attractiveness Indices, *Journal of Corporate Finance*, Volume 16, Issue 2, April 2010, pp. 205 – 224. ISSN: 0929-119.

[3] JALINIK, M. Rola doradztwa w rozwoju turystyki i rekreacji, [in:] JALINIK M, ZIÓŁKOWSKi R. (red) *Rynek usług turystycznych*, pp.149-168, Oficyna Wydawnicza Politechniki Białostockiej, Białystok 2012, ISBN 978-83-62582-28-0.

[4] KOZERA, A. Zarządzanie zasobami ludzkimi w przedsiębiorstwie, [in:] M. Vetrakova (ed.) *Human potential management in a company*, pp.200-207, Univerzita Mateja Bela v Banskej Bystrici, 2012, ISBN 978-80-557-0361-9.

[5] SOŁOMA, A. WESOŁOWSKI, M. Możliwości i ograniczenia wykorzystania venture capital i private equity jako formy finansowania przedsiębiorstw z sektora turystyki, [in:] JALINIK M, ZIÓŁKOWSKI R. (red.) *Rynek usług turystycznych*, pp.149-168, Oficyna Wydawnicza Politechniki Białostockiej, Białystok 2012, ISBN 978-83-62582-28-0.

[6] ZINECKER, M., Private equity and venture capital: investment fund structures in the Czech Republic. *Acta univ.agric. et silvic*. Mendel. Brun., 2011, LIX, No. 7, pp. 541–552, ISSN: 1211-8516.

DIVERSITY MANAGEMENT IN ORGANIZATION – CHALLENGES FOR HUMAN RESOURCES MANAGEMENT

Sylwia Stachowska
University of Warmia and Mazury in Olsztyn
sylwia.stachowska@uwm.edu.pl

Key words:
diversity of human resources – diversity management – human resources management

Abstract:
Diversity of employees, their various talents, skills and views are valuable resources and source of innovation and effectiveness in economies based on knowledge. Despite the fact that diveristy is currently becoming a global matter, not all vital issues and challenges connected with it are seen.

The aim of present study is to present the essence of diversity management in organization with particular consideration of benefits and threats that are linked with diversity management and also taking into account the most important challenges that result from the diversity management for human resources management.

Introduction

Diversity of human resources in organizations is a consequence of demographic changes that occur in current world, globalization processes, introduced legislative alterations and also rising consciousness of business benefits resulting from them. In addition to many tangible benefits, the diversity of personnel, however, causes the appearance of certain risk and negative effects, the source of which is not limited to prejudice and discrimination.

Changes in the demographic structure of the population of the country have a significant impact on the differentiation of human resources in organizations. In the United States or in the Western Europe, these changes are most noticeable in the phenomenon of multiculturalism. In other countries, including Poland, they have the form of differentiation especially in terms of characteristics such as age, sex, education or disability.

Migration processes and ageing *inter alia* contribute to the changes in the structure of population. The important determinant of diversity is globalization which manifestations are geopolitical and economic interdependence of the world's regions, the penetration of cultures and free

flow of information. Not less important condition for the growth of diversity and its importance in organizations is also legislation, epecially regarding policy on equality, equal opportunities and anti-dicrimination in the workplace.

Current social and economic changes induce upon companies the necessity of implementing diversity management strategies. This involves significant challenges not only for managers, but also human resources management in the organizations.

1. The Essence and Aims of Diversity Management in the Organization

Diversity is a multidimensional concept that can be interpreted in many different ways, depending on the subject of interest. Basic dimensions of diversity include personality, gender, race and nationality, age, religion and spirituality, sexual orientation, disability or fitness. Secondary measurements which are often as important as the fundamental ones, but more prone to change, include socio-economic status, education, parental status, geographical environment [8]. With respect to employees, it can be said that diveristy applies to all aspects in which people differ from each other, and thus age, gender, race, possessed competences, personality, beliefs, value system, identity and culture. Differences between people have a significant impact on how they behave, what attitudes they adopt, how they work and are perceived both in the workplace and beyond. Understanding and taking into account existing differences helps organizations to use all the powers, inherent potential and abilities in a team of employees, and as a result allows obtaining better effects in terms of quality and performace, which are derived from greater participation in the implementation of the organization's objectives [7].

The reasons for the growth of diversity in organizations are, on the one hand, the increasing awareness of the fact that diversity improves the quality of the human resources and, on the other hand, globalization and changes in the structure of labour force. An important reason is the change in legislation (resulting from the adjustment of the state law to EU standards) and legal action outlawing discrimination. Among other things, therefore, organizations should hire, evaluate, promote and reward people on the basis of only objective criteria, such as performance and skills to prevent errors which result from the subjective assessment based on stereotypes and prejudices.

The concept of treating diversity as a factor of organization development is based on acknowledging, respecting and accepting the differences that exist among people. In an attempt to clarify the nature of diversity management, it can be noticed, that it is a process of governance and communication

consisting in an active and conscious, future-oriented development of value-based organization, accepting the existing differences and treating them as a potential for growth – a process that adds value to the company [1]. Diversity management is therefore the conscious development of strategies, policies and programs that create an ambience of respect and use these differences to achieve the objectives of organization. The main objective of management is to create a diverse work environment in which every employed person feels respected and valued, so it can make a full use of her or his intellectual potential, which contributes to the success of the organization [3].

This approach with no doubt requires the right attitude and often change of thinking of managerial staff, adopting an attitude charactericed by openness and trust in people, understanding, acceptance and respect for different identities, various individual needs and expectations of the members of the organization and perceiving them in terms of valuable qualities which have to be skillfully managed [7]. In practice, this also means openness to the new employees from the outside and is associated with the conscious acquisition of diverse knowledge, skills and experience for the organization, that is brought by newly employed staff.

It is significant, from diversity management point of view, to create the right organizational culture based on values such as mutual respect and trust, shared vision of development of the company, participation in the management and leadership. Guiding the work of task teams requires abandonment of the autocratic style of leadership with benefit for the modern leaderhip. The liberation of inherent diversity synergies is in fact possible, on condition that employees are provided with the real feeling that their ideas, comments, opinions and proposals will be heard and taken into account. Such actions are extremely important, especially in relation to work of project groups, in which knowledge sharing, creating ideas and developing new solutions play a crucial role.

2. The Benefits and Threats of Diversity Management

The view that the diversity of employees can be a source of tangible benefits for contemporary organizations is gaining a wide acceptance in western literature [4]. Organizations are becoming more aware that diversity of workers that they employ, may be a deciding factor of their competitive advantage. The benefits of diversity are *inter alia*: the increased adaptability of organizations, greater ability to adapt employees to the specific organizational roles, better understanding of market paticipants‘ needs, preventing stagnation and monotony, increasing organization’s knowledge and information resources, the supply of the “fresh blood“ to the company,

motivating employees to adapt entrepreneurial attitude, creation of ambience of cultural sensitivity. The literature mentions several substantial arguments indicating the relationship between diversity and competitiveness of the organization, namely [2]:

1) the argument related to the costs – organizations that deal and cope with the problem of diversity, gain greater productivity and commitment and lower level of fluctuations and absenteeism at work;
2) the argument related to the acquisition of resources – organizations that effectively manage the diversity, are known as a good place to be hired among the representaives of different groups, so that they attract most valuable employees;
3) the argument related to the marketing – organizations with diverse workforce are better prepared to understand the different segments of the market than more homogeneous ones;
4) the argument related to the creativity – organizations with diverse workforce are more creative and innovative due to the variety of viewpoints and methods of operation;
5) the argument related to solving problems – the diversity entails an increases amount of information resources, so that there is a greater chance of obtaining better solutions;
6) the argument related to system flexibility – organizations which successfully manage diversity have to be more flexible, which is preparing them to face their businnes environmet at the same time.

A positive approach to diversity integrated with the system and the culture of organization and effective management of the organization can bring many benefits. Studies conducted in the European Union companies showed the following benefits of diversity management of human capital [6]:

- the greater access to human resources and new talents,
- the increase of company‘s prestige,
- the enrichment of organizational culture by important values,
- the increase in creativity and innovation,
- the intensification of effectiveness and motivation of the employees,
- the improved image and appearance of new marketing possibilities,
- the increase of customers‘ satisfaction.

The diversity of human resources, however, also brings some risks and costs which include, among others [5]:

- unequal level of identification of employees with the mission of the organization,
- increased risk related to motivation and evaluation, personal risk included,

- difficulties in creating an ambience of trust in the organization,
- encouraging the establishment of conflicts,
- consolidation of the stereotypes,
- risk of discriminatory attitudes,
- competition between employees,
- reduced effectiveness and efficiency of communication,
- differences in the influence of motivators,
- expenditure on individualised models of employment, working time models, adaptation programs, development projects, renumeration, workplace equipment,
- difficulties in shaping unified (but not destroying identities of individual employees) organizational culture.

One form of appreciating diversity and counteracting its negative effects are trainings on the knowledge about differences and also absorbing skills of functioning and cooperation in heterogeneous teams. These trainings prevent conflicts and enable organizations to avoid the costs of dicrimination. Consequently, the consciousness of diversity is increased and interpersonal relations are improving. Organizations with a strong reputation in managing diversity gain an advantage by creating a positive image and attracting talented candidates for employment who are improving the quality of human capital. The level of loyalty and trust among the employees is also rised, which has a positive impact on the ambience and organizational culture, as well as helps to increase the organizational commitment.

Due to the fact that diversity can, on the one hand, have an impact on creating competitive advantage, and on the other, contribute to conflict, organizations should conduct a conscious diversity management policy that includes certain declarations, use of particular organizational practices and shaping organizational culture.

Conclusions

Differentiation of the workplace environment may be an element of competitive advantage, but also can cause conflict arising on the basis of different systems of values and beliefs. Therefore, the ability to manage a culturally and socially diverse organization is gaining significant importance.

The variety of work teams fosters competitiveness challenges which are knowledge and innovation. The introduction of the management style that promotes equal opportunities for all the employees regardless of race and religion, as well as gender and age – creates an ambience of mutual understanding, tolerance and acceptance of shared values. Exploring issues related to diversity, which are also contributing to the change in approach to

personnel policy, becomes a stimulus to the creation and dissemination of knowledge. Equiping managers with such knowledge becomes a need of this moment. Such knowledge will help to generate the desired intercultural dialogue, change social awareness and solve conflicts. Issues of diveristy have become important new challenges for human resources management in organizations.

Although diversity is now a global phenomenon, not all crucial issues and problems related to it are obvious. It is worth paying more attention to the analysis of the benefits and threats of diversity as the future will belong to these organizations which appreciate diversity and are able to manage it effectively.

References:

[1] AMERSHI, B., HOLMES, S., JABLONSKI, H., KEIL, M., LÜTHI, E., MATOBA, K. *Poradnik szkoleniowy: zarządzanie różnorodnością.* Anti-Discrimination and Diversity Training VT/2006/009, International Society for Diversity Management, 2007, p. 7, [www.sfrs.pl].

[2] GRIFFIN, R. W. *Podstawy zarządzania organizacjami.* Wydawnictwo Naukowe PWN: Warszawa, 2004, pp. 191-192.

[3] KACZMAREK, P., KRAJNIK, A., MORAWSKA-WITKOWSKA, A., REMISKO, B. R., WOLSA, M. *Firma = różnorodność. Zrozumienie, poszanowanie, zarządzanie.* Forum Odpowiedzialnego Biznesu: Warszawa, 2009, p. 8.

[4] KIRTON, G., GREENE, A. M. *The dynamics of Managing Diversity. A critical aprroach.* Elsevier Butterworth-Heinemann: Oxford, 2010, pp. 2-3.

[5] LIPKA, A. *Różnorodność kulturowa a budowanie zaufania w organizacji.* In red. Pocztowski, A. *Praca i zarządzanie kapitałem ludzkim w perspektywie europejskiej.* Oficyna Ekonomiczna: Kraków, 2005, pp. 279-281.

[6] *Przewodnik dobrych praktyk. Firma Równych Szans.* Gender Index, UNDP, EQUAL, Warszawa, 2007, [www.genderindex.pl].

[7] WALCZAK, W. *Zarządzanie różnorodnością jako podstawa budowania potencjału kapitału ludzkiego organizacji.* E-mentor, nr 3 (40) / 2011, [www.e-mentor.edu.pl].

[8] WASZCZAK, S. *Postawy wobec różnorodności – uwarunkowania, próba typologii, implikacje.* In red. Juchnowicz, M. *Kulturowe uwarunkowania zarządzania kapitałem ludzkim.* Oficyna a Wolters Kluwer business: Kraków, 2009, p. 76.

BARRIERS IN IMPLEMENTATION OF QUALITY INSTRUMENTS IN FARMSTEADS

Sławomir Stec
State Higher Vocational School. Stanislaus Pigoń in Krosno
slaste@poczta.pwsz.krosno.pl

Key words:
systems of quality management – barriers – original production – quality

Abstract:
This work represents basic quality instruments on the stage of agricultural products production taking into account difficulties in their implementation. Besides the review of quality instruments, it shows fragmentary results of researches about the implementation and using of quality management systems in the pig farming.

Realized studies demonstrate that the overcoming a resistance of farmers, their low or too late interest of the quality system case and also the change of mentality amongst workers employed on farms are main problems in the implementation of quality instruments.

Introduction

Agriculture, including an animal production is a human activity, which is almost entirely connected with the natural environment. Most of agricultural practices were and are aimed at the intensification of the agricultural production in order to produce large quantities of cheap food. However, these activities degrade the state of environment and create problems for human health through the consumption of dangerous, as a result of reduced agricultural production quality, agricultural products. Therefore, more and more conscious society pays attention on the quality of food products, and it is the most important competitive instrument on the market and the basic factor, which decides about the producer's success. Furthermore, the food quality and feeding are inextricably connected with the assurance of consumers' health safety.

The aim of this study is to approximate basic instruments of quality on the food product production stage taking into account difficulties in their implementation. Besides the review of quality instruments, it shows fragmentary results of researches about the implementation and using of quality management systems in the pig farming. Researches were carried out in February 2011, in 40 farms located in the Podkarpackie Voivodeship , in

which the basis activity was breeding of pigs. The method for qualitative research called “Interviewing” using of a questionnaire was used to collect data. For the analysis of an empirical material, the Microsoft Office Excel 2007 program was applied, and for presenting obtained results – tabular and graphical method.

1. Quality instruments in original production

The basic condition, which has to be met for the breeding and rearing of animals, is to provide a well-being of animals. The animals' well-being is a physical and psychical stage achieved in a full harmony of system in its environment. This breeding system meets fundamental needs of animals, especially in the range of: feeding, access to water, necessary living space, ensuring a company for others animals, treatment, hygiene of maintenance, microclimate in rooms, light condition. Simultaneously, it prevents before mutilation of animals and it provides them a shelter from bad weather conditions. The scope of this term also includes conditions of an animal transportation and a humane way of slaughter [3].

Farmers have a duty to implement in their farms the Animal Identification and Registration System, which provides an access to information about the origin of an animal, its history dating back to the data and place of birth. This system enables the access of animals and animal products to European Union markets and provides a food safety, so the identification of meat becomes available [8].

An important instrument is a cross-compliance mutual compatibility principle, which has to contribute to the environment protection, improve of the food safety, animal and plant health and also well-being of animals. It also serves to legitimize of payments for farmers in order to fulfill expectations of the European Union society in relation to conditions, under which the food is produced. Thanks to this instrument, it is possible to exact the realization of specific principles contained in existing regulations [10].

An important act in the aspect of the food quality and security is the act from 25 August 2006 about food safety and nutrition [Dz.U. from 2010, No. 136 position 914], which determines quality management system (inter alia, GHP, GMP, HACCP) as a procedure, which has to ensure the food safety. GHP (Good Hygienic Practice) is a set of instruction, which concern satisfying of sanitary-hygienic requirements at each stage of production or employee's health. Furthermore, they include requirements, which should be realized in the range of localization and environment of productive objects, storage of products and food, processes of cleaning and disinfection, water

supply, waste control, protection against pests and also keeping GHP documentation and records [7,9].

GMP (Good Manufacturing Practice) is a system of rules for the production of food products guaranteeing the receiving of high quality food, which is safe for health. The main principle of the GMP is to eliminate an improvisation and randomness from the production process. Each activity must be performed the same, like it is indicated in written instruction and procedures [1]. An important instrument is also the HACCP system – Hazard Analysis and Critical Control Points.

The main HACCP principle is connected with the identification of all fundamental process, which could potentially lead to the reduction of product's qualitative advantages and determination of conditions and means to prevent this situation. Therefore, the HACCP is a system for the identification, evaluation and control of food security risks [6].

Other quality instrument is a GAP (Good Agricultural Practice). It includes all problems connected with the appropriate cultivation of plants: fertilization, irrigation, assurance of safety, collection and storage. In the case of animal breeding, it is connected with the protection of herd health, proper and hygienic rearing, rational use of fertilizers and sewage and proper waste management. From among non-compulsory instruments, we need to enumerate: GlobalGap system – General Good Agricultural Practice, Quality Assurance Control Points (QACP), BRC Standard [6]. The GlobalGap system is a global standard of the Good Agricultural Practices. The GlobalGap combines the most important features of conventional agriculture. It determines minimum productive standards in order to obtain a high quality potatoes, grains, fruits, vegetables, flowers and also meat and fish [4].

The Quality Assurance Control Points refers to guarantee the quality from the point of view a customer, with emphasis on commercial, organoleptic or nutritious quality features. The primary assumption of this system is its preventative, not control character. It can take into account the quality of original production and can concern especially animal products, i.e.: milk, eggs, chickens, animals for slaughter [2,5].

BRC (British Retail Consortium) wants to ensure the safety and quality of food products and compatibility with legal requirements, create uniform requirements for all food producers and participants in a food chain supplying their products to retailers, establish specified rules and create the base for the certification of enterprises supplying products to retailers, unify suppliers' qualification rules and restrict the number of audits [2].

2. Difficulties in the implementation of quality instruments

Researches about barriers in the implementation of quality instruments were carried out in 40 farms. The average size of surveyed farmsteads was 22.8 ha. The smallest surveyed farm was 4.1 ha, while the biggest 226.54 ha.

In analyzed farmsteads, the pig population in 2011 was 9141 units. Taking into consideration the number of pigs, it can be stated that the farm with the smallest herd had 6 units of pigs, while the biggest one 2831 units.

TAB. 1: Difficulties in the implementation of quality instruments amongst surveyed farmers in examined farms

Factor	**Structure of answers [%]**
High costs of adapting the farm	75
High costs of quality instruments operation	76
Limited financial resources for the implementation of quality instruments	75
Overcoming of farmers' resistance	93
Small or too late interest of the quality instrument case	85
Adapting infrastructure to the Quality Management System (polish: SZJ)	30
Increase of bureaucracy	70
Problems with the change of employees' mentality	78
Incomprehension of the nature of the idea of quality instruments	38
Short period of time to adjust farm	40

Source: *own elaboration*

The implementation of quality is a very laborious and time-consuming process. It proceeds in several stages, requires the involvement of all people working in the farm and requires a coordination of many activities. Although, basic principles of the Quality Management System seem to be easy, there is often difficulties and obstructions resulting from assumptions of systems or connected with farmers and workers (tab.1). The biggest barrier in the implementation of the QMS according to 93% of respondents is to break the resistance of farmers. About 85% of respondents claim that the problem is their small or too late interest of the quality systems case. Whereas, 78% of famers indicated on problems of change in mentality, amongst people employed on farms. It may be caused by the lack of sufficient theoretical knowledge, and especially the lack of trainings for farmers. There

is also deficiency of information about qualitative systems. The next barrier, which is often mentioned by farmers, is a poor organizational and technical preparation of farmsteads. It enables to create suitable conditions to the realization of GHP/GMP principles or other qualitative standards. Therefore, 75% of farmers, who want to implement the technical and technological progress and adjust the infrastructure of their farm to QMS requirements, meet another barrier – low financial resources. Furthermore, the process of quality systems building in farm requires large amounts of money (76% of respondents), which completely eliminate the possibility of implementation the QMS in farms with low. According to 70% of farmers, an important obstacle is also the excessive bureaucracy, which accompanies during and after the implementation of qualitative standards, as well as the very wide range of activities. Every third farmer points out that it is difficult for him to understand the nature and the idea of quality instruments. Whereas, 40% of surveyed producers indicated on the short period of time to adjust their farms to requirements of quality instruments.

Overcoming enumerated barriers and difficulties in the implementation of the QMS in farmsteads can be occurred through internal and external training of farmers and their employees and greater involvement in this educational process of agricultural staffs. While the financial assistance can influences on the improvement of production quality and agricultural products intended for human consumption of high quality and supporting of farmers, who produce high quality food. All this assistance is available within a framework of the Rural Development Program for the years 2007-2013.

Conclusion

Realized researches show, that most problems in the implementation of quality instruments cause the breaking of farmers' resistance, as well as their small or too late interest of the quality system case, and also change of employed workers' mentality.

However, it is worth to try overcoming all difficulties, because the implementation of qualitative standards in farm will contribute to achieve many benefits, like: increase of farm's prestige, gaining new ready markets and acquiring new customers. This certification of quality and farming in accordance with implemented QMS also allow meeting legal requirements, satisfying main customers' needs and gaining new one, improving the quality of products and the control of productive process, reducing waste and obtaining the recommendation of commercial organizations. If the farmstead has several implemented QMS, there is

a possibility to reduce costs and not only through increased productivity, but also thanks to the easier identification of products' defects.

References:

[1] BRZÓSKA, F. Jakość mięsa wieprzowego. *Trzoda Chlewna*, 2001, vol. 39, s. 112-116.

[2] JEZNACH, M, Międzynarodowe standardy zarządzania jakością i bezpieczeństwem żywności w branży rolno-spożywczej. *Rolnictwo i gospodarka żywnościowa Polski w ramach Unii Europejskiej*. Wyd. Warszawa: SGGW., 2007, s. 63-69.

[3] KAMYCZEK, M. Żywienie świń, a dobrostan zwierząt. *Trouw i MY*, 2009, rocz. 05, s. 8-11.

[4] KOSEK-PASZKOWSKA, K. Systemy zarządzania jakością w gospodarstwie rolnym. *Przetwórstwo Spożywcze*, 2008, nr 1, s. 27-28.

[5] KOWALSKI, S. *Systemy zarządzania jakością w przemyśle spożywczym*. 2004, Wyd. Kraków: WSEiI w Krakowie, s. 10.

[6] ŁADOŃSKI, W., SZOŁTYSEK, K. *Zarządzanie jakością Cz. I. Systemy jakości w organizacji,* 2005, Wyd. Wrocław: Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, s. 246 – 258.

[7] MORKIS, G. Stopień wdrożenia GHP, GMP i HACCP w przemyśle spożywczym. *„Żywność. Nauka. Technologia. Jakość"*, 2006, 3(48), s. 129-145.

[8] System Identyfikacji i Rejestracji Zwierząt. ARiMR, Warszawa, 2006, s. 4.

[9] TURLEJSKA, H. *Bezpieczeństwo zdrowotne żywności, wymagania sanitarno-higieniczne dla małych i średnich zakładów*. Wyd. Warszawa: Instytut Żywności i Żywienia, 2005, s. 47-67.

[10] *Wstępna analiza instrumentu cross-compliance w kontekście przyszłej implementacji w Polsce.* Wyd. Warszawa: FAPA, 2006, s. 1-26.

THE ROLE OF ORGANISATIONAL CULTURE IN INNOVATION

Anna Strychalska-Rudzewicz
University of Warmia and Mazury in Olsztyn
astry@uwm.edu.pl

Key words:
innovation – organisational culture

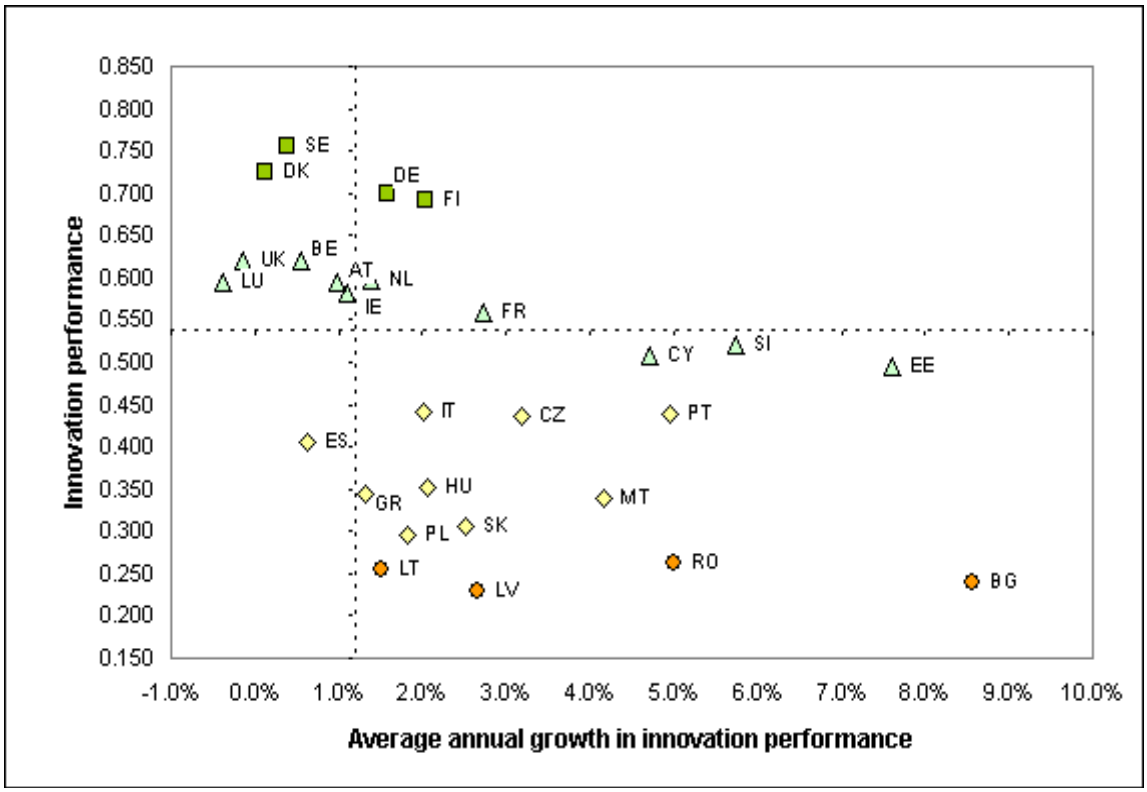
Abstract:
Innovativeness of a company is determined by its organisational culture which is determined by many factors which should be properly managed in order to increase innovativeness of an enterprise. The aim of the research was to examine determinants of innovation, depending on the level of innovativeness of enterprises. The survey questionnaire containing closed questions was the tool applied in 86 innovative enterprises from north-eastern Poland. The results suggest that companies with a high level of innovation have more factors supporting innovation-oriented culture.

1. Innovation Performance and Organisational Culture

Managers should constantly think about innovations, seek capital to finance them and behave in a certain way to mobilize their organisations in order to manage innovation successfully and effectively [7, p. 15]. The strategy "Europe 2020", announced in Spring 2010, is aimed at growth based on knowledge and innovations. Willingness to introduce innovations in organisations as well as ability to create, absorb, diffuse and transfer these innovations are still unsatisfactory in Poland. Innovation performance and average annual growth in innovation performance in Poland are also not optimistic (Fig. 1).

Determinants of innovation can be divided into external and internal ones. This article concentrates on internal characteristics of innovation. As emphasized by Trott [10, pp. 8-20], innovation is not a single action but a total process of interrelated subprocesses. It is not just the conception of a new idea, nor the invention of a new device, nor the development of a new market. The process is all these things acting in an integrated fashion. Innovation is the management of all activities involved in the process of idea generation, technology development, manufacturing and marketing of a new (or improved) product or manufacturing process or equipment.

FIG. 1. **Innovation performance and average annual growth in innovation performance in EU Member States**



Source: Innovation Union Scoreboard 2011, http://ec.europa.eu/enterprise/policies/innovation/facts-figures-analysis/innovation-scoreboard/index_en.htm

According to W. Janasz and K. Janasz [2, pp. 100-109] innovativeness is determined by social norms and organisational culture. It is connected with social capital and particularly with the so-called creative social capital. Activity conducted by enterprises on global market requires them to use the notion of innovative capital. It is characterised by a certain set of institutional and behavioural factors typical of individual, organisation, markets and societies. The key to success in innovation lies in making sure these two critical aspects of innovation — strategy and culture — are in alignment and working together. So companies that seek an advantage through innovation are well advised to choose a strategy that fits within the context of its overall corporate strategy.

Quinn, Baruch, and Zein [8, pp. 5-22] state, that nowadays the economic and producing power of a modern corporation lies more in its intellectual capabilities than in its hard assets.

As Buckler [1, pp. 43-47] suggests, innovation "is an environment, a culture - almost spiritual force - that exists in a company" and drives value creation.

Organizational culture has been defined as a pattern of basic assumptions that are manifested by the behavior of an organization. Cultures that are supportive of innovation encompass a healthy tolerance for risk, embrace change, are open to new ideas from internal and external sources alike and influence people to think long term. Trust is key in such a culture, because it promotes a collaborative but challenging working style that aims for constant improvement. Each step of the innovation value chain — from ideation to commercialization — is supported by sustainable patterns of behavior [3]. Studies increasingly tout organizational culture as a key to managing innovation [6, pp. 871–884]. Jassawalla and Sashittal [4, pp. 42–53] define an innovation-supportive culture as a firm's "social and cognitive environment, the shared view of reality, and the collective belief and value systems reflected in a consistent pattern of behaviors among participants". They propose that culture may provide an overarching frame of reference, helping align employee behavior with organizational objectives of innovation and meet paradoxical demands for control and flexibility.

Jaruzelski and Katzenbach [3, pp. 32-35] pointed out that for the past seven years, Booz & Co. has conducted an annual study of the link between corporate research and development spending and innovation performance. And, for the seventh year in a row, the 2011 study showed that there is no correlation between the amount of money companies spend on R&D and their overall financial performance. Last year, the survey also looked at how innovation strategy and culture affect financial performance. Here the correlation was considerably stronger. Just 44 percent of companies surveyed report that their innovation and corporate strategies are strongly aligned — and that their innovation cultures support their innovation goals.

Talebi [9, pp. 130-113] states that innovation is rarely spontaneous in the origination, so it needs some motivators and factors like organizational strategy, structure, innovation culture, qualities and networks. Organizational culture is characterized by: orientation to changes, constant use of information channels, managerial tolerance of failures, minimal bureaucracy, tolerance of risk, promotion of employee initiative, openness to new ideas, shared vision, leadership and will to innovate; appropriate structure, key individuals, effective teamworking, continuing and stretching individual development, extensive communication, high involvement in innovation, external focus, creative climate cooperation across the employees and departments, the teamwork-based structure (as opposed to hierarchy), open communication, individuality and diversity, promotion of creative thinking and problem solving, orientation to learning, tolerance of mistakes, positive approach to work teamwork, decentralization, risk tolerance and manage-

ment, low level of bureaucracy, promotion of initiative [5, pp. 236-244]. According Jucevičius [5; pp. 236-244] to be innovative, the society and its organizations must possess the general characteristics of the innovation culture: high tolerance of risk, complexity and change, emphasis on flexibility and mobility, enabled by flat organizational structures, trust-based cooperative relations inside and outside the organization, emphasis on creativity and learning (on individual and collective levels). However, every parameter may have its own unique characteristics in the specific social-organizational environment. Therefore, the "culture of innovations" is hardly a universalist phenomenon.

2. Methodology and Results of the Research

The aim of the research was to examine determinants of innovation, depending on level of innovativeness of enterprises. The survey questionnaire containing closed question was the tool applied in 86 innovative enterprises from north-eastern Poland. Nonprobability purposive sampling was applied selecting the entities participating in subjective way so that they could be the most useful or representative. The survey was conducted in innovation enterprises that, according to the Oslo methodology, were enterprises that introduced at least one new or significantly improved product and/or one new or significantly improved technological process to the market within the last 3 years. The level of innovativeness was determined on a basis of number of introduced innovations: low level – less than 7 innovations, medium 7-14, and high level above 14 innovations. In order to evaluate determinants of proinnovative culture, the respondents had to respond to the statements according to the 5 point Liker scale. The determinants of innovation-oriented culture were chosen among others on a basis of literature study describing organisational culture in organizations. Due to the limited scope of this paper, there is not enough space for in-depth presentation of findings, therefore, only the main conclusions are drawn. The higher the sum of points obtained in the study, the determinants of organizational culture were more promoting innovation. The most of determinants were related to organizational culture' factors but there were additional ones: size and the age of the firm. The results of the study are presented in table 1.

The study showed that large companies employing more than 250 people are the most innovative ones. The size goes along with dedicating more resources to innovation. In large companies, there are often research and development departments which tasks concentrate on developing new solutions. The enterprises which operate on the market over 10 years represent the highest level of innovativeness. Also companies with a high rate of teamwork were the most innovative in the research.

TAB. 1: **Determinants of innovation, depending on level of innovativeness**

Factor	Scores obtained in eneterprises with:		
	low level of innovativeness	medium level of innovativeness	high level of innovativeness
Size of enterprise	2.15	2.87	3.55
Age of enterprise	2.66	2.71	3.55
Open communication and clear communication	4.23	4.42	4.11
The company has a vision and a mission from which comes the need for innovation	3.41	4.39	4.22
The company is flexible	3.76	4.34	4.11
In the company there is teamwork	3.66	3.71	4.11
Employees can achieve their goals in a creative way	3.76	4.15	4.22
Employees have the time to carry out their own ideas	3.21	3.28	4.11
In the company work creative people	3.79	4.10	4.55
In the company there is support for changes	3.46	3.68	4.33
The priority of the company is competitiveness	3.79	4.34	4.0
In the company there is a strong commitment to work	3.89	4.21	4.0
Ability to deal with conflict within the company	3.76	3.86	4.33
Level of burocracy	2.53	3.13	2.88
Management strongly supports innovation	4.02	4.39	4.33
Qualifications employees engaged in innovation are high	3.51	3.5	4.33
The image of our company in the market is very good	4.05	4.34	4.33

Source: own research

This is probably due to the continuous exchange of ideas and solutions among employees from different teams. Another important feature, which influences degree of innovation, is a time for employees to carry out their own ideas. Employing creative employees is a factor which very clearly shows

that companies with a high level of innovation have more creative people than firms with low and medium level of innovation. Another important factor that contributes significantly to the high degree of innovation is strong support for changes in the company. Ability to deal with conflict within the company was the best in enterprises with a high degree of innovativeness. High qualifications of employees engaged in innovation were the highest in the most innovative enterprises.

Conclusions

Innovation is one of the most complex, difficult and risky processes in which organizations are engaged. In order to increase innovativeness of companies, their managers should create culture supporting innovation. Culture may determine whether strategy in a company will become tactical or stays purely conceptual. There are certain cultural features that are needed, because they ease and encourage the innovation process. The research in 86 innovative enterprises from north-eastern Poland revealed that companies with a high level of innovation have more factors supporting innovation-oriented culture. The findings are not representative for all Poland but despite its limitations provide useful direction for future research.

References:

[1] BUCKLER, S. A. *The spiritual nature of innovation*. Research-Technology Management 1997, 43-7.

[2] JANASZ, W., JANASZ, I. K. Innovation management in organization. In *Perspectives of Innovations*. Economics & Business, Volume 11, Issue 2, 2012, pp. 100-109.

[3] JARUZELSKI, B., KATZENBACH, J. *Building a culture that energizes innovation*. Financial Executive 2012, March, pp. 32-35.

[4] JASSAWALLA, A. R., SASHITTAL, H. C. *Cultures that support product innovation processes*. Academy of Management Executive, 2002, 16 (3), pp. 42–53.

[5] JUCEVIČIUS, G. Culture vs. Cultures of Innovation: Conceptual Framework and Parameters for Assessment. In *Proceedings of the International Conference on Intellectual Capital, Knowledge Management & Organizational Learning.* 2010, pp. 236-244.

[6] KHAZANCHI, S., LEWIS, M. W., BOYER, K. K. Innovation-supportive culture: The impact of organizational values on process innovation. In *Journal of Operations Management*, 2007, 25, pp. 871–884.

[7] PRAHALAD, C., KRISHNAN, M. *Nowa era innowacji.* Wydawnictwa Profesjonalne PWN: Warszawa, 2010, p.15.

[8] QUINN, J. B., BARUCH, J. J., ZEIN, K. A. Intellect, innovation, and growth. In J. Henry&D. Mayle (Eds.), *Managing innovation and change*. pp. 5-22. London 2002, Sage.
[9] TALEBI, KAMBIZ. *Developmental Innovation versus Radical Innovation*. Management Culture. 4th Year, 2007, No. 13, 130-113
[10] TROTT, P. *Innovation Management and New Product Development*. Financial Times Pitman Publishing, 1998.

TRENDS IN THE NUMBER OF BANKRUPTCIES IN THE CZECH REPUBLIC

Libuše Svobodová
University of Hradec Králové
Libuse.svobodova@uhk.cz

Key words:
bankruptcy – discharge of debt – insolvency – settlement – statistics

Abstract:
Development of business activities and the number of business entities is also associated with ending of business activities. In recent years are increasing numbers of companies that end their business because of financial problems. The same trend prevails also by individuals - non-entrepreneurs. The article is focused on the development of bankruptcies, settlements, reorganizations and discharges of debts. One of the turning points in this area was Insolvency Act that became effective as of 1 January 2008.

Introduction

With an area of measuring and improving the performance and competitiveness of enterprises, achieving positive financial results and the strategic goals is also related to the opposite side of the coin. It is a poor business decisions, achieve loss solvency problems etc. Those points may be the beginnings of bankruptcy. Insolvency area has undergone major changes with the help of newly issued lawfully and continuously evolving. It is a topic beneficial in the business world and in everyday life and it is surprising how much information lack awareness of citizens. Individuals are confronted with the problem of insolvency especially through the media. In them, the information is often distorted and incomplete. The individual often gets the feeling that the state has an obligation to help him at any time without doing anything. As regards the actual bankruptcy there are also no good knowledge of the people.

In the field of legislation concerning insolvency has long show shortcomings in terms of the European Union, confusion and incompleteness of some amendments. Example, the law allows anyone to file for insolvency proposals and thus allows the speculative actions of creditors. However due to recent improvements be the debtor, creditors, and other members of management strengthened.

This article aims to describe the development of insolvency in the Czech Republic.

By writing the article were used professional literature, information collected from professional press, legal regulations, discussions or previous participations in professional seminars and conferences relating to the chosen subject. Greatest emphasis was focused on websites and databases that publish the latest development in the field.

Bankruptcy is a very complicated process of correction. If a company gets into financial problems that cause further inability to meet its obligations and continue in their objectives, we say that it has lost its solvency. Other business entities are protected against these companies by Insolvency Act No. 182/2006, as subsequently amended, and by the Insolvency Register. Subject of the law itself provides a way of resolving insolvency or impending insolvency.

1. Analysis of the situation in insolvency in the Czech Republic

In this chapter we look at the situation in the area of bankruptcy and general insolvency in the Czech Republic. The analysis will focus on the comparison of numerical data obtained mainly from the official website of the Insolvency Law - [4], [6], [8] which deals with the protection of clients against losses. When searching for information, it was found among other things that the internet articles and other documents in the data often differ or incomplete. More about those problems wrote Čámská in [1] or Kislingerová in [2].

a. Insolvency proposals in the Czech Republic

Subchapter will compare the number of insolvency proposals filed from 1992 to present. The data shown in Table 1 – Insolvency proposals in the Czech Republic shows the submitted proposals, the percentage change and direction of change.

The above table shows that in 1992 were only 363 submitted proposals. The next year, however, saw a substantial increase of almost 205% and insolvency resolution began to spread slowly. The change in 1993 was the highest percentage yet. Until 2001 the annual counts raiser for an average of 47%. Year 2000 peaked at 4,306 submitted proposals. This was followed by four years falling even more in 2005 still remained below four thousand suggestions. New growth around the years 2008 and 2009 we attribute the onset of the economic crisis that did not miss the Czech Republic as well as changes in the bankruptcy law.

TAB. 1: **Insolvency proposals in the Czech Republic**

Year	Submitted proposals	% change	Direction
1992	363	-	-
1993	1 105	204,41	↑
1994	1 826	65,25	↑
1995	2 400	31,43	↑
1996	2 996	24,83	↑
1997	3 311	10,51	↑
1998	4 306	30,05	↑
1999	4 339	0,77	↑
2000	4 650	7,17	↑
2001	4 036	-13,20	↓
2002	4 002	-0,84	↓
2003	3 918	-2,10	↓
2004	3 643	-7,02	↓
2005	3 882	6,56	↑
2006	4 227	8,89	↑
2007	5 015	18,64	↑
2008	5 236	4,41	↑
2009	9 396	79,45	↑
2010	16 101	71,36	↑
2011	24 353	51,25	↑
2012	29 565*	-	-

*Entry into 30. 11. 2012
Source: [4], [6]

The greatest appreciation triggered the emergence of personal bankruptcy – discharge of debt. It failed in 2008 to solve insolvency problems non-entrepreneurs and individuals. Proposal to discharge of debt may be made by the debtor alone. This solution is becoming more frequent. Primarily due to these changes, we reached up to 23,353 in the number of proposals for the year 2011. In the year 2012 was passed 29,565 proposals till end of November.

b. 2003- 2007

The beginnings of bankruptcy law in the Czech Republic extend to 1992. The cornerstone of the legislation was the Act on Bankruptcy and Settlement (no. 328), passed by parliament on October 1, 1991. This Act, like most

bankruptcy acts found in market economies, has both a legal and an economic aspect. The legal aspect "divides the loss" among the creditors while at the same time temporarily safeguarding the assets of the debtor. The economic function removes unproductive businesses from the market, thereby releasing their economic resources to developing businesses.

It is not possible to find all necessary statistical information from this time. We focus on the period from 2003 - 2007, before the Insolvency Act came into force. Table 2 summarizes the data that will be discussed further. It is divided into several areas.

In the proposal, you can see the division between the proposals themselves Bankruptcy. The ratio of representation is very unbalanced. According to available information, there was a compensation for the whole period of its operation only in 48 cases. In the monitored period were a total of 20,685 proposals received. Proposals for an arrangement with creditors constituted only 0.49%.

TAB. 2: **Bankruptcy and settlement**

Year	Proposal		Filed		Decision	
	Bankruptcy	Settlement	Debtor	Creditor	Bankruptcy	Settlement
2003	3 891	27	2 260	1 658	1 719	9
2004	3 627	16	2 334	1 309	1 435	6
2005	3 870	12	2 648	1 234	1 230	6
2006	4 203	24	3 015	1 212	1 238	7
2007	4 992	23	3 635	1 351	1 104	11
Total	20 583	102	13 892	6 764	6 726	39

Source: [4], [6]

The part Filed shows the representation of debtors and creditors as objects through the proposal submitted. During the whole prevails proposals filed by the debtor itself, even though the number of creditors who have decided to deal with the situation yourself. It is not negligible, reaching nearly 33%.

Under the proposal itself does not bankruptcy at all follow. The most common reason is the decision to reject the proposal for lack of a debtor or unified opposition. In the last five years there has been a declaration of bankruptcy in 6,726 cases. If this value is compared with the total number of proposals for bankruptcy (20,583), we get an approximate idea of rejected proposals. We must, however, take into account that the decision applies to pending proposals in recent years, because it is not always easy to come to that decision. On average, it was announced a year 1,345 declared bankruptcy.

As regards the compensation was allowed 39 cases from 2003 to 2007. Despite the fact that the settlement was decided, several of them have ended in bankruptcy. The average number of annual decision was less than 8 settlements. If the summary, then were submitted 20,685 proposals and court cases decided in 6,765 to permit bankruptcy or settlement. Approximately 30% of the proposals should solve the solvency in this way.

c. 2008 – 2012

The new Czech Insolvency Act (Nr. 182/2006 Slg.) took effect on 1 January 2008 and replaces the former bankruptcy law (Nr. 328/1991 Slg.). It is designed above all to strengthen the position of the creditor, to improve transparency and to reduce the length of proceedings. This new law introduced standardised formal insolvency proceedings, and requires the court to publish applications received for the start of such proceedings. An Insolvency Register was also created and is available for public review.

Two court decisions are necessary for the opening of insolvency proceedings: the declaration of insolvency, which must be filed within 15 days after the application, and a statement on the type of proceedings.

The new law defines three alternative procedures:

- Bankruptcy: comparable to the previous procedure.
- Reorganisation: applies only to business operations with more than 100 employees or revenues over CZK 100 million.
- Private bankruptcy: not available to entrepreneurs. The "good behaviour" period equals five years. [5]

In the next part we will focus on the following five years, 2008 - 2012. Researched information is processed in Table 3 - Insolvency and management proposals. It shows the number of insolvency proposals filed in total, as well as individual items associated with the proposals for bankruptcy, discharge of debt, reorganization and unrelated area with a proposal for a way of dealing with bankruptcy.

TAB. 3: **Insolvency and management proposals**

Year	Insolvency proposals	Bankruptcy	Discharge of debt	Reorganization	Not corresponding*	Started
2008	5 236	1 151	1 693	6	2 386	5 215
2009	9 396	2 180	3 744	10	3 462	9 383
2010	16 101	2 635	10 014	5	3 447	16 094
2011	24 466	2 617	18 021	23	3 805	24 448
2012	29 565					
Total	84 764	8 583	33 472	44	13 100	55 140

* Insolvency suggestions unconnected with the proposal for a way of resolving insolvency,

** Data to 30. 11.2012

Source: [4], [6]

The number of proposals submitted for the year 2012 can´t be estimated, but according to the annual and monthly increases and economic situation of the population is certain to be higher than in last years. Here, the increase will be due to the increasing popularity of most debts. Year 2011 for the first time exceeded twenty thousand suggestions. The proposals themselves associated with the proposal for bankruptcy observe minor fluctuations. Their number in 2011 year even with the previous year fell by comparing 18 items on 2,617. The reorganization is gaining popularity, but still accounts for a small percentage of suggestions. In year 2011 there were a total of 23 submitted proposals associated with the proposal to permit the reorganization. The sum total of its occurrence is so 44. Low interest may then be due to the fact that the company decides to address its solvency until the moment it is not possible to reverse the decline, and the only way is bankruptcy. Number of proposals reflects the increasing inability of companies, entrepreneurs and non-entrepreneurs individuals to meet their obligations.

In the Czech Republic we have problems with the duration of insolvency proceedings that is almost twice the average of OECD countries. The situation is practically the same with costs of proceedings. Yields from investments are also considerably higher on average for creditors in OECD countries [3].

Conclusion

Insolvency in the Czech Republic is the daily problem of large numbers of people. These include debtors, creditors, and bankruptcy trustees or employees insolvency courts. Numbers of insolvency proposals rise, mainly due to a higher number of individuals - non-entrepreneurs who are looking for a way to repay their debts. With the economic crisis deteriorated corporate and personal solvency.

Even though the Act was amended many times regarding bankruptcy, still there are shortcomings which the law does not address. Due to the ever increasing number of bankruptcies, discharge of debt or reorganization is necessary that in the future this system will be more transparent and information will be available to all stakeholders and will be also available more detailed statistics that are not currently available.

References:

[1] ČÁMSKÁ, D. Insolvenční řízení dle ekonomických činností. In: KISLINGEROVÁ, E., ŠPIČKA, J. (ed.). *Faktory prosperity podniků v lokálním a globálním prostředí.* Praha : Oeconomica, 2012, pp. 24–33. ISBN 978-80-245-1893

[2] KISLINGEROVÁ, E. Lack of Insolvency-Related Information as a Factor Limiting the Reformom of the Insolvency System. In: *Proceedings of the 1st WSEAS International Conference on Finance, Accounting and Auditing (FAA '12)*. Athény: WSEAS Press, 2012, pp. 180-185. ISBN 978-1-61804-124-1

[3] SMRČKA, L., SCHÖNFELD, J., ŠEVČÍK, P. The Possibilities of Reforming Czech Insolvency Law. In: *Proceedings of the 1st WSEAS International Conference on Finance, Accounting and Auditing (FAA '12)*. Athény: WSEAS Press, 2012, pp. 192-198. ISBN 978-1-61804-124-1

[4] http://web.creditreform.cz/cs/content/press/index.jsp

[5] http://www.coface.ee/CofacePortal/ShowBinary/BEA%20Repository/EE/ee_EE/ratings/CZ

[6] http://insolvencni-zakon.justice.cz/Creditreform

[7] http://www.konkursni-noviny.cz/

[8] http://portal.justice.cz/Justice2/MS/ms.aspx?o=23&j=33&k=5266&d=310180

[9] JENIŠTOVÁ, M. Konkurs podniku. Bakalářská práce. Univerzita Hradec Králové

CONCENTRATION AND CONSOLIDATION PROCESSES IN THE POLISH FOOD INDUSTRY

Iwona Szczepaniak
Institute of Agricultural and Food Economics
szczepaniak@ierigz.waw.pl

Key words:
concentration – consolidation – food industry – Poland

Abstract:
Globalisation and integration processes of Poland with the European Union changed the direction of development of the food industry structures. Processes of production concentration consisting in decreasing the number of active enterprises, mainly the smallest ones, and increasing the number of large enterprises and their share in production and employment were resumed in the industry. After over eight years of EU membership, the structure of the Polish food industry is close to the structure of the food industry in the EU-15 Member States (before enlargement of the European Union).

Change in the structure of the food industry

Food processing is characterised by high dispersion and low level of concentration. This mainly results from the lower level of technical development of this sector (it belongs to a group of the so-called low technology sectors), and from the nature of the object of work determined by variability of agricultural products processed. Significant characteristics of the food industry also include its high relation to local and regional markets, assortment diversity and relatively short production series and short expiry dates of products. The above-mentioned features of food production make the food industry a sector of economy particularly predestined to the development of small and medium-sized enterprises.

In 2010, production activity in the food industry was conducted by nearly 16 thousand economic entities, including:

- 9.5 thousand micro-companies (employing up to 9 persons), constituting as much as 59.5% of the total of food companies the share of which in employment amounted to 14.3%, and in sales only to 5.4%;
- 5.0 thousand small enterprises (employing from 10 to 49 persons), constituting 31.4% of the total, and their share in employment amounted to 21.3% and in sales – 14.7%;

- 1,178 medium-sized enterprises (employing from 50 to 249 persons), i.e. 7.4% of the total number of food companies the share of which in employment amounted to 27.5%, and in sales only 25.8%;
- 281 large companies (employing over 249 persons), constituting only 1.7% of the total, and their share in employment amounted to 36.9% and in sales – as much as 54.1%.

TAB. 1: **The structure of the food industry by the size of the enterprise**

Description	2003	2007	2010
Number of enterprises			
Total	19,516	16,727	15,971
including: micro (up to 9)	12,638	10,469	9,503
small (10-49)	5,353	4,738	5,009
medium-sized (50-249)	1,255	1,232	1,178
large (over 249)	270	288	281
Average employment (thousand persons)			
Total	456.4	462.7	460.9
including: micro (up to 9)	66.5	66.7	66.1
small (10-49)	98.4	90.7	98.0
medium-sized (50-249)	137.0	134.5	126.8
large (over 249)	154.5	170.8	170.0
Production sold (current prices, PLN billion)			
Total	101.7	141.8	158.9
including: micro (up to 9)	9.1	8.8	8.6
small (10-49)	16.8	20.9	23.3
medium-sized (50-249)	31.5	39.1	41.0
large (over 249)	44.2	73.0	86.0

Source: Author's own elaboration based on: Statistical Yearbook of Industry. CSO, Warsaw, 2004-2011.

Changes in the structure of the food industry introduced in 2003-2010 are the continuation of tendencies revealed after Poland's accession to the European Union. Within this period processes of concentration were resumed, replacing the previous tendency to break up processing occurring in the entire transition period. In 2003-2010 two stages of changes in the structure of the food industry may be distinguished.

In the 2004-2007 period Poland was undergoing the process of integration with the European Union, and high economic revival. Processes of production concentration already showed in the food industry in this period. New circumstances resulting from strengthening of Poland's position on

the EU market influenced the slightly different direction of changes in the structures of the food industry. Restructuring conducted by the capital groups and sector leaders was one of such circumstances; it increased their capacity of market expansion and enabled them to function in the global market. Moreover, the EU standards were mostly achieved by large enterprises, thereby having the biggest chance to improve their position on the EU market. Therefore, concentration tendency was resumed in the Polish food industry, along with the development of specialisation of production. The scope for operations of micro and small enterprises began to decrease, the position of medium-sized enterprises was limited and the significance of large enterprises definitely increased. The above structural changes resulted in decrease in the number of active companies – mostly the smallest ones, and in reduction of employment in the food industry that, along with the production increase caused visible improvement of performance in the sector.

In the 2008-2010 periods there were rather dynamic economic changes in the food industry – mostly resulting from economic fluctuations on the world market. After the outbreak of the world financial crisis, from the mid-2008 to the mid-2009, the development of the food industry slowed down. Then, the food industry recovered, but not as much as before the crisis. As a result of worse assessment of development perspectives, investment activity was reduced in this period. As a consequence, in 2008-2010 the number of active companies slightly decreased – mostly the number of micro and small and medium-sized enterprises. However, it did not cause considerable changes in the structure of the food industry. Large enterprises, on the other hand, became more and more significant which confirmed the tendency to concentration of production.

As a result of the above-mentioned structural changes in 2003-2010 the following changes occurred in the structure of the food industry:

- the number of large enterprises increased by ca. 4%, with 10% increase in staffing and nearly 61% increase in the production sold in fixed prices;
- the number of medium-sized enterprises decreased by over 6%, with over 7% decrease in staffing and nearly 8% increase in the production sold in fixed prices;
- the number of micro and small enterprises decreased by over 19%, with 0.5% decrease in staffing and 1.5% increase in the production sold in fixed prices.

According to information about the results of the food industry in 2011 and 2012, concentration processes are continued in this economic sector. Indeed, there are no complete data enabling the assessment of such phenomenon.

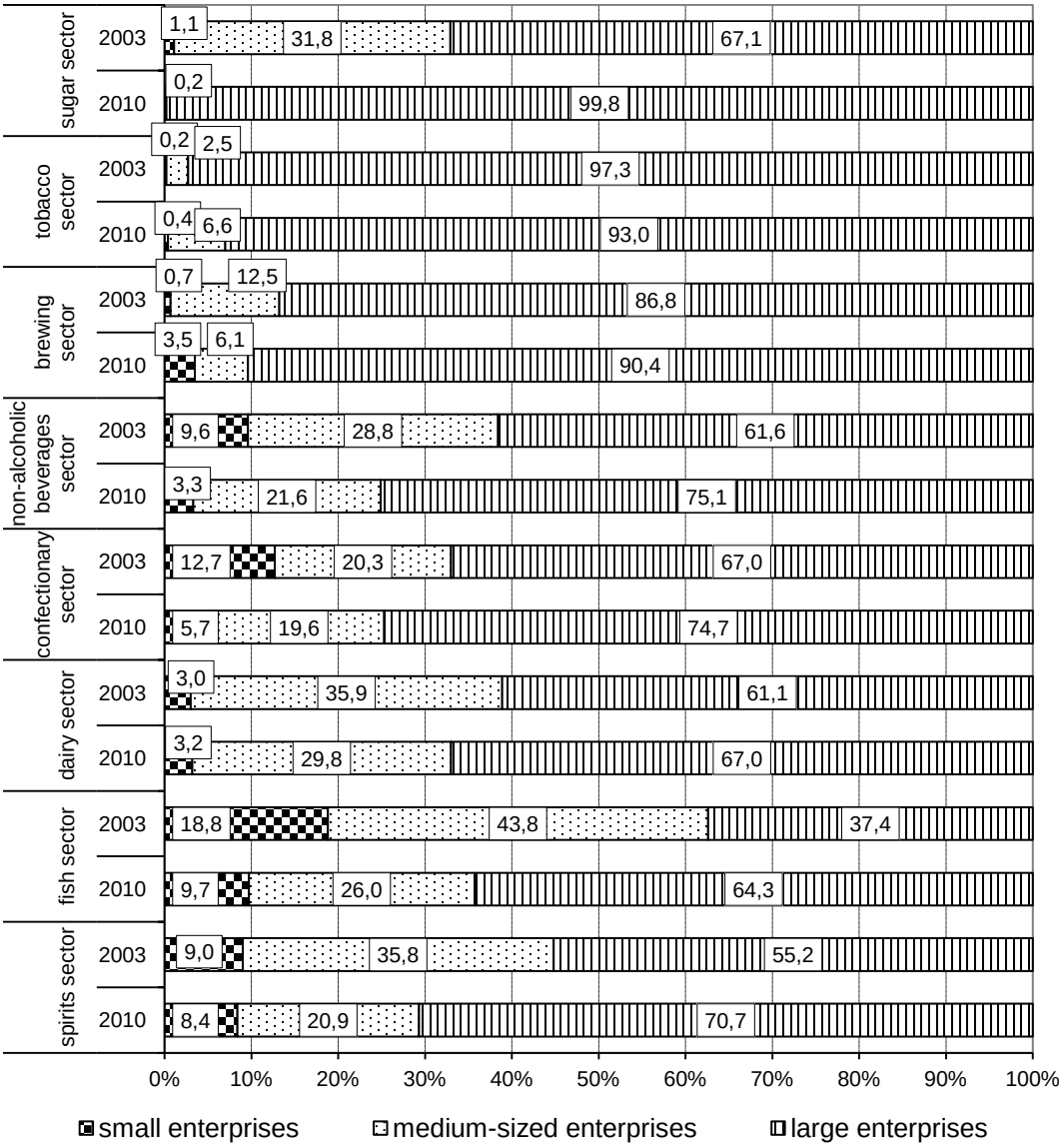
However, the significant increase in production of large and medium-sized enterprises along with relative stabilisation of national demand for food and beverages indicate further reinforcement of the position of large enterprises at the expense of small and medium-sized business entities. Such situation is the result of difficult market conditions for the producers of food and beverages that usually impose stricter limitations on small enterprises.

1. Concentration and consolidation processes in certain sectors of the Polish food industry

Concentration level in the food industry differs in various sectors, while sectors with high concentration level are, at the same time, sectors with high consolidation or even globalisation, where large enterprises' share in the sector production exceeds 60-70%, and 3-4 capital groups dominate in the national market. At the same time, these sectors showed dynamic development and high level of investments and previously they underwent fast privatisation with foreign capital share. This concerns mostly the following sectors: sugar, tobacco, brewing, non-alcoholic beverages, confectionary, and – to a lesser extent – dairy, fish and spirits. In 2003-2010 the level of concentration increased in most of these sectors.

Food industry sectors processing agricultural products basic for the Polish agriculture, such as: cereals (cereals and fodder sectors), meat (meat and poultry sectors), fruit and vegetables (fruit and vegetables sector) and rapeseed (oil-mill sector), have relatively diverse structures and average level of concentration. These sectors lack distinct consolidation of enterprises that, as a result, decreases their position in the foreign markets, and reduces opportunities for negotiating with large commercial networks. In the recent years the concentration level in this group of sectors was the most stable. It increased only in the case of fodder and cereals sectors, and to a lesser extent in the case of meat, poultry and fruit and vegetables sector.

CHART 1: **The structure of the food industry sectors with the highest concentration level (by the sales value, in %)**



Source: Own elaboration based on: Statistical Yearbook of Industry. CSO, Warsaw, 2004-2011, and unpublished CSO data.

The third group includes highly fragmented sectors, in the case of which most of production is focused on the medium-sized enterprises, as well as micro and small enterprises. In such sectors there are no distinct leaders, and large enterprises' share in the market does not exceed 30-40%. These include: wine sector, bakery sector, pasta sector, coffee and tea processing and potato sectors. Lack of consolidation is a limitation for export and entry of those sectors' entities to large commercial networks. In the last decade, there were various multi-directional changes in concentration of these food processing sectors. Large enterprises' share in sales increased in the pasta, bakery and

coffee and tea processing sectors. Consolidation level in the food industry may be also measured by several largest entities' (capital groups) share in the production sold in the sector. In 2011 particularly high consolidation level, based on three largest entities' share in turnover, was observed in the brewing sector, oil-mill sector, wine and non-alcoholic beverages sectors, confectionary sector, spirits sector, as well as in the coffee and tea processing sector and tobacco, fodder and food concentrates sectors. Fragmentation of bakery, meat, poultry, fruit and vegetables and cereals and pasta sectors, however, remained high.

TAB. 2: **Estimated share of three largest enterprises (capital groups) in sales revenue in the sector in 2011 (%)**

Share of three largest enterprises in sales in the sector	Food industry sectors
up to 10.0%	bakery
10.1-25.0%	meat, poultry, fruit and vegetables, cereals and pasta, fish, potato
25.1-50.0%	dairy, confectionary, fodder, spirits, non-alcoholic beverages, food concentrates, sugar, coffee and tea, tobacco
50.1-70.0%	wine
over 70%	brewing, oil-mill

* applies to industrial companies employing more than 9 permanent employees, submitting financial statements and included in the List 2000.
Source: Own elaboration based on the List 2000 of Polish enterprises, Rzeczpospolita, 24.10.2012, and unpublished CSO data.

Summary
Processes of globalisation and integration of Poland with the European Union changed the direction of development of the food industry structures. Before Poland's accession to the EU the transformation processes in this industry took an opposite direction, i.e. towards dispersion and fragmentation of activity, which was reflected by the increase of micro and small and medium-sized industrial enterprises' share in the food industry turnover and employment at the expense of large enterprises. In the period of Poland's membership in the EU the processes of consolidation and concentration of production were resumed in this industry. They consisted in decreasing the number of active enterprises, mainly the smallest ones, and increasing the number of large enterprises and their share in production and

employment. Nevertheless, the structure of the food industry has still been fragmented and the concentration level remains quite low. Food industry concentration factor has been clearly lower than the average in the Polish industry. After over eight years of the EU membership, the structure of the Polish food industry is close to the structure of the food industry in the EU-15 Member States (before enlargement of the European Union). Processes of concentration will be probably continued in the Polish food industry, and large enterprises, including transnational corporations, will be more and more significant. The global enterprises still will initiate structural changes and, as a serious competition for domestic producers, they will make them strengthen their brands. The position of micro and small enterprises, as well as of the considerable share of medium-sized enterprises that due to the specific character of the food industry are an important and sustainable element of the industry structure but have smaller capacity to overcome non-economic barriers for entry to and participation in the Common European Market will be gradually lowered. Crisis events in the world will also indicate increasing threat to the sector of small and medium-sized enterprises.

References:

[1] *Lista 2000 polskich przedsiębiorstw* [The list of 2000 Polish enterprises], Rzeczpospolita, 24. 10. 2012.

[2] *Rocznik Statystyczny Przemysłu* [Statistical Yearbook of Industry], CSO, Warsaw 2004-2011, ISSN 1231-8957.

[3] SZCZEPANIAK, I. Struktura podmiotowa przemysłu spożywczego. [in:] MROCZEK, R. (ed.) *Procesy dostosowawcze polskiego przemysłu spożywczego do zmieniającego się otoczenia rynkowego (1).* IAFE-NRI, Warsaw 2011, pp. 67-81, ISBN 978-83-7658-122-4.

CITY'S PROMOTIONAL ACTIVITY (BASED ON RZESZÓW, POLAND)

Wiesław Szopiński
State School of Higher Vocational Education in Tarnobrzeg
wieslaw.szopinski@pwsz.tarnobrzeg.pl

Key words:
territorial marketing – promotion – instruments of promotion

Abstract:
The study shows impact of promotion activities on the development of the city of Rzeszów in Poland. In the context of theoretical deliberations concerning issues of territorial marketing in the context of promotion activities, the author presented basic forms of promotion of Rzeszów. Growing competition of local governments in attracting tourists and investors makes it necessary for local authorities to look for original and interesting methods of promotion. It is crucial that promotion of the city was made by specialists from this field. Interesting ideas and involvement of employees of Municipal Office of Rzeszów ensure implementing planned and intended actions.

Introduction

All goods or services require broadly understood promotion actions and cities also require such steps. City promotion is a multi-faceted issue which requires defining strategic goal and drawing up long-term programme of actions based on cooperation of spheres of culture, economy, education, media and local governments. The city is a kind of company which operates in a market. The most significant element of city management is caring about interest and fulfilling individual and collective needs of all its residents.

A city should be regarded as a special marketing product with its own specific properties, features and image. It is necessary to conduct specific promotion actions in order to sell the product. Building a positive image of a city is essential for success, therefore, city promotion has to be one of the priorities in management of a territorial unit. Constituting one of the elements of marketing-mix, it effectively attracts potential investors and tourists. It also affects its residents by raising awareness of positive impact of investments and tourism on improvement of life standard.

1. Promotion as an element of territorial marketing

Territorial marketing concerns actions taken by local government, understood as mandatory community of residents of communes, counties and provinces established under the law for carrying out public tasks (local for communes and counties, regional for provinces) in order to meet collectives needs in an area [4].

An important instrument of territorial marketing, which is still identified with the notion of marketing, is promotion. It is at the same time the most visible element of marketing actions taken in a territorial unit which is due to the fact that promotion has the greatest capabilities, compared to other instruments,.

Promotion in territorial marketing is defined as all actions related with communication of territorial unit with its surrounding, including informing on the region, persuading for its attractiveness and inducing to purchase or consumption of territorial subproducts. In reality, promotion in territorial unit consists of skilful and efficient informing clients, addressees (local population, investors, tourists, work force and families outside the county) on territorial product and actions of local government [2].

The source of promotion actions are information needs, present on both sides of market exchange: supply and demand, in case of territories there is a need to inform prospective purchasers on territorial offer as well as persuade and incline to purchase, closely related with building image of a territorial unit. The starting point of all promotion actions is defining objectives which allow to fulfil general marketing assumptions of a territorial unit. The main purpose of promotion actions is both getting support of local community for individual actions of local government, and persuading clients of a unit to use the market offer by shaping and communicating identity of the territory [3].

The most significant goals of promotion of territorial unit include:

1. Informing on the existence of a region – current and prospective purchasers receive information due to promotion.
2. Persuading for region's advantages by showing benefits reached in the region, related with purchase of offer and comparison with other regions' offers.
3. Encouraging for purchase or consumption of regional subproducts – in this case, the intended effect is to stimulate specific actions and conduct of purchasers, and strengthen them, leading to loyalty to region's offer.
4. Shaping identity and consolidating image of a city [2].

Four fundamental instruments are used in carrying out promotion actions in a territorial unit: advertising, sales promotion, door to door promotion and public relations.

1. Advertising – impersonal and paid, addressed to mass recipient form of providing information on a city, commune, county, province or region which is usually used in mass media [7].
   Door to door sales – direct contact of salesman with a prospective customer. Using this instrument in the process of tourism promotion consists of winning the segment of tourists looking particularly for more expensive and refined offers [1].
2. Sales promotion (additional, supplementary) – a set of means increasing attractiveness of products for purchasers and raising their inclination to buying by offering them additional benefits which periodically enhance value of services sold in a unit [6].
3. Public Relations – planned and constant messages which purpose is to establish and maintain mutual understanding between a local government unit, and external and internal recipients of its marketing actions [5].

Promotion is one of the instruments of marketing-mix, therefore, it should not be conducted independently from other actions. It is one of the four elements of marketing-mix which proper combination allows to achieve specific objectives of territorial marketing.

2. Promotional actions of Rzeszów

Rzeszów, located in the south-eastern end of Poland, is the largest municipal centre in this part of the country, the capital of Subcarpathian province, city county and seat of government of Rzeszów county. It is located between the Sandomierska Valley and Carpathian Foothills, on the edge of depression called Podkarpacka Ancient Valley. It is located at the Wisłok river – city's buildings are on both sides of the river.

Favourable location of the city on the intersection of important communication routes and proximity of the southern and the eastern border (about 90 km from the border with Ukraine and Slovakia) make it a significant communication hub as well as stimulate development of the economy, trade and tourism. The road and railroad network is supplemented by modern Rzeszów-Jasionka International Airport.

Attractions of Rzeszów include urban planning of the Old Town, tenement houses and historic tenements, churches and monasteries, castle surrounded by well-preserved fortifications of the bastion type, old synagogues, several public buildings from the verge of the 19th and 20th century and suburb

manor houses. Underground tourist routes as well as the Old Town with the market square and adjacent streets are certainly a rarity.

Rzeszów is an attractive, dynamically developing city of young, resourceful people. Strong democratic traditions, dating back to the half of the 19th century, considerably affected the character of the contemporary community of Rzeszów. Residents of Rzeszów' openness, hospitality and love of new ideas and undertakings create friendly climate and nice atmosphere for tourists and investors coming to Rzeszów.

There are numerous cultural and sports events in the city and its surroundings, many of the international importance. Music Festival in Łańcut organised by Podkarpacka Phillharmonic as well as held every three years Festival of Folk Bands of Polish Community Abroad, connecting our region with Polish community abroad from the entire World, have special renown. Among many periodical events held in the city, the most popular include, among others, the Carpathia Festival which winners become famous in Poland and abroad, and: Rzeszów Days, Paniaga Celebration, Galicia Multicultural Festival, Museum Night, Colours of Ukraine Festival, Days of Maritime Culture and Evenings of Organ and Chamber Music in Cathedral of Rzeszów. Rzeszów Theatre Meetings, Rzeszów Carnival Meetings, Biennial Exhibition of Theatre Poster and Biennial Exhibition of Computer Art as well as numerous painting and photography exhibitions enjoy great interest, as well.

Poznajrzeszow.pl website promotes the capital of Subcarpathian province by presenting panoramic photos from various places in Rzeszów. The project is the first undertaking of this type in Poland. Its momentum, innovativeness and multitude of applied solutions shows our city in an absolutely spectacular way. Rzeszów, being the capital of innovation, implemented another modern project which purpose is to promote the city. This time it is QR codes which can be saw by drivers at the roads leading to the city. After scanning such a code, the user is automatically redirected to Facebook fan page of the capital of Subcarpathian province. The idea of QR codes supports wider campaign of Rzeszów consisting of effective promotion of the city in social media, particularly on Facebook. In the result of this campaign an official city profile which enjoys larger and larger interest was created on the popular website. It seems that both the campaign in social media and QR codes are another interesting step in promotion of Rzeszów as modern and innovative city.

Two image campaigns: "Rzeszów – good choice" and "Rzeszów – works well" were launch in Rzeszów. The first one concerned presenting Rzeszów as a

city friendly to business location. The fact that Rzeszów four times won the Fair Play County competition and received Golden Business Location distinction was used for creating this message. Rzeszów – works well promotion billboard and image campaign advertised Rzeszów as academic centre, city of business location, city of sports. Its purpose was to create and maintain the awareness among the residents that Rzeszów is a dynamic, quickly growing city which stimulates development of the entire region; city of science, higher education institutions, students; a city well-prepared for new investments, friendly to investors; a positively perceived city, professionally managed, ensuring good organisation of prestigious events; a city of high-level entertainment and sports; a place where you can see your future; a city worth staying, residing and living in.

Conclusion

City promotion is one of the priorities in management of municipality as it is an instrument which supports effective drawing attention of prospective investors, tourists, and residents of other cities looking for new, attractive places to live in.

A city should be regarded as a marketing product with its features, quality and image. Specific promotion actions must be carried out to sell the product since there is a strong need to create city‘s image with as many positive associations as possible.

Rzeszów is a dynamic and quickly growing city which stimulates development of the entire region; city of science, higher education institutions, students; a city well-prepared for new investments. Rzeszów, as the province capital, constitutes a vital culture and commercial centre on the map of Poland. The place of rich, over 650 years old history, Rzeszów has a lot to offer to tourists. Located on the intersection of large communication routes, it has own airport. Applied marketing and public relations strategies allow achieving the desired result. Currently, Rzeszów is one of the quickest growing cities in our country. As the capital of innovation, it also develops other projects which facilitate life of its citizens and attract tourists. Rzeszów, with the correct strategy of city promotion, may become in the future one of the most significant tourist and cultural centres of supra-regional significance.

References:

[1] CZORNIK, M. *Promocja miasta*. Wydawnictwo Uczelniane Akademii Ekonomicznej w Katowicach, Katowice /*City promotion*. Academic Publishing House of University of Economics in Katowice/, 2005, p. 179

[2] FLOREK, M. *Podstawy marketingu terytorialnego.* Wydawnictwo Akademii Ekonomicznej w Poznaniu /*Basics of territorial marketing.* Publishing House of University of Economics in Poznań/ 2007, p. 143-145
[3] GAJDZIK, B. *Promocja w gminach-teoria i praktyka.* „Marketing i Rynek", */Promotion in counties – theory and practice/.* "Marketing and Market", no. 10, 2000, p. 20
[4] JASTRZĘBSKA, M. *Nowy model samorządu terytorialnego*. „Samorząd Terytorialny" */New model of local government*. "Territorial self-government" / no. 1-2, 1999, p. 14
[5] OLSZEWSKA, J. *Nowy model samorządu terytorialnego*. „Samorząd Terytorialny" /*Image as an instrument of creating county's competitive advantage.* "Marketing and Market"/, no. 11, 2000, p. 17
[6] PANASIUK, A. *Marketing usług turystycznych*. */Marketing* of *tourist services*/ PWN, Warszawa, 2005, p. 136
[7] WOJEWODZIC, T. *Marketing w jednostkach samorządu terytorialnego*. Wydawnictwo Lewis */Marketing in local government units*. Lewis Publishing House, Warszawa/, 2000, p. 63

THE CATEGORY OF INTRA-REGIONAL POLICY: POLISH PERSPECTIVE

Andrzej Sztando
Wrocław University of Economics
andrzej@sztando.com

Key words:
region – policy – intra-regional policy – Poland

Abstract:
The paper discusses concepts of intra-regional policy which reflect its Polish perspective. The author develops his own definitions of this policy, identifies its stakeholders and constructs two classifications of its objectives. Next he defines the category of intra-regional policy instruments and presents their main features. Final part of the paper offers the author's original classification of intra-regional policy tools based on the form criterion of their impact on regional structures.

The hereby paper represents an opinion in the discussion concerning the category of intra-regional policy (IRP) and also the author's identification and construction of concepts regarded as fundamental to Polish IRP, such as its definition, actors, objectives and instruments. It is based on the analysis of Polish law, literature studies as well as several years of author's experience in regional development management.

Just as there are different ways to specify the category of policy, there are also multiple forms of IRP category defining. Once formal and legal criteria [based on Sobkowiak' definition prototype in: Antoszewski A., Herbut R., 1999] are applied it may be defined as an activity of public institutions operating within a region, or in case of Poland within the area of a voivodship. From the perspective of behavioral approach it will be recognized as regional system of social relations in which control, influence, power and authority are present. On the other hand, functional orientation will be regarded as the function of regional social system development by providing conflict resolution. Yet another approach represents a rational standpoint in which the discussed policy will take the form of a decision-making process within the framework of activities focused on winning and exercising the power of regional authorities. The final approach to be presented is the post-behavioural one. It perceives IRP as the service which strives to reduce or remove intra-regional restrictions by means of meeting the needs of its residents. Having analyzed the above mentioned definitions one can distinguish

certain properties following all of which a given entity should be characterized in order to be considered as performing IRP. These are: (a) functioning within regional borders; (b) having public status which guarantees performing governance over intra-regional entities and ensures both power and due instruments to influence and control them; (c) the need to gain and maintain such power; (d) the activity purpose - regional development creation or its significant portion; (e) addressing the needs of regional residents. In Poland such characteristics are typical only for local self-governments (SGs) and it is only them which can be regarded as IRP entities. When it comes to regional SG, no such claim is questionable. It is in fact an entity functioning in the region, having powers obtained as the result of elections, striving for the development of the region by meeting the needs of its community. Reservations may occur in the case of municipal and district SG. Can they be recognised as the IRP entities? Their activity areas do not, by any means, cover an overall region. Still, the claim appears to be justified in the perspective of the following facts: (a) if they are considered jointly (since they are homogeneous), then the total territory of their operations will be identified as a region; (b) the objectives of their micro-regional activities, in the majority of cases, do not contradict each other and add up as the goals of regional development; (c) they establish cooperation and mutual assistance networks in the process of these objectives accomplishment; (d) they operate together in relations with entities outside the region to defend its interests; (e) policy of those SGs, which have strong exogenous functions, results in regional or sub-regional consequences, sometimes more powerful than those undertaken by the regional SG; (f) they meet the needs of inhabitants residing in respective parts of the region which are also experienced by the whole regional community. Other features of an IRP entity are met by the municipal and district SG. Both of them are located within the region and exercise the authority gained as the result of due elections.

Referring to regional, district or municipal SG as IRP entities allows for defining its objectives. Considering that they have been defined by Polish Parliament in the Acts of systemic nature for these SGs and that they are made more specific and developed in current activities by these SGs, the discussed task may be performed in two ways. The first is to define IRP purpose based on the law governing the activities of its subsidiaries, and the other on analyzing reasons and consequences of their activities.

In case of regional SG, the first task specified in *Act referring to regional self-government*, is to determine its strategy. However, it seems incorrect to consider it as an end in itself since it is a planning tool to achieve other goals. Therefore, the objectives of Polish regional IRP are the goals, which accord-

ing to parliament, should be included in any regional strategy. These are: (a) fostering Polish culture; developing and influencing national, civic and cultural identity; fostering local identity, (b) economic activity stimulation, (c) raising regional competitiveness and innovation; (d) conservation of cultural and natural environment; taking into account the needs of future generations; spatial order construction. While designing strategies, the majority of Polish regions add their own additional objectives. For example, Lower Silesia region decided that the objectives of the strategy adopted in 2005 are as follows: activating residents by increasing their commitment to public service, providing directions for economic and infrastructural development as well as improving the living conditions of local population. These, therefore, are individual IRP goals characteristic for mentioned regions. In addition to legislative and individual goals, the components of development policy carried out by regional authorities and listed in the *Act on regional self-government*, should also be regarded as objectives of the policy under discussion. Similarly, the purpose of district IRP is to perform certain public duties of supra-communal nature, referred to in the *Act on district self-government*, while in the case of municipal SG it is to meet the collective local community needs, provided by the *Act on municipal self-government*.

While proceeding to the second perspective of IRP goals, it should be noted that it is the result of the author's analysis of the above-mentioned tasks and components of policy development, as well as literature on the criteria and methods for their implementation. Moreover, the targets identified in this way are appropriate in the majority of Polish local SG levels. Differences relate only to the scale of their accomplishment.

Economic development represents the first of the so-defined objectives over the territory of which a particular SG conducts its policy. Having recognized this goal as the major one, it can be divided into operational objectives: (a) safe functional structure of a territorial unit; (b) favorable legal and infrastructural business climate; (c) economic activity of the population; (d) obtained, desirable investments; (e) activated and previously unexploited economic assets; (f) positive situation in supply and demand at some markets; (g) jobs number increase; (h) strong competitive position of enterprises; (i) dissemination of innovation; (j) good agricultural condition; (k) eliminated or compensated negative effects of enterprises; (l) developed entities generating positive externalities.

Social development represents the second main objective. It is recognized as creating and satisfying local population needs. It consists of the following operational objectives: (a) high level of knowledge; (b) meeting housing needs; (c) public and private space safety; (d) healthcare; (e) meeting infra-

structural needs; (f) reduced social problems; (g) accessible transportation; (h) unemployment reduced to a minimum; (i) aesthetics of public places; (j) common access to sport, tourism and recreation facilities; (k) the universality of culture; (l) protected cultural heritage; (m) proper functioning of families; (n) civic participation; (o) patriotic attitudes; (p) the wealth of human and social capital.

The third major objective is to ensure adequate territorial sustainable development. In order for it to be obtained its social and economic development should be created in the way which respects and balances with the local environment needs. Its constituent operational objectives are: (a) rational, economic and social exploitation of environment resources; (b) its legal protection; (c) cleaning pollution and its condition improvement; (d) new ecosystems establishment; (e) reducing energy consumption; (f) renewable energy sources usage; (g) stopping pollutants from entering the environment; (h) generated pollutants minimization; (i) waste recycling and disposal.

As it has been presented, IRP substantive scope covers almost the entire spectrum of civilization processes occurring within regions. It is not surprising, therefore, that the instruments for achieving them are rich. In the author's opinion IRP instrument is any information, action, or abstaining from action by an entity following IRP, which may affect regional development, or the actions of institutions, bodies and individuals influencing (or capable of influencing) this region (its part). Instruments also take the form of activities and information necessary to design, implement and verify the accuracy of the IRP instruments application. This definition requires further explanation. First of all, the main feature of the aforementioned instruments is their resulting in regional transformations which are in compliance with IRP objectives. It is also important that they do not have to be directly focused on the region. The addressees of some of them may be the objects which are not part of the region, however, they do affect it.

Since the range of goals taken up by IRP is broad, almost any of their actions can be treated as an instrument. Thus there is no possibility to identify all of them. The below presented author's classification is therefore primarily aimed at building an image of options available to Polish territorial SGs in the process of IRP. It is not of disjoint nature and is based on influence form criterion. It covers the following instruments.

Administration coercive instruments represent the power supported by potential sanctions in relation to different entities and mainly taking the form of: orders, prohibitions, permits and regulations. Social infrastructure in-

struments represent SG entities established to meet the collective, communal needs and services rendered based on them, or without their application, as well as various types of support for the selected private and public activity forms. They may be divided, among others, into: care oriented, educational, social, cultural, sport oriented, recreational and medical. Technical infrastructure instruments are represented by: generally accessible, SG technical infrastructure instruments, entities involved in their construction, modernization and maintenance, as well as services rendered with their application and also support forms for other technical infrastructure development. They may be classified as: road, water supply system, sewer system, hydrotechnical, rail, air, electricity, gas, telecommunication and heat oriented. Information instruments represent all information provided to internal and external customers by SGs, as well as their units and companies. This group of instruments consists mainly of: collective, individual and promotional instruments. Cognitive instruments can be divided into control instruments and these purely diagnostic. Control actions aim at checking procedures compliance, followed by persons and entities, with provisions. They cover, among others, controlling: spatial compliance, environment, tax, services, marketing of alcoholic beverages and enforcement of contracts. The other instruments represent cognitive ones, i.e. these which cannot result in sanctions, and are of purely diagnostic nature. These instruments are: diagnosis, prognosis, surveys etc. Labour market instruments represent SG labor institutions and activities carried out by them, as well as other forms of labor market support. They include: job placement, benefits, training activities, professional counseling and information, special work, job clubs. Economic development instruments represent all opportunities for stimulating regional, sub-regional or micro-regional entrepreneurship. They can be divided, among others, into instruments: money market, taxation, property management, utilities, contractual, industrial parks, science and technology parks, business incubators, innovation-oriented and regional development agencies. The instruments of direct impact on SG units and companies development represent activities performed by authorized SG bodies influencing their development. Instruments in this group mainly include: the establishment and elimination of SG units and companies, joining them, their management board appointing, their equity changes, going beyond public utilities domain, delegating tasks, public contracts. Conceptual and organizational instruments include measures to optimize the selection and application of other IRP instruments. They cover: staff and local government processes organization improvement, consulting and planning. Financial instruments represent diversified cash transfers made by SGs to other entities. They include subsidies for: other SGs' budgets, NGOs, regional operational

program beneficiaries, other government assistance programs beneficiaries. Security instruments are represented by entities and activities ensuring the safety of people and property, as well as assistance in emergency situations. Among these instruments the following can be listed: urban and municipal guards, safety education, sanitary inspection and prevention, video surveillance, prevention programs, anit-flood storages, emergency management systems, legal audits referring to safety compliance. Pro-environmental instruments represent activities available for a SG in order to protect or improve natural environment. These are mainly: legal forms of nature protection, green areas, reforestation and mid-field vegetation planting, ecological education, thermo-modernisation of buildings, rehabilitation of industrial waste landfills, soil reclamation, reimbursement of pro-environmental activities costs performed by legal and natural persons, municipal waste management and the liquidation of illegal waste landfills. The other instruments include lobbying performed by all local governments in order to obtain favorable decisions of higher authorities at all levels, and negotiations of contracts with the state.

References:

[1] ANTOSZEWSKI, A., HERBUT, R. *Lexicon of Political Science*. Wroclaw: Atla, 1999, ISBB 83-88555-46-4.

[2] *The Act of 05.06.98 on regional self-government* (Off. Gazette 01, No. 142, i. 1590).

[3] *The Act of 05.06.98 on district self-government* (Off. Gazette 01, No. 142, i. 1592).

[4] *The Act of 08.03.90 on municipal self-government* (Off. Gazette 01, No. 142, i. 111)

AGRICULTURE AS THE LEAST EFFICIENT BRANCH OF ECONOMY

Marcin Szymański
Cracow University of Economics
szymanski.marcin@o2.pl

Key words:
agriculture – efficiency – education

Abstract:
The author tries to compare efficiency of agriculture with efficiency of other branches – industry and services to give answer to the question asked in the title of the paper. Then he tries to investigate how efficiency of agriculture is related to the level of education of society. The author uses the World Bank and the United Nations databases to present hard calculations for such counties as: Poland, Czech Republic, Slovak Republic, Hungary, Denmark, France and Germany.

Introduction

Agriculture is claimed to be the least efficient branch of economy. Nobody will argue if he meets with such statement. Nobody will ask for the proof of evidence to justify that. That is why I decided to make a research in this area. My first aim is to investigate whether the unflattering reputation of agriculture is just a myth or reality (H1 – agriculture is the least efficient branch of economy). If you ask somebody to share his thoughts about agriculture, you will hear that agriculture: is behind the times, has a stronger relation with tradition than with future-thinking and uses habits more than achievements of science. One more time, nobody will ask for any evidence to prove that. That is why I decided to extend the research and to investigate whether efficiency of agriculture is related to education of society or not.

Methodology

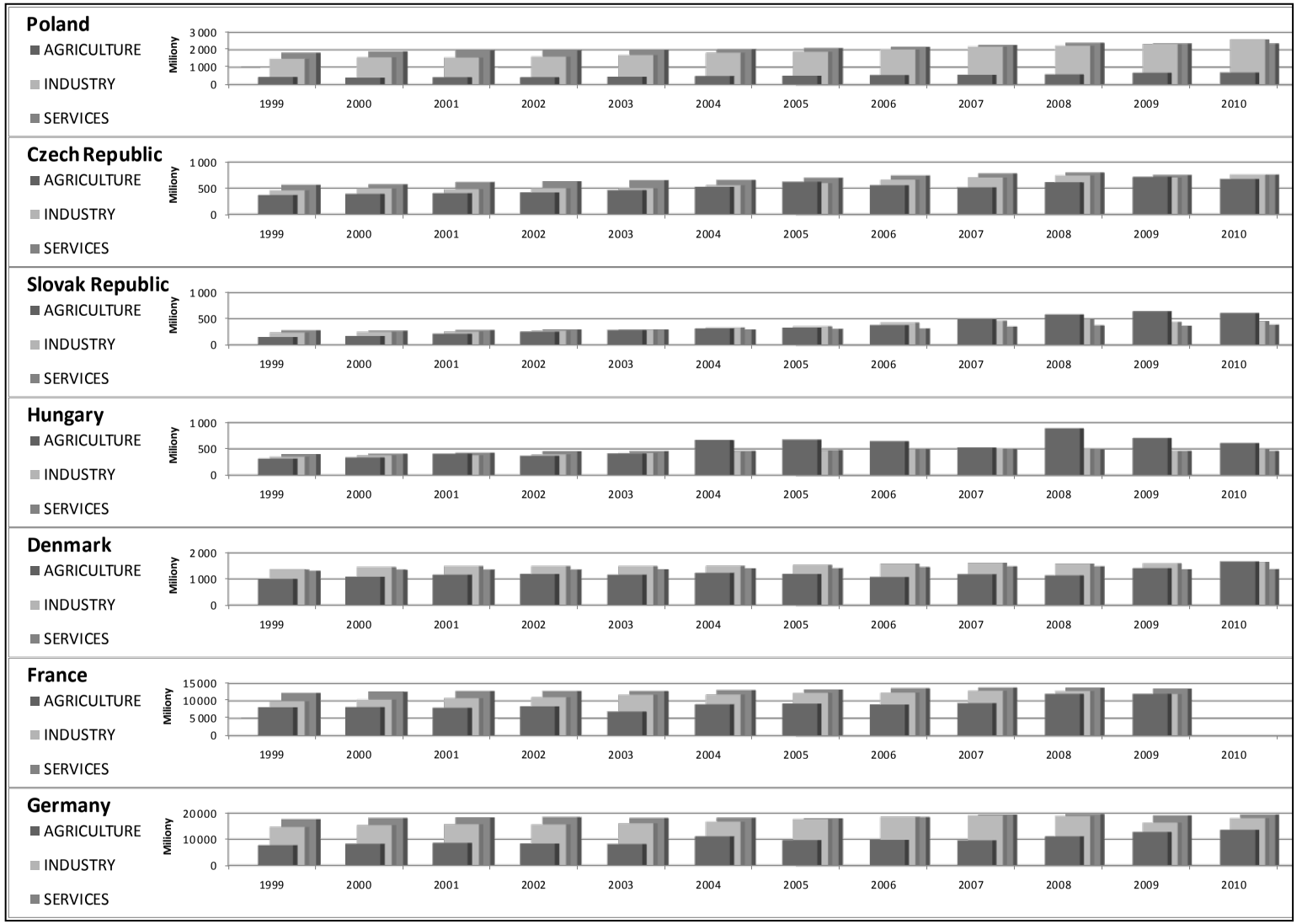
Before I started the research, I asked my friends to participate in a survey[1]. Few worlds about the respondents: they are young, well educated, they come from big cities and make carrier in area of corporate finance. The respondents considered agriculture as traditional, old-fashioned, inefficient, unprofitable, unpredictable, hard-work consuming and poorly-managed. However, most of them did not read any thematic papers. To measure efficiency of agriculture I used "agriculture[2], value added[3] (constant 2000 US$)" indicator, published by the World Bank. Similar indicators are available for industry[4] and services[5]. To make the efficiency indicator for agriculture comparable

with indicators for industry and services I used percentage indicators of employment in branches as a factor (as well published by the World Bank). Such calculations enabled me to deal with the first hypothesis (H1). To deal with the second hypothesis (H2) I monitored public spending on education, labor force with primary, secondary and with tertiary education. The indicators were published by the World Bank. UN Economic Commission for Europe publishes indicators that show tertiary students by faculty. I used these indicators to analyze impact of education on efficiency of agriculture more precisely. I decided to take Poland, Czech Republic, Slovak Republic and Hungary under consideration. Then I chose Denmark, France and Germany as well to include more mature economies as well.

Main part

I let myself to begin with the hypothesis (H1) that states that agriculture is the least efficient branch of economy. In this particular case it would be useful to leave the dollars aside and focus more on relation between agriculture and other branches. Graph located bellow (Graph 1), gives possibilities to compare branches easily. Time string – 12 years – is long enough to perceive general dependence and to come up with credible conclusion. As far as Poland is concerned, agriculture truly is the weakest branch of economy in terms of efficiency. Polish industry and services are far more efficient than polish agriculture. On the one hand agriculture gains efficiency faster than services, but on the other hand slower than industry. It is impossible to predict what will be the pace in the future: global economy is turbulent. No matter what, the distance to cover for agriculture is huge and it may take many years to make efficiencies of three legs of polish economy even. Bottom line, the research done for polish economy shows, that the respondents were right, the inefficiency of agriculture is neither a myth nor common stereotype - it's a fact.

GRAPH 1: **Efficiency of agriculture, industry and services (1992-2009)**



Source: **World Bank, own calculations**

Results of the research are completely different for Czech Republic, Slovakia Republic and for Hungary. It is interesting especially when common history and way of development of these nations are concerned. Czech agriculture is almost as effective as industry and services. The discrepancy is so small that for the purpose of hypothesis verification can be omitted. Slovak and Hungarian agriculture are the most efficient branches of countries' economies. Leadership of agriculture is strong and stable. It is clearly visible on the graph (Graph 1.). Findings that come from the analysis made for Czech Republic, Slovak Republic and Hungary stays in conflict with findings that come from the analysis made for Poland. In this reality, agriculture cannot be perceived as not as efficient. In contrary, it has to be recognized as the highly efficient.

To have the verification of the first hypothesis done, research for mature economies such as Demark, France, German one should be conducted as well. I assume that extending the analysis gives me right to extend the conclusion to more general as well. Danish agriculture is more efficient than industry and services. It is not a surprise. Achievements of Danish agriculture are widely known and discussed. In terms of efficiency, French agriculture stands between industry and services. Good results of French agriculture are not something strange. It is obvious that France is one of European key players in the area of agriculture. German agriculture is not so effective as industry and services. The distance between agriculture and other branches is not so big as one could imagine. It is much smaller than the distance between Polish agriculture and other branches. However, is there anything that could compare with German industry and services? In this particular case, the problem is strength of other legs of German economy, not weakness of its agriculture. Finally, verification of second hypothesis (H2), that states that efficiency of agriculture is related to education of society, could be conducted. It would be useful to calculate correlation between efficiency of agriculture and indicators used to measure level of education for given society (Tab. 1). Time string of data is the same as before – 12 years – and still enough to spot any regularity. To stay in order, let's start with Poland once again. What is interesting: there is no significant relation between public spending on education and efficiency in agriculture.

TAB. 1**: Correlation between efficiency of agriculture and education of society (2000 - 2010)**

	Poland			Czech Republic		
	AGRICULTURE	INDUSTRY	SERVICES	AGRICULTURE	INDUSTRY	SERVICES
Public spending on education (% of GDP)	**-0,41**	**-0,50**	**-0,51**	**0,41**	**0,17**	**0,26**
Labor force with primary education (% of total)	-0,97	-0,97	-0,96	-0,91	-0,88	-0,90
Labor force with secondary education (% of total)	-0,99	-0,99	-0,95	-0,36	-0,44	-0,22
Labor force with tertiary education (% of total)	0,99	0,99	0,96	0,91	0,93	0,83
Humanities and arts	0,81	0,84	0,85	0,12	-0,07	0,08
Social Sceinces, Business & Law (% of total)	-0,81	-0,77	-0,70	0,65	0,87	0,92
Science (% of total)	0,92	0,87	0,84	-0,54	-0,18	-0,40
Engineering, Manufactuing, Construction (% of total)	-0,72	-0,70	-0,60	-0,61	-0,72	-0,54
Agriculture (% of total)	0,11	0,12	0,05	-0,25	-0,32	-0,43

	Slovak Republic			Hungary		
	AGRICULTURE	INDUSTRY	SERVICES	AGRICULTURE	INDUSTRY	SERVICES
Public spending on education (% of GDP)	**-0,44**	**-0,67**	**-0,55**	**-0,03**	**0,18**	**0,37**
Labor force with primary education (% of total)	-0,99	-0,88	-0,98	-0,80	-0,94	-0,79
Labor force with secondary education (% of total)	-0,79	-0,86	-0,79	-0,83	-0,63	-0,35
Labor force with tertiary education (% of total)	0,93	0,92	0,93	0,85	0,90	0,69
Humanities and arts	0,93	0,91	0,97	-0,11	0,15	-0,07
Social Sceinces, Business & Law (% of total)	0,90	0,93	0,90	0,61	0,53	0,66
Science (% of total)	0,32	0,24	0,19	0,17	0,58	0,70
Engineering, Manufactuing, Construction (% of total)	-0,95	-0,91	-0,91	-0,81	-0,76	-0,83
Agriculture (% of total)	-0,87	-0,92	-0,78	-0,70	-0,98	-0,96

	Denmark			France		
	AGRICULTURE	INDUSTRY	SERVICES	AGRICULTURE	INDUSTRY	SERVICES
Public spending on education (% of GDP)	**0,63**	**-0,47**	**-0,88**	**0,03**	**0,00**	**-0,18**
Labor force with primary education (% of total)	0,45	0,76	0,42	0,04	0,30	0,39
Labor force with secondary education (% of total)	-0,52	-0,89	-0,51	0,41	0,20	0,15
Labor force with tertiary education (% of total)	0,30	0,58	0,40	-0,09	-0,33	-0,42
Humanities and arts	-0,33	-0,68	-0,76	0,69	0,80	0,86
Social Sceinces, Business & Law (% of total)	0,31	0,74	0,82	0,69	0,81	0,89
Science (% of total)	-0,51	-0,63	-0,69	0,69	0,81	0,88
Engineering, Manufactuing, Construction (% of total)	-0,02	-0,67	-0,64	0,69	0,82	0,90
Agriculture (% of total)	-0,46	-0,53	-0,59	0,69	0,82	0,91

	Germany		
	AGRICULTURE	INDUSTRY	SERVICES
Public spending on education (% of GDP)	**0,19**	**0,89**	**0,71**
Labor force with primary education (% of total)	-0,69	0,05	-0,50
Labor force with secondary education (% of total)	0,45	0,72	0,73
Labor force with tertiary education (% of total)	0,93	0,42	0,59
Humanities and arts	-0,77	-0,95	-0,52
Social Sceinces, Business & Law (% of total)	0,09	0,15	0,23
Science (% of total)	0,61	0,78	0,33
Engineering, Manufactuing, Construction (% of total)	0,72	0,68	0,31
Agriculture (% of total)	0,03	0,49	0,52

Source: World Bank and United Nations Economic Commission for Europe, own calculations

Expenditures on education have been more or less the same in the monitored period of time, but in that time efficiency of agriculture have risen. That means that there must be other factors that stand behind this change. There is a strong correlation between level of education and efficiency of agriculture: efficiency goes in line with percent of people with tertiary education, but in the opposite way that percent of people with primary or secondary. It seems to be obvious that efficiency should be related to percent of people with degrees in field of agriculture, but is not. There is no relation at all. However, there is strong and linear relation between efficiency and percent of people with degrees in science. Let's move to Czech Republic, Slovak Republic and Hungary now. Here, the efficiency of agriculture: is not related to spending on education, moves the in the opposite way that percent of people with primary and secondary education, moves in line with percent of people with tertiary education, is not related or is inversely related with percent of people with degrees in agriculture and is strongly related or is somehow related with percent of people with degrees in social sciences, business and law.

Economies of Denmark, France and Germany have one thing in common with these analyzed before – efficiency of agriculture is not related to expenditures on education. Unfortunately, there is no possibility to spot any other dependence between efficiency of agriculture and level of education. Each economy is so specific that any generalization is impossible and would be simply untrue.

Conclusion

To conclude, agriculture is not the least efficient branch of economy. The research have shown that out of seven analyzed economies on different level of development in three agriculture is the most efficient branch, in three is almost as efficient as leading branch and only in one is far behind other branches. The first hypothesis is false. The second hypothesis cannot be verified. It the process of research some relations were spotted (e.g. efficiency is not related to public spending on education, is not related to percent of tertiary students that choose agriculture as faculty, is somehow related to amount of tertiary students), but the proofs of evidence are to week for generalization.

Explanatory notes:

[1] Respondents: 10, Q1: Do you associate agriculture with high performance? YES: 0 NO: 10, Q2: Do you associate agriculture with the usage of science achievements? YES: 2 NO: 8, Q3: Do you associate agriculture with tradition? YES: 8 NO: 2, Q4: List three words that describes agriculture in the best way. Answers: traditional, old-fashioned, inefficient, unprofitable, unpredictable, hard-work consuming and poorly-managed., Q5: Is your opinion based on scientific researches? YES: 1 NO: 9.

[2] Agriculture corresponds to ISIC divisions 1-5 and includes forestry, hunting, and fishing, as well as cultivation of crops and livestock production. Data are in constant 2000 U.S. dollars.

[3] Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources.

[4] Industry corresponds to ISIC divisions 10-45 and includes manufacturing (ISIC divisions 15-37). It comprises value added in mining, manufacturing (also reported as a separate subgroup), construction, electricity, water, and gas. Data are in constant 2000 U.S. dollars.

[5] Services correspond to ISIC divisions 50-99. They include value added in wholesale and retail trade (including hotels and restaurants), transport, and government, financial, professional, and personal services such as education, health care, and real estate services. Also included are imputed bank service charges, import duties, and any statistical discrepancies noted by national compilers as well as discrepancies arising from rescaling. Data are in constant 2000 U.S. dollars.

THE SEASONAL UNIT ROOTS IN DEMOGRAPHIC TIME SERIES ANDTHE POSSIBILITIES OF ITS EXACT TESTING

Ondřej Šimpach, Petra Dotlačilová
University of Economics in Prague
ondrej.simpach@vse.cz, xdotp00@vse.cz

Key words:
seasonal unit roots – HEGY test – demographic time series – stationarity

Abstract:
The aim of this study is to present the options for testing seasonal unit roots in quarterly published demographic time series, in which the presence of seasonality is generally expected. The testing using sophisticated HEGY test will be presented in an econometric package GRETL and with selected demographic time series with quarterly frequency the absence of stationarity will be proved. Use of testing seasonal unit roots is necessary because the standard Dickey-Fuller test cannot be used in quarterly observed data in which the seasonality is expected. In the subsequent part of the study there will be compiled the model estimations for selected demographic time series.

Introduction

For the purposes of demographic analysis is needed to accept the assumption of non-stationarity in the demographic time series i.e. that in the time series the trend should occurred. The presence of the trend is one of the necessary requirements that analysed demographic time series can be used for modelling and eventual prediction. The presented article gives an exact opportunities to determine, whether the analysed demographic time series, published a quarterly frequency, signifies the stationarity or does not. There is not general rule, that every published quarterly time series is seasonal (see Arlt, Arltová [1]). The probability that the quarterly demographic time series is seasonal, however, is high, therefore, there will be presented approach of testing seasonal unit roots in quarterly published demographic time series, introduced by Hylleberg et al. [5]. The verification of stationarity is one of the conditions for further time series analysis, presented by Box and Jenkins [2] in methodological approach for time series modelling. In selected demographic time series are included the numbers of marriages, the numbers of divorces, numbers of live-born persons, the numbers of abortions, the numbers of deaths and the numbers of immigrants and emigrants. All observations were published by the Czech Statistical Office (CZSO). Analysed demographic time series start at first quarter 1991 and end at fourth quarter 2000 (i.e. 80 observations).

1. Methodology

At the sight of the trend of economic or demographic time series, we can hypothesize about the presence of stationarity of time series. If the trend is rising, respectively decreasing, and has its cycles, it is possible to say that a specific time series is non-stationary. Then also the autocorrelation function (ACF) has its first value very high, close to 1 and the other remaining values decrease very slowly. Graphical representation and definition of ACF is given e.g. by Arlt, Arltová [1].

In the case that the time series is non-seasonal, it is necessary exactly verified the presence of stationarity and it is possible to use the test of unit roots, presented by Dickey and Fuller in [3]. For the following models:

a) $X_t = \Phi X_{t-1} + a_t$
b) $X_t = c + \Phi X_{t-1} + a_t$
c) $X_t = c + \Upsilon_t + \Phi X_{t-1} + a_t$

where X_t is specific time series, c is constant and a_t is residue, the hypothesis are:

$H_0: = 1$ *, i.e. the time series is I(1),*
$H_1: < 1$ *, is I(0).*

Used test criterion

$$T = \frac{\widehat{\Phi} - 1}{S_{\widehat{\Phi}}} \tag{1}$$

has a *t*-distribution. However, due to the fact, that the tested hypothesis is "non-stationarity" the t-statistic has no standard *t*-distribution, but the distribution which was designed by Dickey and Fuller in [3]. In favour of the alternative hypothesis suggests low levels of test criterion *t*, respectively, values less than α-percent quantile of the distribution of D-F (see e.g. Granger [4]). In the case that the residual component in models a) b) or c) is auto-correlated then is constructed the extended DF test, which differs by extension by $\sum_{i=1}^{p-1} \Upsilon \, \Delta X_{t-i}$, so

a) $\Delta X_t = \Phi X_{t-1} + \sum_{i=1}^{p-1} \Upsilon \, \Delta X_{t-i} + a_t$
b) $\Delta X_t = c + \Phi X_{t-1} + \sum_{i=1}^{p-1} \Upsilon \, \Delta X_{t-i} + a_t$
c) $\Delta X_t = c + \Upsilon_t + \Phi X_{t-1} + \sum_{i=1}^{p-1} \Upsilon \, \Delta X_{t-i} + a_t$

and $\Delta X_{t-i} = X_{t-1} - X_{t-i-1}$ is the difference of neighbouring values.

In the case that we consider the seasonal time series, the Dickey-Fuller's methodological approach of unit root test cannot be used. Actually it is possible to use an approach, presented by Hylleberg et al. [5], (labelled HEGY), which was specially designed for testing for the presence of seasonal unit

roots in quarterly observed time series Y_t. It is based on testing the statistical significance of the parameter π_i, where $i = 1, \ldots, 4$ in regression equation, which according to Harvey and Dijk [6] may have the followed form:

$$\Delta_4 y_t = \mu_t + \pi_1 y_{1,t-1} + \pi_2 y_{2,t-1} + \pi_3 y_{3,t-1} + \pi_4 y_{3,t-1} + \sum_{j=1}^{k} \Phi_j \Delta_4 y_{t-j} + \varepsilon_t \qquad (2)$$

where $t = 1, \ldots, T$. At the same time let us denote Δ_k, representing the filter, which can be defined as

$$\Delta_k y_t \equiv (1 - B^k) y_t \equiv y_t - y_{t-k} \qquad \forall\, k = 1,2,\ldots \qquad (3)$$

where B is the lag operator. In the regression equation μ_t represents the deterministic trend. Now, let us denote

$$y_{1,t} = (1 + B + B^2 + B^3) y_t \qquad (4)$$
$$y_{2,t} = -(1 + B + B^2 + B^3) y_t \qquad (5)$$
$$y_{3,t} = -(1 - B^2) y_t \qquad (6)$$

and whereas the $(1 - B^4) = (1 - B) \cdot (1 + B) \cdot (1 + B^2)$, then y_t may contains seasonal unit roots. All filters, leading to $y_{1,t}$, $y_{2,t}$ and $y_{3,t}$ removing all unit roots except one which results from the fact, that the annual filter $(1 - B^4)$ can be decomposed as

$$(1 - B^4) = (1 + B + B^2 + B^3) \cdot (1 - B) \qquad \text{or}$$
$$(1 - B^4) = -(1 + B + B^2 + B^3) \cdot (1 + B) \qquad \text{or}$$
$$(1 - B^4) = -(1 - B^2) \cdot (1 + B^2)\,.$$

When in the regression equation (2) the parameter

- $\pi_1 = 0$, than the equation y_t contains non-seasonal unit root,
- $\pi_2 = 0$, than the equation y_t contains seasonal unit root in semi-annual frequencies, diminished by 1,
- $\pi_3 = \pi_4 = 0$, than the equation y_t contains seasonal unit roots in annual frequencies $\pm i$, where $i = 1, \ldots, 4$.

Authors Hylleberg et al. [5] recommend the use of classical *t*-test to determine the statistical significance of the parameters π_1 and π_2 and next one *F*-test for joint statistical significance of the parameters π_3 and π_4. In econometric system Gretl can be used the HEGY add for testing the unit roots in seasonal time series. The tested hypothesis

H_0: the time series is non-stationary
H_1: non H_0

is expressed as

H_0: parameter z_1 ; z_2 ; z_3 ; $z_4 \neq 0$
H_1: non H_0

Compared to approach of authors Dickey and Fuller, where the null hypothesis is non-stationarity, in this case the tested hypothesis is stationarity. Gretl system has parameters π_1, π_2, π_3 and π_4 labeled as z_1, z_2, z_3 and z_4.

2. Testing of unit roots of analysed time series

From the selected demographic time series, which were published by CZSO with quarterly frequency (the numbers of marriages, the numbers of divorces, numbers of live-born persons, the numbers of abortions, the numbers of deaths and the numbers of immigrants and emigrants), were in all cases rejected the null hypothesis of stationarity at the 5% level of significance. At least one of the parameters z_1, z_2, z_3 and z_4 were at the 5% significance level equal to zero. The results are summarized in Table 1.

Given that in all analysed time series the non-stationarity was proved, the time series contain a trend so that can be modelled. The presented results were calculated in Gretl system, which is one of the few econometric systems, contains in addition the test for seasonal unit roots. Trend, which is included in the time series, can be seen with the naked eye from the images, presented at the end of this study (see Figure 1). Neither one of the analysed time series oscillate, except for marriages. This demographic time series has a tendency to fluctuate around the unconditional mean and could be suspected from the fact that does not have the trend. Exact test, however, confirmed that the trend contains and is non-stationary. The non-stationarity may be proved, among other things, by the fact that the amplitude increases over time.

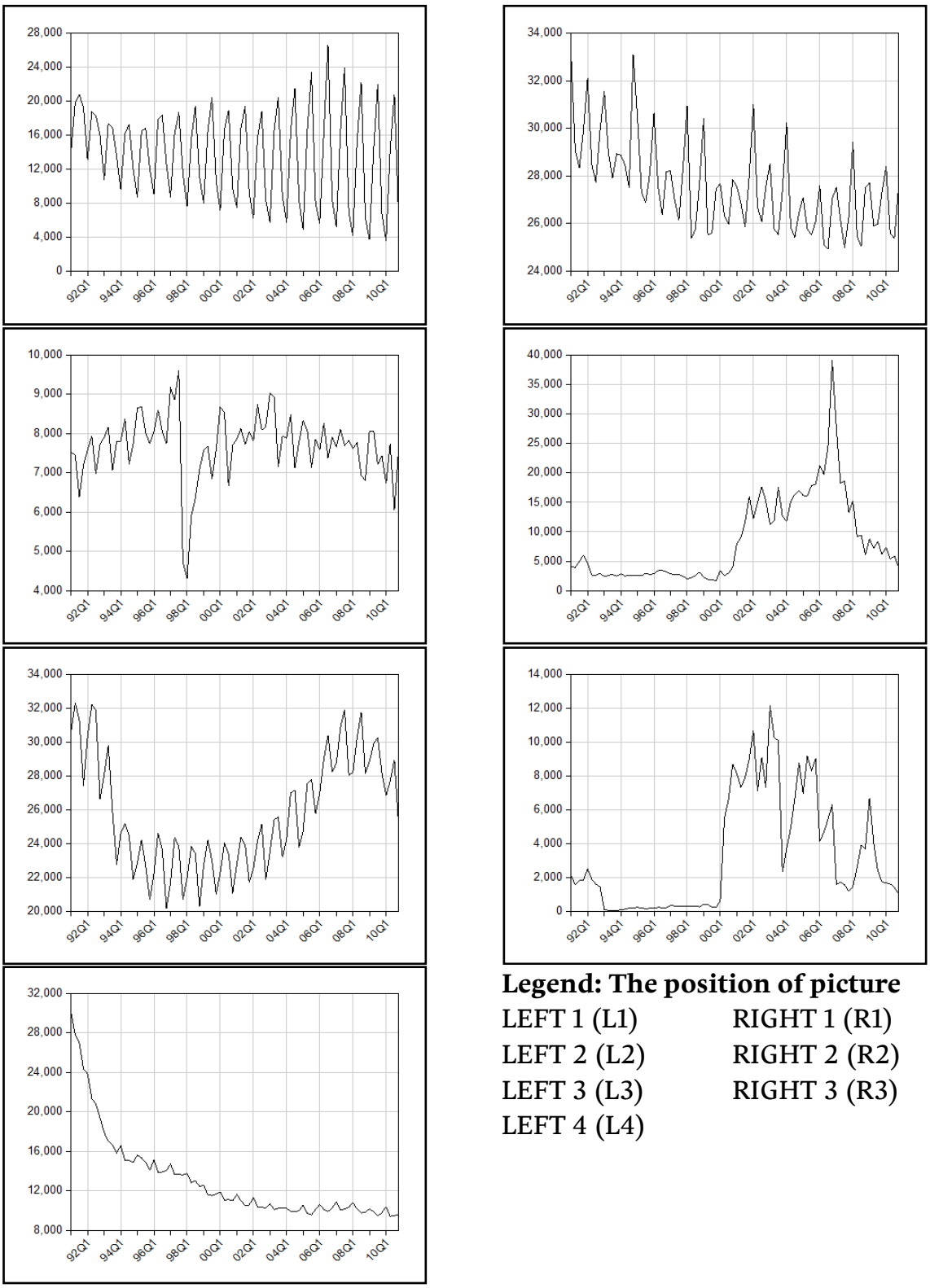
TAB. 1: **HEGY test results for selected demographic quarterly time series**

MARIAGES	**coefficient**	**standard error**	**t-stat.**	**p-value**
const	6345.35000	1841.35000	3.446	0.0010
z1	-0.11011200	0.02968890	-3.709	0.0004
z2	-0.02753800	0.03003090	-0.917	0.3624
z3	-0.00762274	0.00969591	-0.786	0.4345
z4	-0.01323320	0.00961451	-1.376	0.1732
d4y_1	0.42566300	0.09966930	4.271	0.0001
DIVORCES				
const	5053.850	1419.7700	3.560	0.0007
z1	-0.160991	0.0455561	-3.534	0.0007
z2	-0.205903	0.0885868	-2.324	0.0231
z3	0.220502	0.0959667	2.298	0.0247
z4	0.325187	0.0923045	3.523	0.0008
d4y_1	0.190322	0.1228250	1.550	0.1259

LIVE-BORN				
const	2283.4700	952.52400	2.397	0.0193
z1	-0.0276901	0.0101182	-2.737	0.0079
z2	-0.1776990	0.0855798	-2.076	0.0416
z3	0.0333594	0.0391601	0.852	0.3973
z4	0.0416267	0.0388963	1.070	0.2883
d4y_1	0.6023090	0.0938876	6.415	0.0000
ABORTIONS				
const	2951.8100	710.68900	4.153	0.0001
z1	-0.0518291	0.0116865	-4.435	0.0000
z2	-0.1387010	0.0590383	-2.349	0.0217
z3	0.0190186	0.0888773	0.214	0.8312
z4	0.2785010	0.0824795	3.377	0.0012
d4y_1	0.3841340	0.0915528	4.196	0.0001
DEATH				
const	18675.0000	7336.9800	2.545	0.0132
z1	-0.1623660	0.0622092	-2.610	0.0111
z2	-0.2576140	0.0776817	-3.316	0.0015
z3	0.0212165	0.0507676	0.418	0.6773
z4	0.1215390	0.0496249	2.449	0.0169
d4y_1	-0.0316371	0.1187440	-0.266	0.7907
IMMIGRANTS				
const	302.05700	825.39200	0.366	0.7155
z1	-0.0302791	0.0187532	-1.615	0.1110
z2	-0.5104460	0.1236140	-4.129	0.0001
z3	0.2699530	0.1143450	2.361	0.0211
z4	0.4748740	0.1032190	4.601	0.0000
d4y_1	0.1024440	0.1251530	0.819	0.4159
EMIGRANTS				
const	188.09000	422.94100	0.445	0.6579
z1	-0.0257016	0.0176582	-1.456	0.1501
z2	-0.1948100	0.0829772	-2.348	0.0218
z3	0.6054780	0.1136490	5.328	0.0000
z4	0.3641730	0.1274180	2.858	0.0057
d4y_1	0.0978633	0.1227800	0.797	0.4282

Source: author's calculation

FIG. 1: **The numbers of marriages (L1), divorces (L2), live-born persons (L3), abortions (L4), deaths (R1), immigrants (R2) and emigrants (R3)**



Legend: The position of picture

LEFT 1 (L1)	RIGHT 1 (R1)
LEFT 2 (L2)	RIGHT 2 (R2)
LEFT 3 (L3)	RIGHT 3 (R3)
LEFT 4 (L4)	

Source: author's construction

Conclusion

This study presented the possibilities for testing seasonal unit roots in quarterly published demographic time series, in which the presence of seasonality is generally expected. The sophisticated HEGY test was calculated in an econometric package Gretl and on selected demographic time series with quarterly frequency the absence of stationarity was demonstrated. Testing of seasonal unit roots is not old thing, it is a relatively young discipline. Determination of stationarity or non-stationarity is essential for the further continuation of the right analysis of demographic time series.

References:

[1] ARLT, J., ARLTOVÁ, M. *„Ekonomické časové řady“*, Grada Publishing, 2007.

[2] BOX, G.E.P., JENKINS, G. *„Time series analysis: Forecasting and control“*, San Francisco, Holden-Day, 1970.

[3] DICKEY, D. A., FULLER, W. A. „Distribution of the Estimators for Autoregressive Time Series with a Unit Root“, *Journal of the American Statistical Association*, 74, 1979, p. 427–431.

[4] GRANGER, C. W. J. „Some Properties of Time Series Data and Their Use in Econometric Model Specification“, *Journal of Econometrics* 16, 1981, p. 121-130.

[5] HYLLEBERG, S., ENGLE, R.F., GRANGER, C.W.J., YOO, B.S. „Seasonal Integration and Cointegration“, *Journal of Econometrics* 44, 1990, p. 215-238.

[6] HARVEY, D.I., van DIJK, D. *„Sample size, lag order and critical values of seasonal unit root tests“*, Loughborough University – Institutional Repository, 2003.

MACROECONOMIC FACTORS IMPACTING IMPAIREMENT OF LOANS IN SELECTED BANK OF EU

Boris Šturc, Natália Žoldáková
University of Economics in Bratislava, Masaryk University
natalia.zoldakova@euba.sk, sturc@dec.euba.sk, sturc@econ.muni.cz

Key words:
bank – loans – macroeconomics factors

Abstract:
Our first hypothesis is based on the presumption of strong correlation among main macroeconomic indicators in EU17. We focused on correlations within EU and France separately. Our second hypothesis assumes that between these two areas should be applied also strong relationships in terms of correlation. These observations will be followed by another hypothesis that is based on possible impact of macroeconomic indicators on the impaired loans to total loans ratio. It focuses on searching for correlation between factors and the ratio. Final result should be econometric model that quantifies this relationship and selects significant factors among less important factors.

Introduction

I focused on euro area market in the article as this market is important for our country, Slovakia, as member state of euro area since 2009 and of European Union since 2004. The article should serve as an extension to research, focused on risk management in commercial banks, and should monitor macroeconomic conditions and particular financial institutions in relation to risk. The attention is paid mainly to macroeconomic impacts because the principle of complete observation is based on proceeding from the macroeconomic view to the microeconomic one. The possibility and level of impact of these indicators is deduced from existence of common currency area, similar legislation and other historical factors. Mutual relations between factors are demonstrable but these relations change in time so that there can rise differences that could be caused by modifications of relevant time periods applicable to a certain monitored relationship of two or more indicators. The topic of correlation of these factors is permanently current; it is observed also in cause of permanent considering euro area to be optimal currency area.

Selected European countries will be vertically compared because they are significant for smaller economies like the Slovak Republic, for euro area and

furthermore for the European Union as a whole. Differences between indicators in the countries could be a threat for euro area functionality in case of extreme values or they can signal imbalances that could result into assets bubbles, to overheating or lagging.

Then I focused on Societe Generale. The question of optimal (or acceptable) portion of impaired loans is current in cause of permanently increasing requirements on banking activities with accent on safe and low-risk entrepreneurship. These requirements serve as a frame for profitability and risk of banking operations.

It is possible to consider preferring analysis of all the levels of classified loans (or assets in general) but this article includes existence only impaired loans (not all the classified) that are determined by following definition:

The impairment amount of a loan is defined in mathematical terms. The lender calculates this amount by subtracting the amount expected to be recovered on the loan from the initial book amount of the loan. Impairment may be called "delinquency" or "default" in common language. Delinquency means enough time has passed since the payment was due for the lender to suspect the payment will not be made. Default means the borrower has failed to meet the terms a lender provided to restore a loan from delinquency. In both cases, the loan would be considered impaired if the lender feels there is no evidence the debt will be collected based on the financial status of borrower, credit status and other factors.

1 Model and Data

The first goal is analysis of selected macroeconomic factors for whole EU17 and correlations of their values in period of 9 consecutive years always on 1st January of each year (if the data on this date are not available, we use the first available day after this date). This analysis should point to cohesion of development of selected factors of the analysis because their mutual relations are essential in establishing the basis for following analysis.

Macroeconomic indicators that will be observed for their impact on defaulting of subjects could be similarly with many authors split into following groups (1): cyclical variables, indicators of price stability, indicators of households and businesses, indicators associated with financial markets and external indicators. Indicators of household and businesses in most cases can be classified into one of the remaining groups and therefore we will consider only the four remaining groups (2).

The list of macroeconomic variables considered in this observation is in Table 1.

TAB. 1: **List of macroeconomic variables**

Cyclical variables	Level of GDP in consumer prices, number of employed, average wage index, average monthly wage
Indicators of price stability	M1, PPI, inflation
Indicators associated with financial markets	3M Euribor, interest rate
External indicators	EUR/USD, export, import,

Cyclical indicators: this group consists of variables that describe the overall state of the economy, as regards the level of GDP, number of employed, average wage index and the average monthly wage. It is expected to be negatively correlated with the portion of impaired loans to businesses and households. The increase in abovementioned is a positive sign of economic development and there is therefore lower probability of failure in paying back the loan. Conversely, increase of unemployment causes that some subjects, especially households lose ability to repay loans and the portion of impaired loans will grow.

Indicators of price stability: the main indicator in this group is inflation. We assume that its value is negatively correlated with portion of impaired loans because with growing inflation decreases real value of loan and therefore businesses and households would be failing in smaller extent. With inflation are closely linked also other variables e.g. producer prices index and the amount of monetary aggregate M1. They have in terms of repayment of loan same impact as inflation.

Indicators of financial market are interest rate for up to 1 year, from 1 to 5 years, over 5 years, 3 month Euribor.

External indicators: regarding the impact of oil prices on the ability of firms and households to repay loans, we know with certainty that rise in oil prices increases costs of households and businesses and thus affects portion of impaired loans. As for export, we can say that its growth means improving of situation of enterprises (in turn their positive development has positive impact on households and that improves their repayment activity). On the other hand, we cannot say what impact the exchange rate EUR/USD will have, its depreciation or appreciation on financial situation of sectors. On the one hand, strengthening of currency is a positive sign of economic development and households and companies should consequently perform better and should also fail in repaying loans in smaller extent. But on

the other hand, strengthening the currency makes our products more expensive in foreign markets and that negatively affects position of our businesses reducing their competitiveness and thus the number of subjects that fail to pay back increases.

As the second goal of the research is focused on France, as a central country of the selected bank, we compare these factors between EU17 and France. This fact will be crucial in determining the impact of global variables (such as EUR/USD or M1) on the French economy and correlation of development of these indicators with emphasis on national difference at the same time.

The third objective is to specify correlation of development of selected macroeconomic indicators with portion of impaired loans on the basis of foregoing analyses and on base of calculated portion of impaired loans in relation to total loans of selected bank group with headquarters in France, to find their mutual relationship and to quantify it. Selected bank is Societe Generale in France. This bank operates all over Europe but its central country France. The portion of impaired loans is based on official data from annual reports published by bank institution on annual basis.

The data are obtained from official website of ECB and are based on available figures, directly published by ECB. These data are reported either in absolute values (or absolute value changes on annual basis to 1st January) or in percentage, and that corresponds to the standard reporting of indices used in the article. Values were not eliminated, because in this research there were at least observable variables for 9 years needed. Records are accessible for each year and I used a period from 1st January 2002 (statistical data for 2011) to 1st January 2011 (statistical data for 2010). Base of 9 years is sufficiently extensive for our research. The data from annual reports of banks were collected for each year. The data needed was total amount of loans to banks and customers (retail and corporate) and the amount of impaired loans in total. Subsequently was derived the ratio of these assets. Regarding compensation or exclusion of extreme values, they are not needed because bank results and neither macroeconomic indicators showed excessively extreme values.

2 Results

In pursuing the first objective, I primarily focus on monitoring indicators for the entire EU17. Significant correlation is seen between Brent and PPI, while with CPI Brent shows almost no relationship. PPI and outstanding level of M1 is also significantly positively correlated. Significantly negatively correlated is unemployment with 3M Euribor, and therefore as slightly weaker but also quite significantly with interests on loans in all 3 categories. Wages de-

velopment is positively correlated with the development of PPI, with the outstanding level of M1 as well as with its index.

French interest rates on loans over 5 years do not show up significant correlation with level of 3M Euribor. Unemployment, however, shows strong negative correlation to 3M Euribor as well as to interest rates for 1 to 5 years. Unemployment shows again correlated development with PPI and M1 and similarly positive shows up import in relation to PPI. Net export has strongly negative correlation with M1, wages and PPI.

From vertical point of view of correlations as the second goal of the article can be picked up naturally high positive correlation between PPI in France and in EU17 (0,994), while CPI shows less clear values (0,887). Unemployment in France appears to correlate with EU17 positively but not at such a high level as previous variables (0,888). Interest rates are correlated in all the groups (up to 1 year 0,952, 1 to 5 years 0,960, over 5 years 0,982). GDP is correlated at a level of 0,948. Inflation shows up to be less correlated than expected (0,811). Net export is correlated at 0,860 level.

The results of correlations between impaired loans and macrofactors for Societe Generale with France and also with EU17 are quite significant. The highest negative values are achieved in relation to interest rates on loans over 5 years in euro area and also in France. Then follow interest rates between 1 and 5 years and monetary aggregate M1. The strongest relationship is obvious for Brent, PPI of France, interest rates up to 1 year, furthermore for unemployment and wages. Net export of France has negative values of correlation with the impaired loans.

Final correlations and their comparison proved similar results for relationship with EU17 as with France. An undeniable factor is common currency, unmeasured value of M1 for France separately, as well as the relation between Euribor and interest rates monitored. They pointed out cohesion of impaired loans development in monitored period in case of Societe Generale for interest rates over 5 years. Negative correlation value was achieved (-0.9227). Bank group correlated positively with monetary aggregate M1 (0.813). Although we expected closer relationships with other indicators e.g. PPI, unemployment and wages, the results point to their different development in monitored period. Time lag could be partially considered but not higher than one year because the insolvency of debtors in case of households and companies appears following changing wages and unemployment and demand decrease. When involving a lag of 1 year results would be similar.

In order to create model that includes significant factors for influencing impaired loans for Societe Generale in relation to EU17 and France, I used

stepwise regression. It includes regression models in which the choice of predictive variables is carried out by an automatic procedure. I used one of the often used approaches – forward selection – because it involves starting with no variables in the model, trying out the variables one by one and including them if they are statistically significant. This article is part of wider exploration. The variables that were chosen for inclusion in a model were selected according to three European banks and their common similar correlations.

For model were selected factors: EUR/USD, PPI, M1 level outstanding, M1 index, Net export

SG in relation to EU17

TAB. 2: **SG vs. EU17**

		Standard	*T*	
Parameter	*Estimate*	*Error*	*Statistic*	*P-Value*
CONSTANT	-0.0222874	0.00919586	-2.42363	0.0516
EUR/USD	-0.0190995	0.00940234	-2.03135	0.0885
M1 Level	-0.186492	0.0560949	-3.32459	0.0159
M1 Index	0.239608	0.0665555	3.60012	0.0114

*SG Impaired Loans/ Total Loans = -0.0222874 - 0.0190995*EUR/USD - 0.186492*M1 Level + 0.239608*M1 Index*

SG in relation to France

TAB. 3: **SG vs. France**

		Standard	*T*	
Parameter	*Estimate*	*Error*	*Statistic*	*P-Value*
CONSTANT	-0.0222874	0.00919586	-2.42363	0.0516
EUR/USD	-0.0190995	0.00940234	-2.03135	0.0885
M1 Level	-0.186492	0.0560949	-3.32459	0.0159
M1 Index	0.239608	0.0665555	3.60012	0.0114

*SG Impaired Loans/ Total Loans = -0.0222874 - 0.0190995*EUR/USD - 0.186492*M1 Level + 0.239608*M1 Index*
Results are also identical for both observations.

Conclusion

On the basis of findings of this research we can conclude the following in relation to primary hypotheses.

1. With regard to the first goal of the paper it is possible to deduce that some indicators had a strong and some less significant correlation. This rejects the hypothesis that said that all the selected factors should show significant correlations. The reason that can be given, is, that even though selected countries are member states of the euro area, the volume of impact of selected significant factors on each country cannot be unified. When argumenting with cohesion of M1 with other factors it is possible to simplify its significance to a fact that increasing liquidity on financial markets is linked with growth of the economy as a rule. The same argument could be used for EUR/USD and Euribor.

2. Hypothesis 2 was partially true. In relation to horizontal correlation were the values of vertical correlation higher in absolute value in most of cases. Almost for all cases of French data occurred correlation with level of 0.9 – 1. In other cases were the results caused by nonfinancial factors – for instance the difference between labor market in France and in EU 17 in general is important and the reaction to macroeconomic situation can be influenced by social policy or focusing on particular sectors of economy.

3. Hypothesis 3 was rejected following the results of final correlation of macroeconomic indicators and development of portion of impaired loans. Although we included bank group and not banks separately, it is not possible to confirm a strong correlation between factors and portion of impaired loans. As this strong relationship was not proved, I focused also on lower correlations of these variables and impaired loans. EU17 indicators show better values than local factors. But in general is not possible to unify a relationship of certain factor (or factors) with the portion of impaired loans with unified impact symbolized by similar correlations (when using selected objects).

Despite determined correlation values I used stepwise regression for quantifying the relationship between factors and impaired loans. It enabled me to select significant macroeconomic indicators that were selected from previous set of factors according to correlations. The results of regressions with independent variables used for EU17 and individually for France pointed to significance of small number of factors EUR/USD, M1 level outstanding and M1 index. In spite of strict selection is acceptable conclusion that macroeconomic indicators impact impairing loans in comparison with microeconomic indicators not significantly but this observation with larger statistical data could show different results. Our statistical data set is tied to developed countries and their macroeconomic conditions are relatively stable.

Acknowledgement:
Príspevok vznikol v rámci riešeného projektu OP VaV s názvom „Vytvorenie excelentného pracoviska ekonomického výskumu pre riešenie civilizačných výziev v 21. storočí (ITMS 26240120032). Podporujeme výskumné aktivity na Slovensku. Projekt je spolufinancovaný zo zdrojov EÚ“.

References:
[1] KALIRAI, H., SCHEICHER, M: Macroeconomic Stress Testing: Preliminary Evidence for Austria, OeNB Financial Stability Report 3, 58-74, 2002
[2] ZEMAN, J., JURCA, P. Macro Stress Testing of the Slovak Banking Sector, 2007
[3] NÁRODNÁ BANKA SLOVENSKA, Členenie úverov z hľadiska hodnotenia ich kvality. Zlyhané úvery. Metodická pomôcka. http://www.nbs.sk/_img/Documents/STATIST/MET/Zle_uvery.pdf, 20. 11. 2012

CHANGES IN THE HOUSING STOCK AND THEIR EQUIPMENT IN RURAL AREAS

Agnieszka Tarnowska
Wroclaw University of Ekonomics
agnieszka.tarnowska@ue.wroc.pl

Key words:
housing – housing facilities – living conditions – rural areas

Abstract:
The apartment is the most valuable asset in shaping the material and moral conditions and quality of life of the population. The aim of the study was to analyze changes in the housing stock and their equipment in rural areas of Poland against the background of changes in Europe. The data analyzed in the article indicate positive changes that have taken place in the state of housing in the towns and villages during the Polish membership in the European Union.

Introduction

The apartment is the most valuable asset in shaping the material conditions and quality of life of the population. Apartment, from a sociological point of view, has several important functions [6]. Satisfies the basic needs of the people, its receipt improves the quality of life, increases the motivation for other activities, intellectual development, reduces frustration while increasing a sense of security, provides conditions needed to start a family and has positive effect on the decisions to have children and provides the space to bring them up in. It causes beneficial social phenomena - creates social bonds of people living in the neighbourhood, development of social activities throughout the surrounding space.

Recently, in rural areas in Europe a lot of new investments can be observed. Europeans are more likely to build their village homes, start their own businesses also in tourism. Rural areas are limited, also by increased investments in road construction. [6] Two phenomena can be observed: on one hand the development of the rural economy, on the other - the risk of poverty and exclusion of the rural population, as reported by the European Commission '*Poverty and social exclusion in rural areas'* [4]. Observed changes bring both positive and negative effects. With regard to the housing – the changes are mostly positive. Rural landscape is changing, the new residents of the villages, and the entrepreneurs affect the rehabilitation of existing re-

sources in the country, including housing. Initiatives taken by the new residents of the villages are the inspiration for the people living there for a long time to make changes in their own environment, homes and farms. In Europe, the differences in the standard of living of the inhabitants of towns and villages are getting blurred. Similar changes can also be observed in Poland.

1. Purpose of the article, methodology and sources of materials

The aim of the study was to analyze changes in the housing stock and their equipment in rural areas of Poland against the background of changes in Europe. The data for the years 2003 and 2010 were used in the analysis. Taken them for Poland - Local Data from the Bank of the Central Statistical Office (GUS), for Europe - Eurofound database. The data come from a nationwide reporting current GUS. Data for Europe are the result of First European Quality of Life Survey conducted in 2003. (The results of the latest European Quality of Life Survey 2012 conducted among 27 current EU members will be available in the spring of 2013).

2. Housing conditions in Europe - in rural and urban areas

In the European Quality Of Life Survey [1], the results of which were published in 2004, respondents from towns and villages were asked for a subjective assessment of the quality of housing. The questions that were asked were as follows: the number of rooms per person (excluding kitchen, bathroom, hallway and home economic rooms) and common problems associated with conditions of residence, such as lack of space, rotten windows, doors and floors, moisture and stains, no WC in the house. Detailed results of this study are presented in table 1.

TAB. 1: **Rural-urban differences in accommodation in Europe**

COUNTRY GROUP		Average number of rooms per person	Shortage of space (% yes)	Problems with (% yes)		
				Rot	Damp/leaks	Lack of indoor WC
EU25	Rural	1,8	16	11	14	4
	Urban	1,7	20	11	13	2
High	Rural	2,1	15	7	11	1
	Urban	2,0	20	8	11	1
EU7 Int	Rural	1,5	16	10	23	5
	Urban	1,5	18	7	15	2
EU6 Low	Rural	1,0	26	32	22	17
	Urban	1,1	26	26	17	6
ACC3	Rural	1,1	32	35	36	44
	Urban	1,1	30	27	27	6

Notes: **EU12 High**: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Sweden, United Kingdom; **EU7 Intermediate**: Cyprus, the Czech Republic, Greece, Malta, Portugal, Slovenia, Spain; **EU6 Low**: Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia; **ACC3**: Bulgaria, Romania, Turkey.
Source: [1], [2]

Generally in Europe, there was no significant difference in the number of rooms per person living in the countryside and in the city (EU25: 1.8 rooms per person in rural areas and 1.7 - urban areas). In the richer countries of the European Union (EU12 High) every fifth inhabitant of the city complained about the lack of space at home, residents of rural areas in these countries are less likely to complain about the (only 15% of respondents). In less economically developed countries (EU6 Low), which also includes Poland, residents of towns and villages in an equally high degree of home-felt lack of space (in both cases, the share of dissatisfied was 26%). Apartments in poorer countries are smaller and more neglected. In the group of countries EU6 Low - 32% of rural residents had problems with rotten windows, doors or floors, 22% - with moisture or stains in the apartment, and 17% - did not have an indoor WC at home.

3. Housing stock and its equipment in the countryside in Poland

In the EQLS study Poland qualified for the group of European countries with a low standard of living (EU6 Low). I should be noted that Polish homes have a higher standard than the average for this group of countries. They point to two factors: higher than the average for the group number of rooms per person, both in the countryside and in the city (in 2003, the group EU6 Low rate was 1.0 and 1.1 in rural areas in the city, and in the Poland - 1.1 and 1.3 in rural areas in the city) and a lower percentage of homes without WC.

TAB. 2: **Housing stock and its equipment - in villages and towns in Poland**

Specification	2003	2010	2003	2010
	Rural		Urban	
Population in flats (in mln)	14,7	15,1	23,5	23,4
Flats (in mln)	4,1	4,4	8,5	9,0
The average usable floor space (in m^2)	84,5	87,8	61,1	62,7
The average number of rooms per person	1,1	1,2	1,3	1,4
Apartments (in% of total units) equipped with:				
Water supply	88,0	89,1	98,4	98,6
Bathroom	74,5	76,4	91,8	92,4
Indoor flashing toilet	73,1	75,1	94,2	94,7
Central heating	63,1	65,2	83,9	85,0
Central gas supply	17,4	20,4	74,1	73,9

Source: own calculations based on data from [3]

The data reported in table 2 indicate positive changes that have taken place in the state of housing in the towns and villages during the Polish membership in the European Union. To a greater extent than in urban areas the average size of housing has increased. This is not surprising, because in the villages mostly single-family houses on the plot or larger household are built. These flats are now in the majority provided with basic media, and above all have running water. The number of apartments with bathrooms and toilets has increased. The number of homes equipped with gas from the network is also rising, but now more and more people, both in urban and rural areas forgo access to the medium.

Conclusion

The state of housing in Poland is largely a consequence of the limited development and quality of life in the post-war period in Poland. The introduction of free market economy and entrepreneurship led to the increase in wealth of Polish society, including rural residents. Expectations of life standards and living conditions are also increasing. The development of infrastructure

in rural areas has is also affected by projects financed with the European funds. They mainly concentrate on providing gas and water supply and wastewater management in rural areas. The development of housing in rural areas is also influenced by the nature of the apparent change in these areas. The rural population in previous years was primarily employed in agricultural production. Today, more and more people living in rural areas is not related to agriculture. They work in the cities, often large ones, and the village is a desirable place for them to live because of its climate and environment. The standard of living in the countryside in Poland in recent years is visibly improving. There is a growing number of newly built homes. Environment around them is becoming more and more neat. Local authorities are increasingly showing interest in not only the construction of basic infrastructure (water, sanitation) but also provide the next step such as sidewalks, recreation areas and playgrounds for children. On the other hand in Poland, there is a very large group of "social households" inhabitants of which are not employed in agricultural production. It results in the part of the population living in rural areas do not have sufficient financial resources to engage in investments related to place of residence. And this situation is not likely to change over the next 10-20 years.

References:

[1] First European Quality of Life Survey: *Urban-rural differences, European Foundation for the Improvement of Living and Working Conditions*, Luxembourg 2006, ISBN 92-897-0960-X, p. 27-30

[2] http://www.eurofound.europa.eu/surveys/eqls/2011 /index.htm/10.12.2012

[3] http://www.stat.gov.pl/bdl/app/strona.html/10. 12. 2012

[4] *Poverty and social exclusion in rural areas*, Final Study report, August 2008- ec.europa.eu/social/BlobServlet?docId=2087&langId=en/10.12.2012

[5] Report 2006. *The repair of the housing situation,* pr. A collective led by P. WITAKOWSKIEGO, Warsaw, January 2007, p 5, ISBN 978-83-61564-16-4

[6] *Rural Areas Under Urban Pressure. Case studies of rural-urban relationships across Europe*, Ed. by G. OVERBEEK, I. TERLUIN, LEI Wageningen UR, The Hague, January 2006, p 13, QLK5-CT-2002-01696, the entire 249 s - http://sockom.helsinki.fi/info/notat/ notat_1003.pdf/ 10. 12. 2012

LABOUR PRODUCTIVITY IN POLISH AND EU FOOD INDUSTRY[1]

Mirosława Tereszczuk
Institute of Agricultural and Food Economics – National Research Institute
m.tereszczuk@ierigz.waw.pl

Key words:
labour productivity – food industry– food producers – food sector – food products

Abstract:
Integration with the EU had positive impact on acceleration of the increase in the value of the Polish food industry production and labour productivity, what is more, the several years of adjustment to the EU requirements significantly changed the image of Polish food companies on the Single European Market. The Polish food processing plants have been recognised as the most modern in the EU. The Polish food industry has become a significant food producer on the EU market and the increase in labour productivity in the Polish food industry enabled Poland to reduce the gap between Polish food industry and the most developed EU Member States.

Material and methods
Labour productivity in the Polish and EU food industry was assessed on the basis of Eurostat data. Food industry in respective EU Member States was compared on the basis of comparable prices obtained on the basis of current prices adjusted for the EUR purchasing power ratio (parity) in respective EU Member States.

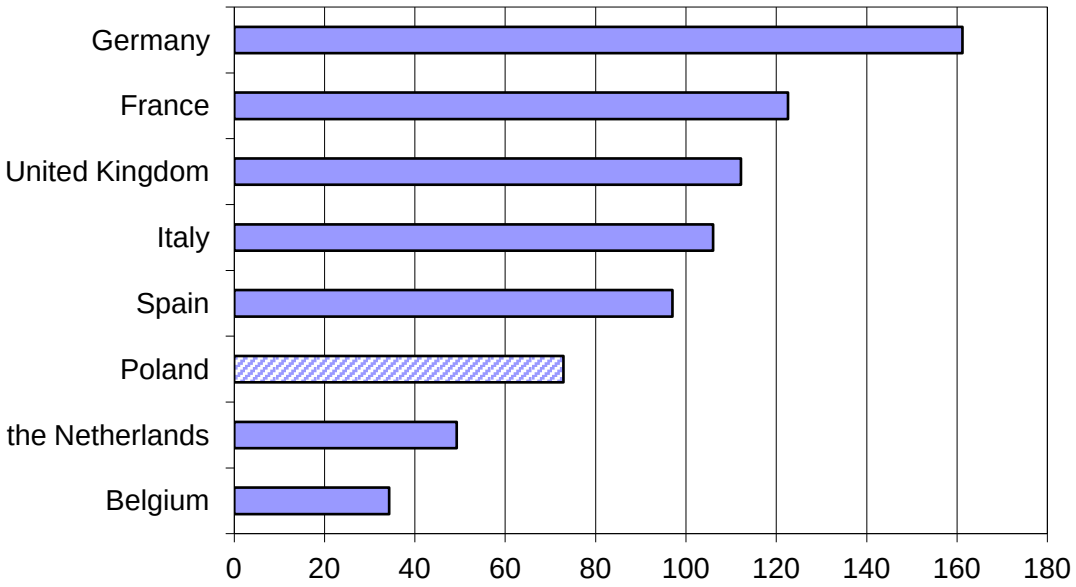
1. Assessment of the development of food industry in Poland and in the EU in 2000-2010

Poland is an important food producer in the European Union. The share of Poland in the value of food production in the EU amounts to 7.6%, which gives Poland the 6th position in the European Community (Figure 1.) The same share applies to population compared to other EU Member States. However, the Polish food industry production (in comparable prices) is over twice as low as in Germany, yet twice as high as in the Netherlands or in Belgium. Poland is the largest food producer in the EU-12. In the "old" Euro-

[1] In this study, "food industry" shall mean the total production of food, beverages and tobacco products.

pean Union Member States, Germany has been the largest food producer for years now, with the 16.8% share in the value of food industry production of EU-27, followed by France (12.8%), United Kingdom (11.7%), Italy (11.1%) and Spain (10.1%). Member States whose food industry has the lowest share of the "old" EU are Finland, Sweden, Greece, Denmark and Austria.

FIG. 1: **Largest producers of food industry products in EU-27 in 2010 (turnover value according to purchasing power parity) in EUR billion**



Source: Own elaboration based on Eurostat data

The level of development of the food industry measured by the value of production sold per 1 Polish citizen is EUR 1.9 thousand and it is similar to the highest food producers in the EU, i.e. Germany, France and the United Kingdom. On the other hand, it is lower than in Ireland (EUR 4.5 thousand), Belgium (EUR 3.2 thousand), the Netherlands (EUR 2.9 thousand), or Denmark (EUR 2.5 thousand) and Spain (EUR 2.1 thousand), while higher than in Italy (EUR 1.7 thousand.) Out of the EU-12 only Cyprus has higher turnover per 1 resident (EUR 2.4 thousand), with Romania having the lowest ratio amounting to EUR 0.8 thousand. In 2000-2010, the value of food industry production per 1 Polish citizen increased by 56%, in Germany by 28%, while in the EU-15 said turnover increased by 18% on average and in the EU-12 by 40%. The greatest, i.e. twice as high, increase in turnover per 1 citizen in the period in question was noted for Bulgaria, very high in Latvia (86%) and Lithuania (78%.) The growth rate of the Polish food industry is said to be one of the highest in the whole European Union. In 2000-2010, the value of production of this sector (in current prices) for the EU-27 increased by 24% to EUR 916 billion, in EU-15 by 20% (EUR 825 billion) and

in EU-12 by 68% (EUR 91 billion.) In the period in question in Poland, food production increased by as much as 76% (from EUR 25 to 44 billion), in Spain by 46% (to EUR 90 billion), in France by 14% (to EUR 144 billion) and in Germany by 21%(to EUR 170 billion). Out of the EU-12 the highest increase in the value of production in the food industry was reported in Lithuania (from EUR 1.4 billion to EUR 3.0 billion), Romania (from EUR 4.7 billion to EUR 8.9 billion), Estonia (from EUR 0.7 billion to EUR 1.2 billion) and in the Czech Republic (from EUR 7.3 billion to EUR 12.4 billion.)

2. Labour productivity in food industry

Labour productivity implies the volume or the value of production generated over a specific period by 1 employee in a given sector of the economy. It depends on many factors, such as technical equipment of positions, qualifications and experience of employees, as well as the work motivation system.

The Polish food industry employs ca. 410 thousand persons, which accounts for ca. 10% of the total employees of the EU food industry, which makes Poland 4th among the EU-27. Higher employment (in thousands of persons) is reported in Germany (838), France (599) and the United Kingdom (426), with Spain and Italy slightly lower (ca. 350 each). In 2000-2010 the number of employees in the food industry in the EU-27 decreased by 11% on average, with a 10% drop in the EU-15 and a 15% reduction in the EU-12. Meanwhile in Poland it decreased by as little as 9%. This means that the whole EU is in the course of concentration and consolidation of the food industry, consisting in consolidation of enterprises to form larger ones and reduction of employment and thus improving labour productivity. It has varying intensity in respective EU Member States and branches of the food industry.

Improvement of labour productivity in the food industry in 2000-2010 was common for all EU Member States. The greatest increase in labour productivity in that period was reported in Lithuania (+82%), Latvia (+69%) and Estonia (+66%) as well as in Poland (+56%), whereas it increased by 48% in the EU-12, and by 32% in the EU-15 (Table 1.)

In 2010 one person employed in the food industry in Poland generated EUR 178.1 thousand of production sold, which was similar to Greece and slightly less than in Germany (EUR 192.4 thousand.) However, in the majority of the "old" EU countries labour productivity in food industry is higher than in Poland by ca. 40% and ranges from EUR 200 thousand to EUR 400 thousand per 1 employee (EUR 250 thousand on average) (Table 1.) The only exception is Ireland where the highest productivity ratio was reported, i.e. EUR 510.2 thousand per 1 employee. Labour productivity in the Polish food indus-

try is the highest among the EU-12 and higher by 27% than the average in those countries. Increased outlays on technical equipment had significant impact on the improvement of labour productivity in food industry in Poland in 2000-2010. Such changes resulted from high investment recovery in the Polish food industry, in particular after the accession to the EU and reduction of the number of employees in the food industry.

TAB. 1: **Labour productivity [a)] in the EU food industry in EUR thousand/1 employee**

States	2000	2010	Increase in % per annum
EU-15	*189.0*	*249.6*	2.8
EU-12	*94.7*	*139.9*	*4.0*
EU-27	*164.7*	*222.5*	*3.0*
Ireland	342.9	510.2	4.0
the Netherlands	306.3	391.9	2.5
Belgium	270.9	386.7	3.6
Italy	274.7	301.4	0.9
Spain	203.5	270.4	2.9
United Kingdom	175.7	263.2	4.1
Denmark	157.4	243.9	4.5
Finland	162.5	208.0	2.5
Sweden	163.1	205.5	2.3
France	192.4	204.7	0.6
Austria	143.4	199.2	3.3
Germany	**143.7**	**192.4**	**2.9**
Greece	186.4	178.9	-0.8
Poland	**114.3**	**178.1**	**4.5**
Czech Republic	114.9	159.4	3.3
Portugal	122.1	146.2	1.8
Hungary	107.6	143.0	2.9
Slovenia	99.5	138.4	3.3
Estonia	74.2	123.2	5.2
Lithuania	65.9	120.1	6.2
Slovakia	91.2	110.0	1.9
Bulgaria	65.6	98.2	4.1
Romania	62.0	92.8	4.1
Latvia	55.4	93.7	5.4

[a)] in comparable prices

Source: Own elaboration based on Eurostat data

The growth rate of labour productivity in the Polish food industry was higher than in the EU-15. In 2000-2010 labour productivity in the Polish food industry increased on average by 4.5% per annum, while in the EU-15 that in-

crease was at the level of 2.8% per annum and in the EU-12 at 4% per annum. The highest growth rate of labour productivity in the last decade was reported in Baltic States, i.e. in Lithuania, Latvia and Estonia, over 5% per annum. Improvement of labour productivity was a common phenomenon, occurring virtually in all branches of food industry, yet the scale of those changes varied depending on the Member State and on the branch. The assessment of labour productivity of respective sectors of food industry was limited only to Poland and Germany compared to the EU-15, EU-12 and EU-27.

TAB. 2: **Labour productivity [a)] in respective sectors of the food industry in 2010 (EUR thousand/1 employee)**

Sectors of the food industry	**Poland**	**Germany**	**EU-15**	**EU-12**	**EU-27**
Total food industry of which:	**178.1**	**192.4**	**249.6**	**139.9**	**222.5**
Meat	141.1	523.1	346.1	146.2	274.6
Poultry	182.2	294.1	212.3	159.3	195.6
Fish	146.5	234.5	217.6	107.5	186.9
Dairy	225.5	579.7	396.9	195.8	339.6
Milling	196.2	348.8	448.0	151.1	351.3
Oil-mill	515.6	605.2	734.9	386.6	659.4
Sugar	402.4	460.0	473.2	445.9	466.4
Fruit and vegetable	127.0	254.5	248.6	141.9	220.2
Juice production	241.9	347.2	400.8	330.0	380.9
Non-alcoholic beverages	201.5	204.3	327.2	165.5	278.1
Fodder	425.7	448.7	514.9	320.1	470.3
Bakery	59.5	48.2	66.1	41.7	61.1
Confectionery	160.9	230.1	260.6	154.0	237.6
Pastry	82.5	179.5	163.6	93.7	147.9
Spirits	756.1	562.5	498.5	401.2	467.3
Brewing	621.6	233.9	407.5	395.6	404.9
Wine	200.0	346.1	300.0	103.4	268.8
Tobacco	790.3	1,349.5	1,103.5	563.6	915.6

[a)] in comparable prices

Source: Own elaboration based on Eurostat data

Labour productivity in respective sectors of the food industry in the EU is rather diversified. In the case of tobacco, spirits, oil-mill, sugar and fodder sectors this ratio is indeed impressive. Labour productivity in the EU-12 is lower than in the EU-15 and yet those differences tend to decrease. In Poland that ratio in the main sectors of the food industry is slightly higher than the average ratio in the „new" EU countries. In 2010 the highest labour pro-

ductivity in the Polish food industry, similarly to the EU, was reported in the following sectors (in EUR thousand/1 employee): tobacco (790.3), spirits (756.1), brewing (621.6), oil-mill (515.6) and fodder (425.7) (Table 2.) In the main sectors of the Polish food industry, i.e. meat, dairy, milling or fruit and vegetable, labour productivity was, however, much lower than in the EU, although those differences tend to decrease with every year.

Summary

The Polish food industry is significant in comparison with other EU Member States. The share of Poland in the value of the EU-27 food industry production amounts to ca. 7.6%. In terms of the value of sales, Poland is the 6th food producer in the EU. In 2000-2010 the real value of food industry production in Poland increased by 52%, compared to 25% in the "old" EU countries and to 32% in the EU-12. Employment in the food industry has decreased in almost all EU Member States, which in connection with increased production led to improved labour productivity. The process of levelling the differences in development of the food industry in Poland and the EU-15 is in progress. The development rate of the Polish food industry is among the fastest in the EU, which enhances Poland's position on the Single European Market.

Improvement of labour productivity in the food industry in 2000-2010 was common for all EU Member States. The greatest increase in labour productivity in that period was reported in Lithuania (+82%), Latvia (+69%) and Estonia (+66%) as well as in Poland (+56%.) Labour productivity in the food industry improved by 48% in the EU-12 and by 32% in the EU-15. Despite such a fast growth rate of this ratio, labour productivity in the main sectors of the Polish food industry remains much lower than in the most important food producers from the EU-27.

References:

[1] Data & Trends of the European Food and Drink Industry (Reports 2005-2011).

[2] MROCZEK, R. *Procesy dostosowawcze polskiego przemysłu spożywczego do zmieniającego się otoczenia rynkowego (1),* series: Multiannual Programme 2011-2014, Report No. 4, IAFE-NRI, Warsaw 2011.

[3] URBAN, R. *Stan polskiej gospodarki żywnościowej po przystąpieniu do Unii Europejskiej Raport 6 (synteza),* series: Multiannual Programme 2005-2009, Report No. 145, IAFE-NRI, Warsaw 2009.

[4] URBAN, R., MROCZEK, R. *Postępy integracji europejskiej w sektorze żywnościowym*. „Zagadnienia Ekonomiki Rolnej" 2011, No. 2 (327).
[5] URBAN, R., SZCZEPANIAK, I., MROCZEK, R. *Polski sektor żywnościowy w pierwszych latach członkostwa (Synteza)*, series: Multiannual Programme 2005-2009, Report No. 177, IAFE-NRI, Warsaw 2010
[6] http://epp.eurostat.ec.europa.eu

THE SUPPORT OF MANAGEMENT AND DECISION WITH CURRENT INFORMATION TECHNOLOGIES

Milena Tvrdíková
VŠB – Technical University of Ostrava
Milena.tvrdikova@vsb.cz

Klíčová slova:
řízení – rozhodování – nástroje BI – vizualizace – standardizace – cloud computing

Key words:
management – decision – virtualization – standardization – cloud computing

Abstract:
The paper emphasizes the use of current information and communication technologies (ICT) to improve the quality of IS and management of companies and institutions. Attention is paid to the business intelligence tools and the use of cloud computing. The author presents information on international project aimed at ensuring the stability and increase the competitiveness of small and medium-sized companies and institutions. The aim of the project is a proposal of methodological recommendations for small and medium-sized enterprises and institutions in the transition to cloud computing.

Introduction – problem definition

Industrial society is changing into a society where information and knowledge play the key role. There is an increasing pressure on timeliness, quality, relevance, reliability and quantity of transmitted information. Managers and executives are exposed to an unprecedented information pressure. As a result, they need adequate tools to perform. Such tools are, among other things, information and communication technologies (ICTs). The ability to make correct decisions on the deployment and use of ICTs has become integral to successful management. Often, if a company wants to do something, it depends on what its IS allows.

Information Systems (IS) and ICTs have become the backbone for conducting business in many fields. To use the above ICTs and ensure the continuity of IS development can be complicated especially for small and medium-sized enterprises and institutions (SMEs). One of the main causes is the financial demands that it entails. The article defines the SME segment in accordance

with the definition published in the Official Journal of the European Union L 124.

ICTs can be used to increase competitiveness, enable businesses to create new jobs, increase productivity and sales through access to new markets. The above effects have been examined by a number of research workers, e.g. [2, 3]. By using ICTs, SMEs can also compete with other larger firms and also effectively contribute to the enlargement of supply chains.

Due to the high variability of external conditions, the priority in the management of socio-economic systems is to strengthen their internal stability. The stability of companies and institutions is a prerequisite to develop their elastic behavior so that they can quickly and effectively adapt to external changes. If a company or an institution is not able to adapt to rapidly changing conditions of their existence, this leads to deepening imbalances that the control system is not able to balance through its information effects (to return the behavior of the socio-economic system to the steady state) and it puts the existence of the company in danger. IS and management system have one thing common – ensuring of equilibrium in the behavior of SMEs.

In today's ISs, ICTs play an important role due to their ability to positively affect different sectors of the economy as well as the public institutions. Also important is the absorption ability of ICTs in relation to individuals in the society. The key is not the technology itself, but the possibility of its application. In this context, Hagell refers to three waves [1]. The first wave is the technology, the second wave is the possibility to transfer knowledge and the third wave includes the possibility to use the infrastructure and knowledge. Science and research thus cannot be limited to the development of new technologies, but their application and popularization in practice has to be considered as well.

The author works on the assumption that one of the ways to ensure the continuity of IS in an SME is an approach based on the use of Cloud Computing (CC) services.

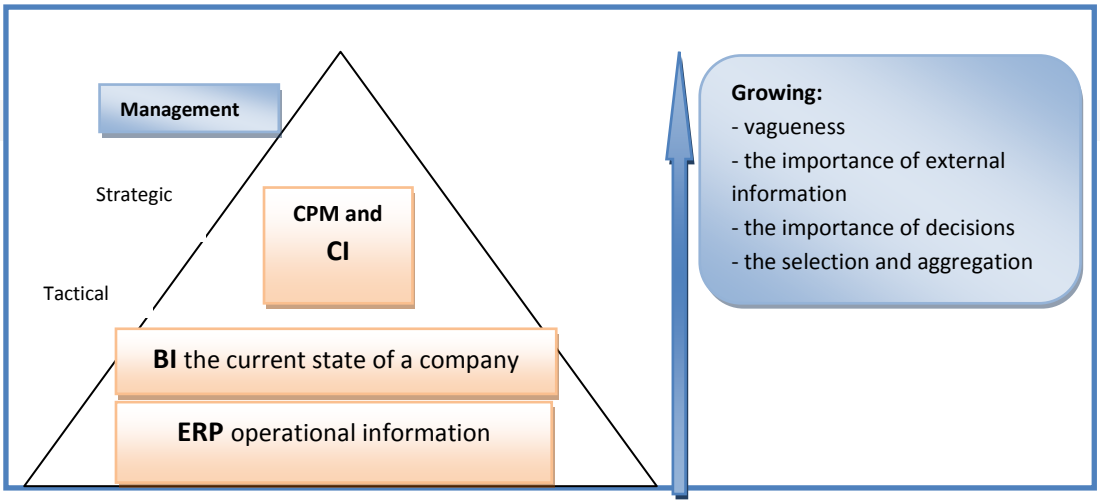
The ability to respond to the ICTs development and application is of key importance for the further development of the whole economy. It is therefore necessary to find ways to facilitate the implementation of new ICTs in practice.

TAB.1: **The role of IS and ICTs in management systems** (Source: author)

	The role of IS and ICTs in management systems			
Management level	**Objective**	**Meaning**	**Tools**	**Reasons for not using ICTs**
Operative	Integration of sub-functions of the entire company	Support for key company functions and processes – production, (internal) logistics, human resources and economics.	ERP applications form the core of IS.	Unaffordable in relation to the needs of the company (small business)
Tactical	Maintaining internal stability of the system. Knowledge of the situation in their own company	Monitoring, the organization's correct progress towards the target.	BI application, specifically focused on decision-making support. Analysis of the situation in their own company	Lack of awareness of the potential benefits of using BI. Concerns about the financial costs.
Strategic	Checking the relevance of a company's or institution's objectives	Evaluating information and acquiring knowledge	Application of CPM and CI methods and strategic analysis and synthesis tools.	Lack of awareness of the potential benefits of CI. Concerns about the financial costs.

Entrepreneurs and managers working in the public and non-profit sector currently have access to a considerable amount of data available from a variety of sources. To make decisions, they need tools that help them process data to obtain necessary information. Tools specifically focused on decision-making support. In particular, such tools include Business Intelligence (BI) applications. They allow them to analyze the situation in their own company and ensure access to information from the company environment. BI analysis results provide managers the necessary knowledge of whether their company or institution is correctly directed towards the defined goal. To support the strategic information management, there are specific applications such as Corporate Performance Management (CPM) and methods and tools for Competitive Intelligence (CI).

FIG: 1: **The position of CPM and CI in the management of companies and institutions** (Source: author)



Market development of enterprise IS/ICTs can be characterized by cycles that are mainly based on technological innovations. Current technology trends are: virtualization (data storages, computing capacity and desktops), increased performance and mobility (of applications and services) and standardization and transparency of business processes. Trends in ICT services with an effect on the use of ICTs in companies: [4] support for business process management of a company and its ICTs, managing the business–IT relationship on the basis of IT services, (division of responsibilities for the benefits and costs of ICTs between business managers and ICT managers). Then use of scalable ICTs services in form some outsourcing (classic outsourcing, services of Application Service Provider (ASP) or using of CC (see Tab.2).

1. Cloud Computing

Although CC is currently one of the most frequently used terms in IT, it does not have an exact definition. In short, it is the provision of IT services as opposed to products. Shared services are rented or provided free of charge on a long-term basis (e.g. e-mail, data storage, server hosting). A significant part of business owners, managers as well as end users is aware of the existence of CC; however, most of them still do not trust it or have no idea what the term means [5]. However, the term for the models of providing these services has now been coined as "distribution models".

SaaS - a model providing application software as a service. *PaaS* - platform as a service, model providing comprehensive resources for the development and maintenance of custom applications. *IaaS* - infrastructure as a service, model for the delivery of a physical computing environment that contains

the necessary hardware including its configuration. You can come across an all-embracing term XaaS, which may include all the above models. Thanks to the Cloud Computing services, users need zero knowledge of the technologies, nor have to control their operation. Access to applications and data located on a server is facilitated through a web browser; there are no special hardware requirements. Applications or services are provided from centralized data centres via network. The provider assumes the responsibility for the implementation, security and monitoring, audit and compliance as well as for maintenance and support. The provider is also responsible for capacity planning and release management.

TAB.2: **Pros and cons of cloud computing** (Source: author)

Cloud Computing	
pros	**cons**
Possibility to avoid a significant one-off investment in the IT infrastructure	A risk of failing to maintain permanent operation via the Internet – reliability
Transparent price, clear pay-per-use items	Increased costs for the transfer of large volumes of data
Lower price, the provider rents the resources to multiple users (multitenancy)	Concerns about the security of sensitive data and data
Ordering IT services as a self-service (from a catalogue	
Users are not required to know the technology, nor manage its operation on their own	
Ensuring service implementation, possibility to flexibly specify the service	
Scalability and elasticity, computing power becomes a commodity that we buy as needed. Consumers pay for it how much the service used	
Providers assume responsibility for all the components of the service	
Environmental benefits – reduced energy consumption and emissions	

One of the often-discussed issues is the security of virtualized environments. Not having made a full analysis and with reference to the experience of already completed projects, the overall security seems to be improving.

2. Application software for decision support in SME on Czech-Polish border

This year was launched at the Department of Applied Informatics, EKF, VŠB-TUO under the Operational Programme Cross-border Cooperation Czech Republic - Poland 2007-2013 (Euroregion Silesia) project "Application software for Decision Support in small companies on Czech-Polish border". The project aims to determine the level of awareness of the possibilities IT and their level of use in the management of small companies and institutions in the Czech and Polish part of Silesia Euroregion. Support the mutual contact and cooperation between small firms in the region and enhance scientific cooperation between universities, which are principal investigators of the project. The target groups of the survey are innovative entrepreneurs and managers of small businesses, institutions, and public and non-profit organizations. Entrepreneurs and managers of public and nonprofit sector currently have access to a considerable amount of data available from a variety of sources. For make decisions they need an effective tool to help them identify and process the data into the desired form for decision-making. This will be allows them IT tools, especially BI.

At present time he was finished collecting data on current usage of IT and IT services in the Czech and Polish parts of the region. Now follows by an analysis and evaluation of the data collected. After that be for the firms selected suitable IT tools and recommendations for their implementation and use. The project aims to increase the quality of management in SME defined Czech-Polish border. Data were collected electronically and dealt with the possibilities of using CC. The partial aim is to familiarize respondents (companies and institutions) with a range of options currently offered to purchase, operation and maintenance of ICT. Also determine the awareness of SME about how to use CC. From average time spent in completing the questionnaire on the Czech side is 0:10:37. Return of the questionnaires is 18.36% (105 responses to the questionnaire, 572 views). On the Polish side, the average time spent in completing the questionnaire 0:11:36. Return of the questionnaires is 16.48% (75 responses to the questionnaire, 455 views). Average time spent filling in responses and from reactions of some respondents shows that the questionnaire was understandable for the respondents. Return of the questionnaires also reflects the interest of the respondents. For the surveys carried out in electronic form is it a very good result. Now, is running the data analysis, the choice of appropriate methods for their evaluation and creation plan of next steps.

Summary
Thesis: The quality of the design and use of IS / IT affects the stability and competitiveness of the company. One of the ways for to ensure the continuity of IS development in SME's is cloud computing.

Already the first results of the analysis show that in the use of ICT, SME can see improvements in their financial performance and increase their business potential. The problem of SME is the availability capital (intensive investments in ICT are often not a priority for the management of SME) and the lack of information management and employees about the benefits of ICT and of their current opportunities with relatively low acquisition costs. Services CC are for most firms little known. It is necessary to raise awareness of this possibility provision of ICT services.

Author assumes that the survey results will be known at the time of the conference.

Acknowledgements:
Tento článek byl připraven s podporou projektu CZ. 3. 22. /3.3.04/12.02994, „Aplikační software pro podporu rozhodování v malých firmách česko-polského příhraničí“. Projekt je řešen na Ekonomické Fakultě, VŠB-TU Ostrava.

References:
[1] HAGELL, III, J., BROWN, J. S., DAVIDSON, L. *The Power of Pull: How Small Moves*, *Smartly Made. Can Set Big Things in Motion.* New York, Basic Books, 2004,. ISBN 978-0-465-01935-9.
[2] PACKALEN, K. ICTs Capabilities and Possibilities in Micro-firms: A Study of Micro-firms in the Åland Islands Archipelago (2010). *BLED 2010 Proceedings.* Paper 7 http://aisel.aisnet.org/bled2010/7.
[3] QURESHI, S., KAMAL, M. Role of Cloud Computing Interventions for Micro-Enterprise Growth: Implications for Global Development. In *Proceedings of the Fourth Annual SIG GlobDev Workshop: Fourth Annual SIG GlobDev Workshop*. Shanghai: Routledge, 2011.
[4] SEVCIK, F. Jak vybírat cloud. *IT Systems,* 2010, vol. 14, no. 1-2, http://www.systemonline.cz/virtualizace/cloud-cena-az-na-druhem-miste.htm
[5] TVRDIKOVA, M. Specifikace a formy zajištění ICT služeb poptávaných malými a středně velkými firmami v MS kraji*. Závěrečná zpráva projektu SP2011/112 [Final report of project SP2011/112], EkF*, VSB-TUO, Czech Republic, 2011.

CORPORATE SOCIAL RESPONSIBILITY EXEMPLIFIED BY POLISH COMPANIES

Maria Urbaniec
Cracow University of Economics
urbaniem@uek.krakow.pl

Key words:
corporate social responsibility – sustainable development

Abstract:
Responsibility of an organization for the impacts of its decisions and activities on society and the environment, through transparent and ethical behaviour can, among other things, contributes to sustainable development as well as influences competitive advantage and reputation of companies. There is today a growing perception among enterprises that sustainable business success and shareholder value cannot be achieved solely through maximising short-term profits, but instead through market-oriented yet responsible behaviour. The different aspects of Corporate Social Responsibility (CSR) in Poland, such as the creation of employee-friendly workplace, can increase the innovation potential of the company.

Introduction

The 21st century is characterized by unprecedented challenges and opportunities, arising from globalization, the desire for inclusive development and the imperatives of climate change. Globalization, demographic changes, the scarcity of food, energy and raw materials and the widening gap between rich and poor are examples of socio-economic trends that are closely linked with the environmental changes [3]. Research over the last two decades has documented that the Earth is undergoing major environmental and socio-economic changes [4, 916-917]. Issues of sustainable development and environmental protection determine increasingly the economic activities. Due to the complex nature of sustainable development, a combination of actions environmental, economic and social issues is needed [6, 1]. The dominant trend in most industrialized countries is to promote the tools and concepts supporting the implementation of environmental solutions (e.g. environmental management systems or the concept of corporate social responsibility). Enterprises endeavour to take into account as part of their activities not only environmental ones, but also want to contribute to sustainable development through better focus on social activities. Therefore, companies must meet a variety of (technological, competitive, social) challenges. There are

numerous opportunities to solve environmental issues in an innovative way, which are related to economic, technological and social aspects. Organizations around the world, and their stakeholders, are becoming increasingly aware of the need for and benefits of socially responsible behaviour. The purpose of social responsibility is to contribute to sustainable development.

The purpose of this paper is to present in a coherent and comprehensive manner the salient concepts, principles, and methods relevant to sustainability exemplified on the Corporate Social Responsibility (CSR) concept. It can be perceived as a supportive instrument for implementation of sustainable development at the company's level [5, 291]. The paper will present the state of the implementation of CSR in Polish companies. It shows many possibilities of realization of social and environmental activities by the companies what requires the cooperation of various stakeholders.

1. Definition of Corporate Social Responsibility

The term, "Corporate Social Responsibility" has been defined in the literature with several perspectives. The World Business Council for Sustainable Development in its publication "Making Good Business Sense" used the following definition: "Corporate Social Responsibility is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large" [9, 8]. Corporate social responsibility (CSR) is a form of corporate self-regulation integrated into a business model. The subject of CSR has evolved during last few decades from simple philanthropic activities to integrating the interest of the business with that of the communities in which it operates. By exhibiting socially, environmentally and ethically responsible behaviour in governance of its operations, the business can generate value and long term sustainability for itself while making positive contribution to the betterment of the society. CSR is also about managing change at company level in a socially responsible manner. In the literature it is also called corporate conscience, corporate citizenship, social performance, or sustainable responsible business) [8, 691].

In 2001 the European Commission (EC) published a Green Paper on Promoting a European framework for Corporate Social Responsibility (COM (2001) 366 final), where CSR is defined as "concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis". The issue of this document was the first major manifestation of CSR in EU policy, but also the definition of the CSR guidelines for both companies and for theorists.

An important worldwide trend that can be observed in recent years, on the one hand, it is willingness and a need for companies standardization activities in the field of corporate social responsibility, on the other hand, it is an attempt to integrate existing standards. Currently, there are a lot of guidelines, standards and principles of CSR. As the most famous comprehensive CSR guidelines can be identified:

- Social Reporting Guidelines of the Global Reporting Initiative (GRI)[1]
- Principles of the Global Compact[2]
- The OECD Guidelines for Multinational Enterprises[3]
- Set of standards AA1000[4]

An important and comprehensive standard for social responsibility is ISO 26000. ISO 26000 as an International Standard on social responsibility (SR) is intended for use by organizations of all types, in both public and private sectors, in developed and developing countries [1, 4]. This standard, established in 2010, was a result of six working groups of experts representing different sectors - business, government, non-profit sector, employees, customers, and intergovernmental organizations. The ISO 26000 indicates the seven core subjects of social responsibility defined in the standard: oorganizational governance, human rights, labour practices, environment, fair operating practices, consumer issues as well as community involvement and development [1, 4]. ISO 26000 contains guidance, not requirements, and therefore will not be for use as a certification standard like ISO 9001:2000 and ISO 14001:2004. ISO 26000 contributes to existing initiatives for social responsibility by providing harmonized, globally relevant guidance based on international consensus among expert representatives of the main stakeholder groups and so encourage the implementation of best practice in social responsibility worldwide.

2. Implementation of Corporate Social Responsibility in Polish companies

Corporate Social Responsibility in Poland has been developing for several years. In 2001 was established the Responsible Business Forum (FOB), currently the largest and most well-known non-governmental organization, which not only promotes CSR and supports its development, but also educates students, conducts research, carries out projects with partner companies.[5] Since 2002, FOB has published the report "Responsible Business in

[1] Compare: Global Reporting initiative: www.globalreporting.org
[2] Compare: Global Compact w Polsce: www.globalcompact.org.pl
[3] Compare: http://www.oecd.org/dataoecd/61/41/38111315.pdf
[4] Compare: http://www.aa1000.pl/standardy-aa1000
[5] Compare: www.odpowiedzialnybiznes.pl

Poland. Good practices ". It is a set of practices for corporate social responsibility, which may submit any company, regardless of industry and size of the enterprise. Analysis of subsequent editions of this report also shows how dynamically CSR market was developing in Poland in recent years: from the first report, which published a few practices of the firms, to the last one, in which there were more than one hundred practices, selected as the best among all reported.

An important year for CSR in Poland was also the year 2009 because of creation of the Warsaw Stock Exchange Index of socially responsible companies - Respect Index[6]. It was the first index of such kind in the region of Central and Eastern Europe. In the first edition of the list of responsible companies there were 16 companies. The creation of a stock market index of socially responsible companies resulted in the fact that from additional philanthropic activities, it became the concept which was related to the management of the organization and was building its value in the perception of stakeholders.

In 2011, extensive studies on the implementation of standards of corporate social responsibility were carried out in Poland, which was based on ISO 26 000 and included small, medium and large enterprises [2]. The study "assessment of the implementation of the standards of corporate social responsibility and developing a set of indicators of social responsibility in the micro, small, medium and large enterprises" is the largest and most comprehensive study carried out so far in Poland and concerning the situation implementation of corporate social responsibility. The survey covers 850 companies in Poland. Basing its methodology on ISO 26000, which is a new document, but also the complex issue of social responsibility, it recognizes and integrates the principles and provisions of the already existing guidelines and standards, helps to ensure that the study was carried out in relation to international best practice. About one third of representatives of companies in Poland met with the concept of social responsibility. The term CSR is familiar to 31 % representatives of organisations operating in Poland - especially representatives of large enterprises (70% mentions).

2 out of 3 companies whose representatives declare awareness of the term “corporate social responsibility” conduct activities related to it. These activities are conducted in accordance with set norms and guidelines. The norms implemented most often are the before mentioned ISO norms (ISO 14 000 and ISO 26 000) – in total, 54% companies chose one of them.

[6] Compare: http://www.odpowiedzialni.gpw.pl

TAB. 1: **Types of Standards of CSR used in Polish companies**

Guides / Standards	Responses (in %)
ISO 14000	27
ISO 26000	27
Global Compact	9
AA1000	5
EMAS -Eco Management and Audit Scheme	1
Global Reporting Initiative	1
SA8000	1
Others	17
I do not know \ difficult to tell	27

Source: [2, 57]

Out of 7 social responsibility subjects defined in norm ISO 26 000, representatives of companies operating in Poland consider labour practices and consumer issues especially important for the development of the organization – with 74% and 72% mentions respectively. To representatives of nearly 2 out of 3 companies, another subject important for development is organizational governance, whereas for over a half – fair operating practices. The following subjects are much less often considered important for the growth of an organization: human rights, the environment (20% mentions for each of these two subjects), whereas the subject listed as last is community involvement (11%).

TAB. 2: **Key issues of CSR in companies and their activities in this context**

CSR issues	Responses (in %)
relationships with consumers	74
relationships with employees	72
work organization in the company	65
fair market practices, in relationships with customers, business partners	53
human rights	20
environment	20
Community involvement - activities for local communities s	11

Source: [2, 60]

Analysing the results of the study it can be concluded that they confirm the previously available results of other studies, which show that the concept of corporate social responsibility is still little known and rarely implemented

among entrepreneurs. Where CSR was once seen as fulfilling a moral obligation to society, many companies are now recognizing it as a business imperative. Today, companies are increasingly demonstrating that CR provides financial value and drives innovation. Companies also discover new opportunities for business improvement by analyzing their CR reporting data and developing continuous improvement programs to effect lasting change.

3. Conclusions

Corporate social responsibility is a philosophy of conduct and a concept of doing business applied by the business community, companies and individual businessmen for sustainable development and preservation of resources for future generations. Different methods and concepts of CSR, e.g. ISO 26000, can finally offer guidance to all organizations that want to maximize their contribution to sustainable development. The perception and reality of an organization's performance on social responsibility can influence, among other things: the ccompetitive advantage, reputation, ability to attract and retain workers or members, customers, clients or users and relationship with companies, governments, the media, suppliers, peers, customers and the community in which it operates. Companies are aware that they can contribute to sustainable development by managing their operations in such a way as to enhance economic growth and increase competitiveness whilst ensuring environmental protection and promoting social responsibility, including consumer interests. Specifically, the cooperation and the dialogue between the government, public authorities, industry and other actors exhibit great potential for the realization of sustainable development [7, 687]. Based on the concept of sustainable development, companies are not only encouraged to cooperate, but also to combine cooperation with the opportunity for innovation, and hence access to new markets.

References:

[1] ISO 26000 Social Responsibility, International Organization for Standardization, Geneve 2010

[2] Ocena stanu wdrażania standardów społecznej odpowiedzialności biznesu: *Zestaw wskaźników społecznej odpowiedzialności w mikro, małych, średnich oraz dużych przedsiębiorstwach,* Raport dla PARP opracowany przez: MillwardBrown SMG/ KRC and PricewaterhouseCoopers, Warszawa 2011

[3] OECD Environmental Outlook to 2050: The Consequences of Inaction, 2012, http://www.oecd.org/environment/outlookto2050

[4] REID, W. V. *et al.* Earth System Science for Global Sustainability: Grand Challenges. *Science* 330, 2010, pp. 916-917

[5] URBANIEC, M. Ausgewählte Instrumente für nachhaltige Entwicklung, in: *Banse G., Janikowski R., Kiepas A. (Hrsg.), Nachhaltige Entwicklung - transnational. Sichten und Erfahrungen aus Mitteleuropa,* Edition Sigma: Berlin, 2011, p. 291-302
[6] URBANIEC, M. *Umweltinnovationen durch Kooperationen – am Beispiel einer freiwilligen Branchenvereinbarung*, Gabler Verlag, Wiesbaden 2008
[7]URBANIEC, M., GERSTLBERGER, W. Innovation in Environment-Oriented Networks: Influence Factors from Case Study and Survey Research. In: *Management of Environmental Quality: An International Journal,* Vol. 22, No. 6, 2011, pp. 686-704
[8] WOOD, D. J. *Corporate Social Performance Revisited*, The Academy of Management Review, Vol. 16, No. 4 (Oct., 1991), pp. 691-718
[9] World Business Council for Sustainable Development. Corporate Social Responsibility: making good business sense. London. UK:Red Letter Desig, 2000

CORPORATE BALANCE-SHEET APPROACH TO CURRENCY CRISES

Zdenka Volkánová
College of Economics and Management, o.p.s.
zdenka.volkanova@vsem.cz

Key words:
crisis – business – loan – central bank

Abstract:
This paper presents a general equilibrium currency crisis model of the third generation, in which the possibility of currency crises is driven by the interplay between private firms' credit-constraints and nominal price rigidities. Despite our emphasis on micro-foundations, the model remains sufficiently simple that the policy analysis can be conducted graphically. The analysis hinges on four main features: i) ex post deviations from purchasing power parity; ii) credit constraints a la Bernanke-Gertler; iii) foreign currency borrowing by domestic firms; iv) a competitive banking sector lending to firms and holding reserves and a monetary policy conducted either through open market operations or short-term lending facilities

Introduction

Researchers in recent years had to struggle with the puzzle as fast-growing economies with large export surpluses and substantial surpluses of public finances, could end up in the space months in a deep and damaging currency crisis. Since lower profits reduce net worth, it may lead to a reduction in business investment limited credit, and therefore a lower level of economic activity in the following period. This in turn will decrease the demand for money and thus the depreciation in the future. But arbitrage in the foreign exchange market, it means that the currency must depreciate at present as well. Therefore, the possibility of multiple short run is equilibrium in the market for foreign currency. Currency crisis occurs when the shock pushes the economy into a "bad" equilibrium with low power and high nominal exchange rate.

1. General Framework

We consider an infinite-horizon, small, open, monetary economy with two production sectors, an import-competing manufacturing and an exporting commodity sector. There are four types of agents in the economy: entrepreneurs who produce manufacturing goods; non-entrepreneurs who can either work for the manufacturing sector at a present wage, or work on their own to

produce commodities according to a linear one-for-one technology; commercial banks that lend to the entrepreneurs and hold reserves; and the central bank that runs monetary policy with open market operations or short-term lending facilities.

Entrepreneurs in the manufacturing sector produce differentiated goods, but in a symmetric fashion with the same production function and the same inverse demand function. In addition, all manufacturing firms share the following two characteristics: First, they present prices for each period before the actual exchange rate is known; to save on menu costs they maintain the price fixed for the entire period. Second, they borrow from banks, but the credit contract is only partially enforceable, which generates a constraint on how much the firm can borrow. Finally, we shall restrict attention to the case where the domestic demand for manufacturing goods is always larger than their domestic production. We assume that for each manufacturing good there are international producers who are ready to sell it in the domestic market. Thus, changes in demand are accommodated by foreign producers who act as a competitive fringe and sell at a constant price equal to one unit of the foreign currency.

An unexpected currency depreciation has a negative aggregate impact on output in our model through an increase in the foreign currency debt burden. Although exporters gain from the depreciation, it is the import-competing sector that determines the dynamics of output. The model could be extended by introducing stronger competitiveness effects, for example with an exporting sector that has characteristics similar to the importing competing. In that case, there would be a trade-off between a competitiveness effect and a foreign currency debt effect. Since the competitiveness effects are well understood, we do not incorporate this aspect in our model and focus on foreign currency debt.

Purchasing power parity (PPP) will be assumed to hold ex ante at the beginning of every period, and the only deviation from PPP ex post will be in period 1 in the manufacturing sector as a result of the shock not being accommodated at once by domestic price-setting in that sector.

1.1 Sequence of Events

The timing of events can be summarized as follows. Manufacturing prices are fixed at the beginning of each period t for the entire period. At the end of the period, manufacturing firms' earnings are determined. The productivity for the next period is also determined at this time.

The shock occurs, to which corresponds a realization of the nominal exchange rate S_t. The shock is accompanied by an adjustment in the nominal interest rate i_t on domestic bonds, which is influenced by the monetary policy set by the central bank and by the demand for reserves (h_t) from commercial banks.

This in turn will affect the lending rate i^l_t charged by banks to firms in period $t+1$. The entrepreneur now decides whether or not to repay its debt from the previous period and then chooses the fraction β_t of his net earnings that he will save. With these savings w_t, firms decide how much to borrow for the subsequent period (l_{t+1}) and how much to invest ($w_{t+1} + l_{t+1}$). We will focus on the case where shocks on the nominal exchange rate S_t only occur in the first period and where there is a unique equilibrium Exchange rate in all subsequent periods.

1.2 Savings and Consumption Behaviour

All individuals in the domestic economy, including the domestic entrepreneurs who produce manufacturing goods, maximize their expected lifetime utility.

They could also derive utility from the homogenous commodity, but we assume, without loss of generality, that their optimal consumption is equal to zero. Entrepreneurs may also incur some disutility or some private benefits from producing, but this has no bearing on the analysis insofar as the corresponding cost or benefit is fixed.

1.3 Price Setting

While PPP holds at any time for commodities and ex ante for all goods, it does not hold ex post in period 1 in the manufacturing good sector. This follows, first from the assumption that the price of manufacturing goods is present in domestic currency for one period to save on menu costs; and, second, from the assumption that consumers cannot arbitrage ex post between domestic and foreign producers. Arbitrage (within an industry) is possible ex ante, so that PPP holds ex ante for all manufacturing goods.

We assume that consumers first pre-commit on a quantity and a price with domestic producers. Then, risk-neutral foreign producers complete Bertrand on the residual market segment and set the price in domestic currency.

1.4 The Debt Contract

The fact that the firms borrow in foreign currency will play a crucial role in our analysis. While this accords well with what we observe in many emerging market economies, it does require a justification. In Burnside, Eichenbaum

and Rebelo (2000) or Schneider and Tornell (2000), foreign currency borrowing follows from the assumption that domestic firms are bailed out by the government in case of default, so that firms will want to increase their risk exposure by borrowing in foreign currency. Jeanne (1999, 2000) develops models in which foreign currency borrowing serves as a signalising or as a commitment device.

In this paper, foreign currency borrowing follows directly from the extrinsic exchange rate uncertainty together with the above assumptions on the set of feasible debt contracts, especially the assumption that the currency composition of a borrower´s portfolio is not contractible. The argument is directly adapted from Chamon (2001). We simply generalize his result to allow the firms to be credit constrained.

Consider a firm that borrows initially from a lender in domestic currency; since no individual lender can observe the currency composition of her borrower's portfolio, this firm has the possibility to expropriate its initial lender through the following scheme: use the initial loan in domestic currency to purchase government bonds which the firm then uses as a collateral for a second -secured- loan B in foreign currency.

The higher B, the more will the first lender be expropriated whenever the domestic firm defaults. On the other hand, being secured with pledge able collateral, the second lender will not charge an interest rate which fully incorporates the default premium, as the cost of default is essentially borne by the first lender whom we assumed to be unsecured

2. The Monetary Sector

Domestic banks play a crucial role in this economy since they both channel credit to firms and hold reserves, and are therefore at the center of the monetary transmission mechanism.

There is perfect competition in the banking sector and banks have a standard balance sheet structure.

Banks receive deposits d_t from non-entrepreneurs and possibly foreigners, lend l_t to firms and hold an amount of reserves h_{t-1} in the central bank at the beginning of period t. Thus, $d_t = h_{t-1} + l_t$ and deposits in period t yield the risk-free nominal domestic interest rate i_t. We assume that banks only take deposits to cover their lending and reserve's needs.

We assume that banks demand for reserves is linked to the supply of credit to the manufacturing sector: more specifically, suppose that with probability λ a manufacturing firm faces an aggregate liquidity shock (e.g., due to the fact

that its workers need to be paid in cash early in the period instead of waiting until the end of the production period).

If the lending bank does not fulfil this liquidity need, the firm cannot produce nor repay its outstanding debt.

Conclusion

This paper has concentrated on developing a full-fledged third generation model of currency crises. Whilst we have focused our attention on microfoundations, we have left out a number of interesting implications and extensions of this type of model. A first extension is to analyse the post-crisis dynamics of output. While the recovery is influenced by the policy at the time of the crisis, it is also influenced by monetary policy in the aftermath of the crisis.

Thus, it would be of interest to examine the dynamics of output under various policy rules, such as inflation, monetary or exchange rate targeting. Longer lags of price stickiness and issues of credibility could also be introduced in the analysis.

The precise mechanics of exchange rate policy have also been left out from the analysis, but we show that assuming a fixed exchange rate does not affect the analysis in any substantial way. If the nominal exchange rate is fixed, the central bank has to change its money supply e.g., through interventions in the foreign exchange market. If we assume that there is a lower limit to money supply, e.g., through a lower limit on international reserves, the central bank will not be able to defend the currency when large shocks occur. Alternatively, the nominal exchange rate described in this paper can then be reinterpreted as the 'shadow' exchange rate typically used in the currency crisis literature.

Finally, we have focused attention on currency crises induced by shocks that is on the existence of non-degenerate sunspot equilibria. A natural extension is to introduce exogenous shocks, for example on firms' productivity.

References:

[1] MILLER, M., VINES, D., WEBER, A. (eds.), *The Asian Financial Crises: Causes, Contagion and Consequences,* Cambridge University Press, p. 167-190. Published under the wrong title Capital Markets and the Instability of Open Economies.

[2] BACCHETTA, Ph. (2000), Monetary Policy with Foreign Currency Debt, *Study Center Gerzensee Working Paper* No. 00.03.

[3] BACCHETTA, Ph., VAN WINCOOP, E. (2000), Does Exchange Rate Stability Increase Trade and Welfare, *American Economic Review 90,* 1093-1109.
[4] CORSETTI, G., PESENTI, C., ROUBINI, N. (1998), *What Causes The Asian Currency and Financial Crisis?* Part I: A Macroeconomic Overview,. NBER Working Paper 6833, December.
[5] CORSETTI, G., PESENTI, C., ROUBINI, N. (1999), Paper Tigers - A Model of the Asian Crisis,. *European Economic Review 43,* 1211-1236.
[6] DORNBUSCH, R. (1988), Purchasing Power Parity. *The New Palgrave Dictionary of Economics* (New York: Stockton Press). Reprinted in R. Dornbusch, Exchange Rates and Inflation, MIT Press, 1988.
[7] DRAZEN, A. (1999), Interest Rate Defense Against Speculative Attacks Under Asymmetric Information,. mimeo.
[8] RADELET, S., SACHS, J. (1998), The Onset of the East Asian Financial Crisis,. *NBER Working Paper No. 6680*.
[9] SCHNEIDER, M., TORNELL, A. (2000), Balance Sheet Effects, Bailout Guarantees and Financial Crises,. NBER Working Paper 8060.
[10] STIGLITZ, J.E. (1998), Knowledge for Development: Economic Science, Economic Policy, and Economic Advice,. Annual World Bank Conference on Development Economics, 9-58.

ECONOMIC GROWTH AND HUBBERT CURVE

James White, Lukáš Režný
University of Hradec Králové
james.white@uhk.cz, lukas.rezny@uhk.cz

Key words:
economic growth – Hubbert curve – resource depletion – oil extraction – EROEI

Abstract:
The article shows that the Hubbert curve is the general principle applicable to the problem of resource depletion. The second chapter focuses on the significance of natural resources for the economic process, especially the "master resource", oil, and its close relation to economic performance. The last part briefly touches on our current problem – depletion of oil, the poor possibilities for its substitution in the economic process, and the harsh implications for global economic performance.

Introduction

Many authors have addressed the subject of non-renewable resource exhaustion, starting in 1865 with W.S. Jevons' book *The Coal Question*, continuing into the 20th century with Frederick Soddy, M.K. Hubbert and Georgescu-Roegen. Their work received very little understanding and they were labeled as malthusians in the best cases, or as cranks in the worst. The fact that no resource shortage stopped economic growth in last 300 hundred years is usually taken as a proof that they were all wrong. However, current all-time high resource prices and growth problems of many developed countries might be proof of the opposite. It is unlikely that the answer to the current crisis lies in the endless debate between neo-classical economists and Keynesians. Data presented here suggest that it is our environment which is the limiting factor in further economic growth.

1. The Hubbert curve

The Hubbert curve describes the extraction rate of specific non-renewable resources during a certain period of time. It is a result of interactions between a growing economic system and a finite resource base upon which it is dependent. Author M.K. Hubbert described the process as follows: Extraction in a defined area starts with discovery of first source in time t_0 and ends in later time t_k. Cumulative extraction Q will then have value $Q = 0$ at time $t = t_0$ and final value Q_k at time $t = t_k$. During complete production

cycle Q grows steadily in time interval t_0 up to t_k and size of extraction, $\frac{dQ}{dt}$, changes subsequently:

$$\boldsymbol{t < t_0, \frac{dQ}{dt} = 0};$$
$$\boldsymbol{t_0 < t < t_t, \frac{dQ}{dt} > 0};$$
$$\boldsymbol{t_k < t, \frac{dQ}{dt} = 0}.$$

Therefore:

$$\boldsymbol{Q_k = \int_{t_0}^{t_k} \frac{dQ}{dt}\, dt}.$$

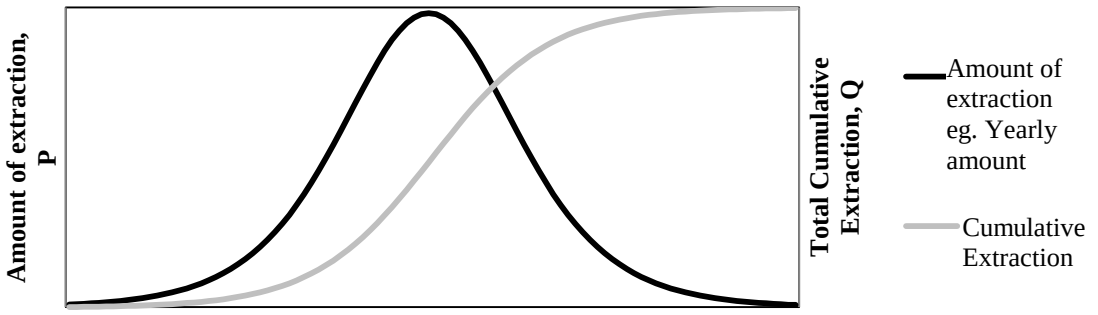
With respect to limited amount of Q compared to time is suitable to consider extraction $\frac{dQ}{dt}$ as a function of Q, not t. Hubberts curve is usually described by two equations, one for cumulative extraction Q and one for actual production P:

$$\boldsymbol{Q = \frac{U}{1 + EXP(b * (t - t_m))}},$$

$$\boldsymbol{P = \frac{2Pm}{1 + COSH(b * (t - t_m))}}.$$

Where U stands for size of total reserves of resource, Pm is highest amount of resource extracted (peak extraction) in time t_m and constant b determines slope of particular curve in question. For these equations, we could draw two following curves.

CHART 1: **Hubbert curve**



Source: authors calculations.

The bell-shaped extraction curve is known as the Hubbert curve for its characteristic shape. However, charting resource discovery and extraction is not deterministic, so curves in the graph above are only model examples.

Real resource extraction curves are deformed in many ways, marked by many different real world events, but usually remain similar to model cases presented above. The Hubbert curve can be used to model extraction of non-renewable resources, including predictions of peak extraction but it should be used with extreme caution. Correct computation of the precise peak date requires exact knowledge of how much resource is still in the ground, which is simply impossible. But it is possible to estimate how much of the resource is still in the ground, so the result then is a time interval in which peak extraction should occur. This is a more appropriate application of the curve and it is how Hubbert used it in 1956.

He estimated the total recoverable reserves of crude oil for lower 48 U.S. states to be somewhere between 150 – 200 billion barrels. According to that range, he placed peak crude oil production in lower 48 U.S. states between the years 1965 – 1970[5, 24]. In 1970, the region really experienced a peak in crude oil extraction, proving the first successful application of Hubbert's model. There is no breathtaking precision in this; the peak was predicted in the year 1956 and placed it within a 5 year range, roughly ten or so years before it happened. But still, we should not forget that at that time it was a rather heretical prophecy. Adam Brandt thoroughly tested Hubbert curve in his work. He tested sets of 139 oil extraction curves from local, regional and national examples to explore the validity of Hubbert's model. Results of his work were in general favorable for Hubbert's model, but some regular deformities were also identified on the selected set of extraction curves [1, 30].

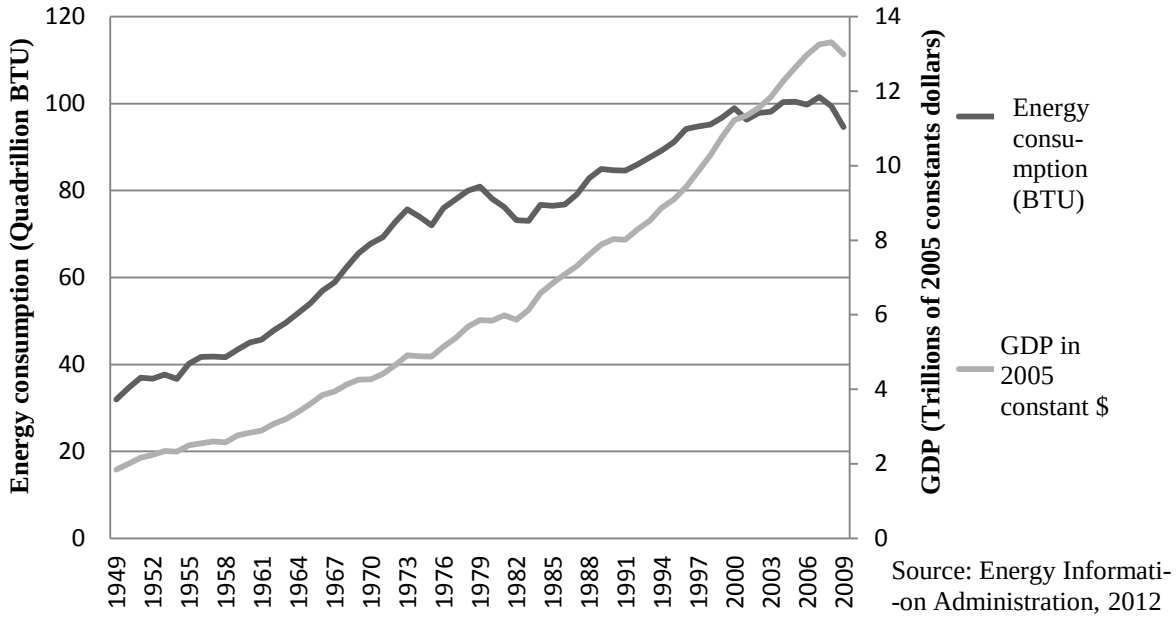
The important conclusion from the Hubbert model is not that non-renewable resources should have symmetrical, bell-shaped curves: the important conclusion is that extraction of resources tends to rise along with a growing economy, but later this process is reversed when the ultimate limit of scarcity is approached.

2. Relationship between economic growth and energy consumption

Non-renewable resources tend to have specially shaped extraction curves, but how is this knowledge about Hubbert curve relevant to the phenomenon of economic growth? To address this question properly, we need to know at first if there is any relationship between economic performance and resource consumption. A look into a typical economic textbook nowadays suggests that natural resources are not needed in real-world economies at all whereas the very opposite is true. One of the best known examples of the relationship between economic growth and resource consumption is seen in the consumption of energy. When one tests if there is correlation between GDP

growth and energy consumption in a given country it is usually as close to one as one can get with correlation in real life. One typical case is seen below:

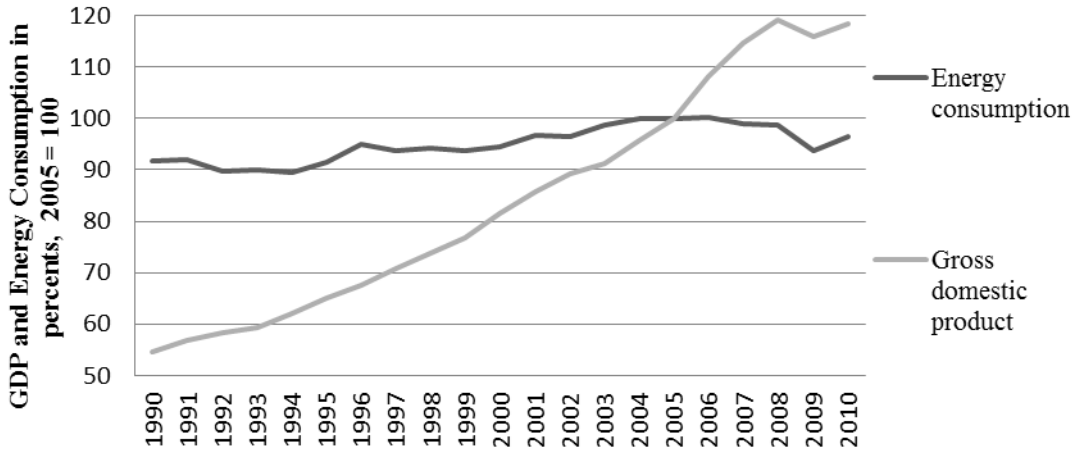
CHART 2: **GDP Growth and energy consumption in the USA (1949- 2009)**



Source: Energy Informati--on Administration, 2012

In the period of 1949 – 2009, correlation between GDP growth and growth of energy consumption was equal to 0,934. Vaclav Smil presented similar results in his book *Energy on the crossroads* for a very long time interval in Japan [9]. But from the graph above, we can also see GDP growing faster than energy consumption. In the year 1949, to produce one dollar of aggregate product 17 343 BTU (British Thermal Units) was needed, whereas in the year 2009 it was only 7 282 BTU, which means a 58% reduction per one dollar of aggregate product. Let's look on the case of European Union.

CHART 3: **GDP Growth and energy consumption in the EU (1990 - 2010)**

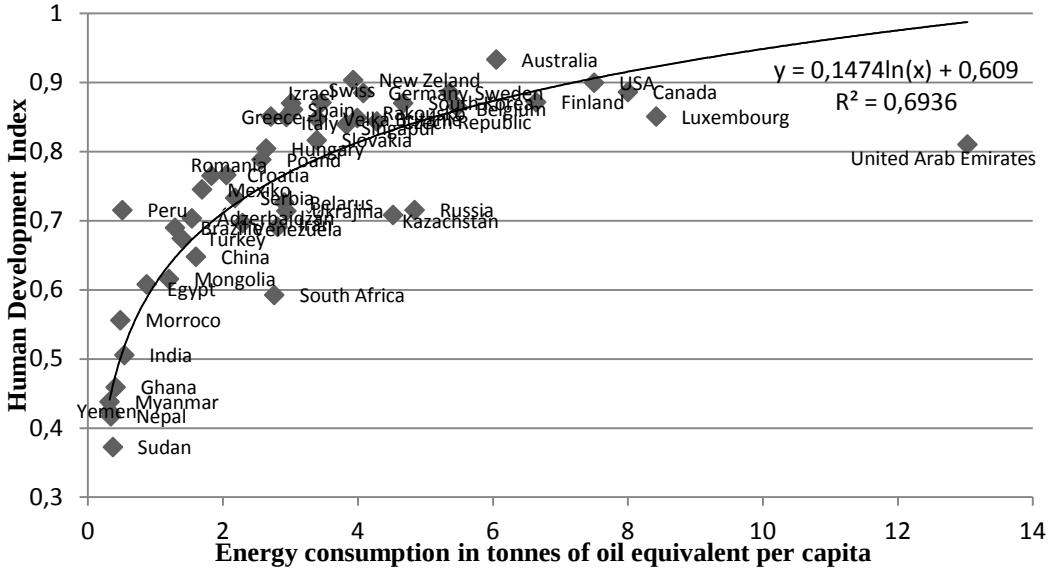


Source: World Bank (GDP), Eurostat (energy consumption), 2012

In this relatively short period of time for EU-27 member states, we see that GDP more than doubled, while energy consumption did not experience such rapid growth. Does this mean that growth in economic performance is not accompanied by higher energy consumption in all cases? The observed decoupling between growth in GDP and energy consumption can be broken-down into three parts. The first is caused by technological advances in energy conversion processes – i.e. more efficient cars or power plants. But we should emphasis that we are moving close to absolute efficiency limit above which no further improvements in efficiency will be possible, so this effect cannot indefinitely play its role. Also this effect alone cannot explain whole observed decoupling. During the last twenty years aggregate product has also changed, with the bigger part now produced by the service sector. According to the World Bank, the service sector produced 53% of EU GDP in the year 1970 and 73% forty years later. The last important point consists of increased resource imports into EU. Eurostat data shows that in 2008, 56% of Europe energy consumption came from imports. Europe imported 85% of its oil consumption, 65% of its natural gas consumption and 30% of solid fuels. In the case of minerals, the picture is similar – i.e. copper imports in 2010 were over half of total consumption of this mineral in EU [7]. Resource extracting countries in general have more energy intensive economies, so in this way EU artificially decreases its own energy consumption.

Even alternative indicators of economic performance show a strong dependency on energy consumption. In the graph below, you can see how the human development index (HDI) depends on energy consumption. HDI reflects life expectancy, education levels and income in a given country. Its dependency on energy consumption is shown in graph below.

CHART 4: **HDI and per capita energy consumption for selected countries, 2009**



Source**:** International Energy Administration and United Nations Development Programme, 2012

What works in general also works in concrete examples. The resource best known for global problems when its supply is constrained is oil. James Hamilton examines the relationships between oil shocks and GDP performance in a working paper entitled *Historical Oil Shocks*. In it, he looks at the growth in oil production and resulting economic contraction when supplies become tight. He details several instances of oil shocks dating from the 1860's in the USA, usually followed by oil price collapses as new fields are discovered and new drilling technologies come online. In each case a drop in GDP is noted. The first major oil producing area was Pennsylvania, where one of the first significant oil wells was drilled in 1859. High demand for products derived from this resource meant extremely high prices ($1,900/barrel in 2009 dollars) and led to rapid exploitation of these fields which went into decline within one generation. Oil producers experienced a series of price collapses through the 1860s and 70s, with the overall trend being an increase in the amount of oil extracted. Oil shortages and their effects on GDP do not become apparent until oil becomes a more significant resource for the economy as a whole. Hamilton writes:

"There is another key respect in which petroleum came to represent a fundamentally different economic product as the twentieth century unfolded. In the nineteenth century, the value of oil primarily derived from its usefulness for fabricating illuminants. As the twentieth century developed, electric lighting came to replace these, while petroleum gained increasing importance for commercial and industrial heat and power as well as transportation, first for railroads and later for motor vehicles" [2, 5].

This is a crucial point. When petroleum products were mostly sold as fuel for lighting, they were in competition with products that could easily be substituted for the same purpose. As the country industrialized and the automobile became a fixture in everyday life, oil and its derivatives became much more important, and shortages more severe, as there are no easy substitute. When massive oil fields were discovered in Texas in the 1920s, supply problems disappeared as the price of oil dropped again, and supplies increased. An important difference between the exploitation of the Pennsylvannia oil fields and the ones in Texas/Oklahoma can be seen in how they were regulated. In the 1860s there was little or no regulation in the form of production quotas, price ceilings or restrictions on shipping across state borders. There was a rush to exploit the Pennsylvania fields and they went into production decline quickly. In Texas in the 1920 regulatory agencies imposed a variety of restrictions on production, and in doing so became influencial in determining the price of oil worldwide. This also had the effect of prolonging the productive life of the wells subject to regulations.

Another shock is the well-known OPEC oil embargo in 1973. This event was preceded by a series of events external to the production and pricing of oil, including a recession in the late 1960's, the abandonment of the Bretton Woods system by the US, price controls implemented by President Nixon, and not insignificantly, the beginning of production declines in US oil production, as predicted by Hubbert nearly 20 years earlier. Hamilton writes:

"The correlation between oil shocks and economic recessions appears to be too strong to be just a coincidence (Hamilton, 1983a, 1985). And although demand pressure associated with the later stages of a business cycle expansion seems to have been a contributing factor in a number of these episodes, statistically one cannot predict the oil price changes prior to 1973 on the basis of prior developments in the U.S. economy (Hamilton, 1983a). Moreover, supply disruptions arising from dramatic geopolitical events are prominent causes of a number of the most important episodes. Insofar as events such as the Suez Crisis and first Persian Gulf War were not caused by U.S. business cycle dynamics, a correlation between these events and subsequent economic downturns should be viewed as causal. This is not to claim that the oil price increases themselves were the sole cause of most postwar recessions. Instead the indicated conclusion is that oil shocks were a contributing factor in at least some postwar recessions" [2, 27].

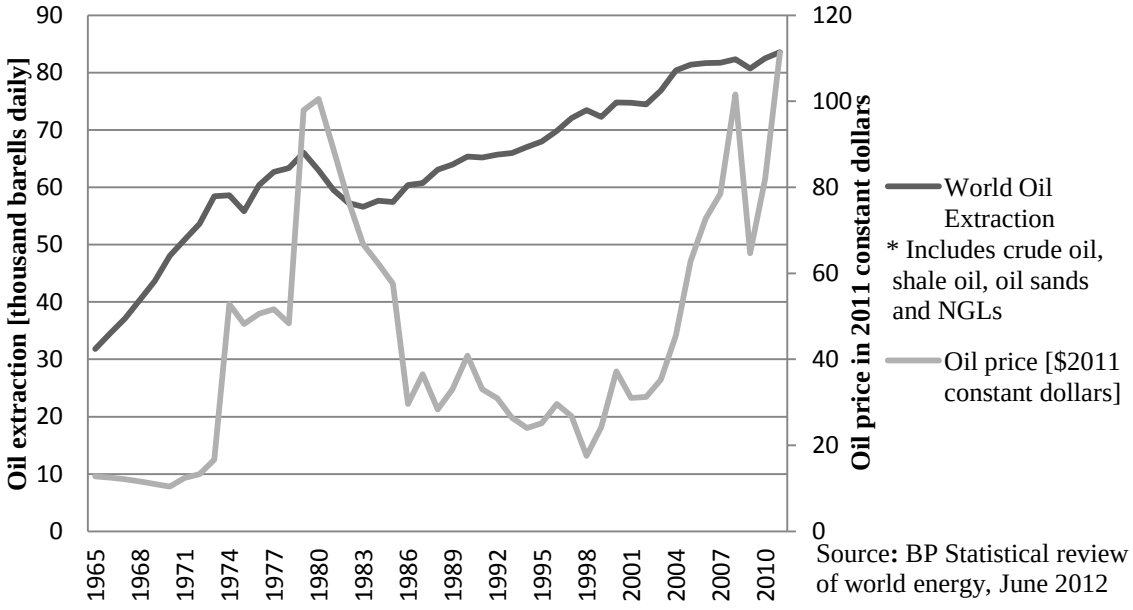
Hamilton goes on to note that GDP declines following disruptions in oil supply and the resulting price increases are larger than classical economics would normally predict. The dramatic spike in oil prices in 2008 and

the following global economic downturn fit neatly into Hamilton's work, and given the probability that we've already passed the global peak of oil production, more research is necessary into the relationship between resource depletion, oil prices and shrinking GDP.

3. Current situation

The resource which causes the biggest turmoil nowadays is definitely oil. After twenty years of low, stable prices, oil made its way into the headlines again. While high prices in the period of 1974 – 1983 were caused mainly by political (OPEC embargo) and military events (Iraq-Iran war), they cannot justify the current situation, which is pictured in the chart below. Just one look into the graph shows the interesting fact that supply does not respond to the increased demand represented by higher price of oil. That could be justified in a short time frame, when supply does not have enough time to react to increased demand. But in this case we can hardly speak about a short time period, since supply has been plateauing for six years, despite the rising price of oil.

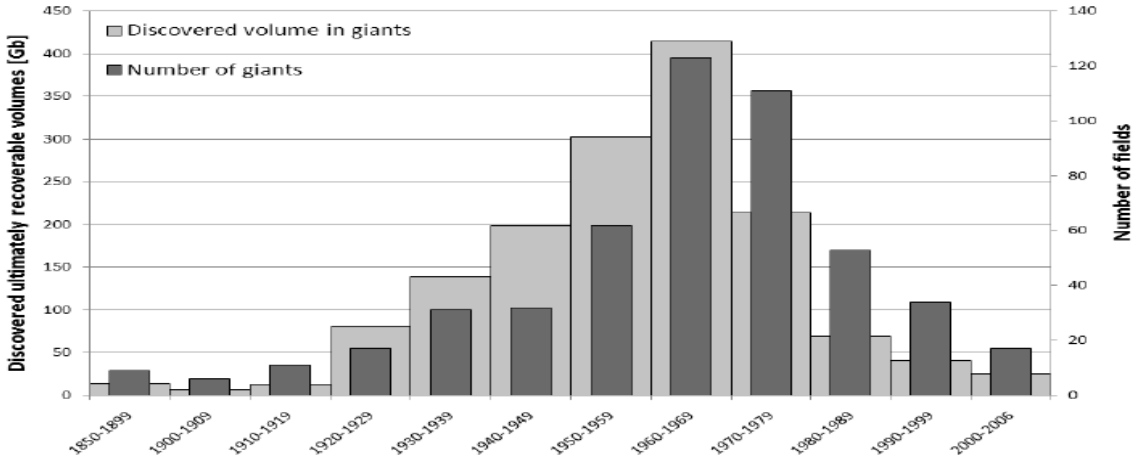
CHART 5**: World Oil extraction and price, 1965 - 2011**



Source**:** BP Statistical review of world energy, June 2012

Since the year 1998, oil prices rose by the factor of six while the extracted amount of oil rose only by 32%. Behind this interesting and economically painful fact are the statistics for giant oil fields, seen in Chart 6.

CHART 6: **World Giant Oil fields, discovered volume of oil and number of fields**



Source: Giant oil field decline rates and their influence on world oil production [4]

Giant Oil fields are the biggest contributors to oil extraction, this particular category of fields equals to 60% of total world oil extraction [4, 3].In Chart 6, we can see obvious hubbert trend for discoveries. The total number of discovered giant fields declined along with total volume of oil in them. Notable also are the statistics for the speed of decline of already peaked giant oil fields, which is on average is 6,5 percent per year. In addition, offshore fields are declining much faster than land fields – 9,4 percent for offshore fields versus 4,9 percent in the case of land fields. New giant oil fields are even more troublesome, data for 19 fields peaked after year 2000 shown average decline rate of extraction equal to 12,5 percent [4, 11]. The presented data show that decline in extraction of conventional crude oil is inevitable. The standard reply to this is that invisible hand of the market will find a solution, be it substitutes for oil or unconventional oil reserves. We feel this is unlikely.

Two considerations worth mentioning are technology and EROEI. The first is a belief that technology, like the cavalry in a Hollywood Western, will come riding to the rescue. The standard narrative is that high oil prices will make alternative technologies more economically viable, and spur innovation in conservation. Yet Jevons showed as long ago as 1865 that a new technology which allows you to do more work with less fuel effectively increases the supply of that fuel. That supply increase makes the fuel cheaper, creating incentives to burn more of it. Consequently, if high oil prices spur greater efforts in conservation and new, more efficient technologies, then greater long-term consumption of those resources can be expected.

The other barrier – the Scylla to Jevon's Charybdis - is energy return on energy invested (EROEI) It takes energy to make energy, and the energy density of oil is higher than just about every other source of energy available. The available energy in any fuel source must have an energy return of greater than 1 to make it a viable energy source. (see table) Of all the fuels that constitute the mix of global energy consumption, oil has historically had the highest EROEI. Hydroelectric can have a higher number, but the number of waterways that can be converted to this purpose is limited. Solar, wind and tidal power all require expensive technology produced by a robust, oil-based industrial infrastructure. Factor in their intermittant nature (sometimes there is no wind, and the sun doesn't always shine) and the energy return on these alternatives begins to approach a dismally low number. Also, when oil first began to be exploited, the shallowest and lowest viscosity oils were pumped first: the low hanging fruit. This means that as the world begins to go down the slope on the other side of Hubbert's curve, the remaining crude oil supplies will be deeper, more thick and tar-like, and located in more dangerous and remote areas. All of these factors will lower the resultant eroei numbers, as well as making future extraction more and more expensive.

TAB. 1: **EROEI Ratios for different energy resources [3; 8]**

Energy Source	EROEI (Heinberg)[3]	EROEI (Hall, Murphy)[8]
Oil (current)	19:1	18:1
Oil and Gas, year 1930	-	> 100:1
Oil and Gas, year 1970	-	30:1
Imported Oil, 1990	-	35:1
Imported Oil, 2005	-	18:1
Imported Oil, 2007	-	12:1
Tar Sands	5.2:1 – 5.8:1	2:1 – 4:1
Oil Shale	1.5:1 – 4:1	-
Coal	50:1	80:1
Natural Gas	10:1	10:1
Nuclear fuel	1.1:1 – 15:1	5:1 – 15:1
Water powerplants	11:1 – 267:1	> 100:1
Wind powerplants	18:1	18:1
Solar PV	3.75:1 – 10:1	6.8:1
Ethanol	0.5:1 – 8:1	0.8:1 – 10:1
Biodiesel	1.9:1 – 9:1	1.3:1

3. Conclusions

Most of what we consider to be prosperity and technical progress happened on the upward slope of Hubbert curve. That slope had a time frame of about 200 years; long enough for people to consider endless growth to be a permanent feature of human affairs. It is not. And while the relationships between energy and GDP need further exploration, the general consensus is that, globally, we've reached the peak of energy extraction, and are now on the plateau before the inevitable decline. The global slide down the backside of Hubbert curve does not leave us with a very rosy scenario for our immediate future.

Worse still is that Economics as a science ignores this, having in stock only models of endless growth. Since resources have been omitted from production functions, it is no wonder why there is very little focus on them and they do not play any role in Economic growth models at all. The rapid levels of decline seen in the world's largest oil fields are real, not theoretical. That it is also why current models of economic growth are almost completely irrelevant in our current situation. Alternative schools of economic thought based around exhaustible natural resources, e.g. Ecological and Biophysical economics have been sidelined or ignored by mainstream economic thought. It seems that we will pay dearly for it now. Few months ago the International Monetary Fund released a paper dealing with influence of current depletion of oil on economic growth – *Oil and the World Economy: Some Possible Futures.* We close with a quote from that source:

"If it really only takes a one third of one percentage point increase in oil supply per annum to support additional GDP growth of one percentage point, then it must also be true that it would only take a one third of one percentage point decrease in oil supply growth to reduce GDP growth by a full percentage point. And the kinds of declines in oil supply growth that are now being discussed as realistic possibilities are far larger than one third of one percentage point." [6,20]

References:

[1] BRANDT, ADAM, R. *Testing Hubbert.* The International Association for Energy Economics. 26.6.2006. [Cited: 28. 10. 2012.] http://www.iaee.org/en/students/best_papers/adam_brandt.pdf

[2] HAMILTON, J. D. Department Of Economics University Of California, San Diego. *Historical Oil Shocks* [online]. December 22, 2010, February 1, 2011 [cit. 2012-12-09]. Accesible from: http://dss.ucsd.edu/~jhamilto/oil_history.pdf

[3] HEINBERG, R. Searching for a Miracle. *Post Carbon Institute.* [Online] 2009. [Cited: 15. 10. 2012.] Accessible from: http://www.postcarbon.org/report/44377-searching-for-a-miracle
[4] HÖÖK, M., HIRSCH, R., ALEKLETT, K. Giant oil field decline rates and their influence on world oil production. *Energy Policy*. 2009, Volume 37, Issue 6, pages 2262–2272. ISSN 0301-4215
[5] HUBBERT, M. K. *Nuclear Energy and The Fossil Fuels.* Exploration and Production Division, Shell Development Company. San Antonio, Texas, June 1956.
[6] KUMHOF, M., MUIR, D. Oil and the World Economy: Some Possible Futures. INTERNATIONAL MONETARY FUND. [Online] October 2012 [Cited: 2012-12-13]. Accessible from: http://www.imf.org/external/pubs/ft/wp/2012/wp12256.pdf
[7] Manifesto: Benefits of a Competitive European Copper Industry. EUROPEAN COPPER INSTITUTE. *Eurocopper* [Online]. 29 June 2010. [Cited 2012-12-09]. Accesible from: http://eurocopper.alligence.com/homepage/manifesto
[8] MURPHY, D. J., HALL, A. S. Ch.. Year in review - EROI or energy return on (energy) invested. *Annals of the New York Academy of Sciences*. 2010, Volume 1185, 102–118. ISSN 0077-8923. Accessible from: http://onlinelibrary.wiley.com/doi/10.1111/j.1749-6632.2009.05282.x/pdf
[9] SMIL, V. *Energy at the crossroads: global perspectives and uncertainties*. Paperback ed. [af 2003]. Cambridge, Mass: MIT, 2005. ISBN 978-026-2693-240.

THE ISSUES OF LONG-TERM DEVELOPMENT IN THE LIGHT OF THE EXPERIENCES OF POLISH AGRICULTURE

Marek Wigier
Institute of Agricultural and Food Economics – National Research Institute
wigier@ierigz.waw.pl

Key words:
long-term development of agriculture – rural areas – development model – sustainable development

Abstract:
This analysis focuses on the issue of long-term development of agriculture and rural areas. Structural changes taking place in the Polish agriculture and multi-functional nature of rural areas and sustainable development have been presented in the context of economic theory and the development model of the world agriculture.

1. Introduction

Challenges facing agriculture are related, *inter alia*, to the climate change, environmental pressure and the need to preserve public goods, growing population figures and the resulting demand for and prices of food. The above factors increase the role of active agricultural, structural and regional policy run by the State, based upon model solutions of the economic theory. While formulating the principles of long-term state policy with regard to agriculture and rural areas, the time and space dimension of growth processes should be taken into consideration. Economic development is determined by historically shaped socio-economic structures which, in turn, lay foundations for growth and development areas or diffusion of innovations. The complexity of the institutional environment is also significant in this context.

Long-term economic development is identified with the growing regional disparities and the decreasing significance of agriculture in national economy. Disparities between labour efficiency and the level of income per one employee are growing [Wilkin, 2003]. The changes in the role and significance of agriculture are subject to changes in social expectations. Sustainability of development processes in agriculture and the rural areas becomes, therefore, dependent on the widely defined production and equally widely defined demand in the society. *"...Sustainable development assumes harmonization of goods multiplication with ecosystem capacity in such*

a way to prevent the latter from losing their potential for regeneration..." [Zegar, 2009].

2. Industrial agriculture and sustainable development

For ages, agriculture has been most preoccupied with food production for nutrition purposes. This goal determined the development strategies of an entire nutrition complex and agricultural holding, which evolved from the farmer model into the agricultural holding-enterprise. Agriculture was the primary source of livelihood and the most important place of work for people who lived in rural areas. Industrialism, mechanisation of production and market mechanism has changed the situation. Explosion of agricultural production, efficiency growth together with parallel development of other sectors of national economy resulted in highly developed countries in gradual pushing aside of agriculture to the margin of economic life [Woś, Zegar, 2002].

The system of industrial agriculture, which meets the needs of the civilization development, subordinated production activity in an agricultural holding to the principle of optimal use of production factors (capital, labour, land). This principle was derived from the production rules that clarify the conditions for maximisation of economic values (profits, physical product, national income) or minimisation of other (costs, contributions in-kind), but these criteria were limited solely to the economic field. *"...On the other hand, the natural and social dimension and effects for the health of consumers were disregarded..." [Zegar, 2009].* Agriculture's permanent surplus production and resultant problems involve *"...shattering of traditional economic and social goals of an agricultural holding..."* [Tomczak, 2003]. The rules that governed the 20th century agriculture (i.e. "producing more and cheaper") are being replaced by the principle "produce the same or less, but more efficiently". In the contemporary Europe, this principle is being implemented by transition of farmers to precision agriculture. Precision agriculture technologies are justified by the economic factors (business cost reduction), environmental factors (reduction of pesticide concentration) and demographic ones (the need to increase the production as the population number increases). Precision agriculture *"...refutes the primary assumptions of the contemporary organisation of plant production..."* [Józwiak, 2002]. New information technologies, which form the basis of precision agriculture and "cyberfarm", mean that a new stage of evolution and development of the agri-food sector has begun.

Seeking balance, the production factors move from the less to more efficient uses, and the economic system is climbs to a higher efficiency level. Thus it seems necessary to go beyond the strictly economic analysis of an agricultural holding and consider the rural areas in a more comprehensive manner. It transpires from the experience that space should not be treated only instrumentally, i.e. as a place of production of material goods or food, but it is necessary to perceive it from the perspective of the natural environment, or place of living for millions of people. It means that "*...the man has to protect the natural environment, and should rationally manage the natural resources...* "[Woś, Zegar, 2002].

The contemporary question asked by the society is "to what extent the State should be involved in the economy in order to provide its long-term and sustainable development"? The relationship: between agriculture, rural areas and natural environment form the basis for active agricultural policy. According to numerous agricultural economists and politicians, a farmer is not only a food producer, but also a manger of natural resources and administrator of the cultural heritage on rural areas. "*Natural environment, which protects, may contribute to the productive and economic balance, but also impede its development...*" [Woś, 2003], "*The condition of the environment, not lack of resources or new technologies, will be the main limitation in societies' functioning in the nearest future...*" [Buckwell, 1997].

3. The characteristics of the Polish agriculture

The Polish agriculture and rural areas, due to their diversification, relatively well-kept natural environment, landscape values and biodiversity, and at the same time burdened with a range of social problems: civilisational backwardness, lower quality of living than in urban areas, areas of poverty and exclusion; development opportunities should be sought in a multi-functional model. For the majority of rural areas in Poland, the poor agricultural sector is highly significant for the quality of living of local communities.

The Polish agriculture is characterised by e.g. high employment level, low efficiency of labour and land, unfavourable agrarian structure and low income from agricultural activity. These problems directly translate into living conditions in rural areas. The necessary structural changes are long-term and difficult. The improvement of competitiveness of agriculture depends on the development of the entire national economy. Integration with the EU made the process more dynamic. In 2000-2010 the number of persons employed in agriculture systematically decreased, which resulted in the increase in labour and income efficiency, though they are characterised

by high variability. This variability is directly related to the fluctuations in product prices and the prices of production means, and the production volume. In real terms, income from production factors per person employed full-time in Polish agriculture increased between 2005 and 2010 by over 45%. The growth of agricultural incomes was stimulated by diverse forms of financial support targeted at the food sector, agricultural holdings and rural areas.

Processes of production concentration were continued, which is confirmed by over 20% decrease in the number of agricultural holdings in the 2000-2010 period. The highest drop of over 25% concerned the smallest agricultural holdings in terms of acreage (1-5 ha UAA), while the number of the largest agricultural holdings increased significantly. The average area of an agricultural holding (with UAA > 1 ha) increased by 13%, i.e. up to ca. 9.5 ha UAA. Still, most of the agricultural land resources belong to small and medium-sized holdings (more than 20 ha UAA). Transformations in the agrarian structure were supplemented by changes in production structure. From the 2010 Agricultural Census (compared to 2000) it follows that the cereals farming decreased by 647 thousand hectares, i.e. by 7.8% and potato farming – by 416 thousand hectares (by 52%). The cultivation area of industrial plants grew by 415 thousand hectares (54.8%) and of forage crops by 338 thousand hectares (60.1%). The increase in the area of industrial crops results from the growing demand for rapeseed for energy purposes.

Changes also took place in animal production – the livestock population of pigs dropped by 18%, sheep by 22%, horses by 20% and poultry by 22%. In 2010, 401 thousand agricultural holdings kept livestock, against 761 thousand in 2002. The number of agricultural holdings keeping dairy cows dropped over two-fold, from 874 thousand in 2000 to 424 thousand in 2010. Reduction of agricultural holdings and population of dairy cows resulted from the introduction of the production quotas system for milk and restricting quality criteria for the raw product. Agricultural holdings specialising in dairy cattle intensified production, increasing the number of stocking density from 3.3 to 6 units per agricultural holding.

4. Functionality of rural areas

Functionality of rural areas is not limited to agricultural production, which constitutes supply base of raw food products, industrial goods and energy, but is extended by functions which contribute to sustainable development of the country. Among those are production functions other than agricultural ones and functions in the consumption area related, for instance, to providing access to natural or cultural resources or to a place of living. Along with the development of civilization and decreasing the share of agriculture

in GDP generation, functions other than food production become increasingly significant. Wilkin [Wilkin, 2007] proposes to divide the functions of agriculture into four categories: productive, social, cultural and environmental. The focus on non-commercial functions of agriculture results from the need to justify support for agriculture and rural areas. The functions quoted above provide arguments for subsidising agriculture and rural areas.

The progress of liberalisation of global trade in agricultural products demonstrates a relatively low competitiveness of Polish and European agriculture. Huylenbroeck [Huylenbroeck, 2007] proposes to divide the non-commercial functions of agriculture into: **the green functions,** relative e.g. to the shaping and protecting of the natural and cultural landscape, energy production from biomass, sustaining biodiversity; **the blue functions** related to: management of water resources, production of water and wind energy, preventing floods, improving the quality of waters; **the yellow functions** contributing to: keeping coherence and livelihood of rural areas, supporting the rural identity, protecting traditions and folklore, keeping and developing economic infrastructure, **the white functions** enabling: to provide food security, high quality, healthy food, diversity of food or producing functional food.

5. Conclusions

The Polish agriculture has a surface of agricultural land which exceeds the food security needs of our country. It provides healthy products of high quality, it is competitive when it comes to the quality, but not in terms of price. The gap between the Polish agriculture and the agriculture of the EU-15 countries and global agriculture, may be used as an asset in the long-term development, as this very factor helped our agriculture to keep many qualities of the natural production. Low use of mineral fertilizers and chemical agents for plant protection contributes to the high quality of agricultural products, and decrease in the share of pesticides in soil, and makes waters less exposed to pollution. These qualities may constitute an opportunity for the Polish agriculture. To this end, the State aid and EU support is necessary, but it is also essential to convince farmers to the opportunities from this kind of production, combined, however, with the growth of production's competitiveness.

In the nearest 10-20 years, the development of agriculture and rural areas in Poland will be determined by global, regional and national factors. The global ones are related to the fast growth of demand for agricultural products, and at the same time, the need to protect the global ecosystem.

In the conditions of growing liberalisation of the markets, climate anomalies, growing demand for biofuels, there is a risk of increasing fluctuations of prices on agricultural markets. The development of large urban areas will contribute to the development of large-scale commercial agriculture. The growth of the income of urban residents will contribute to the increase in demand for food, though it will be characterised by the slowing dynamics. One should also take into account the changes in the structure of expenditure on food. The development of the labour market, mostly in large urban areas, will facilitate structural transformations of agriculture, and expansion of urban centres will stimulate functional transformations in rural areas.

References:

[1] BLAUG, M. *Teoria ekonomii, ujęcie retrospektywne*, PWN, 2000, pp.610, 612, 617 and passim

[2] BUCKWELL, A. Towards a common agricultural and rural policy for Europe, *European Economy no 5*, 1997, p. 48

[3] CZYŻEWSKI, A. *Uniwersalia polityki rolnej w gospodarce rynkowej. Ujęcie makro- i mikroekonomiczne,* AE Poznań, 2007, p. 21

[4] HUYLENBROECK, G. *Multifunctionality of Agriculture: A Review of Definitions, Evidence and Instruments,* 2007, http://landscaperesearch.livingreviews. org/open?pubNo=lrlr-2007-3&page=articlese6.html.

[5] JÓZWIAK ,W. Granice substytucji nakładów agrochemikaliów w polskim rolnictwie, *Wieś i rolnictwo*. Perspektywy rozwoju, Warsaw, 2002, p. 43

[6] KOWALSKI, A., REMBISZ, W. *Rynek rolny i interwencjonizm a efektywność i sprawiedliwość społeczna*, IAFE-NRI, Warsaw, 2005, pp. 9-14

[7] REMBISZ, W. Krytyczna analiza podstaw i ewolucji interwencji w rolnictwie. *WspółczesnaEkonomia.* No 4/2010, WSFiZ, Warsaw, 2010, p. 7 and passim

[8] TOMCZAK, F. Rolnictwo industrialne u progu XXI wieku, *Problems of Agricultural Economics no 3,* 2003, p. 38

[9] WILKIN, J., Wielofunkcyjność rolnictwa i obszarów wiejskich. *NoweŻycieGospodarcze,* 2007

[10] WOŚ, A., ZEGAR, J. *Rolnictwo społecznie zrównoważone*, IAFE-NRI, Warsaw, 2002, pp. 13, 29, 35 and passim

[11] WOŚ, A. *Polityka rolniczo-środowiskowa i nowe szanse rolnictwa*, IAFE-NRI, Warsaw, 2003, p. 42

[12] ZEGAR, J. *Z badań nad rolnictwem społecznie zrównoważonym* (10). Raport końcowy, synteza i rekomendacje, IAFE-NRI, Warsaw, 2009, p. 9 and passim

RISK OF ACCIDENTS AT WORK IN POLAND

Justyna Witkowska
University of Warmia and Mazury in Olsztyn,
justyna.witkowska @ uwm.edu.pl

Key words:
work accident insurance – social security.

Abstract:
The aim of the study is a comparative analysis of occupational accident insurance to agriculture accident insurance in Poland. Article describes the functioning social security system in Poland and presents the risk of accidents at work. The structure of the cases are presented by the number of accidents, including fatal accidents and accident rate. The risk of an accident at work occurs in all economic areas. Definitely more accidents happen to people employed in agriculture when we analysed the number of accidents per 1000 insured.

1. Admission

The social security system in Poland is universal and compulsory. It provides benefits in cash and in kind from various random events (occupational accident, illness, disability, unemployment, death). It's primary function is to raise funds for people at risk of accidents [3, 13-16].

On the social security market there are two institutions: the Social Insurance Institution (ZUS) and the Agricultural Social Insurance Fund (KRUS). KRUS takes care of people working in agriculture, while ZUS is carrying social insurance for other employees [6, art. 5].

The current system of social insurance for farmers based on the law of 20th December 1990 on social insurance of farmers (Journal of Laws of 1991, No 7, Item 24), and for those employed outside agriculture regulations on social insurance are included in the Act of 13th October 1998, the social security system (Journal of Laws of 1998, No 137, Text 887).

In 2011, the insured under the social security were more than 16 million people (KRUS - 1.5 million people, in the ZUS - 14.6 million). Pension or annuity received almost 9 million beneficiaries (KRUS - 1.3 million, ZUS - 7.4 million, Table 1). The cost of 1.3 million paid pensions in KRUS was 15.7 billion PLN, due to the fact that one pensioner KRUS cost about 11.8 thousand PLN per year [9]. The accident insurance was paid the amount of 59.5 million PLN, which in terms of one-time compensation accident gives an

amount of more than 3.5 thousand PLN. However, in the same period of the grant from the state budget for social insurance was 37.5 billion PLN. The cost of paid pensions by ZUS was 149.3 billion PLN, as per a beneficiary was over 20 thousand PLN per year. During this period, reported to ZUS over 97 thousand accidents, paid more than 323 million PLN in this case (the average amount of the benefit was approximately 3.3 thousand PLN).

TAB. 1: **The number of pensioners and insured of ZUS and KRUS in the years 1997-2011 (in thousands)**

Years	KRUS		Years	ZUS	
	Number of pensioners	Number of insured		Number of pensioners	Number of insured
1997	2 001	1 418	**1997**	7 039	12 937
1998	1 969	1 415	**1998**	7 184	12 737
1999	1 929	1 428	**1999**	7 231	13 271
2000	1 887	1 452	**2000**	7 217	13 060
2001	1 842	1 502	**2001**	7 156	12 851
2002	1 798	1 559	**2002**	7 122	12 761
2003	1 755	1 589	**2003**	7 129	12 739
2004	1 709	1 540	**2004**	7 175	12 857
2005	1 662	1 582	**2005**	7 184	13 131
2006	1 586	1 615	**2006**	7 217	13 354
2007	1 508	1 598	**2007**	7 303	14 074
2008	1 456	1 574	**2008**	7 414	14 513
2009	1 425	1 570	**2009**	7 535	14 535
2010	1 375	1 535	**2010**	7 491	14 656
2011	1 327	1 516	**2011**	7 414	14 666

Source: Own study based on: [1], [10].

2. Accident at Work

On the basis of the Law of 20th December 1990 on social insurance of farmers art. 1 distinguishes two groups of social security:

1. The pension insurance.
2. The accident, sickness and maternity insurance.

This division is related to the different for each of the designated branches of the circle of the personal insurance and other contributions to the funding rules [5, 260].

An accident at work in agriculture is a sudden event caused by external, which occurred while performing activities related to agricultural activity or in connection with the performance of these activities [7, art. 11]:

– on the farm on which the insured operates or where he is working, or in the household directly related to the farm,

– by the insured way from the house to the farm or on the way back,
– during doing the normal activities related to agricultural activity outside a farm or in connection with the performance of these activities, or
– on the way to carry out normal activities outside the farm, or on the way back.

To benefits for accident, sickness and maternity are:
1. One-time compensation for permanent or long-term health damage or death due to an accident at work in agriculture or agricultural occupational disease.
2. Sickness.
3. Maternity allowance.

Provision of agricultural accident insurance is only one-time compensation for bodily injury or death due to an accident at work in agriculture or agricultural occupational disease. Agricultural pension for incapacity for work was covered by the scope of the pension insurance [5, 271].

On the other hand, the social security of workers dealing with insurance:
– old-age pension insurance,
– disability and survivors' pension insurance,
– sickness insurance,
– work accident insurance.

An accident at work is a sudden event caused by external causes injury or death, which occurred in connection with the work of [8, art. 3]:
– during or in connection with the exercise of ordinary activities or instructions of superiors,
– during or in connection with the exercise by an employee acting on behalf of the employer, even without instructions,
– during the employee remains at the disposal of the employer based on the way between the employer and the place of performance of the obligation arising from the employment relationship.

An employee who sustains an accident at work and eligible family members may be granted the following benefits:
– sickness,
– rehabilitation benefit,
– compensatory allowance,
– one-time compensation,
– pension for incapacity for work,
– training pension,
– family pension,
– addition to a survivor's pension for the orphan,

– attendance allowance,
– cover the cost of dental treatment and immunization and provision of orthopedic within the scope of the act.

One-time compensation for the insured shall be in proportion to the percentage established permanent or long-term damage to health.

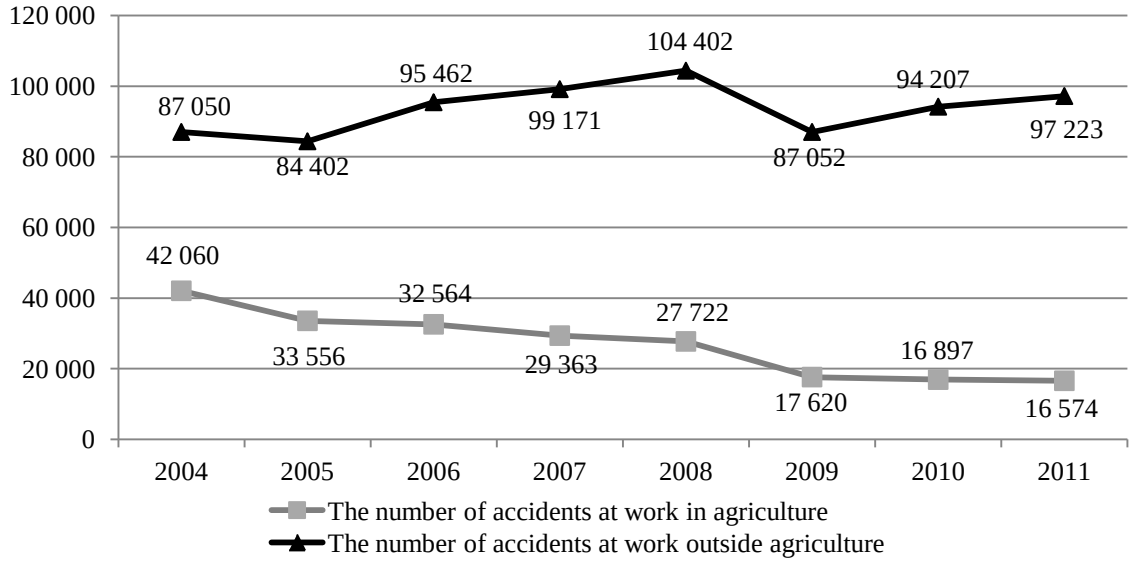
The amount of one-time compensation for the one percent of bodily injury to farmers from 27th July 2012 is 650 PLN [2]. However, in the case of people working outside of farm, they are entitled to one-time compensation of 20% of average salary for each percent of permanent or long-term damage to health.

3. Structure of Accidents

Figure 1 shows the number of reported accidents at work in agriculture and outside agriculture in the years 2004-2011 in Poland. The number of reported cases to KRUS during the period is decreased by 154%, while in ZUS increased by 12%. Most often (up to 70%), accidents at work in agriculture in 2011, happened to men aged 40-59 years (45%). Most accidents took place in Poland on the farms of 1-5 hectares (28.1%) and farms of 5-10 hectares (25.9%). Reported accidents in Poland dominated on farms with mixed production profile (64.2%) and on farm with crop production (23.4%). As many as 45% of the accidents occurred in the yard and around the farm, 30% of the production facilities. Accidents involving machinery accounted for 33% of all accidents. Almost half of the cases (47.5%) took place in the afternoon. Most injuries are applied to upper limbs (45%), lower (40%) and the head (5%).

Also at work outside of farms most often accidents happened to men (66%). Unfortunately, most accidents involved people with work experience up to 1 year (30%), 2-3 years (22%), 6-10 years (13%). The upper limbs (49%), lower limbs (35%) and the head (10%) are those part of body which are often hurt.

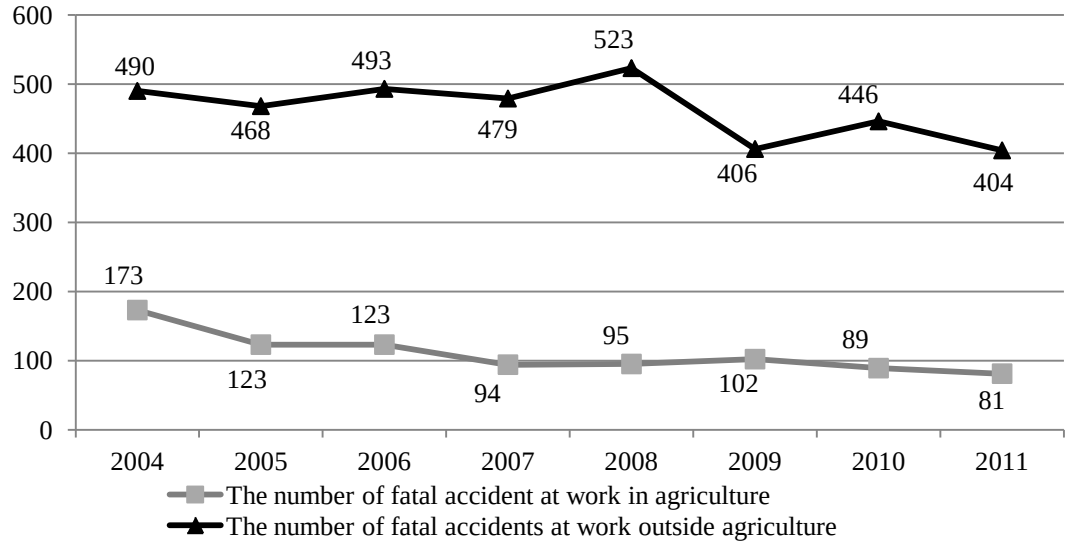
FIG. 1: **The number of work accidents**



Source: own study based on data from [10].

The number of fatal accidents in the analysed period was at different level (Fig. 2). However, in 2011, both in ZUS and KRUS was recorded the lowest level of the number of fatal accidents. Last year, 81 farmers were killed in an accidents at work. In the same period has been 404 fatalities employees. Death in agriculture suffered almost 5 people per 1000 accidents, non-farm 4 people.

FIG. 2: **The number of fatal accidents**



Source: own study based on data from [10].

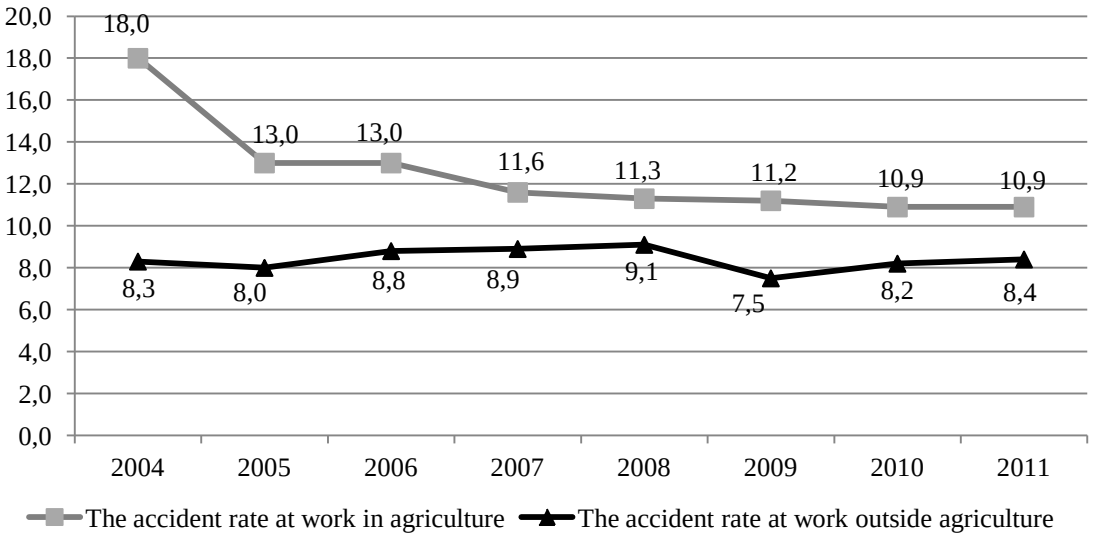
4. Indicator of the Number of Accidents

The simplest indicator is used to analyse and assess the security situation in the labour rate of accidents or victims of accidents that have occurred over time. This simple indicator allows analysing the changes in accidents in relation to one particular group of workers [4, 30]. This indicator is defined by the formula:

$$I = \frac{\text{The number of accidents (injured)}}{\text{The number of workers}} \text{ x } 1\,000$$

Accidents rate (Fig. 3) in agriculture for eight years strongly decreased (by 40%). However, outside of agriculture remained at a similar level.

FIG. 3: **The rate of accidents**



Source: own study based on data from [10].

Conclusions

Accident insurance is a very important part of the system of social security. The analysis shows that the number of reported accidents at work on the farms and the accident rate steadily decreases. The number of accidents at work outside of agriculture at the years of 2004-2011 increased by 12%, and the accident rate remained more or less at the same level. Both works in agriculture and outside is needed different actions to raise awareness of the employees of all the risks that accompany their daily work as well as effective methods of preventing accidents.

References:

[1] http://www.krus.gov.pl/krus/krus-wliczbach/zestawienie-liczby-swiadczeniobiorcow-krus-i-osob-objetych-ubezpieczeniem-spolecznymrolnikow-w-latach-1991-2011/ [06.09.2012].

[2] http://www.krus.gov.pl/zadania-krus/swiadczenia/kwoty-swiadczen/ [15.11.2012].

[3] KOCZUR, W. *Restytucja zdolności do pracy w polskim powszechnym systemie ubezpieczeń społecznych.* Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach: Katowice, 2010.

[4] PAWŁOWSKA, Z. (ed.) *Podstawy prewencji wypadkowej*. CIOP-BIP: Warszawa, 2008.

[5] SZPOR, G. (red.) *System ubezpieczeń społecznych. Zagadnienia podstawowe*. LexisNexis: Warszawa, 2009.

[6] The Act of 13th October 1998 on social system (Journal of Laws of 1998, No. 137, Text 887).

[7] The Act of 20th December 1990 on social insurance of farmers (Journal of Laws of 1991, No 7, Item 24).

[8] The Act of 30th October 2002 on social insurance in respect of accidents at work and occupational diseases (Journal of Laws of 2002 No 199, Text 1673).

[9] The article http://www.ppr.pl/artykul-a-jednak-krus-efektywniejszy-od-zus-159211-dzial-3971.php. [16.09.2012] presented data on 2009. Made the same calculation for the year 2011.

[10] www.gus.gov.pl, www.zus.pl, www.krus.gov.pl [11.10.2012].

DIRECTIONS OF CHANGES IN THE OPERATION OF THE NATIONAL HEALTH FUND – THE PUBLIC PAYER OF HEALTH CARE SERVICES IN POLAND

Beata Zaleska
Koszalin University of Technology
b.zaleska@tlen.pl

Key words:
public payer – insurances – health insurance contributions

Abstract:
The present article aims to present the direction changes in the functioning of the National Health Fund (*Narodowy Fundusz Zdrowia - NFZ*), which serves as the public payer in Poland. The article gives a brief analysis of the fund's operation with regard to finances and in the context of its activities. The proposed solutions are briefly assessed. The article has been based on a review of relevant literature, news reports, web sites and statistical data published on-line by the NFZ.

Introduction

The National Health Fund serves as the public payer in Poland and acts as an intermediary for the reimbursement of medical services between health care entities (service providers) and patients (service users). The fund collects health insurance contributions, which are then redistributed to health care entities based on contracts for the provision of health care services.

The Polish health care system has long suffered from problems such as long waiting times for specialist visits, lack of funds for covering all the services provided by health care entities, inadequate prices of health services which fail to reflect real costs, inaccurately defined health benefit basket.

The poor condition of the Polish health care system is confirmed by the Euro Health Consumer Index 2011 report, where Poland was placed on the 27th position out of 34 countries covered in the report. The evaluation was based on several factors, including the availability of health care services, waiting time for treatment, protection of patients' rights, access to medications, and preventive care [1].

It is also apparent that patients are dissatisfied with health care in Poland. According to a survey conducted by the Public Opinion Research Center (*Centrum Badania Opinii Społecznej*) in March and April 2012, 83% of

respondents (patients) believed that the public funds from health insurance contributions allocated for health care were spent and managed improperly. [2]

Recently, the central authorities managing the health care system (i.e. the Ministry of Health) are considering proposals that could improve the efficiency of health care in Poland. One of these pro posals would involve the liquidation of the National Health Fund headquarters and the establishment of 16 regional and fully independent branches of the fund

The article aims to present the directions of changes in the National Health Fund, as well as to provide a brief analysis of the fund's activity over recent years. The article utilises relevant literature and statistical data retrieved from the National Health Fund web site.

Brief outline of the National Health Fund activity over recent years

The Constitution of the Republic of Poland [3] stipulates that patients have the right to have their health protected and to have equal access to the health care services[1] financed from public funds. As of 2012, the health insurance contribution is set at 9% of income, and each insurance holder is entitled to the same health services regardless of the amounts of their contributions[2].

The act on publicly funded healthcare benefits [4] appoints the National Health Fund as the basic institution which shall secure and reimburse health care services for health insurance holders and other individuals entitled to health care services[3]. The fund consists of the headquarters and 16 regional branched for each voivodeship. The NHF contracts the provision of services with health care entities, ensuring that they will be reimbursed for the services provided for insurance holders. Despite this solution, the debt of Polish hospitals currently amounts to 10.4 billion PLN (as reported by the Ministry of Health). This indicates that the National Health Fund fails to meet the financial needs of health service providers,even though all the funds from health insurance contributions are distributed to them. Table 1 presents the fund's actual revenues, actual expenses and financial results for 2008-2011.

[1] Health services include activities related to the protection, rescuing, restoring and improving health, as well as other medial activities required by the treatment process or resulting from separate regulations and related to: medical consultation and examination, treatment, physical medicine and rehabilitation, pregnancy care, diagnostic tests, disability care and nursing, preventive care, health condition judgement and assessment, technical activities related to dental prosthetics and orthodontics and to the provision of orthopaedic items and aids.

[2] Most services are provided free of charge, but some of them are payable (e.g. those outside of the health benefit basket).

[3] The treatment of uninsured individuals is covered from state budget.

TAB 1: **Actual revenues, expenses and financial results of the National Health Fund for 2008-2011.**

Economic category	year			
	2008	2009	2010	2011
Revenue (in k PLN)	52 4448 578	56 811 491	57 816 389	60 349 382
Expenses (in k PLN)	55 181 824	58 480 490	60 032 753	60 561 201
Financial result (in k PLN)	- 2 733 246	- 1 668 999	- 2 216 364	- 1 999 142

SOURCE: own development based on NHF's financial statements for the years 2008 to 2011 http://nfz.gov.pl/new/index.php?katnr =3&dzialnr=10&artnr=4997.

It is worth mentioning that the payer's expenses presented in the table do not include over-the-limit services, which are the services outside of the contractual limit but which must be provided in cases of danger to life or health of patients. The major providers of these services are public health care providers. In 2011, the cost of over-the-limit services amounted to 1.8 billion PLN. [5]

The National Health Fund showed loss for each of the last four years, although its revenue increased from 52 billion PLN in 2008 to 60 billion in 2011. In 2010 and 2011, the expenses rapidly increased in relation to revenue. According to the fund's 2010 financial statement, costs of health care services reimbursed by the payer slightly exceeded 98% of all expenses, while administrative costs comprised less than 2%, which shows that the financial means collected by the National Health Fund are almost exclusively allocated to the provision of health care services.

The financial condition of the public payer is deteriorating from year to year. This is driven by complex reasons, but the factors which cause the shortage of financial means necessary for satisfying the needs of service providers can be classified into external factors, which are outside the control of the National Health Fund, and internal factors, which are controlled by the public payer. The external factors include the rate of health insurance contributions, the country's socio-economic condition, the population's epidemiological situation, political decisions with regard to the health benefit basket and the activity of health care providers.

According to the 2013 budget plan, the revenue of the National Health Fund should increase to 67 billion PLN (slightly more than 5%, due to increased funds from health insurance contributions). But as of September 2012,

the fund's deficit was at 690 million PLN [6], and the revenue from insurance contributions did not meet the projections. The reason for this is the growing unemployment rate in Poland (already 12.4% in August, and expected to have reached 13% by the end of the year). The unemployment negatively affects the income of Poles and, as a result, the public payer's revenue from health insurance contributions.

Despite the fact that the public payer allocates all the revenue to reimbursing health care benefits, the financial condition of service providers has been deteriorating each year. One commonly suggested reason for this is that the National Health Fund fails to produce epidemiological projections, which would indicate actual needs of the population with regard to health care services (the lack of projections results in over-the-limit services), as well as a misconstrued health benefit basket, which is defined positively. This means that almost every possible health care services are guaranteed under the mandatory health insurance and patients never participate in their costs. As a result, the available funds cannot cover the provision of all the services. Patients' health care needs continue to increase due to various factors, including the growing life expectancy and the use of expensive medical technologies that ensure better treatment results. Another reason is the lack of competition on the payer's side: the National Health Fund is the only institution which prices health services, contracts them and supervises their execution. Inaccurate service pricing by the fund has been a subject of debate for many years: some services are overpriced, while the price of others is underestimated. The payer does not employ any tools that would ensure more reliable pricing of health care services. Another subject of criticism is the algorithm of funds division among the regional fund's branches, as well as between service providers. Private health care entities are in the position to contract only profitable services, whereas public providers have no such a possibility. They cannot refuse to offer unprofitable services, as their provision is necessary for securing the state's health care obligations to the society.

Having faced the incessant criticism of the National Health Fund, central authorities are preparing changes in the operation of the public payer.

Directions of changes in the operation of the National Health Fund

Some proposals regarding the National Health Fund involved its liquidation, but such a change seems extremely undesirable given the condition of the Polish health care system. Despite the many drawbacks in the operation of the public payer, there are positive aspects as well, including [7]:

1) submission to administrative and judicial supervision[4],
2) small running costs of operation,
3) uniformity and transparency of its activities[5],
4) execution of public policy objectives,[6]
5) collecting an extensive range of information,[7]
6) cooperation with public institutions,[8]
7) sharing data for scientific and research purposes.

A more favourable solution seems to be a decentralisation of the National Health Fund, appointing an institution independent from the payer to price services and replacing the fund's headquarters with an office for the supervision of the health insurers and providers market. The supervisory office would monitor the National Health Fund and, in the future, any private payers offering health insurance policies. The precise responsibilities of the National Health Fund are to be included in a new act that would take effect in 2013.[9]

Currently, almost all the health care systems in the world are undergoing a process of decentralisation, both with regard to decision making and the financing of health care from public funds. Such solutions help reduce expenses and ensure equal access to health benefits for patients. If the decentralisation of the National Health Fund granted real autonomy to its regional branches, they would start to compete with each another for patients, and this would force them to use their funds more effectively. If some regional branches chose to merge, their competitive position against other branches would become stronger. Conditions would emerge for introducing an element of competition, which is so lacking at the moment. Moreover, if the public payer decided to reduce the health benefit basket, there would be premises for the emergence of private payers that could offer financing of the services outside of the basket.

[4] A health care entity can lodge a complaint to the administrative court about the results of a tender held by the National Health Fund. Patients have similar rights: they can file a complaint about an individual fund's decision related to the scope of health insurance.

[5] On its web site, the National Health Fund provides data on its material and financial situation by publishing financial reports and reports on operations. The fund also publishes forms of agreements for the provision of health services, which are uniform for all health care entities, as well as information on contracts.

[6] Reimbursement of health care services, concluding contracts with service providers for the execution of medical emergency services financed from the state budget, etc.

[7] The fund collects data on health insurance holders, insurance contributions and their payers, service providers, their infrastructure, employees, certificates, contracts entitling them to issue prescriptions for reimbursable drugs, waiting lists, patients covered under primary healthcare, etc.

[8] Such as the Ministry of Health, Agency for Health Technology Assessment and courts.

[9] According to a statement by the Minister of Health in *Dziennik Gazety Prawnej*, issue 206, 23 Oct.2012.

Conclusion

The current direction of changes in the operation of the public payer seems to be favourable and likely to promote and improvement in the effectiveness of health care in Poland. It must be borne in mind, however, that the changes proposed so far are not sufficient for increasing the efficiency of the health care system. They should be complemented by changes related to the operation of service providers, as well as by defining the health benefit basket in a more accurate way, providing conditions for private payers and developing mechanisms that would allow patients to participate in the costs of some health services.

References:

[1] JAWORSKA-ŻAK, A, *Ochrona zdrowia na szarym końcu* „Ogólnopolski System Ochrony Zdrowia" Vol. 7, 2012, p. 36, ISSN 1897 – 5828

[2] JAWORSKA-ŻAK, A. *Polska opieka zdrowotna w oczach klientów* „Ogólnopolski System Ochrony Zdrowia" nr 7, 2012, p. 37, ISSN 1897 – 5828

[3] *Konstytucja Rzeczypospolitej Polskiej* (*The Constitution of the Republic of Poland*) of 2 April 1997, Dziennik Ustaw z 1997 r. (*Journal of Laws 1997,* No. 7, item 483, as amended).

[4] *Ustawa o świadczeniach opieki zdrowotnej finansowanych ze środków publicznych* (*The Act on Publicly Funded Healthcare Benefits*) of 27 August 2004, Dziennik Ustaw z 2008 r. (*Journal of Laws 2008,* No. 164, item 1027, as amended)

[5] KLINGER, K., *W szpitalach nie warto bić rekordów*, http://edgp.gazetaprawna.pl/index.php?act=mprasa&sub=article&id=424796

[6] LISOWSKA, B. *Narodowy Fundusz Zdrowia ma już 690 mln zł deficytu*, http://edgp.gazetaprawna.pl/index.php?act=mprasa&sub=article&id=423321

[7] DZIEŁAK, D. *Narodowy Fundusz Zdrowia – monopolista czy kopalnia wiedzy?* (w:) *System ochrony zdrowia. Problemy i możliwości ich rozwiązań*, pod red. E. Nojszewskiej, Wolters Kluwer Polska Sp. z o.o., Warszawa 2011, p. 63, ISBN 978- 83- 264- 1204 – 2

THE ECONOMIC DEVELOPMENT OF POLAND AS AN EXAMPLE OF THE CREATION OF INSTITUTIONAL COHESION IN THE EUROPEAN UNION'S REGIONS

Marian Zalesko
University of Bialystok
mzalesko@uwb.edu.pl

Key words:
economic development – institutional cohesion – European Union

Abstract:
The main political and economic aim of Poland in 90's of XX c. was the membership in European Union. It was necessary to change the social-economic system striving for the membership. The basic task was to eliminate barriers which were the source of economic disproportion between Poland and the countries of European Union. The process of institutional cohesion creation, started at the time, has lasted so far and is one of the main factors of economic growth. EU regions cohesion can be achieved by the evolution of formal and informal institutions. Institutionalization is effectuated by influence of endogenous and exogenous incentives.

Introduction

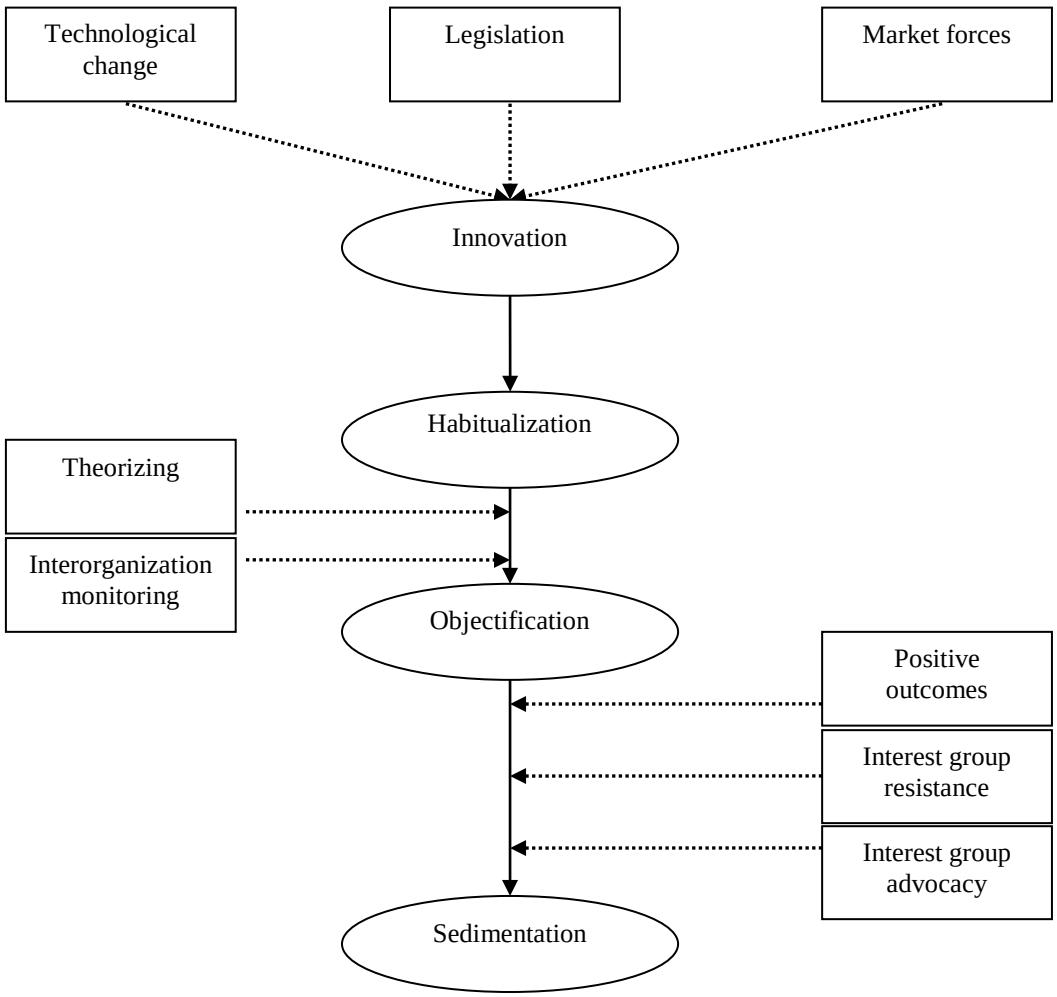
In 1989 Poland faced new possibilities of economic growth. The perspective to approximate Europe faster than ever appeared[1]. In order to become the member of European Union many conditions, adjusting Polish economy to union economy, had to be fulfilled. The institutions, in its general meaning, were of the great importance in the process of Poland's striving for the structure of the European Community. Solicitude of the correct institutional system construction (institutionalization) became at the same time, the criteria of desirable transformations allowing being the outright member of the European Union after accession in 2004.

[1] New possibilities of Polish economic development were ascertained by Polish government Poland-Europe negotiations plenipotentiary, J. Kułakowski: "When long expecting moment eventually came in which Poland knowing the price of international ostracism, indifference, knowing what the lack of independence is, can decide itself which direction to take, would it be reasonable to resign from the chance of taking part in the integration of the continent? The history rarely gives a few times the chance."[4,11]

1. The very meaning essence of economic institutionalization

The institutionalization should follow the development or modification of existing in a given country economic institutional system. The institutionalization, as R. O. Keohane persuades, is the way of shaping all social relations. This process also accompanies international relations development and becomes more and more meaningful on the way [2, 279-307]. One of the most interesting outline presenting institutionalization process is a model suggested by P.S. Tolbert and L.G. Zucker [10, 182] (Figure 1).

FIG. 1: **Component processes of institutionalization**



Source: [10,182].

In the model of institutionalization Tolbert and Zucker [10] distinguished four elements which are meaningful for development economic. There are: 1) innovations, which are substantially influenced by technological changes, legislative actions of authority structures as well as market power; 2) habitualization understood as a process of creation structures and procedures which aim to solving of appearing problems; 3) objectification –

the action aiming to innovation absorption in a form of the structures mentioned above (it is a theoretical speculation – studying and supporting the results as well as full monitoring); 4) sedimentation, which means solidifying the innovation positive effects as a result of various interests groups support, as well as breach resistance dissatisfied groups.

2. Poland in European Union – actions to eliminate regional differences in the European Community structures

The condition of Poland's membership in European Union was accomplishing institutional changes comprising the cohesion guarantee of the Community. As the first need to mentioned actions tending to form institutions which were necessary to Poland's formal participation in European Union structures – the adaptation of Community legislative output. Thereafter, organization of the institutions empowering the economy competitiveness or its part on EU or global market – adaptation of trade norms and rules enabling the freedom of relocating of production factors in the Community area. Of the great importance was also the creation of institutions which allowed effective usage of the Union funds which were channeled for realization of the Community policies (agricultural, structural, regional) [5, 134-135].

Reorganization of the Polish economic institutional system (new institutions development, the adaptation of the existing institutions or modification of others) was influenced by political, social and economic factors of endogenous as well as exogenous character. The appearance of new institutional solutions on many economic realms did not always mean the progress. Therefore they did not always gain social support [5,9]. The conditions of Polish membership in European Union were difficult to accept to large part of Polish society as well as some political groups. Before our accession more attention was paid to the cost of our membership in the community (general, negatively perceived economic structural changes) then to benefits. No advantages of the integration like civilization upgrade, growth of Polish economic modernization funds or introduction of new methods of country administration were seen [8,627].

In 2004 predating UE enlargement European Community realized the policy of support and mobilization of the countries which were candidates to union structures. These actions were about assessment of reform advancement and defining help priority and support coordination. The important task of the community was also defining the direction and dynamic changes in particular economy realms. The substantial problem was progress in democratization process and the level of market mechanism implementing.

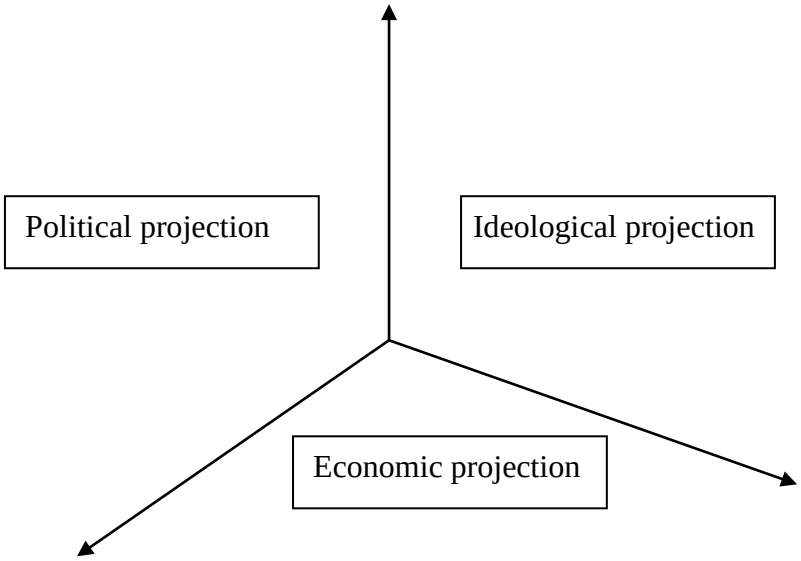
Accepting Polish candidacy the EU authorities acknowledged that from the point of view of integration the features of market economy and democratic country became adequate. The formal institutions reforms ended with success (transformation into market economy and legislative changes were accomplished, organizations – agencies, foundations were created). However, changes in informal institutions (attitudes, behavior and mental models, etc.) went slowly. Formal institutions are quite fast to organize, nevertheless their social rooting and legitimization takes much more time [6, 7-8]. It is worth to emphasize that pace and scale of the EU membership benefits depends on the quality of institutional structures created in the time of accession preparation which has been developed since 2004.

Is it necessary to be afraid of the European Union membership? The answer is, no! It can be supported by what S. Stebelski says "(...) we dispose of many assets which are the consequence of geographical location, population and economy potential, our own civilization output. We do not have to fear the loosing of our identity. Poland is too big to be in such a danger. However Poland is facing now the chance of consolidation its position in our region and Europe" [9, 20].

Also foreign economists (e.g. G. de Menil) perceive Poland as a country which gains meaningful social-economic success among European countries and which has experienced institutional changes since 1989. [7, 275]. Polish UE membership is considered as the essential achievement. The EU enlargement process is for Poland the most fulfilling political and economic project of the first decade of XXI c. [1, 369].

The sustaining of a decent economic development level in Poland should be connected with the further progress in development of institutional cohesion with other EU countries. This process takes place on, so called, institutional matrices level (Figure 2).

FIG. 2: **Institutional matrices**



Source: [3]

Institutional matrices create three-dimensional space where institutional changes take place. They are shaped by: economic, political and ideological platforms. In economic platform there are made regulations of reproduction processes of social wealth which is the material basis of social-economic development. On the political platform there are created basic structures which are used for making and realization of decisions by country. On the ideological platform there is formed social behaviorism according to widely accepted norms and values [3].

3. Conclusion

The Community membership should be considered as the factor which consolidates Polish international position. Gaining the institutional cohesion as a result of diminishing the development distance between EU regions opened a way to Poland to faster economic development. It is essential that created institutional net was lasting, easy to change and erosion resistant. It is important especially when economy is at risk of various failures (economic crisis, ecological disasters). In such situations the weak sides of economic systems are visible and they are endangered to uncontrollable transformations. It is also substantial for European Union longevity.

References:

[1] Urząd Komitetu Integracji Europejskiej. *5 lat w Unii Europejskiej. Raport*, Warszawa 2009. ISBN 978-83-7567-043-1

[2] KEOHANER, O. *International institutions: two approaches*, [in:] J. der Derian (ed.), *International Theory: Critical Investigation*, McMillan, London 1995, pp. 279-307. ISBN 0333617614

[3] KIRDINA, S. *Institutional matrices and institutional changes*, Munich Personal RePEc Archive, Paper No. 29691, posted 29. March 2011, http://mpra.ub.uni-muenchen.de/29691/1/MPRA_paper_29691.pdf [date of access: 23.11.2012]

[4] KUŁAKOWSKI, J. *Polska wobec integracji europejskiej*, [in:] A. Maksymowicz (ed.), *Polska a integracja europejska*, Wrocław 2000. ISBN 9788391217238

[5] MARODY, M., WILKIN, J. (ed.), *Meandry instytucjonalizacji: dostosowania Polski do Unii Europejskiej*, *EU-monitoring VII*, Małopolska Szkoła Administracji Publicznej Akademii Ekonomicznej w Krakowie, Fundacja im. Friedricha Eberta, Kraków 2002. ISBN 83-911367-6-0

[6] MARODY, M., WILKIN, J. (ed.), *Na prostej? Polska w przededniu członkostwa w UE. EU-monitoring VII*, Małopolska Szkoła Administracji Publicznej Akademii Ekonomicznej w Krakowie, Fundacja im. Friedricha Eberta, Kraków 2003. ISBN 83-89410-10-9

[7] MENIL, G. de, *History, Policy and Performance in Two Transition Countries – Poland and Romania*, [in:] D. Rodrik (ed.), *In Search of Prosperity. Analytic Narratives on Economic Growth*, Princeton University Press, Princeton 2003. ISBN 0-691-09269-9

[8] PŁOWIEC, U. *Polska w Unii Europejskiej – kilka refleksji o przyszłości*, „Ekonomista" 2011, No 4, pp. 625-633. ISSN 0013-3205

[9] STEBELSKI, S. *Zmiana układu sił w UE po przyjęciu Polski i innych krajów Europy Środkowej i Wschodniej*, [in:] S. Miklaszewski (ed.), *Polska w Unii Europejskiej*, Kraków 1999. ISBN 8387832146

[10] TOLBERT, P.S., ZUCKER, L.G. *The Institutionalization of Institutional Theory*, "Handbook of Organization Studies", (ed.) S. R. Clegg, C. Hardy, W.R. Nord, Sage Publications, London 1996, pp. 175-190. ISBN 0761951326

MANAGEMENT OF SUSTAINABILITY IN THE BUSINESS AREA

Lucie Sára Závodná
Palacký University Olomouc
Lucie.zavodna@upol.cz

Key words:
sustainability – management – business – trends

Abstract:
The paper deals with the current trend in corporate governance called sustainability management. Sustainability is a term that is intertwined in all directions and activities of human life. It is a term that is being discussed at the national level as well as at the local level of government, businesses and organizations. This paper describes a model of how to incorporate the principles of sustainable management into the business area. The output is a set of standards that can be used at the local level to measure sustainability.

Introduction

We cope with the term "sustainability" in almost every area of people´s living. It is possible to find it in economy, environmental areas and social context. Even our politicians are talking about sustainable development. Every week there are thousands people searching for the passwords such as sustainability, sustainable development and how to be sustainable in every internet search engine. The interest about sustainability is mainly based on the discussion about climate change. Climate change has many second-order effects such as water problems, drought, food shortages, mass migrations, pandemics, civil unrest, political instability and relief emergencies, which means overall danger for our planet and future generations.

It is no wonder when the term also penetrates to the management of companies. As Richard Locke, deputy dean and professor of MIT Sloan School of Management stated: *"The best way to get people to take sustainability seriously is to frame it as it really is: not only a challenge that will affect every aspect of management but, for first movers, a source of enormous competitive advantage."* [2]

1. Sustainability in Context

The definition of sustainability depends on who is defining and from which point of view. Still, common topics run through most definitions of

sustainability. They usually deal with the economy or nature. They are about the rate of change, and about equity between generations. Many see sustainability as a continual process of development. As sustainability is a new trend, many come with own definitions.

United Nations and EPA (Environmental Protection Agency) [5] defines the *"Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs."* Robert Gillman, editor of the In Context magazine, extends this goal oriented definition by stating *"sustainability refers to a very old and simple concept (so called the Golden Rule)...do onto future generations as you would have them do onto you."* [5]

The concept of sustainable development was described in a 1981 White House Council on Environmental Quality report: *"The key concept here is sustainable development. If economic development is to be successful over the long term, it must proceed in a way that protects the natural resource base of developing countries."* [5]

In the Czech Republic is sustainable development defined by the law number 17/1992 about environment. The sustainable development is based on balance between three pillars – environmental, economic and social. There are basic principles, which support the idea of sustainability: link between basic areas of life, long term perspective, capacity of environment is limited, care about future, prevention, quality of life, social fairness, relationship between local and global, intergeneration and between-generations responsibility and finally demographic processes. [4] This all areas have to be combined and incorporated into the sustainability management system.

2. National and Local Point of View

The concept of sustainable development is internationally recognized and supported way of life, management and decision making. Strategy for sustainable development is a document, in which are goals and tools of sustainable development formulated and defined. Results of this document are indicators, which are periodically tracked and which should lead gradually for the fill up of overall goals. For example there are indicators as growth of GDP, Consumption of renewable energies, Productivity of resources, Emission of greenhouse gas, Risk of poverty, Employment in the oldest groups of society, Conservation of fish population and Official development help.

There are even some organizations, whose are measuring these indicators and giving one result for regions. One of them is so called **Dow Jones**

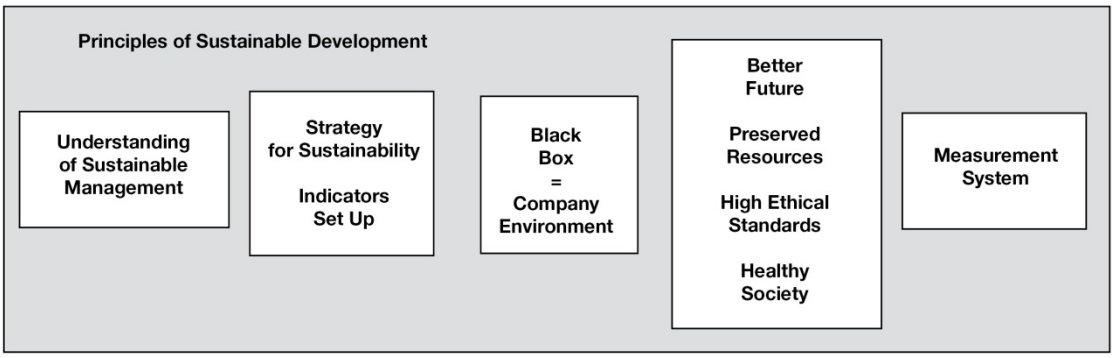
Sustainability Index. The SAM Corporate Sustainability Assessment is based on the annual SAM Questionnaire, which consists of an analysis featuring approximately 80-120 questions on financially relevant economic, environmental and social factors. Based on major global sustainability challenges identified by SAM's analysts, general criteria relating to standard management practices and performance measures such as Corporate Governance, Human Capital Development and Risk & Crisis Management are defined and applied to each of the 58 sectors. An integral component of the Corporate Sustainability Assessment is the monitoring of media and stakeholder commentaries and other publicly available information from consumer organizations, NGOs, governments or international organizations to identify companies' involvement and response to environmental, economic and social crisis situations that may have a damaging effect on their reputation and core business. [1]

Sustainability is discussed on the national level as well as on the local level. On the local level it is coming from a document with the name Local Agenda 21. Local Agenda 21 is a program of particular municipalities, cities, and regions which implements the principles of sustainable development, taking into account local issues. It is designed in cooperation with local residents and organizations with the objective of ensuring a high quality of life and the environment in a given location in the long term. Local Agenda 21 is not providing exact indicators for measuring sustainability – this is still job of every municipality management.

Another level of measuring sustainability is on the organizational level. Every business is usually made with the main goal in the form of profit. Czech management is traditionally focused on profitability, market share or some from the new measuring indicators such as EVA, CFROI, RONA, CVA, etc. There is no space for sustainability. And still this trend is coming more and closer. It is must-do, when we trade internationally. Adapting sustainability has many benefits. *"All sustainability-experienced executives cite bottom-line benefits from energy savings and resource use efficiencies, but even they still ignore what many thought leaders claim is the biggest immediate profit payoff from acting on sustainability: increased labor productivity."* [2] But the question is – how to implement and finally measure sustainability on the organizational level?

At the picture n. 1 there is a model of processing sustainability into companies and other organizations. It is all based on the principles of sustainable development, which are giving the basic platform.

FIG. 1: **Model of processing sustainability in companies**



Source: own

As we can clearly see, the main challenge is set up of measuring indicators. Without them all companies can state they are acting sustainably, but there will be no evidence. Below this paragraph there are some of indicators, which could be used in companies for measuring sustainable behavior. These are created from the national indicators and some of them represent ideas or definitions of every sustainable area.

ENERGY

- Percentage of Energy Consumption from Renewable Resources
- Average Consumption of Solar Energy
- Average Consumption of Energy (year and square meter)
- Average Consumption of Company´s Car

WATER

- Average Consumption of Drinkable Water
- Average Consumption of Hot Water
- Management of Waste Water

WASTE

- Number of Waste Containers
- Percentage of Recycled Waste
- Percentage of Assorted Waste: paper, plastic, glass, bio-waste

ENVIRONMENT

- Investments for the Savings of Nature/Environment
- Percentage of Costs Going Back to the Environmental Protection

SOCIETY

- Percentage of local employees
- Percentage of woman in management
- Percentage of food from local resources

It is possible to come with many other indicators of sustainability, but the experience from companies say, that there is no space for too big measurement and controlling of those areas in management, which are not

primarily focused on profit. There is also a question of how often should those indicators be measured. The usual recommended measurement is one time a year, but some of the indicators are better to measure every month. This is up to every company or cluster, where could be these indicators compared and benchmarked.

Conclusion

Implementing sustainability to the management of companies is voluntary. There are no tools yet from the national or even international point of view, how to push companies to follow some sustainable indicators or rules. But companies should incorporate sustainability in order to maintain and strengthen an organization´s competitiveness and productivity.

References:

[1] *Dow Jones Sustainability Indexes*. [online]. 2012, [cit. 2012-11-28]. Available: <http://www.sustainability-index.com/sustainability-assessment/corporate-sustainability-assessment.jsp>.

[2] HOPKINS, M. S. *8 Reasons Sustainability Will Change Management (That You Never Thought of)*. MIT Sloan Management Review. Fall 2009. Vol. 51 No. 1. ISSN: 1532-9194.

[3] CHRISTOFI, P., SISAYE, S., BODNAR, G. The integration of total quality management into sustainability. *Internal Auditing. Jan/Feb 2008*. Vol. 23, No.1. ProQuest Central.

[4] KOCMANOVÁ, A. a kol. *Udržitelnost: Integrace environmentální, sociální a ekonomické výkonnosti podniku.* Vyd. 1. Brno: Akademické nakladatelství CERM, 2010. 125 s. ISBN 978-80-7204-744-4.

[5] *U.S. Environmental Protection Agency*. [online]. 2011, [cit. 2011-01-05]. Available: <http: www.epa.gov/sustainability/basicinfo.htm#sustainability>.

RATIONAL CHOICE THEORY AND COGNITIVE SCIENCE TO UNDERSTAND EVALUATION AND APPROPRIATION OF TECHNOLOGICAL PRODUCTS BY USERS

David Zejda
University of Hradec Králové
david.zejda@uhk.cz

Key words:
rational choice theory – cognitive science – technological products – evaluation – appropriation

Abstract:
New technologies give us a potential to improve quality of lives. But, if we wish to deliver something considered as indeed useful and beneficial from the users' perspective, we have to understand the thinking patterns in users' minds first. The paper introduces relevant rational choice theory and cognitive science concepts relevant to the problem and shows, how the theories might contribute to grasp the mental processes. Resulting simple models of evaluation and appropriation are briefly introduced in parallel.

Introduction

Nowadays new technologies emerge with increasing pace, companies compete to transform the developments into new products. Sadly for the manufacturers, it is nothing rare if users won't accept a product, despite the extensive and expensive research behind. To deliver really acceptable technological products we have to primarily find out, how users *indeed* think about products and technologies, how they evaluate, handle, apply, and which aspects do they consider and which other circumstances play a role in these processes. Initial stage of a process of technology evaluation leads to a decision whether to give a product try or not. Further, we may say that a product has been finally appropriated if it has become integral part of user's daily activities, failing which the product is rejected, e.g. if the product does not fulfil user's initial expectations well.

Rational choice theory brings precise tools of economy to describe our reasoning in great variety of life situations. But, we as human beings are not rationally reasoning machines, we do not think, recollect, decide, or behave precisely, logically and deterministically. Our mind brings more biases and less rationality than what we would like to believe. Rational choice theory brings good answers on the question how we *should think and behave* (its

nature is naturally normative), whereas cognitive science is much more descriptive, aiming to capture how we *indeed think and behave*, thus reflects many of the inconsistencies, biases, flaws of the reasoning machines in our heads.

1. Rational Choice Model of Initial Evaluation

Rational choice view brings formality to our consideration, because as a descendant or a subfield of economy it disposes of great palette of diverse formal models. Gary Becker popularized rational choice theory to describe many aspects of human behaviour. Rationality involves balancing costs against benefits in order to maximize advantage, where the advantage is not necessarily defined in terms of money, as identified e.g. by M. Friedman in his *Essays in positive economics*, 1953.

On the conception of rational theory we built and published a simple model of technology evaluation, with specific focus on ambient intelligence for ageing users, published as *Deep Design for Ambient Intelligence: Toward Acceptable Appliances for Higher Quality of Life of the Elderly* in 2010. The model describes first stage of technology evaluation, when a prospective user is thinking whether to try certain product or not. In compliance with other rational choice models (e.g. J. Bentham's *Theory of legislation*, 1876 or A. Marshall's *Principles of economics: an introductory volume*, 1920), the advantage in the model is not defined in the monetary expression, but rather emphasizing more subtle determinants, such as perceived self-worthiness and social relations. Personal utility function assigns utility value to each combination of the comfort sources. Comfort sources are fully determined by the complete set of influence vectors, where each vector is assigned to certain aspect of life. Instead of monetary expressed cost, the model comprises effort, time and external support as resources. The exert function defines how much resources are necessary to adopt an aspect of life. The model describes initial evaluation as a sequence of three successive steps, leading to either acceptance or one of three possible kinds of refusal. If an aspect of life (e.g. product) is perceived as 1. to be beneficial, 2. to be reachable and 3. the best choice from all available options, it passes the evaluation stage and may proceed to the appropriation phase. The simple evaluation model may be solved as an optimization problem of linear programming. [1]

In the appropriation stage, the product has to become integrated into user's daily behaviour. Though we take rational choice and also the evaluation model mentioned above into account for our further reasoning, we decided to rely primarily on the cognitive science. The main reason is that we are not

as much rational as we would like to believe. Cognitive science revealed that there are flaws in our reasoning even in simple isolated tasks, as described further. Many more such flaws, biases, irrationalities influence our reasoning in the tasks which are more difficult and scattered in a longer period of time. So, if rational choice approach was satisfying for comparatively simple evaluation task, more complex appropriation requires to pay more attention to our irrationality.

2. Cognitive Science

Psychology developed significantly during the last century. Where former theories such as Freudian psychoanalysis or behaviourism failed to explain various phenomena in our reasoning, cognitive science, based on precise scientific methods deepened our understanding of ourselves, as described e.g. by B. J. Baars in *The Cognitive Revolution in Psychology*, 1986. Our appropriation model [2] takes cognitive science as an essential basis. From all concepts revealed by the cognitive science some appeared as very relevant to our problem:

Sub stages of Evaluation: Real world situations are both not so much controllable, and also more complex, requiring sequential evaluation. Appropriation is a complex and dynamic task. Actually, explanation of dynamic tasks, chains of successive related decisions, is one of the current leading topics in the cognitive science. Beginning of this trend may be traced to work of Damasio et al. and their study of the performance of brain-injured patients. [3] As a conclusion, it is natural to human mind to break a complex problem into distinctive steps, framed according to the character of the task. The choice is often distributed across an interval of time and composed of choice episodes or steps. [4]

Anchors or Reference Points: Another concept very well described in many studies is the tendency of our mind to focus on certain fact for further reasoning. Kahneman and Tversky [5] (among others) revealed initially in monetary decisions the phenomenon of anchor (or reference point). Instead of reasoning in absolute quantities and final outcomes, our mind tends to think in relative comparisons and in shorter time frames. Both positive and negative outcomes of our decisions have diminishing returns proportionally to the distance from the reference point. Though initially introduced by an economist, the concept of labile, vague, adaptive reference points which is not always rational has never been incorporated in the mainstream economy. Kahneman and Tversky refined the theory of utility under a new term, the prospect theory. As further research revealed, palette of various reference anchors exist. Lopes and Oden [6] concluded that at least three reference

points play significant role in our evaluations under uncertainty. They act in parallel: main reference point (usually status quo), aspiration level, and security level (danger of loss).

Gradual Adaptation: The concept of gradual adjustment is nothing more than an application of the concept of mental anchors in complex problems with successive decision chains. Concrete examples of this phenomenon are mentioned e.g. in [4]. When we respond to stimuli, such as loudness or temperature, the past and present context of experience defines an adaptation level, or reference point, and stimuli are perceived in relation to this point. Cyert and March revealed that we tend to search for alternatives in the neighbourhood of our previous try. [7] In complex schemes with successive steps, we tend to follow the *anchor-and-adjust strategy*, which leads to successive adjustment on-the-fly. E.g. Slovic et al. confirmed the effect in pricing and choice in successive virtual gambles. [8] Kahneman and Tversky pointed out, that justification for reasoning on consequences with status quo on mind can be found in the general principle of adaptation – the stepwise adjustment of the mind anchor allows adopting our mind to the always changing environment. On the other hand it may easily lead to illogical flaws in our reasoning, such as "money pump" described in [4], which contradicts with rational (economic) choices.

Two Chains of Reasoning: Interesting subfield of cognitive science is neuroscience (called also neuroeconomics), focused on neural substrates of our judgment and behaviour. [4] One of conclusions made by neuroscience is the fact, that our reasoning runs over internally in two trails (chains, circuits). While dopamine-mediated system is responsible for assessing positivity, acetylcholine-mediated circuit ensures negativity. From the works we may mention e.g. [9]. What is relevant to our model, any evaluation runs over in parallel. User evaluates benefits, utility, rejoice, pleasurable surprise etc. on one hand and negative aspects such as costs, pain, anger, disappointment on the other hand at the same time.

3. The Model of Appropriation

The stage of appropriation follows previous stage, an initial evaluation. So, as a starting point for appropriation we have a product and a person who decided to give the product a try. In the appropriation phase we hold close look on the specific product which passed an evaluation and our angle of view is descriptive, not normative. The model uses several concepts based on the underlying theory, such as expectations and enthusiasm, which play role during the whole appropriation process, successively adjusted by the anchor-and-adjust strategy. Only if the user keeps his positive motivation during

the whole process, product may be appropriated. Motivation is defined as combination of initial component, external component and habitual component. An effort which has to be expended to manage the product has to fit within borders of reachability (effective management with limited resources). The patience inevitable diminished by bore set up a deadline for the product to be successfully appropriated. The model further defines sub stages – a chain of successive recurring evaluation steps. Each step may lead in either one of final solutions (appropriation, rejection) or in continuation of the process. Each appropriation step has its own structure and fall into several sub steps – expectation, exertion, growth, appropriation, comparison, assessment, affection, rejection, and continuation.

In regards to implications, certain product is rejected, whenever user runs out of patience before the level of stability is reached. It may happen because of lack of initial enthusiasm, because of boring activity related to the product, or because of disappointment when the product does not satisfy user's aspiration level reflected in expectations. Interestingly, higher initial enthusiasm does not mean higher success rate (or lower probability of rejection) in appropriation. The model suggests, that lower level of enthusiasm (inducing patience) may be more than compensated with the intensified effects of positive surprise, leading to higher probability of successful appropriation. This idea is supported e.g. by research of Mellers et al. [10] or [4]. One more reason to avoid inducing too high enthusiasm is our general tendency to overvalue impacts of our decisions on our well-being or happiness, both positive and negative. This conclusion is in harmony with findings of e.g. J. R. Harrison and J. G. March in "Decision Making and Postdecision Surprises", 1984 or Hastie and Dawes [4].

Conclusions

Both rational choice theory and cognitive science brings valuable insight into cognitive and mental processes, resulting in our cognition, and behaviour. Whereas rational choice theory brings more formal tools and answers best on normative questions, cognitive science provides valuable descriptive view, which incorporates many of irrational aspects of our reasoning. Based on the theories, we created a simple compound model of reasoning in order to understand, which powers make the difference between rejection or adoption of a product which is being evaluated.

Acknowledgment:

This work was supported by the project No. CZ.1.07/2.2.00/28.0327 Innovation and support of doctoral study program (INDOP), financed from EU and Czech Republic funds.

References:

[1] ZEJDA, D. "Ambient Intelligence Acceptable by the Elderly: Rational Choice Theory Model of Technology Evaluation for Deep Design," *Proceedings of the Contexts Workshop of PAAMS conference 2011*, 2011.

[2] ZEJDA, D. "The Model of Appropriation: Contribution of Rational Choice Theory and Cognitive Science to a Better Technology," in *2011 7th International Conference on Intelligent Environments (IE)*, 2011, pp. 262 –269.

[3] BECHARA, A., DAMASIO, H., TRANEL, D., DAMASIO, A. R. "Deciding Advantageously Before Knowing the Advantageous Strategy," *Science*, vol. 275, no. 5304, pp. 1293 –1295, Feb. 1997.

[4] HASTIE, R., DAWES, R. M. *Rational Choice in an Uncertain World: The Psychology of Judgment and Decision Making*. SAGE, 2009.

[5] KAHNEMAN, D., TVERSKY, A. "Prospect theory: An analysis of decision under risk," *Econometrica: Journal of the Econometric Society*, pp. 263–291, 1979.

[6] LOPES, L. L., ODEN, G. C. "The role of aspiration level in risky choice: A comparison of cumulative prospect theory and SP/A theory," *Journal of mathematical psychology*, vol. 43, no. 2, pp. 286–313, 1999.

[7] CYERT, R. M., MARCH, J. G. *A behavioral theory of the firm*. Blackwell, 2005.

[8] SLOVIC, P., FISCHHOFF, B., LICHTENSTEIN, S. "Why study risk perception?," *Risk analysis*, vol. 2, no. 2, pp. 83–93, 1982.

[9] DAMASIO, A. R. *Descartes' error: Emotion, reason, and the human brain*. Quill New York:, 2000.

[10] MELLERS, B., SCHWARTZ, A., RITOV, I. "Emotion-based choice," *Journal of experimental psychology General*, vol. 128, pp. 332–345, 1999.

INNOVATIVENESS IN THE POLISH FOOD INDUSTRY

Kazimierz Zieliński, Dariusz Żmija
Cracow University of Economics
kzielins@uek.krakow.pl, zmijad@uek.krakow.pl

***Key words*:**
innovations – innovativeness – innovativeness of the food industry

Abstract:
Innovations are an indispensable factor allowing an enterprise to adjust to its changing environment. In the period under scrutiny, the expenditures on innovative activities in food industry enterprises in Poland decreased by nearly 18%. The main source of innovations in the food industry in Poland in 2010 were expenditures on acquisition of modern machines and appliances, investments in buildings, structures and land, as well as expenditures on the marketing of new and significantly improved goods. Considering the percentage of food industry enterprises that implemented non-technological (organizational and marketing) innovations in 2008-2010, producers of tobacco products were the most active, followed by producers of beverages and producers of food products.

Introduction

For an enterprise, the implementation of innovations is an indispensable factor allowing its adaptation to the changing environment. Innovations determine the pace and the directions of development play a key role in launching new products and services that satisfy the needs, desires and demands of customers. Innovativeness allows the growth of an enterprise's performance.

The price advantages constitute the fundamental source of the Polish food industry's competitiveness. According to R. Urban, prior to joining the EU, the price advantages were about 20% for agriculture, about 30% for the processing industry, and 40% for customers [1]. After Poland joined the EU, despite the ongoing price convergence process, the advantages have been maintained. However, the price advantages of Polish food producers will decrease with time. Therefore it is necessary to implement such undertakings that will help to build a permanent advantage over the competitors. In order to succeed in longer perspective, it is important to execute projects of an innovative nature.

1. Innovations as a Factor Increasing the Competitiveness of Enterprises

The notion of innovativeness is difficult to define, as the perception of innovative actions is highly diverse. J.A. Schumpeter is considered to be the forerunner of innovativeness. He defined innovations as "the introduction of new goods, yet unknown to customers or of new methods of production, not yet tested in practice in a given industry, the opening of new markets, on which a given domestic industry was not formerly present, the conquest of new sources of supply, and the carrying out of a new organization of any industry" [2, 104]. However, such a notion of innovation has some technical and economic restrictions, since limiting innovativeness to the production domain is not justified anymore. Innovations create the basis for the technological advancement and the development of high-technology industries, and include in their scope such areas of human activity as, e.g. the political, spiritual, social, health, consumption and learning spheres [3, 21-22].

A comprehensive definition of innovativeness was proposed by Pietrasiński: „innovations are changes introduced intentionally by humans or cybernetic systems designed by them, which replace current states of affairs with others, are positively evaluated in the light of certain criteria and, accumulated, drive progress" [4, 9]. According to Drucker, innovation "is the act that endows resources with a new capacity to create wealth"[5, 40].

Innovativeness is defined as: the capability to constantly search for innovation, implement and disseminate it; the capability to create and implement changes in different areas of social and economic life; the capability to create innovations. In this approach, innovativeness is perceived as the capability to implement innovations [3, 22].

In accordance with the OECD terminology, innovation is the implementation of a new or a significantly improved good or service, process, marketing method or organizational method in business practices, workplaces organization or external relations. The minimum requirement for a change or functions to be considered an innovation is that it is new or significantly improved to the firm. Therefore, innovations are products, processes and methods developed originally by a firm or adopted by it from other firms or entities [6].

Taking into consideration the nature of innovative activities, they contribute to the improvement in the competitiveness of an industry, including the food industry, on a global, national or regional scale. The concentration and modernization processes occurring since the 1990s are favourable to competitiveness of enterprises in the food and agricultural industry.

The globalization of the food market forces the implementation of innovations in the scope of retaining market position of enterprises, both on domestic and international markets. Innovations in market economy are one of the strategic tools indispensable for the modern production of food products [7].

2. Innovativeness in Food Industry Enterprises

The last decades brought a considerable progress in the scope of modernisation of the food and agricultural sector. Between the mid-1990s and 2008, investment in the food and agricultural industry reached the level of nearly PLN 75 billion, out of which PLN 10.6 billion in the meat industry, about PLN 9 billion in the dairy industry and the grain milling industry, and more than PLN 1.9 billion in the poultry industry. Innovative activities require certain expenditures. The expenditures on innovative activities in food industry enterprises by the type of innovative actions in 2008 and 2010 are presented in Table 1.

In 2010, producers of food products and beverages, and producers of tobacco products, spent the total of just below PLN 1.8 billion on innovative actions. That amount is much lower than the expenditures on innovations in 2008 (PLN 2.2 billion). The decrease of expenditures in comparison with 2008 was nearly 20%. In 2010 the most financial resources were spent on innovations by producers of food products – over PLN 1.3 billion, and beverages – PLN 371.2 million. While the production of food products witnessed the decrease of expenditures by nearly 28%, the producers of beverages increased their expenditures by 61%. The expenditures on innovations in the production of tobacco products decreased to PLN 76.8 million in 2010 – by 12.5% in comparison with 2008. The second most important investment areas are the expenditures on buildings, structures and land; however, food enterprises decreased them nearly by half in relation to 2008. The expenditures on marketing of new and significantly improved products decreased by over 30% as a compared with 2008. In 2010 the expenditures on research and development decreased by nearly 45% in comparison with 2008. The most significant reduction of expenditures occurred in the acquisition of external knowledge – they decreased by 68%. The only registered increase in expenditures was in the acquisition of software – nearly 28% in relation to 2008.

Considerable differences in expenditures on innovations occur among individual sectors of the food industry. In 2010 the producers of beverages increased their expenditures on innovations by as much as 61%. A very substantial increase in that industry was registered in the software

acquisition (more than sevenfold), expenditures on marketing of new and significantly improved products (more than 6.5 times) and the acquisition of external knowledge (fivefold). However, the tobacco sector enterprises decreased their expenditures on innovations, with the exception of expenditures on buildings, structures and land, which increased by 14%. The producers of food products registered the most substantial reduction of expenditures on innovations. In 2010 the enterprises in that sector decreased their expenditures on innovations by nearly 28% in relation to 2008. The largest decrease was registered in expenditures on the acquisition of external knowledge (by 74%), on marketing of new and significantly improved products (over 58%) and on buildings, structures and land (over 48%). However, in 2010, the expenditures on innovations in the production of food products constituted nearly 75% of all expenditures of the enterprises operating in the food products industry.

TAB. 1: **Expenditures on innovations in food industry enterprises by the type of innovative actions (current prices).**

Item		2008					2010			CHANGE
		Production of food products in million PLN	Production of beverages in million PLN	Production of tobacco products in million PLN	TOTAL in million PLN	Production of food products in million PLN	Production of beverages in million PLN	Production of tobacco products in million PLN	TOTAL in million PLN	
Total		1,853.2	230.6	87.7	2,171.5	1,339.0	371.2	76.8	1,787.0	82.3
Research and Development (R&D)		72.7	5.3	3.3	**81.3**	43.7	0.7	0.6	**45.0**	**55.4**
Acquisition of external knowledge		9.6	0.1	x	**9.7**	2.5	0.6	x	**3.1**	**32.0**
Acquisition of software		46.1	2.6	4.2	**52.9**	47.3	19.9	0.4	**67.6**	**127.8**
Invest-ments on:	buildings. structures and land	417.0	26.0	0.7	**443.7**	215.4	25.2	0.8	**241.4**	**54,4**
	machines and appliances	1,017.5	179.5	76.2	**1,273.2**	888.1	242.4	74.3	**1,204.8**	**94,6**
	including imported	342.2	129.6	6.7	**478.5**	381.0	108.9	65.8	**555.7**	**116,1**
Training of staff connected with innovative activities		7.4	1.4	1.5	**10.3**	7.2	0.0	0.0	**7.2**	**69.9**
Marketing of new and significantly improved products		250.9	12.1	1.6	**264.6**	105.1	78.7	0.7	**184.5**	**69.7**

Source: [8, 9]

3. The Types of Implemented Innovations

The international model of innovativeness most frequently employed in research on innovativeness is the methodology of research of statistical innovations, called Oslo Manual, developed by OECD and Eurostat [6]. This methodology is also used in the statistical research of innovations of enterprises carried out by GUS (Polish Central Statistical Office). According to the methodology, the innovative activity covers activities of scientific, technical, organisational, financial and commercial nature, the aim of which is the development and implementation of technological innovations. The technological innovations include launching new or a significantly improved goods or services, or production processes. The products and processes should be new at least to the enterprise that implements them. The new or significantly improved goods are recognised as goods, the application and technical parameters of which differ significantly or have been significantly improved in comparison with the products manufactured so far, whereas the technological application of new or significantly improved production methods are recognized as a technological innovation. In the latest edition of the Oslo Manual, the definition of innovation was extended to include two new types of innovation – the organizational and marketing innovations [10, 4-8]. Organizational innovation includes the implementation of a new organisational method in business practices, including the management of knowledge, the workplace organization and the external relations, under the assumption that it has not been used in a given firm. Organisational innovations do not include mergers and acquisitions, even if executed for the first time. Table 2 presents typical organizational innovations.

TAB. 2: **Examples of organizational innovations**

• new organisational methods in external relations – with other firms or public institutions, e.g. the first applications of such forms, as alliances, partnerships or outsourcing
• New methods in the firm's business practices, e.g. supply-chain management systems, business re-engineering, quality management systems, lean production.
• New methods for distributing responsibilities and decision making among employees, e.g. introduction for the first time of new systems of accountability for decision making, team work, decentralization, integration or disintegration of different business units, or training.

Source: [9, 38]

A marketing innovation is the implementation of a new marketing concept or strategy, significantly different from the firm's existing marketing methods.

Marketing innovations include significant changes in product design, packaging, product placement, product promotion or pricing. However, they do not include routine changes in marketing instruments, e.g. those resulting from a seasonal character of sales. Table 3 presents typical marketing innovations.

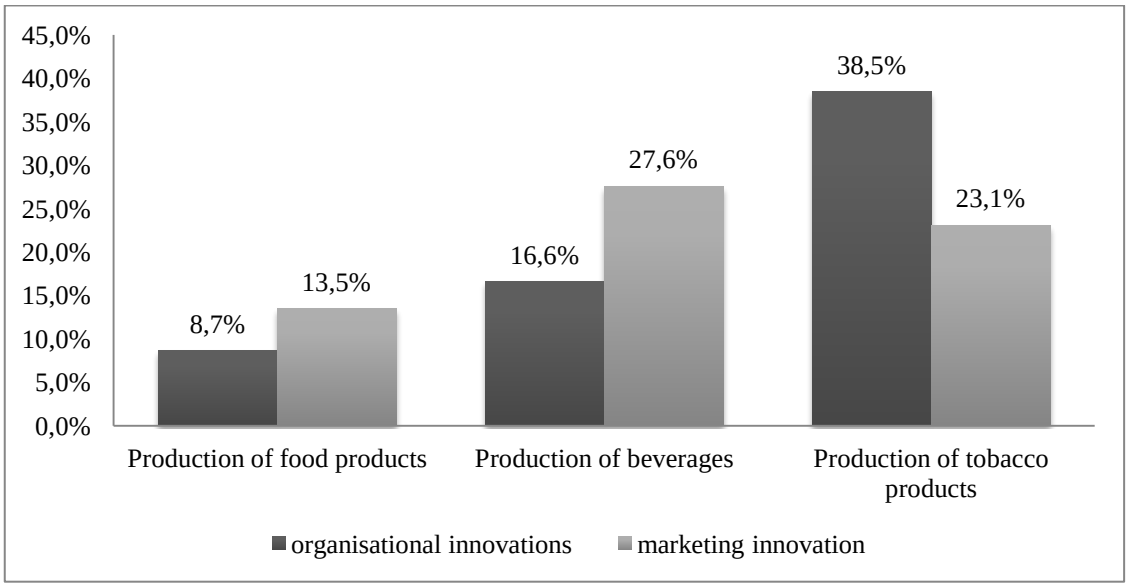
TAB. 3: **Examples of marketing innovations**

• significant changes in product design or packaging of goods or services (with the exception of changes that alter the product's functional or user characteristics that are product innovations)
• New media or technique of promotion, such as the first use of a new advertising medium, new brand image, introduction of loyalty cards
• New methods in product distribution or sales channels, such as introduction for the first time of a franchising or a product-distribution licensing system, direct selling, exclusive retailing, new concepts for the presentation of products
• new pricing strategies for the firm's goods or services, such as the first use of a new method for varying the price of a good according to demand, a new discount system

Source: [9,46]

This paper discusses in detail the non-technological innovations (i.e. the organizational and marketing ones) implemented by the food industry firms in 2008–2010. Figure 1 presents the percentage of food industry enterprises (production of food products, beverages and tobacco products) that implemented non-technological innovations in 2008-2010 in the total number of enterprises in a given sector.

FIG. 1:. **The percentage of food industry enterprises that implemented non-technological innovations in 2008-2010 in the total number of food industry enterprises by PKD divisions.**



Source: own analysis based on [9]

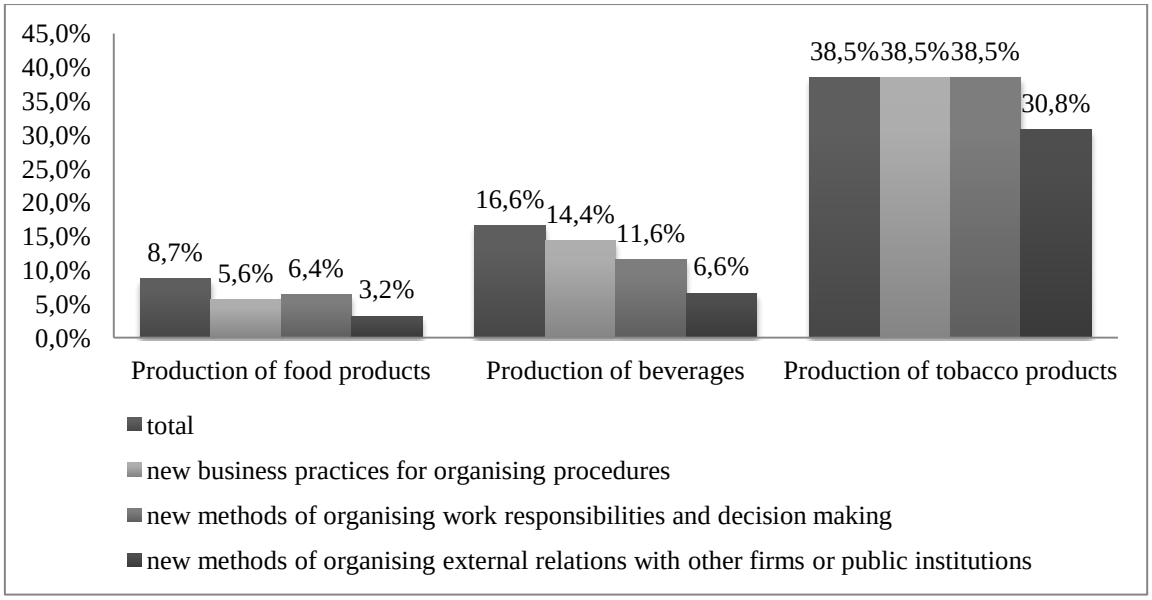
The analysis of the innovativeness of food industry enterprises, i.e. enterprises producing food products, beverages and tobacco products, reveals that in 2008-2010, according to the percentage of firms that implemented innovative solutions in the scope of organization, the entities producing tobacco products were the most active. The percentage of enterprises implementing organizational innovations was 38.5% in enterprises producing tobacco products, 16.6% in enterprises producing beverages, and only 8.7% in enterprises producing food products. Figure 2 presents the types of organizational innovations implemented by food products enterprises in 2008-2010. In the "production of tobacco products" division all the enterprises that introduced innovations, implemented new methods in business practices, and new methods of organising work responsibilities and decision making. A smaller percentage of enterprises (30.8%) implemented new methods of organising external relations. In the "production of beverages" division, the greatest proportion of enterprises implemented new methods in business practices, followed by new methods of organising work responsibilities and decision making. Producers of food products implemented mainly new methods of organising work responsibilities and decision making.

Organisational innovations not only support innovations in the scope of products and processes, but also may influence a firm's effective operations. They can also contribute to better quality and productivity, and to

intensification of information exchange. Moreover, organisational innovations may contribute to a better ability to improve learning and use of new knowledge and technologies.

As far as the marketing innovativeness is concerned, in 2008-2010 the enterprises producing beverages were leaders – as many as 27.6% of them implemented such innovations (Fig. 1). In the tobacco industry, the percentage was 23.1%, and for food products producers – 13.5%. Figure 3 presents types of marketing innovations implemented by food industry enterprises in 2008-2010. The analysis of food industry enterprises that introduced marketing innovations reveals that the producers of beverages, tobacco products and food products most frequently implemented marketing innovations in the scope of significant changes to the aesthetic design or packaging of a good or service – the percentage of enterprises that implemented such innovations was 22.1%, 23.1% and 7.9% respectively.

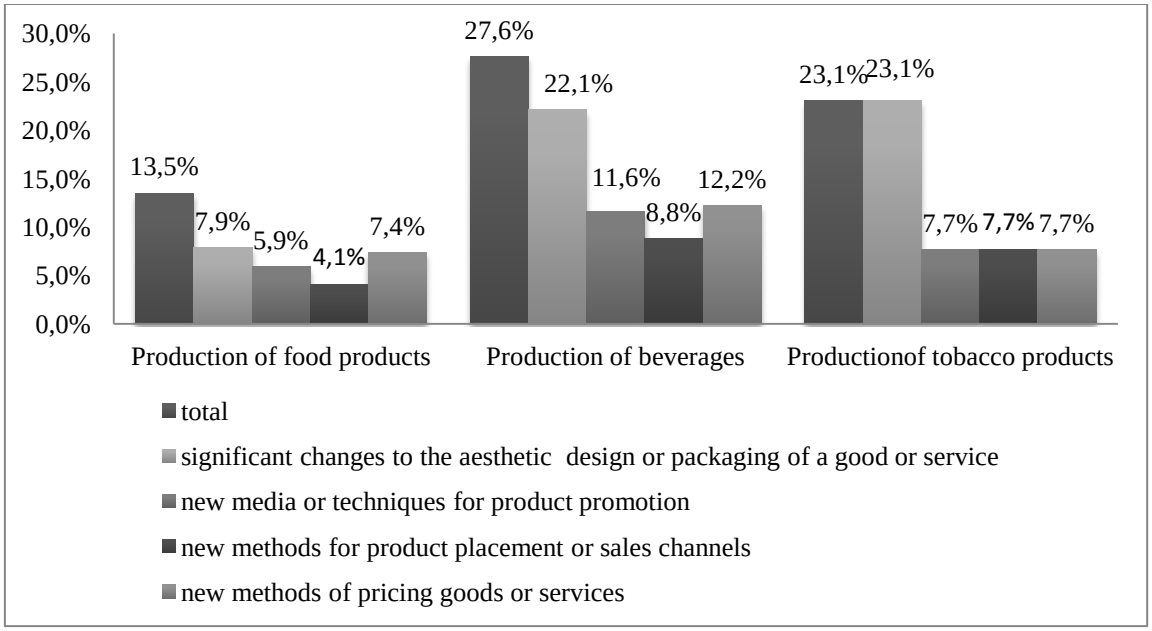
FIG. 2: **Food industry enterprises that implemented organisational innovations in 2008–2010**



Source: own analysis based on [9]

New methods for product placement sales channels were relatively unpopular, implemented by 8.8% of producers of beverages, 7.7% of producers of tobacco products and 4.1% of producers of food products. The major aim of marketing innovations is to win new markets or a new product placement, as well as a better addressing customers' needs in order to increase sales.

FIG. 3: **Food industry enterprises that implemented marketing innovations in 2008-2010**



Source: own analysis based on [9]

Studies show that in comparison with other low-technology enterprises, food industry enterprises are relatively highly innovative. Producers of food products and beverages are in the third place among the most innovative industries of the low-technology sector, which proves that they appreciate innovations as an important tool of market competition.

Conclusions

Innovations are indispensable for an enterprise to adjust to the changing conditions in the environment in which it operates. Innovativeness results in a growing performance of an enterprise. The expenditures for innovative activities in food industry firms decreased from PLN 2,171.5 million in 2008 to PLN 1,787.0 million in 2010, or by 18%. In the analysed period, only producers of beverages increased their global expenditures for innovative activities by more than PLN140 million, or 61%. The greatest decrease in such expenditures was recorded in the food products industry – by PLN 514, or nearly 28%.

In 2010, the expenditures on acquisition of modern machines and appliances (material technology), necessary to implement new processes and new products, were the main source of innovations in the food industry in Poland. The second largest source of innovations were investments in buildings, structures and land, as well as expenditures on the marketing of new and significantly improved goods. Expenditures on acquisition of

software and on research and development activities were relatively low, and expenditures on acquisition of external knowledge and on training of staff connected with innovative activities were the lowest. Such a structure of expenditures on innovative activities means that they mainly include implementation of new technologies. While in the first years of Poland's membership in the EU such activities resulted from the necessity to adjust Polish enterprises to the EU standards, today they result, among others, from the need to eliminate the technological gap between Polish enterprises and enterprises in highly developed countries.

Considering the percentage of food industry enterprises that implemented non-technological (organizational and marketing) innovations in 2008-2010, producers of tobacco products were the most active ones, followed by producers of beverages and producers of food products. As far as organizational innovations are concerned, the greatest percentage of enterprises that implemented such innovations were producers of tobacco products (38.5% of all enterprises in that division), followed by producers of beverages (16.6% of all enterprises in that division), and producers of food products (8.7% of all enterprises in that division).

In the scope of marketing innovations, the highest percentage of enterprises that implemented such innovations were producers of beverages (27.6% of all enterprises in that division) and producers of tobacco products (23.25% of all enterprises in that division), compared to only 13.5% in producers of food products. However, it should be noted here that, according to data from the statistical yearbook of the industry published in 2011, in 2010 15,485 entities producing food products, 486 entities producing beverages and only 22 entities producing tobacco products conducted business activities. It means that most of the innovations were implemented by entities producing food products, followed by entities producing beverages.

References:

[1] URBAN, R. *Polski przemysł spożywczy w Unii Europejskiej – konkurencyjność i szanse rozwojowe*, [w] Zagadnienia Ekonomiki Rolnej, nr 3 (304), Warszawa, 2005,

[2] SCHUMPETER, J.A. *Teoria rozwoju gospodarczego*, PWN, Warszawa, 1960, s. 104

[3] BAL – WOŹNIAK, T. *Innowacyjność w ujęciu podmiotowym*, Polskie Wydawnictwo Ekonomiczne, Warszawa, 2012, s. 21-22

[4] PIETRASIŃSKI, Z. *Ogólne i psychologiczne zagadnienia innowacji*, PWN, Warszawa, 1970, s. 9

[5] DRUCKER, P. *Innowacja i przedsiębiorczość. Praktyka i zasady*, PWE, Warszawa, 1992, s. 40
[6] Oslo Manual, Guidelines for Collecting and Interpreting Innovation Data, third edition, Published by. OECD/Eurostat, 2005
[7] FIRLEJ, K., MAKARSKA, A. *Działania innowacyjne firm przemysłu spożywczego jako element ich strategii*, Zeszyty Naukowe Uniwersytetu Szczecińskiego, Ekonomiczne Problemy Usług, Szczecin 2012
[8] *Działalność innowacyjna przedsiębiorstw w latach 2006 – 2009*, GUS, Urząd Statystyczny w Szczecinie, Warszawa 2010,
[9] *Działalność innowacyjna przedsiębiorstw w latach 2008 – 2010*, GUS, Urząd Statystyczny w Szczecinie, Warszawa, 2012
[10] SZCZEPANIAK, I. *Ekonomiczna ocena innowacyjności przedsiębiorstw przemysłu spożywczego*, Przemysł Spożywczy, nr 11, 2010, s. 4 – 8

SYSTEMS AND STANDARDS OF QUALITY MANAGEMENT USING IN THE FOOD INDUSTRY

Małgorzata Źródło-Loda
National Higher Vocational School named after Stanisław Pigonia in Krosno
zrodlo@pwsz.krosno.pl

Key words:
quality management – system – standard – food

Abstract:
This works presents systems and standards of quality management, which are used by food plants. It shows both obligatory systems and those, whose use by producers is voluntary. The BRC Global Standards for Food Safety and the International Food Standard IFS were chosen to the detailed analyses, because of their increasing use. Their implementation is important for ensuring the quality and safety of food for customers. Moreover, the possession of certificates is also one of the most important factors of enterprises' increasing competitiveness.

Introduction

In the era of globalizing economy, companies must fight with growing competition, which is present in the market. The factor, which is becoming increasingly important is a quality. This quality has to meet actual and future customer's needs. The concentration on the client and meeting its expectations are the basic conditions of each enterprise's functioning in the market. In the case of food, products, which are offered to customers, must both meet safety requirements of health and also be in a good quality. The quality is often a factor, which decides about the customer's choice. To meet these requirements, companies introduce systems and standards of the quality management. Besides, certificates of the quality management create a positive image of the company and products, which are produced by this enterprise. The certificate contributes to the increase of its competitiveness in the market.

1. Obligatory systems of the quality management

Systems and standards of the quality management in the food industry:

1) Public:
– Good Hygienic Practice – GHP,
– Good Manufacturing Practice – GMP,
– Hazard Analysis and Critical Control Point – HACCP,

– System of the quality management according to ISO standards, series: 9000 (ISO 9001),
– System of the safety management of food according to the ISO standard 22000,
– TQM

2) Private:
– International Food Standard (IFS),
– BRC Global Standards for Food Safety (BRC)
– EurepGAP (Euro-Retailer Produce Working Group-EUREP).

In the European Union to the obligatory systems of the quality management in food industry enterprises, we can include: Good Hygienic Practice, Good Manufcturing Practice and Hazard Analysis and Critical Control Point.

The starting point for the implementation of the quality management systems is the introduction of the Good Hygienic Practice and Good Manufacturing Practice rules. GMP and GHP definitions are given by the Food and Nutrition Act [9].

Good Hygienic Practice (GHP) – are actions, which need to be taken and hygienic conditions, which must be satisfied and controlled on all stages of production or turnover in order to ensure the food safety.

Good Manufacturing Practice (GMP) – are actions, which need to be taken and conditions, which must be satisfied in order to ensure the safety of food during the production process in accordance with its purpose.

Hazard Analysis and Critical Control Point (HACCP) is a food safety management system. The essence of this system is connected with the prevention of irregularities in process of production of food distribution and also a self-inspection in the plant. This is done using the identification of possible risks in terms of the quality and the estimation of their appearance. The producer or the introducer is totally and directly responsible for the safety of food [8].

These three systems of the quality management (GMP, GHP, HACCP) are strictly integrated with each other. In order to implement the HACCP, the GHP and the GMP must be introduced first. This in turn provides the basis for further implementation of systems: ISO 9001, ISO 22000 and TQM.

2. Private quality standards

BRC and IFC quality standards are non-obligatory, so their usage by producer is voluntary. However, companies, which want to sell their goods in retail chains must have them implemented and they must have appropriate certificates.

BRC

The first version of BRC standard was developed by the British Retail Consortium (BRC) in 1998. Works on this standard were started in 1996 [2]. This document was addressed to entities producing and providing food under own brand to the chain of British hypermarkets. It included basic standards of hygiene for food establishments in order to ensure the health safety of food. This standard enabled unitary and objective evaluation of produced food in terms of compliance with the law.

The aim of the BRC Global Standards for Food Safety is [5]:

- Determination of requirements about safety and quality of food products and their compatibility with legal requirements,
- Creation of uniform requirements for all food producers and food chain's participants providing their products to retail chains.
- To establish certain principles and create the base for certification of firms, which provide products to retail chains,
- Unification of qualification rules amongst suppliers and limitation in the number of audits.

Granting certification is dependent on the permanent conformity with the standard. Within a framework of the BRC standard some requirements, which are recognized as fundamental demands, were determined. They include [3]:

- Commitment of the highest administration and continuous improvement,
- Plan of food safety – HACCP,
- Internal audits,
- Corrective and preventive actions,
- Traceability,
- Institution plan, product's flow and segregation,
- Maintaining of order and hygiene,
- Requirements concerning special materials – materials, which contain allergens and materials with preserved identity
- Control of operation.
- Training.

They were contained in seven chapters of the standard.

Lack of fulfillment above fundamental requirements lets to the refusal or withdrawing of the certificate.

Advantages for food companies resulting from the use of the BRC standard:

- Ensures a single standard and protocol – the audit can be carried out by the accredited certification organ;

- Ensures a single audit commissioned by the company in accordance with a fixed frequency – allows to reduce time and costs by the elimination of repeated audits;
- Ensures a meter, which shows the producers and suppliers competences level in the area of food safety and quality systems;
- Includes a part of legal requirements for producers and suppliers of food;
- Requires a constant supervision and a confirmation of corrective actions resulting from the incompatibility with this norm.

International commercial networks often used the BRC standard as a criterion for the selection of products' suppliers – for example, Tesco Poland. Currently, it is used not only in Great Britain or the Europe, but also on the other continents (it was published inter alia in Chinese).

IFS

The first version of the International Food Standard was published in 2002. German association of retailers HDE (*Hauptverband des Deutschen Einzelhandels e.V.)* and French federation of retailers and wholesalers FCD (*Fédération des entreprrises du Commerce et de la Distribution)* are owners of this standard.

IFS is a set of requirements in the area of the quality and safety of food for food products, which are sold under their own brand in wholesale and retail trade networks. It is an instrument used in to carry out audits in food establishments.

Fundamental targets of the International Food Standard [4]:
- Creation of a common standard with a uniform evaluation system,
- Work with accredited certification units and qualified auditors,
- Assurance of comparability and transparency in the whole supply chain,
- Reduction of costs and saving time of suppliers, retailers and wholesalers.

The IFS standard is composed of 4 essential parts:

Part 1: Audit protocol – includes inter alia:
- Types and a range of the audit,
- Certification process,
- Granting of the certificate,
- Dissemination and storage of the audit report.

Part 2: Requirements:
- The highest administration responsibility
- System of the quality management

- Resources management
- Production process
- Measurements, analyses, trainings.

Part 3: Requirements concerning accreditation organs, certification bodies and auditors.

Part 4: Preparation of the report and the IFS audit portal.

The IFS standard is preferred by commercial networks from Germany (for example, Metro AG, Lidl), Switzerland, France (for example, Auchan, Carrefour), Italy and the United States of America.

BRC and IFS standards have been modified over the years. In both cases, No. 6 versions have become obligatory in 2012. Recently introduced changes in new versions have an evolutionary character. Both standards are similar in many areas, therefore, the meeting of one standard's requirements allows its adaptation to the second standard [1].

Because of the lack of full data (not all certification companies, which operate in Poland, provide information about granted certificates), it is estimated that the percentage of food entrepreneurs having implemented non-obligatory quality systems (BRC, IFS, ISO 9901, ISO 2200) ranges from 5 to 10% [7].

Data obtained from certification companies (TUV, Nord, PCBC, LRQA, DNV, DQS, PRS, ZSJiZ) show that in 2008, there were 99 companies, which introduce the BRC system and 90 companies, which adopted the IFS system in Poland [6].

3. Summary

Food sector companies have a duty to use GHP, GMP and HACCP systems. Part of them do not content with this – they introduce non-obligatory systems. In the view of the highly developed commercial networks in Poland (for example: Tesco, Carrefour, Real, Lidl), private standards play an increasingly important role. BRC and IFC standards were elaborated for producers from the food sector. The premise of their creation was to standardize requirements for suppliers in the range of food safety. The document, which confirms the fulfillment of requirements, is a certificate issued by accredited certification organs.

Everything indicates to the fact that there will be more and more companies with certificates. The possession of these certificates is necessary to cooperate with commercial networks. Unfortunately, there is a problem of the mutual recognition of IFS and BRC certificates by buyers. Therefore, many

enterprises, which cooperate with different network, are forced to implement both of these standards.

References:

[1] BERDOWSKI, J. B. Interpretacja wymagań standardu wg VI wersji BRC oraz VI wersji standardu IFS, *Problemy Jakości*, 2012, nr 9, s.39-48, ISSN 0137-8651

[2] CZUPRYNA, M., MALESZKA, A. Dodatkowe wymagania stawiane przedsiębiorcom branży spożywczej – międzynarodowy standard żywności (IFS), *Problemy Jakości*, 2006, nr 9, s. 21-25, ISSN 0137-8651

[3] *Globalna Norma dotycząca bezpieczeństwa żywności*. British Retail Consortium, TSO, Londyn, styczeń 2008.

[4] *International Food Standard. Międzynarodowy Standard Żywności. Standard Auditu dla Produktów Marek Własnych Handlowców Detalicznych i Hurtowych*, Wersja 5, HDE Trade Services GmbH, Berlin, sierpień 2007.

[5] JEZNACH, M., Międzynarodowe standardy zarządzania jakością i bezpieczeństwem żywności w branży rolno-spożywczej, *Problemy Rolnictwa Światowego*, 2007, t. 2(17), zeszyt 2, s. 63-69, ISSN 0137-6950

[6] MORKIS, G. (red.), *Raport z monitoringu wpływu systemów zarządzania jakością na koszty produkcji, działalność marketingową i integrację pionową przedsiębiorstw przemysłu spożywczego*, IERiGŻ PIB: Warszawa, 2008, 128 s. ISBN 978-83-7658-085-2

[7] MORKIS, G., NOSECKA, B., SEREMAK-BUGLE, J. *Monitorowanie oraz analiza zmian polskiego łańcucha żywnościowego. Synteza z realizacji tematu III*, IERiGŻ PIB: Warszawa, 2010, 90 s. ISBN 978-83-7658-087-6

[8] SIKORA, T. (red.) *Wybrane koncepcje i systemy zarządzania jakością*, Wydawnictwo UE: Kraków, 2010, 368 s. ISBN 978-83-7252-483-6

[9] *Ustawa z dnia 25 sierpnia 2006* r. *o bezpieczeństwie żywności i żywienia* Dz.U. 2006 Nr 171, poz. 1225 z późniejszymi zmianami

CHANGES IN TAX LAWS AND THE METHOD OF PERCEPTION BY CITIZENS IN THE CZECH REPUBLIC

Zubr Václav, Kolerová Karolína
University of Hradec Králové
vaclav.zubr@uhk.cz, karolina.kolerova@uhk.cz

Key words:
behaviour – payer – public opinion – tax system – taxation

Abstract:
This paper focuses on the tax changes and its influence on the public opinion, specifically in the Czech Republic. Firstly, the concept of the tax and its fiscal function is explained. Secondly, the tax system in the Czech Republic is specified in more details. The main purpose of this paper is taxation and tax changes and its impact on the public purchase behavior. This behavior could be mostly influenced by the change of indirect taxes. These taxes are those one that are changed most frequently. Therefore, the central part is concentrated on the indirect taxes. Moreover, the results of the research dedicated on the causalities of the tax incidence are presented.

Introduction

Dealing with taxation represents an opportunity to examine its impact on public behavior. Firstly, taxes in general are discussed with the purpose to illustrate the theory. Taxpayer, fiscal function and the role of the state in the issue of taxation is mentioned as well. Secondly, tax system in the Czech Republic is specified in more details.

It might be said that the tax system of the Czech Republic is very similar to the ones in other developed European countries. The main part of this paper is focused on the conducted research of the public opinion on the tax changes. The research was done on a sample of inhabitants in the Czech Republic through an anonymous questionnaire. Reasons and causes for a particular pattern of behavior of inhabitants are discussed in detail. Finally, a conclusion and an evaluation are made on the basis of the obtained results.

1. Theoretical Background

Taxes are between economy, politics and law [1]. Without no doubt, every government has its own ideas how to create a tax system but political aspects are very subjective and uncertain. Taxpayer is not only a subject with his duty to comply with the incomes incurred into the public budgets but a voter, too.

What is exactly tax? The tax is an obligatory amount defined by an act with a laid down rate which is more or less regularly collected from the incomes of economic subjects into the public budgets on the irrecoverable principle.

The level of tax duties corresponds to the level of state intervention into social life. If one thinks about an optimal level of taxation, people must respect not only the political criteria but also the economic aspects. An economic model is more important than anything else. The limits of taxation are in effectiveness of economic system.

Not only in the Czech Republic but all over the world the fiscal function of taxes is the most important one. Its purpose is to guarantee the incomes of the state and municipal budgets and other (public cooperation) budgets because taxes are the most important incomes for these budgets. The fiscal function is closely connected with the regulation function: using taxes, the state can effectively regulate the incomes while transferring money between economical subjects and public funds. Toye [2] argues that a lack of tax revenue is a binding constraint in a fiscal reform. Raising revenue can be accomplished by changing the tax policy (e.g. raising tax rates) or by improving the tax collection.

The state must be very careful about tax rates: the tax burden must respect the tax capacity. Too high taxes do not motivate people to work or to run business.

1.1. Tax System in the Czech Republic

The tax system of the Czech Republic is very similar to the ones in other developed European countries. Nowadays, the system of taxes in the Czech Republic consists of direct and indirect taxes [1], [3].

Direct taxes consist of income taxes (personal income tax, corporate income tax) and property taxes (real estate tax, inheritance tax, gift tax, real estate transfer tax, road tax).

The issues of personal income taxation are
the following types of income [1], [4]:

- income from dependent activity,
- income from business and from other independent activity,
- capital property income,
- rental (lease) income,
- other incomes.

The issues of corporate income taxation are as follows [1], [4]:

- membership fees,

- income from collections in churches,
- income of state funds,
- income of the Children´s and Youth Funds,
- income from the operation of lotteries,
- interest on mortgage bonds,
- income in form of the interest received on overpayments caused by the social security authorities,
- incomes of the Central Bank of the Czech Republic.

Indirect taxes are divided into selected excise taxes (tax on petroleum oils, tax on spirit, tax on beer, tax on wine and intermediary products, tax on tobacco products, tax on earth gas and some other gases, tax on solid fuels, tax on electricity) and general excise taxes (value added tax).

Public behavior might be influenced mainly by the change of indirect taxes, therefore these kinds of taxes are specified below.

1.1.1 Selected excise taxes

The selected excise taxes are typical indirect taxes collected for many years not only in the Czech Republic. In fact, not all the products are liable to excise tax, just several of them chosen by state.

The states usually argue that these products are not healthy (alcohol, tobacco) or they destroy nature (petroleum oils). But the real reason for these taxes is money for public budgets. Actually, all these products are also liable to the value added tax. That is why it is called double taxation [1].

1.1.2 Value added tax

Value added tax (VAT) is the most typical indirect tax collected not only in the Czech Republic. It is the tax paid by a final consumer on the purchase of goods and services although many consumers do not even know they are paying this tax.

The issues of VAT are:

- Supply of goods for payment by a taxable person if a place of transfer is in the Czech Republic.
- Transfer or transference of real estate for consideration in an auction by a taxable person if a place of transfer is in the Czech Republic.
- Supply of service for consideration by a taxable person if a place of transfer is in the Czech Republic.
- Acquisition of goods from another member state of the European Union for payment
- Import of goods with a place of supply in the Czech Republic [1], [5].

Payer of the value added tax are individuals and legal entities involved in economic activities such as trading, manufacturing activities, and the provision of service in the Czech Republic.

Legislative changes of the value added tax - that are very often in the Czech Republic - lead to mistakes and misunderstanding. On the contrary, tax simplicity, clear arrangement and stabilized praxis lead to the healthy business economy. Bird's [6] states that tax administration is more effective if the tax laws are simplified.

Table 1 represents common changes of VAT in the time period from the year of 1993 to 2013. The table illustrates a noticeable upward trend from the year 2008.

In the Czech Republic there are two rates of VAT – the basic one and the reduced one. The basic rate is used both for the supplies of goods and services. For the reduced tax rate a list of goods and services liable to reduced VAT rate in annexes to the Value Added Tax Act is given.

As an example of the reduced VAT could be mentioned several kinds of foods and services like foodstuffs including beverages or water, pharmaceutical products, napkins for babies, books, newspapers and journals, baby safety seats used in cars, water management, regular mass transport or cultural activities [1]

TAB. 1: **Development of the value added tax rate**

Date of Validity	Basic rate of VAT	Reduced rate of VAT
01/01/1993 - 31/12/1994	**23%**	**5%**
01/01/1995 - 30/04/2004	**22%**	**5%**
01/05/2004 - 31/12/2007	**19%**	**5%**
01/01/2008 - 31/12/2009	**19%**	**9%**
01/01/2010 - 31/12/2011	**20%**	**10%**
01/01/2012 - 31/12/2012	**20%**	**14%**
01/01/2013	**21%**	**15%**

Source: co-authors' research and [7]

Nowadays, the Czech government plans to set a united rate by an act. This change in legislation might have a very significant impact on public behavior.

2. Methodology

Data acquisition was carried out during July and August 2012 through written questionnaire with the interviewers. These interviewers were before the start of investigation properly instructed about how to record communi-

cations and data, in order to ensure consistency of information received, and their credibility. During the pilot research 293 respondents were contacted, one questionnaire was answered incorrectly and therefore it was excluded from the data processing.

The whole questionnaire has 25 questions, 9 of them has the personal character. In this article three basic questions relating to taxes changes are explored.

3. Opinion Poll on Tax Changes

In the following text responses to the following three questions are discussed:

1. How do you obtain the information about changes in tax legislation?
2. Are you interested in arguments and comments on changes in tax legislation?
3. What primarily influences your opinion on tax changes?

Answers were rated on a scale from one to five. (1 - no effect, 5 – a big effect)

The answers to the following questions were influenced by three aspects - gender, age, education.

3.1. Dependence on gender

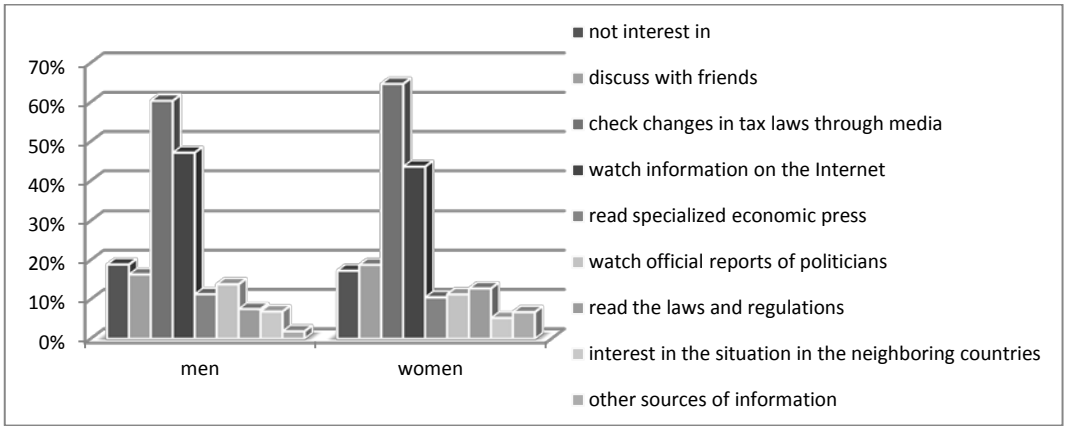
In the following text the answers of the respondents who are classified into the categories by gender are summarized. The sample of the respondents consisted 159 men and 133 women.

Figure 1 shows the percentage of answers to question 1. The dominant answer for both categories is: “Check changes in tax laws through the media”. The second most prevailing answer is: “Watch information on the Internet”.

Both genders at least observe the situation in the neighbouring countries. 19% of men and 17% of women do not watch the changes in tax legislation at all.

The second question confirmed a great influence of the media which have an affect on 74% of women and 70% of men.

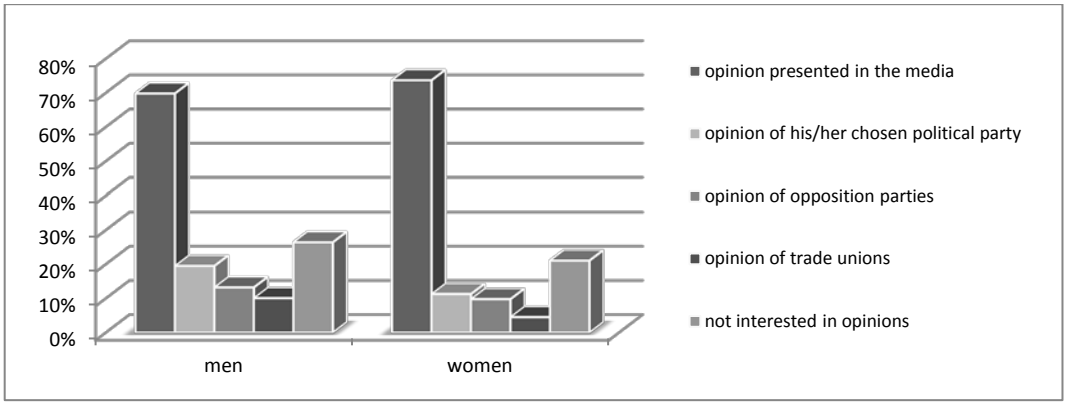
FIG. 1: **Answers to the question 1 / gender dependence**



Source: co-authors' research

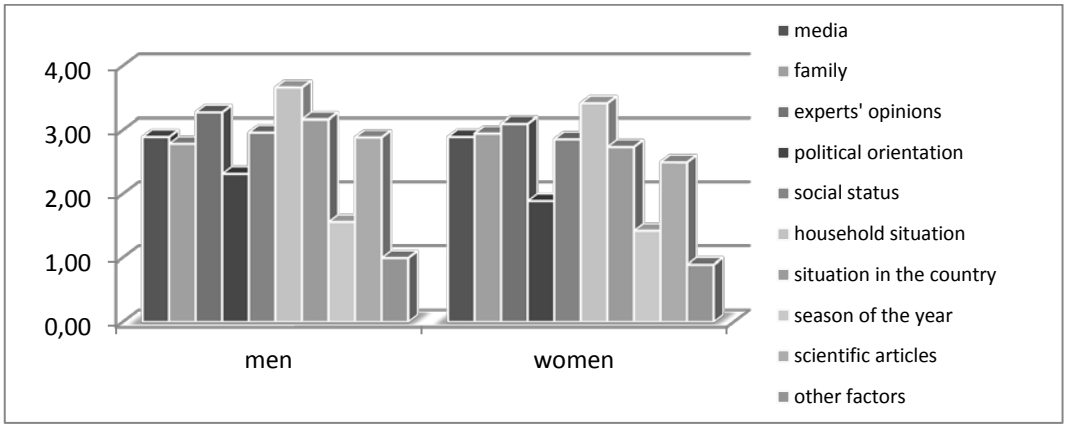
It is the opinion of trade unions that have 5% impact on women. 26% of men and 21% of women are not interested in opinions of media, political parties and trade unions at all [Fig. 2].

FIG. 2: **Views on tax changes / gender**



Source: co-authors' research

FIG. 3: **Opinions on tax changes / gender**



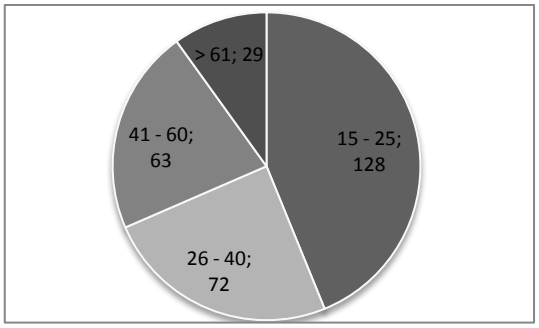
Source: co-authors research

In figure 3 are shown the answers to the question: "What primarily influences your opinion on tax changes?". It is the “household situation” that influences the men´s category most - there is an average score of 3.66 (3.41 for women). Opinions of experts are put in the second place. The least important is the influence of the season of the year and the political orientation of the respondents.

3.2. Dependence on age structure

In the second part of this research, the results are divided by the age of respondents. Most of them were from 15 to 25 years (128 respondents), the fewest of them were over the age of 61 (29 respondents). Respondents between the ages 26 - 40 and 41 - 60 made up about a quarter of the total sample of the inquired people. This distribution is shown in the figure 4.

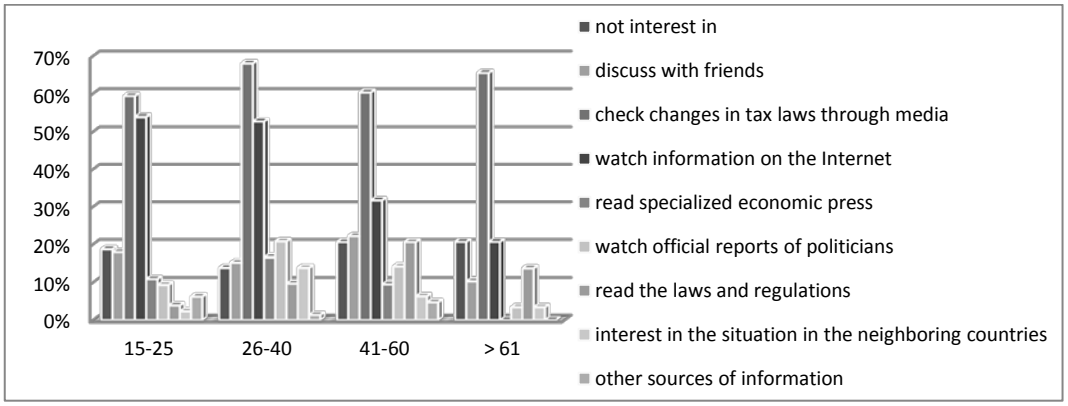
FIG. 4: **Composition of the inquired respondents**



Source: co-authors’ research

Figure 5 shows that 17% of the respondents from the age of 26 - 40 read specialized economic press but none of the “61 years and more” age group.

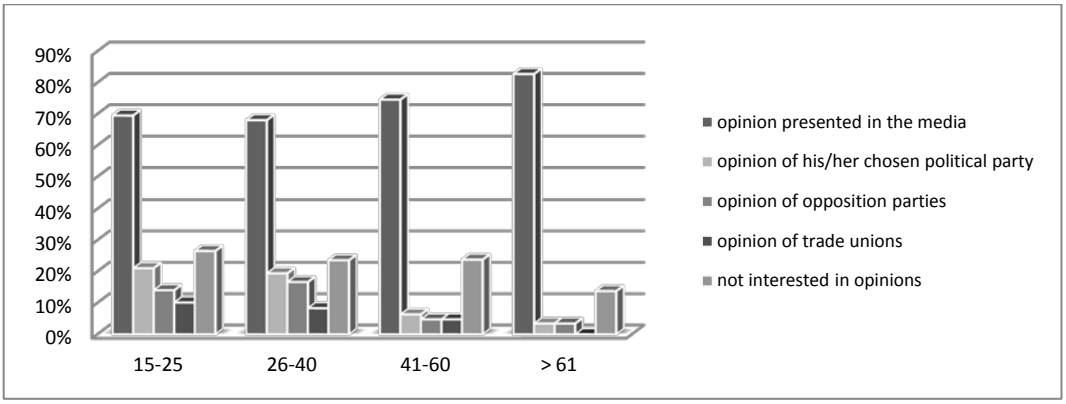
FIG. 5: **Answers to question 1 / age**



Source: co-authors’ research

Very similar situation is with the answer "Watch official reports of politicians"- it is only one person of the oldest people´s group that watches it. In the age bracket 26 - 40 it is 21% of the respondents. "Search information on the Internet" decreases according to increasing age of the respondents (54%, 53%, 32%, 21%).

FIG. 6: **Views on tax changes / age**

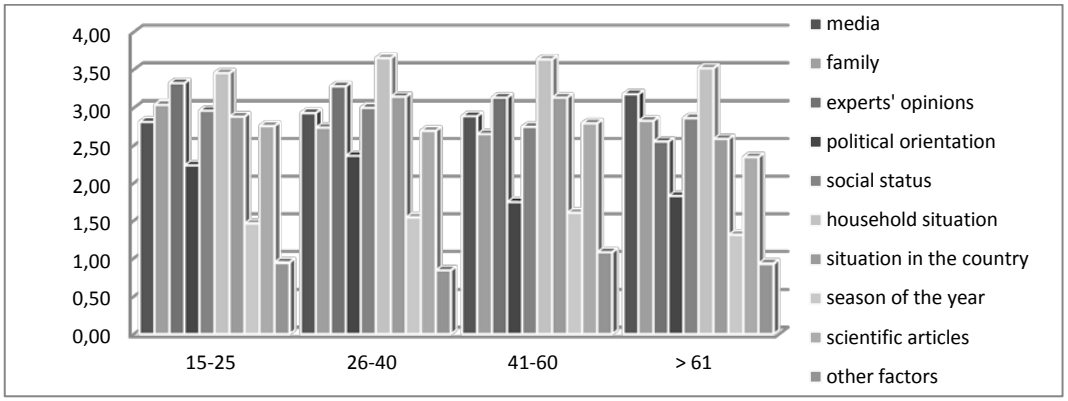


Source: co-authors' research

The oldest citizens seem to be interested in tax legislation changes the most. It is also proven that they trust primarily the mass media. Only for two of them, an opinion of a chosen political party or opposition parties is important. It is very similar to all the answers obtained by two youngest groups as fig. 6 shows.

The influence of a political orientation decreases proportionally to increasing age. "Opinions of experts" was given the value 2.39 by the people aged over 61 years, whereas the same was the valued at 2.62 on average by the respondents aged from 26 to 40. These results can be seen in the figure 7.

FIG. 7: **Opinions on tax changes / age**

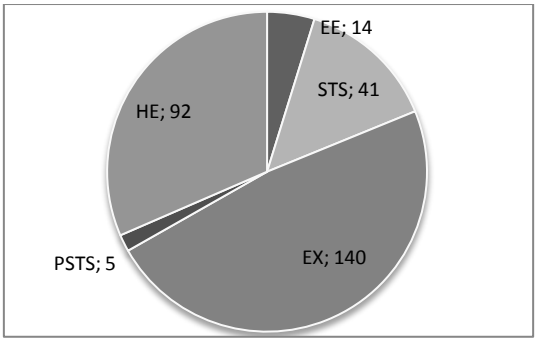


Source: co-authors' research

3.3. Dependence on education

In the following text the answers of the respondents who are classified into several categories by education are summarized. The first graph shows how many respondents accomplished elementary education (EE), secondary technical education (STE), secondary school - leaving examination (EX), post-secondary technical education (PSTE) and higher education (HE).

FIG. 8: **Composition of the inquired people group**

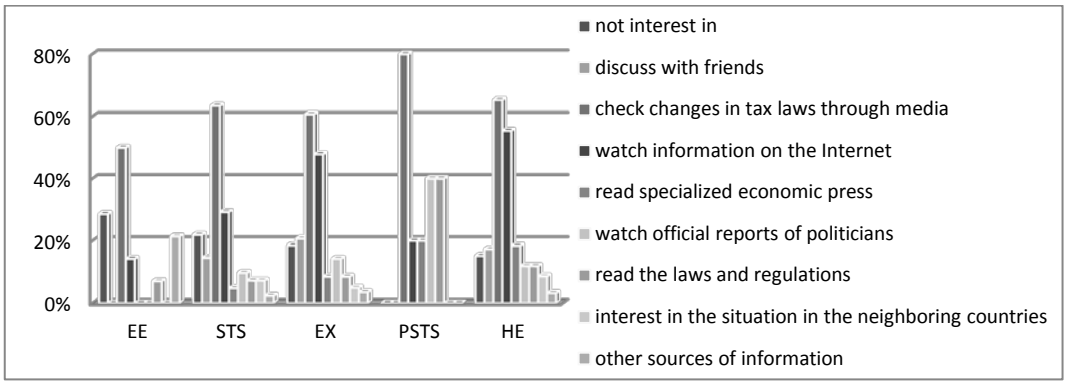


Source: co-authors' research

In the monitored sample only 5 people were post-secondary technical school graduates, 14 of them accomplished elementary education. Almost half of them completed secondary education by passing secondary school-leaving examination [Fig.8].

In proportion to the increasing level of education, there is also an increase in the interest in changes of taxes [Fig. 9]. One third of elementary-educated people are not interested in these changes at all, in well-educated people it is only 15%. The last response is quite interesting - 21% of elementary-educated respondents use also the other sources of information (school, family).

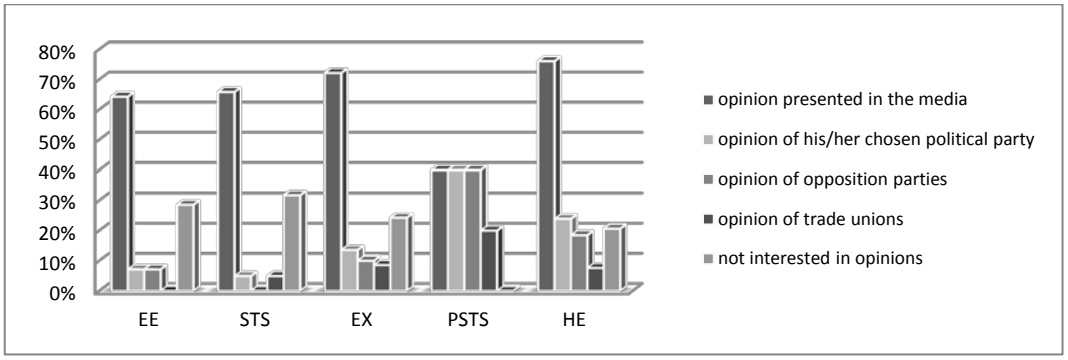
FIG. 9: **Answers to the question 1 / education**



Source: co-authors' research

The most interested in views on changes in tax legislation are well-educated people (79%) on the contrary, elementary-educated people are interested least (68%) in the same subject. The most important for all groups is the opinion of media (72%) and the least important is the opinion of trade unions (8%). This is illustrated in figure 10.

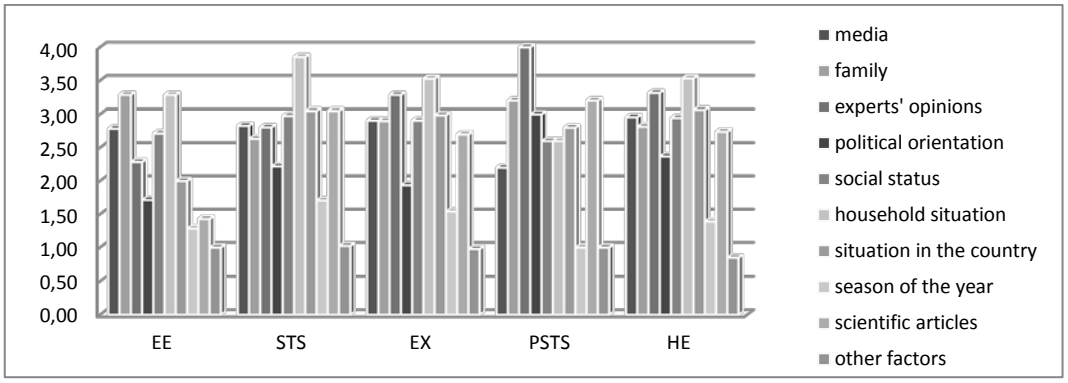
FIG. 10: **Views on tax changes / education**



Source: co-authors' research

It was "Season of the year" that was marked as completely unimportant by the people graduated from post-secondary technical schools. According to those people, this question was given an average mark 1.71. As it is shown in figure 11, it is the household situation that is the most important for all of them and for most of the people graduated from secondary technical schools. The most influenced were elementary-educated people (an average index only 2.18).

FIG. 11: **Opinions on tax changes / education**



Source: co-authors' research

Conclusion

Research produced several conclusions. All respondents are strongly influenced by the media. The impact of the Internet decreases proportionately to the increasing age of the respondents. Slightly surprising is a low interest

of the respondents in the events in neighboring countries. Moreover, the theory of the annual season effects on adaptation to tax changes was not supported.

Acknowledgement:
The paper was written with the support of the specific research project "Causalities of the tax incidence" granted by the University of Hradec Králové, Czech Republic.

References:
[1] RADVAN, M. *Czech Tax Law.* Masaryk University Brno. 2010.
[2] TOYE, J. Fiscal Crisis and Fiscal Reform in Developing Countries, *Cambridge Journal of Economics.* 2000, Vol. 24, pp. 21-44.
[3] Zákony I/2012 sborník daňových, účetních a souvisejících předpisů (translated as *Laws I/2012 Collection of Tax, Accounting and Related Regulation*), in Czech, Poradce Ltd, Český Těšín 2012.
[4] Poradce 6-7 Zákon o daních z příjmů (translated as *Advisor 6-7 Income Taxes Law*), in Czech, Poradce Ltd, Český Těšín 2011.
[5] Poradce 9 Zákon o DPH (translated as *Advisor 9 Value Added Tax Law*), in Czech, Poradce Ltd, Český Těšín 2011.
[6] BIRD, R.M. Administrative Dimensions of Tax Reform, *Asia-Pacific Tax Bulletin*, 2004, pp. 134-150.
[7] Vývoj DPH od roku 1993 do roku 2013 (translated as Development of the Value Added Tax from 1993 to 2013). *Portal of tax advisors and professionals*, in Czech, online. Available on http://www.danarionline.cz/blog/detail-prispevku/articleid-824-vyvoj-dph-od-roku-1993-do-roku-2013/, accessed 6/8/2012.

Hradec Economic Days
Volume 3
Issue 1
Double-blind peer-reviewed proceedings part III. of the international scientific conference Hradec Economic Days 2013 Economic Development and Management of Regions
February 19th and 20th, 2013
Editor: Pavel Jedlička
Hradec Economic Days are published annually
Edition size: 220 pcs.
Publisher: University of Hradec Králové,
Publisher`s office: Rokitanského 62, Hradec Králové 3, 500 03, Czech Republic
VAT ID: CZ62690094

ISSN 2464-6059 (Print)
ISSN 2464-6067 (Online)
ISBN 978-80-7435-251-5