



University of Hradec Králové
Faculty of Informatics and Management

Hradec Economic Days

Vol. 2(1)

Double-blind peer-reviewed proceedings part II.
of the International Scientific Conference
Hradec Economic Days 2012

January 31st and February 1st, 2012
Hradec Králové, Czech Republic

Bálint-Esser * Bartniczak * Bednarska Olejniczak * Borovička-Mynařík-Fiala * Consoli * Fiala * Filip
Firlej * Gardocka Jałowiec * Gottwald * Grzebyk * Hájek * Chamaru De Alwis * Chmielak
Jayawardena * Krowiak * Ładysz * Łapińska * Marešová * Michalczuk-Widelska * Navickas
Kontautiene-Simbelyte * Olejniczak-Pelikán-Černý-Kobzareva * Piepiora * Piwowar * Poniatowicz
Przygodska * Ptak * Sosnowski-Żabiński * Svobodová * Szewczyk * Sztando * Tłuczak * Vijayakumar
Wanninayake-Chovancová * Wierzbicka * Wildowicz Giegiel-Kargol Wasiluk * Żabiński-Sosnowski
Zalesko * Bálint-Esser * Bartniczak * Bednarska Olejniczak * Borovička-Mynařík-Fiala * Consoli
Fiala * Filip * Firlej * Gardocka Jałowiec * Gottwald * Grzebyk * Hájek * Chamaru De Alwis
Chmielak * Jayawardena * Krowiak * Ładysz * Łapińska * Marešová * Michalczuk-Widelska
Navickas-Kontautiene-Simbelyte * Olejniczak-Pelikán-Černý-Kobzareva * Piepiora * Piwowar
Poniatowicz * Przygodska * Ptak * Sosnowski-Żabiński * Svobodová * Szewczyk * Sztando * Tłuczak
Vijayakumar * Wanninayake-Chovancová * Wierzbicka * Wildowicz Giegiel-Kargol Wasiluk
Żabiński-Sosnowski * Zalesko * Bálint-Esser * Bartniczak * Bednarska Olejniczak * Borovička
Mynařík-Fiala * Consoli * Fiala * Filip * Firlej * Gardocka Jałowiec * Gottwald * Grzebyk * Hájek
Chamaru De Alwis * Chmielak * Jayawardena * Krowiak * Ładysz * Łapińska * Marešová
Michalczuk-Widelska * Navickas-Kontautiene-Simbelyte * Olejniczak-Pelikán-Černý-Kobzareva
Piepiora * Piwowar * Poniatowicz * Przygodska * Ptak * Sosnowski-Żabiński * Svobodová
Szewczyk * Sztando * Tłuczak * Vijayakumar * Wanninayake-Chovancová * Wierzbicka * Wildowicz
Giegiel-Kargol Wasiluk * Żabiński-Sosnowski * Zalesko * Bálint-Esser * Bartniczak * Bednarska
Olejniczak * Borovička-Mynařík-Fiala * Consoli * Fiala * Filip * Firlej * Gardocka Jałowiec
Gottwald * Grzebyk * Hájek * Chamaru De Alwis * Chmielak * Jayawardena * Krowiak * Ładysz
Łapińska * Marešová * Michalczuk-Widelska * Navickas-Kontautiene-Simbelyte * Olejniczak
Pelikán-Černý-Kobzareva * Piepiora * Piwowar * Poniatowicz * Przygodska * Ptak * Sosnowski
Żabiński * Svobodová * Szewczyk * Sztando * Tłuczak * Vijayakumar * Wanninayake
Chovancová * Wierzbicka * Wildowicz Giegiel-Kargol Wasiluk * Żabiński-Sosnowski



University of Hradec Králové
Faculty of Informatics and Management

Hradec Economic Days

Vol. 2(1)

Double-blind peer-reviewed proceedings part II.
of the international scientific conference
Hradec Economic Days 2012
Economic Development and Management of Regions

January 31st and February 1st, 2012
Hradec Králové, Czech Republic

Edited by: Pavel Jedlička.

© 2012 Published by University of Hradec Králové. Proceedings are under the Creative Commons Attribution-NonCommercial 4.0 International License (CC-BY-NC).

ISSN 2464-6059 (Print)
ISSN 2464-6067 (Online)
ISBN 978-80-7435-172-3

Proceedings were not a subject of language check.

CONTENT

PREFACE.....	7
THE ACCEPTANCE OF CREDIT CARDS IN BIG AND SMALL ECONOMIES: A COMPARISON BETWEEN GERMANY AND SLOVAKIA	
Tomáš Bálint, Martin Esser	9
STATE AID AS A TOOL FOR IMPLEMENTATION OF THE STRATEGY "EUROPE 2020"	
Bartosz Bartniczak	15
BANKING MARKETING IN CUSTOMER VALUE CREATION MARKETING BANKOWY W KREOWANIU WARTOŚCI DLA KLIENTA	
Dorota Bednarska-Olejniczak	20
FUNDING OF PENSION PROTECTION	
Adam Borovička, Petr Mynařík, Petr Fiala	25
THE ADOPTION AND USE OF ERP SYSTEMS IN SMALL-MEDIUM AND LARGE COMPANIES	
Domenico Consoli	31
IMPACT OF TAX EXPENDITURES ON BUDGET REVENUES IN POLAND	
Ryta I. Dziemianowicz	37
LINEAR MODELS IN REVENUE MANAGEMENT	
Petr Fiala	43
INNOVATIVENESS AS THE CHANGE FOR INCREASING COMPETITIVENESS OF SMALL AND MEDIUM ENTERPRISES	
Paulina Filip	48
ENERGY INTENSITY OF GDP IN THE LIGHT OF ENERGY POLICY OBJECTIVES IN POLAND UNTIL 2030	
Krzysztof Adam Firlej	54
DECONSUMTION AND THE STANDARD OF LIVING IN THE ASPECT OF SOCIAL COHESION IN THE EUROPEAN UNION	
Anna Gardocka-Jałowiec	61
SELECTED MODELS USED TO STOCK VALUATION BASED ON EARNINGS OR ON DIVIDENDS	
Radim Gottwald	66
CLUSTERS - NEW POSSIBILITIES OF DEVELOPMENT OF ENTERPRISES	
Mariola Grzebyk	71
TAX COMPETITION AND DEVELOPMENT OF REGIONS	
Ladislav Hájek	77

INTERNATIONAL JOINT VENTURE: THE NEW WAY OF THINKING FOR THE BUSINESS SUCCESSION	
A. Chamaru De Alwis	84
MEASURING OF THE LEADERSHIP POTENTIAL OF CORPORATE MANAGERS THROUGH EMOTIONAL INTELLIGENCE	
Chandana Jayawardena	90
NEW WAYS OF MEASURING THE QUALITY OF LIFE	
Bogusław Adam Chmielak	96
PARTICIPATION OF PUBLIC CONSUMPTION IN THE STRUCTURE OF THE GROSS DOMESTIC PRODUCT FOR THE CZECH REPUBLIC, POLAND AND SLOVAKIA	
Andrzej Krowiak	101
METHODS OF MEASURING THE ECONOMIC VALUE OF PUBLIC SPACES	
Jerzy Ładysz	108
INSTITUTIONS AND THEIR INFLUENCE ON EVALUATION OF THE INTERNATIONAL COMPETITIVENESS OF POLISH ECONOMY	
Justyna Łapińska	114
ECONOMIC SITUATION AND ITS IMPACT ON THE ICT SECTOR	
Petra Marešová	121
MARKETING ASPECTS OF CLUSTERS DEVELOPMENT BASED ON UNDERWEAR CLUSTER IN PODLASKIE VOIVODESHIP	
Grażyna Michalczuk, Urszula Widelska	127
GREEN STRATEGIES AS COMPANIES' COMPETITIVENESS- ENHANCING FACTOR	
Valentinas Navickas, Rima Kontautiene, Egle Simbelyte	132
MULTI-YEAR FINANCIAL FORECAST IN THE SELF-GOVERNMENT	
Jarosław Olejniczak	138
OPTIMIZATION OF SKIP TRANSPORT	
Jan Pelikán, Michal Černý, Maria Kobzareva	143
FINANCING THE COUNTERACTION OF THE NATURAL DISASTERS' EFFECTS IN THE LUBIN COUNTY	
Zbigniew Piepiora	148
ASSESSMENT OF THE SOCIAL-ECONOMIC DEVELOPMENT LEVEL OF THE CHOSEN LOWER SILESIA DISTRICTS	
Arkadiusz Piwowar	153
THE ECONOMIC CRISIS AND ITS IMPACT ON THE FINANCIAL SITUATION OF LOCAL AUTHORITIES IN POLAND	
Marzanna Poniatowicz	159
OPTIMAL BEHAVIOUR OF REVENUE MAXIMIZING FIRM	
Pavel Pražák	165

THE STATE AID FOR ENTERPRISES IN POLAND	
Renata Przygodzka	171
MEASURES TO TACKLE CLIMATE CHANGE IN THE WALLOON REGION	
Michał Ptak	177
HARMONIZATION OF DIRECT TAXATION WITHIN THE EUROPEAN UNION	
Michał Sosnowski, Arkadiusz Żabiński	182
INVESTMENT GAMES AND SIMULATORS IN THE CZECH REPUBLIC	
Libuše Svobodová	193
OPOLE VOIVODSHIP: PROSPECTS FOR LOW-TECHNOLOGY MANUFACTURING INDUSTRY	
Mirosława Szewczyk	198
PRACTICALLY VERIFIED CONCEPTION OF LOCAL DEVELOPMENT STRATEGY CONSTRUCTION PROCEDURE	
Andrzej Sztando	203
THE CAUSAL RELATIONSHIPS BETWEEN THE PRICES OF MILK IN POLAND, SLOVAKIA AND THE CZECH REPUBLIC	
Agnieszka Tłuczak	210
CAN MARKET CONTRIBUTE OF THE REDUCTION OF INEQUALITY AND POVERTY IN SRI LANKA?	
Sinnathurai Vijayakumar	215
PERSONAL CULTURAL ORIENTATION AND CONSUMER ETHNOCENTRISM: EXPLORING THE MODERATING ROLE OF GENDER	
W.M.C.Bandara Wanninayake, Miloslava Chovancová	221
CORPORATE GOVERNANCE AS THE INSTRUMENT OF CREATING COMPANY'S INFORMATION POLICY	
Anna Wierzbicka	227
THE INTERSECTORAL COOPERATION WITHIN THE TRIPLE HELIX FOR INNOVATION IN POLISH ECONOMY	
Anna Wildowicz-Giegiel, Aneta Kargol-Wasiluk	233
FISCAL ASPECTS OF ECONOMIC GROWTH IN THE CENTRAL AND EASTERN EUROPE	
Arkadiusz Żabiński, Michał Sosnowski	240
THE CONCEPT OF TRANSACTION COSTS AND THE FUNCTIONING OF THE ECONOMY IN SELECTED REGIONS OF THE WORLD	
Marian Zalesko	251

PREFACE

The Faculty of Informatics and Management, University of Hradec Kralove organized the **10th jubilee International Scientific Conference Hradec Economic Days 2012** under the title **Economic Development and Management of Regions**. The conference was held on 31 January to 1 February 2012 and registered 127 participants, of which 50 from abroad.

Papers to the Proceedings were divided thematically and discussed in seven sections. Most papers are focused on enterprise and management of firms and regions. There have been increased the number of papers dealing with the financial crisis and problems of taxation. The first part of the reviewed Proceedings of the Conference HED 2012 contains 53 papers (in Czech, Slovak and Polish), the second volume of Proceedings contains 41 papers in English.

The original intention of HED conferences was to create a platform for regular meetings of experts in particular disciplines close to the field of economics and management, strengthening of interdisciplinary relationships and research on the border of several scientific disciplines, establishing personal contacts important for the submission of joint research projects and create a space for presentations and publications of young teachers. This year's conference HED 2012 meets all these requirements.

I would like to thank to all those who participated in the preparation of the conference as members of the organizing and programme committees or in the review procedure, editorial process and publication of Proceedings.

Hradec Kralove, January 11th, 2012

prof. Ing. Ladislav Hájek, CSc.
Head of the Economics Department
Faculty of Informatics and Management
University of Hradec Kralove

THE ACCEPTANCE OF CREDIT CARDS IN BIG AND SMALL ECONOMIES: A COMPARISON BETWEEN GERMANY AND SLOVAKIA

Tomáš Bálint, Martin Esser

Technical University of Košice

tomas.balint@tuke.sk, esser.martin@freenet.de

Key words:

credit cards – comparison of economies – digital money – electronic payments

Abstract:

In the global economy, we experience these days, the vast majority of payment transactions among different subjects is realized in dematerialized form. The banknotes and coins represent only a minor portion of all payment instruments. The biggest part of transactions is based on electronic payment systems. In this category we generally include payment cards, too. The main objective of this paper is to provide a comprehensive analysis of credit cards' acceptance in economy. For these purposes two economies in the European Monetary Union were chosen: Germany as a representative of large economy and Slovakia as a model of small one.

1 Introduction

The first coins in the world have been established in the 7th century BC. Before that some goods had the functionality of money as they were accepted as a fixed value: grain, shells, silver or gold. The first paper money was established in the 11th century in China. In Europe, the first paper money has been established 1483 in Spain. Already in 1609 the “Bank of Amsterdam” has established book money. [5]

Later in the history, to make the handling with money easier and safer, banks established payment via checks. With that the recipient of the check could go to a bank and change this “paper of value” against cash money. The whole system was based on trust – similar to the trust in paper money because paper money itself doesn't have any value. It's just a printed piece of paper.

The next big change in money transfers has happened in the last decades. In the year 1950 the first credit card (Diners Club) has been founded. This was the beginning of a new way of payment: cashless payment. Successively, other types of card products were created. Among them we can cite standard debit and credit cards, but also new progressive payment methods based on

the wireless technologies, i.e. contactless payments and mobile payments. [2], [4]

The one of the most important problems when dealing with cashless payments is the question of trust. All subjects participating in a payment scheme are questioning trustworthiness of the other partners. This can be an important barrier in the process of card payments' adoption. The questions arising from this perspective are, e.g., the question of the credit cards acceptance in various environments, the question of the trends in credit cards growth and usage, and many more. [1], [6]

In our paper we focus on the analysis of one of the most widespread electronic payments' mechanism - credit cards. We study the evolution of the acceptance of credit cards from 2000 to 2010 in two European economies: Germany and Slovakia. The main goal is to provide a comprehensive description of the credit cards market in these two member countries of European Monetary Union (EMU).

2 Methodology

The first and very often the most important phase in every economical analysis is the acquisition of relevant data. Because our study is focused on payment instruments' analysis in two member countries of the EU, the ultimate reference for the data collection was the European Central bank (ECB) – the European authority in the field of common monetary politics and central node in European payment systems.

For the purposes of our study we have identified a set of indicators which define the use of credit cards in each of two studied European economies, Germany and Slovakia. Data for our study were obtained from the ECB's Statistical Data Warehouse [3]. The chosen indicators were from the category "*Economic Concepts > Payments and securities trading, clearing, settlement > Payments > Transactions per type of payment instrument (number and value)*". The used indicators' identification keys are summarized in TAB. 1. These statistical data summarize the evolution of key quantitative indicators in the period from 2000 to 2010. Some of the data, especially for the beginning of this period and in case of Slovakia, are missing (represented as NA values in data tables).

TAB. 1: Statistical indicators' identification keys

GERMANY	SLOVAKIA
PSS.A.DE.F000.I1A.Z00Z.NC.X0.20.Z0Z.Z	PSS.A.SK.F000.I1A.Z00Z.NC.X0.20.Z0Z.Z
PSS.A.DE.F000.I1A.Z00Z.NP.X0.20.Z0Z.Z	PSS.A.SK.F000.I1A.Z00Z.NP.X0.20.Z0Z.Z
PSS.A.DE.F000.I1A.Z00Z.NR.X0.20.Z0Z.Z	PSS.A.SK.F000.I1A.Z00Z.NR.X0.20.Z0Z.Z

Source: [3]

3 Results

To determine the level of credit cards' acceptance in Germany and Slovakia, we focused our attention on 3 key indicators (indicator acronyms (in bold) have been created for an easier reference):

- **CTT** - All card transactions (number per million inhabitants),
- **CTG** - Growth rate in card transactions (in %),
- **CTS** - Card transactions as % share in national payments.

The data for all three indicators are summarized in TAB. 2.

TAB. 2: Data for the analysis

	CTT (in millions)		CTG (in %)		CTS (in %)	
Year	DE	SK	DE	SK	DE	SK
2000	17,495	NA	17,195	NA	11,777	NA
2001	20,026	2,112	14,681	NA	13,17	NA
2002	22,603	3,423	13,061	62,063	15,336	NA
2003	24,437	4,504	8,163	31,597	15,013	15,579
2004	27,107	5,484	10,903	21,816	15,305	17,161
2005	28,765	6,951	6,068	26,865	14,926	17,840
2006	29,571	8,104	2,679	16,668	14,15	16,625
2007	26,113	13,502	-11,805	66,78	13,815	18,234
2008	28,166	16,155	7,675	19,857	14,443	24,321
2009	30,035	21,114	6,320	30,986	14,834	27,597
2010	32,812	23,847	9,087	13,2	15,471	28,679

Source: [3]

CTT

The first indicator expresses the total annual number of card transactions expressed in millions per million inhabitants. From the table TAB. 2 and from the chart in FIG. 1 we can observe the evolution of this indicator. The differences in the economic development between Germany and Slovakia can be observed directly via this indicator. First of all, the average number of transactions per million inhabitants is in the first five years 4-7 times bigger in case of Germany than in Slovakia. In the last years this difference is substantially smaller but it can be always observed that in Germany there is bigger amount of transactions realized via credit cards than in Slovakia.

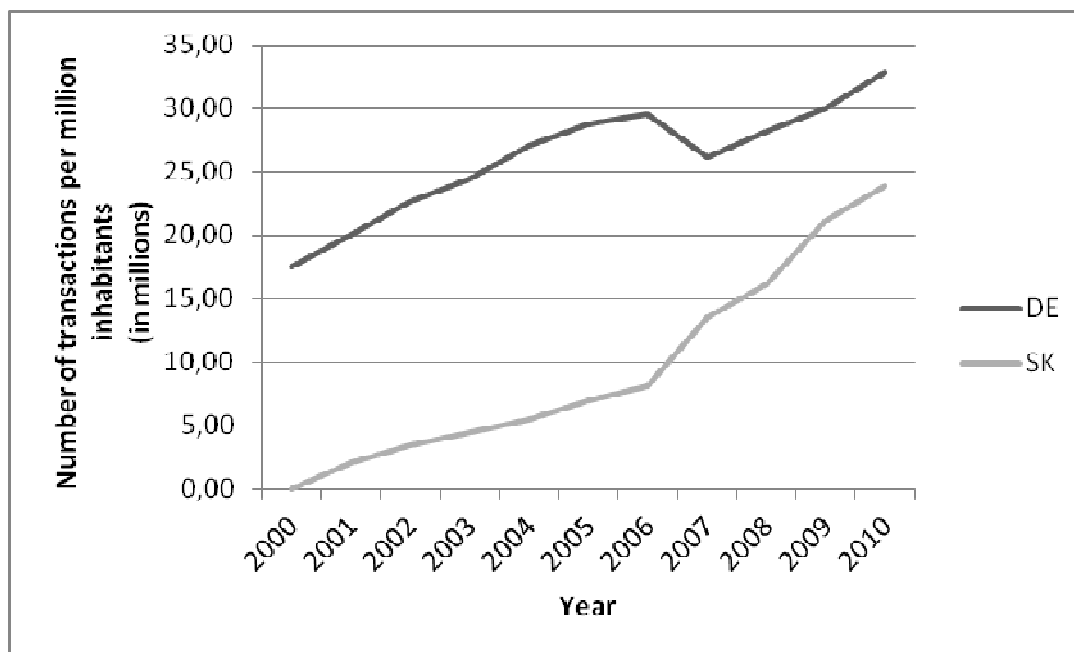


FIG. 1: Development of CTT indicator between 2000 and 2010 in Germany and Slovakia

CTG

The change in growth of credit cards' usage (expressed in %) is another important indicator. It helps to explain the process of credit cards adoption.

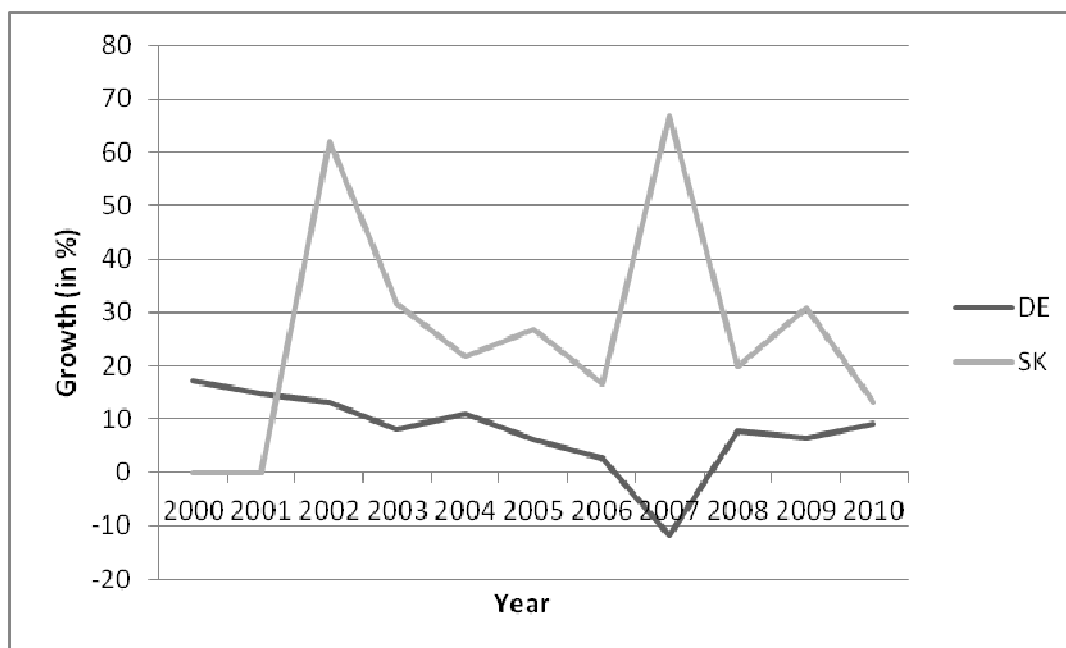


FIG. 2: Development of CTG indicator between 2000 and 2010 in Germany and Slovakia

In the case of Germany we can consider annual growth as pretty stable with the values between 10 and 20 %. The only strong deviation from this range is

observed in the year 2007. One possible explanation of this phenomenon is the beginning of global economic crisis, which started around this time. In case of the Slovakia we observe a vivid growth in the usage of credit cards. This growth is generally in the range from 20-30 % with some deviations in years 2002, 2006, 2007, and 2010 (see FIG. 2).

CTS

The last studied indicator represents the portion of payments in national economics, which is realized through the credit cards. The situation in Germany is stable with some 15 % of all national payments carried out by the means of credit cards. In Slovakia, we can observe a growing trend, which starts in 2003 when around 15 % of national payments were realized by credit cards, up to the year 2010 when nearly 30 % of all payments were credit cards payments (FIG. 3).

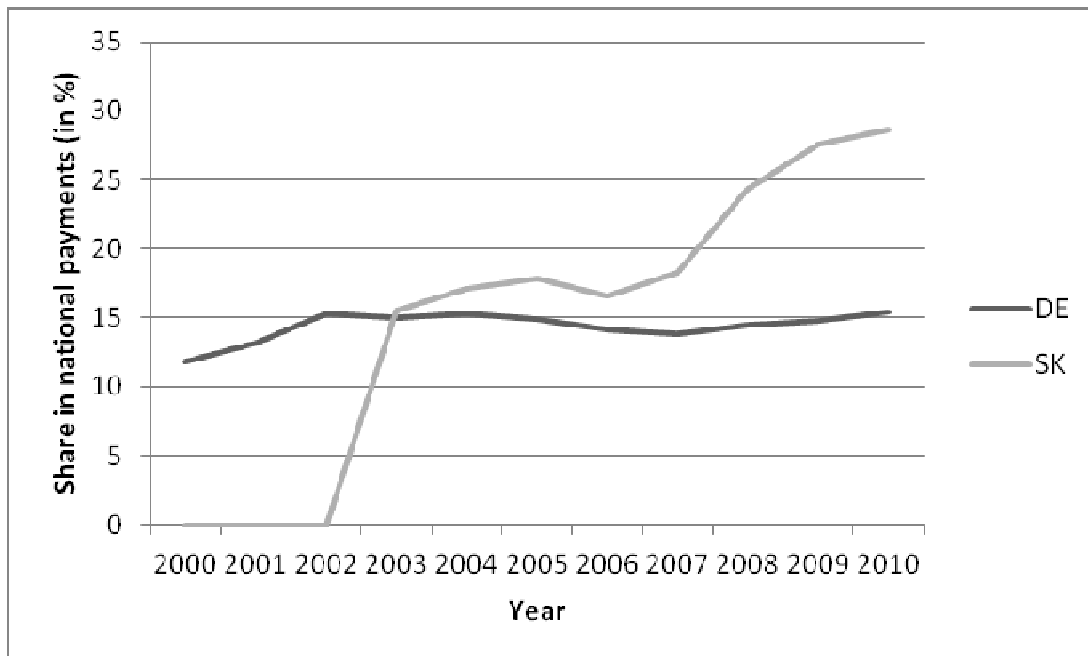


FIG. 3: Development of CTS indicator between 2000 and 2010 in Germany and Slovakia

4 Conclusion

Based on the analysis provided in the previous sections of this paper, the following concluding remarks can be formulated:

- In both countries the trend of credit cards' transactions per million inhabitants is similar but shifted. That means that if the markets continue to grow parallel, probably much more credit cards will be sold in Slovakia in the future.
- The growing trend in the credit cards' use is stronger in Slovakia than in Germany.

- The use of credit cards in Slovakia is much higher in Slovakia than in Germany (as proportion of total national payments).
- In 2007 fewer credit cards were used and fewer transactions happened than the years before and afterwards. One of the possible explanations of this situation can be the beginning of the global financial crisis.

To determine precisely the nature of relation between these two markets and their possible interconnections, a further research is planned in the future. The main possible research topics are the mutual dependency of both economies, the impact of new ICT on the adoption of different electronic payment methods, and trust issues existing among the participants present on these markets.

References:

- [1] DAHLBERG, T., MALLAT, N., OORNI, A. Trust enhanced technology acceptance model - consumer acceptance of mobile payment solutions. *The Stockholm Mobility Roundtable*, 2003.
- [2] DAHLBERG, T., MALLAT, N., ONDRUS, J., ZMIJEWSKA, A. Past, present and future of mobile payments research: A literature review. *Electronic Commerce Research and Applications*, vol. 7, pp. 165-181, 2008.
- [3] ECB: Statistical Data Warehouse [online] [cit. 2011-11-27]. Available on Internet: <<http://sdw.ecb.europa.eu/>>.
- [4] KARA, A., KAYNAK, E., KUCUKEMIROGLU, O. An empirical investigation of US credit card users: Card choice and usage behaviour. *International Business Review*, vol. 5, n. 2, pp. 209-230, 1996.
- [5] LOTHIAN, J. R. The internationalization of money and finance and the globalization of financial markets. *Journal of International Money and Finance*, vol. 21, n. 6, pp. 699-724, 2002.
- [6] NASH, R. C., SINKEY, J. F. On competition, risk, and hidden assets in the market for bank credit cards. *Journal of Banking & Finance*, vol. 21, n. 1, pp. 89-112, 1997.

STATE AID AS A TOOL FOR IMPLEMENTATION OF THE STRATEGY "EUROPE 2020"

Bartosz Bartniczak

Wroclaw University of Economics

bbartniczak@ae.jgora.pl

Key words:

state aid – European Union – Strategy Europe 2020

Abstract:

The strategy Europe 2020 defines the objectives of which the European Union must achieve in the coming years. Meeting these goals will require the involvement of many different instruments. One of them is state aid. Its focus on targets that contribute to the implementation of the Strategy will help to smooth its implementation. Therefore, it is important to monitor the process of state aid provided and answer the question what part of it is advantageous from the standpoint of the Strategy. Analysis of the value of state aid provided will focus on concepts such that the regulations of the Strategy were implemented to the fullest. This article aims to identify areas in which state aid helps to support the objectives of the Strategy. The article also noted the value given to this type of state aid in the years 2004-2010 by the European Union Member States.

1. Vision of Europe 2020

Strategy Europe 2020 formulated three main priorities:

- smart growth: developing an economy based on knowledge and innovation,
- sustainable growth: promoting a more resource efficient, greener and more competitive economy,
- inclusive growth: fostering a high-employment economy delivering social and territorial cohesion [1,5].

These three priorities are interrelated, they give a picture of the European social market economy in the twenty-first century. To solve the biggest problems and achieve the objectives of the Europe 2020 will be fully utilized the instruments which are used at the EU level, notably the single market, financial instruments and foreign policy tool. One of these instruments is state aid. The European Council in 2010 endorsed the Commission's proposal, that innovation and competitiveness are fundamental to the Europe 2020 Strategy, alongside protection of the environment and social inclusion. Indeed, EU competition policy, and State aid control policy in particular, are

key elements in the Europe 2020 Strategy. Competition is not an end in itself, but rather a means of increasing the competitiveness of European markets to the benefit of companies and consumers, resulting in more choice, better products at better prices. Competition boosts productivity, growth and job creation.

2. The role of state aid

State aid is one of the instruments the state intervenes in the contemporary market economy. It is the economic element of state intervention, which aims to encourage positive economic processes, or prevention of negative [3, 33]. Despite the commonness phenomena of state aid, this term doesn't have one definition. It was only written in Treaty Establishing the European Union [2] because of the negative effects that state aid has on competition in the market is introduced general prohibition on the award. Article 87 of the Treaty provides that, subject to exceptions provided for in the Treaty is incompatible with the common market, any aid granted by the state or from state resources in whatever form, which by favoring certain undertakings or certain industries distorts or threatens to distort the extent that affect trade between member states. So word prohibition can be interpreted widely. The concept of state aid has not been defined but it can be assumed that state aid is aid granted by a member state or from state resources in any form whatsoever which distorts or threatens to distort competition by favoring certain undertakings or the production of certain products, in so far as it negatively affects trade between member states.

The objectives of state aid control in Europe 2020 points of view are:

- reduce the overall levels of State aid ("less aid"),
- ensure that the aid granted does not limit competition, but contributes to remedy the imperfections of the market for the benefit of the general public ("better aid"),
- effective prevent the granting of aid incompatible with the common market or recovery of such aid,
- ensuring equal opportunities in the internal market (no trade distortions between Member States).

State aid control aims at helping Member States to better target aid by directing it more closely to improving competitiveness and/or reducing regional and social disparities.

3. State aid contribution to Europe 2020 Strategy

The key areas where state aid is granted and that have the meaning given to the implementation of the Strategy Europe 2020 include the:

- Research, Development and Innovation (R&D&I),
- environmental protection,
- regional development,
- small and medium sized enterprises (SMEs),
- the broadband sector,
- employment and training [4].

R&D&I activities is one of the key elements in the effort to enhance the competitiveness of the EU economy and to ensure sustainable growth. State aid granted to R&D&I can significantly help by encouraging and supporting initiatives for innovation efficient and more environmentally friendly technologies, while facilitating access to public support for investment, capital risk and financing of research and development.

In environmental protection area state aid can be used to eliminate market failures arising from the negative environmental externalities. State aid may play a significant role in the situation where market failure prevent companies achieve higher level of environmental protection, and when no other market instruments cannot be used. The main objective of state aid control in the environmental protection area is to ensure that state aid instruments will result in a higher level of environmental protection than would occur without the aid and to ensure that the positive effects of the aid outweigh its negative effects, notably distortions of competition and affectation of trade between Member States [4].

Regional state aid promotes economic, social and territorial cohesion of Member States and the European Union as whole. It contributes in this way to achieve the objectives of the Europe 2020.

SMEs play an important role in creating new jobs and economic growth. Support the creation, development and internationalization of SMEs must therefore be at the heart of the new EU integrated industrial policy. State aid rules contribute to the promotion of industrial competitiveness in Europe. State aid rules provide a framework through which member states invest are directed where there are irregularities in the functioning market. State aid control is essential for the equal opportunities for all companies operating in the internal market, irrespective of the Member State in which they are established. The European Commission makes sure the appropriate focus of these measures, ensuring that aid does not work disincentive to investors, no investment was spent on maintaining inefficient market companies and does not cause distortions of competition [4, 43].

Development of broadband sector is very important because the high and very high speed broadband infrastructures are crucial to create jobs, increase economic performance and to unlock the competitive potential of the EU in

the long term. Broadband deployment to promote social inclusion and competitiveness in the EU is demand use public financing according to state aid rules. Public funding and state aid play an important role in complementing private investments.

State aid for employment and training can be an appropriate instrument, for example, to support the recruitment of workers with disabilities or other categories of workers which face barriers to their employment at the going wage rates [4, 48]. State aid in form of wage subsidies might help such workers to enter the labour market or to remain in their post by covering extra costs induced by their perceived or real lower productivity.

In years 2004-2010 46,1 mld. euro state aid was granted by Member Countries in the areas which are relevant for Strategy Europe 2020 (figure 1). The largest part was granted as regional support – above 30%, the second was the support in environment protection – almost 29%.

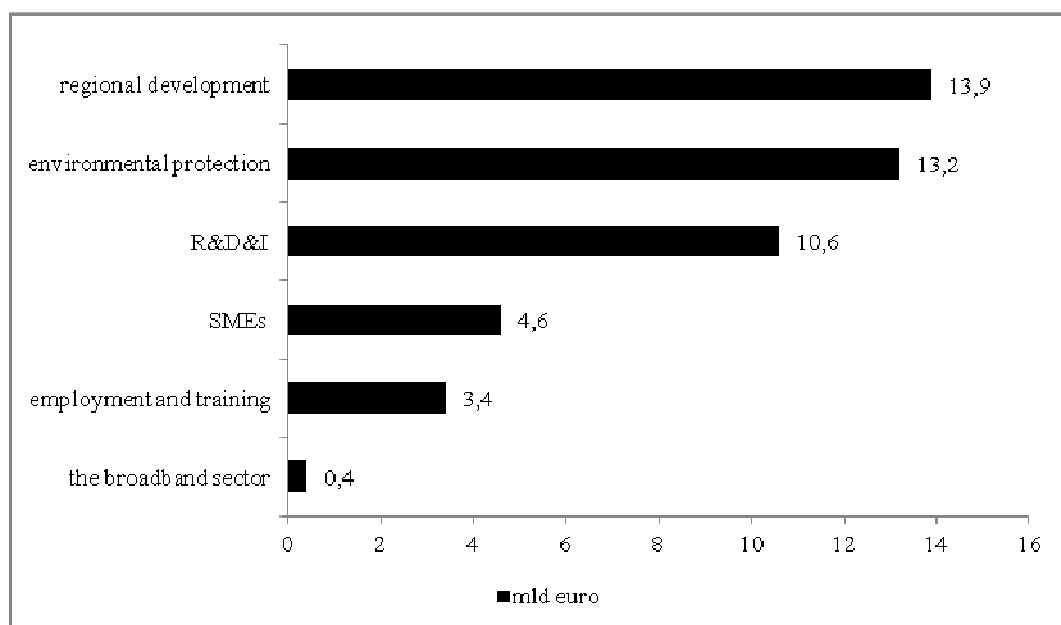


FIG.: 1. State aid expenditure for Europe 2020 goals

Source: [4,21]

The lowest support was provided to the broadband sector. This is because public funding has to be used carefully in the liberalized telecoms markets to avoid a crowding out of private investments. But we have to remember that public funding and state aid will play an important role in complementing private investments and in extending broadband and very high speed, next generation access (NGA) network coverage to areas where market operators are unlikely to invest on commercial terms in the near future [4,48].

Summary

Achieve the objectives of the Strategy Europe 2020 is one of the most important challenges facing the European Union. Achieving these goals can help to overcome the crisis from which Europe suffers from a few. One of the instruments for implementing the Strategy is the state aid. Appropriate targeting of its cause, that the achievement of the objectives enshrined in it will be easier. State aid should be so in the coming years to focus on these directions, which are important from the standpoint of the Strategy. On the other hand, should be reduced the state aid to provide for these objectives which are in conflict with the provisions of the Strategy. However, this may require an in-depth reform of state aid.

References:

- [1] Communication from the Commission Europe 2020. A strategy for smart, sustainable and inclusive growth, Brussels 3.3.2010, COM (2010) 2020 final
- [2] Consolidated version of the Treaty Establishing the European Community, Official Journal of the European Communities C325/33
- [3] Modzelewska-Wąchal E., Pełka P., Stasiak M., *Pomoc publiczna dla przedsiębiorców i jej nadzorowanie*. LexisNexis, Warszawa 2001
- [4] Report from the Commission State aid scoreboard Report on state aid contribution to Europe 2020 Strategy – Spring 2011 update, Brussels, 22.6.2011, COM (2011) 356 final

BANKING MARKETING IN CUSTOMER VALUE CREATION MARKETING BANKOWY W KREOWANIU WARTOŚCI DLA KLIENTA

Dorota Bednarska-Olejniczak

Wrocław University of Economics

dorota.olejniczak@ue.wroc.pl

Key words:

bank marketing – chain of values

Abstract:

Creation and delivery of customer value is one of the most important issues for banking in the light of the increasingly competitive market. Marketing in banking sector is inherently based on exchange processes – namely, transactions made between the bank and its customers, and related to exchange of certain **values**. Banking customers evaluate market offers from the viewpoint of prospective values – they strive for maximization of those values, while at the same time appraising the cost incurred in the process. They have certain expectations in regard to the value of services offered, and those expectations shape their behavior. This paper presents the notion of customer value and its determinants, as well as ways to improve customer value creation.

The notion of **customer value** is subject to various interpretations. **Ph. Kotler** defines it as follows: “Customer value is the difference between the values the customer gains from owning and using a product and the costs of obtaining the product. Total value of a product for the customer is a sum of benefits expected of a given product or service” [8, 33]. Total customer value, according to Kotler, includes expected values of: product, service, personnel and company image. Total cost, in Kaplan’s approach, consists of the following: purely financial cost, time cost, energy cost and psychical cost involved in acquiring the product. Similarly to the above, **R. Kaplan and D. Norton**, authors of “The balanced scorecard”, in their general model of customer value include three attributes that determine the value. These are [6, 79-82]:

- *product attributes* (product or service) – such as functionality, price and quality.
- *customer relations* – including: product provision and service rendering, along with the time of completion and supply,
- *image and reputation* – related to immaterial factors that attract the customer.

V. Zeithaml proposes a slightly different definition of customer value: “value is the consumer’s overall assessment of the utility of a product based on

perceptions of what is received and what is given” [16, 14]. Zeithaml notes that customer value is subjective and perceived individually; price is a significant criterion, but one that affects individual customers to a varied extent. Moreover, customer value may be perceived differently, depending on the context of product use [13, 189].

R. Woodruff postulates another approach to customer value definition, based on the concepts of transactional satisfaction, cumulated satisfaction and attributive satisfaction, as used in consumer psychology. It seems that Woodruff’s definition provides the most complete description of relations between customer value and customer satisfaction. In his approach, customer value „is a customer’s perceived preference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer’s goals and purposes in use situations” [15, 189]. This hierarchical model of customer value suggests the need to evaluate customer value at the level of product attributes, the attributes of product use, as well as the customer’s goals and purposes [13, 189].

Definition postulated by **K. Monroe** relates the concept of customer value to *quality*: “Buyers’ perceptions of value represent a tradeoff between the quality or benefits they perceive in the product relative to the sacrifice they perceive by paying the price” [9, 187]. According to Monroe, perceptions of value are a combination of the products physical attributes, attributes of related services, and technical support offered during product use, as well as the price and other indicators of received quality, whereas their perception of cost include cost incurred at purchase, such as product price, cost of acquisition (such as the cost of ownership transfer), cost of transport, assembly, exploitation and servicing, as well as the risk of failure or product malfunction [14, 187-188]. The concept of quality is also evident in the definition postulated by **B. Gale**, relating customer value to the market perception of quality in relation to product price [4, xiv].

To sum up, it may be noted that, despite the apparent lack of a unified and commonly accepted definition of customer value, the following theses may be postulated [7, 175]:

1. consumers appraise product value through evaluation and selection of benefits, and by relating them to the cost incurred in the process. It is evident that customer value is a subjective category; this observation can be confirmed by the fact that customer value reflects not only the price, but also individual needs that the customer is trying to satisfy through purchase, as well as his or her individual preferences for incurring cost related to product purchase and use [12, 76],

2. customers' perceptions of value are determined by situation and time; value is perceived not only through individual transaction (exchange process), but also throughout the whole duration of customer-supplier relationship,
3. customer's satisfaction is a function of his/her perceived value.

M. Szymura-Tyc [12, 76] emphasizes another fundamental attribute of customer value, present in most of the scientific studies of the phenomenon – **customer value is a value perceived**. In the overall assessment of received value, the customer takes into account only those benefits and costs that are perceived as such, not necessarily representing the sum of real benefits and costs involved. In addition, perception of benefits and costs is not only a result of cognitive processes, but also a wide range of emotional ones.

P. Doyle observes that the marketing approach to creation of customer value is based on three principles [10, 85]. Firstly, on the belief that by selecting a specific provider of a given product or service (banking service, in this context), the customer selects a provider (bank) that, in his/her view, offers the greatest value. Secondly – it is based on the belief that the customer is not motivated by product as such, but its potential to satisfy his/her needs (e.g. the customer does not crave for a credit as such, but for money needed to purchase a flat)). Those needs may take on different forms: emotional, economic, or – the most frequent – general, i.e. one that combines the former two groups of reasons. Value is, therefore, a result of customer's assessment of perceived potential to satisfy the needs through the purchase of a specific product or service. The third principle is expressed in the belief that, from the viewpoint of company (banking institution), individual (singular) transactions are not profitable; it is by far more profitable to set up a long-lasting relationship with customers, accompanied by building of trust and loyalty, which –in turn– guarantees customer retention. Building and maintaining competitive advantage of banking institution are a function of values supplied to customers. In this context, value is a multifaceted system, involving such subsets as [3, 100]: **value of objective, value of form, value of time and place, value of ownership, value of communication, value of brand contact**.

M. Porter's concept of **chain of values** is a valuable instrument offering support in identification of methods for building and enhancing customer value [11]. This concept can be used in banking industry to analyze individual operations (functions) of the bank from the viewpoint of their potential for building and developing value. Chain of values as a comprehensive overview of bank's value building process, helps to recognize those links of the chain that are associated with rise or drop of customer value, thus

identifying the elements of value-building process [2, 99]. It is also a good starting point for understanding the role of customer value in the process of developing competitive advantage of the bank. In its basic model, chain of values covers nine strategically significant operations that build value and cost in a specific type of economic activities [see more: 8,39]. In the case of banking industry, chain of values may take on a simplified construction, since banking represents the sector of services, with no production activities and with most of operations associated with documenting and maintaining the base business [1, 241]. Each link of the value chain represents a single function realized within the overall set of bank's business competences. Those functions are separated into two groups: base functions and supplementary functions. Base functions, in the case of customer values in banking institutions, include [1, 242]: acquisition of funds from deposits and financial market operations. Deposits are a form of service sale; marketing; financial services – service supply [5, 24]. Supplementary functions in the case of banks cover banking infrastructure, human resources and their management, and technology.

Success of a banking institution is related not only to proper execution of tasks within individual departments, but also to proper coordination of activities across the structure. Focus on proper realization of tasks within each department does not necessarily represent a good approach to building customer value. Efficient management of any form of activity (within the set of banking business activities) may bring sizeable cost reduction and, at the same time, strengthen the sum of values in respect to products offered. Careful analysis of the chain of values helps pinpoint those elements that may be a potential source of competitive advantage, as well as identify areas that need reforming [5,24]. Since the process of building and supplying customer value involves [more on this: 2,103] definition of values planned for selected groups of customers, shaping those values, communicating information on the values and actual supply of the values, some authors postulate modification of Porter's chain of values in the form of *marketing chain of values*. K. Karcz explains: "the concept of marketing chain of values, as opposed to the classical approach, perceives value supply only as one of the steps (stages) of the marketing process, whereas Porter's concept identifies marketing as but one step (stages) of the process of value supply. Value is, therefore, not a result (effect) of the sequence of processes within the chain (a resultant category), but the point of focus for each and every activity within the chain. Value is served as a common link between consecutive activities and a way to achieve marketing success" [7, 170].

Customer value management requires, first of all, identification of banking customer's needs and expectations, as those are the elements that build up

the values offered by the bank. Those values represent not only the product on offer, but also its price, its benefits as perceived by customers, and the form of its delivery. Building those values requires involvement of all banking resources in order to transform decisions into specific activities, and followed by actual delivery of values to the customer, in a way best suited for the purpose of satisfying customer needs [2, 103].

Reference:

- [1] CANALS, J. *Strategie konkurencyjne w europejskiej bankowości*, PWN, Warszawa 1997,
- [2] CAPIGA, M. *Kapitał klienta banku. Wybrane aspekty zarządzania i oceny*, Twigger, Warszawa 2005,
- [3] DOBIEGAŁA-KORONA, B., DOLIGALSKI, T., KORONA, B. *Konkurowanie o klienta e-marketingiem*, Difin, Warszawa 2004, [in: 2]
- [4] GALE, B., *Managing Customer Value*, The Free Press, New York 1994, s. XIV [in:12]
- [5] JONAS, A. *Strategie konkurencji na rynku usług bankowych*, BMiB, Warszawa 2002,
- [6] KAPLAN, R., NORTON, D. *Strategiczna karta wyników. Jak przełożyć strategię na działanie*, Wydawnictwo Naukowe PWN, Warszawa 2001,
- [7] KAR CZ, K. *Koncepcja wartości – podejście marketingowe* [in: 14]
- [8] KOTLER, Ph. *Marketing* Wyd. Felberg Sja Warszawa 1999,
- [9] MONROE, K. *Pricing: Making Profitable Decisions*, McGraw-Hill, New York 1990, [as in: 14],
- [10] DOYLE, P. *Marketing wartości*, Wyd. Felberg Sja Warszawa 2003
- [11] PORTER, M. E. *Competitive Advantage. Creating and Sustaining Superior Performance*, The Free Press, New York, 1985
- [12] SZYMURA-TYC, M. *Marketing we współczesnych procesach tworzenia wartości dla klienta i przedsiębiorstwa*, Wydawnictwo AE w Katowicach, Katowice 2006, p. 69
- [13] SZYMURA-TYC, M. *Wartość dla klienta w teorii wyboru, zachowań konsumenta i marketingu* [in: 14]
- [14] *Wartość w naukach ekonomicznych*, H. Zadora (ed.), Wyd. Politechniki Śląskiej, Gliwice 2004,
- [15] WOODRUFF, R. Customer Value: The Next Source for Competitive Advantage, *Journal of the Academy of Marketing Science*, Vol. 25, No. 2, 1997, s. 142 [in: 14]
- [16] ZEITHAML, V. Consumer Perceptions of Price, Quality and Value: A Means-End Model and Synthesis of Evidence [in:] *Journal of Marketing*, 1988, Vol. 52, No. 3,

FUNDING OF PENSION PROTECTION

Adam Borovička, Petr Mynařík, Petr Fiala

University of Economics, Prague

adam.borovicka@vse.cz, petr.mynarik@vse.cz, pfiala@vse.cz

Key words:

pension protection – portfolio – dynamic and stochastic programming

Abstract:

The paper deals with very actual problem - funding of pension protection. Starting frame of article is made by a selection of suitable analytic tools for solution a pension protection. We stated five categories of investment instruments. In first step we choose the options that will be further analyzed. Second step is devoted to create a suitable structure of investment instruments. We outline possible portfolio scenarios within the scope of time period representing approximately productive investor's age. A portfolio composition is primarily influenced by claims on costs, rate of profit and riskiness. The goal of the paper is introduction of principles of dynamic and stochastic programming with practical application in the field of pension protection scheme.

Introduction

We select a few investment instruments from each group that will contribute to the future structure of the portfolio. The aim is to create an optimal portfolio in each reporting period with regard to the required limits and objective function. The task is conceived as a dynamic and stochastic optimization problem.

Dynamic and stochastic programming

Dynamic programming can be described as a mathematical method that is able to solve some optimization process which consists of several stages [3, 3]. In the decision making processes we determinate the optimal decision in any given instance, that successive. In our case, we consider the phase periods. Each stage is characterized by a particular state which is determined by the values of factors and variables. The method of dynamic programming can solve the problem in stages, but in accordance with the requirements of the optimization process as a whole [7, 6-7].

A classification of dynamic processes can be performed on the basis of the nature of the variables that occur in the model. In the case of deterministic models, we consider all factors and variables in the model predetermined,

explicitly given. If we do not want to come to a great simplification in many cases, we abandon this assumption and include the nature of stochastic model. The presence of random variables in the process gives the resulting solution of probabilistic nature. The optimal solution in terms of searching for extreme values of the objective function is determined by the realizations of random variables in the model [5, 158-159].

In practice, we consider the random variable of yield rate has a continuous probability distribution, namely the normal distribution with two parameters, mean and variance, it is marked as $N(\mu, \sigma^2)$. The yield rate of specific product can therefore take an infinite number of values within each stage. In this case, we will proceed so that in each period to generate a limited number of continuous distribution, which will form the basis of the possible scenarios of dynamic structure of the investment portfolio. To create a portfolio, it should be kept in mind that the decisions in the individual sections are linked, respectively the actual decision is based on previous decisions.

Taking into account the fact mentioned above, we can describe the dynamic solving procedure in every time t ($t=1, 2, \dots, T$) as

$$\begin{aligned} f(x_{1t}, x_{2t}, \dots, x_{nt}) &\rightarrow \min (\max) \\ g_i(x_{1t}, x_{2t}, \dots, x_{nt}) &R_i b_i \quad i=1, 2, \dots, m, \end{aligned}$$

where $x_{1t}, x_{2t}, \dots, x_{nt}$ are unknown variables for each stage t , f is the objective function, which is minimized or maximized, g_i is the left side, R_i is a relational sign, and b_i is the right side of the i -th limit, m is the number of constraints in the model. At the same time must hold

$$\begin{aligned} x_{j1} &= f(\omega_1) \quad j=1, 2, \dots, n \\ x_{j2} &= f(x_{j1}, \omega_1, \omega_2) \quad j=1, 2, \dots, n \\ x_{j3} &= f(x_{j1}, x_{j2}, \omega_1, \omega_2, \omega_3) \quad j=1, 2, \dots, n \\ &\vdots \\ x_{jT} &= f(x_{j1}, x_{j2}, \dots, x_{jT-1}, \omega_1, \omega_2, \dots, \omega_T) \quad j=1, 2, \dots, n, \end{aligned}$$

whereas $x_{j1}, x_{j2}, \dots, x_{jT}$ are unknown (decision) variables for indexes $j=1, 2, \dots, n$ in each stage ($t=1, 2, \dots, T$) and $\omega_1, \omega_2, \dots, \omega_T$ are nature's decision for each time period ($t=1, 2, \dots, T$). It's obvious that ω_t makes model stochastic. From the practical point of view ω_t is represented by product yield rates which embody a stochastic character in each time period.

Funding of pension protection in practice

We consider the situation of a man aged 35, who is graduated from a university and working in a well-paid position for a long time. Because thinking about the future, he decides to put some of their money available to certain investment instruments related to financial protection in retirement.

Products

A potential investor (client) selects from five groups of products - *investment life insurance*, *capital life insurance*, *retirement income insurance*, *special investment programs*, and *building savings* [2] and [6]. Within each group we included a number of investment products from different companies providing financial services in the Czech Republic [1, 55].

Multiple criteria decision making

We apply *ELECTRE I* method [4, 102-104] to choose a few investment alternatives from each group of products [1, 55-56] to create a final investment portfolio.

Economic and mathematic model

The investor specifies several conditions for future portfolio ensuring a positive financial certainty in pensionable age. Firstly he requires monthly payment in an amount from 3500 to 5000 CZK. The annual yield rate of portfolio should be at least 5 %, on the contrary costs should not over limit 4 % from monthly payment. Further the investor does not want to insert his free financial resources to more than one product of each group, generally then to more than three products within the scope of each time period. The risk for a whole time is stated as a minimizing optimization criterion. For simplification we introduce a possible investment in building savings only 1667 CZK per month. This variant is the most attractive possibility regarding a state dotation and other specific conditions of building savings.

If the investor decides to invest in products *investment* and *capital life insurance* and *retirement income insurance*, he will never get out these products. This situation results from product character. The risk of investment in concrete product is described by standard deviation of its yield rate. The yield rate is a random variable with normal distribution. We also assume that relative costs and risk corresponding to investment in particular product will be constant for a whole watched time period.

In the mathematical model we apply two-dimensional variable x_{ij} showing amount of monthly investment in product i in stage j . The next variable y_{ij} takes the value 1 if the investor will invest in product i in stage j , failing which is 0. Symbol r_i marks a riskiness of i -th product, p_j indicates a general

monthly payment in j -th stage. Costs associated with product i are expressed by c_i and yield rate of i -th product in j -th stage by e_{ij} . MIN_i represents the minimal monthly investment in i -th product. Then the form of mathematical model is:

$$\begin{aligned}
z &= \sum_{i=1}^9 \sum_{j=1}^4 r_i x_{ij} / \sum_{i=1}^9 \sum_{j=1}^4 x_{ij} \rightarrow MIN \\
\sum_{i=1}^9 x_{ij} &= p_j \quad j = 1, 2, \dots, 4 \\
3500 &\leq p_j \leq 5000 \quad j = 1, 2, \dots, 4 \\
\sum_{i=1}^9 e_{ij} x_{ij} / \sum_{i=1}^9 x_{ij} &\geq 0.05, \sum_{i=1}^9 c_i x_{ij} / \sum_{i=1}^9 x_{ij} \leq 0.04 \quad j = 1, 2, \dots, 4 \\
MIN_i y_{ij} &\leq x_{ij} \leq p_j y_{ij} \quad i = 1, 2, \dots, 9 \quad j = 1, 2, \dots, 4 \\
x_{ij} &= 1667 y_{ij} \quad i = 9 \quad j = 1, 2, \dots, 4 \\
\sum_{i=1}^9 y_{ij} &\leq 3, \sum_{i=1}^2 y_{ij} \leq 1, \sum_{i=3}^4 y_{ij} \leq 1, \sum_{i=5}^6 y_{ij} \leq 1, \sum_{i=7}^8 y_{ij} \leq 1 \quad j = 1, 2, \dots, 4 \\
\text{if } y_{ij} &= 1, \text{ then } y_{ij+1} = 1 \quad i = 1, 2, \dots, 6 \quad j = 1, 2, 3 \\
x_{ij} &\geq 0 \quad i = 1, 2, \dots, 9 \quad j = 1, 2, \dots, 4 \\
y_{ij} &\in \{0, 1\} \quad i = 1, 2, \dots, 9 \quad j = 1, 2, \dots, 4
\end{aligned}$$

Evaluation

We generated two values of yield rate for each product in each of four sexennial stages, hence we get 16 scenarios how the potential portfolio should seem. Thus the probability of each scenario is 1/16.

We obtain 4 portfolio scenarios consisting of investments in capital life insurance AXA, retirement income insurance Allianz, building savings Modrá pyramida and special investment program Česká spořitelna, 5 similar scenarios as previous without special investment program and 7 scenarios with products retirement income insurance Allianz and building savings Modrá pyramida. The detached scenarios differ in the size of embedded financial resources in these products in particular stages, watched expenses and efficiency as well.

In the first case the objective function is 0.0081 (0.81 % as a standard deviation of yield rate), in the others 0,009 (0.9%). The first mentioned portfolio generally signals 5.74 % yield rate and 2.3 % costs, the second one 6.29 % or 1.7 %, finally 5.92 % and 1.9 %. In accordance with the optimal value of objective function, first portfolio should be selected. On the other

side we take into account the yield rate and costs which are in the lowest level of all portfolio. In addition certain advantage of second and third portfolio could be the fact that a potential investor has not to change structure during the whole period. In virtue of described facts we suggest to choose second investment portfolio. After a period of 24 years this investment portfolio yields approximately 4 000 000 CZK. For example it means almost 17 000 CZK per month during 20 years for pensioner. The selected portfolio has the following form:

TAB 1: The selected investment portfolio

Product	Stage 1	Stage 2	Stage 3	Stage 4
Capital life insurance AXA	125 CZK	125 CZK	125 CZK	125 CZK
Retirement income insurance Allianz	3 208 CZK	3 208 CZK	3 208 CZK	3 208 CZK
Building savings Modrá pyramida	1 667 CZK	1 667 CZK	1 667 CZK	1 667 CZK

Conclusion

In terms of subjective stated constraints and objective function as the best alternative sizes up investment in *capital life insurance AXA*, *retirement income insurance Allianz* and *building savings Modrá pyramida* in therebefore structure for 24 years. We applied the dynamic model with stochastic (!) character for real expression of studied situation. According to results it is possible to ensure financially dignified pension life.

References:

- [1] BOROVIČKA, A., MYNAŘÍK, P., FIALA, P. Investment Instrument for Pension Protection. Jánská Dolina. In: *Mathematical Methods in Economics 2011*. Praha: Professional Publishing, 2011, s. 53–58, ISBN 978-80-7431-058-4.
- [2] Capital life insurance, investment life insurance, retirement income insurance and building savings, accessible from: <http://www.finance.cz/>, [30. 4. 2011].
- [3] DENARDO, E. *Dynamic programming – models and applications*. 1st print. New Jersey: Prentice-Hall Inc., 1982, 227 s. ISBN 0-13-221507-1.
- [4] FIALA, P. *Modely a metody rozhodování*. 2. přeprac. vyd. Praha: Oeconomica, 2008, 292 s. ISBN 978-80-245-1345-4.
- [5] HADLEY, G. *Nonlinear and Dynamic programming*. 2nd print. Reading: Addison-Wesley Publishing Company Inc., 1964, 484 s. ISBN 0-201-02664-3.

- [6] Lifecycle fund, accessible from:
http://www.iscs.cz/web/fondy/fondy_zivotniho_cyklu/, [30. 4. 2011].
- [7] SAMEK, J., NEČASOVÁ, Z., KODERA, J. *Dynamické programování v ekonomických procesech*. 1. vyd. Praha: Státní pedagogické nakladatelství, 1983, 211 s. ISBN 8070798882.

The research project was supported by Grant No. IGA F4/16 /2011, Faculty of Informatics and Statistics, University of Economics, Prague.

THE ADOPTION AND USE OF ERP SYSTEMS IN SMALL-MEDIUM AND LARGE COMPANIES

Domenico Consoli

University of Urbino

domenico.consoli@uniurb.it

Key words:

enterprise resource planning – business intelligence – small-medium large enterprises – application software – determinant factors

Abstract:

The focus of this paper is to study the determinant factors in the adoption and use of Enterprise Resource Planning (ERP) systems in small-medium and large companies. Inside the company, the use of ERP and other application software linked to it are very important solutions to process and extract useful information for business goals. ERP manages all internal and external processes relative to production, customers and suppliers and provide information, in any working place of the enterprise, at the right time.

Introduction

A huge amount of information circulates in the company and it is important to transform this mass of information in useful knowledge for business goals.

By techniques of Knowledge Management (KM) it is possible to provide this information, stored in a datawarehouse, to all enterprise functions [1, 205].

ERP is an information system (IS) that integrates and manages all business aspects of the business knowledge, including production planning, purchasing, manufacturing, sales, distribution, accounting and customer services [2, 236]. ERP provides the right product at the right place and at the right time. An increasing time to process information easily causes the loss of productivity and an imperfect decision-making. The ERP system also provides reports that monitor specific key performances indicators (KPI).

Modules of Business Intelligence can be interfaced to the ERP system to improve the decision making of managers and provide useful knowledge relative to enterprise positioning, market trends and information on competitors. All this, analysing corporate information are possible scenarios “what...if”. Nowadays, Business Intelligence (BI) tools incorporate many traditional systems like Management Information System (MIS), Executive Information Systems (EIS), On Line Analytical Processing (OLAP) and Decision Support Systems (DSS).

In this paper we analyse the factors that affect the adoption and use of ERP system inside small-medium and large enterprises. The structure of the paper is the following: in the next section we introduce a literature review. Then we describe a research methodology and illustrate the results of case studies. At the end, analysing the results, some discussions and conclusions are drawn.

Literature review

ERP adoption is significantly associated with production and operations improvement, market expansion and company sizes. ERP is more developing in large enterprises and not in SMEs because investments for this system are very expensive. Companies must have strategic goals before implementing an ERP system [3, 244].

Velcu [4, 1322] explored the alignment between ERP and business strategy and between ERP and the perceived benefits. Ngai et al. [5, 553] investigate the critical success factors (CSF) like top management support and training/education.

By ERP, it is possible to obtain a lot of tangible and intangible benefits [6, 763][7, 186]: reduction in manufacturing cycle time, lead time and ordering error, improvements in internal coordination, communication, competitive position, forecasting and decision making.

McGaughey and Gunasekaran [8, 27] affirm that primary drivers to the ERP implementation are business needs and technological changes; other drives are: ICT reduced cost, continued growth and new partnership opportunities [7, 190][9, 248].

The failure in ERP implementation is the lack of alignment of ERP with business needs, lack of organizational readiness and proper change management [10, 87], poor management of the implementation process and failure in reaching corporate goals [9, 246].

Research methodology

In this research we made a qualitative analysis of 7 case studies: 3 large companies (Alpha, Beta, Gamma), 2 medium (Epsilon, Zeta) and 2 small-medium enterprises (Eta, Theta). We did not analyse micro and small businesses because they generally do not have these integrated ERP systems (more expensive) but only some applications. The qualitative analysis allows to investigate in depth the dynamics that characterize the decision-making processes to invest in ERP. The respondents to interviews were Chief Information Officers (CIOs) (large companies) or owners (other cases). The interviews, according a logic schema based on parameters to analyse, were

unstructured with the formulation of free questions. The reason was to not influence the interviewees using a grid of predefined questions, leaving them the opportunity to freely speak about aspects most relevant to describe and interpret the phenomenon under investigation. The meetings with the enterprises were held in 2010. The following section summarizes the results of the interviews.

Case studies and results

Firstly it is interesting a brief description of case studies. *Alpha* is a large company that produces highly sophisticated and technological machines and systems for furnitures, doors and windows, accessories and everyday objects in wood, glass and stone. *Beta* (large company) operates, for over 40 years, in the kitchens sector at competitive costs and high-quality products. The company focuses on aesthetics, functionality, reliability and security. *Gamma* is a large company that designs and produces spacer bar and decorative profiles for insulating glasses and it has a leading position in the industry. The company creates decorative profiles in different shapes and sizes, suitable for any market. Another sector of the company is the production of rolled products. *Epsilon* (medium enterprise) is a manufacturer and distributor of components and products to the refrigeration and air conditioning industry. It is leader in the manufacture of refrigeration equipment including: condensing units and hermetic systems for commercial applications; packaged and split refrigerating systems. *Zeta* (medium company) manufactures seat electronic accessories and power headres to favour correct positions in body posture and health safeguarding. The company proposes technology and mechanisation on specific sectors, such as wellbeing centres, aesthetic institutes, clinics and casualty departments. *Eta* (small-medium enterprise) has, as core business, the cold forming of metals and the assembly. The high specialization and high elasticity of products and processes supported by know-how and expertises places the company in a good position for the international market. *Theta* (small-medium enterprise) offers innovative modular furnitures, customizable and equipped, that can combine design and functionality for satisfying customer requirements in different sectors like to bakeries, supermarkets, bars, pubs, clothing stores and pharmacies.

A topic of interviews was related to the type of ERP adopted and whether there were or there will be some migration processes towards other more complex systems. Another topic was the business intelligence software linked to the ERP.

Alpha adopted Diapason Formula ERP system and now is installing a Business Intelligence solution of Oracle E-Business Suite (CRM/PLM), Oracle Hyperion

as Performance Management Software and QlikView for the reporting. *Beta* uses SAP ERP after a migration from ACG Vision4 solution of IBM. As Business Intelligence use an internal module of SAP. *Gamma* uses the Baan ERP professional and is investing heavily to upgrade and expand specific modules. The company extract business data (turnover, production, sales, efficiency) from the ERP and by specific dashboards, based on KPIs, monitor the level of production and quality. *Epsilon* uses, for many years, Golden Lake of GL Italy and has customized it when their branches are increased. The company uses the performance management Hyperion and OLAP for data browsing in 3D. By ERP the company obtains a two-dimensional management reporting on following indicators: revenue, margins, customer satisfaction and quality. *Zeta* uses, since 2002, Diapason of the Formula Group. This ERP software is modular and like to an empty box gradually is filled. Always is extracted reporting from the ERP. *Eta* has, since 90's, the system Gamma Enterprise. The CEO wants to change it with another system used from a subsidiary that pursue the same logic path. She understands that the migration involves a long times: change and adaptation of certain processes, preparation of databases and customizations. *Theta* uses the same Gamma Enterprise system with a lot of personalization. They do not think to change it for high costs and for the previous customization. The reporting is coming from the same management software.

Discussion and conclusions

The intensity of the use of an ERP system depends on many factors: financial resources available, operative sector of the company, management culture, level of customer computerization and the behaviour of other firms located in the same territory.

It is clear that large firms having greater financial resources, as *Beta*, they can afford to migrate to a more complex ERP system like SAP. In *Theta* the investment in ERP modules are lower because the management do not have a high ICT culture. Companies operating in the furniture industry are inclined to use a specific ERP while those of another sector like mechanics use a different system. *Alpha* and *Zeta*, although of different sizes, together operate in the mechanic/electronic sector and they adopt the same ERP. Regarding the level of customer computerization, a client of *Eta* has asked to the company to implement the electronic invoice according the protocol Electronic Data Interchange (EDI). The company is integrating, with some difficulty, inside its ERP, the module that executes this function. If the request will be made to *Theta*, which uses few modules of the ERP, it surely would have updated the management system. For the location in the same territory, the headquarters of *Theta* is located 100 meters from that of *Eta*

and the same situation is for *Alpha* and *Zeta*. Both couple of enterprises use the same ERP of the neighbouring. In these cases we must consider two affecting factors: the word of mouth (WOM) and the "strength" of the commercial provider of software solutions.

The use and adoption of ERP system depends on many factors both internal and external. This qualitative study is proposed as a first moment of reflection to identify some research's questions that must still be verified by further investigations to be carried out involving a large sample of enterprise (quantitative analysis). The qualitative analysis on the case studies has been useful to analyse the type of response of CIO/entrepreneurs for administering, in the future, a questionnaire to a larger number of companies and to verify our working hypothesis.

References:

- [1] LEE, H., CHOI, B. *Knowledge Management Enablers, Processes, and Organizational Performance: An Integrative View and Empirical Examination*. In Manage. Inf. Syst., 2003, 20, 1, pp. 179-228.
ISSN: 0742-1222
- [2] JACOBS, F. R., BENDOLY, E. Enterprise resource planning: Developments and directions for operations management research. *European Journal of Operational Research*, 2003, Vol. 146, No.2, pp. 233-240. ISSN: 0377-2217
- [3] HO, C., WU, W., TAI, Y. Strategies for the adaptation of ERP systems. *Industrial Management & Data Systems*, 2004, Vol. 104 No. 3/4, pp. 234-51. ISSN:0263-5577
- [4] VELCU, O. Exploring the effects of ERP systems on organizational performance: evidence from Finnish companies. *Industrial Management & Data Systems*, 2007, Vol. 107 No. 9, pp. 1316-34. ISSN:0263-5577
- [5] NGAI, E.W.T, LAW, C.C.E, WAT, F.K.T. Examining the critical success factors in the adoption of enterprise resource planning. *Computers in Industry*, 2008, Vol. 59, pp. 548-64. ISSN: 0166-3615
- [6] KALE, P.T., BANWAIT, S.S., LAROIYA, S.C. Performance evaluation of ERP implementation in Indian SMEs. *Journal of Manufacturing Technology Management*, 2010, Vol. 21 Iss. 6, pp.758 – 780.
ISSN: 1741-038X
- [7] MARCUS, M.L, TANIS, C. The enterprise systems experiences – from adoption to success. In *Framing the Domains of IT research: Glisping the Future Through the Past*, Zmud, R.W (ed) (Pinnaflex Educational Resources, Cincinnati. OH), 2000, pp. 173-207.

- [8] MCGAUGHEY, R.E., GUNASEKARAN, A. Enterprise resource planning (ERP): past, present and future. *International Journal of Enterprise Information Systems*, 2007, Vol. 3 No. 3, pp. 23-35. ISSN: 1548-1115
- [9] UMBLE, E.J., HAFT, R.R., UMBLE, M. Enterprise resource planning: implementation procedures and critical success factors. *European Journal of Operational Research*, 2003 Vol. 146, no. 2, pp. 241-57. ISSN: 0377-2217
- [10] MOTWANI, J., MIRCHANDANI, D., MADAN, M., GUNASEKARAN, A. Successful implementation of ERP projects: evidence from two case studies. *International Journal of Production Economics*, 2002, Vol. 75, No. 1, pp. 83-96. ISSN: 0925-5273

IMPACT OF TAX EXPENDITURES ON BUDGET REVENUES IN POLAND

Ryta I. Dziemianowicz

University of Bialystok

r.dziemianowicz@uwb.edu.pl

Key words:

tax expenditures – tax deductions – budget revenues – fiscal policy

Abstract:

Tax expenditures, which are a transfer of public means with the use of the tax system and which usually have a specific social purpose, at the same time infringe on the foundations of tax efficiency and decrease budgetary incomes. Therefore, in the conditions of limited possibilities of public incomes' acquisition their monitoring is of particular significance. The purpose of this article is to analyze the system of tax privileges in force in Poland and to show the budgetary consequences resulting from their application.

Introduction

The financial crisis and the effecting economic slowdown, as well as the society's growing old, have attributed in many EU member states, including Poland, to rapid growth of public debt. While striving to decrease the fiscal unbalance, governments of the individual countries have begun paying special attention to the transparency of their fiscal policies and control of public expenditures, including, in particular, intermediate expenditures, which are not set forth directly in the budget. Such expenditures may also include expenditures incurred by the tax system, the so-called tax expenditures, which cover tax preferences directed to selected groups of taxpayers. Tax expenditures, in a sense, may be treated as a substitute of direct expenditures. It is a group of extra-budgetary expenditures, omitted in the budget and rarely estimated. On one hand, they realize a series of social-economic purposes, on the other hand, however, they significantly attribute to decreasing the tax incomes, and therefore also to increasing the budgetary deficit.

Without a doubt, complete estimation and integration of public expenditures realized through taxes with the budget and subjecting them to strict control is necessary. The purpose of this article is to analyse the system of tax privileges in force in Poland and showing the budgetary consequences stemming from their application.

1. Tax expenditures: definitions, application, methods of estimation

The term “tax expenditures” (TEs) has been used, since the beginning of the seventies, for the first time by Stanley S. Surrey [1]. Surrey noticed that the majority of tax reliefs is general in nature and depends on the personal situation of the taxpayer (e.g. number of children, incomes, state of health etc.), at the same time there is no specific political goal. However, in his opinion, the nature of TEs is completely different, they occur only in specific circumstances and apply only to selected persons, social-professional groups and they realize a social-economic purpose [2, 3]. Pursuant to OECD definition, the term TEs shall be construed as withdrawal from generally-adopted principles of tax structure, which allows achieving tax benefits for the individual types of operations or groups of taxpayers. Unfortunately, determining the standard point of reference allowing identifying that category is burdened with certain subjectivity. Therefore, in practices of the individual countries definitions of TEs are diverse and not always conform to the one formulated by OECD, which significantly impedes international comparison. Usually, TEs are such tax solutions, that:

- are a deviation from general principles of taxation and are a certain type of an exception within the frames of the normative structure of tax;
- are an alternative to the possible program of budgetary expenditures, which could achieve the same goal.

Tax expenditures most often refer to the primary structural elements of tax and may occur in various forms, among other things, such as [3, 130]:

- exemptions: amounts excluded from the tax base;
- allowances: amounts deducted from the benchmark to arrive at the tax base;
- rate relief: a reduced rate of tax applied to a class of taxpayer or taxable transactions;
- credits: amounts deducted from tax liability.

So far, no method allowing to unequivocally valuating the tax privileges adopted in a given system has been created. In practice, TEs measurement based on ex-post assessment or ex-ante assessment is adopted [4, 7]. Most often the following are estimated:

- revenue forgone approach;
- revenue gain approach;
- outlay equivalence approach.

2. Tax expenditures in Poland: identification and methods of estimation

In 2009, the Ministry of Finances discerned in Poland a total of 473 tax preferences included in TEs, including 402 in state taxes and 71 in local taxes. 192 TEs were discerned in income taxes, the majority of those pertaining to physical persons' income tax (138). In Value Added Tax and excise tax – 195 and 15, accordingly [5, 33]. As the basis for the selection a model approach has been adopted, i.e. priority of the most important tax principles. Such a large quantity of TEs functioning in Poland undoubtedly certifies about a complicated nature of Polish tax regulations, which does not foster the growth of fiscal efficiency of taxes and has a significant impact on the income of the state budget and local budgets.

TAB. 1: Number of tax expenditures in Polish tax system in 2009

Taxes	Number of taxes expenditures
State taxes, in:	402
PIT i CIT	192
VAT	195
Excise tax	15
Local taxes	71
Total	473

Source: Prepared by the author on the basis of [5, 33].

Estimations of TEs value in Poland has been performed based on the ex-post assessment of lost incomes, without allowing for the changes in behaviors of taxpayers caused by possible liquidation of the considered tax structures. The calculations were based, above all things, on all data contained within tax returns sent to the Ministry of Finances, GUS data (Central Statistical Office) and, in some cases, information collected by other institutions. However, due to frequently missing data, not all Polish TEs have been estimated, e.g. this pertains to agriculture.

3. Budgetary consequences of applying tax expenditures in the Polish tax system

TEs may be considered both from the point of view of a taxpayer, as through reduction of tax, they allow gaining tax benefits, and from the point of view of the state. In the latter case they constitute potential losses of incomes gained from taxes. Usually, their purpose is to support specific actions of taxpayers, which decreases the funds available to other public programmer. The financial effect is the same as if the government had made direct expenditures.

TAB. 2: Value of tax preferences according to support areas and types of taxes in 2009 (state budget – in PLN millions)

Area of support	PIT	CIT	VAT	Excise tax	Total
Economy	494 0,04% PKB	5 879 0,44% PKB	2 442 0,18% PKB	15 0,00% PKB	8 830
Agriculture	2 012 0,15% PKB	96 0,01% PKB	5 111 0,38% PKB	-	7 219
Employment	122 0,01% PKB	-	-	-	122
Education, science, culture, Sport	2 0,00% PKB	150 0,01% PKB	1 891 0,14% PKB	-	2 043
churches, social and civic organizations	164 0,01% PKB	1 384 0,10% PKB	-	-	1 548
Health	432 0,03% PKB	-	4 101 0,31% PKB	110 0,01% PKB	4643
Family and social area	10 333 0,77% PKB	0	18 800 1,4% PKB	-	29 133
Transport and environmental Protection	-	-	1 821 0,14% PKB	1 357 0,10% PKB	3 178
Other	2 456 0,18% PKB	111 0,01% PKB	26 0,00% PKB	208 0,02% PKB	2 801
Total	16 015 1,19% PKB	7 620 0,57% PKB	34 192 2,54% PKB	1 690 0,13% PKB	59 517

Source: [4, 34].

Nine areas of support through the tax system have been discerned within the Polish report on TEs. The main support area in 2009 (i.e. 44,4% of all the identified TEs) was family and social services. In this case, according to calculations of the authors of the report, the support amounted to ca. PLN 29,2 billion (i.e. 2,2% of gross domestic product – GDP). The majority of preferences included in this area pertained to income tax from personal incomes (PIT) – ca. PLN 10,3 billion. These were mostly allowances for children, joint spouse taxation, exemptions from social services' taxation (table 3).

TAB. 3: Tax expenditures of highest value in income tax in 2009 in Poland

Tax expenditures	Value of TEs (PLN millions)	Share in total value of TEs within given tax (in %)	Percentage for revenues from given tax (in %)	Percentage of GDP (in %)
Child tax credit	5 633	35,17	8,98	0,42
Joint taxation of spouses	2 693	16,8	4,29	0,20
Agricultural subsidies	1 947	12,6	3,1	0,14
Exemption of family benefits, family and nursing benefits, etc.	1 478	9,23	2,36	0,11
Cost of obtaining income (50%) from copyright and related rights	628	3,92	1,00	0,05

Source: [5, 36-37].

To a large extent in 2009 also the economy (ca. PLN 8.8 billion) and agriculture (ca. PLN 7.2 billion) used tax privileges. Unfortunately, the report does not answer the question whether the expenditures incurred for supporting the said areas had been effective and realized their intended purposes. At the same time, one needs to emphasize that support of agriculture by the tax system is probably significantly higher than it would stem from the report. Due to lack of data making it impossible to estimate the said values, e.g. exclusion of agriculture from income tax taxation was not taken into account.

The Ministry of Finances estimated the value of all TEs in 2009 to the amount of PLN 69,9 billion, i.e. 4,9% of GDP, and in state taxes their value amounted to PLN 59,5 billion (i.e. 4,4% of GDP and 24,1% of tax incomes in total). Of course, this does not mean that incomes of the central budget or local budgets, should structures included in TEs be liquidated, would increase by such amounts. As emphasized earlier, the estimation methods based on the so-called lost incomes does not allow for the changes of taxpayers' behaviors, is burdened with an error. Nevertheless, the scale of tax privileges identified within the Polish taxes, both in terms of quantity and value, means that studies should be commenced without delay, aiming to answer the following question: wouldn't expenditures made directly from the state budget, meeting the goals of the given policy, be more effective than

expenditures realized through a special system of reliefs, exemptions and tax deductions adopted in the country.

Summary

The financial effect of adopting TEs is the same as if the government made direct expenditures. Adoption of TEs leads to decreasing the incomes from taxes and lower incomes under taxes, and therefore it may contribute to disturbing the budgetary balance, and in certain cases also to increasing the budgetary deficit. On the example of Poland one may conclude that losses of the budget may be quite significant. This is why tax privileges should be subject to rigorous control, just like direct expenditures. Monitoring of TEs should not, however, pertain only to their value. The report should additionally contain an assessment of TEs effectiveness, compared to public expenditures financed directly from the budget as well as a fiscal risk assessment of their application. This will allow choosing an alternative solution, which with the same budgetary costs would be more efficient and at the same time would increase fiscal discipline.

References:

- [1] SURREY, S. S., *Pathways to Tax Reform: The Concept of Tax Expenditures*, Harvard University Press, Cambridge 1973, 418 s. ISBN 0674657896
- [2] SURREY, S. S., McDANIEL, P. R. *Tax Expenditures*. Harvard University Press, Cambridge 1985, 303 s. ISBN 0674868323
- [3] POLACKOVA, B., H. (i in.), *Tax Expenditures: Shedding Light on Government Spending through the Tax System. Lessons from Developed and Transition Economies*. The World Bank, Washington 2004, 245 s. ISBN 9780821356012
- [4] KRAAN, D. J., *Off-budget and Tax Expenditures*, „OECD Journal on Budgeting” Vol. 4 No 1, OECD 2004, ISSN 1608-7143
- [5] *Preferencje podatkowe w Polsce 2010*, Ministerstwo Finansów, Warszawa 2011, 171 s. ISBN 9788393286300

LINEAR MODELS IN REVENUE MANAGEMENT

Petr Fiala

University of Economics, Prague

pfiala@vse.cz

Key words:

revenue management – network model – linear programming – discrete choice

Abstract:

Revenue management is the process of understanding, anticipating and influencing customer behavior in order to maximize revenue. Network revenue management models attempt to maximize revenue when customers buy products of multiple resources. Solution approaches based on linear programming models are analyzed in the paper. The DLP (Deterministic Linear Programming) model is based on an assumption that demand is deterministic and static. Customer behavior modeling has been gaining increasing attention in the revenue management. A modeling approach CDLP (Choice-based Deterministic Linear Programming) for strategic customer behavior with discrete choice based on deterministic linear programming was investigated.

1 Introduction

The general problem is about how companies should design their selling mechanisms in order to maximize expected revenue. RM is to sell the right product, to the right customer at the right time, for the right price through the right channel by maximizing revenue. What are new about RM are not the demand-management decisions themselves but rather how these decisions are made. The true innovation of RM lies in the method of decision making.

The basic model of the network revenue management problem is formulated as a stochastic dynamic programming problem whose exact solution is computationally intractable. Most approximation methods are based on one of two basic approaches: to use a simplified network model or to decompose the network problem into a collection of single-resource problems (see [1]). In the paper linear programming approximation approaches are studied. The Deterministic Linear Programming (DLP) model is a popular in practice (see [4]). The DLP model is based on an assumption that demand is deterministic and static.

The common modeling approaches assume that customers are passive and they do not engage in any decision-making processes. This simplification is

often unrealistic for many practical problems. In response to this, interest has arisen in recent years to incorporate customer choice into these models, further increasing their complexity. Among the efficient techniques that have been proposed is the so-called choice-based linear program (CDLP) of Gallego et al. [2].

2 Network revenue management problems

The interdependence of resources creates difficulty in solving the problem. The basic model of the network revenue management problem can be formulated as follows (see [1], [4]): The network has m resources which can be used to provide n products. We define the incidence matrix

$$A = [a_{ij}], \quad i = 1, 2, \dots, m, j = 1, 2, \dots, n, \text{ where}$$

$$a_{ij} = 1, \text{ if resource } i \text{ is used by product } j, \text{ and}$$

$$a_{ij} = 0, \text{ otherwise.}$$

The j -th column of A , denoted a_j , is the incidence vector for product j . The notation $i \in a_j$ indicates that resource i is used by product j . The state of the network is described by a vector $x = (x_1, x_2, \dots, x_m)$ of resource capacities. If product j is sold, the state of the network changes to $x - a_j$. Time is discrete, there are T periods and the index t represents the current time, $t = 1, 2, \dots, T$. Assuming within each time period t at most one request for a product can arrive. Demand in time period t is modeled as the realization of a single random vector $r(t) = (r_1(t), r_2(t), \dots, r_n(t))$. If $r_j(t) = r_j > 0$, this indicates a request for product j occurred and that its associated revenue is r_j . If $r_j(t) = 0$, this indicates no request for product j occurred. A realization $r(t) = 0$ (all components equal to zero) indicates that no request from any product occurred at time t . The assumption that at most one arrival occurs in each time period means that at most one component of $r(t)$ can be positive. The sequence $r(t)$, $t = 1, 2, \dots, T$, is assumed to be independent with known joint distributions in each time period t . When revenues associated with product j are fixed, we will denote these by r_j and the revenue vector $r = (r_1, r_2, \dots, r_n)$.

Given the current time t , the current remaining capacity x and the current request $r(t)$, the decision is to accept or not to accept the current request. We define the decision vector $u(t) = (u_1(t), u_2(t), \dots, u_n(t))$ where

$$u_j(t) = 1, \text{ if a request for product } j \text{ in time period } t \text{ is accepted, and}$$

$$u_j(t) = 0, \text{ otherwise.}$$

The components of the decision vector $u(t)$ are functions of the remaining capacity components of vector x and the components of the revenue vector r , $u(t) = u(t, x, r)$. The decision vector $u(t)$ is restricted to the set

$$U(x) = \{u \in \{0, 1\}^n, Au \leq x\}.$$

The maximum expected revenue, given remaining capacity x in time period t , is denoted by $V_t(x)$. Then $V_t(x)$ must satisfy the Bellman equation

$$V_t(x) = E \left[\max_{u \in U(x)} \{r(t)^T u(t, x, r) + V_{t+1}(x - Au)\} \right] \quad (1)$$

with the boundary condition $V_{T+1}(x) = 0, \forall x$.

A decision u^* is optimal if and only if it satisfies:

$$\begin{aligned} u_j(t, x, r_j) &= 1, \text{ if } r_j \geq V_{t+1}(x) - V_{t+1}(x - a_j), \quad a_j \leq x, \\ u_j(t, x, r_j) &= 0, \text{ otherwise.} \end{aligned}$$

This reflects the intuitive notion that revenue r_j for product j is accepted only when it exceeds the opportunity cost of the reduction in resource capacities required to satisfy the request.

3 Deterministic Linear Programming (DLP) model

The equation (1) cannot be solved exactly for most networks of realistic size. Solutions are based on approximations of various types. One approach is to use a simplified network model, for example posing the problem as a static mathematical program. We introduce Deterministic Linear Programming (DLP) model (see [4]).

The DLP model uses the approximation

$$\begin{aligned} V_t^{LP}(x) &= \max r^T y \\ Ay &\leq x \\ 0 &\leq y \leq E[D] \end{aligned} \quad (2)$$

where $D = (D_1, D_2, \dots, D_n)$ is the vector of demand over the periods $t, t+1, \dots, T$, for product $j, j = 1, 2, \dots, n$, and $r = (r_1, r_2, \dots, r_n)$ is the vector of revenues associated with the n products. The decision vector $y = (y_1, y_2, \dots, y_n)$ represent partitioned allocation of capacity for each of the n products. The approximation effectively treats demand as if it were deterministic and equal to its mean $E[D]$.

The optimal dual variables, π^{LP} , associated with the constraints $Ay \leq x$, are used as bid prices. The main advantage of the DLP model is that it is computationally very efficient to solve. Due to its simplicity and speed, it is a popular in practice. The weakness of the DLP approximation is that it considers only the mean demand and ignores all other distributional information. The performance of the DLP model depends on the type of network, the order in which fare products arrive and the frequency of re-optimization.

4 Choice-Based Deterministic LP (CDLP) model

Potential customers usually do not come with a predetermined idea of which product to purchase. Rather, they only know some particular features that the product should possess and compare several alternatives that have these features in common before coming to a purchase or non-purchase decision. There are n fare products, each associated with exogenous revenue r_j , $j = 1, 2, \dots, n$. At each point in time, the firm chooses to offer a subset of these fare products. Given the subset of offered products, customers choose an option (which may also be a no purchase option) according to some discrete choice model. Gallego et al. [2], van Ryzin and Liu [5] extend this analysis to the network setting. The authors adopt a deterministic approximation by reinterpreting the purchase probability as the deterministic sale of a fixed quantity (smaller than one unit) of the product. The revenue management problem can be formulated as a linear program, and there is possible demonstrate that the solution is asymptotically optimal.

The probability that the customer chooses product j given the set of offered fares S (conditioned to arrival of a customer) is denoted by $P_j(S)$. Time is discrete and partitioned into T time periods that are small enough such that there is at most one customer arrival with probability λ and no arrival with probability $1-\lambda$. The network has m resources which can be used to provide n products. The incidence matrix $A = [a_{ij}]$, $i = 1, 2, \dots, m$, $j = 1, 2, \dots, n$, introduced in network revenue management problems, is used. Demand is treated as known and being equal to its expected value. The problem reduces then to an allocation problem where we need to decide for how many time periods a certain set of products S shall be offered, denoted by $t(S)$. Denote

the expected total revenue from offering S by $R(S) = \sum_{j \in S} P_j(S) r_j$.

Then the choice-based deterministic linear program (3) is given by

$$\begin{aligned}
 V^{CDLP} = \max_{\mathbf{t}} \quad & \sum_{S \subseteq N} \lambda R(S) t(S) \\
 \sum_{S \subseteq N} \lambda A P(S) t(S) & \leq \mathbf{x}, \\
 \sum_{S \subseteq N} t(S) & \leq T \\
 t(S) & \geq 0, \quad \forall S \subseteq N
 \end{aligned} \tag{3}$$

The objective is to maximize total revenue under constraints that consumption is less than capacity and total time sets offered are less than horizon length. Decision variables are total time subset S is offered $t(S)$. There are two basic possibilities how to we use the CDLP solution. First one is to directly apply

time variables $t^*(S)$ (Gallego et al. [2]). The notion of efficient sets introduced by Talluri and van Ryzin [3] for the single leg case is translated into the network context and the authors show that CDLP only uses efficient sets in its optimal solution. Second one is to use dual information in a decomposition heuristic (van Ryzin & Liu []). The dual variables of the capacity constraints can be used to construct bid prices.

5 Conclusions

The basic model of the network revenue management problem is formulated as a stochastic dynamic programming problem whose exact solution is computationally intractable. The DLP method is based on an assumption that demand is deterministic and static. Interest has arisen in recent years to incorporate customer choice into these models. A modeling approach for strategic customer behavior based on deterministic linear programming (CDLP) was investigated. This area is promising for next scientific research.

Acknowledgements

The research project was supported by Grant No. 402/10/0197 „Revenue management – models and analyses“ from the Grant Agency of the Czech Republic and by Grant No. IGA F4/16/2011, Faculty of Informatics and Statistics, University of Economics Prague.

References:

- [1] FIALA, P. Approximations for solving network revenue management problems. In: *Mathematical Methods in Economics 2010*. České Budějovice : University of South Bohemia, 2010, s. 132–137.
- [2] GALLEGO, G., IYENGAR, G., PHILLIPS, R. DUBEY, A. *Managing flexible products on a network*. Tech. Rep. TR-2004-01, Department of Industrial Engineering and Operations Research, Columbia University, 2004.
- [3] TALLURI, K., VAN RYZIN G. J. Revenue management under a general discrete choice model of consumer behavior. *Management Science* 50, (2004), 15–33.
- [4] TALLURI, K. T., VAN RYZIN, G. J. *The Theory and Practice of Revenue Management*. Kluwer Academic Publishers, Boston, MA, 2004.
- [5] VAN RYZIN, G. J., LIU, Q. On the choice-based linear programming model for network revenue management. *Manufacturing & Service Operations Management* 10 (2008), 288–311.

INNOVATIVENESS AS THE CHANGE FOR INCREASING COMPETITIVENESS OF SMALL AND MEDIUM ENTERPRISES

Paulina Filip

University of Rzeszów

paola@univ.rzeszow.pl

Key words:

small and medium enterprise – development – innovativeness

Abstract:

The important stage of changes in the development of the SME sector began with the Polish integration with the European. It opened up new development opportunities, but Polish entrepreneurs had to cope with the challenges of competition, adopting strategies to the conditions of the market of the EU. The important issue of the paper is discussing the range of problems regarding innovation, which constitutes the basis for competition in today's economy and the policy for its support. The study presents conclusions from the theoretical contemplation and empirical analysis.

Introduction

The experience of countries with developed market economies shows that the development of the small and medium-sized enterprises sector is necessary for the proper functioning of the economy and the mechanisms that take place [4, 303]. Its stimulating effect on the economy expresses itself by dynamically responding to changes in the environment, because it's the smaller companies that are more flexible in terms of new needs and changing customer preferences. Their number and their potential are one of the important measures of assessing a country's economic growth [3, 137]. The purpose of this paper is an attempt to identify trends, development barriers and the importance of the SME sector in Poland against the background of European Union countries, through the analysis of their changes. Moreover, the aim is to identify the capacity of Polish SMEs to compete, especially in terms of innovation potential, also support entrepreneurial initiatives of the Polish government and institutions system.

Innovativeness of enterprises in Poland in comparison with European Union

Innovativeness in Europe was assessed and the data were presented in the Report European Innovation Scoreboard [8, 23]. It includes the statement and encompasses the comparative assessment of thirty European countries

regarding the achievements in the scope of innovation using only 26 indices. These indices were divided into five categories defining various dimensions of an innovativeness level in a given country, they include:

- structural conditions deciding on the innovative potential, like number of higher school graduates per 1,000 persons, number of persons with higher education,
- conditions for creating knowledge - level of investments in research and development,
- innovativeness in small and medium enterprises, e.g. IT expenditures, existence of venture capital,
- activity of economic sectors connected with new technologies, e.g. percent of employed in these branches, export of modern technologies,
- intellectual property rights.

Particular indices were used to prepare a ranking in which Poland was awarded the 21st place among the countries such as Spain, Estonia and Slovakia. The leaders of the European ranking are Scandinavian countries - Sweden, Finland, Denmark. Germany and Switzerland were also highly assessed. Innovative enterprises, constituted 44 % of all enterprises in the European Union (EU-27) and, e.g. in Germany 68 %, Austria 53 %, Denmark, Luxembourg and Ireland 49 %. Concurrently, in Poland this percentage amounted to 26 %. On the other hand data from the European Commission's reports was used to judge innovativeness in the European Union countries. European Innovation Scoreboard is an annual report which evaluates innovative achievements of the EU member states, based on the Summary Innovativeness Index - SII. This index is calculated as a weighed arithmetic average of 29 fragmentary indicators for 27 EU countries, and also Croatia, Turkey, Iceland, Norway, Switzerland, USA, and Japan [8, 11]. The index values vary between 0 and 1, where 1 signifies the maximum level of innovativeness of a given country. In 2009, this index values varied between 0.637 for Sweden, and 0.221 for Bulgaria. The average level for all of the 27 EU member states was 0.475. In this approach, Poland ranked 23rd position. This is shown in table 1.

TAB 1. Summary Innovativeness Index of the European Union countries
in 2007 - 2008

No	Country	2007	Position	2008	Position
1	Sweden	0.630	1	0.637	1
2	Finland	0.585	3	0.610	2
3	Germany	0.569	4	0.581	3
4	Denmark	0.602	2	0.570	4
5	Great Britain	0.556	5	0.547	5
6	Austria	0.523	7	0.534	6
7	Ireland	0.528	6	0.533	7
8	Luxembourg	0.497	9	0.524	8
9	Belgium	0.498	8	0.507	9
10	France	0.495	10	0.497	10
11	Netherlands	0.474	11	0.484	11
12	Cyprus	0.433	13	0.471	12
13	Estonia	0.443	12	0.454	13
14	Slovenia	0.429	14	0.446	14
15	Czech Republic	0.392	15	0.404	15
16	Spain	0.359	17	0.366	16
17	Portugal	0.340	18	0.364	17
18	Greece	0.332	19	0.361	18
19	Italy	0.361	16	0.354	19
20	Malta	0.315	20	0.329	20
21	Hungary	0.305	21	0.316	21
22	Slovakia	0.299	22	0.314	22
23	Poland	0.293	24	0.305	23
24	Lithuania	0.294	23	0.294	24
25	Romania	0.249	25	0.277	25
26	Latvia	0.239	26	0.239	26
27	Bulgaria	0.206	27	0.221	27
	EU-27	0.466		0.475	

Source: M. Stec, Innovativeness of the European Union countries, National Economy, nr. 11 - 12/2009, p. 53, data collected from reports European Innovation Scoreboard <http://ec.europa.eu>

On the basis of different levels of their economies innovativeness, based on the values of the SII indicator, we can divide countries into four groups [7, 54]:

- Innovation leaders – Sweden, Finland, Germany, Denmark, and Great Britain. SII is higher than the EU-27 average (0.475) and oscillates between 0.547 and 0.637.

- Innovation followers – Austria, Luxembourg, Belgium, France, Netherlands.
- Moderate innovators – countries with innovativeness index below the EU average.
- Catching up countries – including Poland, with the innovativeness index far below the EU-27 average.

Poland's position results depends on low expenditures on research and development in enterprises as well as decreasing the public expenditures on that aims. As well as in the area of achievements in the scope of intellectual property law such as the number of patents and trademarks, Poland remains beyond the EU average. There are small numbers of enterprises which cooperate among each other in the scope of innovativeness as well as a low level of research works conducted at universities. Despite the low position, Poland gained positive, higher than European average results, regarding several indices which hold promises for better position in the future. It was well assessed, among others, the level of education of young people, level of investment expenditures of enterprises in relation to their turnover – 50 % above the EU average and investments in information technologies. Poland also possesses almost all institutions and tools so as to support innovativeness. However, in order to compete in international markets, it has to develop cooperation of science and business. OECD report indicates the greatest challenges for Poland: strengthening the technological and scientific base, concentration of public financing on institutions and organisations of the greatest potential of conducting research works finished with success, increase in promotion of innovative solutions and knowledge based economy, creating the environment that is favourable to entrepreneurship by simplifying law and taxation system [9, 34]. It is also important to strength the connections between science and industry improving the regulations on public and private partnership as well as better protection of intellectual property at universities. The level of innovativeness of Polish SME is assessed not only as profoundly lower than the level of innovativeness of SME in EU-15, however they have different sources there. Innovations in Poland are created mainly by means of investing processes - purchasing of machines, technology, and licence. Only a small number of SME actively participates in conducting research and development works. Research results regarding the innovativeness of Polish SME, conducted by the Polish Agency for Enterprise Development in 2010; indicate that only more than 37 % of the researched small enterprises, within two years, introduced innovations. They introduced mainly organisation innovations and product innovations. Other sources confirm that innovativeness of an enterprise is strictly correlated

with its size. There is observable a clear correlation of performed investments with short term policy of SME adjusting their production capacity to current needs of the market. More than 19 % of the enterprises in the last period purchased machines and devices as those which are in their use, in order to increase the production capacity. SME also decreased an interest in investments in new technologies, in introducing new products, in developing the sales network. Analysis of the behaviours confirms that within the further years enterprises are going to compete by price and quality, with tendency of limiting their significance [5, 52]. In the group of competitiveness determinants it is observed the increase of the enterprise's goodwill, competence and motivation of employees, creating modern distribution channels as well as using more modern production technologies than the competition. The least role is played by modern methods enterprise management, which is why it may emphasise that this is an unused and mostly underestimated potential of innovativeness within this group of enterprises. The aforementioned research results indicate that innovativeness in Polish enterprises from the SME sector does not reflect the vision of creative destruction, i.e. introducing new combinations of the existing resources but it is rather a result of flexible adjustment to local environment. Despite the tradition of analysing enterprising, innovation based undertakings; the economic reality turns out to be more complex. Moreover, the companies dynamically functioned not only in the sector of advanced technologies but also in those treated as traditional ones, as wholesale and retail trade, transport.

Summary

Polish enterprises must be innovative. In order to support this process, new conditions and instruments are created which make implementing new technologies and developing enterprises on the basis of innovative ideas easier. It is of almost importance that in the near future Poland becomes one of creators of changes, not only it's beneficent. These aspirations should justify Poland's position in the innovativeness ranking of European Union's nations. The global crisis exerts a significant influence on the changes of the markets' conditions. Therefore only elasticity in activity and quick adjustment to new conditions on the market can help survive the economic slowdown period. Those entrepreneurs who treat this time as a challenge to induce a diversity of changes within the company may outdistance the competition in the future, and strengthen the company's position on the market. In Poland, like in other European Union countries, steps have been undertaken to make managing a business easier, on both the state and institutional level. To be competitive in the global economy, Polish enterprises must be innovative.

References:

- [1] DRUCKER, P. F. *Innowacja i przedsiębiorczość. Praktyka i zasady*, PWE, Warszawa 1992, p.285, ISBN 83-208-0870-7
- [2] DASZKIEWICZ, N., BUBLEWICZ, B. *Małe i średnie przedsiębiorstwa szanse i zagrożenia rozwoju*, CeDeWu, Warszawa 2007, ISBN 978-83-60089-28-6
- [3] FEDAN, R., KALISZCZAK, L., GRZEBYK, M. *Przedsiębiorczość w procesie rozwoju regionu podkarpackiego*, [w:] *Możliwości i bariery rozwoju region*, A. Czudec (ed.), University of Rzeszów press, Rzeszów 2009, p. 137, ISBN 978-83-7338-436-1
- [4] GRZEBYK, M. *Determinanty rozwoju mikro i małych przedsiębiorstw (na przykładzie gminy Kamień)*, *Zeszyty Uniwersytetu Szczecińskiego*, nr 540, Seria: Ekonomiczne Problemy Usług, nr 34, Szczecin 2009, ISSN 1640-6818 oraz ISSN 1896-382X
- [5] *Monitoring of the condition of the SME sector*, report, the Polish Confederation of Private Employers Lewiatan, Warsaw 2009, p.52
- [6] *Report Policy mix for innovation in Poland*, OECD, Ministry of Economy and Ministry of Science and Higher Education, Warsaw 2009
- [7] STEC, M., *Innowacyjność krajów Unii Europejskiej*, *Gospodarka Narodowa* nr 11-12/2009, Warsaw, p. 53-55, ISSN 0867-0005
- [8] *European Innovation Scoreboard 2010, Comparative analysis of innovation performance*, February, 2010, <http://ec.europa.eu/enterprise/policies/innovation/facts-figures-analysis/index>
- [9] OECD: *Innovativeness in Poland*, www.egospodarka.pl/23120, OECD-innowacyjność-w-Polsce.

ENERGY INTENSITY OF GDP IN THE LIGHT OF ENERGY POLICY OBJECTIVES IN POLAND UNTIL 2030

Krzysztof Adam Firlej

Cracow University of Economics

chriskrk2@yahoo.pl

Key words:

energy intensity of GDP – Poland's energy policy

Abstract:

This article attempts to present both theoretical and empirical aspects of the changes in energy intensity of GDP in Poland in relation to the European Union. The paper also discusses the objectives, activities and achievements in support of reducing the level of energy intensity of GDP. The study argues that the reduction of energy consumption in the economy should be treated as a priority and a key element of energy policy, because such conduct will support the implementation of its other goals, as well as play a key role in improving the economic efficiency of the economy and positive impact on its competitiveness on the international stage.

1. Introduction

At the moment of the accession to the European Union, Polish energy sector faced many significant challenges, because the increase in energy demand as well as disproportionate level of infrastructure development in the sector of energy, high dependence on external supplies of natural gas and oil, and environmental commitment, determine the need to take appropriate measures to counter the deterioration of the situation of the fuels and energy consumers [6, 3]. In recent years the world economy encountered a number of adverse events, such as the dynamic change of energy prices, increased demand for energy from developing countries, serious failures of power systems, as well as increased levels of environmental pollution requires the need for a new dimension of energy policy. The increase of the level of investment in the areas of energy efficiency and renewable energy sources, should lead to the creation of new jobs, and also contribute to increasing innovation and strengthen the knowledge-based economy in the European Union [4, 372].

2. Aim, methodology and the research area

The purpose of this paper is to present both theoretical and empirical aspects of the changes in energy intensity of GDP in Poland in relation to the European Union. The study argues that the reduction of energy consumption in the economy should be treated as a priority and a key element of energy policy, because such policy will support the implementation of its other goals. The article discusses the theoretical determinants of energy intensity of GDP, as well as specific goals and actions in support of energy policy for energy efficiency. The achievements in reducing energy intensity of Polish GDP have also been presented. In the empirical part, the average annual pace of change in energy intensity indicators of Polish GDP has been presented, and also the changes pace of primary and final energy intensity of GDP in Poland in comparison with EU countries. The empirical data presented in the study come from the Central Statistical Office and the French Agency for Environment and Energy Management (ADEME).

3. Theoretical determinants of energy intensity of GDP

Production energy intensity is defined as the energy consumption in the production process, company, industry and national economy, related to a specific volume of production, in which it is involved [8, 25-26]. According to the criterion of how to measure the energy input in the process of creating a production volume, the direct energy consumption and accumulated energy consumption are distinguished. Energy intensity of the direct energy consumption is brought directly to the process for manufacturing a specific product [1, 37]. However, one should understand the energy intensity as the cumulative energy consumption necessary to produce a product or a service covering the total amount of primary energy, which was actually consumed in all the processes of conditioning sequentially the manufacturing of a product or service, therefore the total energy consumed to produce the raw materials, semi-finished products and energy carriers. Typically, in studies of energy consumption, the following factors are being used [7, 15]:

1) Energy intensity indicator:

$$e = \frac{E}{D}$$

where:

E - the amount of energy consumed,

D - the value of national income;

2) incremental elasticity index, called the index of elasticity of energy consumption:

$$e' = \frac{E}{D} : \frac{D}{D} , \quad \text{czyli} \quad e' = \frac{E}{D} \times \frac{1}{e} ,$$

where:

$\Delta E, \Delta D$ - energy consumption increases and national income increase;

3) rate of energy consumption per 1 inhabitant:

$$e = \frac{E}{L} ,$$

where:

L - population.

The incremental elasticity indicator e' expresses the marginal energy intensity. If it is greater than unity, it means that the increase in income is more energy intensive than the entire income and *vice versa* – the indicator that is less than unity means that the increase in income is less energy intensive than the entire income.

4. The level of energy intensity of GDP in the 1990-2008 in relation to the European Union

In relation to the developed countries, the Polish economy is characterized by excessive consumption of energy, raw materials and materials in the generated national income [9, 5]. However, the energy intensity of GDP, defined as the quotient of primary or final energy intensity and the value of GDP, is successively improved. In making the analysis of changes in energy intensity of GDP, one has to bear in mind the situation which took place in the early 90s of the 20th century in the countries of Central and Eastern Europe, including Poland [3, 19]. In the economies based on central planning, energy prices were low, leading to high wastage, sometimes even amounting up to 60-70% of total consumption, which also gave the opportunity to make important savings. The decrease in energy intensity in the last decade of the 20th century in Poland was a simple consequence of the use of these reserves.

TAB. 1. The average annual pace of change in energy intensity indicators of Polish GDP (% per year)

pace of change	1990-1993	1993-2000	2000-2008	1993-2008	1990-2008
primary energy intensity GDP	3.46	-7.16	-2.71	-4.81	-3.48
final energy intensity GDP	0.84	-6.77	-2.94	-4.75	-3.84

source: [2, 17]

In Poland, as a result of relatively stable energy consumption and GDP growth, a decreasing primary and final energy intensity of GDP has been observed [3, 575]. After a initial increase in the energy intensity of GDP by 1993, in subsequent years there was a dynamic period of improvement which lasted until 2000. Since then, the gradual improvement in energy intensity of the average annual pace of 3% has been observed. Primary energy consumption of Polish GDP, expressed in constant prices and purchasing power in 2008 amounted to 0.1784 koe / € 05P and was higher than the European average by more than 16%. Note the high (37%) reduction in energy intensity over the years from 1990 to 2000 contrasts with the relatively small improvement among Member States of the EU-15. Final energy intensity of GDP in Poland, expressed in constant prices and purchasing power in 2008 amounted to 0.1194 koe / € 05 and was higher than the European average "only" about 8%. This results from the fact that the ratio between final consumption and the original in Poland is lower than the EU average. That relation has been directly affect by the change of efficiency of energy conversion and the growth in electricity consumption. In the graph (chart 1) the primary energy intensity of the Polish economy is compared with the European Union average, the exchange rate of purchasing power parity (PPP) was adjusted by constant euro prices from 2005 (euro05p).

CHART 1. Changes in primary energy intensity rate of GDP

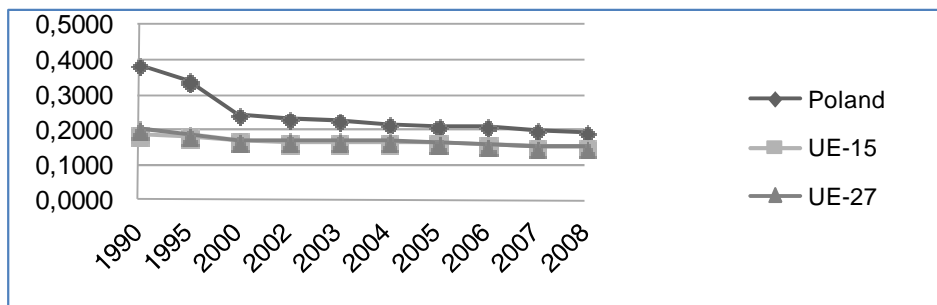
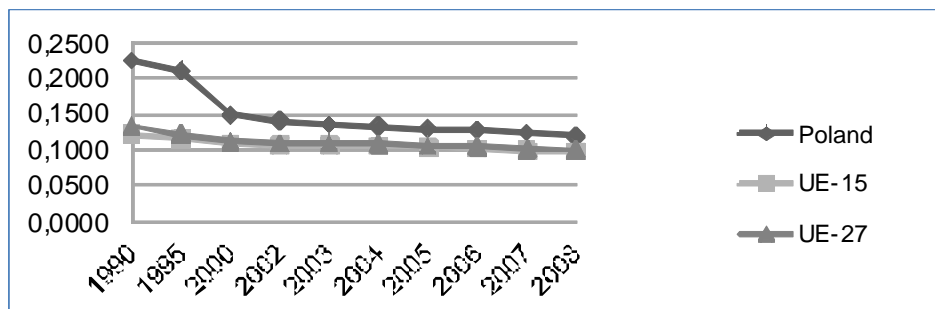


CHART 2. Changes in final energy intensity rate of GDP



source: [10] and author's calculations (access on 18.02.2011)

The chart below (chart 2) compares the final energy consumption in Polish economy and the European Union average, the exchange rate of purchasing power parity (PPP) in constant euro prices from 2005 (euro05p).

5. The objectives and actions supporting the reduction of the level of energy intensity of GDP

Objectives and directions of activities to support reductions in the level of energy consumption of domestic product in Poland have been defined in the document "Polish Energy Policy until 2030" adopted by the government on 10 November 2009. Reducing energy consumption in the economy in this document has been treated as a priority [4, 369]. The main objectives in this area are striving to maintain zero energy growth and gradual reduction in the level of intensity of the Polish economy to the level of EU-15. Specific objectives in the area of energy efficiency improvements include the following [6, 7]: increase the efficiency of electricity production, the increase in electricity produced in highly efficient cogeneration technology, reducing the index level of network losses in transmission and distribution, increase end-use efficiency and increase in the ratio of annual demand electricity to the maximum power demand at peak load.

The efforts to improve energy efficiency include the following [6, 7-8]: determination of the national objective to improve energy efficiency, encouraging the development of cogeneration, the imposition of the obligation to use energy performance certificates for buildings and homes, the imposition of obligation as the energy intensity of appliances and products that consume energy, introduction of minimum standards for energy consuming products, committing the public sector to provide a model role in the rational and cost-effective energy management, to support investment in energy savings through the preferential loans and grants from domestic and European funds, to provide support for scientific research on new solutions and technology, leading to a reduction in energy, techniques for energy demand management, conducting information and education campaigns that promote efficient energy use and implementation of the indicative, under 2006/32/EC Directive, according to which by 2016 9% energy savings are to be achieved in relation to the average level of final energy consumption in the years 2001-2005 (53 452 GWh) [6, 8].

6. Achievements in reducing the level of energy intensity of GDP

During the year 2010, among the goals and actions to improve the energy efficiency of the Polish economy, the following assumptions have been accomplished [5, 9]: Directive 2004/8/EC on the promotion of cogeneration has been implemented, the analysis has been prepared on the review of

energy consumption in the chosen sectors of the economy and opportunities to reduce energy loss in the national electricity system, the Ministry of Economy has begun an information campaign on energy efficiency use. The Directive 2002/91/EC on the energy performance of buildings has been implemented and the efforts to implement Directive 2006/32/EC on energy end-use and energy services have been made. The National Action Plan on energy efficiency has been developed, a draft law and assumptions prepared on energy efficiency, energy audits have been prepared and pro-efficiency measures in the areas of industrial plants, and also secured funds to support investments in energy efficiency in the economy.

7. Conclusions

Further to the analysis of the indicators of changes in the primary and final energy intensity of GDP, and the assessment of objectives and actions which support the reduction of the level of energy intensity of GDP, as well as on the basis of its achievements in that reduction, the following conclusions can be drawn:

1. Over the last two decades, Poland has made a major progress in reducing the level of energy intensity of GDP. In the years 1990-2008, the energy efficiency of the economy increased by about 70%, although there is still a lot to be done, especially if one takes a lot less energy-intensive economies of the EU-15 into consideration.
2. As a result of the economic development, the popularization of new technologies that require higher consumption of electricity has developed, with a relative decline in demand for other forms of energy. With the gradual adaptation of the proposed actions, important increases in energy efficiency of the Polish economy can be observed, thereby improving the energy security of the country. As a result of the energy intensity reduction in economy, a reduction of the emissions, which positively affects the environment, has been noted. The investments in modern and energy efficient technologies and products have also effected the growth of Polish economy. Reducing energy consumption is crucial in improving the economic efficiency of the economy and its positive impact on international competitiveness.
3. It seems necessary to continue the long-term energy policy of the country, whose key objective should be to ensure national energy security. In the future, further mechanisms should be implemented to support action on the efficiency of production, transmission, distribution, and efficient use of fuels and energy.

References:

- [1] BIBROWSKI, Z. *Energochłonność skumulowana*, PWN, Warszawa 1983, s. 37, ISBN 8301032332.
- [2] *Efektywność wykorzystania energii w latach 1998-2008*, Główny Urząd Statystyczny, Warszawa 2010, s. 19.
- [3] GULCZYŃSKI, D. Efektywność energetyczna świata i Polski – uwagi do problemu, *Polityka energetyczna* t. 11, Z. Spec. 1, IGSMiE PAN, Kraków 2008, s. 575, ISSN 1429-6675.
- [4] MALKO, J. Uwarunkowania polskiej polityki energetycznej. *Polityka energetyczna* t. 12, z. spec. 2, IGSMiE PAN, Kraków 2009, s. 369, 372, ISSN 1429-6675.
- [5] *Ocena realizacji polityki energetycznej od 2005 roku*, Ministerstwo Gospodarki, Warszawa 2009, s. 9-10.
- [6] *Polityka energetyczna Polski do 2030 roku*, Ministerstwo Gospodarki, Warszawa 2009, s. 3, 7-8.
- [7] SZALBIERZ, Z. Rozwój produkcji elektrycznej w Polsce, *Prace Naukowe Instytutu Nauk Ekonomiczno-Społecznych Politechniki Wrocławskiej*, Seria: Monografie 25, Wrocław 1989, s. 15, ISSN 03249506.
- [8] WĄSIKIEWICZ-RUSNAK, U. Zmiany i przeobrażenia poziomu energochłonności produktu krajowego brutto w Polsce w okresie reform społeczno-gospodarczych, [w:] *Zeszyty Naukowe Akademii Ekonomicznej w Krakowie nr 668*, Wydawnictwo Naukowe AE w Krakowie, Kraków 2005, s. 25-26, ISSN 0209-1674.
- [9] WNUK, R. Efektywność energetyczna polskiej gospodarki – szanse i zagrożenia, *Energetyka Ciepła i Zawodowa*, nr 5/2009, s. 5, ISSN 1734-7823.
- [10] www.odyssee-indicators.org

DECONSUMPTION AND THE STANDARD OF LIVING IN THE ASPECT OF SOCIAL COHESION IN THE EUROPEAN UNION

Anna Gardocka-Jałowiec

University of Białystok

anna.gardocka76@gmail.com

Key words:

deconsumption – standard of living – sustainable development – social cohesion

Abstract:

The aim of this article is to outline the relationship between the standard of living and the phenomenon of deconsumption with respect to the consolidation of social cohesion in the EU. The improvement of living conditions is the final goal and main criterion for achieving social cohesion among the regions of Europe. This article discusses the hypothesis stating that deconsumption (being one of the “new consumption” phenomena) affects the current and future standard of living. Deconsumption as the expression of the shift in the outlook on life creates a culture basing on: (1) a conscious limitation of consumption to a rational size, i.e., one which stems from the natural, individual, physical and psychological needs of the consumer; (2) limiting material consumption in order to substitute it with immaterial consumption.

Introduction

The rationale behind regionalization is the increase of social and economic effectiveness. Economic goals are by definition aimed at realizing social goals, and so both are supposed to create a level playing field for all individuals. This study finds it necessary to identify the relationship between the standard of living and deconsumption in terms of the consolidation of social cohesion in the European Union. It is assumed that the changes in the sphere of consumption (like the creation and sublimation of needs, increase of buying power, shifts in the hierarchy of values) make the standard of living become a dynamic category, one that is evolving, and requires ex-post and ex-ante analyses.

These deliberations are based on the available reference materials, as well as appropriate acts of law of the European Union. Due to editorial restrictions, the analysis of secondary data from EUROSTAT, OECD, WHO, is omitted in this publication. Such analysis is however deemed necessary since it is a basis for a thorough ex-post and ex-ante analysis of the relations between standard of living and deconsumption.

Standard of living and social cohesion in the EU

Standard of living is defined as the level of satisfaction of human needs (basic and higher level needs, both material and immaterial) resulting from the consumption of material goods and services, and the utilization of natural resources and institutional conditions. It is perceived as a key factor affecting human capital (knowledge, abilities, experience, psychological and intellectual condition of individuals), as well as social capital. Both of these forms of capital are crucial for creating a positive investment climate which stimulates market demand.

Raising the standard of living is essential for socioeconomic development, a multidimensional process involving shifts in social structure, institutional and interpersonal relations. Socioeconomic development also involves increasing economic growth, limiting inequalities, and eliminating poverty. In this view, development has to represent a wide array of changes. The result of these changes is a new social system (aimed at satisfying various basic needs and desires of individuals and social groups) with the standard of living both materially and spiritually superior to the previous one [10, 16].

The demand to correlate the issue of the standard of living with economic actions of EU member states has been always present in the EU and, previously, European Economic Community documents.¹ The problems of the standard of living have been raised in the EU alongside social cohesion, understood as the capacity of a society to ensure the welfare of all its members, minimizing disparities and avoiding polarization [8]. The current strategy, Europe 2020 (the so-called New Lisbon Strategy), also stresses the importance of social cohesion, placing it next to economic and territorial cohesion. The Strategy states that Cohesion policy and its structural funds, while important in their own right, are key delivery mechanisms to achieve the priorities of smart, sustainable and inclusive growth in Member States and regions. [7, 24-25].

Advancing globalization, increasing importance of competitive advantage (and not competitive position), turbulence in the external and internal environment: - all these factors cause that more and more is demanded from business entities:

- higher flexibility (openness to change, cooperation) in adjusting to constant, turbulent shifts in the business environment, and an ability to function in the state of chaos and crisis;

¹ Article 2 of the Treaty of Rome states that the aim of the EEC is to promote a harmonious development of economic activities, a continuous and balanced expansion, an increased stability, an accelerated raising of the standard of living and closer relations between its Member States [Ciamaga, 127-129].

- market activity basing on the concept of sustainability (i.e. a holistic, ever-developing view on reality); development of its knowledge resources (both explicit and tacit knowledge);
- monitoring and adapting to changing institutional conditions, both the formal, and the informal (including such things as trust, ethics, system of values, afterthought in business activity).

Creation and sublimation of needs and changes in the buying power of the consumer, leading to transformations of consumption, are without a doubt a response to the abovementioned conditions of the contemporary economic process.

Deconsumption as a new trend in consumption

Deconsumption is a phenomenon of “new consumption”; it expresses a beginning of a “new consumer culture”. Deconsumption is the result of the evolution of the consumption processes, such as servicization and dematerialization of consumption, reduction of its position in the system of values; it reflects the increase in frustration, pathology (rise in crime, higher occurrence of mental and cardiovascular diseases), and post-consumption waste production. It is then a response to the exhaustion and disappointment with high consumption on the one hand, and on the other it is a deepening awareness of the need to rationalize consumption. It is a display of a conscious limitation of consumption to a rational size, i.e. one stemming from natural, individual, physical and psychological properties of the consumer. Deconsumption means limiting material consumption for the sake of immaterial consumption [3, 216].

Empirical evidence for deconsumption in some social groups includes: reduction of meat and fat consumption, decrease in the confectionary market, lower use of stimulants, switch from cars to bikes or public transport, lower TV viewer ratings; increased demand for aged and used things, “old” things (outdated furniture, retro fashion) and consumption manners (for instance, return to old, traditional, local or regional cuisine) [3, 215-217].

Deconsumption is a tendency which displays close relations with the claims of sustained development. This is because the concept of sustained development introduces a balance in respect to not only the natural environment, but also the anthropogenic (including the economic environment) and human environment [2, 57]; it ensures a constant improvement of the quality of life of present and future generations through proper shaping of proportions between various types of capital: the economic, human and natural capital [9, 22].

Undoubtedly, deconsumption is a dynamic category closely linked to the amount of income and time (this includes time to satisfy basic needs and the free time at his disposal) in the consumer's possession. It takes the form of decent and rational consumption.

The importance of deconsumption in shaping the standards of living in terms of economic, social and institutional conditions is emphasized by the roles of the consumer:

1. To identify and promote his needs – outlining potential demand.
2. To test prototypes – to control the change of consumer's needs into results. It is crucial for business, because it directly reduces the risk of market failure of a product or service, before its final launch.
3. To evaluate the shift from potential to effective demand – it is believed that a product should increase its sales ratings in a short period after its initial launch (approximately 6 months). This means that it has successfully transformed its expectations into results.

Taking into consideration all the conditions of the consumer's market activity, there is an explicit importance to observe consumption tendencies, as they are very likely to spread to not only the highly developed regions of the EU, as it was until now, but rather throughout the whole territory.

Conclusions

This study presents arguments sufficient to conclude that the standard of living, as the final aim and the main criterion of social cohesion in the EU, is and will be affected by the changes in consumption. Deconsumption, or the reflection of current world outlook, creates a new consumer culture. It can thus be safely assumed that the deepening knowledge and consumer awareness along with the more-so important ethical aspects of consumption will spread and have a significant impact on the optimization of standards of living in the EU.

References:

- [1] BERBEKA, J. *Poziom życia ludności a wzrost gospodarczy w krajach Unii Europejskiej*, Wydawnictwo Akademii Ekonomicznej w Krakowie, Kraków 2006.
- [2] BORYS, T. *Warunki brzegowe ekonomii zrównoważonego rozwoju* [in:] *Ekonomia zrównoważonego rozwoju w świetle kanonów nauki*, ed. B. Poskrobko, Wyższa szkoła Ekonomiczna w Białymstoku, Białystok 2011.
- [3] BYWALEC, Cz. *Konsumpcja a rozwój gospodarczy i społeczny*, Wydawnictwo C.H.Beck, Warszawa 2010.

- [4] BYWALEC, Cz., RUDNICKI, L. *Konsumpcja*, PWE, Warszawa 2002.
- [5] CIAMAGA, L., LATOSZEK, E., MICHAŁOWSKA-GORYWODA, K., OREŹIAK, L., TEICHMAN, E. *Unia Europejska*, WN PWN, Warszawa 2000.
- [6] CREEDY, J., GUEST, R. *Population ageing and intertemporal consumption: Representative agent versus social planner*, Economic Modelling (25) 2008.
- [7] *Europe 2020 – A European strategy for smart, sustainable and inclusive growth. Communication from the Commission*, European Commission 2010.
- [8] http://www.coe.int/t/dg3/socialpolicies/socialcohesiondev/source/RevisedStrategy_en.pdf [as seen on 20.10.2011]
- [9] PIONTEK, F. (ed.) *Ekonomia a rozwój zrównoważony. Teoria i kształcenie*, Tom 1, Wyd. „Ekonomia i Środowisko”, Białystok 2001.
- [10] TODARO, M. P. *Economic Development*, Addison-Wesley, New York 2002.

SELECTED MODELS USED TO STOCK VALUATION BASED ON EARNINGS OR ON DIVIDENDS

Radim Gottwald

Mendel University in Brno

radim.gottwald@mendelu.cz

Key words:

Modigliani-Miller model – stock valuation – intrinsic value of a stock – dividend policy

Abstract:

The paper focuses on selected models used to stock valuation. Concretely, on the models which are based on earnings or dividends. Based on different dividend policies, different types of the dividend discount models are applied. Using empirical researches presented in the paper, the models based on earnings or on dividends are analyzed in detail. Possible use of selected models is compared with the one of other known models used to estimate the intrinsic value of a stock in the framework of the fundamental analysis.

Introduction

Fundamental analysis belongs among investment analyses. It gives a long-term and medium-term forecast of stock price trend. It is more applicable in practice than psychological and technical analysis. This analysis assumes the existence of stocks, which prices does not equal to their intrinsic value, which means the „justified price“ and it express the real value of a stock. Stocks are undervalued while intrinsic value is less than price, whereas stocks are overvalued while intrinsic value is higher than price. If intrinsic value equals to price, stocks are fairly valued. The aims of fundamental analysis are to make forecast of stock price trend and to calculate intrinsic value.

Objectives and Methodology

The objective of the paper is to analyze selected models used to stock valuation. Concretely, the models based on earnings or on dividends. Descriptive and analytical methods are used in the paper. Descriptive method is used for explaining of important terms related to fundamental analysis, concretely to estimation the intrinsic value of a stock. The results from empirical researches are analyzed by analytical method.

Results

Selected models based on earnings and or on dividends are analyzed, at the first.

Selected Models Based on Earnings

Generalized earnings model was developed by **Ang and Liu (1998)**. Stocks are valued by this model using earnings and book values. Based on Modigliani-Miller model and Ohlson model, a general no-arbitrage model which uses stochastic pricing kernels is developed. This model can be implemented by assuming the driving variables follow affine processes which allow tractable calculations. The model is applied to several individual stocks, concretely Intel, Microsoft, Caterpillar and Texaco. The descriptive statistics including mean, not standard deviation of variables, is presented in Table 1.

TAB. 1: The descriptive statistics

Sample period	Intel 1975:1 – 1997:2	Microsoft 1987:3 – 1997:4	Caterpillar 1972:3 – 1997:2	Texaco 1972:3 – 1997:2
Number of observations	90	42	100	
3 month commercial bill rate	0.0817	0.0615	0.0816	0.0816
Abnormal returns	0.1366	0.3284	0.0417	0.0312
Growth in book value	0.2773	0.4055	0.0941	0.0241

Source: Ang and Liu (1998)

The growth in equity for all the companies except Texaco has been much larger than the short rate. The growth has been for Microsoft almost explosive – on average 40,55 % a year. Future stock price movements can be predicted from this model. Equity premium puzzle uses earnings and book values in place of dividends. It is also possible to relate the volatility of earnings and book value with dividends.

Dong and Hirshleifer (2004) developed a model taking into account the stochastic processes for earnings and interest rates. This model is applied to stocks having a positive probability of negative or zero earnings.

Stock of 4 firms and 2 indices are used in the test. The descriptive statistics are presented in Table 2.

TAB. 2: The descriptive statistics

Sample period	Standard & Poor's 500	Mid-Cap	General Electric	Exxon	Intel	Microsoft
Stock price	449.76	553.44	20.58	25.13	15.94	25.45
Current earnings	23.51	26.80	1.10	1.89	0.78	0.58
Forecasted 1-year earnings	26.81	29.53	1.24	1.90	0.93	0.70
Earnings growth rate	15.77%	12.55%	13.19%	1.46%	34.01%	22.38%
30-year yield	8.92%	7.70%	8.92%	8.92%	8.92%	7.31%

Source: Dong and Hirshleifer (2004)

The generalized earnings valuation model has greater parameter stability and smaller pricing errors. Deviations between model and market prices tend to be mean-reverting using the generalized earnings valuation model (GEVM). By adding buffer earnings, the GEVM inherits the appealing properties of the Bakshi and Chen model. The relaxation of the negative earnings condition therefore makes the GEVM particularly attractive for large scale asset pricing or corporate event studies.

The residual income valuation model is the most commonly employed accounting-based valuation model. The dynamics of abnormal earnings valuation is specified by linear information dynamics in the Ohlson model. The basic concept of efficient markets requires that prices move to eliminate any short-term discrepancy between value and price in terms of future cash-flows or earnings.

Selected Models Based on Dividends

The dividend discount model provides a means of developing an explicit expected return for the stock market. It is often used way of valuing based on theory that a stock is worth the discounted sum of all its future dividend payments. The stocks are evaluated based on the net present value of dividends in the future. Different types of the dividend discount model are used by many financial analytics. In the simplest case, the value of a stock

equals to the value for a perpetual annuity with a constant level of payments. The probable increase rate depends on dividend policy, indebtedness, margin of profit, return of equity capital other factors. It is a positive, multi time period model.

The Modigliani-Miller model of dividend irrelevance is based on the assumption that the amount of dividends distributed to shareholders is not less than the free cash flow generated by the fixed investment policy. If extra-distribution is chosen by managers, net present value is determined by expectations of new shareholders. **Magni (2007)** shows that dividend irrelevance proposition holds even in case of retention. The assumption has not to do with retention. Dividend irrelevance applies if net present value is zero. Zero net present value assumption must be removed, so that dividend irrelevance does not apply any more.

Comparison of Using of Selected Models and Other Known Models

Possible use of selected models is compared with the one of other known models used to estimate the intrinsic value of a stock in the framework of the fundamental analysis.

Models based on earnings were mentioned. Stochastic model by **Dong and Hirshleifer (2004)** uses also interest rates. Generalized earnings model by **Ang and Liu (1998)** uses also book values. Book values and return on equity are used in residual income valuation model.

Models based on dividends were mentioned, too. Concretely, the dividend discount models. There are different types of dividend discount model signed as Gordon models depending on decreasing, stagnation or increasing of dividends. In these described cases it is possible to use dividend discount models. Models cannot be used in case of company which does not pay any dividends.

Other known models use other parameters. There are historical models, free cash flow equity model, balance model and profit model. These models use different data available in financial statements of companies like balance sheet, income sheet and cash flow statement.

Conclusion

Many securities can be valued by many ways. To estimate the intrinsic value of a stock, different models using earnings or dividends can be used. Using of the models based on earnings depends on availability of accounting data. Using of models based on dividends is possible in cases of decreasing, stagnation or increasing of dividends. Different dividend policies relate to different types of the dividend discount model. Investors use many other

models, but they need to find necessary data from financial statements of companies. Many researchers try to apply known models on real data or try to create new models.

The paper was compiled in terms of Thematic direction 02 solution of Research plan FBE MENDELU in Brno MSM No. 6215648904/02 named „Main tendencies in the development of a competitive environment within the integration and globalisation processes, and the adaptation of business entities to the new conditions of the integrated market“ realized by means of financial support of state resources through Ministry of Education, Youth and Sports. The objective of next research will be the analysis of other models used to stock valuation.

References:

- [1] ANG, A., LIU, J. *A Generalized Earnings Model of Stock Valuation* [online]. 1998 [cited 2011-10-25]. Available from Internet: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=94028>.
- [2] DONG, M., HIRSHLEIFER, D.A. *A Generalized Earnings-Based Stock Valuation Model* [online]. 2004 [cited 2011-10-23]. Available from Internet: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=622541>.
- [3] FORBES, W. *Behavioural Finance*. 1. issue. West Sussex: John Wiley & Sons. 2009. 443 p. ISBN 978-0-470-02804-9
- [4] MAGNI, C. A. *Relevance or Irrelevance of Retention for Dividend Policy Irrelevance*. International Review of Applied Financial Issues and Economics, Vol. 2, No. 2, 2007. ISSN: 92101737

CLUSTERS - NEW POSSIBILITIES OF DEVELOPMENT OF ENTERPRISES

Mariola Grzebyk

University of Rzeszów

mgrzebyk@op.pl

Key words:

cluster – development of enterprises – cooperative and competitiveness of enterprises

Abstract:

The article discusses the clusters as new possibilities of development of enterprises. Contemporary clusters are treated as the most developed form of entrepreneurship organisation in the economy. It is connected with its constant increase of competitiveness of their members by increased probability of cooperation effect and economic integration, synergy effects and scale effects, multiplier effect and acceleration.

Introduction

Progressing globalisation causes that Polish economy has to be adjusted to the determinants of broader and more demanding market. It causes the fight for a customer in a more aggressive way or rivalry for regional/local markets. There are social and economic processes which cause that enterprises undertake many adjusting measures of gradual or radical character. One of the most important challenges before contemporary enterprises, especially from the sector of small and medium enterprises is winning the competitive advantage [4, 19].

Competitive advantage is achieved by these enterprises which are more effective in accommodating to the requirements imposed by the market. The competitive position of Polish numerous but small enterprises is very low. In contemporary economy, the escalating competition very often forces an enterprise to cooperation. And not only within the framework of the existing value chain, along with suppliers and recipients, has what been applied, but also with their direct competitors. One of the ways of stimulating competitiveness and innovativeness of both regions and firms is to call cluster structures.

The aim of the article is to present cluster as a new possibilities of development of enterprises, especially for small and medium enterprises.

Benefits for the entities constituting a cluster

Functioning within the framework of a cluster is connected with combining cooperation and rivalry, what positively influences the competitiveness of an enterprise.

The first who used the term cluster in an economic sense and context was Michael E. Porter. He defined the term cluster as a group of interrelated enterprises located in a certain geographical area, comprising specialized suppliers and service providers operating in related sectors of economy as well as linked institutions like universities, standardization institutions, and trade associations. In certain areas they compete, while in other, cluster participants collaborate closely [6, 248]. However, according to the OECD, a cluster is a geographical concentration of interconnected enterprises and institutions in a given area, while the physical vicinity intensifies the flow of knowledge and accelerates the development of institutions, what increases the effectiveness of a cluster [3, 130].

There is no standard, commonly accepted definition of clusters. Most of definitions use three basic factors to define a cluster: geographical concentration of interdependent companies that operate in the same or similar sector of industry or services, interaction and functional connections between companies, suprasectoral dimension of clusters that embrace both horizontal and vertical connections [3, 134]. Cluster participants who start cooperation with the thought that it will result in the synergy effect within perspective, i.e. whether the effect of this cooperation will be greater than the simple amount of work results of particular partners acting individually. As a result of its flexibility, clusters may show a great efficiency in acquiring new and maintaining the contemporary markets [3, 15 - 17].

Benefits for the entities constituting a cluster: extending the scale and scope of products and services, joint introduction of new products and services into the market, taking joint decisions or coordinated actions, including investments and development, optimisation of the costs of the conducted activity, providing professional and cohesive business services (banks, insurance, credit guarantees, financial and economic consulting, etc.), providing knowledge flow and process of mutual learning, creating a cohesive system of applying for external support, joint promotion of image and/or brand, cluster and entities, providing entities with economic stability, better competitive position in Poland and abroad. Organising enterprises functioning in a given area, formally not connected but strictly cooperating with one another - in a cluster is a difficult and long-lasting process.

Cooperation networks, which include clusters that have achieved success, their development are based on the joint vision and aim, were defined by their participants. They become the catalysers for the increase of economic prosperity, determinates stimulating innovativeness of environment, activating export and attracting foreign investments. Constant innovative processes within clusters require team-like processes of learning, encompassing more and more extended social circles, engaged in the development of the region.

Roger Foyer defined several conditions determining the success of a cluster [3, 143]: diagnosing of the regional potential of knowledge based industry, supporting strengths of a region, improving the actions (infrastructure, organisation) for the benefit of innovative technologies, development of entrepreneurship, research centres and scientific institutes, various forms of financing investments, regional strategy concentrated around one aim, effective cooperation within formal and informal network of information.

Clustering experiences

Clustering experiences in the world are very rich. Even in the 18th century there were first concentrations of cluster character. The studies conducted by the groups of Lingvist, Sollvel and Porter indicated that the greatest number of clusters functions in Europe (England, France, Italy and Germany) and in USA. Assessing their location, it was indicated that the majority of them is located in the vicinity of cities (41.8 % of clusters); 18.9 % located in the vicinity of metropolis and 19.9 % is of a country wide range. Other clusters are located near borders. The assessment of concentrations reveals that almost half of the clusters concentrates up to 200 firms (41.6 % of clusters), 13.9 % of clusters concentrate from 200 to 300 firms; 9.4 % of clusters concentrate from 300 to 400 firms; 2.6 % of clusters concentrate from 400 to 500 firms, and 3.4 % of clusters concentrate from 500 to 600 firms. Assessing employment in the clusters, it was stated that the majority of clusters (38.1 %) employs by 5 thousand workers. Then: 12.3 % of clusters employ from 5 to 10 thousand persons, 8.8 % of clusters employ from 10 to 15 thousand persons; 7 % of clusters employ from 15 to 20 thousand persons; 5 % of clusters employ from 25 to 30 thousand persons and only 2 % of clusters employ up to 30 thousand persons [3, 122].

It was confirmed that 43 % of clusters in the scope of competitiveness (according to the Porterian diamond concept) undergoes the influence of production means; 24.7 % depends on demand means, 13.3 % depends on the competitive context of strategy and rivalry among companies, 13.4 % depends on the similar and supporting sector [3, 144].

Analysing the number of clusters in Poland in comparison to EU countries, it may be seen that it is significant what is presented in the table 1.

TAB 1: Clusters in selected EU countries

Country	Number of identified clusters	Selected clusters
Czech Republic	14 cluster initiatives	vehicle - vehicle parts, metallurgic
Estonia	4 clusters	wood processing, biotechnology, IT, metal machining
Lithuania	several cluster initiatives	textiles, high technologies
Latvia	4 clusters	mechanical, IT and educational systems, forestry, high technologies
Poland	44 clusters and cluster initiatives	high technologies - biomedical, aviation, agricultural, touristic
Slovakia	several clusters	vehicle - vehicle parts, textiles, wood procession, electronics
Slovenia	25 clusters	vehicles, plastics, air conditioning, heating and cooling devices, transportation and logistics
Hungary	22 clusters	vehicle, textiles, furniture, electronics, food

Source: M. Kozak, Klastry-wyzwanie dla rozwoju MSP w Polsce/Clusters-challenge for the development of SME in Poland, E-mentor, no. 1 (28).

The most known clusters in Poland are: Aviation Valley (aviation industry), Industrial Cluster of Tarnów Plastic Valley (plastic materials), Ceramic Tiles in Opoczno, Amber in Gdańsk, Association of the Producers of Auto parts or Ecological Food Valley.

The clusters that have been created in Poland bases on two dimensions: 1. the first regards the identification of clusters: development of preliminary concepts for a given group combining enterprises in the chain of mutual connections; 2. the second dimension regards the verification of cluster participants by gathering the notifications on special forms and confirmation of participating in the part of training and consulting.

These dimensions regard all Polish clusters but some of them show the greatest advancement (Aviation Valley, EcoValley, Furniture Cluster) [7, 90 - 95].

Conclusion

Clusters are established practically in all sectors of economy. They appear in industry and services, in the sectors of high and traditional technologies. They are characterised by various level of innovativeness and technological advancement and various strategies and developmental perspectives.

Contemporary clusters are treated as the most developed form of entrepreneurship organisation in modern economy. It is connected with its constant increase of competitiveness of their members by increased probability of cooperation effect and economic integration, synergy effects and scale effects, multiplier effect and acceleration and as a result, acceleration of the growth of regions, in which the cluster has developed. Cooperation within the framework of cluster, requires breaking the lack of trust in partners and their joint action for mutual benefits [1, 15].

To sum up, the possibilities of the development of the SME sector within cluster structures in Poland are rather limited. In the times of strong competition small national enterprises have lower potential of market values towards big competitors [2, 131]. However, cooperation with other entities creating a cluster, successively must follow creating the conditions for dynamic development of enterprises by an access to new technologies, increased access to financial sources, increasing skills and qualification of employees as well as creating the relations of co-operation between the entities in the scope of joint promotion of products, financial and legal consulting as well as an increase of trustworthiness of a firm towards business partners.

References:

- [1] BŁASIAK-NOWAK, B. Klastery jako sposób na przyspieszenie rozwoju regionów problemowych/Clusters as a manner to accelerate the development of problematic regions, *Gospodarka Narodowa/National Economy*, no. 7-8, 2007, ISBN 1-86854-631-4
- [2] FILIP, P. *Rozwój finansowy a poziom kredytowania przedsiębiorstw gospodarczych* [w]: Regionalne uwarunkowania ekonomicznego rozwoju rolnictwa i obszarów wiejskich, tom.2, Wydawnictwo Uniwersytetu Rzeszowskiego, Rzeszów, 2003, p.131-137, ISBN 83-7338-067-1
- [3] FILIP, P., GRZEBYK, M., KALISZCZAK, L. *The development policy leaning on the clusters policy*, Scientific Papers of the University of Huesce, no 13, 2008, p.15-17, ISSN 1137-9022

- [4] GRZEBYK, M. *Koncepcja klastra a współdziałanie i konkurencyjność przedsiębiorstw, / Conception of a cluster and co-action and competitiveness in rural areas*, [in:] Enterprise and region. Competitiveness and innovativeness, wyd. URZ/Published by University of Rzeszów no. 1, 2009, p.19, ISSN 2080-458X
- [5] KOZAK, M. *Klustry-wyzwanie dla rozwoju MSP w Polsce/Clusters-challenge for the development of SME in Poland*, E-mentor, no. 1 (28)
- [6] PORTER, M.,P. *Porter o konkurencji/Porter about competition*, PWE/Polish Economic Publishing House, Warszawa 2001, p.248, ISBN 8220812879
- [7] STASZEWSKA, J. *Klaster perspektywą dla przedsiębiorców na polskim rynku turystycznym*, Difin, Warszawa 2009, p. 90-95, ISBN 978-83-7641-057-9

TAX COMPETITION AND DEVELOPMENT OF REGIONS

Ladislav Hájek

University of Hradec Králové

ladislav.hajek@uhk.cz

Key words:

globalisation – tax competition – tax burden – development of regions

Abstract:

Globalization is a phenomenon that radically changed the international economy and limited the power of governments, regions and municipalities, particular in the field of taxation that is at the centre of globalization debate. The reports adopted so far by the Global Forum on Transparency and Exchange of Information for Tax Purposes have made recommendations for improvement in this field to reduce unfair tax competition among countries and regions. The Czech Republic's tax burden and tax competitiveness is observed in comparison with other most developed countries. Taxes are in the centre of attention as redistribution instrument, but redistribution process among economic subjects or regions happens also in hidden and more extensive form that engenders urban sustainability and development of regions.

1. Introduction

Globalization could be defined as an increased integration of the world's economy characterized by liberalized trade and capital flows, greater production factors mobility, internationalization of production and sales. National governments and regions are also facing *pressures to compete with one another by reducing tax rates* or by offering special tax incentives. In the tax competition, national governments and regions attempt to harmonize or coordinate their tax systems in the European Union (EU) or in the framework of the *Organization for Economic Cooperation and Development* (OECD) member countries. The mechanism of tax competition is the ability of the taxpayer *to shift income to another taxing region* with lower effective rates. Most of countries try to redesign their tax systems and reduce tax burdens in order to effectively compete in the new world economy. The result will be an erosion of the fiscal capacity of the states, regions or municipalities which will undermine economic and political stability. "Demanding *lower taxes* may make people feel richer and thereby encourage further reductions in taxes, but *this process may continue beyond the point where essential social services and perhaps even society itself begin to be endangered*" [8, p. 78].

Capital mobility may lead to increasing capital flight from high to low tax regions in large amounts. On the other hand, there are some institutional and political constraints. As an example is Sweden, one of the most heavily taxed countries in the world and relatively open economy. Early in 1990s Sweden introduced a radical tax reform that reduced marginal tax rates and broadened the tax base more than similar reforms in many other countries. Swedish tax policy is adapting to the realities of globalization, but the Swedish welfare state persists [9].

Competitive forces have encouraged regions to make their tax systems more attractive to investors. However, some tax practices are anti-competitive and undermine fair competition and public confidence in tax systems. OECD and non-OECD economies are working together through the *Global Forum on Transparency and Exchange of Information for Tax Purposes* to address harmful tax practices by improving transparency and establishing effective exchange of information [6].

As of January 2011, the *Global Forum* consists of 97 members. Membership includes all G20 members, all OECD countries including of the Czech Republic and all major financial centres. The *Global Forum* has strong international endorsement and works to build support for fair tax competition so as to minimise tax distortions.

Tax avoidance and tax evasion threaten government, regional, and municipal revenues throughout the world. In many countries the sums run into billions of Euros. Globalisation generates opportunities for cross-border capital flows and a global financial system requires more effective tax cooperation. Transparency and information exchange for tax purposes can ensure that taxpayers have no place to hide their income and assets and they *pay the right amount of tax in the right municipality where infrastructure and other regional sources were exploited*.

2. Czech Republic's Tax Burden in International Comparison

Tax policy in the Czech Republic (CR) depends heavily on tax coordination and harmonization in the framework of the European Union (EU), where membership has been dated from 2004. National tax policy has to take into account process of European unification of legislative norms, statistical returns systems and methods, coordination of economic and social policies, sectoral policy for industry, agriculture, energy, transportation, and cohesion policy. The *main objective of cohesion policy is to diminish the gap between different regions*. It is an instrument of financial solidarity strengthening economic integration [3].

Total tax burden is generally calculated as a ratio of total tax yields to GDP. In the CR this indicator is lower in comparison with the EU average (CR = 35%, EU = 40%). The international comparison is difficult, because the national and regional economic indicators can be distorted by methods used for GDP measuring on the one hand (e.g. great differences are between the USA and the EU) and by the tax revenues assessment on the other hand. E.g., the tax/GDP ratio is underestimated in some countries owing to vast and hidden “tax expenditures” as the tax deductions, rebates. *Tax burden or public debt can omit some regional and municipal taxes and debts, and the like* [4].

Tax reduction in the CR could be possible only under following assumptions [5]:

- 1) The main presumption to decrease tax burden of certain economic subjects is to *reduce tax evasion and tax avoidance of other economic entities* (tax burden spread out on all subjects to exclude evasion and exceptions to the rules).
- 2) To *rationalize and diminish central government, regional, and municipal expenditures* not to endanger present and future economic performance.
- 3) Broader *implementation of tax expenditures* that enable to redistribute financial resources without increasing neither tax yields nor government expenditures (e.g. tax abatements on children and others).
- 4) To *redistribute European Union funds* for the benefit of the CR *under the same conditions* as in the case of Ireland, Spain, Portugal, Greece etc. in the previous years.
- 5) *Lower tax burden should be compensated by growing public debt*, how it is practiced in most of the developed countries. Maastricht criterion for the European Monetary Union members allows public debt to 60% of GDP, but most of countries surpasses given limit (in Belgium, Italy and Greece is above 100%; in the CR is only around 40% of GDP).
- 6) In the short-term there is *lower tax burden offset by revenues coming from privatization and public sector activities*, as well. This additional source of public budgets will decrease essentially in comparison with developed countries (such as France, Germany, Sweden, Denmark, Norway etc.) where public sector is one of additional financial sources, stabilizers and instruments of economic policy. In the future *it will create strong pressure on higher tax burden compare with most of European countries*, where public sector plays an important role.

A decrease of the tax burden in some countries and regions was of a temporary character, because consequently it was accompanied by the reduction of public expenses and series of problems relating to it. *Lower taxation* is above all politically favourable in short-run period, but it *leads in most cases to the higher public debts and major economic problems in the long-run period* (Mexico, Chile, Turkey, Ireland, USA, etc.). On the other side, *the higher tax revenues are mostly related to the higher economic and social stability* (Denmark, Sweden, Finland, etc.) [7]. It appears that a long-run and approximate *break-even point for the EU countries is around 37% of total tax revenues on GDP* to ensure present level of public services, infrastructural renewal, and stabilized public debt (see TAB. 1).

Economics as well as experience from OECD member countries' development show that *lowering tax burden by itself does not lead to higher economic activity*, more rational allocation among regions, and to better economy of resources in economic practices. In reality, it leads to lowering public expenditures in the field of infrastructure, to municipal budget deficits and public debts. In terms of economic restrictions there are neglected transportation network renovations, housing, expenditures for social security, order, education development, research, health services and other fields important for urban sustainability, the effective functioning and a long-term development of regional economy [5].

TAB. 1: Total tax revenue as percentage of GDP

Country	1965	1975	1985	1995	2000	2007	2008	2009 ¹
Denmark	30.0	38.4	46.1	48.8	49.4	49.0	48.2	48.2
Sweden	33.4	41.3	47.4	47.5	51.4	47.4	46.3	46.4
Finland	30.4	36.6	39.8	45.7	47.2	43.0	43.1	43.1
Belgium	31.1	39.5	44.3	43.5	44.7	43.8	44.2	43.2
Italy	25.5	25.4	33.6	40.1	42.2	43.4	43.3	43.5
Austria	33.9	36.6	40.8	41.4	43.2	42.1	42.7	42.8
France	34.1	35.4	42.8	42.9	44.4	43.5	43.2	41.9
Netherlands	32.8	40.7	42.4	41.5	39.6	38.7	39.1	n.a.
Hungary				41.3	38.5	39.7	40.2	39.1
Slovenia				39.2	37.5	37.8	37.2	37.9
Germany	31.6	34.3	36.1	37.2	37.2	36.0	37.0	37.0
Portugal	15.9	19.1	24.5	30.9	32.8	35.2	35.2	n.a.
Czech Republic				37.6	35.3	37.3	36.0	34.8
United Kingdom	30.4	34.9	37.0	34.0	36.4	36.2	35.7	34.3
Poland				36.2	32.8	34.8	34.3	n.a.
Spain	14.7	18.4	27.6	32.1	34.2	37.3	33.3	30.7
Greece	17.8	19.4	25.5	28.9	34.0	32.3	32.6	29.4
Slovak Republic					34.1	29.4	29.3	29.3

Ireland	24.9	28.8	34.7	32.5	31.3	30.9	28.8	27.8
USA	24.7	25.6	25.6	27.8	29.5	27.9	26.1	24.0
Turkey	10.6	11.9	11.5	16.8	24.2	24.1	24.2	24.6
Chile				19.0	19.4	24.0	22.5	18.2
Mexico			15.5	15.2	16.9	17.9	21.0	17.5
OECD Total (unweighted average)	25.5	29.4	32.5	34.4	35.5	35.4	34.8	n.a.

Source: The OECD Revenue Statistics, 2010

¹ provisional figures

n.a indicates not available

3. Tax Competition and Social Economic Consequences

International competition in tax reduction is economically unreasonable, inefficient and dangerous at the situation of growing budget deficits and public debts. “Every country is under pressure to become more competitive and many of the social arrangements that had been established under different circumstances have become unsustainable. The process of dismantling them is not yet complete”[8, p. 210]. *It undermines state institutional fundamentals and leads to state system decay both on central and municipal levels.*

Public debt is usually explained by simplified arguments as *indebtedness of future generations*. Persistently repeated phrases have brought about vast damages on inter-generation solidarity. It will turn mainly against future generations and it predicts their dismal perspectives as old or disabled people in individualized and intolerant society. This standpoint can be changed only by the same means which led to its formation.

The CR is country improving sustainable performance most among other the EU countries [10]. If we assume labour productivity growth around 3% a year in average for long-run period, then future 2 generations will achieve doubled macroeconomic output and income per a head in comparison with oldest and retired generation. The essence of this problem is not small quantity of total income, but a *lack of inter-generation and social solidarity, and a short-term approach oriented to the individual future and oblivious of the social past.*

An initial approach to national income and its redistribution should be shifted from the short-term point of view to the long-term point of view. Present and future share of rising generation on the total inter-generation income produced in 40 years should be compared and equalized with present and previous share of oldest generation on the total inter-generation income. *Current and future generations will repay public debt for far longer. Nevertheless, they will exploit debt financing investments and national*

wealth accumulated not only by current generations, but for the most part by previous generations.

Tax burden is in the centre of attention, but *taxes are only one of many instruments for redistribution and withdrawing financial assets* from firms, households, and regions. *Redistribution process among economic subjects or regions happens in hidden and more extensive forms by means of:*

- 1) *Inflation*, e.g., in the period of 1990-2010 the rate of inflation in the CR increased by 393%, it means that value of savings at zero interest rate, such as cash and short-term deposits, fell nearly 5 times (4.9 times);
- 2) *Deterioration of public services quality and shrinking scope of public services*;
- 3) *Lower security and protection of health, assets* and thereby lower market value of real estates;
- 4) *Neglect infrastructural renewal and development* (transport communications, energy industry, housing construction, health care, education, science and research etc.) as an important condition for international competitiveness, economic growth and national wealth accumulation [2, p. 89].

4. Conclusion

The issues surrounding taxation in increasingly globalizes economies are of extreme importance and are at the centre of much debate on globalization and regional development. National and regional governments are still able to impose and to collect taxes. But the ability of any government to make its decisions is increasingly limited by globalization. International tax evasion and the implementation of international standards of transparency and exchange of information are on the political agenda. This tendency reflects the global financial crisis and its reasons.

The Czech Republic belongs to the group of countries with the lowest tax burden measured through the share of total tax revenues on GDP. Nevertheless, there is a space for further tax reduction, but only under some assumptions: to reduce tax evasion and tax avoidance of some economic subjects; to rationalize and diminish total government, regional, and municipal expenditures; to implement tax expenditures; to redistribute the European Union's funds under the same conditions as in previous years; to increase public debt; to use revenues coming from privatization and public sector activities.

International tax competition leads to growing government, regional, and municipal deficits. It results in rising public debt that is usually explained by

simplified arguments as indebtedness of future generations. Nevertheless, rising generation *will exploit debt financing investments and national wealth accumulated not only by current generations, but for the most part by previous generations.*

Redistribution process among economic subjects or regions happens in hidden and more extensive forms by means of deterioration of public services quantity and quality, lower security and protection of health, and neglect of infrastructural renewal. It is real danger for urban sustainability and regional development.

References:

- [1] BÁNOCIOVÁ, A. The Analysis of Value Added Tax in the Slovak Republic. *E+M Ekonomie a Management*, 2009, roč. 12, č. 4, s. 104-115. ISSN 1212-3609
- [2] HÁJEK, L. *Ekonomie a ekonomika*. Hradec Králové: Gaudeamus, 2009. ISBN 978-80-7435-013-9
- [3] HÁJEK, L. *Ekonomie, daně a ekonomika*. Hradec Králové: Gaudeamus, 2007. ISBN 978-80-7041-633-4
- [4] HÁJEK, L. Měření hrubého domácího produktu a ekonomický růst v Evropské unii a USA. *E+M Ekonomie a Management*, 2005, roč. 8, č. 4, s. 5-13. ISSN 1212-3609
- [5] HÁJEK, L. The Czech Republic's Tax Policy in International Comparison. *E+M Economics and Management*, Special Issue, 2003, pp. 6-11, ISSN 1212-3609
- [6] OECD. *Global Forum on Transparency and Exchange of Information for Tax Purposes*, 2011. Available: http://www.oecd.org/departement/0,3355,en_2649_33745_1_1_1_1_1,00.html
- [7] OECD. *Tax Revenue Statistics*. Available: http://www.oecd.org/document/60/0,3746,en_2649_34897_1942460_1_1_1_1,00.html#A_RevenueStatistics
- [8] SOROS, G. *The Crisis of Global Capitalism (Open Society Endangered)*. London: Little, Brown and Company, 1998. ISBN 0 316 84916 2
- [9] STEINMO, S. *Globalization and Taxation: Challenges to the Swedish Welfare State*. Available: <http://stripe.colorado.edu/~steinmo/cpsfinal.pdf>
- [10] RHOUMA, A. B. Sustainable Value in Europe: Sustainability Performance of the Czech Republic Versus the Europe of Fifteen. *E+M Economics and Management*, 2010, 13, 4, pp. 16-29. ISSN 1212-3609

INTERNATIONAL JOINT VENTURE: THE NEW WAY OF THINKING FOR THE BUSINESS SUCCESSION

A. Chamaru De Alwis

Tomas Bata University in Zlin
dealwisac@gmail.com

Key words:

business succession – joint Ventura – incumbent – successor

Abstract:

Due to the failure of international business succession, the interest parties are searching new modes for the efficacious continuation of the FOB and under that circumstances, there are number of traditional and new mode succession mode have been arisen. Under this paper first, those will be discuss shortly and at last this has given concentration to elaborate the exceptional alternative named “Joint venture” that brings unique benefits to the FOB.

Introduction

Ownership transfer, in one form or another, is assumed to be critical to the success and continuity of the Family own business [FOB]. The incapability of FOB owners to successfully transfer the business to new owners may lead to a rise in business shut down rates. To ensure business survival with healthier performance, owners of FOB may need to develop succession planning in proper manner. It could therefore be argued that more owners of FOB's should address the attitudinal, resource and operational barriers to inter-generational succession within the family [or dominant kinship group].

As per the research findings, FOB has given their first propriety to handover the business to the family member, because their ambition is to defend company ownership with the family. To achieve this intention, they are transferring management and control to the next generation of family members [3; 4]. The prime rationale for this intergenerational succession stems from the belief that family members are able to accumulate social capital, resources and specific knowledge on how to run the firm in a more efficient and profitable manner than would otherwise be possible [1]. Actuality however, few FOBs seem capable of successfully transferring their businesses to the next generation either because there is no successor, no suitably qualified successor or because the commitment of the chosen successor towards their FOB is in question. According to the research outputs only 30% of family firms survive into the second generation and

15% survive into the third generation. In addition to that owner's reluctance to handover is the business to next during his life time badly affected to the business continuation.

Finally, It has been shown that two-thirds of family firms actually fail to plan at all for generational succession. Because of this background, there is an issue has been raised "Is generation to generation the best route for the family business succession?"

Family Business Succession

Business Succession [BS] is a mutual interaction that occurs between the predecessor and successor throughout the transferring process of leadership [2] and a common organizational contest to ensure the survival of incumbent forms in operation. Actually, it is not a single event; it consists by no of stages. To remain as a family business, each generation must be taken over by next, which is the ultimate managerial challenge for owners, successors, family members and other stakeholders. But intergeneration succession has become very unsuccessful for the majority of FOB's. Therefore, business succession has gone beyond that stage by considering not for the family control but for the survival for the organization with favourable outcome. In other wards with the succession has become management succession as well as ownership succession. Therefore it is better to defined as the passing of the leadership baton from the founder-owner or incumbent-owner to a successor, who will either be a family member or a nonfamily member or go for an almost new alternative such as trade sale, Management buyout, management buy in , joint venture [JV] and etc.

But most studies have exclusively focused upon succession within the family, but at the same time a number of research evidence suggest that, in some occasions, there may be no suitable family members willing or able to take on the ownership and / or the management of the FOB.

Different Alternatives for the Family Business Succession

The survival of family firms is an important entrepreneurial sustainability issue. Further, the failure to carefully consider succession issues may have a harmful impact on the long-term survival of FOB economic units and the social cohesion of local communities. Various ownership succession options are available beyond passing the business to the next generation of members drawn from the dominant family or kinship group. When a family succession is impossible but the family does not want to sell the family business, a call can be made on an outside professional manager to lead the company [professionalization of the FOB], whether temporarily or not. By this way,

the family can keep the control over the family business, but it fills the gap which has developed on a managerial level. In certain cases it can be useful for the family business to call on an interim or "regency" manager. Some researchers discuss about trade sale as alternative for the succession, but Initial Public offerings [IPO] are rarely feasible and trade sales may be unattractive to vendors, if they may be associated with a loss of a firm's independent identity. Another option is the transfer of family firm ownership to internal incumbent managers through an MBO, or the transfer to external managers through an MBI.

Post-MBO/I there is a greater possibility that the firm's identity and culture will remain the same, both of which are important for family firm owners. An attractive feature of both MBOs and MBIs is that many incumbent managers may remain in place and family members can continue to be involved. Family owners may make it a condition of the deal that they retain some involvement in the firm even though they relinquish both ownership and managerial control. Buy in management Buyout is another choice [www.mybusiness.co.uk, 2009]. This option is the combination of an MBO and MBI and involves the internal management team bringing in an external manager. This method combines the knowledge of the existing team with the extra expertise of a person from outside the company. In addition to that there is another alternative, that is joint venture [JV] with domestic or international partner, but it did not get attention in research studies as succession mode.

The term 'joint venture' [JV] is an umbrella term which describes the commercial arrangement between two or more economically independent entities. This JV can be divided based on background of the partner organization as national [domestic] or international.

International Joint venture as s solution for succession problem

Joint venture [JV] brings solution for the succession problem as well as it helps to enhance the strength of the company. Sometimes, company might be more powerful than pre-succession. The obvious benefit that exists with partnering is that economies of scale play a key role in adding additional earnings to both businesses. If the two entities can establish a well thought out plan of integration and profit sharing, the "financial lift" from this combination can create enough additional free cash flow to fund a buy-sell agreement that could be included in the partnership agreement. Conversely, partnerships or joint ventures are flexible enough that an incumbent easily can relax his business in the event that things do not work out between the two parties. Essentially, it creates the best of both worlds in that it allows for

enough flexibility to the owner to create his own succession plan, while also satisfying the need gradually to obtain liquidity from the business. In addition, key family members within the FOB are given an opportunity to remain with the operation and potentially can be awarded ownership in the combined entity upon formalization of a sale option that can be included in the partnership agreement. This allows for continuation of the family's legacy through participation in a larger company, while gradually merging it into another entity.

Conversely, the joint venture partner may find this to be the best of both worlds as well. They are able to execute effectively an acquisition strategy but to perform it on a more gradual basis. This minimizes their risk and allows time for both parties to integrate successfully the agencies into a more efficient operating model. The key to remember in developing such a strategy is that there must be a clearly thought out plan on the front end of discussions. There must be openness to modifying both operations to achieve the desired financial optimization. There are no of additional benefits can be identified with alternative. First, the firm can achieve greater operational efficiencies. Secondly, it can reduce the risks [commercial or political] associated with international business, because it's automatically open new market for the company. Thirdly, it's bringing synergy to the organization. Fourthly it can exploit national and/or differential advantages of partners. Fifth one is sharing some value-adding activities with a foreign firm; it can free scarce capital for use where it has competitive advantage. Sixth one is, it can gain speed in getting products to market. Seventh, it can establish long-term relationships with a global network of suppliers, distributors, and other intermediaries.

But this everything is depending on the ideal selection of foreign partner. If company select incorrect, unsuitable, inappropriate one, it will speed up the process of shut downing the organization, because it can become additional burden to the whole system, therefore incumbent need to articulate the profile of an ideal foreign business partners.

Specific selection criteria and relative weights may be developed and used in evaluating candidates. In general, incumbent will be looking for a good fit in terms of both strategy [common goals and objectives regarding business and future growth] and resources [complementarities in core competencies and value-chain activities]. It is important for incumbent to try to anticipate the degree of synergy with the potential partner. In other words, managers must be assured of a harmonious relationship with the partner in a dynamic environment. Assuming that FOB has already qualified and selected a suitable partner, it is critical to have a good understanding of the partner's organization

and leadership. What are the advantages for the partner? What are the primary motivations of senior decision makers in this relationship? How will they benefit? How can we help them succeed? In other words, the incumbent must develop a sound understanding of what the partner wants from this venture and how to help achieve those objectives.

It is best for incumbent to establish explicit criteria by which they can evaluate the success of the venture and its contribution to the firm's goals. These criteria, which are likely to be derived from the underlying rationale for the venture, encompass strategic, operational, and "learning" objectives within specific time intervals.

In addition that, incumbent need to institute proper procedures for monitoring the outcomes of the collaborative venture as well as control mechanisms for taking corrective action when required. Management will want to watch closely the accomplishment of specific objectives determined at the outset for the partnership - such as cash flow, shareholder value, brand equity, and cost reduction. Ideally, information feedback should be complete and rapid, leading to appropriate management actions. It is also important to assign clear roles and responsibilities to individuals who will be charged with managing the relationship. Beyond establishing performance benchmarks and monitoring them, both organizations should formulate a vision for the future of the collaborative venture. Should the relationship be expanded as is or take on new facets? Is the partner able and willing to grow the venture? What proactive steps can be taken today that will bear fruit tomorrow? Is the venture able to capitalize on new opportunities as they arise? This sort of deliberation is essential if a relationship is to grow and strengthen.

Conclusion

Business succession is the fundamental issue faced by the FOB in all over the world. Actually it is problem that has to resolve within the company. If they failed to do it, first it damages to the smooth continuation of the company and secondly it affects to the national economy. Under this critical background, researchers, thinkers and consultants who interest in this entity, suggests number of alternatives to practiced as succession mode. Herewith this article is going to add alternative. That is international joint venture. Actually it is not a just alternative, but also it brings number of competitive advantages too. The company is going to the hands that have more experience in the same business filed with the international exposure. That will help to run business more smoothly sometime better then the before succession, because after the succession, it opens to new market and brings a opportunity to get international exposure to the 2nd generation.

References:

- [1] BJUGGREN, P., SUND, L. *Strategic decision making in intergenerational successions*, 2001
- [2] CHURCHILL, N. C., HATTEN, K. J. Non-market-based transfer of wealth and power: A research framework for family businesses. *American Journal of Small Business*, 1987, Fall, 12, 53–66.
- [3] LANSBERG, I. *Succeeding generations: Realizing the dreams of families in business*. Boston: Harvard Business School Press.1999
- [4] MORRIS, M. H., WILLIAMS, R. O., ALLEN, J. A., & AVILA, R. A. *Correlates of success in family business transitions*. Journal of Business

MEASURING OF THE LEADERSHIP POTENTIAL OF CORPORATE MANAGERS THROUGH EMOTIONAL INTELLIGENCE

Chandana Jayawardena

Tomas Bata University in Zlin

chandanaej@gmail.com

Key words:

emotional intelligence – competencies – leadership – corporate managers

Abstract:

This paper focuses on the relationship of Emotional Intelligence (EI) construct with corporate leadership. Leadership has become a sine qua non for corporate success. The EI construct indicates direct and indirect relationships with leadership theories and empirical evidences. Being a relatively new construct EI has its own grey areas, which are yet to be answered explicitly. Study has identified the importance of quantifying emotional competencies, especially related to leadership in the world of work. Measuring of EI of corporate managers serves to assess EI's contribution to corporate leadership. The intricacies of the EI construct and the absence of a fool proof EI measurement instrument pose significant challenges to this initiative.

1. The construct of EI and Leadership

Leadership has traditionally been one of the topics included in the field of social psychology. Leadership appears to be closely connected to the topic of Emotional Intelligence (EI). However, it remains to be seen, whether it is premature to draw up strong connections between leadership and EI. Nevertheless, the corporate sector has shown a remarkable interest in this field and significant amount of moneys are invested into the development of this area. EI has become a sine qua non for executive development, and leadership programmes. The construct of EI has been described as a competency or 'ability to perceive and accurately express emotion to facilitate thought, to understand emotions, and to manage emotions for emotional growth' [4]. Personality, coping, and EI seemed to be conceptually intertwined when individuals manage stress. Mayer and Salovey [10] has defined EI to involve 'the ability to perceive accurately, appraise, and express emotion, the ability to access and/or generate feelings when they facilitate thought, the ability to understand emotion and emotional knowledge, and the ability to regulate emotions to promote emotional and intellectual growth'. Here EI encompasses four interrelated abilities in the process. These abilities are

found to be indispensable in social interaction. For emotions serve communicative and social functions, conveying information about people's thoughts and intentions. Salovey and team believe that emotion regulation could be the most important ability for social interaction as it directly influences emotional expression and behavior. Jim Collins [5] in his book 'good to great' discuss of a 'Level 5 Leadership' and the 5th level executive is the best if not ideal. Collins has given many examples from the leadership of great global companies. He has put the relationship between leadership and EI to perspective as follows. 'Level 5 leaders are a study in duality: modest and willful, humble and fearless'. Further he elaborates on the ability to perceive, appraise the emotions of employees accurately and, especially on the ability of the leaders to regulate their emotions to promote emotional and intellectual growth. 'Level 5 leaders channel their ego needs away from themselves and into the larger goal of building a great company. It's not that Level 5 leaders have no ego or self interest, indeed, they are incredibly ambitious – but their ambition is first and foremost for the institution, not themselves'

2. Approaches of EI to Leadership

Different approaches have interlinked EI to leadership. In their review, Jensen et al, (2007) have identified different approaches within a broad framework. 'This is relevant to leadership as each approach defines EI somewhat differently and researchers within each approach may, therefore, use different instruments to quantify the presence of EI. The first of the three directions of EI is Bar-On's [1] theoretical direction, described by Emmerling and Goleman as a trait-based approach examining the characteristics of EI in terms that often overlap with traditional personality measures, such as the Big Five (openness, agreeableness, conscientiousness, extraversion, and neuroticism). Bar-On's Emotional Quotient or "EQ" is a combination of self-identified social and emotional traits and abilities, like good communications and the ability to change when situations require it. In simplistic terms, an approach using Bar-On's EI related traits can be examined and correlated with managers and leaders who are considered effective. This approach parallels the "great person" approach to leadership in social psychology'. Further, they have reasoned that IQ is a 'threshold' requirement, and that IQ has not distinguished individuals who are better leaders. Jensen et al, [8] sums up the argument as follows. 'It can then be argued that, if IQ is held constant, EI abilities will be helpful in distinguishing leaders that are more effective'. This is also in unison with Fred Fielder's 'contingency model of leadership effectiveness' [9]. Therein Fielder has identified three empirically derived dimensions, and of which he

identify 'The leader-member relationship' as the most critical variable in determining the situation's favourableness.

There is a plethora of descriptions of what an emotionally intelligent leader should possess in order to be effective. The conceptual work of Goleman [6, 7], and Boyatzis [2], and with Smith, and Blaise [3] have identified the 'emotional competencies' that may be associated with effective leadership. Goleman [6] has listed four characteristics of emotionally intelligent leaders; viz. a.) Articulate and arouse enthusiasm for a shared vision and mission, b.) Step forward to lead as needed, regardless of position, c.) Guide the performance of others while holding them accountable, and d.) Lead by example. Above four facts indicate that emotional intelligence is associated with some skills or competencies of leadership. It seems more prudent to use the term Emotional Competence (replacing EI) in assessing the relationship with leadership. Jensen et al, [8] is of the opinion that the competency approach is the most promising approach for preparing people to be more effective leaders. They have recommended a three step task to overcome the challenge for EI in the leadership area to realize the potential. 'First, it is necessary to empirically define which competencies are, in fact, crucial to developing effective leaders—not just to generate a list of competencies that have face validity. The second task for EI is to translate this empirically determined list into a training model that actually insures that these competences are learned. Third, which is too much to ask for at this time, is to assess whether the competencies that EI & Leadership have been taught to aspiring young leaders are actually the ones that are needed or useful in the real world'.

3. Measuring of Emotional Intelligence (Competence)

There are many instruments/measurements to assess the EI of corporate managers. There are advantages and disadvantages in the use of each of these instruments. Reliability and Validity of each instrument is note-worthy in deciding the merit of the instrument. Further, each instrument should capture an accurate picture (if not precise) and a realistic view of the construct of EI. There are also inherent limitations of instruments using self reporting methods rather than a performance based test. Another pragmatic issue is the time and space needed for a complete assessment of EI of corporate managers/leaders. The nature of corporate management is so demanding that an efficient and user friendly instrument is preferred for effective encoding of data, and perceptions of them.

Reliability of the EI instrument refers to its' consistency over the period it is employed for measuring. The nature of the EI construct demands similar

results each time, for similar input and circumstances. The two most common ways to measure reliability are the Internal consistency, and Test-retest reliability. Internal consistency is tested by measuring the similarity of responses across all items by the same individual. Test-retest reliability is measured as the correlation between the results of two administrations of the instrument to the same individuals at different dates within a specific period of time. Validity of the EI instrument suggests to what extent it measures the EI of corporate managers. Discriminant validity, concurrent validity, and predictive validity are largely associated with measures of EI. Discriminant validity of EI focuses on differing from unrelated measures, such as physical strength of employees. Concurrent validity of EI focuses on the most relevant/related measures with which it is expected to correlate, such as leadership performance, motivation for performance of managers etc. Predictive validity indicates to what extent it is capable of predicting the other constructs that it is supposed to predict. A sound Reliability and Validity of the EI instrument employed to measure the corporate managers is a vital component not only due to the complexity of the issue, but for the lack of access to corporate managers amidst their demanding schedules.

4. Commonly used instruments to measure the EI of managers

Here we limit our discussion on few selected and better known instruments of measuring EI. Emotional Quotient Inventory (EQ-i): A pioneering measure created by Bar-on (1997) using a 133 item self report measure. It consists of subscales which generate an overall score and composite scores as well. It has reported inherent limitations and Reliability issues as well.

The Emotional and Social Competency Inventory (ESCI): The ESCI is a recent 360-feedback tool based on Emotional Competency Inventory (ECI). ECI reported some limitations in measuring EI, and ESCI could be viewed as an improved enhancement of ECI. The ESCI facilitates to assess the strengths and weaknesses of individuals, providing focused information of the competencies they have to improve on for career progression. ESCI measures 12 competencies organized into four clusters: Self-Awareness, Self-Management, Social Awareness, and Relationship Management. The latter two clusters draw direct and indirect relationship to corporate leadership competencies. Social Awareness cluster address empathy, and organizational awareness, and Relationship Management cluster involves coach and mentor, inspirational leadership, influence, conflict management, and teamwork.

Mayer, Salovey, Caruso Emotional Intelligence Test (MSCEIT). MSCEIT is a 141 item, performance based measure based on a traditional intelligence model. The model focuses on the four areas of EI, as per the definition of

Mayer and Salovey (1997) in a hierarchical manner. Therein Perception, appraisal and expression of emotions is the most basic skill, and the Ability to regulate emotions to promote emotional and intellectual growth is the most advanced skill. There is no one known correct answer, and scoring of the MSCEIT ability test has made available two scoring systems: a.) Correct answers based on experts decisions, and b.) Correct answer based on consensus of what people think is correct. Users are advised to use (b) for scoring purposes and this is a subtle mechanism to address the intricacies associated with responses to psycho-social constructs. MSCEIT has reported own merits, and few limitations and remain a preferred instrument to measure the EI of corporate managers.

There is a plethora of other instruments available to measure the EI, and their merits and demerits warrant a separate discussion. For the sake of completion the commonly used such measures are: The Schutte Self-Report Inventory (SSRI), The Swinburne University Emotional Intelligence Test (SUEIT), The Trait Meta-Mood Scale (TMMS), The Wong and Law Emotional Intelligence Scale (WLEIS), The Workgroup Emotional Intelligence Profile (WEIP), The Trait Emotional Intelligence Questionnaire (TEIQue), Genos Emotional Intelligence Inventory (Genos EI), Group Emotional Competence, and Wong's Emotional Intelligence Scale (WEIS) etc.

5. Summary

In today's ultra competitive environment, leadership of managers has become a sine qua non for organizational success. The contribution of EI to corporate leadership has grabbed the attention of practitioners, researchers, and academics alike. However the construct of EI is experiencing the difficulties with are common to such relatively new constructs. Measuring of the EI of corporate managers is a timely intervention. However, the limitations in measurement instruments needs to be addressed for effective establishment of EI construct with leadership.

References:

- [1] BAR-ON, R. *The Emotional Intelligence Inventory (EQ-i): Technical manual*, Toronto, Canada: Multi-Health Systems, 1997
- [2] BOYATZIS, R. E. Stimulating self-directed learning through the Managerial Assessment and Development course. *Journal of Management Education*, 18,304-323, 1994.
- [3] BOYATZIS, R. E., SMITH, M. L., BLAIZE, N. Developing sustainable leaders through coaching and compassion, *Academy of Management Learning and Education*, 5, 8-24, 2006.

- [4] BRACKETT, M. A., MAYER, J.D., WARNER, R. M. Emotional Intelligence and its relation to every day behavior, *Personality and Individual Differences*, 36, 1387 – 1402, 2004
- [5] COLLINS, J. Good to Great, pp 20-22, ISBN 0712676090, random House business books, London, SW1V 2SA, 2001
- [6] GOLEMAN, D. *Working with emotional intelligence*, New York: Bantam Books, 1998a
- [7] GOLEMAN, D. Emotional intelligence: Issues in paradigm building, In C. Cherniss & D. Goleman (Eds.), *The emotionally intelligent workplace* (pp. 182-206), San Francisco: Jossey-Bass, 2001
- [8] JENSEN, S. KOHN, C. RILEA, S. HANNON, R., HOWELLS, G. N. *Emotional Intelligence: A Literature Review*, University of the Pacific, Department of Psychology, pp 10-85, 2007
- [9] LUTHANS, F. *Organisational Behavior: An Evidence-Based Approach*, Twelfth Edition, McGraw-Hill Companies, Inc., NY10020, pp 423-425, 2011
- [10] MAYER, J. D., SALOVEY, P. What is emotional intelligence? In Salovey, P. Shuyter, D. (Eds.), *Emotional development and emotional intelligence: Educational Implications* (pp. 3-31), New York, Basic Books, 1997

NEW WAYS OF MEASURING THE QUALITY OF LIFE

Bogusław Adam Chmielak

University of Białystok

boguslaw.chmielak@gmail.com

Keywords:

quality of life – human development report – happy planet index – quality-of-life index

Abstract:

The quality of life is a concept that goes beyond income, GDP and standard of living. But life satisfaction is a subjective feeling and it is impossible to be measured objectively. In recent years, various institutions and international organizations tried to create a universal, reliable measure of the quality of life. UNDP updated its Human Development Report measures, including the well-known HDI index, as well as some new indices. Privately owned New Economics Foundation created an index that concentrates on environmental encumbrance and sustainable development. And there is the EIU, an agency of the biggest economic newspaper on the world, trying to combine objectivity with subjectivity.

Introduction

The term quality of life is a concept linked to social well-being used to evaluate the level of overall wellbeing of individuals and societies. Unlike the concept of standard of living, it is based on an assumption that the human condition should be assessed on a wider range of indices than only income (either at the individual or national level). Studies in 1970s proved geographical variations in wellbeing depending on income, wealth, employment, environment, health, education, leisure, social organization and belonging. Other concepts, like freedom, human rights and happiness are often related to the quality of life measures experienced by the individuals or societies. Although research on happiness shows that happiness does not rise above certain level of income. [4, 606-7]

It is impossible to make objective or long-term measurements of the quality of life, because unlike GDP, international trade, FDI or income, quality of life cannot be measured in absolute terms. Recently, researchers begun to distinguish two types of personal well-being: Emotional well-being and Life evaluation. The Emotional well-being polls respondents about the quality of their everyday emotional experiences – how frequent and intensive they experience joy, stress, sadness, anger, affection. Whereas the Life evaluation

asks respondents to assess their life (in general) against a scale. [10, 16489–93] In recent years, an amount of the quality of life measures emerged.

1. Human Development Report

The *Human Development Report* is an annual publication commissioned by the Human Development Report Office of the United Nations Development Programme (UNDP). The Report was originally published in 1990 by Pakistani Economist Mahbub ul Haq and Indian Nobel laureate Amartya Sen. It was the first publication aimed at placing people back at the center of the development process in terms of economic debate, policy and advocacy. The goal is simple, yet massive – to go beyond income to evaluate the level of people's long-term well-being. Recent releases of the Report cover more than 140 countries and are printed in over a dozen languages. It is well recognized by international organizations and government agencies. [6]

The Report is best known for the *Human Development Index*, an indicator of socio-economic development level. HDI was created for the first edition of the Report and included in every since. It combines three dimensions (life expectancy at birth, knowledge and education, standard of living), calculated in indexes. Later, new indicators were added to the Report: in 1995 – *Gender-related Development Index* (GDI) and *Gender Empowerment Measure* (GEM) to reflect gender inequities, in 1997 – *Human Poverty Index* (HPI) to highlight the belated areas. [8, 342-4] In 2010, for the 20th anniversary edition of the Report, authors updated HDI calculation algorithm and introduced completely new indexes designed to better assess the issue of the quality of life. New indicators replaced GDI, GEM and HPI. [9, 15]

Since 2010, HDI is a geometric mean of three dimensions: Life Expectancy Index, Income Index and Education Index, which consists of two indexes: Mean Years of Schooling Index and Expected Years of Schooling Index (see chart 1). [9, 15] Also, the 2010 Report introduced the *Inequality-adjusted HDI* (IHDI), a measure of society's human development level that accounts for inequality. IHDI adjusts the HDI for inequality in distribution of each dimension across the population. Under perfect equality IHDI=HDI, but IHDI falls as inequality rises. This means that IHDI represents the actual level of human development (taking inequality into account), while the HDI can be perceived as a potential human development level that could be achieved if there were no inequality. The IHDI is constructed by discounting each HDI dimension's average value according to its level of inequality measured by the Atkinson index. IHDI is applied to 134 countries. [9, 87-9]

The *Gender Inequality Index* (GII) is a new indicator introduced in 2010 which reflects inequities facing women and girls. This new measure is built

on the same framework as HDI and IHDI. The GII index consists of five indices (Labour force participation, Educational attainment, Parliamentary representation, Adolescent fertility, Maternal mortality) which are grouped in three dimensions: Labour market, Empowerment, Reproductive health (see chart 2). The index represents the loss in human development due to inequalities between male and female achievements. GII ranges from 0, when men and women fare equally, to 1 when women fare lowest possible in all areas. GII also provides empirical foundations for policy analysis and advocacy efforts. [9, 89-94]

The *Multidimensional Poverty Index* (MPI) was launched in July 2010 as a new poverty measure that provides a multidimensional picture of people living in poverty. It is designed to help distribute development resources more effectively. The MPI index consists of 10 indices grouped in 3 dimensions (see chart 3). MPI identifies multiple deprivations in health, education and standard of living, at the individual level. Unlike IHDI, it uses data from household surveys from which every indicator used to construct the measure must come. The MPI index shows the existence of multidimensional deprivation and its intensity, by the amount of people experiencing multiple deprivations at the same time. For the 2011 HDR report, MPI was estimated for 109 countries, which represent 79% of the World population. A third of the population, est. 1.7 billion people, lives in multidimensional poverty. [9, 94-100]

2. Happy Planet Index

The *Happy Planet Index* is a new index introduced by the *New Economics Foundation* (NEF) in July 2006. The HPI is an index of human well-being and environmental impact that was designed to challenge quantitative development indicators, like GDP or HDI, which do not include sustainability. The HPI is based on a principle that the usual goal of most people is to be happy and healthy, rather than rich. [12] Also, the sustainable development requires to measure the environmental costs. [5]

The HPI index is a result of IUCN's (World Conservation Union) call for a measure of 'the production of human well-being per unit of extraction of or imposition upon nature' [1] In HPI, Human wellbeing is presented as Happy Life Years and environmental encumbrance is estimated with ecological footprint per capita. [13, 1-58] Therefore, the HPI does not show which country is the happiest in the World. HPI reflects the country's environmental efficiency of supporting well-being. The HPI value is a function of average life satisfaction, life expectancy at birth and ecological footprint per capita. [11]

The HPI is respected in political circles. HPI is supported by WWF for emphasizing the ecological costs of development. The British Conservative Party suggested that HPI may be a future replacement for GDP. [2] Also, European Parliament released a review of progress indicators giving the HPI a positive opinion. [3, 38]

3. EIU's Quality-of-life Index

Quality-of-life Index is a new indicator developed by *The Economist Intelligence Unit* (EIU). The goal is to measure the quality of life and life satisfaction in more adequate way than it is currently being reflected by traditional quantitative indicators. The index is based on unique methodology that combines the results of subjective surveys about life satisfaction with objective indices of the quality of life. The research was conducted in 2005 and covered 111 countries. On a basis of electronic surveys filled by over 3000 people around the world, it was found that the high level of life satisfaction is affected by nine key factors and their indicators: [7]

1. Material wellbeing - GDP per person, at PPP in \$;
2. Health - Life expectancy at birth;
3. Political stability and security - Political stability and security ratings;
4. Family life - Divorce rate converted into index of 1 (lowest) to 5 (highest);
5. Community life - Variable taking value 1 if country has either high rate of church attendance or trade-union membership; zero otherwise;
6. Climate and geography - Latitude to distinguish between warmer and colder climes;
7. Job security - Unemployment rate in %;
8. Political freedom - Average of indices of political and civil liberties. Scale of 1 (completely free) to 7 (unfree);
9. Gender equality - Ratio of average male and female earnings.

Summary

The main advantage of the concept of the quality of life and well-being is that it goes beyond income and 'traditional' quantitative measures of development, such as GDP. It puts the light on factors that earlier were not considered important, like equity, happiness, health or environmental protection. But there are substantial drawbacks. The biggest problem with measuring the quality of life is the lack of trustworthy, absolute indicators, which would allow comparing the scores with a high degree of certainty. Also, there is no indicator that would take all the important factors into account. The other issue is the lack of pattern, an ideal to follow, as the indicators share no common leader.

References:

- [1] ADAMS, W. M. *The future of sustainability: Re-thinking environment and development in the twenty-first century*. Report of the IUCN Renowned Thinkers Meeting, 2006
- [2] Cameron to offer green tax cuts, *The Sunday Times*, September 9, 2007
- [3] GOOSSENS, Y. et al., *Alternative progress indicators to Gross Domestic Product (GDP) as a means towards sustainable development*. IP/A/ENVI/ST/2007-10. Study provided for the European Parliament's Committee on the Environment, Public Health and Food Safety, 2007
- [4] GREGORY, D. et al. *The Dictionary of Human Geography*. 5th ed., Oxford: Wiley-Blackwell, 2009, p. 606-607, ISBN 978-1405132879
- [5] HAWKEN, P., LOVINS, A., HOVINS, L. *Natural Capitalism*, New York: Little Brown & Co., 1999, ISBN 0316353000
- [6] <http://hdr.undp.org/en/humandev/reports/>
- [7] http://www.economist.com/media/pdf/QUALITY_OF_LIFE.pdf
- [8] *Human Development Report 2005. International cooperation at crossroads. Aid, trade and security in an unequal world*, New York: UNDP, 2005
- [9] *Human Development Report 2010, 20th Anniversary Edition, The Real Wealth of Nations: Pathways to Human Development*, New York: UNDP, 2010
- [10] KAHNEMAN, D., DEATON, A. High income improves evaluation of life but not emotional well-being, *Proceedings of the National Academy of Sciences* 107, 2010
- [11] MARKS, N., ABDALLAH, S., SIMMS, A., THOMPSON, S. et al. *The Happy Planet Index 1.0*, New Economics Foundation, 2006
- [12] SEN A., *Development as Freedom*, New York: Oxford University Press, 1999, ISBN 0192893300
- [13] [VEENHOVEN, R. Happy life expectancy: a comprehensive measure of quality-of-life in nations, *Social Indicators Research* 39, 1996

PARTICIPATION OF PUBLIC CONSUMPTION IN THE STRUCTURE OF THE GROSS DOMESTIC PRODUCT FOR THE CZECH REPUBLIC, POLAND AND SLOVAKIA

Andrzej Krowiak

Central Mining Institute, Katowice, Poland

akrowiak@gig.eu

Key words:

macroeconomics – global economy – transformation countries – European Union – the socialization indexes

Abstract:

It was analyzed the participation of public consumption and its components such as individual and collective consumption in Gross Domestic Product for in this paper. The group includes the following countries: Czech Republic, Poland and Slovakia. The analysis covered the years 1995 – 2009.

Introduction

For purposes of this article it was introduced conventionally Gross Domestic Product division into two components: *GDP internal* and *GDP external*. There is, so $GDP = GDP\ internal + GDP\ external$. *GDP internal* means the sum of components: private consumption + public consumption + accumulation. It is created by the components depending on the functioning of the economy of the country. *GDP external* creates balance of exports and imports of goods and services (exports – imports). Its value depends on the intensity of international economic exchanges of the country.

Public consumption – the consumption of services provided by general government to the population. Distinguishes itself *individual consumption* and *collective consumption*.

Individual consumption is the value of non-market goods and services provided free of charge to the household sector. This category includes: the services of education, culture and national heritage protection, health, welfare, physical culture and sports, tourism, housing subsidies to partially cover the cost of maintaining the housing stock, the value of purchased services in the private health care facilities. *Collective consumption* includes the consumption of non-market goods and services that do not have specific, individual recipients. This category includes, among others, value of expenditure on public administration, national defences, and the activities of scientific research [3].

Ratio of the value of public consumption to the value of Gross Domestic Product is known as *index of socialization* [2]. The indicator of socialization understood as a relationship of public consumption to the GDP internal will be used in this article. In particular, we will be distinguished indicator of socialization for public consumption, individual consumption and collective consumption in public consumption.

Method of analysis

Table 1 gives source data of Gross Domestic Product and the balance of exports and imports. Internal GDP is also calculated as the difference between GDP and the balance of exports and imports. It also provides the public consumption and its components: individual consumption and collective consumption. Table 2 shows the conversion rate of socialization for public consumption and indicators of socialization for individual consumption and collective consumption. Figure 1 illustrates the data of Table 2 for the index of socialising for public consumption, and figure 2 for individual consumption in public consumption.

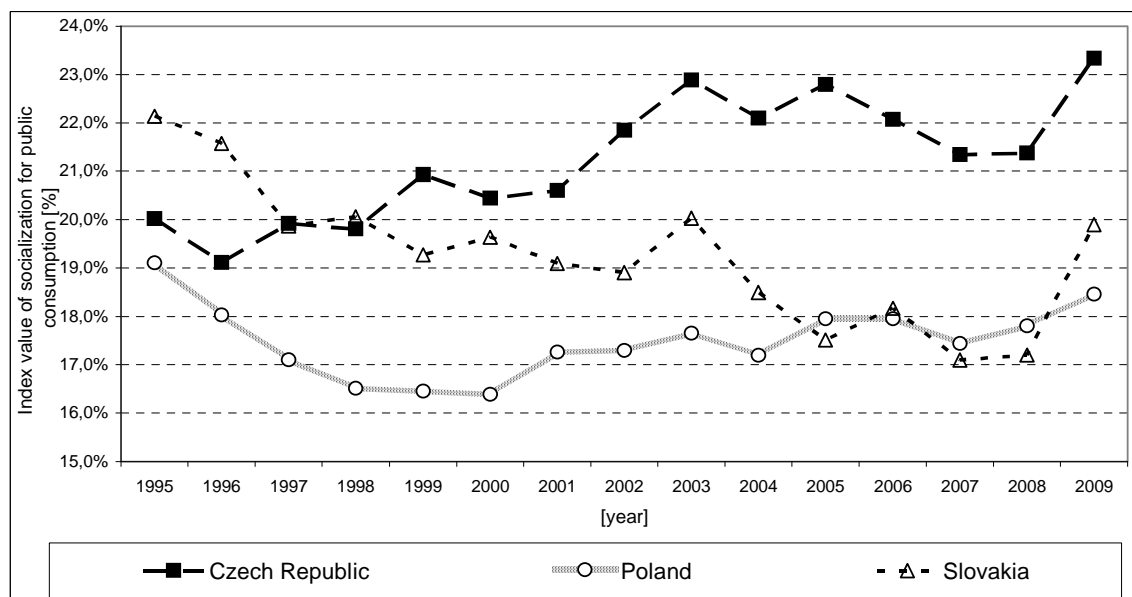
It was calculated for each country, in addition, in the horizon of 15 years of analysis: average values rate of socialisation for public consumption and indicators of socialization for individual consumption in public consumption and collective consumption. An analysis of the standard deviation, which is a measure of the deviations of index of value of socialization in different years than the average. It gives us information about the regularity (stability) share of public consumption in GDP. To determine the preferences of the state in economic and social policy, it was presented the relationship of individual consumption to public consumption of all. The corresponding percentage gives us information on whether the State prefers a more individual or collective consumption. Of course, the relationship of collective consumption to public consumption is the complement to 100 %. The analysis of linear trends for the indicator of socialization made for collection of data for years 1995 – 2008 gives us information about growth or fall on the share of public consumption in GDP. The year 2009 was excluded from the analysis because of the economic crisis, which caused a significant decline in GDP in many analyzed countries, which greatly distorted the relationships.

Conclusions from the analysis

Average value of index of socialization for public consumption within 15 years of analysis is as follows: Czech Republic 21,2 % (max. 23,3 %, min. 19,1 %), Slovakia 19,3 % (max. 22,1 %, min. 17,1 %), Poland 17,5 % (max. 19,1 %,

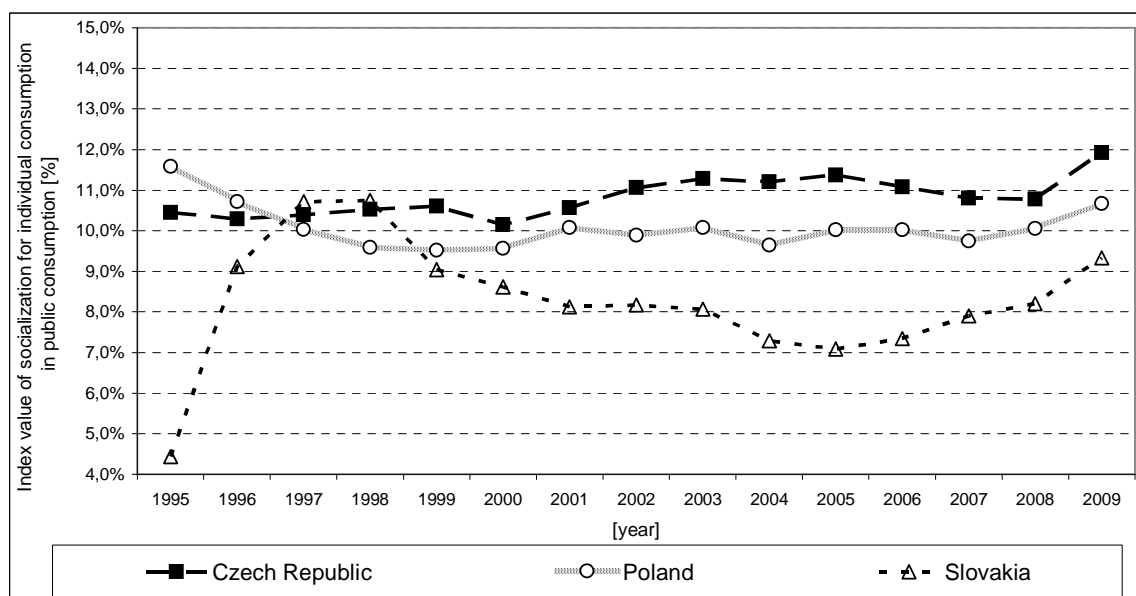
min. 16,4 %). The values of index of socialization, in different years, for public consumption, are shown in Figure 1.

The average value of index of socialization for individual consumption in public consumption, in the range of 15 years of analysis, are as follows: Slovakia 11,1 % (max. 12,5 %, min. 10,4 %), Czech Republic 10,8 % (max. 11,9 %, min. 10,1 %), Poland 10,1 % (max. 11,6 %, min. 9,5 %). Index value of socialization in particulars years, for individual consumption in public consumption is shown in Figure 2.



Source: own elaboration

FIG.: 1 Index value of socialization for public consumption



Source: own elaboration

FIG.: 2 Index value of socialization for individual consumption in public consumption

The average value of index of socialization for the collective consumption in public consumption in the range of 15 years of analysis is as follows: Czech Republic 10,4 % (max. 11,6 %, min. 8,8 %), Poland 7,4 % (max. 7,9 %, min. 6,8 %), Slovakia 11 % (max. 17,7 %, min. 9,0 %).

The standard deviation, based on sample of index of socialization, for public consumption, covering 15 years of analysis, for individual countries are: Poland 0,73 %, Czech Republic 1,22 %, Slovakia 1,41 %. The standard deviation, based on sample of index of socialization, for individual consumption in public consumption, covering 15 years of analysis, for individual countries are: Czech Republic 0,47 %, Poland 0,53 %, Slovakia 1,48 %.

The standard deviation, based on sample of index of socialization, for collective consumption in public consumption, covering 15 years of analysis, for individual countries are: Poland 0,36 %, Czech Republic 0,80 %, Slovakia 2,05 %.

Participation of individual consumption in public consumption, based on average values from 15 years analysis, for individual countries is as follows: Poland 57,6%, Czech Republic 51,0 %, Slovakia 43,0 %. The countries where the linear trend of index value of socialization for public consumption was positive (in order of decreasing slope of the trend): Czech Republic, Poland. The country where the linear trend of index value for public consumption was negative was Slovakia. The country where the trend of index values of socialization for individual consumption in public consumption was positive was Czech Republic. The countries where the trend of index values of socialization for individual consumption in the public consumption was negative (in order of decreasing slope of the trend line): Slovakia, and Poland. For Slovakia linear trend is not very adequate due to the very large deviations in the years 1995 – 1999.

Conclusions

Participation of public consumption in Gross Domestic Product depends on the political doctrine accepted in the country. In countries with traditions of socialist and social democracy socialization rate is relatively higher than in countries with liberal doctrine. It also depends on the condition of socio – economic development of the country. In developing countries it is lower than in developed countries.

The method of calculating of index of socialization shows that it is variable in the time and this variability is largely depend on the size of GDP in given year. Therefore the influence must be conducted on the average values from many years of analysis. Index of socialization in analyzed countries, for public consumption, ranged on average in the horizon of the analysis from

21,8 % to 14,7 %. The maximum size of average index of socialization calculated over the period of analysis were Czech Republic (21,2 %). The standard deviation as a measure of the stability of the participation public consumption in GDP was smaller for Poland (0,73 %). Linear trend index of socialization as a measure of changes in participation of public consumption in GDP was the most positive in Czech Republic, and the most negative in Slovakia.

References:

- [1] EUROSTAT – bazy danych statystycznych Unii Europejskiej
- [2] POLARCZYK, K. *Finanse publiczne w Polsce na tle krajów Unii Europejskiej oraz Stanów Zjednoczonych Ameryki Północnej*, Informacja BSiE nr. 811, Warszawa, 2001
- [3] Rocznik Statystyczny Rzeczypospolitej Polskiej, Wydawnictwo GUS, Warszawa, 2003

TAB. 1: Absolute values of the components of GDP [million euros]

Id	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	Czech Republic														
GDP	42 267,8	48 851,5	50 405,7	55 382,9	56 414,6	61 495,2	69 044,7	80 003,6	80 924,1	88 262,0	100 190	113 696	127 331	147 879	137 162
Balance of exports and imports	-1 829,3	-2 853,2	-2 611,8	-602,8	-658,8	-1 857,3	-1 726,3	-1 667,8	-1 846,4	60,0	3 180,1	3 893,0	6 331,5	6 734,3	7 622,2
The value of internal GDP	44 097,0	51 704,7	53 017,5	55 985,7	57 073,5	63 352,6	70 771,0	81 671,4	82 770,5	88 202,0	97 010,0	109 803	120 999	141 145	129 539
Public consumption	8 828,9	9 879,2	10 557,0	11 088,0	11 946,1	12 948,0	14 578,7	17 838,4	18 940,4	19 491,1	22 109,3	24 239,1	25 824,4	30 178,2	30 223,4
- individual consumption	4 607,9	5 322,9	5 509,3	5 890,3	6 054,1	6 429,1	7 482,8	9 035,1	9 344,2	9 884,2	11 039,4	12 166,4	13 080,4	15 218,5	15 436,4
- collective consumption	4 221,0	4 556,3	5 047,7	5 197,7	5 892,0	6 518,9	7 095,9	8 803,3	9 596,2	9 606,9	11 069,9	12 072,7	12 744,0	14 959,7	14 787,0
Poland															
GDP	106 363	123 436	138 705	153 429	157 470	185 714	212 294	209 617	191 644	204 237	244 420	272 089	311 002	363 154	310 486
Balance of exports and imports	2 289,5	-1 766,4	-5 446,5	-7 413,1	-9 309,8	-11 927	-7 780,1	-7 259,3	-5 156,6	-4 801,2	-1 811,6	-4 915,7	-8 938,1	-14 417	233,2
The value of internal GDP	104 073	125 202	144 152	160 843	166 780	197 640	220 074	216 877	196 800	209 038	246 232	277 005	319 940	377 571	310 252
Public consumption	19 879,3	22 568,3	24 647,9	26 553,5	27 444,0	32 391,3	37 977,5	37 499,7	34 736,3	35 931,7	44 192,2	49 720,8	55 772,6	67 225,6	57 249,6
- individual consumption	12 063,8	13 412,8	14 471,5	15 424,6	15 877,6	18 912,2	22 186,8	21 447,9	19 828,4	20 161,0	24 692,3	27 754,6	31 192,7	37 994,1	33 104,3
- collective consumption	7 815,5	9 155,5	10 176,4	11 128,9	11 566,4	13 479,1	15 790,7	16 051,8	14 907,9	15 770,7	19 499,9	21 966,2	24 579,9	29 231,5	24 145,3
Slovakia															
GDP	14 975,1	16 662,0	18 865,7	19 940,3	19 192,2	22 046,9	23 572,9	25 971,7	29 489,2	33 994,6	38 489,1	44 565,9	54 904,7	64 572,4	63 050,7
Balance of exports and imports	331,4	-1 801,2	-1 825,7	-2 164,3	-862,1	-568,1	-1 905,5	-1 890,6	-563,7	-944,9	-1 795,5	-1 795,3	-605,3	-1 534,8	-278,6
The value of internal GDP	14 643,7	18 463,2	20 691,4	22 104,6	20 054,3	22 615,0	25 478,5	27 862,3	30 052,9	34 939,5	40 284,6	46 361,2	55 510,0	66 107,2	63 329,3
Public consumption	3 242,2	3 982,6	4 112,3	4 434,0	3 864,6	4 440,4	4 864,6	5 268,1	6 020,1	6 461,2	7 052,3	8 422,4	9 490,2	11 374,0	12 601,7
- individual consumption	649,7	1 683,3	2 216,7	2 375,8	1 813,6	1 948,6	2 071,5	2 275,9	2 427,2	2 547,2	2 858,2	3 404,2	4 388,7	5 426,0	5 910,6
- collective consumption	2 592,5	2 299,3	1 895,6	2 058,2	2 051,0	2 491,8	2 793,1	2 992,2	3 592,9	3 914,0	4 194,1	5 018,2	5 101,5	5 948,0	6 691,1

Source: EUROSTAT + own elaboration

TAB. 2: Indexes of socialization counted in relation to internal GDP

Id	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Czech Republic															
Public consumption	20,0%	19,1%	19,9%	19,8%	20,9%	20,4%	20,6%	21,8%	22,9%	22,1%	22,8%	22,1%	21,3%	21,4%	23,3%
- individual consumption	10,4%	10,3%	10,4%	10,5%	10,6%	10,1%	10,6%	11,1%	11,3%	11,2%	11,4%	11,1%	10,8%	10,8%	11,9%
- collective consumption	9,6%	8,8%	9,5%	9,3%	10,3%	10,3%	10,0%	10,8%	11,6%	10,9%	11,4%	11,0%	10,5%	10,6%	11,4%
Poland															
Public consumption	19,1%	18,0%	17,1%	16,5%	16,5%	16,4%	17,3%	17,3%	17,7%	17,2%	17,9%	17,9%	17,4%	17,8%	18,5%
- individual consumption	11,6%	10,7%	10,0%	9,6%	9,5%	9,6%	10,1%	9,9%	10,1%	9,6%	10,0%	10,0%	9,7%	10,1%	10,7%
- collective consumption	7,5%	7,3%	7,1%	6,9%	6,9%	6,8%	7,2%	7,4%	7,6%	7,5%	7,9%	7,9%	7,7%	7,7%	7,8%
Slovakia															
Public consumption	22,1%	21,6%	19,9%	20,1%	19,3%	19,6%	19,1%	18,9%	20,0%	18,5%	17,5%	18,2%	17,1%	17,2%	19,9%
- individual consumption	4,4%	9,1%	10,7%	10,7%	9,0%	8,6%	8,1%	8,2%	8,1%	7,3%	7,1%	7,3%	7,9%	8,2%	9,3%
- collective consumption	17,7%	12,5%	9,2%	9,3%	10,2%	11,0%	11,0%	10,7%	12,0%	11,2%	10,4%	10,8%	9,2%	9,0%	10,6%

Source: own elaboration

METHODS OF MEASURING THE ECONOMIC VALUE OF PUBLIC SPACES

Jerzy Ładysz

Wrocław University of Economics

jerzy.ladysz@ue.wroc.pl

Key words:

public spaces – open spaces – economic value of public spaces

Abstract:

The article provides evidence of the importance of measurement the economic value of public spaces in successful regeneration policies, revitalization, planning, investment, for creating sustainable communities, etc. The aim of the article was to identify the most appropriate methods of measuring the economic value of public spaces. A model, quantitative approach to the economic value of public space has been presented. This approach is fast developing, of growing importance issue of broad range of problems of organizing space in accordance with needs of local society. Presented methods are applicable.

1. Importance of measuring the economic value of public spaces

Public spaces play a vital role in social and economic life of communities. These spaces more and more consciously are understood as a special kind of resources, a specific public goods, as significant factor of local development and competitiveness. Measuring the value of public spaces is a relatively new branch of economics pioneered in the last years by both economists and ecologists. This new branch tries to quantify public benefits that are not typically recognized or valued in market transactions. Economic theory gives us some useful conceptual categories for discussing the supply of public spaces. According to L. Robbins, economics is the science which studies human behavior as a relationship between given ends and scarce means which have alternative uses. Generally, economics refers to the allocation of valuable resources. This can include both market resources (money, labor and land) and nonmarket resources (safety, clean air, wildlife habitat, aesthetic features, etc.). Vilfredo Pareto says that optimal allocation of scarce means is possible where no one can be made better off without making any other individual worse off. There may be only one such optimum. Public spaces are collectively consumed goods. They have many features of public goods. It has certain, hard to measure economic value. Optimal allocation of public spaces as a scarce means could be possible under certain idealized

conditions. Free market system can lead to a Pareto efficient outcome. As we know, there are asymmetrical outcomes in many markets, and they can result in situations where public spaces may be misused. Outcomes will generically be Pareto inefficient in the absence of perfect information or complete markets. We can avoid it and improve direct resource allocation by taking decisions about use of public spaces on basis of measurement the full economic value of public spaces. Proper quality of public spaces is a special field of interest of urban planners, architects, landscape architects, sociologists, etc. According to growing significance of cities, we can observe increase of “social urbanism” projects in cities and metropolitan areas. All of these projects aim to improve quality of life in a broad meaning. Quality of life in urban planning and economics is described by numerous qualitative characteristics and indicators, such as: quality of education, health services, public safety, recreation opportunities, cultural amenities, environmental quality and access to open space, parks, trails, etc. [1]. Theory of sustainable development suggests that measurement the economic value of public spaces should include human capital, social capital, physical capital, financial assets, and cultural capital.

Public spaces includes, for example: high streets, street markets, town squares, shopping precincts, community centers, parks, playgrounds, trails, neighborhood spaces in residential areas, open spaces, etc. According to urban canons, share of public spaces in spatial planning should be 20-30%. Public spaces provide important economic benefits to local communities. These benefits are described in economic literature on the value of open space and associated user benefits. Proper quality public spaces make better places to live, work and recreate. Increase of quality of life causes that districts, towns and villages are more attractive for investors and potential inhabitants. High quality of public spaces correlate with economic growth, attract business investments and tourism, provide cultural opportunities, encourage volunteerism, reduce crime, improve pedestrian safety, increase use of public transportation, improve public health and the environment. Economic development of these wider areas has positive fiscal effect to public finances. Territorial self-governments often are aware of these benefits and thus try to improve and/or expand on these resources. For this reason territorial self-governments and other public institutions more and more often need analysis related to the way that public spaces should be improved or expanded. These analyses should determine the economic value that public spaces provide to local communities.

2. Elements of economic value of public spaces and contemporary methods of measurement the economic value of public spaces

Total economic value of public space consists of [2] (Table 1):

- Use value - the value derived from the actual use of a good or service:
 - 1/ Direct use value - goods and services that are extracted and used directly by human beings.
 - 2/ Indirect use value – benefits provided by a certain resource to direct and indirect users (local, regional economy); these benefits do not result for the main function of that resource, and have usually many features of public goods.
 - 3/ Option value - the value of something that has not yet been recognized; derives from preserving the option to use the economic resource in a later date.
- Non-use or passive values were developed to address the value that people place on things that do not have a direct use:
 - 4/ Existence value – people may get utility (will to pay) from knowledge (awareness) about existence (preservation) of a certain historical site [3, 163-168].
 - 5/ Bequest value - the value of leaving something behind for the next generation.

For example, the economic value of open spaces includes the income and jobs generated by the spending of visitors using the recreation infrastructure, as well as increased property values for nearby residents, non-use values, and natural system values.

Public spaces valuation can be a difficult and controversial task. Because of the varied nature of the total economic value of public spaces, a single method of measuring its economic value is not possible. The most appropriate methods of measuring the economic value of public spaces are:

- 1/ Fiscal impact analysis means the estimation of the net impact on government of a particular project. In case of public spaces valuation it seeks to connect planning and local economics by estimating the public costs and revenues that result from property investments. This type of analysis enables the comparison of revenues to costs associated with new development indicating whether local government can meet new demands for services, or must raise taxes to meet new service demands.
- 2/ Geographic Information Systems (GIS) can be used for quantifying the economic value of broader category - spatial economic valuation. This method allows the creation of economic value maps. GIS technology is indispensable for local government to initiate action plan for sustainable land use and public spaces management [4, 97-110].

- 3/Market price method (MPM) estimates the economic value of public goods or services that are bought and sold in commercial markets. The total net economic benefit, or economic surplus, is the sum of consumer surplus and producer surplus.
- 4/Hedonic pricing method may be used to estimate economic values of public spaces or public services that directly affect market prices. It can be used to estimate economic benefits or costs associated with quality of public spaces, including air pollution or noise, and amenities of public spaces, such as aesthetic views, safety or recreational sites. The basic premise of the hedonic pricing method is that the price of a marketed good is related to its characteristics, or the services it provides. The hedonic pricing method is most often used to value public spaces amenities that affect the price of neighboring residential properties.
- 5/Derived value method also referred to as the net factor income or productivity method is used to estimate the economic value of public goods or services that contribute to the production of commercially marketed goods. It is applied in cases where the products or services of public spaces are used, along with other inputs, to produce a marketed good.
- 6/Contingent valuation method (CVM): a hypothetical market is created through use of a survey or questionnaire, and respondents are asked what they would be willing to pay (or the amount they would need to be compensated) to use (or lose) some defined resource or activity. This method is controversial as often these questions are hypothetical.
- 7/Travel cost method (TCM): the cost of travel to a site is viewed as an entry or admission price, and a demand curve is derived from observing visitation from various origins with different travel costs.
- 8/Input-output analysis is an inferential tool used to predict output, income or employment changes as a result of an expenditure “shock” on a local economy. This technique enables us to track the flow of expenditures through the various sectors of local economy [2, 6].
- 9/Cost for similar service means estimating the cost of providing the equivalent environmental service with technology.
- 10/ Benefit transfer method is used to estimate economic values of public services by transferring available information from studies already completed in another location and/or context. Benefit transfer is often used when it is too expensive and/or there is too little time available to conduct an original valuation study.

The simplest measure of the economic value of public space is its real estate market value. To calculate it we can examine market transactions. Otherwise, not every aspect of public space can be quantified. For instance, the mental health value of a walk in the woods is not known, and there is no agreed-upon methodology for valuing the carbon sequestration value of a city park.

TAB. 1: Elements of total economic value of public space and methods

Total economic value of public space				
Use value		Non-use (passive) value		
Direct value	Indirect value	Option v.	Existence v.	Bequest v.
Methods of measurement the economic value of public spaces				
MPM Input-output analysis GIS	TCM Hedonic pricing method GIS Derived value method Cost for similar service Benefit transfer method	CVM	CVM	CVM

3. Conclusions

Measurement the economic value of public spaces is land-related topic of growing importance in our fast changing world. Methods of measurement of the economic value of public spaces can be sophisticated, high-effective planning tool for decision makers to improve existing public spaces and to create new public spaces with high priority of quality of life and economic development. Nowadays application of these methods spreads and methodologies improve. Nevertheless, it hardly ever be possible to completely calculate the economic value of public space. Public space values are dynamic and must be considered comprehensively. Certain intangible values are hard to quantify them in objective way. One of the major limitations of these methods is the lack of primary data for public spaces being analyzed. To accurately assess these benefits of public spaces we should know former and actual visitor numbers, the origin of visitors and their expenditures, price premium for property values near the public spaces, human costs avoided from the provision of services by natural systems, etc. For this reason, self-governments should institute a program for regular data collection at public spaces. Collected data will allow the

experts to conduct researches on economic value of public spaces. According to results of these researches self-governments can justify investments in public infrastructure and new expansion of public spaces. However appears another threat of most methods of measurement the economic value of public spaces - that their results may conform to the policy inclinations of self-governments or institutions that sponsored them. Nevertheless we can observe fast growing openness of land and real estate information, which are now accessible by almost anyone with access to a computer and the Internet. Decisions about use of public spaces become more efficient when information about different public spaces and their use is easy accessible to citizens and policy makers.

References:

- [1] BORYS, T., ROGALA, P. (ed.) *Jakość życia na poziomie lokalnym – ujęcie wskaźnikowe*, UNDP, Warsaw 2008. ISBN 978-83-926200-2-0
- [2] PAGIDA, S., K. von Ritter, BISHOP J. *Assessing the Economic Value of Ecosystem Conservation*, World Bank, Environment Department, paper no. 101, 2004.
- [3] ATTFIELD, R. *Existence value and intrinsic value*, "Ecological Economics", nr 24/1998.
- [4] EADE, J.,D.,O., MORAN, D. *Spatial economic valuation: benefits transfer using Geographical Information Systems*, "Journal of Environmental Management", nr 48/1996.

INSTITUTIONS AND THEIR INFLUENCE ON EVALUATION OF THE INTERNATIONAL COMPETITIVENESS OF POLISH ECONOMY

Justyna Łapińska

Nicolaus Copernicus University in Toruń

justlap@umk.pl

Key words:

competitiveness – institutions – Poland

Abstract:

This paper makes an attempt of analysis the quality of institutional factors in Poland and its influence on the evaluation of the competitiveness of Polish economy on the international arena. The carried out research prove that the evaluation of the area of institutional infrastructure brings unfavourable results. Among the main reasons that determine the weak assessment of institutional infrastructure are: lack of clear rules of political life, lack of clear government policy in reference to many trades, bureaucratized economy, discretionary decisions on part of officials, squandering of public means, corruption.

1. Introduction

Because of the complex nature of the international competitiveness of economy, research into it takes into account many factors. International institutions and organisations which evaluate competitiveness of economies construct their own, very often complex, models which take into account even over a few hundreds of different factors which influence the competitiveness of investigated subjects to varying extent. Ones of the most famous works which annually evaluate the competitiveness of economies are the reports of competitiveness published by the World Economic Forum (WEF)¹. In their evaluations the World Economic Forum uses the Global Competitiveness Index (GCI). This is constructed based on twelve categories which take into account 111 factors. One of the categories relates to the functioning of institutions, both public and private².

¹ Annual competitiveness reports are also prepared by the International Management Development (IMD). However this takes into account far fewer countries: 59 in the report from the year 2011, [5, 19].

² Other categories are: infrastructure, macroeconomic stability, health and primary education, higher education and training, goods market efficiency, financial market sophistication, technological readiness, market size, business sophistication and innovation.

This paper makes an attempt of analysis the quality of institutional factors in Poland in the context of international competitiveness of Polish economy. The main sources of data were the competitiveness rankings: *Global Competitiveness Reports* for the years 2008-2011 which are published by the World Economic Forum. The paper is also based on data and information included in the World Bank reports: *Doing Business* and the *Index of Economic Freedom* published by *The Heritage Foundation & The Wall Street Journal*.

2. Institutions and the competitiveness of Polish economy

Institutional factors are divided into formal and informal. Factors of formal character include: constitutions, legislation, institutions responsible for the implementation of law, i.e. government administration, courts, police, tax offices, financial institutions whose main task is the care for monetary stability and maintaining the reliability of the financial system. Informal factors consist mostly of cultural background such as: tradition, religion, habits which influence inter alia the attitudes of the society towards national authorities, respect towards law, work ethos. Informal factors very often have a significant impact on the effectiveness of management and competitiveness of the whole economy [1, 11].

The authors of competitiveness reports are aware of the weight of institutional factors, both formal and informal. Therefore the presented rankings take into account factors such as: level of regulations regarding property rights in national legislation, independence of the courts of law, transparency of legal requirements and the level of adhering to them, effectiveness of state's functioning, trusting politicians, level of corruption, degree of administrative regulations, costs of setting up, functioning and terminating businesses, crime-related costs borne by business; and other elements of transaction costs.

According to the World Economic Forum, Poland is at present the 41st economy in the world (the research takes into account 142 countries). Position of Poland could have been higher if not for weaknesses in certain areas. These relate mainly to the institutional infrastructure. In the year 2011 the position of Poland in respect to the quality of its institutional surrounding is the 52nd place. Nonetheless over the last four years a significant improvement has taken place. In comparison, in the year 2008 the index measuring the quality of institutions placed Poland on a far 88th position (see Table 1).

TAB. 1: Global Competitiveness Index and Competitiveness of Institutions in Poland according to WEF research in the years 2008-2011

Year	The Global Competitiveness Index		Competitiveness of Institution	
	Rank	Value	Rank	Value
2008	53	4,3	88	3,6
2009	46	4,3	66	3,9
2010	39	4,5	54	4,2
2011	41	4,5	52	4,2

Source: *The Global Competitiveness Report*, for 2008-2011, World Economic Forum, Geneva;

Significant majority of the factors taken into account in the area of “Institutions” in the whole period subject to analysis had a negative influence on the evaluation of the international competitiveness of Polish economy. Main problems are corruption, lack of trusting politicians, mismanagement of public expenditure, and too heavy burden of administrative regulations. Particularly negative evaluation relates to the functioning of national administration, i.e. heavy load of national expenditures (124th position in the year 2011), transparency of government’s policies (93rd position), and effectiveness of legal framework while deciding disputes (97th position). What is worth noticing, however, is that in the years 2008-2011 in relation to a few factors a significant improvement of positions has taken place. This relates particularly to the costs borne by business which are related to violence and crime, including organised crime. Significant improvement also took place in the area: “favouritism in decisions of government officials” (see Table 2).

TAB. 2: Evaluation of quality of institutional factors in Poland according to WEF research in the years 2008-2011

Factor	2008		2009		2010		2011		Change of position in the years 2008-2011
Institutions	88	3,6	66	3,9	54	4,2	52	4,2	36 ↑
Property rights	94	4,0	76	4,3	59	4,6	54	4,5	40 ↑
Intellectual property protection	76	3,4	64	3,6	60	3,7	61	3,7	15 ↑
Diversion of public funds	72	3,4	50	4,0	43	4,2	44	4,1	28 ↑
Public trust of politicians	113	1,9	99	2,1	82	2,5	76	2,5	37 ↑
Irregular payments and bribes	-	-	-	-	41	4,9	39	4,9	2 ↑*
Judicial independence	73	3,7	55	4,1	53	4,3	53	4,3	20 ↑
Favoritism in decisions of government officials	105	2,5	64	3,1	49	3,4	52	3,3	53 ↑
Wastefulness of government spending	115	2,7	94	2,9	76	3,1	76	3,0	39 ↑
Burden of government regulation	127	2,3	111	2,7	111	2,7	124	2,6	3 ↑
Efficiency of legal framework	109	2,9	-	-	-	-	-	-	-
Efficiency of legal framework in settling disputes	-	-	114	2,8	106	3,1	97	3,2	17 ↑**
Efficiency of legal framework in challenging regulations	-	-	106	2,8	95	3,1	83	3,3	23 ↑**
Transparency of government policymaking	128	3,0	127	3,1	113	3,7	93	4,0	35 ↑
Business costs of terrorism	85	5,4	69	5,7	59	6,0	43	6,0	42 ↑
Business costs of crime and violence	95	4,2	82	4,5	50	5,3	37	5,5	58 ↑
Organized crime	96	4,5	77	5,1	55	5,7	40	5,7	56 ↑
Reliability of police services	86	3,8	74	4,1	60	4,4	63	4,4	23 ↑
Ethical behavior of firms	47	4,5	50	4,5	54	4,2	53	4,1	6 ↓
Strength of auditing and reporting standards	74	4,6	60	4,9	46	5,1	41	5,2	33 ↑
Efficacy of corporate boards	101	4,3	85	4,5	73	4,5	79	4,4	22 ↑
Protection of minority shareholders' interests	76	4,3	62	4,5	60	4,5	79	4,1	3 ↓
Strength of investor protection	-	-	-	-	33	6,0	36	6,0	3 ↓*

Remarks: Indicators of competitiveness take on values from 1 to 7; the higher the indicator, the higher level of competitiveness.

* Change of position in the years 2010-2011.

** Change of position in the years 2009-2011.

Source: Author's own study based on: *The Global Competitiveness Report*, for 2008-2011, World Economic Forum, Geneva.

Elements which confirm unfavourable situation in the area of Poland's institutional infrastructure can also be found in the reports of The World Bank: *Doing Business*³. In the newest report Poland is placed on the 62nd position out of 183 countries [2, 120].

Low evaluation of Poland is strongly related to the faulty functioning of institutional surrounding of business. Poland gained particularly low evaluations the category "paying taxes". Entrepreneur who would like to fulfil all the requirements of Polish tax system must make 29 payments annually which sum up to 43,6% of profit. Similar situations take place in the categories: "starting up business activities" and "terminating business activities"⁴, where the low evaluation of Poland takes into account high costs and vast amount of formalities which need to be fulfilled. According to the authors of the report, a significant problem in Poland is still recovering debts in the case of contractor's insolvency – 87th position and registering properties (immovable) – 89th position. Yet the worst evaluation results concern the category "dealing with construction permits". This is the 160th position in the ranking. Time of obtaining construction permissions in Poland is 301 days and takes into account as much as 30 procedures.

Data and information confirming rather low level of institutional competitiveness of Poland are also confirmed by the *2011 Index of Economic Freedom*, published by *The Heritage Foundation & The Wall Street Journal*.

The authors of the above report understand "economic freedom" as lack of constraints and limitations of production activities, distribution and consumption of goods and services other than the level necessary for its protection and sustaining. They measure the economic freedom by means of ten categories: freedom of business, trade, tax, size of the public sector, monetary freedom,

³ This report takes into account regulatory surrounding for investors in the period from 01. 07. 2010 to 30. 06. 2011 (i.e. during the financial year of the World Bank). Position of the country is appointed based on the analysis of 10 categories, inter alia: easiness of starting up a business, obtaining construction permissions, getting credit, registration of property, protection of investors or paying taxes.

⁴ The analysis took into account business activities carried out in the form of a limited liability company.

freedom of investment, financial freedom, freedom of property rights, freedom from corruption, and freedom of labour.

Depending on the range in which the index of economic freedom is placed, the country is included into one of the five groups of countries: from the ones which are characterised by full economic freedom (index in the range 80-100 points) to those which lack economic freedom (index in the range 0-49,9 points).

With regards to Poland once can speak of a moderate level of economic freedom. Poland was classified on the 68th position in the world (64,1 points), [3, 7]. Such evaluation result is to great extent determined by institutional factors. According to the report's authors the position of Poland could have been higher if not for the low notes in the following categories: business freedom, government spending, freedom from corruption and fiscal freedom.

3. Summary

Evaluations of international competitive position of Poland could have been better if it was not for the weaknesses in the area of institutional infrastructure. Among the factors which decided of the poor marking of institutional surrounding indicators which are listed most often include: lack of clear rules ruling political life, unclear policy of the government relating to many branches, bureaucratization of the economy, changing decisions of the officials, mismanagement of public expenditures, corruption. Negative evaluation relates also to the functioning of police and the system of justice which face accusations of inter alia insufficient efficiency in executing law and deciding economical disputes.

Summing up the analysis it can be stated that Poland has a chance in the future to significantly increase its competitiveness under the condition that it will improve the situation in the areas which have poor results nowadays. One of such areas, as it was discussed, is the institutional surrounding.

References:

- [1] BIEŃKOWSKI, W., *Instytucje jako czynnik konkurencyjności krajów postkomunistycznych. Kilka uwag ogólnych dotyczących Europy Środkowo-Wschodniej*, Prace i Materiały Instytutu Gospodarki Światowej, Nr 268, Szkoła Główna Handlowa, Warszawa 2005, <http://www.sgh.waw.pl/instytuty/igs/publikacje/working/>
- [2] *Doing Business 2012*, World Bank, Washington 2011.
- [3] MILLER, T., HOLMES, K. R. (eds.), *2011 Index of Economic Freedom*, The Heritage Foundation and Dow Jones & Company, Washington 2011.

- [4] *The Global Competitiveness Report*, for 2008-2011, World Economic Forum, Geneva.
- [5] *World Competitiveness Yearbook 2011*, International Management Development, Lausanne 2011.

ECONOMIC SITUATION AND ITS IMPACT ON THE ICT SECTOR

Petra Marešová

University of Hradec Kralove

petra.maresova@uhk.cz

Key words:

competitiveness – ICT sector – enterprise – economic crisis

Abstract:

Today's business environment is characterized by increasing competition. Many countries with high competitiveness (e.g. Finland) based on the fast-growing ICT services and ICT applications in all sectors. The aim of this paper is to analyze the development of the ICT sector in the Czech Republic, its impact on GDP. It is also specified how firms perceive their current economic situation and the near future. If the current economic situation influences the functioning of companies and if the economic crisis affects the actions of companies in terms of recruiting new employees.

Introduction

Thanks to the great technological advances associated with the development of information and communication technologies (ICT) and their mass distribution, since the second half of 90 years ICT has become an integral part of capital goods. Their share and abilities to improve the original capital goods are also supported by advanced miniaturization [5]. In order to assess the impact of ICT on economic growth, the set hypothesis of: "ICT sector production in the Czech Republic is relatively significantly associated with the growth of real GDP of the Czech Republic in the long run", is verified within the contribution.

Methodology - linear regression model

The linear regression model summarizes the data set, the object of the regression analysis is to quantify the best estimates of unknown parameters of the regression model. The linear regression model can be written as:

$$Y_i = \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_k x_{ik} + \varepsilon_i, \quad (1)$$

where

Y_i is i-th observation of random variable Y, $i = 1, \dots, n$,

x_{ij} is i-th value of the explanatory variables (regressors), $i = 1, \dots, n$, $j = 1, \dots, k$,

β_j are model parameters (fixed but unknown values), $j = 1, \dots, k$,

ε_i , $i = 1, \dots, n$ are unknown random errors that occur when monitoring the explained variable Y and that we can not directly observe or measure, n is the number of observations. The correlation coefficient will also be used, which indicates the extent to which two measured variables change [1]. The correlation coefficient is given by:

$$r = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}} \quad (2)$$

Development of ICT during the economic crisis

The field of information and communication technologies over the past few years has transformed from a field on the outskirts to one of the most important fields of the Czech economy, which deserves adequate attention. Czech ICT Alliance Analysts conducted assessments of the economic results of Czech ICT companies for 2010. When processing the results, the Czech ICT Alliance focused on:

- performances (205 companies),
- added value (201 companies),
- profit (205 companies in 2008-2010, respectively 193 companies in 2007).

In the year comparison, the overall results of monitored companies in 2010 showed very weak growth of 0.2 %. When comparing financial indicators between 2009 and 2008, this figure was close to 6 %. We can therefore say that the consequences of the economic crisis - especially in the psychological plane - fallen on the Czech companies to the fullest. For a more accurate determination of trends, the monitored companies were divided into 3 categories according to their performances [4]:

- over 1 billion CZK,
- 100 million to 1 billion CZK,
- up to 100 million CZK.

The least affected category were companies with performances over 1 billion CZK. In 2010 they reported year-on-year growth of 3.9 %. While the total of 13 companies, the performances increased seven times. In the total sum, the companies with outputs from 100 million to 1 billion CZK recorded a decrease of 2.5 % (30 companies outputs increased of total 51 companies) in the observed period. For IT companies with outputs up to 100 million CZK the final results were even worse, when compared to 2009 the total output fell by 10.9 % (output increased in only 66 companies out of total 141). While

performances compared to 2009 increased slightly, the added value declined year-on-year, both in the total sum and also in the individual categories of companies:

- with added value over 500 million CZK,
- with added value from 50 million to 500 million CZK,
- with lower added value than 50 million CZK.

The added value sum of all firms monitored between 2010 and 2009 decreased by 2.8 %. Also valid for this parameter is that the economic crisis manifested the least in the highest category (over 500 million). Overall results of 13 companies fell by 0.7 %. While in 8 firms the added value increased. The total added value of companies in the category from 50 up to 500 million CZK compared to 2009 decreased by 4.9 % (29 results increased out of a total 56 companies). Companies with an added value up to 50 million recorded the highest performance drop. Year-on-year it was 8 % (an increase of the value was shown by 66 companies of 132 monitored companies). Although neither performance nor the added value of the monitored Czech IT companies in 2010 did not experienced the expected growth, in the last three years, the number of firms with positive profit value has increased to 188 [3]. Among other interesting variables characterizing the situation in the sector, include government spending. Government spending on information technologies this year in the Czech Republic will rise only slightly - by 1.1 %, which is resulting from the IDC analytic company's report. Salaries of computer experts in the Czech Republic started to grow slightly this year. Still, they are 10 % lower than in 2008, before the economic crisis. The starting salary in this segment ranges from 18,000 to 25,000 CZK per month. The best paid are programmers and specialists in SAP systems, according to the Home Credit Group survey of recruitment agencies in the Czech Republic [2].

Production in the ICT sector and its share in GDP

In order to assess the impact of ICT on economic growth, the hypothesis has been established: "The production of the ICT sector in the Czech Republic has a relatively significant impact on the growth of real Czech Republic GDP in the long run". It is an equally long time series (table No. 1), in which reporting the methodology has not been changed. To verify the validity of this hypothesis the linear regression model is used (Figure 1).

TAB. 1. Development of GDP and production in the ICT sector

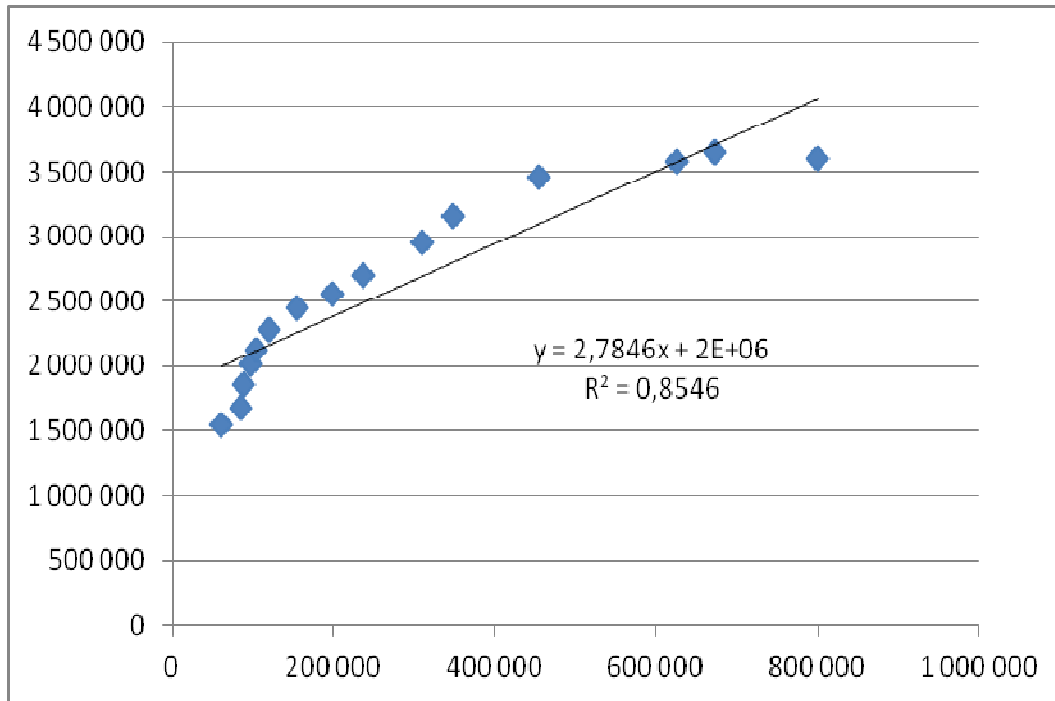
YEAR	real GDP	Production of ICT sector in million CZK (conversion 1 USD = 18 CZK)
1995	1,550,553	60,874
1996	1,674,385	84,670
1997	1,857,995	88,782
1998	2,017,208	98,075
1999	2,118,560	105,098
2000	2,279,932	119,773
2001	2,448,073	154,113
2002	2,561,512	198,781
2003	2,698,309	236,159
2004	2,955,841	310,035
2005	3,157,389	349,175
2006	3,451,995	454,093
2007	3,576,993	626,243
2008	3,595,676	800,442
2009	3,648,765	672,883

Source: own calculation according to [5]

The strength of the linear regression model was illustrated using the correlation coefficient. The value of the correlation coefficient for the model is: $r = 0.924470667$.

The correlation coefficient indicates the extent to which the two measured variables change. The dependence means that large values of one variable correspond to high values of the second variable (positive correlation) or the low values of one variable correspond to high values of the second variable (negative correlation). The linear regression model showed that spending on ICT explains 92 % of the GDP variability. All the coefficients of the linear regression model function are significant at 95 % of the significance level.

FIG. 1. Linear regression model for the evolution of the ICT sector and GDP production



Source: own calculation

Conclusion

The ICT sector plays a very important role in the economy. In order to examine the impact of ICT on the economy of a certain country, the data relating to the ICT sector was used. It was officially defined by the OECD in 1998 and gradually statistically regularly reported. Quantities reported in the ICT sector in the Czech Republic have become the key tools for analyzing the impact of the ICT sector in the given territory.

The hypothesis of: "The expenditures and investments in ICT in the Czech Republic have a relatively significant impact on real GDP growth in the long run", has been verified within the economic development. The hypothesis confirmed the strong dependence of ICT spending in the Czech Republic GDP. Since the turn of the millennium, the world is increasing pressure on the efficiency of funds invested in ICT. There are live discussions on the influence of ICT on the economy of each country and the economy on a global scale. The objective of further development in this field should be that the Czech Republic will try to be a leading European ICT destination, especially in the field of services with added value, including not only the development of IT solutions and applications, but also research and development of ICT products.

References:

- [1] ANDĚL, J. *Statistické metody*. Matfyzpress Praha 1998, ISBN 80-86732-08-8.
- [2] Czech ICT Alliance (Czech ICT)-1: *Analýza českých IT firem v roce 2010, 2011*, Tisková zpráva Czech ICT , 2011, [online], [cit. 2011-09-13], available from: www.czechict.cz/o-alianci/tiskove-zpravy.htm
- [3] Czech ICT Alliance (Czech ICT)-2: *Czech ICT News*, č. 38, ročník 2, 17. 10. 2011, Česká asociace pro IT služby, [online], [cit. 2011-10-15], available from: www.CzechICTNews.cz
- [4] Czech ICT Alliance (Czech ICT)-3: *Monitoring ICT trhu v České republice: Srovnání Q2 a Q1 2011*, Tisková zpráva, 2011, [online], [cit. 2011-10-13], available from: www.czechict.cz/o-alianci/tiskove-zpravy.htm
- [5] Český statistický úřad (ČSÚ), ICT sektor, 2010, [online], [cit. 2011-09-12], available from: http://www.czso.cz/csu/redakce.nsf/i/ict_sektor
- [6] VOŘÍŠEK, J., NOVOTNÝ, O. a kol. *Studie „ICT a konkurenceschopnost České republiky*, 2010, [online], [cit. 2011-08-13], available from: <http://www.cssi.cz/cssi/studie-zvyseni-konkurenceschopnosti-cr-pomoci-ict>

MARKETING ASPECTS OF CLUSTERS DEVELOPMENT BASED ON UNDERWEAR CLUSTER IN PODLASKIE VOIVODESHIP

Grażyna Michalczuk, Urszula Widelska

University of Bialystok

michal149@vp.pl, widelskau@poczta.onet.pl

Key words:

cluster – cluster initiative – marketing – marketing strategy – corsetry industry

Abstract:

The cluster initiative to fulfill its role in the business environment must be a permanent structure, whose dynamics of development is dependent on the effectiveness of undertaken marketing activities. The aim of the article is to present the specificity of marketing activities of the Podlaski Underwear Cluster as an organization consisting of companies operating within the same target markets. The members of the cluster initiative are often direct competitors, therefore the increasing role of marketing as an integrator of the cluster's activities oriented on long-term development.

Introduction

Modern organizations operate in a dynamic environment that forces the implementation of new organizational solutions. One of the modern forms of organization is a cluster initiative. It allows meeting the increasing demands of the market better and simultaneously exposing the potential of individual organizations which create the cluster. Moreover, combining the potential of many organizations increases the marketing abilities.

The aim of the article is to present the specificity of marketing activities of the Cluster as an organization consisting of companies operating within the same target markets. The members of the cluster initiative are often direct competitors, therefore the increasing role of marketing as an integrator of activities oriented on long-term development. In the article an example of the Podlaski Underwear Cluster is used. Conclusions were also supported by research findings contained in the report "The research on brand recognition of the Podlaski Underwear Cluster" [1].

The essence of marketing activities of the Cluster - the scope and conditions

The cluster initiative to fulfill its role in the business environment must be a permanent structure, setting long-term marketing objectives. An essential

component of the functioning of the Cluster is therefore a developed marketing strategy. It is important inasmuch as the marketing strategy is not only the process of setting objectives aimed at creating lasting relationships with target markets and the institutional environment, but above all an attempt to determine the methods of achieving the objectives consistent with the multivariant principles (the creation of alternative programs). The strategy is connected with the realization of long-term objectives oriented on marketing activity in the area of:

- building stable and long-term relationships with customers,
- creation of the Cluster's brand,
- creation of a coherent system of communication with target markets and institutional environment,
- creation of own market infrastructure.

Achieving strategic objectives requires raising the level of planning, organizational, coordinating and controlling skills, integrating especially members of the cluster initiative – that is why marketing strategy plays a motivational role.

Marketing aspects of the realization of strategic tasks of the Cluster

To explain the realization of strategic tasks of the Cluster, the traditional Ansoff's model can be used, which distinguishes four basic types of strategies [2, 63]: market penetration strategy, market development strategy, product development strategy, diversification strategy.

Market penetration strategy is to strengthen the position of the organization with the use of existing markets and products. It is implemented mainly in the area of know-how developed by individual members of the cluster initiative. Strengthening the position in existing markets increases the chances of success in already known areas of the market, identifies the needs of buyers, becoming a proven source of knowledge about customers and their needs. It also allows better and better adaptation to the needs of the served markets. From the cluster initiative development point of view it allows to use existing market infrastructure and to modify (rather to a small extent) offered product range.

Market development strategy is based on entering new markets with the current offer. The cluster initiative increases the chance of such undertakings because of the creation of entirely new organization, which, despite the current range of offers, is becoming a new player in the market, which translates into the perception of product offerings. **Product development strategy** is focused on the implementation of activities related to product improvement. It is oriented on innovation in the context of [3, 94]:

modernization of the existing product range, technological and structural improvements, the introduction of new product brands, introduction of process innovations. This strategy allows creating unique competencies and builds the image of the organization as a whole. It also requires a strong orientation towards innovation and develops the sphere of communication with the environment.

Diversification Strategy for the Cluster means entering new areas of the market with new products. In the analyzed case it consists in the development of the scope of the service sphere. Marketing strategic management becomes a determinant of cluster development.

Marketing determinants of the development of the Podlaski Underwear Cluster - selected aspects

The Podlaski Underwear Cluster is the first cluster initiative in Poland, bringing together manufacturers of underwear. It consists of companies with a diversified organizational and legal form as well as the basic financial parameters. Members are leading manufacturers of underwear in Poland. The total number of produced pieces of underwear is about 3 million a year, and export sales is about 40% of the production.¹ The companies of the cluster have developed a distribution network. They are present with their offers in all major wholesalers in the country. They employ their own designers and possess specialized design studios. They use cutting-edge technology and world-class materials in production.

Companies from the Podlaski Underwear Cluster employed a total of over 600 employees in 2009. The economic potential of the Podlaski Underwear Cluster, apart from employees, is connected with its assets. The value of their assets is not only a source of value creation, but also a determinant of the stability of its operation and further development. At the end of 2009, companies from the cluster had assets worth over 36.4 million PLN. This was reflected in the revenues, which exceeded 81 million PLN.

The Podlaski Underwear Cluster is an innovative organization. This is reflected not only in plans to create a joint product brands, but also in the use of nanotechnology in the production of underwear, which is an important aspect of building the image.

Product brands of the cluster, despite strong competition are becoming more recognizable by the Polish (and foreign) female consumers. Great importance in this respect plays a strong cooperation with all major wholesalers of underwear in Poland and the professional use of the Internet as a tool of trade and promotion.

¹ <http://spkb.com.pl/667-4baf1693940a6.html>

Marketing potential of the examined organization is also shaped by cooperative awareness of companies of the cluster. Companies which belong to the cluster are able to set long term objectives based on the exchange of knowledge and experience, not a display of mutual competitiveness. The cluster cooperates with regional scientific and research institutions. The Podlaski Underwear Cluster uses a regional aspect in the creation of its image. Podlaskie Voivodship is a region of rich traditions in textile and underwear industry. It should be emphasized that not only the cluster promotes itself through the region, but also the region is building the image based on its potential.

Product innovations play particularly important role in building the marketing potential of the Podlaski Underwear Cluster. New technologies and the development of new products from the viewpoint of a single company are often limited, mainly due to high costs. The cluster is based on creating innovative joint ventures.

Building an image of the cluster translates into improvement of the image of all its members. Companies may jointly exhibit themselves at the fair or carry out marketing research. Such activities determine not only the marketing effectiveness, but primarily they strengthen the competitiveness of the companies which belong to the cluster.

The most important aspect of marketing activity of the Podlaski Underwear Cluster is the creation of a joint brand of underwear. Currently, the expansion of new brands in a dynamic market environment is limited. This results from increased competition in the industry, but is also determined by a strong position of foreign underwear brands. Building a joint brand is connected with lower risk. Individual companies would not be able to use direct confrontation to strengthen their competitive position.

Conclusions

The Podlaski Underwear Cluster is undoubtedly an organization focused on the development of internal potential, but also on the development of the market. The dynamics of development in the case of the examined organization depends on the effectiveness of undertaken marketing initiatives. The cluster is building its potential on the basis of product innovation and exchange of experience. This may indicate the action based on the modern concept of marketing, according to which the main source of competitive advantage is knowledge.

References:

- [1] DĘBKOWSKA, K., MICHALCZUK, G., WIDELSKA, U., WALICKI, A.
Badanie rozpoznawalności marek Podlaskiego Klastra Bielizny. wyd.
Białystok: IbiA Vivade sp z o.o., 2010.
- [2] MRUK, H. (red.) *Strategie marketingowe.* wyd. Poznań:
WAE w Poznaniu, 2002, 63 s. ISBN 83-88760-63-7
- [3] FRĄCKIEWICZ, E., KARWOWSKI, J., KARWOWSKI, M., RUDAWSKA, E.
Zarządzanie marketingowe. Wyd. Warszawa: PWE, 2005, 94 s.
ISBN 83-208-1495-2

GREEN STRATEGIES AS COMPANIES' COMPETITIVENESS-ENHANCING FACTOR

Valentinas Navickas¹, Rima Kontautiene², Egle Simbelyte³

Kaunas University of Technology

¹valentinas.navickas@ktu.lt; ²rima.kontautiene@stud.ktu.lt;

³egle.simbelyte@stud.ktu.lt

Key words:

companies – competitiveness – competitive advantage – green strategies.

Abstract:

The authors of the article analyze the consumers demand for green products and how green business practices can make an impact on environment and on competitiveness of companies. Companies can cut down costs and gain a competitive edge and reputation by integrating green strategies into business. Researched the impact of green strategies, the authors found that implementation environmentally friendly strategies into business positively influences companies relationships with consumers and so increases their competitiveness in the market.

1. Introduction

There is a big variety of environmental problems that society has to face. Business has to face these problems too and try to make a contribution to reducing its environmental footprint. Consumers' behaviour is influenced and their buying decision is based on environmental concern. Consumers are more demanding and request for green production. This in turn will encourage and force companies to incorporate green alternatives into business. By incorporating green strategies into their business, companies target to green consumer, which is willing to pay more for green products. Also companies want to be competitive in today's market so gaining advantage and reputation is very important.

The object of the study: green strategies.

The novelty of the study: The research of authors indicates that incorporating green strategies into business has to be treated as companies' competitiveness-enhancing factor.

The aim of the study is to investigate green strategies as a factor, which enhances a competitiveness of companies.

The objectives of the study are as follows:

1. To examine costumers demand for green products.
2. To analyze general strategies as green strategies.
3. To define a competitiveness-building factor of green strategies.

The methods of research are: systematic, logical and comparative analysis of literature, synthesis.

2. The consumers' demand for green products

There are many driving forces that motivate people to go green. It is especially important to take on the responsibility of going green because our environment in the long term will be more stable and healthy. Today's consumers are getting more knowledge about environmental issues and their behaviour is being affected, they are more concerned about the effects of manufacturing and consumption on the natural environment. Consumers, who are environmentally oriented, are changing their buying habits and choosing ecological product. Consumers perceive green products as tangible and intangible characteristics' integer that satisfies their needs. Consumers distinguish "green" products from others due to their better quality, safety and environmental friendliness [11]. According to the GMA / Deloitte Green Shopper Study [4], many regular shoppers want green products and a little more than half of green shoppers are willing to pay more for green products. Consumers' willingness to pay more for environmentally friendly products can be influenced by many aspects: demographics, knowledge, values, behaviour and attitudes. Many companies have emerged to produce green products to satisfy consumers' needs. As the market grows, more companies will attempt to become a part of green market segment [5]. A threat that is facing green products is lack of knowledge in eco-labelling. Consumers are often confused between green products, naturist products and diet products. Consumers that buy green products often point out lack information about ecological certification system [2]. Companies also indicate the same problem. Although general knowledge about specific eco-labelling is relatively low in the Baltic countries and in the North-West Russia, companies know the main benefits of this process and are interested in labelling their products. The biggest willingness to eco-labelling in Baltic countries showed Lithuania [12]. Green product market in Lithuania is growing – 73 % of respondents indicate that they are buying or willing to buy green products [11]. If consumers are willing to spend a little bit more on environmentally friendly products, more marketing strategies and budgets should give to promote these green products. In return, sales will rise, costs will be lowered, and cleaner environment can be achieved. Competitiveness and

returns will only increase if the environmental investments are appreciated by internal or external stakeholders. Eventually, companies will need to rethink strategies that satisfied the growing consumers' demand for green products.

3. General competitive strategies as green strategies

Environmental problems and rising cost of energy has become a major concern for global economy. Businesses are pressured to reduce their environmental footprint. Typical responses to these challenges include corporate social responsibility (CSR) and business sustainability initiatives [7]. Sustainability has emerged as a relevant topic of strategic management during the last years – and it is supposed to become a game-changing megatrend [6]. A green strategy builds companies' environmental awareness. The principles that form the basis of a green strategy should lead a business to make decisions based on solid business logic and make good business sense [9]. Different best practices of environmental management lead to different kinds of competitive advantage, it is important to focus on specific best practices and the particular advantages associated with them. Companies can choose between general strategies types to go green (Tab. 1 [10]).

TAB. 1 - General competitive environmental strategies

		Competitive Focus	
		Organisational Processes	Products and Services
Competitive Advantage	Lower-Cost	1. Strategy Eco-Efficiency	4. Strategy Environmental Cost Leadership
	Differentiation	2. Strategy Beyond Compliance Leadership	3. Strategy Eco-Branding

Company that uses a low-cost strategy builds competitive advantage by producing goods or services at the lowest possible cost which can be achieved by enhancing the efficiency of processes and material utilization, both resulting in cost savings and emission reductions [3]. Company that uses a differentiation strategy competes on the basis of being exceptional – environmentally responsible, producing “green” products [10]. The aim of green strategy is to reduce environmental footprint which simultaneously comes along with cost savings in organisational processes. Companies can effectively go green by integrating existing environmental standards, using new materials and new manufacturing processes, putting pressures on suppliers to use green materials and processes. Green strategy is a guide

leading a company to green business. The main goal of green strategies is to gain competitive advantage and to be environmentally responsible. Green strategies help companies change behaviors and decisions on a more environmentally responsible way. A green strategy is a good way to invest in future alternatives for big or small companies alike. In the long run, it will pay back and help improve the environment.

4. Building competitiveness through green strategies

Having a competitive advantage is necessary for a company to compete in the market. If the company gains an advantage, the business will survive. If that advantage is significant, the business will thrive. One of the motives to become environmentally responsible company is competitive advantage. Companies motivated by competitiveness actively innovated environmentally friendly processes and products to enhance their market positions. Some companies indicate that if consumers were more demanding, then they would more likely show greater ecological responsiveness [1]. Company competes on the basis of being exceptional – environmentally responsible, producing “green” products. The aim of eco-efficiency strategy is to reduce environmental footprint which simultaneously comes along with cost savings in organisational processes. Companies increase the efficiency of their organizational processes in order to attract customers and the general public. Businesses, seeking to gain competitive advantage, have not only to understand and manage the processes, but also have to know their customers and to foresee their changing needs [8]. Sometimes companies invest in unprofitable environmental improvements so that the public would acknowledge their effort. A company’s image often accurately reflects its attitude in taking responsibility with its products and services. As a company heads towards becoming green, its image for being environmentally friendly will build through time. Profit margins will rise as consumers become more aware of a company’s green oriented image. It gives a competitive edge to the company too. The companies enhance their competitiveness by investigating green strategies. Gained competitive advantage and improved company’s image are the factors of competitiveness. Product differentiation, saving costs and managing environmental risk have been suggested for companies to help integrate the environment into business thinking. By doing this companies gain competitiveness by linking the environment with strategy.

5. Conclusions

1. Consumer awareness of going green has brought a growing demand for green products. Customers are willing to pay a higher premium for a greener product. This encourages and forces companies to incorporate

- green alternatives to products and services. As environmental awareness grows, a new trend of strategy, known as the green strategy, is developing.
2. Companies can use general competitive strategies types to go green. Company by using general competitive strategies competes on the basis of being exceptional – environmentally responsible. The main goal of green strategies is to gain competitive advantage and to be environmentally responsible.
 3. Implementing green strategies brings multiple benefits for companies including a bigger profit margin alongside impenetrable reputation and competitive edge. All these benefits leading to enhancing competitiveness of companies. Implementing green strategies will allow companies to be more efficient in manufacturing, by way of resources reducing or costs saving, thus largely gaining competitiveness over competitors.

References:

- [1] BANSAL, P., ROTH, K. Why Companies Go Green - a Model of Ecological Responsiveness. *The Academy of Management Journal*, 2000, Vol. 43, No. 4, p. 717-736. ISSN: 0001-4273.
- [2] BURJA, C. *Analysis of the Green Products' Demand*. 2008. Available from: <http://steconomice.uoradea.ro/anale/volume/2008/v4-management-marketing/141.pdf>
- [3] EREK, K., LOESER, F., SCHMIDT, N., ZARNEKOW, R., KOLBE, L. M. *Green It Strategies: a Case Study-Based Framework for Aligning Green It With Competitive Environmental Strategies*. 2011. ISBN: 978-1-86435-644-1. Available from: <http://www.pacis-net.org/file/2011/PACIS2011-049.pdf>
- [4] GMA/ DELOITTE GREEN SHOPPER STUDY. *Finding the Green in today's Shoppers: Sustainability Trends and New Shopper Insights*. 2009. Available from: <http://www.pca.org.au/site/cms/documents/00749.pdf>
- [5] HARTMANN, P., IBANEZ, V. Green Value Added. *Marketing Intelligence and Planning*, 2006, Vol. 24, No. 7, p. 673-680. ISSN: 0263-4503.
- [6] LUBIN, D. A., ESTY, D. C. The Sustainability Imperative *Harvard Business Review*, May 2010, No. 5, p. 42-50
- [7] MOLLA, A. GITAM: *A Model for the Adoption of Green IT*. 2008. Available from: <http://www.bsec.canterbury.ac.nz/acis2008/Papers/acis-0152-2008.pdf>
- [8] NAVICKAS, V., KONTAUTIENE, R. Social complexes as increasing businesses competitiveness factor. *Journal of Management*, 2011, Vol. 19, No. 2, p. 139-145. ISSN: 1648-7974.

- [9] OLSEN, E. Creating an Enterprise-Level Green Strategy. *The Journal of Business Strategy*, 2008, Vol. 29, No. 2, p. 22-30. ISSN: 0275-6668.
- [10] ORSATO, R. J. Competitive Environmental Strategies: When Does It Pay to Be Green? *California Management Review*, 2006, Vol. 48, No. 2, p. 127-143. ISSN: 0008-1256.
- [11] [RUTKOVIENE, V., GARLIAUSKIENE, G. Ekologiškų Maisto Produktų Paklausą Lemiantys Veiksniai. *Žemės Ūkio Mokslai*, 2007, T. 14, No. 2, p. 66-77.
- [12] SWEDISH TRADE COUNCIL SURVEY. Survey on Eco-labelling in Estonia, Latvia, Lithuania and North-West Russia: Special Focus on Nordic Eco label. 2010. Available from:
<http://www.norden.lt/admin/files/get.php?id=1595>

MULTI-YEAR FINANCIAL FORECAST IN THE SELF-GOVERNMENT

Jarosław Olejniczak

Wrocław University of Economics

jaroslaw.olejniczak@ue.wroc.pl

Key words:

self-government –multi-year forecast

Abstract:

The purpose of this paper is to analyze the statutory principles and guidelines used to create the first multi-year financial forecasts (MFF) of self-government units in 2011. This is the first year of new solution in self-government (SG) units in Poland. The analysis of SG resolutions leads to a conclusion that a long-standing financial forecast is subject to a significant number of changes introduced throughout the financial year, which results from the necessity to update it after amending the SG budget.

Introduction

The performance of public tasks by self-government (SG) units is typically associated with the need to move beyond the annual financial planning horizon. Before the entry into force of the new Public Finance Act [2] in 2010, documents of a similar nature have been identified in the previous Act [1]: a long-term investment plan, forecast of the total amount of debt at the end of the financial year and in subsequent years, resulting from the planned and assumed liabilities the SG units, as well as limits on spending on programs and projects implemented using the EU funds, the non-refundable aid from the EFTA States and the tasks arising from contracts concluded between the provincial SG and the Council of Ministers. This means therefore that the long-term planning is not something new in SG authorities. So how can we distinguish the main objectives and benefits expected as a result of the introduction from 2011 onwards the Multi-Year Financial Forecast (MFF) in the SG units? According to the explanatory memorandum to the draft law on public finance [2], the long-term planning is a tool that enables effective management of public funds, which is consistent with the budget of the European Union. The expected result would also be the realistic submitted data and the strategic position in the activities of the given unit. In the literature on this subject, the last two benefits of implementing multi-year financial forecast are questioned, due to the detailed design of the proposed legal solutions in the Act [3, 39-42]. Agreeing with alleged issues, it seems though that the evaluation of actual flaws will be possible only in the next few years.

Statutory regulations

The Public Finance Act in Article 226 indicates a detailed list of contents, which should be included in a multi-year financial forecast of a SG unit for each subsequent year of the forecast. According to the budget classification adopted in this paper, the envisaged revenues and expenditures should be presented in the form of a division into current and property. Further elements of the forecast required by the Act are the results of the SG budget; an indication of how to use the surplus or finance the deficit; the amount and types of income and expenditure in the budget of a SG, including the debt incurred and planned to enter into; a very important value given in MFF is the amount of debt of the SG, together with the value of the relation between the total amount accruing during the financial year due to repayments of loans together with accrued interest on loans in the given year, leveraged securities issued e.g. to finance the planned budget deficit of the SG units or to repay the previously incurred liabilities arising from securities and loans and borrowings as well as the potential repayment of amounts arising from sureties and guarantees granted to the planned total budget revenues. The limit level of that relation is determined on the basis of the arithmetic average calculated for the relation of the current income of the SG in the last three years, plus the revenue from the sale of assets, minus current expenses, and the total budget revenue.

To ensure transparency and openness of MFF under the provisions of the Act, all the above mentioned data must be described with particular emphasis on how they are calculated. The legislature pays particular attention to the important activities of SG units known as projects. According to the Act, they include long-term programs, projects or tasks associated in particular with programs financed with funds from the EU budget, other sources of foreign non-refundable funds, and long-term contracts of public-private partnership. The projects also include contracts, whose implementation in the financial year and the subsequent years is necessary in order to ensure the continuity of the unit and whose payments extend beyond the financial year, as well as guarantees and sureties granted by the SG units.

As you can see the range of phenomena included in MFF is wide, but it does not exhaust all the activities of SG units, which may be multiannual.

For clarity, in each of the financial forecasts the following data have to be indicated: the name, the purpose of the project's performance, the organizational unit responsible for implementing or coordinating the execution of the project, the implementation period, the total expenditure associated with the project, spending limits in each year and liabilities limit.

The financial forecast horizon is primarily determined by the specific factors related to the financial management of individual units of the SG. The minimum period of a forecast, imposed by the legislature, was four years (the financial year and three subsequent years). During this period the forecast has to be approved every year. Therefore the annual verification of a forecast results in its rolling nature, which means continuous updating of the data and the opportunity to take into account dynamic changes in the governmental financial management. At the same time the legislature has stipulated that the forecast may not include a shorter period than the period for which spending limits for individual projects were adopted. This results in different periods of the financial forecasts validity in different SG units. Regardless of the duration of the projects included in the forecast, the time horizon for the financing of the existing and future liabilities must include the entire repayment period. This means that the debt forecast for the given unit may extend much further than the duration of projects. This results from the fact that SGs usually implement their investments based on long-term financing instruments.

In accordance with Article 229 of the quoted Act, values adopted in the multi-year financial forecast and budget of the SG unit shall be in accordance with the budget of the SG unit. It was adopted that the minimum level of compliance would be the budget result, the related amounts of revenues and expenditures, and the SG debt. This means in practical terms that there is a necessity to update the forecast whenever the budget is changed in such a way which affects whichever of the aforementioned elements.

MFF development procedure

In accordance with the resolution, similarly to the procedure of establishing budget in a SG unit, only the SG authorities may initiate the preparation of a draft resolution on the multiyear financial forecast and on its change. It results first of all from the substantive competencies of the SG executive body, and from the SG authorities' responsibility for performing the SG budget. Analogically to the draft budget resolution, the unit authorities present the MFF project to the regional accounting chamber and to the SG decision making body, in order to receive an opinion on the project. The opinion issued by the regional accounting chamber refers first of all to the correctness of the envisaged amount of debt of the SG unit, resulting from the forecasted and already incurred liabilities, nevertheless the Legislator has not limited the objective scope of the opinion.

In the year 2010 the Ministry of Finance published recommendations concerning the creation of MFF [4]. A schematic model of the MFF creation procedure was presented, which included the following phases:

1. Gathering factual knowledge: signed loan agreements, repayment schedules, performed enterprises, projects, tasks, granted guarantees, warranties, other agreements extending beyond the financial year; 2. Gathering historic data necessary to prepare forecasts: incomes, expenditures; 3. Preparing a forecast of incomes; 4. Gathering knowledge about intentions and risks: planned enterprises, forecasted risks; 5. Preparing a preliminary MFF version: forecast of incomes and current expenditures, presentation of performed enterprises (on the side of income – donations and EU funds, on the side of expenditures – current and proprietary ones), simulation of the debt repayment level, including the forecasted loans, which will be taken due to the projects currently in implementation; 6. Analysis of the financial opportunities related to the performance of concrete enterprises: balancing MFF, choosing potential new enterprises to perform, analysing the risk margin.

Initial assessment of MFF implementation results

The first months after the implementation of the multiyear financial forecast in the SG units seem to confirm the anxieties reported beforehand, related to the high instability of data included in the forecasts. For the purpose of this paper, a survey on the content of resolutions introducing changes to MFF was conducted in selected communes in the Lower Silesia province. The study focused on the number of resolutions changing MFF in the period from January to November 2011 and on the content of the aforementioned resolutions.

Among the analysed 20 SG units, only two published in the Public Information Bulletin fewer than three changes of MFF. The remaining eighteen units changes MFF a few times during the year. Meanwhile the number of resolutions does not correspond with the number of changes made in the MFF content. One resolution usually included a few, or even several, changes in the forecast. These amendments were caused in the analysed SG units by the following factors. First of all, majority of the SG units learnt only during the year about the final amount of donation received for the ordered tasks in the field of governmental administration which were to be performed by the communes – which was related to using the budget reserves by the fund administrators. Secondly, communes were assigned new tasks under the agreements signed with the governmental administration units. These agreements resulted either from the occurrence of new tasks, which could be performed by the SG bodies due to the local nature of the assignments and to ensure the promptness of their realization, or these were the enterprises, which were negotiated annually (e.g. maintenance of roads in winter), and which were paid for from funds received every year by communes, however,

the number of such assignments is never known at the time when budget is created. Thirdly, the changes also included the number, scope and amount of expenses on the forecasted enterprises. What is more, due to the untimely or incomplete performance of investment assignments, a need arose to move funds assigned to specific enterprises to the subsequent years and use the financial means from the expenditures not expiring in the given year. Some of the communes were updating their MFF due to a different amount of income, than envisaged, from tax and non-tax sources. The issue of budget updating due to the changes in basic macroeconomic measures values, which are the basis of the adopted calculations. These values are indicated by the Ministry of Finance as only referential figures, which may be changed within a longer period of time. Currently the Ministry of Finance directives from May 2011 are binding, nevertheless their values do not correspond with the actual figures announced by the Polish Central Statistical Office and the Ministry of Finance.

Conclusion

The multiyear financial forecast prepared by the SG units is an instrument, which enhances the multi-year planning. Its construction and scope of information presented in this paper may, as it seems, support the clarity and predictability, and therefore the stability of budget of the given SG. Nevertheless, the analysis of SG resolutions leads to a conclusion that a multi-year financial forecast is subject to a significant number of changes introduced throughout the financial year, which results from the necessity to update it after amending the SG budget. Unfortunately, currently it decreases the clarity of MFF and is the reason of significant discrepancies between the values included in the initial MFF and the ones introduced during the financial year.

References:

- [1] Public Finance Act, Journal of Laws no. 2005.249.2104 of 30 June 2005
- [2] Public Finance Act Journal of Laws no. 2009.157.1240 of 27 August 2009
- [3] CZŁOPIŃSKA, E. Wieloletnia prognoza finansowa w jednostkach samorządu terytorialnego, *Finanse Komunalne*, no. 5 of 2010 year
- [4] Wieloletnia prognoza finansowa, Ministry of Finance, July 2010

OPTIMIZATION OF SKIP TRANSPORT

Jan Pelikán, Michal Černý, Maria Kobzareva

University of Economics, Prague

pelikan@vse.cz

Key words:

skip transport – pickup and delivery problem – transportation problem

Abstract:

The skip transport consists in transport of skips (big containers, trailers) from initial location to destination location using vehicles (tractors). Capacity of vehicles is limited, usually the capacity of the vehicles is one or two containers. The problem is defined on the graph, nodes are initial and destination locations, total transport cost is minimized. Unlike the skip delivery problem a skip pickup and delivery problem is studied, the optimal solution is found as optimal solution of the linear transportation problem.

1. Introduction

There are many papers which pay attention to skip delivery problem (SDP). In [1] it is studied the problem of transport skip, which are transported by vehicles with capacity one or two. There is a set of customers with their skip demand. Each customer is the node in the graph $G=\{V,H\}$, V is a set of nodes, H a set of edges. Demand of the node i is denoted by positive integer b_i . The cost of travel from node i to node j is c_{ij} , it is supposed that the triangular inequality is satisfied and the matrix C is symmetrical. Number of vehicles in the depot is unlimited, the capacity of vehicles is unique and it is $V>0$ integer. All skips are available in the depot and from the depot are delivered to the nodes according to node demand b_i .

1.1 Case $V=2$.

In the case $V=2$ there are only two possible round trips:

- a) from depot 1 to the node i and node j and return to the node 1, this trip we denote e_{ij} ,
- b) from depot 1 to the node i and return to the depot, the trip is e_{ii} .

Now we define an artificial graph problem: minimum weight b-matching problem as follows.

The graph $G'=\{V', H'\}$, where $V'=V-(1)$. The set of edges H' contains all round trips e_{ij} and e_{ii} , where trip e_{ij} is edge of the graph G and e_{ii} the loop of the graph G . The weight of the edge e_{ij} is $c'_{ij}=c_{1i}+c_{ij}+c_{j1}$, and the weight of the loop e_{ii} is $c'_{ii}=c_{1i}+c_{i1}$.

SDP problem with $V=2$ can be formulated as minimal weighted b-matching problem (BM) of the graph G . The mathematical formulation of the BM problem is as follows:

Let have the integer variables x_{ij} , where (i,j) is edge or loop of the graph G . The value x_{ij} for $i \neq j$ is a number of trips type a) and x_{ii} a number of trips type b).

Mathematical model the minimal weighted b-matching problem:

$$z = \sum_{i,j} c'_{ij} x_{ij} \rightarrow \min$$

$$\sum x_{ij} + \sum 2x_{ii} \geq b_i, i \in V'$$

This problem can be solved in polynomial time [1]. Moreover the problem is reducible, i.e. there is an optimal solution of the instance in which each node is served by as many full load depart-node trips as possible. Reducible instance can be transformed into an instance of the generalized minimum cost matching problem, because demand of nodes is only one container.

1.2 Case $V=1$ or 2 .

Similar results hold for the case with capacity of vehicles is one or two. At first the cost of transfer thru the edge (i, j) must differ for vehicle with capacity one or capacity two. The cost of travel from node i to node j is c_{ij} is $k_1 c'_{ij}$, if the capacity of the vehicle is one, and $c_{ij} = k_2 c'_{ij}$ if the capacity is two, where c'_{ij} is distance from node i to node j . If $k_2/k_1 \leq 1$ we will use only vehicle with capacity two, in case $k_2/k_1 \geq 2$ all used vehicles are with capacity one in the optimal solution.

In the case $V=1$ or 2 we construct the undirected complete graph $G = \{V, E\}$ as an instance of the minimum weight b-matching problem in following way:

$c_{ij} = k_2(c'_{ii} + c'_{ij} + c'_{ji})$, $i \neq j$, $i, j \in V - \{1\}$ and x_{ij} gives the number of trips 1- i - j -1 with a vehicle with capacity two,

$c_{ii} = 2k_1 c'_{ii}$ for $i \in V - \{1\}$ and x_{ii} is the number of trips 1- i -1 and vehicle capacity one,

$c_{ii} = 2k_2 c'_{ii}$ for $i \in V - \{1\}$ and x_{ii} is number of trips 1- i -1 and vehicle capacity two.

Under assumption of symmetrical cost matrix and holding triangular inequality the problem with capacity vehicles one or two is reducible.

2 Skip pickup and delivery problem

2.1 Definition of skip pickup and delivery problem

Given a distribution network with a set of n nodes and the cost matrix C travel cost between all pair of nodes, where c_{ij} is the costs - distance between nodes i and j . Let us denote q_{kl} the number of skips that has to be transported from node k to node l . Vehicles with capacity V is used for pickup and delivery and they can start in any node. All routes have to be cyclical, each vehicle has to come back to the node it starts from. The objective is to minimize total cost of all the routes. The optimal solution is a set of cyclical routes, for each of them it is specified the depot, which covers all demands for pickup and delivery. It is supposed triangular inequality and symmetry for C .

The problem can be solved by the method which is shown on the example as follows.

Example:

There are 5 nodes and capacity of vehicle one. Travel costs C and transport requirements are:

$$C = \begin{pmatrix} 0,3,7,3,2 \\ 3,0,2,1,6 \\ 7,2,0,2,3 \\ 3,1,2,0,6 \\ 4,6,3,6,0 \end{pmatrix}, \quad Q = \begin{pmatrix} 0,0,0,0,4 \\ 1,0,2,5,0 \\ 0,0,0,0,1 \\ 0,0,0,0,0 \\ 0,3,0,0,0 \end{pmatrix}.$$

Now, we compute the input and output degree of all nodes (Tab.1).

TAB.1: In and out degree

Node	1	2	3	4	5
out-degree	4	8	1	0	3
in-degree	1	3	2	5	5
difference	3	5	-1	-5	-2

Existence of routes will be ensured if in-degree is equal out-degree for all nodes, a number of vehicles entering the node is equal a number of vehicles living the node. To do it, it has added edges from nodes with negative difference to nodes with positive difference out-degree and in-degree with minimal cost. The new edges, transfers of vehicles without load, we can obtain by solving a linear transportation problem (see Tab.2).

TAB.2: Optimal solution of the transportation problem

	1	2	a_i
3	7 0	2 1	1
4	3 1	1 4	5
5	4 2	6	2
b_j	3	5	

Optimal cost is 17, number of additional edges are: one edge (3,2), one edge (4,1), 4 edges (4,2), two edges (5,1). The number of vehicles traveling thru edge (i,j) without load is denoted y_{ij} , optimal value is $y_{32}=1$, $y_{41}=3$, $y_{42}=4$, $y_{51}=2$, otherwise $y_{ij}=0$. Full load vehicle going thru edges are q_{ij} with costs 41. Total costs $41+17=58$ are optimal.

2.2 Algorithm for route generation.

A number of vehicles entering each node equals to a number of vehicles leaving it. For generation of cyclical routes in the form of path in the network (i_1, i_2, \dots, i_t) , the following general algorithm can be used:

Algorithm for the route generation:

Step 1.

If $y_{ij} = 0$ for all arcs $(i, j) \in E$, it is not possible to generate any route, otherwise select any arc $(i_1, i_2) \in E$, $y_{i_1, i_2} > 0$. Set $y_{i_1, i_2} = (y_{i_1, i_2} - 1)$ and $t = 2$.

Step 2.

Repeat while $i_1 \neq i_t$: Select any arc $(i_t, i_{t+1}) \in E$, $y_{i_t, i_{t+1}} > 0$. Set $y_{i_t, i_{t+1}} = (y_{i_t, i_{t+1}} - 1)$ and $t = t + 1$.

Proposition 1.

If $\sum_{i=1}^n y_{ij} = \sum_{i=1}^n y_{ji}$ for $j = 1, 2, \dots, n$, then the previous algorithm will generate cycles.

Proof.

If, in the step 2, the path (i_1, i_2, \dots, i_t) is not closed, i.e. $y_{it,j} \neq 0$ for all nodes j , then $1 < \sum_{i=1}^n y_{ij} \neq \sum_{i=1}^n y_{ji} = 0$ for $j=i_t$ that contradicts the assumption.

3 Conclusions

The paper describes a new kind of the skip delivery problem and a method for solving it is proposed.

Acknowledgements

This research was supported by grant GACR 402/09/0041 and IGA F4/18/2011.

References:

- [1] ARCHETTI, C., MANSINI, R, SPERANZA, M.G. 2005. Complexity and reducibility of the skip delivery problem. In: Transportation Science, Vol. 39, No.2, May 2005, pp. 182-187.

FINANCING THE COUNTERACTION OF THE NATURAL DISASTERS' EFFECTS IN THE LUBIN COUNTY

Zbigniew Piepiora

Wroclaw University of Economics

znp@ae.jgora.pl

Key words:

disaster – natural – financing – county – Lubin

Abstract:

The aim of this article is to present the issue of financing the counteraction of the natural disaster's effects. Spending the measures for the public safety, the fire and the health protection and the promises make possible to minimize the results of occurring these kinds of phenomena. The measures that are assigned for the spatial planning, the crisis management and the promises for the reconstruction enable to reduce the negative consequences of the occurring natural disasters. The author verifies the mentioned issues on the example of Lubin county.

1. Introduction

According to the Polish law, the natural disaster can be defined as an event connected with impacting of the nature's forces. The phenomena are especially: the floods, the atmospheric discharges, the seismic activity, the storms, the intensive rainfalls, the long-lasting extreme temperatures, the landslides, the fires, the droughts, the ice's phenomena on the rivers, the lakes, the water reservoirs and the sea, the infestations of the insects and the diseases of the plants, the animals and the people, or affecting of the other elements [5, art. 3].

The natural disaster can be triggered by the natural factors: biological (e.g. the insect infestation), geological (e.g. the volcanic activity), hydro-meteorological (e.g. the flood). It is often the sudden event with the tragic effects which causes damages, suffering of people and also changes connected with the affected area.

The aim of this article is to present the issue of financing the counteraction of the natural disaster's effects. Author verifies if spending the measures for the public safety, fire and health protection and the promises make possible to minimize the results of occurring these kinds of phenomena. It is revised on the local level of Lubin county (NUTS 4, LAU 1) and its districts (NUTS 5, LAU 2) in the years 1997-2007.

2. General characteristic of the Lubin county, the chosen natural disasters and their effects

The Lubin county is situated in the north part of the Lower Silesian Province. It borders with the counties: on the north – Polkowice, Głogów, Góra; on the east – Wołów; on the south – Legnica. The county consists of one urban district (GM) – Lubin, one urban-rural district (GMW) – Ścinawa, and two rural districts (GW) – Lubin and Rudna. The Lubin county occupies 712 km². The number of inhabitants is 105 248. The population density is 148 person/km², and the urbanization rate – 79%. During the geological explorations the mineral resources and the ore deposits of the copper, the silver, the salt, the lignite, the gas, the natural aggregate and the sand have been discovered in the county's area. A dominant position among the enterprises in the Lubin county has the mine called KGHM Polska Miedź S.A. The other companies are Zakłady Górnicze Lubin (also the mine) and Huta Miedzi Cedynia (the ironworks) [1, p. 15].

The main part of the county is the rural areas. The Lubin county has the Natura 2000 area called 'Łęgi Odrzańskie' and the nature reserves such as 'Zimna Woda' and 'Skarpa Storczyków'. The main river of the county is Odra (Oder) [1, p. 15].

The largest damages in the area of the county in the years 1997-2007 were caused by the floods (50%), storms (25%) and droughts (25%). These phenomena belong to the group of hydrometeorological disasters. It is worth noting that the seismic activity also occurs in the area of the Lubin but it can not be classified as a natural disaster because it is connected with the mining activities.

Floods occurred in the county in the years 1997, 2001, 2002 and 2006. The most destructive was the Central European Oder Flood in the year 1997 which also affected the Lubin county which is situated in the basin of this river. It caused damages in the examined county estimated to 12 133 thousands Polish zloty indexed to the year 2007 (zł) – 3 423 thousands in the Rudna district and 8 710 thousands in the Ścinawa district [3, p. 126-127].

TAB. 1: Losses caused by the natural disasters in the area of Lubin county in the period 2001-2007 (in '000 of Polish zloty indexed to the year 2007)

County / district	2001	2002	2003	2004	2005	2006	2007
Lubin GM	0	94	0	0	0	197	157
Lubin GW	779	0	0	0	0	6 532	25
Rudna GW	331	0	0	0	0	10 730	0
Ścinawa GMW	7 008	0	0	0	0	12 427	47
Lubin county	0	0	0	0	0	0	0
Lubin county area – total	8 119	94	0	0	0	29 886	229
Total – all years	38 327						

Source: Own study on the basis of data provided by Wydział Bezpieczeństwa i Zarządzania Kryzysowego - Dolnośląski Urząd Wojewódzki we Wrocławiu.

In the years 1998-2000 the natural disasters didn't occur in the Lubin county. In the next year, and also in 2007 (orcan *Kyrrill*), destructive storms affected the county's area. The drought occurred in the examined county in the year 2006. Losses caused by the natural disasters in the area of Lubin county in the period 2001-2007 are presented in the table 1. Total damages in the years 1997-2007 are estimated to 50460 thousands zł.

3. Financial aspects of counteracting the effects of the natural disasters in the Lubin county

For counteracting the natural disasters in the area of the Lubin county responsible are: the Mayor of the Lubin county, the Board and Council of the Lubin county, mayors of the districts and the departments subordinate to them appropriate to the spatial economy, the water management, the environment protection and the crisis management. Particular departments are different by the number of regular employments, nomenclature and the range of performed professional duties. All districts cooperate immediately with the Municipal Police Office, Municipal Fire-Brigade Office, the Municipal Building Supervisor, the County Sanitary-Inspector, the County Veterinary Medicine Doctor, the units of the Voluntary Fire-Brigade (OSP) not connected and connected to the State Extinguish-Rescue System (KSRG) and with other organizations functioning in the area of each district or the entire county.

The measures are being spent for the spatial planning, the public safety, the fire and the health protection and recovering after the natural disasters. The local spatial management plans and other documents concerning the counteracting floods and droughts are prepared in each district. The Lubin

county is in above 77% covered by the local spatial management plans. On the background of Poland and the entire Lower Silesian Province it is a very good result [4, 256].

Expenses for the public safety and the fire protection in the budget of Lubin county and the districts in the Lubin county area in the years 1997-2007 totalled 53 200 thousands Polish zloty indexed to the year 2007. Expenses for the the heath protection in the budget of Lubin county and the districts in the Lubin county area emerged 66 494 thousands zl. The total expenses the public safety, the fire protection the health protection in the examined period amounted approx 120 millions zl [2].

These measures enable executing the rescue actions in the case of occuring the natural disaster. According to the Emergency Management Law, the County Crisis Management Centre (PCZK) and the County Crisis Management Team (PZZK) function in the area of Lubin county[6].

The main respond forces for the disaster consist of the rescue and order-protection units which operate in the intervention procedure and cooperate immediately the the Lubin County Office and the each districts. It means that in the case of receiving the information about the natural disaster, the units start working as soon as it is possible.

The Lubin County Office also cooperates with the District Offices in the county area to estimate the damages caused by the natural disasters. During the years 1997-2007 only two districts – Ścinawa and Rudna received the measures from the Lower Silesian Province Office for removing the effects of the natural disasters. Rudna received 290 thousands Polish zloty (indexed to the year 2007) in the years 1997-1998 and Ścinawa – 7126 thousands in the same period, and in the next years: 2000 – 573 000, 2001 – 100 000, 2004 – 21 000. The total measures from the Lower Silesian Province Office for removing the results of the natural disasters amounted to 8110 thousands Polish zloty (indexed to the year 2007) in the area of the Lubin county.

4. Conclusion

The institutions responsible for financing the counteraction of the natural disasters' effects are the Lubin County Office, particular district offices with the specialized units such as the police or the fire-brigade. The measures are being spent for the spatial planning, the public safety, the fire and the health protection and recovering after the natural disasters.

The measures received by the Lubin county for removing the results of the natural disasters in the period 1997-2007 cover only 8 thousands of Polish zloty indexed to the year 2007. This is only 16% of total losses caused by the natural disasters in the area of Lubin county in the same period estimated on

50 460 thousands zł. In the case of adding the districts expenses for the public safety, the fire protection the health protection (119 693 thousands zł) to the measures received by the Lubin county for removing the results of the natural disasters in the relation to the estimated losses, it is fully covered.

References:

- [1] CZACHOR, K. (ed), *Program ochrony środowiska powiatu lubińskiego na lata 2009-2012 z perspektywą do roku 2016*, Atmoterm S.A., Opole 17.09.2008.
- [2] GUS, Bank Danych Lokalnych. Układ według klasyfikacji NTS, http://www.stat.gov.pl/bdl/app/strona.html?p_name=indeks, 26.11.2011
- [3] KASPRZAK, M., *Wezbrania i powodzie na rzekach Dolnego Śląska*, in: Migoń P. (ed.) *Wyjątkowe zdarzenia przyrodnicze na Dolnym Śląsku i ich skutki*, Instytut Geografii i Rozwoju Regionalnego Uniwersytetu Wrocławskiego, Wrocław 2010.
- [4] ŚLESZYŃSKI, P. (red.), *Stan zaawansowania planowania przestrzennego w gminach*, Wyd. PAN IGiPZ, Warszawa 2007.
- [5] Ustawa z dnia 18 kwietnia 2002 r. o stanie klęski żywiołowej, Dz. U. z 2002 r. Nr 62, poz. 558 z późniejszymi zmianami.
- [6] Ustawa z dnia 26 kwietnia 2007 r. o zarządzaniu kryzysowym, Dz. U. z 2007 r. nr 89, poz. 589 i 590 z późniejszymi zmianami.

ASSESSMENT OF THE SOCIAL-ECONOMIC DEVELOPMENT LEVEL OF THE CHOSEN LOWER SILESIAN DISTRICTS

Arkadiusz Piwowar

Wroclaw University of Economics

arkadiusz.piwowar@ue.wroc.pl

Key words:

development – Lower Silesia – districts

Abstract:

The social-economic development is multidimensional process including the quantitative and qualitative changes. This paper presents the comparative study about the social-economic development level of the chosen Lower Silesian districts. It allows to take hypothesis that the economically strong region - Lower Silesia is internal high diverse. The method of linear classification based on the Hellwig taxonomic development measure is used. The analyses can be practical tool used in the decision-making process of the local governments. The effective management demands diverse knowledge about the social-economic development of the chosen area. Presented in the paper information exemplify the output data for further comparisons with other regions.

Introduction

The issue of socio-economic development is one of the most explored themes of modern economics. At the same time it is a matter siring controversy and discussions [5, 188]. The existing state of knowledge in the topic of research boils down to a number of theories attempting to explain the phenomenon of diversity in the economic sphere. There are also efforts to establish criteria and measures of development evaluation and, consequently of analysis in the extent of state and changes in the economic development of a given area Internal diversification of local and regional development level has become a subject of interest to many researchers [1, 63-76].

In this article was made an evaluation of socio-economic development of three selected districts of Lower Silesia voivodeship. The main objective of the study was to analyse and evaluate socio-economic development of three selected districts of Lower Silesia voivodeship. An additional aim was to identify the relations between the level of socio-economic development and the rate of unemployment in the examined areas.

Methodology And Sources Of Materials

In analysing the level of socio-economic development of the area of research was used a method based on the taxonomic development rate according to the concept of Hellwig. To determine the relative value of taxonomic development rate for selected districts were made sequentially: standardization of variables, determination of development pattern, the calculation of Euclidean distance between test items and the pattern of test items and estimated relative taxonomic development rate [3, 37-44].

The analysis was conducted on the basis of numerical data of the Statistical Office in Wrocław. To assess the level of development were selected 12 variables (Table 1). Variables adopted for the analysis were found to be important in studies of other authors on similar subjects [3, 37-44; 2, 92-97].

TAB. 1: The diagnostic variables adopted for the analysis

Variables	Description
X ₁	population benefiting from sewage treatment plants, in % of total population
X ₂	water supply grid, in km per 100 km ²
X ₃	sewage grid, in km per 100 km ²
X ₄	gas network, in km per 100 km ²
X ₅	hard surface municipal roads, in km per km ²
X ₆	apartments put into use on 10 000 population
X ₇	balance of external and internal migration for permanent residence
X ₈	percentage of employed in agriculture
X ₉	registered unemployment rate, in %
X ₁₀	investment outlays in enterprises according to location per 1 inhabitant, in PLN
X ₁₁	gross value of fixed assets in enterprises per 1 inhabitant, in PLN
X ₁₂	national economy entities registered in the Official Company Register per 10 thousands inhabitants

Source: own elaboration

At the core of building a synthetic development rate lay a belief of the necessity of considerations in multidimensional approach. Jointly for characterizing the level of districts development were used twelve indicators (variables). Adopted for the analysis variable X₉ should be classified as a destimulants. High values of this feature is undesirable from the standpoint of evaluation of research objects. Other variables are stimulants (S).

To determine the relations between a the rate of socio-economic development and unemployment rates in the districts of Lower Silesia voivodeship was calculated Pearson's correlation coefficient.

Results and discussion

Table 2 shows statistical characteristics of the adopted diagnostic variables.

TAB 2: Statistical characteristics of variables adopted to describe the level of socio-economic development in districts selected for this study

Variables	Minimum	Maximum	Gap	Arithmetic mean	Standard variation	Variability coefficient
	$\min x_{ij}$	$\max x_{ij}$	R	\bar{x}_j	$S(X_j)$	$V(X_j)$
X ₁	35,00	63,70	28,70	44,67	16,48	36,90
X ₂	41,61	94,55	52,95	59,39	30,45	51,28
X ₃	10,59	46,72	36,12	26,81	18,34	68,43
X ₄	8,63	36,98	28,34	25,38	14,86	58,54
X ₅	0,17	0,37	0,19	0,27	0,10	35,52
X ₆	1,00	12,60	11,60	5,10	6,50	127,54
X ₇	-2,60	23,00	25,60	6,27	14,50	231,38
X ₈	2,00	7,20	5,20	4,20	2,69	64,06
X ₉	12,60	25,50	12,90	20,03	6,67	33,30
X ₁₀	1653,00	13588,00	11935,00	6008,67	6588,25	109,65
X ₁₁	12555,00	44590,00	32035,00	25357,00	16958,14	66,88
X ₁₂	705,10	1150,30	445,20	922,00	222,82	24,17

Source: own elaboration on base of data of Central Statistical Office

The greatest diversity of districts selected for the study in Lower Silesia is manifested in the balance of external and internal migration for permanent residence, for which the coefficient of variation is 231%. The wide variation of districts is also reflected in the number of apartments completed on 10 thousand people $V(X_6)=127,54\%$ and investments outlays in enterprises per 1 inhabitant of the district $V(X_7)=109,65\%$. The lower differentiation shows the variable characterizing national economy entities registered in the Official Company Register per 10 thousands inhabitants, for which $V(X_{12})=24,17\%$. The variation coefficients for all variables met the condition $V(X_j) > 0,1$. The next stage of the analysis was the standardization of diagnostic variables for the examined objects (Table 3).

TAB 3: Standardized variables in the studied districts

Districts	Variables											
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	X ₁₀	X ₁₁	X ₁₂
kłodzki	1,15	-0,58	-0,20	0,35	1,00	-0,52	-0,61	-0,82	0,82	-0,66	-0,75	1,02
strzeliński	-0,59	-0,57	-0,88	-1,13	-1,00	-0,63	-0,54	1,11	0,29	-0,49	-0,38	-0,97
wrocławski	-0,57	1,15	1,09	0,78	0,00	1,15	1,15	-0,30	-1,11	1,15	1,13	-0,05

Source: own elaboration

The next step of the analysis was to determine the pattern for standardized variables, which was presented in table 4.

TAB 4: Pattern of standardized diagnostic variables

Standardized variables											
X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉	X ₁₀	X ₁₁	X ₁₂
Pattern											
1,15	1,15	1,09	0,78	1,00	1,15	1,15	1,11	-1,11	1,15	1,13	1,02

Source: own elaboration

For a diagnostic variable X₉ was chosen a minimal value (table 5), because this variable is a destimulant. The results of Euclidean distance calculations between objects and the pattern and the estimated relative taxonomic development rate are presented in Table 5.

TAB 5: Euclidean distance and taxonomic socio-economic development rate of surveyed districts

Districts	Euclidean distance d _j	Taxonomic rate m _i
kłodzki	5,40	0,33
strzeliński	5,63	0,30
wrocławski	2,44	0,70

Source: own elaboration

The studied districts of Lower Silesia are diverse in terms of socio-economic development, as evidenced by the size of the proposed ratios for the evaluation of the phenomenon under investigation. Was established a classification of the level of socio-economic development for selected districts according to the rules [3, 37-44]:

- I. Very high level: $m_i > \bar{m} + S(M)$,
- II. High level: $\bar{m} < m_i \leq \bar{m} + S(M)$,
- III. Average level: $\bar{m} - S(M) < m_i \leq \bar{m}$,
- IV. Low level: $m_i \leq \bar{m} - S(M)$, in which

$$\bar{m} = \frac{\sum_{i=1}^n m_i}{n}, S(M) = \sqrt{\frac{\sum_{i=1}^n (m_i - \bar{m})^2}{n}}$$

The size of the relative taxonomic development rate indicates that the Wrocław district has a very high level of socio-economic development. Kłodzko district has a slightly higher level of development rate than Strzelin district, and both district were classified into groups of average level of socio-economic development.

The concept of socio-economic development is very broad, because it contains many different elements, shaping both economic growth as well as social development [4, 53]. Among the characteristics considered most important in evaluating the socio-economic development can be mentioned the unemployment rate. Dependencies between the level of socio-economic

development and the rate of unemployment in the areas examined were presented in Table 6.

TAB 6: Dependencies between socio-economic growth and rate of unemployment in the studied provinces

Districts	Level of socio-economic	Rate of unemployment (%)
wrocławski	0,7	4,6
kłodzki	0,33	23,1
strzeliński	0,3	18,7

Source: own elaboration on base of data of Central Statistical Office

The dependency between socio-economic development rate and the unemployment rate is inversely proportional. The correlation coefficient for these two variables is -0,96. Therefore one can recognize this correlation to be very high, and this indicates the presence of a strong relation between socio-economic development and labour market situation described by unemployment rate.

Summary

The main objective of this study was to determine the socio-economic situation of examined areas. Comparing situation one can see that the Wrocław district was characterized by relatively high levels of socio-economic development. The results also show negative relations between socio-economic development rate and unemployment rates in selected test districts of Lower Silesia.

Numerical characteristics of the studied areas, were presented in this work to determine the state of socio-economic development, they may be the basis for making comparisons of conditions with other areas of Lower Silesia provinces, and whole country. This is a particularly important issue in the context of development activities undertaken by local governments, regional development policy and focusing public intervention at the level of voivodeship and country. Carried out comparative analysis can serve as a basis for interpretation of strengths and weaknesses of provinces, identification of which is necessary to determine their condition and the necessary interventions.

References:

- [1] DOLATA, M. *Wewnętrzne zróżnicowanie poziomu rozwoju gospodarczego województwa wielkopolskiego*, [w:] T. Czyż (red.). Regionalny wymiar województwa wielkopolskiego, Biuletyn Instytutu Geografii Społeczno - Ekonomicznej i Gospodarki Przestrzennej UAM, Seria Rozwój Regionalny i Polityka Regionalna, Poznań 2009, nr 9, ISSN 1898-8326
- [2] JANULEWICZ, P. *Konkurencyjność gmin wiejskich województwa lubelskiego*. Roczniki Naukowe SERiA 2008, t. X, z. 2, ISSN 1508-3535
- [3] JAWORSKA, M., LUTY, L. *Ocena rozwoju społeczno-gospodarczego powiatów województwa małopolskiego*. Acta Scientiarum Polonorum. Oeconomia 2009, nr 8, ISSN 1644-0757
- [4] OPAŁŁO, M. *Mierniki rozwoju regionów*. Wiadomości Statystyczne 1997, nr 3, ISSN 0043-518X
- [5] PIONTEK, B. *Współczesne uwarunkowania rozwoju społeczno-gospodarczego (ujęcie syntetyczne)*. Problemy Ekorozwoju 2010, vol. 5, no 2, ISSN 1895-6912
- [6] *Rocznik Statystyczny Województwa Dolnośląskiego. Podregiony, powiaty, gminy*. Urząd Statystyczny we Wrocławiu, Wrocław 2008

THE ECONOMIC CRISIS AND ITS IMPACT ON THE FINANCIAL SITUATION OF LOCAL AUTHORITIES IN POLAND¹

Marzanna Poniatowicz

University of Bialystok

marzanna@poniatowicz.pl

Key words:

local government – crisis – local authority income – deficit – local debt

Abstract:

This article aims to identify the most significant effects of the current financial and economic crisis on local government finance in Poland. Analysis is presented in relation to changes in local authorities' direct income, the effect of the crisis on their budgetary results and level of debt, and its effect on the extent and growth of their investment activity.

Introduction

Elected local government in Poland was reactivated after four decades of the socialist economy, initially at district (*gmina*) level in 1990, and later at county (*powiat*) and province (*województwo*) level in 1999. The reform of local government was undoubtedly one of the most successful of the Polish reforms carried out after the transformation, and the elected local and regional authorities (2479 districts, 314 counties proper, 65 cities with county status, and 16 provinces) have become a permanent part of Poland's economic landscape, becoming key providers of local public goods and services, significant investors in the public sector, players in the real estate market, as well as active participants in financial markets. The current global economic crisis and the directly related financial crisis are making their mark on the financial affairs of Polish local authorities, bringing about an undoubted crisis in local authority finance. As a result of the economic downturn, reflected among other things in falling GDP, a fall in internal demand, reduction in employment, lower expenditure and increased debt, there have appeared specific worrying changes and trends in local finance, described widely in the relevant Polish literature [9, 278–288] [7, 232–243] [8, 18–33] [1, 137–145]. The first symptoms of this process could be observed in the Polish local government sector as early as 2008, although they have been felt particularly hard in the years 2009–2011. The purpose of this work

¹ Project is financed by the National Centre of Science (*Narodowe Centrum Nauki*), research grant NN113345540.

is to identify the most significant effects of the current economic and financial crisis as it relates to the finances of the local government sector in Poland.

Effect of the crisis on local authorities' direct income

A significant effect of the crisis is the observed fall in direct ("own") income as a proportion of the total budget income of local authorities, which signifies a reduction in their level of financial autonomy (see Table 1).

TAB. 1: Direct income of Polish local authorities compared with total income from 1999 to 2010

YEAR	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total local authority income (bn PLN)	64.9	72.6	79.6	80.0	79.1	91.5	102.9	117.0	129.8	142.6	154.8	162.8
Local authority direct income (bn PLN)	28.3	30.3	32.5	33.5	34.5	47.1	54.9	62.9	74.1	78.3	75.3	78.6
Ratio of direct income to total income (%)	43.6	41.7	40.8	41.9	43.6	51.5	53.4	53.8	57.1	54.9	48.6	48.2

Source: own compilation based on [3].

In 2007 the average value of this indicator for all local authorities stood at 57.1%; however in 2008 it fell to 54.9%, in 2009 to 48.6%, and in 2010 to 48.3%. It should be noted that the reduction in authorities' direct income was associated particularly with those sources which are directly dependent on the economic cycle. This applies primarily to local authorities' shares of corporate and personal income tax.² At present in the Polish system of local finance the combined income from these taxes account for a quarter of local

² Since 2004 Polish local authorities have enjoyed a significantly increased share of personal and corporate income tax, and consequently their financial position has become more tightly linked to the economic cycle. At present, districts receive 36.72% of personal income tax and 6.71% of corporate income tax, while counties receive 10.25% and 1.40% respectively, and provinces 1.6% and 14.0%. It should also be noted that local government finances were negatively affected by the personal income tax reform which reduced the tax rates to 18% and 32% as from 2009 (previously there had been three bands with rates of 19%, 30% and 40%). This was not accompanied by any systemic changes to compensate local authorities for their resulting lost income.

authorities' total income and more than 40% of their direct income, which makes local authority income very sensitive to the economic cycle. Also significant, as regards the observed fall in direct income, has been the stagnation in the real property market, whose marked effects have included a reduction in local authority income from property taxation, lower returns on assets (e.g. earnings from rent and leases), and lower receipts from the sale of municipal property and from tax on civil-law actions.

The crisis and local government investment activity

According to economic doctrine, an expected natural consequence of economic downturn is a slowing of investment activity. This rule, however, has not proved accurate in the Polish local government sector. In 2009 there was a clear increase in capital expenditure, by 35.0% compared with 2008 or by 180.5% compared with 2004 [5, 157]. In 2010 the rate of growth of capital expenditure was smaller (the increase over 2009 was just 4%), but this was mainly due to changes made to the Polish system for the flow of EU funds. Local government remains the most important investor in the Polish public sector, setting a record value of investment in 2010, at a level of more than 43.3bn PLN (about €10.9bn); in that year the highest value of capital expenditure as a percentage of total expenditure was recorded by the provinces (37.5%), and the lowest by cities with county status (21.5%) [2, 13]. It would appear that the observed high level (in spite of the crisis) of local government investment activity is due to two principal factors. The first of these is related to the intensive use by local authorities of European Union assistance as a source of financing for capital expenditure. For several years there has been a systematic increase in the part played in local authority budgets by non-returnable foreign funds (in 2004 these accounted for just 0.9% of total income, while by 2010 this had risen to 7.8%; relative to total budgetary expenditure the corresponding indicators stood at 1.5% in 2004 and 7.6% in 2010) [4]. Over the 2007–2013 financial period, Polish local authorities have become one of the most important groups of beneficiaries from the European funds. They currently disburse about a quarter of the EU funds available to Poland. The position of local authorities has been strengthened not only by the increased total amount of allocation of EU assistance funds to Poland (for comparison: in 2004–2006 under cohesion policy alone the figure was around €12.8bn, while in 2007–2013 it will be €67.3bn), but also by the change made in the current financial period involving partial decentralization of the implementation of operational programmes financed from EU funds and the transfer of a significant part of the competences in this area to the elected provincial authorities. In this way, non-returnable EU funds have become a kind of buffer against the

impact of the economic downturn on local government investment activity. The second factor is the intensive use by local authorities of repayable or debt instruments as a source of financing for local capital expenditure needs. This will be discussed in a later section.

The crisis and budgetary results in the local government sector

One of the consequences of the economic and financial crisis is a growing imbalance between budget income and expenditure, leading to increasing budget deficits for local authorities. According to Eurostat data, in 2010 Poland had, among the 27 EU member countries, the highest ratio of local government deficit to GDP, at -1.1% (this is 2.7 times the EU average, which stands at -0.4%) [6]. A significant worsening in the budgetary results of the Polish local government sector has been recorded in the last three years, the record year being 2010, when the overall deficit in the sector exceeded 15bn PLN (for comparison, in 2008 the figure was -2.6bn PLN, and in 2009 it was -13.0bn PLN) [4, 26]. The highest level of budgetary imbalance is recorded for the districts and for cities with county status and the lowest for provincial authorities and the counties proper. A law is currently being prepared in Poland which would limit deficits in the local government sector. It is planned to introduce an expenditure rule, according to which local authorities would be given four years to reduce their deficit to 1% of their income (for comparison, in 2010 the total deficit amounted to 9% of income).³

The crisis and the high rate of increase in local government debt

For several years there has been a very high rate of increase in debt in the local government sector in Poland, significantly higher than in the central government sector (see Table 2).

³ Also a problem in Poland is the fall in the operating surplus of the local government sector, as observed for the last three years. This is defined as the difference between current income and current expenditure. In 2008 the sector's total operating surplus was 17.8bn PLN, but by 2010 it was 9.3bn PLN. This is a very serious issue, because a fall in the operating surplus means a gradual weakening of investment capabilities in the local government sector, and moreover, under new limits imposed on local government debt in Poland, as from 2014 local authorities will not be able to take on any debt if they returned an operating deficit for the last three years (2011–2013). Had these rules been in effect this year (2011), one in six local authorities would be prohibited from taking on any financial liabilities.

**TAB. 2: Changes in local government debt compared with central government debt in Poland from 1999 to 2010
(before consolidation, current prices in bn PLN)**

YEAR	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total public sector debt	278.2	288.3	314.7	365.4	415.9	440.5	477.1	518.2	537.4	609.4	693.6	778.7
Central government debt	264.9	267.6	285.6	330.7	381.8	405.2	442.3	482.2	503.6	572.7	635.9	705.9
Local government debt	6.2	9.4	14.9	18.5	21.8	24.5	27.3	30.9	31.1	33.9	45.3	59.9
Local government debt as a percentage of total public sector debt (%)	2.2	3.2	4.7	5.1	5.2	5.6	5.7	6.0	5.8	5.6	6.5	7.7

Source: own compilation based on [3].

The observed growth in the borrowing needs of the Polish local government sector has been brought about chiefly by the following factors: the low rate of growth in direct income due to the economic downturn, the previously mentioned fall in the operating surplus in the sector, and the continuing high rate of growth in investment stimulated chiefly by the EU assistance flowing into Poland. In the last case, debt plays the role of an instrument that increases local authorities' ability to absorb EU funds, enabling them to acquire the funds needed for their own contributions to projects.

Summary

Polish local authorities have keenly felt the effects of the current economic and financial crisis. Their direct income has decreased significantly, and thus their indicators of financial autonomy have worsened, the growth in budget deficits has accelerated, and in consequence debt in the local government sector has increased. However, because of EU assistance funds, which act as a kind of buffer against the described phenomena associated with the crisis, there has not been such a radical slowdown in the investment activity of local authorities.

References:

- [1] GORZAŁCZYŃSKA-KOCZKODAJ, M. Zarządzanie długiem publicznym w sektorze samorządowym w warunkach kryzysu światowego (*Management of public debt in the local government sector in conditions of world crisis*), in: Samorząd terytorialny w zintegrowanej Europie (*Local self-government in an integrated Europe*), Zeszyty Naukowe Uniwersytetu Szczecińskiego 2009 No. 526, pp. 137–145.
- [2] Raport Roczny 2011. Sytuacja finansowa jednostek samorządu terytorialnego (*Annual report 2011. Financial situation of local authorities*), PKO Bank Polski, Strategy and Analysis Department, Warsaw, September 2011, p. 13
- [3] Sprawozdania roczne z wykonania budżetów jednostek samorządu terytorialnego za lata 1999–2010 (*Annual reports on implementation of budgets of local authorities for 1999–2010*), Polish Ministry of Finance.
- [4] Sprawozdanie z wykonania budżetu państwa za okres od 1 stycznia do 31 grudnia 2010 r. Informacja o wykonaniu budżetów jednostek samorządu terytorialnego (*Report on implementation of the national budget for 1 January to 31 December 2010. Information on implementation of budgets of local authorities*), Council of Ministers, Warsaw 2011, p. 26.
- [5] Sprawozdanie z działalności regionalnych izb obrachunkowych i wykonania budżetu przez jednostki samorządu terytorialnego w 2009 r. (*Report on the activity of regional auditing chambers and implementation of budgets by local authorities in 2009*), National Council of Regional Auditing Chambers, Warsaw 2010, p. 157.
- [6] *Statistics Database*, Eurostat, www.epp.eurostat.ec.europa.eu, 2011-12-01.
- [7] SZEWCZUK, A. Strategie gospodarowania środkami publicznymi w jednostkach samorządu terytorialnego na tle ujawniających się zjawisk kryzysowych (*Strategies for management of public funds in local authorities in situations of crisis*), in: *Finanse 2009. Teoria i praktyka. Finanse publiczne II (Finance 2009. Theory and practice. Public Finance II)*, Zeszyty Naukowe Uniwersytetu Szczecińskiego 2009 No. 547, pp. 232–243.
- [8] WIEWIÓRA, W. Zjawisko kryzysu finansowego jednostki samorządu terytorialnego i jego implikacje dla państwa (*The phenomenon of local authority financial crisis and its implications for the state*), in: Samorząd Terytorialny 2009 No. 3.
- [9] ZIOŁO, M. Wpływ spowolnienia gospodarczego na gospodarkę finansową gmin – próba oceny (*The effect of the economic slowdown on districts' financial management – an attempted evaluation*), in: Zeszyty Naukowe Uniwersytetu Ekonomicznego w Poznaniu 2010 No. 141, pp. 278–288.

OPTIMAL BEHAVIOUR OF REVENUE MAXIMIZING FIRM

Pavel Pražák

University of Hradec Kralove

pavel.prazak@uhk.cz

Key words:

revenue – firm – marginal substitution – optimal control problem – infinite horizon – Pontryagin's maximum principle

Abstract:

It is traditional to consider a firm as an entity that maximize its profit. This concept of the firm originates from the work of Marshall. If the firm operates under the perfect competition it sets its output in such a way that marginal cost equals marginal revenue. During the history there appeared a different approaches to the managing of a firm. According to Baumol, firms aim to maximize their sales revenue rather than their profit. This idea is known as revenue maximization theory. In the present paper we study a dynamics model of a revenue maximizing firm. The model considers that the firm aims to maximize its revenue within a very long time period.

Introduction

Baumol in his seminal works [2] and [3] argued that many real firms can be considered as a corporation where the ownership is different from the management. Managers are responsible for all operation of the firm and they could have different preferences than owners. Since the sales revenue are often taken to be a sign of managerial success and also bonuses are related to the sales revenue the managers could prefer to maximize the revenue of the firm. Moreover the total revenue of the firm can be taken to be an important criterion of the position of the firm within the market. In this case it is rational to consider the alternative objective of the management to maximize the sales of the firm. The model described in the present paper is based on notes given in [6], [4], [5] and [7].

1. Assumptions of the Model

Consider a representative firm that produces a single good and its production function is $Q = F(K, L)$, where Q is output, $L, L = L(t)$, is labour, $K, K = K(t)$, is capital and $t, t \geq 0$, denotes time. It is considered that F is a strictly concave neoclassical production function and Inada's condition are valid, for more details see e.g. [1]. Since the neoclassical

production exhibits constant returns to scale it is a homogeneous function of the first order and its output can be written as

$$Q = F(K, L) = L \cdot F(K/L, 1) = L \cdot f(k),$$

where $k = K/L$ is the capital-labour ratio, $q = Q/L$ is per capita output, and $f(k)$ that is called intensive production function is defined as $F(k, 1)$. The properties of this function can be found e.g. in [1]. Note that $F_K(K, L) = f'(k)$ is the marginal product of capital and $F_L(K, L) = f(k) - kf'(k)$ is the marginal product of labour.

2. The revenue and the profit of the firm

We will assume that labour can be purchased at the constant unit price of w , $w > 0$. Let the unit price of the good produced by the firm is constant and given by p , $p > 0$. With the given notation the revenue and instantaneous profit of the firm are respectively

$$\begin{aligned} R(K, L) &= pF(K, L), \\ \pi(K, L) &= R(K, L) - wL = pF(K, L) - wL. \end{aligned}$$

While the management of the firm aims to maximize the revenue from sales, it should also consider "enough or more than enough profits" to keep the shareholders satisfied, see [3]. Thus to avoid the possible stockholders dissatisfaction managers consider a minimum acceptable rate of return on capital, say $r_0, r_0 \in (0, 1)$. This means that there exists a lower limit on managerial behaviour defined by $\pi(K, L) \geq r_0 K$.

3. The static model of the revenue maximizing firm

At first we will briefly consider a static model for maximization of revenue of the firm with respect to minimal profit. Such a model can be state as a nonlinear programming problem: $\max pF(K, L)$, with respect to $pF(K, L) - wL \geq r_0 K$ and $K \geq 0, L \geq 0$. Using the Kuhn-Tucker necessary conditions we successively get the relation for the optimal value of capital $\hat{K}, \hat{K} > 0$, and the optimal value of labour $\hat{L}, \hat{L} > 0$, particularly we get

$$\frac{F_L(\hat{K}, \hat{L})}{F_K(\hat{K}, \hat{L})} = \frac{w}{r_0}.$$

with the condition $pF(\hat{K}, \hat{L}) - w\hat{L} = r_0 \hat{K}$. According to this formula the management can set the value of wage rate to gain the maximum revenue of the firm.

4. The dynamics and the objective of the firm

Now we start to deal with the dynamic model of revenue maximizing firm. Let α , $\alpha \in [0,1]$, be a constant rate of instantaneous profit that is reinvested then the investment I , $I = I(t)$, is given as

$$I(t) = \alpha \pi(K(t), L(t)).$$

The dynamics of capital accumulation can be then defined in the following way

$$\dot{K}(t) = I(t),$$

where the initial stock of capital $K(0) = K_0$ is given. Finally the objective of the management is to maximize present value of all future revenues, that is

$$\int_0^{\infty} pF(K(t), L(t))e^{-\rho t} dt,$$

where ρ , $\rho \in (0,1)$ is the average discount rate.

5. Mathematical formulation of the model

To simplify writing let us normalize the the unit price of the good produced by firm as $p = 1$, then $w = w / p$ is both the real and the nominal rate of wage. Now the model can be summarized as follows:

$$\max \int_0^{\infty} F(K(t), L(t))e^{-\rho t} dt$$

subject to

$$\dot{K} = \alpha(F(K, L) - wL),$$

$$K(0) = K_0,$$

$$\lim_{t \rightarrow \infty} K(t) \geq 0,$$

$$F(K, L) - wL - r_0 K \geq 0.$$

It is worthwhile to notice that the variable K is the state variable and the variable L is the control variable.

6. Necessary conditions

To find an optimal solution to the problem introduced in the previous paragraph 6 we use Potryagin's maximum principle, see e.g. [1]. The current value Hamiltonian is

$$\mathbf{H}^c(K, L, \lambda) = F(K, L) + \lambda \alpha(F(K, L) - wL).$$

To add in the inequality constraint (revenue) we also introduce the current value Lagrangian

$$\mathbf{L}^c(K, L, \lambda, \mu) = \mathbf{H}^c(K, L, \lambda) + \mu(F(K, L) - wL - r_0 K).$$

To maximize Lagrangian with respect to control variable $L, L > 0$, we introduce first order conditions as follows

$$\frac{\partial \mathbf{L}^c}{\partial L} = F_L(\hat{K}, \hat{L}) + (\lambda\alpha + \mu)(F_L(\hat{K}, \hat{L}) - w) = 0$$

where (\hat{K}, \hat{L}) is an optimal pair of the problem and moreover

$$\begin{aligned} F(\hat{K}, \hat{L}) - w\hat{L} - r_0\hat{K} &\geq 0, \\ \mu &\geq 0, \\ \mu(F(\hat{K}, \hat{L}) - w\hat{L} - r_0\hat{K}) &= 0. \end{aligned}$$

The dynamics of the adjoint function $\dot{\lambda}$ is given by the adjoint equation

$$\begin{aligned} \dot{\lambda} &= -\frac{\partial \mathbf{L}^c}{\partial K} + \rho\lambda \\ &= -F_K(\hat{K}, \hat{L}) - \lambda(\alpha F_K(\hat{K}, \hat{L}) - \rho) - \mu(F_K(\hat{K}, \hat{L}) - r_0). \end{aligned}$$

7. Intensive formulation of necessary conditions

To characterize some features of optimal solution to the problem we use capital-labour ratio k instead of original variables K, L and intensive production function f instead of production function F . The state equation can be written in the form

$$\dot{k} + k \frac{\dot{L}}{L} = \alpha(f(k) - w).$$

If we use notes reminded in paragraph revenue, particularly $F_L(K, L) = f(k) - kf'(k)$ and $F_K(K, L) = f'(k)$, it is possible to rewrite the necessary conditions as follows: the maximum principle can be restated in the form $M(\hat{k}, \lambda, \mu) = 0$ where

$$M(\hat{k}, \lambda, \mu) = f(\hat{k}) - \hat{k}f'(\hat{k}) + (\lambda\alpha + \mu)(f(\hat{k}) - \hat{k}f'(\hat{k}) - w)$$

and the adjoint equation can be expressed as

$$\dot{\lambda} = N(\hat{k}, \lambda, \mu),$$

where $\hat{k} = \hat{K} / \hat{L}$ and

$$N(\hat{k}, \lambda, \mu) = -f'(\hat{k}) - \lambda(\alpha f'(\hat{k}) - \rho) - \mu(f'(\hat{k}) - r_0).$$

8. Analysis of necessary conditions

The relations $M(\hat{k}, \lambda, \mu) = 0$ and $N(\hat{k}, \lambda, \mu) = 0$ implicitly determine an optimal stationary solution. These relations can be written more explicitly. The details are omitted here and for interested readers we recommend the paper [7].

9. Interior stationary solution

Let us consider that there is a stationary solution k° such that $f(k^\circ) - w - r_0 k^\circ > 0$ then $k^\circ \in (k_l, k_u)$, where k_l and k_u are lower and upper limit for capital-labour ratio. The constraint is not binding and complementary slackness condition yields $\mu = 0$. The inner stationary optimal solution k° can be characterized as a solution to the system of equations $M(k^\circ, \lambda, \mu) = 0$ and $N(k^\circ, \lambda, \mu) = 0$ with $\mu = 0$. The details can be found in [7] and we finally gain the following relation

$$\frac{f(k^\circ) - k^\circ f'(\circ)}{f'(\circ)} = \frac{\alpha w}{\rho}.$$

To show that the stationary solution k° is a feasible solution one need to specify the relation between parameters of the model. This analysis is not given here. Note that the latter fraction can be rewritten as

$$\frac{F_L(\hat{K}, \hat{L})}{F_K(\hat{K}, \hat{L})} = \frac{\alpha w}{\rho}.$$

This formula can be interpreted as the rule for maximization revenue of the firm, it means that the optimal rule is the equality of the ratio of marginal productivity of labour over marginal productivity of capital and the ratio of the product of the wage rate and the rate of reinvestment over the discount rate.

Conclusion

There exist different types of ownerships of the nowadays firms. These differences can lead to the different optimal behaviour of firms. In this paper we study a dynamic model of revenue maximizing firm. We derive the formulas introduced in the paragraph 10. These conditions represent rules for maximization of the revenue of the firm. Particularly we got the equality of the ratio of marginal substitution of labour over capital and the ratio of the wage rate over the discount rate. If the firm is governed by this maximization rule it grows endogenously at the rate directly proportional to the return on capital.

References:

- [1] ACEMOGLU, D. *Introduction to Modern Economic Growth*, Princenton, Princenton University Press, 2009, ISBN 978-0-691-13292-1.
- [2] BAUMOL, W. J. *On the theory of oligopoly*, *Economica*, 25, No. 92, (1958), p. 187 - 198.

- [3] BAUMOL, W. J. *Business Behavior, Value and Growth*, New York: The MacMillan Co., 1959.
- [4] CHIANG, A. C. *Elements of Dynamic Optimization*, Illinois, Waveland Press, 1992, ISBN 978-1577660965.
- [5] CHIANG, A. C. *Fundamental Methods of Mathematical Economics*, 3rd ed., McGraw-Hill, 1984, ISBN 0-07-010813-7.
- [6] LELAND, H. E. *The dynamics of Revenue Maximizing Firm*, International Economic review, **13**, (1972), p. 376 - 385.
- [7] PRAŽÁK, P. On a Dynamic Model of revenue maximizing Firm, In: *Mathematical Methods in Economics 2010*, part II, p. 542 - 547, University of South Bohemia, České Budějovice, 2010, ISBN 978-80-7394-218-2.

The support of the Czech Science Foundation #402/09/0405 is kindly acknowledged.

THE STATE AID FOR ENTERPRISES IN POLAND

Renata Przygodzka

University of Białystok

r.przygodzka@uwb.edu.pl

Key words:

state aid – enterprises – Poland

Abstract:

The article takes up the problem of the state aid for entrepreneurs in Poland. Its purpose is to analyze the scope and structure of the said support as well as its impact on competition. Studies show that the value of public support in 2009 amounted to over PLN 19 billion, meaning 1,43% of GDP. It was granted mainly in the form of subsidies and tax reliefs. Since their purpose was, above all, regional and horizontal support, one may conclude that the negative impact of public support on competition was limited.

Introduction

Poland, due to its being member of the European Union, in the field of legal regulations pertaining to state aid, is subject to EU legislation. Pursuant to art. 107 of the Treaty on Functioning of the European Union (TFEU) state aid is providing financial benefits by a member state or from state sources, in any form, which violates or threatens with violating competition by discriminating certain enterprises or production of certain goods, to the extent it has a negative impact on commercial exchange between the member states [4, 12]. The primary forms of public support include, above all things: subsidies (considered the most desired form, due to the so-called “purity”), reliefs and tax exemptions, capitalization of enterprises on terms more beneficial than the market ones, privileged loans and credits, as well as credit bails and bonds, forbearance on tax collection, delaying the payment date, writing off taxes, interest or other monetary benefits due from the entrepreneur, sales or giving away property of the State Treasury or communal property on terms more beneficial than the ones offered on the market [1, 39-40].

Various forms of support for enterprises are usually the consequence of goals, which are important from the social and economic points of view [2, 9]. Therefore, despite the threat in the field of violation of competition, EU law permits using state aid as compliant with the common market. The purpose of the article is to analyze the scope and structure of state aid granted to Polish enterprises as well as to evaluate the impact of the said

support on competition. The compilation is based on studies of substantial literature and reports of the Office of Competition and Consumer Protection, which as the institution responsible in Poland for public support, collects reports of entities using public support.

Analysis of the level and structure of public support for entrepreneurs

Value of public support granted to entrepreneurs in 2009 amounted to PLN 19,2 billion (circa EUR 4,3 billion according to the currency exchange rate for EUR 1 = PLN 4,3273), which amounted to 1,43% of GDP (table 1).

TAB. 1: Value of public support in years 2006-2009*

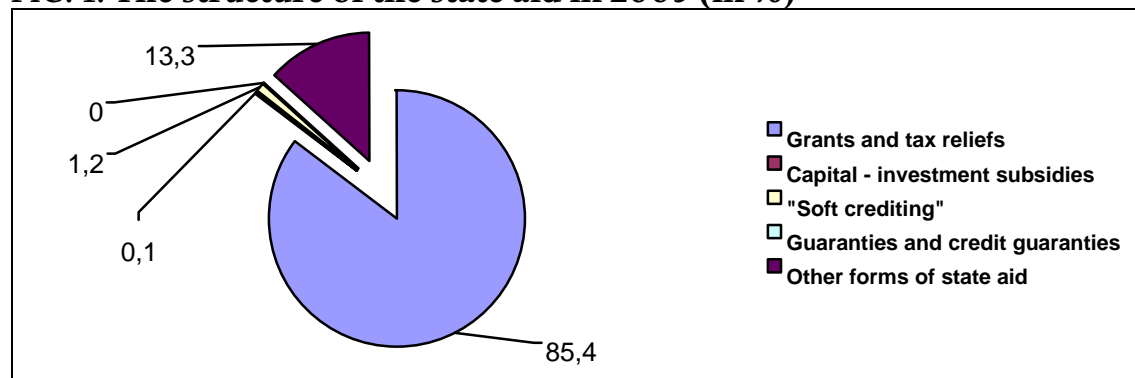
Item	Year			
	2006	2007	2008	2009
Total value of granted support (in billion PLN)	5,85	6,55	14,38	19,17
Value of support excl. transport (in billion PLN)	4,47	4,85	11,52	16,09
Share of the support's value in GDP (in %)	0,6	0,6	1,13	1,43
Share of the support's value in GDP excl. transport (in %)	0,4	0,4	0,91	1,20

* According to EU guidelines, the reports from the public support have not included EU funds till 2007.

Source: [5, 10]

After elimination of the public support granted to the enterprises operating in the transport sector, the value of the support amounted to more than PLN 16 billion and was 40% higher than in 2008. Grants and tax reliefs (PLN 13,7 billion), the share of which amounted to 85% in 2009, were the dominant form of the public support (diagram 1).

FIG. 1: The structure of the state aid in 2009 (in %)



Source: [5, 12]

Such a high share of the support from the group of grants and tax reliefs was a consequence of the increase of the support that was co-financed from EU

funds granted in the form of grants or refunds especially by the Marshals of the Provinces in the frameworks of Regional Operational Programs and in the form of the grants for investments within the scope of environmental protection (from the funds of the National Fund for Environmental Protection and Water Management), for the refund of employment of disabled people (from the funds of the National Disabled Persons Rehabilitation Fund). This group also includes the support associated with a reduction of excise duty on biofuels granted in the form of tax reliefs.

If it is assumed that the direct public expenditure (especially grants) and resignation from the budget revenues are the main methods of funding the public support, then in 2009, the first of these methods concerned 70,5%, and the second one – 29,5% of the granted public support.

Purpose of the state aid

Due to the target destination, the state aid concerns: sectoral aid, regional aid, horizontal aid and other aid.

Sectoral aid is associated with the membership of the recipient to a specific sector and most often it is targeted to the branches of economy that are experiencing the long-term structural problems, such as the excess employment or the excess production capacity. Such support is to facilitate the restructuring or liquidation of these sectors. Currently, the sectoral aid concerns the iron and steel industry, shipbuilding, coal mining, maritime shipping, aviation, electricity production and cinematography. In 2009, the value of this support amounted to PLN 2.7 billion (16,5% of the total value of the support) and, above all, it covered the support for mining of coal to cover extraordinary costs.

Due to the special importance of the regional aid, the European Commission has decided to formalize its policy within the scope of the admissibility of this type of support. Guidelines on the national regional aid for 2007-13 constitute a document in which the European Commission in particular:

- specifies the regions in which the regional support may be granted,
- determines specific purposes of the regional support - this may include:
 - investment support,
 - operating support,
 - support for newly established small enterprises,
- determines detailed conditions for granting regional support for each of the three aforementioned purposes.

Regional aid may be granted in the regions (in the case of Poland, the concept “region” refers to the province) in which the gross domestic product per capita is lower than 75% of the community average. This condition is currently met by all Polish regions. Among the types of regional aid covered in the Guidelines, the investment support is the most important. Such support may be granted only to implement the so called initial investment. This term means: the investment in tangible or intangible assets, related to the establishment of new plant, extension of an existing plant, diversification of production in an existing plant or to the fundamental change of the overall production process in an existing plant.

In 2009, the value of the regional support amounted to PLN w 7,7 billion, i.e. 48,2% of the total value of support. Supporting of new investments and tax reliefs for the enterprises operating in special economic zones was a great part of the support.

Horizontal aid is best defined as support that is unrelated to the beneficiary's activities in the particular section or region and the one that is directed at various targets. These include: environmental protection, trainings, development of small and medium enterprises or employment. Horizontal aid also includes the support aimed at restructuring. The value of the horizontal support granted to Polish entrepreneurs in 2009 amounted to PLN 5,4 billion (almost 1/3 of the total value of the support). It was primarily directed at employment (PLN 2,8 billion), environmental protection (PLN 1,4 billion) and at trainings (PLN 0,7 billion). Apart from the three aforementioned purposes, there are others, not elsewhere classified. They include, among others, supporting the activities of European nature (e.g. supporting the development of the Trans-European Rail network) and protection of the cultural heritage (e.g. supporting the public broadcasters by providing the revenues from radio and TV licence fee). In 2009, value of the support from this group amounted to PLN 0.3 billion and concerned the compensation due for entrepreneurs for the provision of the public services.

De minimis aid

According to EU regulations, the *de minimis* aid, due to its low value, does not threaten to distort the competition within the EU market, therefore it does not constitute the public support within the meaning of art. 107 TFUE. The total amount of such support for a given beneficiary cannot exceed EUR 200 thousand (for the companies operating within the frameworks of the road transport, this limit amounts to EUR 100 thousand) during the three consecutive fiscal years (any *de minimis* aid received by a given entrepreneur, regardless of its source and destination, is taken into account). However,

there are some limitations in granting the *de minimis* aid – firstly, it cannot be granted to the entrepreneur being in a difficult economic situation, secondly, the support must be “transparent”, i.e. it must be possible to calculate *ex ante* gross grant equivalent without the need to conduct the risk assessment. Moreover, in some sectors, the possibility of granting *de minimis* aid shall be subject to specific rules, excluding or limiting the possibility of its granting. This applies to agriculture, fishery, aquaculture, transport and mining of coal. The value of *de minimis* aid increases from year to year and in 2009 it amounted to PLN 3,3 billion, i.e. EUR 770 million [5, 4]. This support came from national funds in 75%. Grants and tax reliefs constituted more than 96% of the *de minimis* aid. Microentrepreneurs constituted $\frac{3}{4}$ of the *de minimis* aid beneficiaries.

Summary

Apart from the analysis of the scope and structure of the state aid granted to Polish entrepreneurs, the aim of the study was also to assess the impact of this support on competition. It is commonly believed that a sectoral aid and support of restructuring, which is the state response to the problems occurring in the enterprises without seeking the causes of such condition, is the greatest threat to competition. Moreover, this risk increases in case when the beneficiary is a large enterprise with significant share in the market and the value of the granted support is significant. Consideration of the aforementioned factors that increase the negative effects on the competition results in the fact that the public support in Poland does not increase this risk. It is shown by the dominant share of the horizontal aid (excluding the support for restructuring) and of the regional aid. However, the percentage of the large enterprises being the beneficiaries of the support is too high. In 2009, it was 54%, which is not beneficial. In spite of this, the significant dispersion of the values of the support results in the fact that the state aid granted to entrepreneurs in Poland is assessed as not distorting the competition.

References:

- [1] CHOROSZCZAK, J., MIKULEC, M. *Pomoc publiczna a rozwój firmy – szanse i zagrożenia*, Warszawa: Poltext, 2009, 192 s. ISBN 978-83-7561-013-0.
- [2] GANCARCZYK, M. *Wsparcie publiczne dla MSP. Podstawy teoretyczne a praktyka gospodarcza*, Warszawa: Wydawnictwo C.H. Beck, 2010, 279 s. ISBN 978-83-255-1534-8.
- [3] *Pomoc de minimis w Polsce udzielona przedsiębiorcom w 2009 roku*. Warszawa: Urząd Ochrony Konkurencji i Konsumenta, 2010, s. 13.

- [4] POSTUŁA, I. *Prawo pomocy publicznej*, Warszawa: LexisNexis, 2008, 495 s. ISBN 978-83-7334-915-5.
- [5] *Raport o pomocy publicznej w Polsce udzielonej przedsiębiorcom w 2009 roku*. Warszawa: Urząd Ochrony Konkurencji i Konsumenta, 2010, s. 78.

MEASURES TO TACKLE CLIMATE CHANGE IN THE WALLOON REGION

Michał Ptak

Wrocław University of Economics

michal.ptak@ue.wroc.pl

Key words:

climate change mitigation policy – carbon dioxide – Belgium

Abstract:

The aim of the article is to overview measures relating to climate change mitigation policy in the Walloon Region. The first part discusses Belgian's commitments under the Kyoto Protocol to reduce greenhouse gas (GHG) emissions and internal burden-sharing agreement between the three Belgian regions. The author also presents the most important strategic documents adopted in the Walloon Region and actions recommended in these documents aimed at limiting GHG emissions. The last part of the article presents some of the instruments used in the region for addressing climate change.

Introduction

The Walloon Region is one of the three regions in the federal state of Belgium. It is located in the south of the country. The other two regions are the Flemish Region and the Brussels-Capital Region.

Environmental and climate change policy in Belgium is implemented on the federal and regional level. Harmonization and synergy between those policies is provided by cooperation agreements between the federal government and all the three regions, coordination bodies (especially the National Climate Commission) and documents (National Climate Plans) [1, 7].

Greenhouse gas emissions in Belgium and in the Walloon Region

Under the Kyoto Protocol, Belgium has committed to cut its GHG emissions from 2008 through 2012 by 7.5 percent from their 1990 level. An agreement between the federal and regional governments specifies individual reduction targets for each of the regions. Wallonia has the highest percentage reduction target of 7.5 percent. Flanders has committed to reduce its GHG emissions by 5.2 percent below base year level. Emissions in the Brussels region can increase by 3.5 percent. It should be noted that the national target would also be achieved by flexibility mechanisms established under the Kyoto Protocol [4, 34; 8, 104].

In recent years GHG emissions in the Walloon Region have significantly decreased [4, 40]. Main reasons for the reduction of emissions in Wallonia

were [1, 41; 5, 21]: improvements in existing industrial processes, more rational energy use, the shutdown of energy-intensive plants (iron and steel furnaces), increased use of biomass in cement kilns, reduction of livestock numbers, mild winters (reduction in heating-related emissions).

Documents relating to climate change policy in the Walloon region

Policies and measures to achieve the Kyoto targets for the Walloon region have been adopted in the regional climate change action plan. The plan was adopted by the Walloon Government in 2001. On 15 March 2007 the regional government approved another action program called “Plan Air-Climat”. The latter program contains about 100 measures and actions aimed to reduce air and GHG emissions in the region. Measures affect all kinds of activities (inter alia transports, energy production and provision, agriculture, forestry) [5, 22]. Table 1 lists some of the measures included in the document.

TAB. 1: Chosen actions and measures adopted in the “Plan Air-Climat”

Action number	Action
5	Consolidation of air quality monitoring system
54	Encouragement energy audits of public buildings (providing information, education)
56	Support for energy-saving investments in public buildings
70	Education about global warming
80	Reduction of the energy consumption of public lighting network
83	Modal shift to rail transport
87	Integration environmental considerations into the vehicle tax system (introduction of the bonus-malus scheme)

Source: [2]

In 2005 the Walloon government adopted the action plan for the Walloon future called „the Marshall Plan“ [6, 93]. This economic recovery plan covered the years 2006-2009 [7, 35]. A continuation of the Marshall Plan is called The Marshall Plan 2.Green. This document provides that during the years 2009-2014 1.6 billion euro will be invested on six priority areas [9]. The program lists specific actions and measures including investing in research on renewable energy.

It is worth noting that other two Belgian regions have also developed their objectives regarding the rational energy use (according to the division of responsibilities in the field of environmental and energy policy in Belgium) [4, 23].

Chosen instruments addressing climate change

Climate change policy instruments in the Walloon Region include inter alia: green certificates scheme, energy certificates for properties, the branch agreements and the bonus-malus system for private vehicles.

The aim of green certificates (issued by the authorities to producers of electricity from renewable sources) is to increase the proportion of electricity from renewable sources. Such schemes exist in Belgium at the federal and regional level (federal government certificates concern the high voltage grid above 70 kV). Green certificates are bought by the final electricity suppliers [8, 107-109, 131]. The green certificates scheme in Wallonia is managed by the Walloon Commission for Energy (CWaPE).

The objective of the certificates is to reduce energy consumption and CO₂ emissions. They describe the actual energy-performance situation of the different components of a building. Calculation includes aspects such as a carcass of a building (walls, roof), heating system, ventilation system, and the renewable energy production system. The validity of the certificate is 10 years [3].

In the branch agreements main industrial sectors (branches) undertake to improve efficiency of energy use. Agreements are based on energy audits, precisely defined objectives and yearly reports. The companies which entered into agreements obtain subsidies that cover part of the cost of the energy audit [5, 25].

Despite an overall decline in the Wallon GHG emissions, emissions from road transport are still rising¹. The instrument to tackle emissions from private vehicles is a bonus-malus system for car purchase (introduced in 2008) [1, 164]. The bonus system applies to vehicles that emit less than 91 g CO₂/km. If a car emits more CO₂ than 155 g/km purchaser pays a penalty (table 2) [10]. The ecobonus-ecomalus system in Wallonia applies not only for the first purchase of a car but also for the replacement of an old car by a new one (second hand cars) [10].

¹ Emissions from this sector doubled from 1990 [1, 41].

**TAB. 2: Bonus-malus system for new cars in the Walloon Region
(rates in euro, valid in the second half of the year 2011)**

Emissions (g CO ₂ /km)	Bonus/malus	Emissions (g CO ₂ /km)	Bonus/malus
0	-4500	176-185	+250
1-20	-4000	186-195	+375
21-50	-3000	196-205	+500
51-70	-1000	206-215	+600
71-80	-750	216-225	+700
81-90	-500	226-235	+1000
91-155	0	236-245	+1200
156-165	+100	246 and more	+1500
166-175	+175		

Source: [10].

It is worth noting that fiscal incentives for reducing GHG and air emissions from road transport are also used at the federal level. The instruments include tax reductions on the purchase price of low CO₂ emission vehicles (cars emitting less than 115 g CO₂/km) [8, 112-113; 4, 59].

Summary

The analysis shows that climate change mitigation and adaptation policy in the Walloon Region is based on strategic documents which contain a large number of actions and measures designed to achieve the federal and regional emission reduction targets. A particularly interesting measure is the car registration bonus-malus system based on carbon dioxide emissions aimed at improving the environmental performance of motor vehicles.

Instruments used at the regional level amplify and complement the climate change mitigation policy tools implemented by the federal government. The examples include not only ecobonus/ecomalus system but also green certificate scheme aimed at promoting renewable energy sources.

Reference:

- [1] *Belgium's Fifth National Communication Under the United Nations Framework Convention on Climate Change*, Brussels: National Climate Commission, 2009.
- [2] DELBEUCK, C. (ed.) *Plan Air-Climat*, Jambes: Direction générale des Ressources naturelles et de l'Environnement, 2008.
- [3] Energy Performance Certificate (EPC), [http://www.certigo.be/en/article/energy-performance-certificate-\(epc\).htm?artid=3432](http://www.certigo.be/en/article/energy-performance-certificate-(epc).htm?artid=3432).

- [4] *Energy Policies of IEA Countries: Belgium 2009 Review*, Paris: International Energy Agency, 2009.
- [5] HECKE, K., ZGAJEWSKI, T. *The Kyoto Policy of Belgium*, Ghent: Academia Press, 2008.
- [6] NAEDENOEN, F. *Belgium: a Corporatist Regime*, in: B. Gazier, F. Bruggeman, S. Moore (ed.), *Restructuring Work and Employment in Europe. Managing Change in an Era of Globalisation*, Cheltenham: Edward Elgar Publishing, 2008. ISBN 978 1 84720 569 8
- [7] NAEDENOEN, F., LISEIN, O., PICHAULT, F. *Anticipating and Managing Restructuring Belgium*, European Commission, 2010.
- [8] *OECD Environmental Performance Reviews: Belgium*. Paris: OECD, 2011.
- [9] *Policy Document. Marshall Plan 2.Green*, <http://www.rim-europa.eu/index.cfm?q=p.policy&n=14145>
- [10] Portail de la fiscalité wallonne: http://fiscalite.wallonie.be/IMG/pdf/Tableau_ecobonus_ecomalus_2011_07_01_S-2.pdf

HARMONIZATION OF DIRECT TAXATION WITHIN THE EUROPEAN UNION

Michał Sosnowski, Arkadiusz Żabiński

Wroclaw University of Economics

michal.sosnowski@ue.wroc.pl, azabinski@ue.wroc.pl

Key words:

fiscal policies – tax harmonization – tax competition – EU countries

Abstract:

In the article the authors describe the measures aimed at the creation of uniform regulations governing the corporate income taxation in the European Union countries also in the context of international tax competition. They discuss how taxation harmonization could affect the development of national economies and the competitive potential of enterprises. The conclusion is that any harmonization of direct taxation, especially done through harmonization of tax rates, might bring significant negative outcomes if it gave rise to increased taxation in the countries which joined the European Union only recently.

1. Introduction

The recurrent topic of public discussions is harmonization of tax policies within the European Union. Harmonization of tax regulations with regard to profits earned by the companies operating within the European Union has been on the agenda – either in the foreground or in the background – since the early 1960s, cf. the Neumark Report [5] and the van den Tempel Report [27], [28]. The activities proposed for this area of economic activity focus mainly on working out some common rules for the application of income tax to the businesses operating within the EU countries. However, the opinions voiced by the researchers and the politicians affluent in the shaping of Communities regulations start diverging when the discussion goes down to the proposed methods of such tax harmonization, see, e.g., [3], [4], [11].

The question still seeking its answer is whether, or how, the introduction of tax harmonization would affect the future economic development of individual EU countries and their competitive abilities in the global economy, as well as how deep unification is possible or advisable.

Tax policy set to reduce tax rates seems a very reasonable one, provided that it leads to the overall diminishing of tax burdens, made up of not only rates but also other elements of the tax system structure. Douglas Holtz-Eakin and

Harvey S. Rosen demonstrated that raising the tax rates results in a slow-down in business activity as companies accumulate less capital and create fewer jobs [16, 24]. Their study covered the years 1985-1988 and thus managed to embrace the outcomes of Ronald Regan's tax reform. Healthy competition leads to streamlining the fiscal policies of competing countries and to the creation of a business-friendly atmosphere. The competition for investment capital is not a zero-sum game which must have its winners and losers, especially in long-term perspective. The competing parties behave rationally in their efforts to secure the optimum environment for economic entities, increasing the efficiency of their public finance systems on the way. This should translate into improved living conditions of the population.

However, we must remember that the income taxation level is not the most significant in making a national economy competitive. Countries which enjoy high-quality infrastructure, stable and transparent legal and tax systems and a large proportion of highly-qualified labour need not fear that investors will seek greener pastures and can keep their taxation relatively high. Conversely, the countries which are at a relatively lower level of development and have less capital offer lower taxation in compensation for their infrastructural shortcomings to remain at least moderately attractive for investors.

This article tries to offer a plausible answer to the question of what style of such harmonization could offer new opportunities to the economies under transformation and if any such style could prove unfavourable to their need for dynamic socio-economic growth and for enhancing their competitive potential in the globalising world of today.

2. The nature of tax harmonization

The European Union has no uniform tax system in place for all the 27 member countries, which means that each nation runs its own tax policies. Importantly, after the common currency was adopted by some EU members, taxation became one of the last economic instruments in the hands of the local and national governments for stimulating the domestic and foreign investments and setting tracks for economic developments within their territory. The aforementioned factors must be considered in the context of the economic situation of the countries which underwent an economic transformation and joined the EU in 2004 or 2007. This leaves us with the still pending question what style of tax harmonization would offer those countries developmental opportunities and what would pose a threat – if our primary concern is the need for socio-economic development and competitive advantage in the globalising world of economy.

Harmonization of fiscal policies is a consequence of a larger process – the progressive economic integration of the European Union member countries. The original objective was to coordinate the fiscal policies of individual EU countries. This involved bilateral and multilateral consultations between them and the execution of agreements on tax cooperation and on the taxation types and levels to be applied. According to Jan Głuchowski, tax harmonization ‘... constitutes a compromise between the low level of coordination and the ideal level of standardisation (the same tax system, very similar tax base and rates)’ [2, 15]. Lekoadia Oręziak echoes him in claiming that tax harmonization may be defined as ‘... a mid-way solution between a loose, non-binding coordination of national taxation rules and their unification in all the member countries’ [25, 141]. Tax harmonization is usually interpreted as the process of unifying separate tax systems to eliminate the fiscal barriers which may distort the free movement of goods, services and factors of production within a uniform market [17, 2].

While with such indirect taxes as value-added tax (VAT) or excise we can already speak about an advanced harmonization process, despite the still existing differences between individual countries in the construction of these taxes, with direct taxation the harmonization process is nowhere that advanced and still in its cradle. There are fundamental differences e.g. in defining the tax base through different accounting rules, in the approaches to capital gains, in different definitions of depreciation or – last but not least – in the tax rates. All those differences sum up to make the effective tax burden on corporate income much different.

3. Harmonization of corporate income taxes

Business activity is profit-oriented by nature, and every tax burden means a reduction in the present or future capital assets of taxpayers. With regard to the corporate income tax, direct taxation reduces the scale of either consumption or business expenditure. Therefore the natural taxpayers’ response is avoidance of such consequences of taxation or the drive to at least minimise its negative impact. The taxpayers’ responsive behaviour may involve tax optimisation within the limits allowed by law, i.e. making use of the tax structure flexibility, or tax-driven migration, frequently referred to as relocation [20, 44-60], i.e. moving the operations to another country. Relocation is a relatively new form of business adaptation to a changing environment, see [24], [10, 191-219]. The relocation process is manifest in the transborder flows of foreign direct investment. The actual scale of this phenomenon is hardly measurable, the difficulty lying *inter alia* in the fact that relocation functions alongside offshoring and outsourcing. Due to the

disparity between the economies of the EU Member States, and between that of the EU as a whole and those of Asian countries, there are certain factors that encourage company relocations: cheaper supply, tax advantages and potential access to new markets, technology and lower labour costs.

Countries with relatively inefficient tax systems can experience significant welfare losses if, as a byproduct of financial integration, they find themselves competing over capital income taxes against countries with relatively efficient tax systems [23, 163–204]. All in all, the relocation process should be beneficial for the whole global economy. Firstly, it makes the highly developed countries get rid of the less advanced sectors of economy and utilize their highly skilled labour more efficiently in the high-tech industries – the use of comparative advantages will facilitate their sustainable economic growth and welfare. Secondly, the host countries gain not only new jobs, but also an increased inflow of FDIs and know-how, thus securing their own economic growth.

The independent decisions taken by individual OECD and EU countries during the recent decades brought about a general trend towards reducing the corporate income tax rates, which reflects the urge to achieve or maintain their competitive advantage in the globalising world. During the 1995-2010 period, the EU-wide average rate of corporate income tax went down by 12.3 percentage points (i.e. by almost 35%) – and it was in just 15 years! Apart from Finland and Malta, all the EU countries reduced their CIT rates, with the most significant reductions applied in Bulgaria (–30 pp), Ireland (–27.5 pp) and Germany (–27.4 pp). The most conservative countries in this respect were Hungary (–0.6 pp), Sweden (–1.7 pp) and France (–3.4 pp) (cf. Table 1). However, when we look only at the recent period of 2008-2010, the change in EU-average CIT rate was only –0.6 percentage points, with most countries showing no change during these years. Hungary makes a special case here: after the CIT rate went up from the initial 19.6% in 2007, it got reduced to 16% in 2009 only to rise again in 2010 to reach 19%. This was mostly the effect of Hungary's problems with implementing the national fiscal policy.

TAB. 1: Corporate Income Tax Rates in EU countries (selected years)

Country	CIT Rates							
	1995	2000	2005	2008	2009	2010	Change 1995-2010	Change 2008-2010
Austria	34	34	25	25	25	25	-9	0
Belgium	40.2	40.2	34	34	34	34	-6.2	0
Bulgaria	40	32.5	15	10	10	10	-30	0
Cyprus	25	29	10	10	10	10	-15	0
Czech Rep.	41	31	26	21	20	19	-22	-2
Denmark	34	32	28	25	25	25	-9	0
Estonia ^a	26	26	24	21	21	21	-5	0
Finland	25	29	26	26	26	26	1	0
France ^b	36.7	36.7	35	34.4	33.3	33.3	-3.4	-1.1
Germany ^b	56.8	51.6	38.3	29.8	29.4	29.4	-27.4	-0.4
Greece	40	40	32	25	25	24	-16	-1
Hungary	19.6	19.6	17.5	21.3	16	19	-0.6	-2.3
Ireland	40	24	12.5	12.5	12.5	12.5	-27.5	0
Italy ^b	52.2	41.3	37.3	31.4	31.4	31.4	-20.8	0
Latvia	25	25	15	15	15	15	-10	0
Lithuania	29	25	19	15	20	15	-14	0
Luxembourg	40.9	37.5	30.4	29.6	28.6	28.6	-12.3	-1
Malta	35	35	35	35	35	35	0	0
Netherlands	35	35	31.5	25.5	25.5	25.5	-9.5	0
Poland	40	30	19	19	19	19	-21	0
Portugal	39.6	37.4	27.5	26.5	25	25	-14.6	-1.5
Romania	38	25	16	16	16	16	-22	0
Slovakia	40	29	19	19	19	19	-21	0
Slovenia	25	25	25	22	21	20	-5	-2
Spain	35	35	35	30	30	30	-5	0
Sweden	28	28	28	28	26.3	26.3	-1.7	-1.7
United Kingdom	33	30	30	30	28	28	-5	-2
Average EU-27	35.3	32.0	25.6	23.6	23.2	23.0	-12.3	-0.6

^a In Estonia, the tax rate on retained gains is 0 per cent. ^b The tax rate also includes a local tax on business.

Source: [18]

It should be emphasized, however, that a straightforward comparison of nominal CIT rates is merely a starting point for any comparative analysis of national tax systems and does not offer a complete picture of their actual arduousness to companies. This is so because individual countries calculate the tax base in different ways. There are many sources of such differences: the range of costs qualifying as business expenses, the depreciation method

applied, the method of reserves creation and accounting for losses, the applicable tax reliefs and credits and so on. Therefore, getting a complete picture requires the use of effective rather than nominal tax rate for comparison. It is only the more favourable effective tax rate that may induce businesses to move their operations as foreign direct investment into countries offering less burdensome taxation.

It is a fact that such a diversification of tax systems, especially with regard to corporate income, requires companies to apply a significant range of knowledge and know-how to be able to function amidst the several tax systems operated within the European Union, which for smaller companies means huge extra costs and frequently undeserved losses. According to the calculations presented by Karel Lannoo and Mattias Levin of the Centre for European Policy Studies (CEPS), the corporate cost of compliance with individual countries' tax regulations may be as much as 2 to 4% of total tax revenues, or between 4 and 8.6 billion euro EU-wide [19]. On top of that, there is the cost of time spent on searching for available tax reliefs, tax havens and tax bonuses – the time that might be as well spent on working out truly innovative approaches and methods of production or services.

So far the common approach to direct tax harmonization worked out between the member countries has been reflected in a few EEC directives. One of them is the Merger Directive (90/434/EEC) setting forth a common system of taxation applicable to mergers, divisions, transfers of assets and exchanges of shares concerning companies of different member states [6]. Its overall objective is to eliminate taxation-related obstacles in the process of restructuring and rationalization of the activities of companies. Another example is the Parent-Subsidiary Directive (90/435/EEC) on the common system of taxation applicable in the case of parent companies and subsidiaries of different member states, especially when the distribution of dividends and avoidance of double taxation is involved [7]. Apart from these, there are also directives dealing with the coverage of subsidiaries' losses as well as a common system of taxation of the interest and licence fees earned [9]. Upon meeting a set of criteria, the method of tax exemption or tax credit is applied in such cases.

A matter of special importance is also elimination of double taxation through adjustment of related companies' profits, covering also the negative phenomenon of transfer pricing. This problem is tackled by the EU Arbitration Convention (90/436/EEC) which establishes a procedure to resolve disputes where double taxation occurs between enterprises of different member states as a result of transfer pricing entailing an upward adjustment of profits of associated enterprises [8].

A road map for harmonization of direct taxation was set by the Ruding Committee Report of March 1992 [26]. The Report exposed huge differences in taxation of corporate profits between individual countries and their distortive effects for the operation of the Communities internal market and competition, as they were factored in while deciding investment locations.

The subsequent EU activities towards stronger harmonization of member countries' corporate taxation policies was development of the *Code of Conduct for Business Taxation*, adopted by the Council of Economics and Finance Ministers (ECOFIN) on 1 December 1997. The Code is a collection of guidelines meant to limit the harmful tax competition and especially tax avoidance and tax frauds.

The outcomes of the discussion initiated by the Ruding Committee Report are the solution proposals, successively put forward since March 2001.

First of all, the solution proposed for the SMEs operating transnationally in Europe consisted in the application of the home state's method of calculating the tax base (HST – Home State Taxation) for the sum total of their internationally earned income. The HST concept was first proposed by Sven-Olof Lodin and Malcolm Gammie [21, 286-294; 22].

Another solution proposed was to determine a common consolidated corporate tax base (CCCTB), see [12; 1]. The EU multinational corporations would have an option of profits consolidation. If operations in one country bring profits and those in another one do not, the profits would be set off with the losses and tax would be levied on the net gains. Should the CCCTB concept be adopted EU-wide, tax rates would become the primary and transparent criterion for the investors to assess the attractiveness of any given territory. It should be noted, however, that there is much emphasis on applying a relatively wide tax base with simultaneous reduction of preferential taxation [13; 14]. Besides, a uniform tax base would bring huge changes in the taxation of multinationals. Today taxes are levied by the corporations' home countries. With the application of the CCCTB concept, tax revenues would be split among the countries where such a corporation runs its business while the general tax amounts paid by multinationals would decrease. His new system would also have a significant impact on CIT revenues earned by individual countries – there would be both winners and losers.

The simulations presented in the report prepared by Ernst&Young in February 2011 (the report was ordered by the Irish Department of Finance to assess the potential impact of CCCTB introduction on GDP, employment and business activity) lead to the conclusion that the largest loss of tax revenues would be faced by Denmark (8.3%), the Netherlands (7.5%) and Ireland

(5.5%). For Poland, tax harmonization based on the CCCTB concept would mean just a minimum loss of tax revenues. The largest increase in budget income would be enjoyed by France (+6.0%), Greece (4.0%) and Latvia (3.8%). In accordance with the report, the new system would bring about numerous relocations, resulting in significant job losses. In this respect, the biggest losers would be Ireland (rise in unemployment by 1.2%), Luxembourg (1.1%) and Poland (1%, i.e. about 160,000 jobs). The winners would be France (rise in employment by 0.4%), Spain (0.1%) and Belgium (0.1%) [15, 4].

Another step made on the way to the EU-wide introduction of CCCTB is the provisions of the Euro Plus Pact, adopted on 25 March 2011 at the European Summit. The Pact assumes the convergence of macroeconomic policies of EU member countries, especially in the areas of competition, innovation, employment public finances stability as well as – significantly – taxation coordination.

The conclusions relating to tax policy states that developing a common corporate tax base could be a revenue neutral way forward to ensure consistency among national tax systems while respecting national tax strategies, and to contribute to fiscal sustainability and the competitiveness of European businesses.

4. Conclusions

Creation of a stable framework for business activity and supporting the investment and developmental projects become more and more important today as globalisation of economic processes eliminates those who cannot keep up with their competitors and gain a sustainable competitive advantage.

The new EU members are generally at a lower level of economic development and can offer fewer incentives to the potential investors than the EU-15. Any attempt at harmonization of tax policies done in an arbitrary way, contrary to the freedom of economic activity, and consisting in harmonizing income tax rates through setting up a minimum rate or rate brackets would be harmful to those economies and might pose a real threat to their economic development.

The flexibility and freedom of deciding their own income tax rates, enjoyed under the present legislation by the EU member countries guarantees a healthy environment for economic activity and fair competition between individual countries. This competition may be beneficial to all the market actors, provided that they make use of their opportunities.

The proposals in the field of harmonizing the corporate income taxation which involve defining a common consolidated corporate tax base (the CCCTB

concept) may raise some fears and are even contested in some EU countries, but they seem more acceptable than the approaches based on a uniform tax rate.

For the economies of Poland and other countries that joined the EU in 2004 or 2007, what is important today is speeding up the economic growth as much as possible. The key actors there will be the enterprises for whom the government must create an environment that would favour expanding their business activity. The necessary environmental conditions are definitely a low tax burden, low cost of labour, efficient administration and transparent, uncomplicated legal regulations, especially those governing the tax system. The low tax and tax-like burden, stable legislation and well-developed infrastructure are at the same time the incentives to attract foreign direct investments.

References:

- [1] *An Internal Market without company tax obstacles achievements, ongoing initiatives and remaining challenges*. COM (2003) 726 final, Brussels, 24.11.2003.
- [2] BRZEZIŃSKI, B., GŁUCHOWSKI, J., KOSIKOWSKI, C. (1998), *Harmonizacja prawa podatkowego Unii Europejskiej i Polski*, PWE, Warszawa, 15 s. ISBN 83-208-1124-4
- [3] CNOSSEN, S. (2001), *Tax policy in the EU*, FinanzArchiv 58, pp. 466-558.
- [4] CNOSSEN, S. (2003) *How much tax coordination in the EU?* International Tax and Public Finance 10, pp. 625-650.
- [5] COMMISSION EUROPEAN ECONOMIC COMMUNITY (1962), *Report of the Fiscal and Financial Committee (Neumark Report)*, Brussels.
- [6] Council Directive 90/434/EEC of 23 July 1990 on the common system of taxation applicable to mergers, divisions, transfers of assets and exchanges of shares concerning companies of different Member States (OJ L 225, 20.8.1990).
- [7] Council Directive 90/435/EEC of 23 July 1990 on the common system of taxation applicable in the case of parent companies and subsidiaries of different Member States (OJ L 225, 20.8.1990).
- [8] Convention 90/436/EEC on the elimination of double taxation in connection with the adjustment of profits of associated enterprises (OJ L 225, 20.8.1990).
- [9] Council Directive 2003/49/EC of 3 June 2003 on a common system of taxation applicable to interest and royalty payments made between associated companies of different Member States (OJ L 157, 26.6.2003).

- [10] DIJK VAN J., PELLENBARG P.H. (2000), *Firm relocation decisions in The Netherlands: An ordered logit approach*, Papers in Regional Science, Springer, vol. 79(2), pp. 191-219.
- [11] EGGERT, W., GENSER. B. (2001), *Is tax harmonization useful?* International Tax and Public Finance 8, pp. 511-527.
- [12] European Commission, *Towards an Internal Market without tax obstacles. A strategy for providing companies with a consolidated corporate tax base for their EU-wide activities*, COM(2001) 582 final, Brussels, 23.10.2001,
- [13] European Commission, *Implementing the Community Programme for improved growth and employment and the enhanced competitiveness of EU business: Further Progress during 2006 and next steps towards a proposal on the Common Consolidated Corporate Tax Base (CCCTB)*, COM(2007) 223 final Brussels, 2.5.2007.
- [14] Common Consolidated Corporate Tax Base Working Group (CCCTB WG), *Request of input from national tax administrations for the Impact Assessment of the reforms at the EU level of corporate tax systems*, CCCTB\WP\ 067, Brussels, 2.4.2008.
- [15] *European Commission and the CCCTB. Hard work ahead*, Tax Policy and Controversy Briefing, Issue 6, Ernst&Young// www.ey.com/IE/en/home (referred on 05/04/2011).
- [16] HOLTZ-EAKIN D., ROSEN H.S. (2001), *Economic Policy and the Start-up, Survival, and Growth of Entrepreneurial Ventures*, Small Business Administration Office of Economic Research, p 24.
- [17] KOPITS G. (1992), *Tax Harmonization in the European Community*, Policy Issues and Analysis, International Monetary Fund, Occasionaly Paper, vol. 94, Washington DC, p. 2.
- [18] *KPMG's Corporate and Indirect Tax Survey*, KPMG International//www.kpmg.com (referred on 15/03/2011).
- [19] LANOO K., LEVIN M. (2002), *An EU Company without an EU Tax? A Corporate Tax Action Plan for Advancing the Lisbon Process*, CEPS Research Report.
- [20] LEAMER, E.E. (1996), *The Effects of Trade in Services, Technology Transfer and Delocalization on Local and Global Income Inequality*, Asia-Pacific Economic Review 2, pp. 44-60.
- [21] LODIN S.-O., GAMMIE M. (1999), *The Taxation of the European Company*, European Taxation, pp. 286-294.
- [22] LODIN S.-O., GAMMIE M. (2001), *Home State Taxation*, IBFD Publications, Amsterdam.

- [23] MENDOZA E.G., TESAR L.L. (2005), *Why hasn't tax competition triggered a race to the bottom? Some quantitative lessons from the EU?* "Journal of Monetary Economics", vol. 52, pp. 163-204.
- [24] *New Location Factors for Mobile Investment in Europe: Final Report*, (1993), "Regional Development Studies" No. 6, Publications Office European Communities, Brussels.
- [25] OREŹIAK L. (2007), *Konkurencja podatkowa i harmonizacja podatków w ramach Unii Europejskiej. Implikacje dla Polski*, Wyższa Szkoła Handlu i Prawa im. Ryszarda Łazarkiewicza, Warszawa. ISBN 978-83-60694-04-6, 141 s.
- [26] *Report of the Committee of Independent Experts on Company Taxation*, (1992) Commission of the European Communities Office for Official Publications of the European Communities, Luxembourg.
- [27] THURSTON, H. (1963) *The EEC reports on tax harmonization. The report of the Fiscal and Financial Committee and the reports of the subgroups A, B and C*, International Bureau of Fiscal Documentation, Amsterdam.
- [28] Commission of the European Communities, *Corporation tax and individual income tax in the European Communities (van den Tempel Report)*, (1970), Competition – Approximation of Legislation Series No. 15, Luxembourg.

INVESTMENT GAMES AND SIMULATORS IN THE CZECH REPUBLIC

Libuše Svobodová

University of Hradec Králové

libuse.svobodova@uhk.cz

Key words:

investment – game – simulator – comparison

Abstract:

In the article, there are shortly described games and simulators that are aimed at investment in the capital or currency market in the Czech Republic. We can divide them into two groups. In the first one there are presented games and simulators that can be played for the whole year. Those simulators are mostly demo versions of the real investment environments. The second one concludes the competition Stock Market Challenge - Euro Campus. For competition it is typical that it is possible to use only in the special periods of time, when the competition is running. It should be disadvantage for somebody.

Introduction

The investment games and simulators should be very important for students, trainers. Students can try the investment theories and they should get the competitive advantage for the next time. It can be great for their economic and personal development. They can apply maths and business know-how from their studies and try investment without losing money in the case of the bad investment decisions. On the other side they will not get the profit from their trades.

In the next parts there will be described five games and simulators that can support better decision making in the sphere of investment making.

The whole year games and simulators

Investment Game Plus500

Web page <http://www.plus500.cz/> contains both, the topical trading on financial markets and also the possibility of a demo version for trading on financial markets, which is available free of charge to the general public without time limits. In this article we will address in particular the description of the demo version of the program for trading where the players have a fictitious entry of amount 244,000 CZK. With this amount players may invest in stocks and bonds. At the beginning you need to install the program the Plus500 demo and then just enter the user name and password. The installation is really fast and it takes a few minutes.

This environment looks solid at a glance. It is possible to choose versions in the Czech or English Language. Environment looks like complex. It includes more areas - Forex, commodities, indexes and shares.

- Forex - it is possible to trade currencies. They monitor changes after five minutes on the market. It is divided into three parts according to the rates.
- The purchase of commodities – trading in gold, oil, natural gas, silver, platinum, com, fuel oil and other commodities.
- Shares traded – trading both with European and US shares.
- Indexes - stock market index is a basic statistical indicator describing the development of the entire stock market. For investors the basic indicator that tells them how the market evolves over time whether it grows, falls or remains stable.

The trading is easy and clear for investors. For example, when we buy the stocks it is necessary to click on paper which we are interested in and we can see immediately how its course evolves. This course and in particular its graph is shown below the offer of stocks and securities. This is a well structured environment and trade. In the left down corner there is automatically updated any gain or loss. On weekdays, it is traded from ten o'clock to half past six. On Fridays, the stock market closes at twenty minutes past six and it opens on Monday at nine o'clock.

Citfin

The investment game Citfin focuses on currency trading which speculates on the development rate of a currency. The game is played online on web pages <http://www.citfin.cz/cz/homepage.html>. There is therefore no need of special software and so the game can be played from any computer, immediately after login.

The initial deposit that we have available at the beginning is 200,000 CZK. The players can see their gains or losses on the account, the status, profitability, return per annum, the rank total and rank in the group. Players have given indicative limits for trade. On the left side there is the Exchange list - select EUR, USD, GBP with the option to view the entire Exchange list. There is the development of the course where you can scroll the menu to select the currency and display a graph of the development of the course. You can also choose the interval (day, week, month, 14 days). In the middle of the bottom there are the exchange rates (EUR, USD, CHF, GBP, JPY100) that may be used for the investment between different currencies.

Conditions for trading are clearly explained at the beginning. The game is based on the so-called leveraged buy-outs. This means that for the coverage

of trade you can use only a 5% fraction of its value. If you buy dollars in the value of 100,000 CZK you need to deposit only 5,000 CZK, which covers the potential loss. If you do not have 5% of the amount you cannot make the transaction. You can also close some open positions in order to make the transaction. When you get into red numbers, your access is closed.

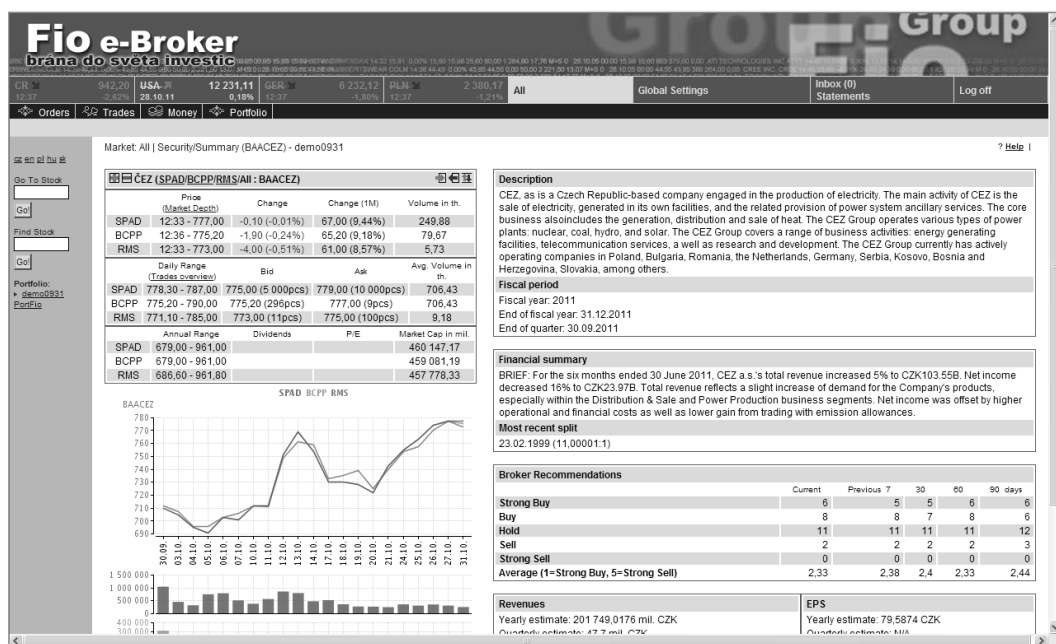
The demo version lasts 30 days. It is possible to make professional investment on www.citfin.cz and the demo version looks the same as the professional. The game is available only in the Czech language.

FIO e-Broker

The game deals with the buying and selling of the stocks and bonds. It is an online version. Students don't need any special program. They need only the registration on the web pages <https://www.fio.cz/akcie-investice/interne-tove-obchodovani/demo-e-broker>. In the demo version you can safely try out almost all the functions with the exception of real submission instructions, purchase and sales with various parameters. Work in the environment is complex. Demo application works quickly and reliably. It is possible to set various advanced features in the investment decisions. The players can buy and sell shares in the Czech environment and by one click all changes into English. It can be a competitive advantage. Players can learn new terminology and examine their language knowledge.

Figure 1 contains the demonstration about development shares of ČEZ company in 30 days in the simulator e-Broker from Fio.

FIG. 1: Information about shares in environment Fio e-Broker



Source: [3]

The demo version is limited to 30 days. There are some restrictions in the demo version in comparison with the official investment environment by investing into stock papers and other investments. In the environment there are clear and transparent tables and graphs that present the changes in the rates. On the other hand, at the beginning it is hard to orientate in doing the business because of the rules and knowledge necessary for trading. There could be more pieces of advice for beginners concerning the necessary steps in the process of buying and selling of shares on the market (how many shares it is possible to buy, what price is good, etc.).

FIO StudentBroker

RM-SYSTEM, the Czech stock market securities and Fio Bank, the largest domestic on-line broker, prepared in cooperation with Czech universities as study interactive program through which students can simply use the new knowledge and experience in the field of capital market. The application is running from the web pages <http://www.studentbroker.cz>. This simulator is used for training at Czech universities. Students can sign into the system as a part of lectures and seminars.

The competition

Stock Market Challenge - Euro Campus

The last described game is Stock Market Challenge – Euro Campus. It transforms trading on the financial markets into an accessible and enjoyable collaborative learning experience. It is an effective tool for trainers and also for teachers. In the competitive it is possible to apply maths and business know-how. The game deals with the buying and selling of the stocks and bonds. It is an online version. Students don't need any special program. They need only the registration on the web pages <http://campuschallenge.stocktrak.com/home.aspx>. The game contains the ranking of the top players. Table of the top ten players very often, even several times a day, change. It is not unusual that in one week there are on the first three places students with up to 800% and the next week there are at the top people with only 70% appreciation. It can be concluded that in the game no strategy is probably worthwhile in the long term and if so, it does not work as well as at the beginning. The game is spread at many universities, high schools and elsewhere. The best three players are awarded at the end of the game. Players trade for two month and at the beginning they have € 100,000.

It is not possible to work and invest in the environment for the whole year. In 2011, the third year of the competition between the investors in the Czech Republic was launched on 17th of October 2011. The game ended in December.

The next game will start in next months. The given time may be for somebody a disadvantage. The competition is in the Czech Republic under the protection of the Patria Direct company.

Summary of the Investment Games

The presented article is devoted to the educational research of the simulators and games that are used for simulating of the trading with stocks, bonds, currency or commodities. Those simulators can support better economic and investment decision making of involved people. In the comparison there were selected simulators which deal with different areas of the investment. The next possibility was to select simulators which can be used throughout the year or vice versa. In the Czech environment there are the products of companies that regularly organize comparative competitions for students. Each simulator that was presented in this work is different in the offered options.

Investment game Plus500 should be mentioned as the most comprehensive game. Players may trade with currencies, commodities, equities and indexes. The investment game which provides Citfin deals only with the currency trading. The next of the described games e-Broker from the Fio focuses on trading in shares and StudentBroker trade with shares, and with derivatives. Stock Market Challenge is a regular competition in which stocks and options are traded.

Acknowledgement

This research has been supported by the Grant Agency of the Czech Republic project No. 402/09/0662 (Decision making processes in autonomous systems).

References:

- [1] <http://www.plus500.cz/>
- [2] <http://www.citfin.cz/cz/homepage.html>
- [3] <https://www.fio.cz/akcie-investice/internetove-obchodovani/demo-e-broker>
- [4] <http://www.studentbroker.cz>
- [5] <http://campuschallenge.stocktrak.com/home.aspx>

OPOLE VOIVODSHIP: PROSPECTS FOR LOW-TECHNOLOGY MANUFACTURING INDUSTRY

Mirosława Szewczyk

Opole University of Technology

m.szewczyk@po.opole.pl

Key words:

low-technology – manufacturing industry – Opole Voivodship

Abstract:

The identification of comparative advantage of sector is very important. The main purposes of the study are: (1) analysis of employment, sold production in low-technology manufacturing industries in Opole Voivodship, (2) identification of growth patterns in 2008-2010 period in the context of trends observed in Poland. The study uses data from the Central Statistic Office. Best-developed low-technology industry in Opole Voivodship is manufacture of food products.

1. Introduction

In the context of economic globalization, technology is a key factor in enhancing growth and competitiveness in business. The viability of the non-research-intensive industrial sector in Poland cannot be ignored. This study uses Eurostat aggregation of the manufacturing industry (Eurostat uses the aggregation of the manufacturing industry according to technological intensity) [2, 1-2].

The spatial distribution of economic activity is one of the most research topics. Szewczyk, Tłuczak and Ruszczak compared activity at the regional level (voivodship) to the national level [3, 82-104; 3, 105-119]. Szewczyk, A. Zygmunt and J. Zygmunt examined financial condition of companies in Opole Voivodship in a development prediction context [5; 8, 93-98]. Collaboration and networking between companies of different industries at regional level are important determinants of the competitiveness of individual companies and regional (or local) development [6, 120-138; 7, 139-173]. The sub-sectors in Opole Voivodship in which the development of clusters are the most likely are: agriculture, food industry, chemical industry, wood industry, power generation as well as tourism, accommodation and catering [7, 139-173].

The main purposes of the study are: (1) analysis of employment, sold production in low-technology manufacturing industries in Opole Voivodship, (2) identification of growth patterns in 2008-2010 period in the context of

trends observed in Poland. The study uses data from the Central Statistic Office [1].

2. Data and method

The data by kinds of activity are presented in accordance with the Polish Classification of Activity (PKD 2007). Polish Classification of Activities PKD 2007 was compiled on the basis of Statistical Classification of Economic Activities in the European Community – NACE Rev. 2. PKD 2007 was introduced on 1st January 2008 by the decree of Council of Ministers to replace the formerly applied PKD 2004. This study uses data from the Central Statistics Office of Poland for the empirical analysis of sectors in Opole Voivodship. The data are taken of the free on-line data base of the Central Statistics Office of Poland [1].

This study uses Eurostat aggregation of the manufacturing industry [2, 1-2]. Eurostat uses the aggregation of the manufacturing industry according to technological intensity and based on NACE Rev. 2 at 2-digit level for compiling aggregates related to high-technology, medium high-technology, medium low-technology and low-technology (Eurostat, 2011). The following divisions are classified as low-technology: Manufacture of food products (10), Manufacture of beverages (11), Manufacture of tobacco products (12), Manufacture of textiles (13), Manufacture of wearing apparel (14), Manufacture of leather and related products (15), Manufacture of wood and of products of wood (16),

Manufacture of paper and paper products (17), Manufacture of printing and reproduction of recorded media (18), Manufacture of furniture (31), Other manufacturing (32) [1, 1-2].

3. Empirical results

There were 4,459 companies in low-tech industries in Opole Voivodship in 2010 (table 1). It can be useful to place Opole Voivodship's manufacturing sector in the context of trends observed in Poland (tables 1-2). Employment in the Polish manufacturing sector has declined slightly over the last 3 years. Table 2 shows the composition of manufacturing employment in Poland and Opole Voivodship for the period 2008-2010.

TAB 1: Low-tech manufacturing industry, 2009-2010

Specification	Opole Voivodship		Poland	
	2009	2010	2009	2010
Number of low-tech entities	4,288	4,459	189,231	197,268
Shares of low-tech entities in total manufacturing	52.7	58.3	61.6	61.5

Source: own calculations based on Central Statistical Office data.

TAB 2: Average paid employment in low-tech manufacturing industry in thous., 2008-2010.

Specification	Poland		Opole Voivodship	
	Low-tech # (10-18, 31)	Manufacturing industry	Low-tech # (10, 16-18, 31)	Manufacturing industry
2008	908	2,173	15.2	55.0
2009	853	2,027	14.7	51.4
2010	842	2,013	14.9	49.5

- some of the data may not be published due to the necessity of maintaining statistical confidentiality in accordance with the Law on Public Statistics (concerns: 32 – in Poland, 11-15 and 32 in Opole Voivodship).

Source: own calculations based on Central Statistical Office data.

Low-tech industry plays a very important role in employment in Poland. Referring to data from Poland low-tech industry accounts for over 40 percent of employment in the whole manufacturing sector whereas the share of high-tech industries is 4 percent. In the short run, the sector shows a stability share of the employment in manufacturing.

TAB 3: Sold production of industry in million PLN, 2008-2010

Specification	Poland		Opole Voivodship	
	Low-tech # (10-18, 31)	Manufacturing industry	Low-tech # (10, 16-18, 31)	Manufacturing industry
2008	123,938	769,679	3,873	18,949
2009	123,078	741,741	3,840	16,716
2010	132,550	843,433	4,186	15,150

- some of the data may not be published due to the necessity of maintaining statistical confidentiality in accordance with the Law on Public Statistics (concerns: 32 – in Poland, 11-15 and 32 in Opole Voivodship).

Source: own calculations based on Central Statistical Office data.

There has been a tendency for the employment in the manufacturing sector in Poland and Opole Voivodship to decline during the period 2008-2010.

A similar trend can be observed regarding the sold production of manufacturing in Opole Voivodship. The low-tech sector continues to evince remarkable stability and a high share of employment and sold production.

There are three large manufacturing sub-sectors, together accounting for about 40% of employment in Opole Voivodship. These are: (1) manufacture of food products (low-tech industry), (2) manufacture of metal products (medium-low-tech industry), and (3) manufacture of motor vehicles, trailers and semi-trailers (medium-high-tech industry). Each of these sectors contributes over 10% of manufacturing employment.

Manufacturing sold production in Opole Voivodship has increased (table 3). There are three large manufacturing sub-sectors in Opole Voivodship, together accounting for 50% of sold production. These are: (1) manufacture of food products (low-tech industry), (2) manufacture of chemicals and chemical products (medium-high-tech industry), and (3) manufacture of other non-metals products (medium-low-tech industry). Each of these sectors contributes over 10% of manufacturing sold production.

Food manufacturing sector contributed 15% of employment and 19% of sold production of manufacturing in Opole Voivodship in 2010. There are now over 900 entities in manufacture of food products. The competitive advantage for Opole Voivodship food manufacturing lies in the following areas: tradition, capability to produce world class products, and foreign capital flow into the sector, strong presence by large multinationals selling food around the world (Cadbury, Nutricia, Zott).

5. Conclusions

The viability of the low-tech manufacturing industry sector in Opole Voivodship cannot be ignored. There were 4,500 companies in low-tech industry in Opole Voivodship in 2010 (over 58 percent of entities).

There are the findings:

1. Low-tech industry plays a very important role in employment and sold production in Opole Voivodship.
2. Specialization has long been understood to be an important source of productivity growth. The manufacture of food products (low-tech industry) is very important for Opole Voivodship (15% of employment and 18% of sold production of manufacturing in 2010).
3. In relation to the year 2008 and 2009, in 2010 in Opole Voivodship, there was a slight change in sectors' composition. In the short run, low-technology manufacturing industry shows a stability share of the employment and sold production of manufacturing. It seems to be necessary to carry out a comparative research for the consecutive years.

References:

- [1] Central Statistical Office, 2011, [online] <http://www.stat.gov.pl>
- [2] *Eurostat aggregation of the manufacturing industry*, 2011, [online] http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/htec_esms_an3.pdf
- [3] SZEWCZYK, M., TŁUCZAK, A., RUSZCZAK, B. *Analiza koncentracji*, [in:] W. Duczmal, W. Potwora (Eds.), *Projekcja rozwoju inicjatyw klastrowych w województwie opolskim*. Opole: Wydawnictwo Instytut Śląski Sp. z o.o., 2011, p. 82-104. ISBN 978-83-62683-09-3
- [4] SZEWCZYK, M., TŁUCZAK, A., RUSZCZAK B. *Potencjał województwa opolskiego w kontekście analizy zmian udziałów branż*, [in:] W. Duczmal, W. Potwora (Eds.), *Projekcja rozwoju inicjatyw klastrowych w województwie opolskim*. Opole: Wydawnictwo Instytut Śląski Sp. z o.o., 2011, p. 105-119. ISBN 978-83-62683-09-3; ISBN 978-83-62105-77-9
- [5] SZEWCZYK, M., ZYGMUNT, M. *Opolskie Voivodshp: prospects for manufacture of food products sector*, 2011 – in printing
- [6] TŁUCZAK, A., SZEWCZYK, M., RUSZCZAK, B. *Analiza wyników pierwszej rundy badania delfickiego*, [in:] W. Duczmal, W. Potwora (Eds.), *Projekcja rozwoju inicjatyw klastrowych w województwie opolskim*. Opole: Wydawnictwo Instytut Śląski Sp. z o.o., 2011, p. 120-138. ISBN 978-83-62683-09-3; ISBN 978-83-62105-77-9
- [7] TŁUCZAK, A., SZEWCZYK, M., RUSZCZAK, B. *Analiza wyników drugiej rundy badania delfickiego*, [in:] W. Duczmal, W. Potwora (Eds.), *Projekcja rozwoju inicjatyw klastrowych w województwie opolskim*. Opole: Wydawnictwo Instytut Śląski Sp. z o.o., 2011, p. 139-173. ISBN 978-83-62683-09-3; ISBN 978-83-62105-77-9
- [8] ZYGMUNT, A., ZYGMUNT, J. *Istota i znaczenie działalności inwestycyjnej opolskich przedsiębiorstw w kreowaniu rozwoju regionu*, [in:] *Programowanie rozwoju regionu. Ład ekonomiczny i środowiskowo-przestrzenny*, Heffner K. (Ed), Opole: Wydawnictwo Instytutu Śląskiego, 2007, p. 93-98. ISBN 978-83-7511-053-1.

PRACTICALLY VERIFIED CONCEPTION OF LOCAL DEVELOPMENT STRATEGY CONSTRUCTION PROCEDURE

Andrzej Sztando

Wroclaw University of Economics
andrzej@sztando.com

Key words:

development strategy – strategic planning – territorial self-government unit

Abstract:

The article is devoted to strategic planning issues in communes and districts. The author presents his own model procedure for the construction of territorial self-government unit development strategy. It was constructed based on self-government experiences, professional literature, as well as research and implementation studies conducted in a few dozens of European self-government units. The main body describes nineteen stages of territorial self-government unit development strategy construction.

Introduction

Planning of activities to be carried out by local self-governments takes place everywhere such authorities function. It is indispensable in order to execute numerous functions for which they were appointed. One of such plans has special significance since it covers the most extensive spectrum of the above activities, its time span is usually the longest and the role regarding all the other plans is superior. It is obviously the strategy of development. A single universal procedure of strategic planning does not exist. Theoretical studies quote many recommendations in this domain. What is more, in real life practice the recommended procedures are almost always modified later, supplemented by additional stages, or used only partially. Therefore, the author decided to take up the challenge of constructing a model standard for the procedure of establishing territorial self-government unit development strategy based on both contemporary professional literature and his personal experience. The result of the above research and conceptual activities was practically verified in the period of 2009-2010 in the dozens of Polish communes and brought about highly positive effects.

Attributes of a correct strategy

Strategic planning procedure, in a territorial self-government unit, represents the set of activities which are aimed at establishing its correct strategy. Strategy prepared in a correct way is the one which meets numerous condi-

tions. It is not possible to present them all in the hereby study, therefore only the crucial ones are discussed. The first condition to meet by an exemplary strategy is to prepare it for properly identified area as well as active and potential external factors which are influencing or could influence the evolution of the given area attributes. Another condition is the application of strategic analysis adjusted to features characteristic for a given territorial self-government unit. Next condition to be met by a correctly prepared strategy is the coverage of not just the self-government's own tasks, but also optional ones, i.e. extending the scope of obligations imposed by due Acts. Additionally, it cannot miss an implementation system consisting of entities responsible for strategy realization. It is also equally important to monitor progress in accomplishing the defined objectives.

The stages of strategy construction

Stage one – the decision to join strategic planning. Such decision is most frequently taken by the territorial self-government decisive body in the form of resolution. But it may be taken by an territorial self-government executive body, after informing decisive body about it. Stage two – an entity is chosen which is responsible for strategy draft preparation. The first available solution is to carry out all due work by the self-government only, i.e. without external experts participating. The second solution consists in entrusting all planning work to them. Practice, however, shows that the most frequently accepted solutions are these in between of such extremes, based on close co-operation of local authorities representatives and self-government administration with workers of a selected consulting company.

Stage three of the strategy construction – prospective diagnosis. It consists in collecting and analyzing correctly all data describing the past, present and substantially predictable future of territorial self-government unit attributes. One of the key requirements to face is the credible description of a broad spectrum of properties characteristic for a given territorial self-government unit and factors influencing it. Stage four – public opinion diagnosis. The best way to perform it is by means of opinion surveys conducted among natural persons inhabiting a given territorial self-government unit, and owners or top executives of economic entities conducting business activity in its territory. The purpose of such diagnosis is to identify aspirations, expectations, concerns and ideas of respondents related to self-government unit, as well as its broadly understood economy, community and natural environment. Key factors helpful in obtaining success by means of surveys application are as follows: correctly prepared questions and optional answers, proper choice of survey sample, full involvement of respondents and skilful

analysis of results. Stage five and six should be implemented together with stage three and four. Fifth stage consists in appointing the team of leaders. The team of leaders in a self-government unit, is the group of local community representatives. It includes members of the self-government unit decisive body, managers of major enterprises, political organizations and trade union leaders, management of NGOs, management of local centralized and non-centralized administration units, municipal units management, and also self-government authorities of higher and parallel levels. The goal behind appointing such team is its participation in the process of strategy construction, which is supposed to result in its high quality.

Stage six carried out parallel to stage five represents social consultancy conducted most often in the form of strategic workshops together with the already discussed team of leaders. The objective of workshops is to exchange ideas among participants regarding: properties of a territorial self-government unit, strategic and operational objectives, projects to be carried out in order to accomplish the above goals, and their own role in strategy implementation.

Stage seven – strategic analysis. It is the next step of diagnostic activities. It consists in such processing of information collected in previous stages (from 3 to 6) which will allow for their selection by applying substantiality and occurrence probability criteria. Strategic analysis becomes therefore fundamental and substantial for the results of further planning, including mainly the vision for strategy object development, as well as goals and priorities of strategy subject activities. One of the most often applied strategic analyses is SWOT analysis. But there are new concepts, that better adjusted to self-governments requirements, e.g. a SWOT Plus method. It divides a given self-government profile, and factors which influence it, into 8 groups: strengths, weaknesses, internal opportunities, internal threats, stimulating agents, destimulating agents, external opportunities, external threats [1, 113-159].

The following, eighth stage deals in the construction of mission and vision of a territorial self-government unit. The mission means answering a question: “Why do you exist?”. According to the author, the reason for territorial self-government units existence is defined by performing certain public tasks specified by due Acts. Therefore each unit’s mission is to serve the community inhabiting its area. However, such role is frequently specified in more detail. In such situation the mission constitutes an explanation of reasons underlying the preparation of such development strategy. On the other hand, unit’s vision constitutes the descriptions of its future state, which is supposed to be created by a given entity as the result of this strategy implemen-

tation. It is also the starting point to create further strategy components such as objectives, priorities and tasks. Next constructing of objectives and defining priorities (stage nine) should take place. Fulfilling self-government's mission in order to obtain the state described in the vision requires undertaking mutually coordinated activities. The first key phase of such coordination is defining objectives which the strategy subject intends to accomplish. They have to be clear and transparent, leaving no doubts that they stay in line with the mission. Among such objectives the most important, strategic ones are distinguished, as well as subordinate, intermediary (partial) ones, called operational objectives. There should be just few strategic objectives and refer to economic, social and environmental sphere of territorial unit development. Operational objectives represent an intermediary link between strategic objectives and the third structural component, namely strategic tasks. Apart from strategic and operational objectives also priorities are distinguished. They represent elements of operational goals, accomplishing which is most important for the unit development and should take place as soon as possible.

After specifying objectives it is time to define strategic tasks (stage ten), i.e. organization, modernization, investment, information, diagnostic, law-making and restructuring oriented activities, implementation of which constitutes the condition for meeting operational objectives and indirectly strategic ones. Strategy incurs choice. It is not possible to meet, in a few years or even a few decades, all needs expressed by inhabitants of any territorial self-government unit and economic entities functioning in its territory, as well as different institutions or organizations. In such situation it would turn out irrational to construct an extensive list of strategic tasks responsible for all present and future expectations of all territorial unit users. Therefore it is necessary to choose what is the most important or, in other words, strategic. It must be based on the results of strategic analysis described in the previous chapter, as well as on the review of particular tasks significance for the development of economic, social and environmental sphere of a territorial unit. Therefore many factors have to be considered such as e.g.: spatial range, time and expenditure of implementation, financing sources, type, value, scope of implementation results and length of their functioning.

Stage eleven is the verification of horizontal and vertical compliance. Each self-government functions in a broadly understood environment. Relations with this environment are characterized by a few features, important for territorial unit development. Firstly they refer to an almost full spectrum of economic, social and environmental problems. Secondly, the system of entities which enter into relations with self-government units is also very rich.

And thirdly, the power of such relations influence on a self-government unit changes in time. It results, on one hand, from changing attributes of mentioned earlier entities and, on the other, from changing importance of particular components characteristic for a self-government unit and factors of its development. The constructive reaction of authorities to such conditions is providing compliance of their activities and these performed by the most important entities of the presented environment. It also refers to strategy content, which is prepared considering individual strategies, plans and programmes of these entities. Such compliance is of dual nature. Its variants are referred to as vertical and horizontal compliance. Vertical compliance means the compliance with strategic planning documents of state government or higher level self-governments and lower level self-governments. It extends opportunities for cooperation development with these entities and increases chances for obtaining external means. Horizontal compliance refers to strategy compliance with planning documents of neighbouring self-governments at the same level. Fundamental reason behind attempting horizontal compliance is the development of cooperation in solving the same, local or sub-regional problems.

Stage twelve is devoted to referring tasks to financing sources. This stage consists in estimating realization costs of planned strategic tasks and searching for such sources of financing them which are highly likely in providing due financing. Refraining from carrying out this stage of strategic planning procedure results, almost always, in drastic reduction of probability that planned goals and tasks will be implemented, making the strategy more a list of wishes rather than a useful and most important plan of self-government activities.

Having analyzed financial matters the next step is the construction of implementation system, including monitoring subsystems and corrections (stage thirteen). Strategy implementation refers not only to meeting its defined targets, but also to observing and modifying both, implementation procedure and the strategy itself. A derivative concept of strategy implementation is the procedure of implementation. It is expressed by an algorithm of activities constituting implementation activities. Having considered the above strategy implementation objectives, it seems correct to state that it is a changeable, auto-adaptation algorithm open to interference by an entity or entities using it. Together with them, i.e. decisive and executive bodies of a territorial self-government, its organization units and companies, as well as possible strategic cooperation partners, such as: other self-government units, economic entities or non-governmental organizations, it constitutes strategy implementation system.

Within the framework of planning activities the guidelines for projects to be executed also have to be defined (stage fifteen). Many of the described above strategic tasks require implementation projects to be prepared for them. It refers not only to investment tasks which, owing to their nature, require adequate architectural design and construction documents to be prepared. Other projects also require legal, organizational and financial documentation to be done. At this stage such requirements are defined. It is necessary to guarantee their compliance with the due strategy, as the document which is superior for them.

The strategy is crucial for both, the authorities and local community. The process of implementing it should be a public one and not just at the level of self-government, but also in its closer and more distant environment. Information action in this matter represents one of provisions for its effective implementation. In this way the community of a given unit can control meeting deadlines of goals accomplishment and tasks implementation. Promotional strategy planning is therefore initiated already at the stage of creating it (stage sixteen). Work on the strategy text starts almost at the first stage. However, full version of its draft, including the results of all presented above stages, may not be prepared until this moment. Strategy draft preparation is the seventeenth stage of the process. Once strategy draft is prepared it has to be verified. This stage (eighteenth) consists in presenting strategy draft for verification of the self-government decisive body commissions which, having analyzed its content, express their remarks and prepare recommendations for the decisive body regarding strategy approval for implementation. In case of crucial remarks work procedure returns to this stage regarding the results of which no remarks were made. Obtaining positive opinions results in presenting strategy (stage nineteen) to be approved for realization. In self-government practice development strategies are most often approved in the form a resolution passed by the decisive body. Just like in case of other resolutions its execution is the responsibility of due executing body.

Conclusion

The above presentation of work stages over a strategy does not discuss all issues referring to the problem of the described above planning procedure. There also occur inter-stage activities, i.e. activities conducted while performing works typical for the majority of stages. However, the author hopes that presented information constitute a cohesive picture of the presented planning procedure model, and that they will undergo further practical verification.

References:

- [1] SZTANDO, A. *Analiza strategiczna jednostek samorządu terytorialnego [Strategic analysis of territorial self-government units]*. In: *Metody oceny rozwoju regionalnego [Methods for regional development assessment]*. Akademia Ekonomiczna we Wrocławiu, Wrocław, 2006, pp. 113-159, ISBN 83-7011-723-6.
- [2] SZTANDO, A. *Subject and objects of local development strategy. Polish experiences and concepts*. In: *Ekonomický rozvoj a management regionu*, ed. P. Jedlicka, Univerzita Hradec Králové, Hradec Králové: Gaudeamus, 2009, pp. 148-155, ISBN 978-80-7041-443-9.
- [3] SZTANDO, A. *Implementation systems of Polish regional innovation strategies - valuation with elements of comparison analysis and recommendations*. In: *Ekonomický rozvoj a management regionu*, ed. P. Jedlicka, Univerzita Hradec Králové, Hradec Králové: Gaudeamus, 2010., pp. 148-152, ISBN 978-80-7435-041-2.

THE CAUSAL RELATIONSHIPS BETWEEN THE PRICES OF MILK IN POLAND, SLOVAKIA AND THE CZECH REPUBLIC

Agnieszka Tłuczak

Opole University

atluczak@uni.opole.pl

Key words:

milk prices – Granger test – VAR model – causal relationship

Abstract:

The causality Granger test was used to assess the causal links between the prices of milk in selected European Union countries. The Granger test is based on the vector autoregression models - VAR. The conducted research allowed to identify causal relationships between the prices of milk in the following countries: Poland, the Czech Republic and Slovakia.

Introduction

The accession to the European Union has created the opportunity to develop the milk market in the form of access of the products to the markets of EU countries. The milk's market and milk's product market in the EU is supported and regulated market. Regulating system of the EU milk market has an impact on the price of milk in individual member countries. The relations between the prices of milk in some countries seem to be inevitable.

The aim of this paper is to examine the empirical causal relationships in the milk market. The prices of milk in selected EU countries (Poland, the Czech Republic, Slovakia) were taken into consideration.

Empirical material

In this study, the average monthly prices of milk in euro per 100 kg from May 2004 to September 2011 as the empirical material were used, which is the 89 observations in the following countries: Poland and the Czech Republic. Data were obtained from the Integrated Agricultural Market Information System¹.

In this study, the following symbols were used:

v_1 – average monthly prices of milk in Poland in Euro per 100 kg,

v_2 – average monthly prices of milk in Slovakia in Euro per 100 kg,

v_3 – average monthly prices of milk in Czech Republic in Euro per 100 kg

¹ <http://www.minrol.gov.pl/pol/Rynki-rolne/Zintegrowany-System-Rolniczej-Informacji-Rynkowej/Biuletyny-Informacyjne/Rynek-mleka>.

Basic characteristics of the individual time series are presented in Table 1. The lowest average price in the period was recorded in Poland –26.61 euro/100kg. The prices of mil in Czech Republic show the highest differentiation - the variation coefficient was 16%. Comparing the prices of crops in all analyzed countries it can be concluded that crop prices are characterized by variability on a similar average level of about 15%.

TAB 1: The basic characteristic of the individual time series

	Mean	Standard deviation	Variation coefficient	Minimum	Maximum
v ₁	26,61	3,68	14%	16,9	36,7
v ₂	26,7	4,16	16%	17,67	35,61
v ₃	28,15	3,88	14%	21,12	37,65

Source: author's own calculations.

Methodology

To verify the hypothesis about the causality between variables, the Granger² test was used constructed on VAR models [8].

VAR models are presented in econometric literature, therefore in this paper the general characteristics of this model are presented [4].

The variables, which will be used in Granger test, should be stationary, therefore the rank of integration should be known [10]. Then the two-dimensional VAR model was estimated, which is presented by the formula:

$$Z_t = \sum_{i=1}^p A_i Z_{t-i} + \varepsilon_t$$

Where: Z_t – is an observation vector, A_i - matrix of parameters standing for the delayed variable vector Z_{t-i} , ε_t – is a disturbance term.

The Schwarz criterion was used to identify the rank of delay [7]. The use of VAR models requires a normal distribution and the lack of autocorrelation from the disturbance term [1], [2]. The procedure of the Granger causality test begins with the estimation of model parameters [9]:

$$y_t = \alpha_0 + \alpha_1 y_{t-1} + \dots + \alpha_p y_{t-p} + \varepsilon_t \quad (1)$$

$$y_t = \alpha_0 + \alpha_1 y_{t-1} + \dots + \alpha_p y_{t-p} + \beta_1 x_{t-1} + \beta_2 x_{t-2} + \dots + \beta_q x_{t-p} + \eta_t \quad (2)$$

Where: x_t – empirical value of the variable X; y_t – empirical value of the variable Y;

² Granger Causality: x is simply granger causal to y if and only if the application of an optimal linear function leads to $\sigma^2(y_{t+1}|I_t) < \sigma^2(y_{t+1}|I_t - \bar{x}_t)$; i.e. if future values of y can be predicted better, i.e. with a smaller forecast error variance, if current and past values of x are used. Compare: M. Osińska, *Ekonometria finansowa*.

p – rank of delay of the variable, ε_t, η_t – disturbance term of the models.
The Granger test verifies the hypotheses: $H_0 : \sigma^2(\varepsilon_t) = \sigma^2(\eta_t)$; $H_1 : \sigma^2(\varepsilon_t) \neq \sigma^2(\eta_t)$
and the test statistic is presented by the formula:

$$F = \frac{n \cdot (s^2(\varepsilon_t) - s^2(\eta_t))}{s^2(\varepsilon_t)} \quad (3)$$

The F statistic has chi-square distribution – $\chi^2(q)$.

The results of the research

Examination of causal relationships between variables started from testing stationarity. The hypotheses of stationarity of variables were rejected on the basis of the ADF test. The correct specification of the VAR model requires stationarity of the variables. Therefore the first differences of the variables were taken under consideration $\Delta v_i, i=1, \dots, 3$. The decision was made that the first differences are stationary (TAB. 2).

TAB 2: The results of ADF test for variables $v_i, i=1, \dots, 3$ ³

Variable	ADF	p-value	Variable	ADF	p-value
v_1	-2,83266	0,05372	Δv_1	-3,56685	0,03997
v_2	-2,5609	0,1013	Δv_2	-3,64034	0,00506
v_3	-2,45497	0,1268	Δv_3	-3,21806	0,01900

Source: author's own calculations.

The next step was to estimate the ranks of delays for the VAR models which was made by means of estimating eight models:

Model 1 describes the relationship between first differences in milk prices in Poland and the first differences in milk prices in Czech Republic

Model 2 describes the relationship between first differences in milk prices in Poland and the first differences in milk prices in Slovakia

Model 3 describes the relationship between first differences in milk prices in Czech Republic and the first differences in milk prices in Poland

Model 4 describes the relationship between first differences in milk prices in Czech Republic and the first differences in milk prices in Slovakia

Model 5 describes the relationship between first differences in milk prices in Slovakia and the first differences in milk prices in Poland

Model 6 describes the relationship between first differences in milk prices in Slovakia and the first differences in milk prices in Czech Republic

The rank of delays were chosen on the basis of the Schwarz criterion. Optimal rank of delay was chosen when the BIC statistic was the lowest (TAB. 3).

³ The calculation was made in the program GRET, <http://www.kufel.torun.pl/>.

TAB. 3: The values of BIC statistics for chosen rank of delay models

Model	1	2	3	4	5	6
Rank of delay (q)	1	1	2	2	1	1
BIC	2,18987	2,4436	2,40436	2,75218	2,0674	2,10143

Source: author's own calculations.

The study of disturbance term properties allowed to adopt the hypotheses of normality and lack of autocorrelation. Next parameters of models (1) and (2) were estimated, which allowed to use the Granger test. The following conclusions have been drawn on the basis of the Granger test results (TAB.4):

- Δv_1 is a cause of Δv_2 ;
- Δv_2 is a cause of Δv_1 ;

TAB.4: The values of Granger test statistic and critical value of χ^2

	Δv_1 is a cause of Δv_2	Δv_1 is a cause of Δv_3	Δv_2 is a cause of Δv_1	Δv_2 is a cause of Δv_3	Δv_3 is a cause of Δv_1	Δv_3 is a cause of Δv_2
F	4,192775	2,727968	3,811965	1,794084	1,985283	1,863648
$\chi^2(q)$ ($\alpha=0,05$)	3,949321	3,949321	3,100069	3,100069	3,949321	3,949321

Source: author's own calculations.

The obtained results allowed to identify one-way causal relationships between the analyzed variables. On the basis of the statistics F (tab.4) we can conclude that the first increment of the average monthly prices of milk in Poland in Euro per 100 kg is a cause of the first increment the average monthly prices of milk in Slovakia in Euro per 100 kg, additionally the first increment of the average monthly prices of milk in Slovakia in Euro per 100 kg is a cause of the first increment the average monthly prices of milk in Poland in Euro per 100 kg.

Summary

VAR models are useful tools to investigate the causal links between economic variables. In the present research the results of analysis of the relationships between changes in milk prices in Poland, the Czech Republic and Slovakia are presented. The research shows that milk prices in Poland depend on the prices in Slovakia and vice versa. The identification of the causal relationships in the sense of Granger test allows to forecast efficiently short- and medium-term prices of milk.

Reference:

- [1] BALTAGI, B. *Econometrics*, USA: Springer Verlag, 2002
- [2] CAMERON, A. C. *Microeconometrics: methods and applications*, New York: Cambridge University Press, 2005
- [3] CROMWELL, J. B., HANNAN, M. J., LABYS, W. C., TERRAZA, M. *Multivariate Tests for Time Series Models*. Thousand Oaks, CA: Sage Publications, 1994
- [4] JUSELIUS, K. *The Cointegrated VAR Model: Methodology and Applications*, Oxford: Oxford University Press, 2006
- [5] LUTKEPOHL, H. *New introduction to multiple time series analysis*, USA: Springer Verlag, 2006
- [6] OSIŃSKA, M. *Ekonomia finansowa*, Warszawa: Polskie Wydawnictwo Ekonomiczne, 2006
- [7] RUPPERT, D. *Statistics and Data Analysis for Financial Engineering*, USA: Springer Verlag, 2010
- [8] TŁUCZAK, A. *Causality Granger test as a tool for the identification of links between beef prices in selected countries in the European Union*, in Proceedings of the 12th International Symposium on Econometrics, Statistics, and Operations Research, Denizli-Turkey, 2011
- [9] TŁUCZAK, A. *Attempt to identify the causal relationships between the prices of milk in selected EU countries*, in. Roczniki Naukowe SERiA, t. XII, z. 6, Warszawa, 2011
- [10] ZIVOT, E., WANG, J. *Modeling financial time series with S-PLUS*, USA: Springer Verlag, 2006

CAN MARKET CONTRIBUTE OF THE REDUCTION OF INEQUALITY AND POVERTY IN SRI LANKA?

Sinnathurai Vijayakumar

Tomas Bata Univerzity in Zlín
vijai114@gmail.com

Key words:

poverty – invisible hand – market failure – resource allocation – economic growth.

Abstract:

Many economists emphasize that economic growth is necessary to lift the county out of poverty. This growth occurs when market forces are allowed to determine the prices of different products on the market to stimulate productivity and innovation. Markets allow free entry and exit of economic agents. This facilitates market forces of supply and demand to determine prices. At this stage, resources are redistributed in society by an ‘invisible hand’ to meet the needs of the population. Even though, market is a best allocator of resources, government intervention is also important to regulate the economy. The government should have market friendly approach which stimulates economic growth and thereby reducing poverty and inequality.

Introduction

Generally, economic agents (consumers and produces) are motivated and solely preoccupied with maximizing utility. In other words, consumers try to maximize their utility; producers strive to maximize their profit. Finally, market comes to equilibrium in which both consumers and producers are satisfied in an economy. Liberal economists assume that when the market is left to itself then its inherent self-direction will govern its operations efficiently and produce efficient outcomes. This implies that when self interested individuals enter the market and pursue their own goals of maximizing utility, then somehow an ‘invisible hand’ will ensure that their combined efforts work to the general benefit of everyone. Many economists emphasize that economic growth is necessary to lift the county out of poverty. This growth occurs when market forces are allowed to determine the prices of different products on the market to stimulate productivity and innovation. In theoretical perspective, poverty and inequality will decrease due to the rapid increase in economic growth determined by self functioning of demand and supply in a market. There was big debate with regard to efficiency and effectiveness of two broad mechanisms in the world till 1990. Proponents of free market economists contended that markets is best

solution for all economic issues because it allowed to operate freely and can lead towards the promotion of equity and optimum allocation of resources. Opponents believed that socialism is best option to solve all issues that economy was undergoing. They argued that markets on their own cannot bring about a just and equitable society and optimum allocation of resources and thereby reducing poverty. The basic ideology of market is that the state is an inefficient and ineffective allocator of scarce resources and thereby there is result of unemployment, sluggish growth, wide disparities and poverty. But, the market is seen as a better instrument to solve problems arising from an economy.

Theoretical background in market and price determination

The basic thesis of neoliberal economic policies is that the state is an inefficient and ineffective allocator of scarce resources. The market is seen as a better instrument. Markets allow free entry and exit of economic agents (4,230-237). This facilitates market forces of supply and demand to determine prices. Economic agents respond to prices by exchanging goods and services leading to optimal efficiency. At this stage, resources are redistributed in society by an 'invisible hand' to meet the needs of the population (4, 79). Neoliberal economic policies derived from neoclassical economic theory state that growth in Gross Domestic Product (GDP) translates into poverty reduction (2, 37). The market forces make a signal to consumers that price of particular commodity will be increasing following the increase in demand of that commodity and vice versa. Conversely, the price of particular commodity will decline following the increase in supply of that commodity and vice versa. In fact, markets are promoted as the best instrument in allocating resources efficiently and effectively. This follows Adam Smith's comment that the 'hidden hand' of the market converts individual interests into the wealth of the nations (4,231). It is frequently stated that getting 'prices right' is the pathway to growth and prosperity.

Poverty status in Sri Lanka

In past, poverty was viewed primarily as a problem of economic insufficiency, but its meaning has now been broadened to encompass material deprivation, human deprivation, including low achievements in education and health, vulnerability, voiceless, powerlessness and exposure to risk. Thus, in attempting to solve the problem of poverty in its totality, one has to consider not only economic dimension but also the social, cultural and political dimension (6, 67). Poverty in Sri Lanka is basically rural phenomenon (2, 45). This is general conclusion of various studies conducted so far (2, 78). The table 1 given below clearly shows the trend of poverty in Sri Lanka.

TAB.1: Poverty head count index. Source: Department of Census and Statistics.

	1990/91	1995/96	2002	2006/07
Sri Lanka	26.1	28.8	22.7	15.2
Urban	16.3	14.4	7.9	6.2
Rural	29.4	30.4	24.7	15.7
Estate	20.5	38.4	30.9	32.0

There is no doubt that incidence of poverty and deprivation is higher in rural areas than urban area and rural poor account for the vast majority of all those found in poverty ridden conditions. In estate sector, poverty status is worst. The fact remains that although the outlay of the government on health and education has remarkably improved the human development index yet, it has not gone long way in reducing poverty level. Sri Lanka is on the track to achieve Millennium Development Goals of most of the health and education indicators. But, improvements in the MDG indicators to equity in education and health do not show similar improvements (1,112). In consonance with table1, the incidence of poverty in Sri Lanka was 30.9 in 1985/86 and 19.9 in 1990/91. This reveals that poverty declined significantly 1985/86 to 1990/91, but then rose sharply in the rural and estate sectors in 1995/96 period. The main reason attributed for the rise in poverty in the mid 1990s is the drought that prevailed during that year. The drought led to an increase rise in food prices. As most poor are casual and seasonal wage employee, restricted wages but increasing food prices is likely to have reduced consumption in this period. Since poverty line is based on consumption basket, reduction in consumption increases poverty incidence.

Measures of Inequality

It can be argued that poverty is essentially a relative phenomenon (6,123). Several researchers have opted for relative definition of poverty. Bettly(1974) has stated that both absolute and relative poverty are closely aligned to inequality in income distribution. Sen (1990) points out that poverty as a concept is closely related to inequality given the average income level, a higher level of inequalities will be associated with high level of poverty. Gini, is used to measure income inequality. According to the Gini statistics of Sri Lanka, co efficient of Gini is 0.32 in 1990/91, 0.32 in 1995/96. It is 0.4 and 0.41 in 2000 and 2006/07 respectively. Thus, inequality in Sri Lanka has increased from 1990 to 2007. Compared to urban sector where dynamic and manufacturing industries are concentrated, Estate and rural people are under severe poverty ridden condition and vulnerable due to the any economic shocks. Mrs. Margaret Thatcher, former Prime Minister in England used to

say that ‘...the point is not to cut the cake more equally but to bake a bigger cake...implying that there was no need to attend to inequalities rather the solution was to generate more wealth. Neoliberal economic policies derived from neoclassical economic theory hypothesize that establishing markets and providing a laissez faire environment leads to increased productivity. This increase will yield increased incomes and raise the standard of living for all concerned.

Economic growth

After introducing open economic and fully market oriented policy, economic growth of Sri Lanka has dramatically increased to 8.2 in 1978 instead of 3.0 in 1976 and 2.8 in 1975. Further, table 2 shows that growth rate in 1979 is 6.7percent. Sri Lanka had not reached and underwent steady growth till 2009. Particularly, Sri Lanka experienced negative growth rate of -1.5 in 2001. What is remarkable fact is that after1995/96, poverty incidence has been continuously decreasing trend indicating somewhat improvement of living standard of poor in Sri Lanka. In this context, I assert that if there had not been civil war and youth unrest, the GDP growth rate could have been above average 9 percent during the period of 1980 to 2008 under market mechanism with little government intervention.

TAB. 2: Economic growth from 1973-2008: Source: Department of Census Statistics.

Year	Economic growth	Year	Economic growth
1973	3.7	1980	5.8
1974	3.2	1990	6.1
1975	2.8	2000	6.0
1976	3.0	2001	1.5
1978	8.2	2007	6.7
1979	6.7	2008	5.9

In rural level, market does not effectively work in the sale of agricultural products. Normally, famers are able to obtain fewer prices for their commodities compared to actual market price. Intermediate agents those who are inter mediator in purchasing and selling such agricultural goods prevent the effective mechanism of supply and demand. Because, poor agricultural peasant has lack of education and awareness is regard to market (6,115). As a result, poor become poor in rural sector. The market mechanism itself has experienced some challenges, notably the East Asia crisis in the late 1990s and more recently the Global Economic Crisis of

2008. Both events have raised questions about the efficacy of markets to deliver on development thereby reduce poverty and eliminate inequalities (1,171-172). This has brought to the debate between the supporters of the market who regard the market as the best tool to allocate scarce resources and those who oppose them. Generally most of the economists contend that markets are necessary to promote growth but not sufficient to eliminate inequalities and eradicate poverty. These markets allow free entry and exit of economic agents into the market. This facilitates market forces to play the role of determining prices and consequently allocating resource. But, in real world, every economy is undergoing market failure. Neoclassical economic theory fails to take into account the fact that markets can experience failures. In this context, there is experience of under production or overproduction which leads to misallocation of resources. Thus, in this backdrop, government should play crucial role to solve the problem of market failure.

Conclusions

Sri Lanka left political party followed central planned economic system in which government took all decision in regard to economy. At the time, there were high level of poverty, inequality and low level economic growth. But after 1978, economy was liberalized and market system has been in good position than before. As a result, Sri Lanka achieved highest economic growth in 1978. Unfortunate, civil war had affected the whole economy. Thus; it was difficult for country to obtain full benefits of market mechanism. The production of some semi luxury and luxury products are motivated by market during the last 10 years because of increase in conspicuous consumption of middle class families. In this context, resources were converted in to such goods. As a result, there is lack of adequate resources to produce necessary goods. Another important fact is that while producing goods under market system, there is issues of pollution. The poor people are more affected by pollution than upper middle class and rich families. The poor are highly undergoing negative impact of such issue in addition to lack of basic needs. Even though, market is a best allocator of resources, government intervention is also important to regulate. Thus, government should have market friendly approach which stimulates economic growth and thereby reducing poverty and inequality.

References:

- [1] DHANAPALA, T. R. W. Determinants of the regional poverty incidence in Sri Lanka and the impact of the estate sector population. *Annual research journal of SLSAJ*, Vol. 6, 2007, pp95-101.

- [2] DILENI, G. *Poverty Measurement: Meanings, Methods and Requirements*. Centre for Poverty Analysis, Colombo, 2004.
- [3] DUNHAM, D., KELEGAMA, S. Stabilization and Adjustment: A Second Look at the Sri Lankan Experience 1977-1993. *The Developing Economies*, Vol.XXXV,1997, no.2,pp 207-219
- [4] DWIVEDI, D. N. *Microeconomics: Theory and Application*, Pearson Education, India, 2005.
- [5] EDWIN, MANSFIELD. *Applied Micro Economics*, W. W. Norton and Co. 1997.
- [6] SEN, A. K. *Poverty and Famine*. Oxford University, London, 1984.

PERSONAL CULTURAL ORIENTATION AND CONSUMER ETHNOCENTRISM: EXPLORING THE MODERATING ROLE OF GENDER

W.M.C.Bandara Wanninayake, Miloslava Chovancová

Tomas Bata University in Zlín

bwanninayake@gmail.com, chovancova@fame.utb.cz

Key words:

consumer ethnocentrism – cultural orientation – local brand biasness

Abstract:

The purpose of this paper is to examine certain aspects of the relationship between personal cultural orientation and consumer ethnocentrism (CE) in the context of young educated customers in Sri Lanka. The sample was drawn from university students who are usually buying FMCG product categories. Self administrated questionnaire was distributed among 80 randomly selected respondents including both male and female. The reliability of all scales was found to be acceptable since Cronbach's Alpha values were higher than 0.6. The findings revealed that collectivism, masculinity and uncertainty avoidance display positive correlation with CE. Power distance and long term orientation have negative correlation with CE. However there is no significant difference between male and females in terms of CE and Local brand biasness.

1. Introduction

Culture plays a big role in the consumer buying decisions and brand development in global context. As a result of homogenization and globalization of world markets, wider range of international brands available in domestic markets [3, 146]. However foreign brand make harmful impact to local economy. Therefore governments as well as local firms make some actions to mitigate that detrimental effect [2, 579]. Even though government authorities impose tariff and non tariff barriers to control imported brands, domestic marketers address this issue by promoting ethnocentric brand appeals. [1, 204]. William G. Sumner initially introduced the term ethnocentrism and many researchers have defined this concept in different perspectives. Previous authors have conceptualized ethnocentrism as “ethnic centeredness” and the rigidity in accepting the culturally “alike” while rejecting the culturally “unlike”. In consumer perspective it is known as ‘consumer ethnocentrism’. Today, consumer ethnocentrism was become very popular phenomenon of marketing and consumer behavior.

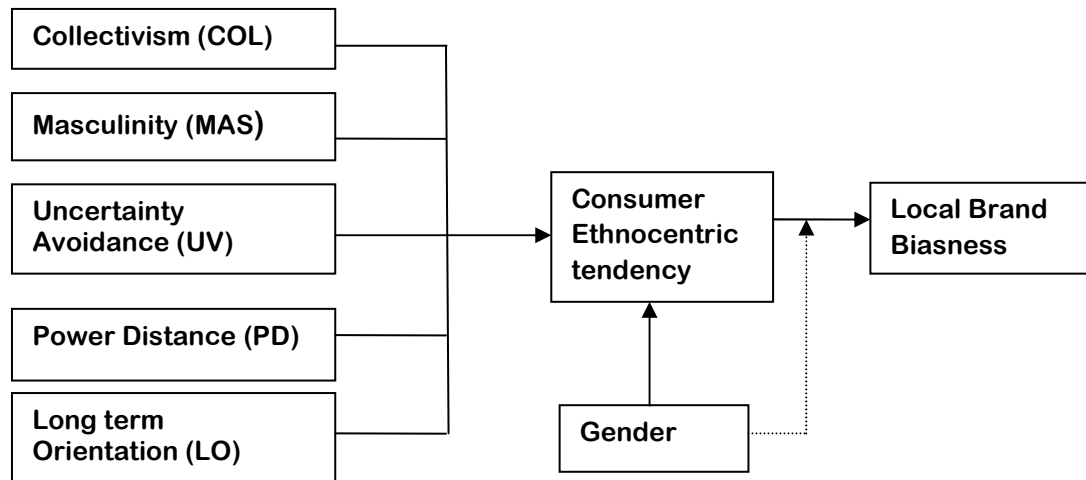
Generally consumer ethnocentricity translates into consumer preferences for domestically made products [6, 327]. Further it has been shown that

ethnocentric tendencies generate negative attitudes towards foreign brands and reduce consumers' intentions to purchase foreign goods [6,328]. Therefore so many researchers have attempted to identify the antecedents of consumer ethnocentrism. Shankarmahesh [3, 161] has summarized the antecedents of consumer ethnocentrism under four broader categories: socio-psychological, economic, political, and demographic. However most of the previous researchers have paid their attention on socio-psychological antecedents such as cultural openness, internationalism, Patriotism, Conservatism etc. [5, 407] than other categories of antecedents. Except few studies most of the previous researchers did not pay considerable attention on the relationship between all the elements of Individual Cultural Orientation (ICO) and CE and the moderating effect of gender between CE and Local Brand Biasness (LBB). Therefore the purpose of this study is to empirically investigate the relationship between ICO and CE with the moderating effect of gender to the LBB in the context of developing countries. The 03 FMCG product categories such as food items, soft drink, and detergent were chosen to examine the relationship among aforesaid constructs.

2. Research Design and Hypotheses

According to [7, 12] consumer ethnocentrism is a product of cultural orientation and they have argued the cultural orientation can be operationalised into individual level with using Hofstede's five dimensions of cultural orientation. Therefore collectivism, masculinity, uncertainty avoidance, power distance and long term orientation have been taken as the independent variables of the first model of the present study. In the second part, the relationship between CE and LBB has been taken into consideration. Gender has been considered as moderating variable between CE and LBB. The path diagram for the study framework is given in the figure 01. After extensive literature review on cultural dimensions, CE and impact of gender on those concepts, the researchers have developed seven hypotheses to emphasize the relationship among each construct of the conceptual framework. H1 to H5 emphasis positive correlation between five cultural dimensions: collectivism, masculinity, uncertainty avoidance, power distance and long term orientation and CE. H6 and H7 argued whether female customers are more CE and LBB than male customers.

FIG. 01: Conceptual Framework



3. Methodology

The respondents of this study were students of the University of Kelaniya in Sri Lanka. It is one of the leading state Universities in the country. 80 students were selected randomly and distributed self administration questionnaire for data collection. Three uncompleted questionnaires were rejected and 77 questionnaires taken for the analysis. Accordingly, the sample consisted of a higher proportion of female respondents (56.3 percent) than male respondents (43.7 percent). In addition, students were represented 10 districts in the country and all respondents were aged between 20 – 25 years.

Based on previous studies the present study's survey instruments were developed. The questionnaire consisted of the seven constructs and two demographic questions. Consumer ethnocentrism was measured using the consumer ethnocentric tendency scale (CETSCALE) developed by Shimp and Sharma in 1987. It consisted of 17 questions and made small changes to match with Sri Lankan context. CETSCALE has been validated in different cultures and context by previous researchers. Five dimensions of personal cultural orientation were measured by using constructs developed by Yoo and Donthu's in 2002 to measure Hofstede's dimensions. It consisted of five items for PD, five items for UA, six items for COL, four items for MAS and six items for LO. LBB was tested by using two items self develop constructs. All the scales were scored on a five point likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

4. Finding and Discussion

The inter correlations among each construct, reliability statistics and descriptive statistics are given in table 01.

TAB. 01: The inter – item correlation matrix and Descriptive statistics

	COL	MAS	UN	PD	LTO	CET	LBB
COL	1.000						
MAS	.698	1.000					
UN	.196	-.215	1.000				
PD	-.261	-.020	.256	1.000			
LTO	-.818	-.363	-.244	.319	1.000		
CET	.838	.516	.037	-.551	-.641	1.000	
LBB	.809	.521	.000	-.522	-.576	.992	1.000
No. of Items	06	04	05	05	06	17	02
Cronbach's Alpha	0.812	0.792	0.675	0.698	0.712	0.816	0.722
Mean	3.5792	2.9519	3.4597	3.2635	2.9013	3.5182	3.3325
Standard Deviation	.79841	.62715	.51048	.33942	.44084	.65247	.63669

According to the descriptive statistics, COL (M = 3.57, SD = 0.798) and UA (M = 3.45, SD = 0.510) become prominent characters of the ICO in Sri Lanka. Further the respondents display significance degree of CET (M = 3.518, SD = 0.652) and LBB (M = 3.332, SD = 0.636). According to the correlation analysis, both COL and MAS has strong positive correlation with CET. UA has positive correlation but value is relatively low. PD and LTO have negative correlation with CET. Therefore first three hypotheses were supported by the findings. However H3 and H4 were rejected based on empirical results. Most interesting finding is COL recorded highest mean value and it has strong positive correlation with (r = 0.812) CET. It is implied that Sri Lankan educated younger generation is more collective in nature and display high degree of ethnocentricity and LBB.

In H6 and H7, the researchers argued that female customers are more ethnocentric than male customers and they have high intention to buy local brands. In order to compare those three variables independent t- test was conducted by dividing total sample into male and female. Outcomes of the analysis are summarized into table 2 and 3.

TAB. 02: Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
CET	Male	32	3.5344	.68326	.12078
	Female	45	3.5067	.63725	.09500
LBB	Male	32	3.3719	.65117	.11511
	Female	45	3.3044	.63208	.09422

TAB. 03: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
CET	Equal variances assumed	.389	.535	.182	75	.856	.02771	.15185
LBB	Equal variances assumed	.010	.921	.456	75	.650	.06743	.14800

According to the independent t- test group statistics given in Table 2, both CET (M = 3.534 SD = 0.683) and LBI (M = 3.371 SD = 0.651) of male are slightly higher than female. However sample t test output revealed that the difference of the mean values is not significant. Levene's Test P value of CET is .535 ($P < .05$) and LBB is .921($P < .05$). Therefore findings did not support to H6 and H7. Therefore the findings revealed that young educated male customers are slightly higher in CET and LBB than female customers in same social group but the difference is not significant.

Conclusion

Present study has been mainly focused on relationship between CET and ICO with the moderating effect of gender for LBB among young educated customers in Sri Lanka. The findings reveled that respondents have high degree of COL and MAS. And also, COL, MAS and PD have positive relationship with CET. However PD and LTO displayed negative correlation. Further gender does not made significant impact on both CET and LBB. This study was characterized by several limitations that restrict the reliability to generalize the findings. Mainly, the study was restricted to the young university students in Sri Lanka. Therefore further studies are needed in different context and cultures for the elaborating this concept comprehensively.

References:

- [1] KOJO, S., JOHN, H. W. & MARICA, M. The role of consumer ethnocentrism in a buy national campaign in a transitioning country :Some evidence from Slovakia, *International Journal of Emerging Markets*, Vol. 5 n. 2, 2010, p.203-226,2010, ISBN *ISSN*:1746-8809
- [2] SAMIEE, S. Customer evaluation of products in a global market, *Journal of International Business Studies*, Vol. 25 n. 3, 1994, p. 579-604, *ISSN*: 00472506
- [3] SHANKARMAHESH, M.N. Consumer ethnocentrism: an integrative review of its antecedents and consequences, *International Marketing Review*, Vol. 23 n. 2, 2006, p. 146-72, *ISSN*:0265-1335

- [4] SHARMA, S., SHIMP, T.A. AND SHIN, J. Consumer ethnocentrism: a test of antecedents and moderators, *Journal of the Academy of Marketing Science*, Vol. 23 n. 1, 1995, p. 26-37, *ISSN*: 0092-0703.
- [5] SIEMIENIAKO, D., KUBACKI, K., GLIN´SKA, E. & KROT, K. National and regional ethnocentrism: a case study of beer consumers in Poland, *British Food Journal*, Vol. 113 n. 3, 2011, p. 404-418, *ISSN* 0007-070X
- [6] VIDA, I., DMITROVIC´, T. AND OBADIA, C. The role of ethnic affiliation in consumer ethnocentrism, *European Journal of Marketing*, Vol. 42, n 3/4, 2008, p. 327-43, *ISSN*: 0309-0566
- [7] YOO, B. & DONTU, N. The Effect of Personal Cultural Orientation on Consumer Ethnocentrism: Evaluations and Behaviors of U.S. Consumers Toward Japanese Products, *Journal of International Consumer Marketing*, Vol. 18, n.1/2, 2005, p.07 - 44 *ISSN*: 1528-7068

CORPORATE GOVERNANCE AS THE INSTRUMENT OF CREATING COMPANY'S INFORMATION POLICY

Anna Wierzbicka

University of Białystok

a.wierzbicka@uwb.edu.pl

Key words:

corporate governance – information asymmetry – company information policy

Abstract:

Keeping an accurate information policy, which is recommended by the principles of corporate governance, contributes to improving the efficiency of capital rising. Thus, it creates a positive image of the company in the capital market. This is an element taken into consideration by approximately 73-76% of investors. When investing their capital, they want to be convinced of the honesty of the company's management. As well as, they want a guarantee that their rights will be respected, including their access to information about the company's strategy and its results.

Introduction

Company's information policy takes an important role in the shaping the image on the capital market. This aspect was noticed in the corporate governance rules, which recommend leading open and transparent policies that clearly define the principles of responsibility for the company's supervisors and authorities.

The author of this article tries to identify the importance of transparent company's information policy, taking into consideration the recommended principles of corporate governance. In addition, to distinguish the benefits of maintaining current contacts with investors.

The importance of corporate governance in company structure building

The phenomenon of corporate governance concerns supervision exercised by invested by shareholders over the company funds, which are invested by them. Principles of corporate governance are reflected in international standards, which indicate “the existence of relationships of networks between managers of companies, their management-supervisory, management authorities, shareholders and other stakeholders, i.e. stakeholders concerned in the company's activities”. [8, 11] Corporate governance also provides the structure which through the company's goals are set, the means to achieve

these goals and means to look after the company's results. [8, 11] A similar point of view can be seen in the definition of K. Zalega, who defines corporate governance as "a system including various legal and economic institutions, whose essence is to ensure consistency and balance between the interests of all stakeholders involved in the functioning of the corporation in a manner that increases the value of the company and its development." [15, 9]

A. Berle and G. Means see in corporate governance an integrated set of external and internal mechanisms to mitigate conflicts of interest between managers and owners, resulting from the separation of ownership from control. [2, 72] C. Mayer explains the phenomenon as solving the problems associated with monitoring the management activities, which through the company represents and serves the interests of investors, where the control and ownership are separated. [6, 31] H. Bear and Ch. Gray recognize corporate governance as the necessary tools of monitoring and control, which allow access to information needed for making investment decisions and motivating managers to act in the interests of capital owners.

The diversity in defining the phenomenon distinguishes different aspects of corporate governance, still all of these definitions touch upon the problem of effective implementation of company policy. The policy should be based on respect for the interests of all stakeholder groups involved in the company's activities, providing them with the necessary information that allow for an objective assessment of risks associated with investing capital in the company.

Agency theory as an axiological basis for corporate governance

Basis of corporate governance phenomenon are derived from agency theory, which analyzes the relationships between the sovereign and his agent, including particular costs of resolving conflicts that can arise during business settlements. [7, 43 - 45] The source of conflicts might be the differences in goals each party wants to achieve. The necessary condition of the relationship is honesty and openness on both sides, as well as the free flow of information between them. The need for effective information policy is important in determining management's goals and directions of investment. Lack of communication may lead to differences between the priorities of management and that of investors, consequently it may expose them to the reduction or loss of income from invested capital or the company at a substantial outflow of funds.

Incomplete or insufficient information flow between the company's management and the investors may lead to doubt as to the honesty and effectiveness of the management's policy and activity, in addition to the

quality of supervising the investor's capital. [6, 57 - 73] This uncertainty is caused by the situation in which one party is empowered to make decisions that cause repercussions for the property interests of the other party. Making manager's salaries dependent on company's performance, or paying them in remuneration such as stock options are methods of leveling the above mentioned concerns. Investors expect the managers to respect the principles of corporate governance or to clearly determine which rules had been rejected along with reasons justifying their position, according to the principle "comply or explain."

Information asymmetry as a symptom of negative information policy

The phenomenon of inefficient information policies of the company described as "information asymmetry". It is a kind of advantage that "...managers have in an access to information about matters of the company and shareholders in a limited ability to verify the reports drawn up by managers and to evaluate their activities." [9, 17] Due to high costs, lack of experience or inadequate qualifications, they are not able to verify the validity of the policy. Voluntary resignation from the exercise of active supervision is known as "rational apathy". [5, 402]

As a result of information asymmetry, there are two types of shareholders actions: "strategy of voice" or "exit strategy". "Strategy of voice" takes active steps to remove the irregularities. These actions result from the legal impact and decision-making influence processes in a company, where they are members in. The basis of "exit strategy", otherwise known as "Wall-Street walk" is the passive attitude of the shareholder, who withdraws their capital from structures of the company as a result of dissatisfaction with the policy.

The occurrence of information asymmetry and a sense of lack of information and as a result of above the investor concern from fraud can be a blockade of the capital raising by the company. In order to prevent such situations and increase the investors' sense of security, there are taken initiatives reinforcing the transparency of company's information policy that provides equal access to information to all market participants as much as possible.

Transparency of the companies according to the standards of corporate governance

Transparency, eliminating the phenomenon of "information asymmetry", "free rider problem" or "Wall-Street walk" are goals of corporate governance codes. The demand for transparency in the information policy of companies has also included among the principles of good practices. "These recommendations are intended to keep by the company the transparent and

wide open information policy, which clarifies the standards for the extent and frequency of information publication by companies is an important element determining the shape of corporate governance in the country." [3, 340] Openness and transparency of information is recognized as a key of effective corporate governance.

Guidelines of corporate governance principles, based on a document developed by the OECD, postulate to provide the capital market transparency. Openness and transparency of policy, supervisory authority responsibility are helpful in solving and preventing conflicts of interest of groups involved. According to K. Zalega "... the main procedural solutions that provide objective and independent assessment of the enterprise, a clear division of responsibilities at all levels of performance and transparency access to information should be a direct result of the adapted and used good corporate governance practices in the company." [10, 9] This is the most important rule which provides the effectiveness of company's supervision mechanisms.

Open and transparent policy and maintaining the company's current contact with investors improve the company image as a loyal and reliable business partner, which for strengthens to the lenders' trust.

Companies' benefits from the respect of corporate governance and transparent policy

Respecting the standards and best practices of corporate governance helps companies to create the image of a fair and honest business partner. Providing investors with a sense of security and respect their rights improves the efficiency of raising capital, as well as making its capital cheaper. In exchange for reliable information of the facts and the position of the company, investors are more loyal to company and they are willing to endure even a negative period, if the strategy to improve the situation be presented.

Conducted research also indicate that investors are willing to pay a bonus from 18 – 28 % to the company which provides clear policy to allow supervising its activities. Respecting the principles of corporate governance gives to companies beneficial effects in the long term. They record higher profits and higher returns on investment for its shareholders, in comparison to companies having negligent importance of corporate governance rules and not respecting its rules. The aspect of effective corporate governance, including effective information system is taken into consideration by 73 – 76 % investors in developed markets, as well as developing. [1, 18 - 19]

Corporate governance is an informal initiative and codes of good practice, whether at international, national, or institutional are devoid of legal force. They fill a specific gap between legal regulation and market mechanism.

These codes “on one hand do not leave shaping of good practice to the market itself but on the other hand they do not have any legal force” [4, 45], which prevents the analyzed phenomenon from bureaucratization. Respecting the existing rules is the responsibility of companies. The ones who verify the effectiveness and efficiency of respecting the principles of corporate governance and transparent information policy are the investors who entrust their capital to companies.

Conclusion

Lack of a reliable company's information policy may expose investors to the adverse effect of information asymmetry, and thus the actual deprivation of important information or having incomplete data about the company's state, which as a result may undermine investor's trust. In this case, there is a risk of withdrawal of invested capital and transferring it to other companies. Corporate governance principles are trying to prevent such situations, recommending among the codes of good practice open and transparent information policy in companies. This aspect is also highly rated by the investors who are entrusting their capital and want to be sure about company management's honesty and loyalty, as well as they a guarantee that their rights will be respected. In return they are ready to invest their capital and even offer an extra bonus.

References:

- [1] ALUCHNA, M. *Mechanizmy corporate governance*, SGH, Warszawa 2007, ISBN 978-83-7378-273-0
- [2] BAYSINGER, B., HOSSKISSON, R. E. The Composition of Boards of Directors and Strategic Control: Effects on Corporate Strategy, *Academy of Management Review*, 1990 Vol. 15, No.1, ISSN 0363-7425
- [3] BOGACZ-MIĘTKA, *Kompendium wiedzy o nadzorze i kontroli nad przedsiębiorstwem*, CeDeWu.pl, Warszawa 2011, ISBN 978-83-7556-365-8
- [4] CEJMER, M., NAPIERAŁA, J., SÓJKA, T. *Corporate governance* Tom III, Wolters Kluwer Polska, Kraków 2006, ISBN 83-7444-422-3
- [5] EASTERBROOK, F. H., FISCHER, D. R. Voting in Corporate Law, *Journal of Law and economics*, vo. 16, 1983, ISSN 0022-2186
- [6] HESSEL, M. (red.) *W poszukiwaniu skutecznej rady, czyli o kontroli spółek akcyjnych w gospodarce rynkowej*, Wydawnictwo Profesjonalnej Szkoły Biznesu, Kraków 1995, ISBN 83-85441-23-9
- [7] LIS, K. A., STERNICZUK, H. *Nadzór korporacyjny*, Oficyna Ekonomiczna, Kraków 2005, ISBN 83-89355-83-3
- [8] OECD, *zasady nadzoru korporacyjnego OECD*, 2004,

- [9] OPLUSTIL, K. *Instrumenty nadzoru korporacyjnego* (corporate governance w spółce akcyjnej), Warszawa 2010, ISBN978-83-255-1802-8
- [10] ZALEGA, K. *Systemy corporate governance a efektywność zarządzania spółką kapitałową*, SGH, Warszawa 2003, ISBN: 83-7378-31-9

THE INTERSECTORAL COOPERATION WITHIN THE TRIPLE HELIX FOR INNOVATION IN POLISH ECONOMY

Anna Wildowicz-Giegiel, Aneta Kargol-Wasiluk

University of Bialystok

awildowicz@interia.pl; aneta.kargol@wp.pl

Key words:

innovation – triple Helix model – intersectoral cooperation in Poland

Abstract:

Innovation can play a crucial role in economic growth. It not only allows to accelerate the process of socio-economic convergence in countries such as Poland, aspiring to catch up with the most developed economies but also determines the future prosperity of nations. In the light of the major challenges facing contemporary global society such as demographic and climate changes, innovation became one of the key priorities. To better understand the factors and mechanism that underlie innovation processes, it is necessary to discuss the basic trends in innovation activity.

This paper undertakes an issue of the growing importance of the intersectoral cooperation which seems to be especially desired in the field of innovation activity. The main aim of the paper is the analysis of the intersectoral cooperation quality and its influence on innovation performances in Polish economy.

The specificity of modern innovation processes

The concept of innovation is broadly discussed in economic literature. One of the most famous interpretation was made by Schumpeter at the beginning of XXth century who understood innovation as the commercial or industrial application of something new - a new product, process or method of production; a new market or sources of supply, a new form of commercial business or financial organization. He distinguished invention, innovation and diffusion. The first is related to the generation of new scientific and technological ideas, while the second is referred to the development of marketable novelties. Finally, the diffusion means the distribution over time and space new solutions or in other words, the adoption of innovation. It can be said that a brave entrepreneur takes part in a heroic act of creativity which causes innovation. Schumpeter attributed the particularly important role to the innovation defining it as “creative destruction” that leads to a new general equilibrium. The process of creative destruction revolutionizing the economic structure seems to be the essence of capitalism [1, 746]. What is

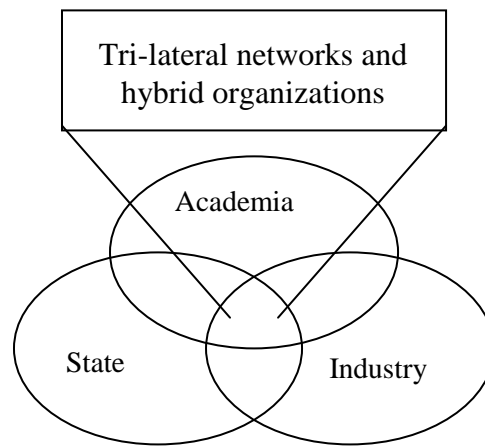
more, this vision was additionally expressed in origin by linear model in which there is a one-way sequence of different phases of the type Science-Technology-Production. From this perspective the scientific activity acts as an exogenous and neutral “*deus ex machina*” responsible for the success in innovation processes.

However, it is commonly known that innovation currently covers a wide range of activities to improve firm performance, including the implementation of new or significantly improved product or process, a new marketing and organizational method in business practice, external relations, etc. All forms of these activities may be a result of interaction between different entities representing both the demand and supply side of the market. For this reason, in the literature we can meet at least five generations of innovation models. First one is technology push, second need push, third coupling model, fourth integrated model and the fifth is systems integration and extensive networking model characterized by flexible and customized response and available for continuous innovation. In order to fully understand the true nature of modern innovation processes it is worth stressing that innovation since 90s stopped being a simple linear combination of component factors or limited within the boundaries of firms. These processes are rather characterized by complex qualitative changes in relation between producers, scientists, sellers, users, etc. Innovation can be seen as a social event which engaged many stakeholders and requires building a special institutional framework which supports almost every symptom of knowledge creation. Taking into consideration that innovation is complex, nonlinear and risky process, the outputs are difficult to predict. It is argued that innovation is something that adds value and means in general the knowledge commercialization which is an effect of learning process. The necessary condition for innovation to occur is not only individual creativity but also collective creativity. Learning and discovery, whether internal to a firm or external in networks or with partners, focused on the generation and acquisition of knowledge and skills, is a first stage of innovation process. Many findings additionally suggest that innovation as interactive and multidisciplinary process depends on support of institutions functioning in business, science and administration sectors. The specialized entities enable cooperation and integration in such kind of activities as: research and development, promotion and entering into new markets, leveraging funds or development of production network [7, 31]. Because innovation is located in a specific space, disposable tangible and intangible resources, including historical and cultural heritage also decide on the success in this field.

The Triple Helix model as a key to understand innovation processes

Innovation mechanisms are described in the literature by different theoretical models. One of them, called the triple helix of university-industry-government interactions, introduced by Leydesdorff and Etzkowitz in 1996 provides a framework of analysis for the knowledge transfer and interactive learning between different types of knowledge producers and users.

FIG. 1: The triple Helix Model



Source: [10, 701].

The triple Helix model attempts to capture the changes in roles and relationships among the emerging primary institutional triad of university-industry-government. These interactions are perceived to be the key to innovation and economic growth. In a *laissez faire* one triple helix regime, industry is seen as the key driving force, with the other two spirals as ancillary supporting structures. This kind of model presents the highest way of possible cooperation and can be found in countries with stable economic and political environment, foreign trade liberalization and business internationalization. It allows to resolve many problems typical for knowledge commercialization thanks to implementation of efficient adaptation mechanism in the institutional arrangements [2, 325]. In turn, the statistic model seems to be the completely opposite to the above discussed model where government plays a crucial role, controlling university and industry. The model in which authorities are the only element ensuring relation between the other sectors was characteristic of the former republics of the Soviet Union and some Latin America countries. In spite of different configuration that may exist within triple helix model, it should be added that spirals are rarely equal and one usually serves as a motive force or innovation organizer around which the others rotate. Moreover, the institution

that acts as the main spiral, changes over time as one spiral replaces the other as the driving force in a triple helix configuration.

Conducting further discussion on the triple helix model, it is worth paying attention to the radical change in traditional roles of entities engaged in innovation processes which take place in knowledge-based society. The university and knowledge producing institutions seem to be a driving force or, in other words, a core spiral that in some circumstances replaces industry and government in the leading role as innovation organizer [5, 8]. It allows to note at the same time that university is losing its traditional role and independence as it becomes more closely involved and presumably subordinate to industry and government. Co-evolutions between technological developments and their cognitive and institutional environment changed totally the knowledge infrastructure. As a result, new research agendas are constructed as cooperative research centers, on the Internet or in virtual research institutes. It means that the triple helix is used as a platform for “institution formation”, leading to the creation of new organizational formats that support innovation processes, such as the incubators, science parks and the venture capital firms.

Government, similarly to university, which is the second key entity in the triple helix model, plays an important role in supporting, directly and indirectly, trilateral networks and hybrid organizations, to foster economic and social development. It is said that government should support innovation processes in market economies both at the national and local level providing not only legislation incentives for universities and entrepreneurs but also raising funds for research and development. What is more, it is worth stressing that the main purpose of innovation policy is to facilitate the creation, acquisition, accumulation and utilization of knowledge grounded in social relationships. It is possible thanks to efficient institutional framework and promotion of cultural norms such as openness to learning, trust and cooperation between actors involved in innovation processes. In the light of considerations on the triple helix model it can be said that without friendly environment and active intersectoral cooperation the rise in innovation performance is difficult to achieve.

A poor intersectoral cooperation within triple helix in Poland as the basic hindrance to knowledge creation and commercialization

It is commonly known that the triple helix model is seen as the fifth generation innovation and it places a greater emphasis on extra-organizational linkages and the structures of the public and private sector organizations, which provide the context for effective learning and innovation.

The activity link which involves technical, administrative, commercial and other activities, is responsible for the outcome and performance of the network. That is why it is worth analyzing how the intersectoral cooperation affects the level of innovativeness in Polish economy.

Many researchers say about the fundamental weaknesses of Polish social capital, namely the high degree of distrust among the population and low efficiency of inter-sector cooperation. It should be emphasized that such cooperation is quite rare and its value for the Polish economy is rather negligible. The relatively low share of scientists in business sector at the level of 8% and still poor knowledge of entrepreneurs about possible forms of cooperation are one of the basic hindrances to efficient knowledge creation in Poland. According to the research made by The Ministry of Science and Higher Education in year 2006 almost 56% of entrepreneurs did not notice the necessity of cooperation between entities interested in commercialization of their researches [8, 216]. What is worse, the mutual aversion in connection with low efficiency of government administrative entities in stipulating innovation activities negatively determines the performances in this field. Looking at the number of enterprises engaged in cooperation for innovation in years 2007-2009, it can be said that the propensity to cooperate within innovation activity was the most noticeable in case of enterprises employing over 249 employees and more popular in public than private sector. In general, the active cooperation within innovation activity was declared by 59,5% industrial enterprises and 50,7% service enterprises [4, 29].

Certainly, cooperation is one of the necessary but not sufficient prerequisite for efficiency growth in innovation processes. It is interesting that countries with the highest shares of innovation enterprises, such as Germany, Belgium and Ireland, recorded comparatively low shares of innovation cooperation, with 16,7%; 35% and 27% respectively, while in Polish economy it was 48,2% in the analyzed period [9, 4]. However, it can not be disregarded especially in the context of the growing importance of different forms of collaboration between triple helix partners. Without any doubt, countries such as Finland or Sweden where intersectoral cooperation between business and science is very strong, belong to the innovation leaders in the EU-27.

Many findings suggest that little participation in international R&D networks is also the next consequence of low ability to cooperation in Poland. Taking into account the international differences in the process of internalization of higher education it is worth pointing out that Poland still belongs to the group of countries which are lagging behind and its engagement in the process of creation and knowledge diffusion at the international level does

not seem to be satisfying. A relatively low mobility of Polish scientists and students under the Erasmus Program constitutes a proof of that [3, 107-114]. Finally, from the analysis of innovation and education policies in Poland, it turns out that in spite of different undertakings, which were introduced by government in order to increase private investments in R&D, improve the environment for research and innovation - including the protection of intellectual property and facilitate cooperation between business and science, it did not manage to significantly increase innovativeness of Polish economy. It should be additionally stressed that the intersectoral cooperation within the triple helix is relatively poor and unfortunately, the particular elements of the system- enterprises, public administration, R&D institutions, innovation centers, etc. seem to act separately. Lack of coordination and information exchange about their offers and mutual needs are the symptoms of insufficient entities consolidation and in a consequence it affects the innovation performances negatively [6, 29].

Conclusions

Innovation processes are significantly and increasingly influenced by different forms of networks where both external and inter-organizational relationships are equally important. Research on innovation within the triple helix in Poland revealed that cooperation between the main actors such as government, university and industry leaves much to be desired.

Firstly, in spite of the system changes which affected the science sector and especially the higher education, the entrepreneurship of Polish universities is still not satisfactory. Researches, the close cooperation with economy, diffusion and knowledge commercialization remain the key priorities, but their implementation is very difficult and the results that have been obtained so far seem to be relatively poor. Secondly, innovation policy in Poland which focuses on building linkages with the enterprise sector, improving intellectual property rights, mobilizing private capital to create and develop innovative companies and building the infrastructure for innovation, does not bring the expected advantages. In connection with that, the government policy should be characterized by more comprehensive and coherent public activities which allow increasing the innovation potential and will be better adjusted to the needs of firms, consumers and R&D sector. Thirdly, the process of building effective linkages requires the radical change in the attitudes and social awareness of entrepreneurs because their distrust and unwillingness to cooperation or simply underestimation of the importance of innovation are perceived to be one of the basic hindrances which impede innovation growth.

To sum up, analyzing the innovation processes from the triple helix perspective in Poland it can be said that the integration and mutual cooperation between the three spheres government-university-industry must be necessarily improved and adjusted to the global market requirements. It is thought that the development of intersectoral cooperation will affect the innovation outcomes positively and can be recognized as the key to economic growth in the long-term.

References:

- [1] BONIFATI, G., *'More is different', exception and uncertainty: three foundational concepts for a complexity theory of innovation*, „Economics of Innovation and New Technology” 2010, Vol. 19, No. 8.
- [2] CHLIVICKAS, E., PETRAUSKAITE, N., AMBRUSEVIĆ, N. *Leading priorities for development of the high technologies market*, „Journal of Business Economics and Management” 2009 Vol.10(4)
- [3] *Diagnoza stanu szkolnictwa wyższego w Polsce*, Ernst&Young oraz Instytut Badań nad Gospodarką Rynkową, Warszawa 2009.
- [4] *Działalność innowacyjna przedsiębiorstw w latach 2006-2009*, GUS, Warszawa 2010.
- [5] ETZKOWITZ, H. *The triple Helix. University-Industry-Government. Innovation in action*, Routledge, New York 2008.
- [6] MATUSIAK, K. B., GULIŃSKI, J. *Rekomendacje zmian w polskim systemie transferu technologii i komercjalizacji wiedzy*, PARP, Warszawa 2010.
- [7] MATUSIAK, K. B. *Budowa powiązań nauki z biznesem w gospodarce opartej na wiedzy. Rola i miejsce uniwersytetu w procesach innowacyjnych*, Szkoła Główna Handlowa w Warszawie, Warszawa 2010.
- [8] *Polska 2030. Wyzwania rozwojowe*, Kancelaria Prezesa Rady Ministrów, Warszawa 2009.
- [9] *Quality in the focus of innovation*, „Statistics in Focus” 2009, No. 33.
- [10] RANGA, L. M., MIEDEMA, J. and JORNA, R. *Enancing the innovative capacity of small firms through triple helix interactions: challenges and opportunities*, „Technology Analysis&Strategic Management” 2008, Vol. 20(6).

FISCAL ASPECTS OF ECONOMIC GROWTH IN THE CENTRAL AND EASTERN EUROPE

Arkadiusz Żabiński, Michał Sosnowski

Wrocław University of Economics

azabinski@ue.wroc.pl, michal.sosnowski@ue.wroc.pl

Key words:

public economics – fiscal policies – national budget – deficit – debt

Abstract:

The countries of Central and Eastern Europe had similar experiences on their way to economic and political transformation. All of them had to reform their economies as a consequence of the economic and political transformation. Their transition from the centralised to free-market economy entailed various social tensions and economic costs. This paper presents results of an analysis of the choice and efficiency of the fiscal instruments applied in the Central and Eastern Europe countries in reaching the primary objective of any fiscal policy, which is to facilitate sustainable economic growth.

Introduction

The countries of Central and Eastern Europe, despite similarities in their routes towards market economy and the EU membership, often differed in their choices regarding fiscal policy and the fiscal instruments to be applied while trying to attain their social and economic goals. At the same time, the social and economic effects of the fiscal measures applied sometimes deviated from the intended ones. Some of the new post-communist members of the European Union have already joined – and others aspire to join – the Eurozone, whose stability depends on compliance with the adopted fiscal criteria. All those developments give rise to questions about the most efficient fiscal solutions available to the national economies in the process of attaining the assumed economic goals. Another question well worth considering is whether in the perspective of further economic integration the nations of the former Eastern Block are capable of continuously meeting the fiscal criteria of such an integration. The recent developments in Greece have demonstrated that even the “old” EU members may have some problems there, and that such problems affect other members of the European Community. This paper presents results of an analysis of the choice and efficiency of the fiscal instruments applied in the Central and Eastern Europe countries in reaching the primary objective of any fiscal policy, which is to

facilitate sustainable economic growth. The analysis also covers selected components of individual fiscal strategies and their capacity to secure unfailing compliance with the fiscal criteria of Eurozone admission. In terms of time, the analysis covers the 2001-2008 period, while in terms of geographical scope – the economies of Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. The survey made use of descriptive and statistical methods. The selection of national economies was based on geographical and historical criteria. All the analysed countries underwent the transition to market economy at about the same time and they brought similar historical experiences into the European Union. In all of them the economic transformation entailed similar social tensions that the fiscal policy was expected to ease.

In those EU countries which adopted the common currency, the monetary policy is centralised, while the fiscal policies both inside and outside the Eurozone are decentralised and freely shaped by the national governments. The monetary policies of Eurozone countries are adapted to the economic conditions prevailing across the Eurozone and not in individual countries. This is important especially in the situation of an economic crisis having different impacts on different members of the European Monetary Union (EMU). In such a situation, the response under the common monetary policy may be different from the one that could be expected if the member countries had independent monetary policies. This in turn means that the role of fiscal policy in arriving at a sustainable economic growth is gaining significance both within the EMU and in the economies that aspire to join.

The stabilizing effect of a fiscal policy may materialize in two ways – through the operation of automatic stabilizers and/or through discretionary measures applied by a government intending to stimulate demand.

Another significant implication which affects the fiscal choices of the EU member countries in Central and Eastern Europe is the potential impact of national fiscal policy on the situation of the other EU members. The external effects of economic policies are not limited to the monetary union member countries only – they are felt to a greater or lesser extent in any situation of two or more countries linked by economic relations. It should be noted, however, that the EMU is a special case here. Firstly, because the direct macroeconomic effects are stronger due to stronger ties between the monetary union members. Secondly, as Antonio Fatas and Ilian Mihov [1] point out, there is a specific type of external effects which occur solely in monetary unions and are related to the credibility of common monetary policy and the risk that a country with unsound fiscal policy may require support from other member countries or from the common central bank. With regard to

the above, members of a monetary union may show an inclination for an unsound fiscal policy just because its cost would be split among the union member countries. On the other hand, in such a situation the member countries are vitally interested in none of their number running such an unsound policy. Those relations provide a motivation to introduce within a monetary union such fiscal rules as would prevent the member countries from incurring an excessive debt [2].

To sum up, it can be stated that for the new EU member countries of Central and Eastern Europe their membership in the economic and monetary union may result in a strong dependence of their own fiscal policies on those of other member countries. However, the same can work in the opposite direction – an unsound fiscal policy from one of the new member countries would significantly affect the economic situation of other members. The example of Greece shows how strong an impact of a member's erroneous fiscal policy on the other monetary union members can be.

In order to assess the fiscal policy of any country, it is necessary to select proper criteria first. The first criterion discussed here is the public spending-to-GDP ratio. The average 2001-2008 spending rate for the EU countries was 46% GDP [3]. At the same time, the concept of an adverse impact of high public spending on economy prevails in literature. This results first of all from the widespread belief in the low efficiency of public sector in delivering public services and in its inherent bias for excessive bureaucracy. Another significant argument is that a high level of public spending inevitably leads to high taxes. This, in turn, prevents the economy from competing effectively and may lead to a fall in investments which are crucial especially for the emerging economies. The concept of an adverse impact of high public spending on economic growth is also confirmed by the results obtained by Schuknecht and Tanzi in their mid-1990s survey covering 24 countries [4].

The analysed economies demonstrated diverse rates of economic growth. The average rate of GDP increase during the 2001-2003 period was 5.56%. It should be stressed here that during that time the annual average economic growth in the ten countries in question was much faster than the EU average of a mere 1.99%.

TAB. 1: Growth rate of GDP volume - percentage change on previous year

	2001	2002	2003	2004	2005	2006	2007	2008
Bulgaria	4.1	4.5	5.0	6.6	6.2	6.3	6.2	6.0
Czech Republic	2.5	1.9	3.6	4.5	6.3	6.8	6.1	2.5
Estonia	7.5	7.9	7.6	7.2	9.4	10.0	7.2	-3.6
Latvia	8.0	6.5	7.2	8.7	10.6	12.2	10.0	-4.6

Lithuania	6.7	6.9	10.2	7.4	7.8	7.8	9.8	2.8
Hungary	4.1	4.4	4.3	4.9	3.5	4.0	1.0	0.6
Poland	1.2	1.4	3.9	5.3	3.6	6.2	6.8	5.0
Romania	5.7	5.1	5.2	8.5	4.2	7.9	6.3	7.3
Slovenia	2.8	4.0	2.8	4.3	4.5	5.8	6.8	3.5
Slovakia	3.5	4.6	4.8	5.0	6.7	8.5	10.6	6.2

Source: own work, based on Eurostat data:

Both the highest and the lowest annual growth rates were recorded in Latvia – +12.2% in 2006 and –4.6% in 2008. However, the lowest overall average growth rate for the period was 3.35%, recorded by Hungary. Conversely, the highest overall average growth rate for the period was recorded by Lithuania and amounted to 7.43%. Latvia was not much worse with the average growth rate of 7.33%. The average rates of annual economic growth recorded by other countries amounted respectively to: for Estonia – 6.65%, Romania – 6.28%, Slovakia – 6.24%, Slovenia – 5.64, Bulgaria – 5.61%, Czech Republic – 4.28% and Poland – 4.18%. The above data justify the statement that within the analysed group there were huge differences in the rate of economic growth. The annual growth rate for Hungary was only 46% of the Lithuanian one.

For the ten economies analysed, the average rate of public spending during the 2001-2008 period was 40.26% of GDP. This is a lower ratio than the EU-27 average, which reached 46.59% of GDP.

TAB. 2: Total general government expenditure - General government (% of GDP)

	2001	2002	2003	2004	2005	2006	2007	2008
Bulgaria	40,3	40,3	40,3	39,7	39,3	36,5	41,5	37,3
Czech Republic	44,4	46,3	47,3	45,1	45,0	43,7	42,5	42,9
Estonia	34,8	35,8	34,8	34,0	33,6	34,0	34,8	39,9
Latvia	34,6	35,6	34,8	35,8	35,6	38,2	35,9	38,8
Lithuania	36,8	34,7	33,2	33,3	33,3	33,6	34,8	37,4
Hungary	47,3	51,2	49,4	48,7	50,1	52,0	49,8	49,2
Poland	43,8	44,2	44,6	42,6	43,4	43,9	42,2	43,3
Romania	36,0	35,0	33,5	33,5	33,5	35,3	36,0	38,4
Slovenia	47,6	46,3	46,4	45,8	45,2	44,5	42,4	44,2
Slovakia	44,5	45,0	40,1	37,6	38,0	36,9	34,4	34,8

Source: own work, based on Eurostat data:

Among the economies analysed, the rate of public spending was kept lowest by Lithuania – at 34.64% of GDP. The highest spending-to-GDP ratio occurred in Hungary, where it amounted to 49.71% on average. During the

same period, low values of public spending-to-GDP ratio were also maintained by: Romania – 35.15%, Estonia – 35.21%, Latvia – 36.16%, Slovakia – 38.91% and Bulgaria – 39.4%. Even the economies with highest spending rates in the group, namely Poland with 43.5% of GDP, Czech Republic with 44.65% of GDP and Slovenia with 45.3% of GDP, did not reach the EU average. The post-communist economies which accessed the European Union generally keep their public expenditures low. The countries with the lowest spending-to-GDP ratios at the same time present the highest rate of economic growth. On the other side, the Hungarian economy with the highest spending-to-GDP ratio in the group at the same time presents the lowest rate of economic growth. The same refers to Poland and the Czech Republic.

TAB. 3: Total general government revenue

	2001	2002	2003	2004	2005	2006	2007	2008
Bulgaria	40.9	39.5	40.0	41.3	41.2	39.5	41.5	39.1
Czech Republic	38.7	39.5	40.7	42.2	41.4	41.1	41.9	40.9
Estonia	34.7	36.0	36.5	35.6	35.2	36.3	37.4	37.1
Latvia	32.5	33.4	33.2	34.7	35.1	37.7	35.5	34.6
Lithuania	33.2	32.9	31.9	31.8	32.8	33.1	33.8	34.2
Hungary	43.2	42.3	42.2	42.3	42.2	42.6	44.8	45.5
Poland	38.6	39.2	38.4	36.9	39.4	40.2	40.3	39.6
Romania	32.5	33.0	32.0	32.3	32.3	33.1	33.5	32.8
Slovenia	43.6	43.9	43.7	43.6	43.8	43.2	42.4	42.4
Slovakia	38.0	36.8	37.4	35.3	35.2	33.5	32.5	32.5

Source: own work, based on Eurostat data:

In the economies analysed, the expenditure rate seems to be closely related to the public sector revenues, which during the period in question averaged 37.82% of GDP. Across the EU-27, the average value of government revenue-to-GDP ratio was 44.49% for the same period. Therefore it may be concluded that not only the expenditures but also the revenues of the new EU member countries of the former Eastern Block are below the EU average. However, within the group there are visible differences in fiscal decisions referring to the government revenues. The lowest revenue-to-GDP ratio was recorded by Romania where the annual average for the period was 32.69%. A similarly low value was recorded by Lithuania – 32.96% on average. Slightly higher levels were found in Latvia -34.59% of GDP, Slovakia – 35.15% of GDP and Estonia – 36.1% of GDP. Within the group, the countries with relatively high annual average government revenue levels were Poland – 39.08% of GDP, Bulgaria – 40.38% of GDP and Czech republic – 40.8% of GDP. During the

period in question, the highest average revenue levels can be boasted by Hungary (43.44% of GDP) and Slovenia (43.33% of GDP).

Consideration of the relation between public sector revenues and economic growth also leads to the conclusion that countries with low revenue levels – and consequently small fiscal burdens – recorded higher rates of economic growth. At the same time, the Hungarian economy where public sector revenues make the highest percentage of GDP recorded the lowest rate of economic growth.

TAB. 4: Net borrowing/lending of consolidated general government sector as a percentage of GDP

	2001	2002	2003	2004	2005	2006	2007	2008
Bulgaria	0,6	-0,8	-0,3	1,6	1,9	3,0	0,1	1,8
Czech Republic	-5,6	-6,8	-6,6	-3,0	-3,6	-2,6	-0,7	-2,1
Estonia	-0,1	0,3	1,7	1,6	1,6	2,3	2,6	-2,7
Latvia	-2,1	-2,3	-1,6	-1,0	-0,4	-0,5	-0,3	-4,1
Lithuania	-3,6	-1,9	-1,3	-1,5	-0,5	-0,4	-1,0	-3,2
Hungary	-4,0	-8,9	-7,2	-6,4	-7,9	-9,3	-5,0	-3,8
Poland	-5,1	-5,0	-6,3	-5,7	-4,1	-3,6	-1,9	-3,6
Romania	-3,5	-2,0	-1,5	-1,2	-1,2	-2,2	-2,5	-5,5
Slovenia	-4,0	-2,5	-2,7	-2,2	-1,4	-1,3	0,0	-1,8
Slovakia	-6,5	-8,2	-2,8	-2,4	-2,8	-3,5	-1,9	-2,3

Source: own work, based on Eurostat data:

During the 2001-2008 period, for the countries in question the average rate of budget deficit as compared to GDP was 2.44%. This value exceeds the EU-27 average deficit of 2.1%. This relationship seems to confirm the hypothesis of the new EU members having deficits naturally exceeding the European average. However, the differences are not large, and the average deficit level does not exceed the Maastricht criterion of 3%. On the other hand, an analysis of individual years within the period shows that some countries at times exceeded this reference value. The only countries that never exceeded the 3% cap during the period were Bulgaria and Estonia. The highest annual budget deficit was reported by Hungary in 2006 when it amounted to 9.3%. The highest annual budget surplus (2.6%) was reported by Estonia in 2007. With reference to the average value of budget deficit-to-GDP ratio throughout the period analysed, again the country having the highest average deficit was Hungary with its ratio of 6.56%. Also in Poland the average deficit was high, at 4.41%. The average rates of budget deficits reported by other countries amounted respectively to: for the Czech Republic – 3.87%, Slovakia – 3.8%,

Romania – 2.45%, Slovenia – 2%, Lithuania – 1.68%, and Latvia – 1.54%. The only countries who managed to average a positive budget balance throughout the period analysed were Estonia (0.91%) and Bulgaria (1%). The above values allow the conclusion of an adverse impact of a high budget deficit on economic growth. The countries who had low budget deficit or even a surplus registered a higher rate of economic growth than those with high budget deficit levels. This is contrary to the claim that the new EU member countries use their high budget deficit levels to improve their capacities for EU funding absorption and increase the rates of economic growth. It seems that the high budget deficit levels are rather symptomatic of delays in economy transformations and public finance reforms. This hypothesis finds its confirmation in the data referring to the public debt-to-GDP ratio.

TAB. 5: General government consolidated gross debt as a percentage of GDP

	2001	2002	2003	2004	2005	2006	2007	2008
Bulgaria	67.3	53.6	45.9	37.9	29.2	22.7	18.2	14.1
Czech Republic	24.9	28.2	29.8	30.1	29.7	29.4	29.0	30.0
Estonia	4.8	5.7	5.6	5.0	4.6	4.5	3.8	4.6
Latvia	14.0	13.5	14.6	14.9	12.4	10.7	9.0	19.5
Lithuania	23.1	22.3	21.1	19.4	18.4	18.0	16.9	15.6
Hungary	52.0	55.6	58.4	59.1	61.8	65.6	65.9	72.9
Poland	37.6	42.2	47.1	45.7	47.1	47.7	45.0	47.2
Romania	25.7	24.9	21.5	18.7	15.8	12.4	12.6	13.6
Slovenia	26.8	28.0	27.5	27.2	27.0	26.7	23.3	22.5
Slovakia	48.9	43.4	42.4	41.5	34.2	30.5	29.3	27.7

Source: own work, based on Eurostat data:

Throughout the period analysed, only two of the countries in question ever exceeded the 60% cap on the proportion of public debt to GDP: Bulgaria (for one year) and Hungary (for four consecutive years). The situation of Hungary is the more dangerous that during the 2001-2008 period its public debt grew steadily from 52% to 72.9%. And the debt kept growing despite the fact that since 2006 Hungary has been gradually reducing its budget deficit. During the 2001-2008 period, the average value of debt-to-GDP ratio for the economies in question was 28.15%, which is definitely lower than the EU-27 average of 61.2% for the same period. However, the differences in public debt levels between individual countries were large indeed. Next to Hungary, where public debt averaged 61.41%, this group encompasses Estonia with debt at 4.82% of GDP. Poland also registered a relatively high

average debt of 44.95%. In other countries, the average value of debt-to-GDP ratio for the period was rather low: in Bulgaria – 36.11%, Czech Republic – 28.88%, Slovenia – 26.12%, Lithuania – 19.35%, Romania – 19.15%, and Latvia – 13.57%.

Conclusions

Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia are all countries in Central and Eastern Europe who had similar experiences on their way to economic and political transformation. All of them had to reform their economies as a consequence of the economic and political transformation. Their transition from the centralised to free-market economy entailed various social tensions and economic costs. However, they did not choose the same fiscal solutions to attain their economic goals. Each of the countries decided to apply its specific set of fiscal instruments to arrive at economic growth.

Another similarity between the countries discussed here is the fact that their accession to the European Union as well as commencement of their preparation for the monetary union accession took place at nearly the same time. This made them hook their fiscal policies on the criteria set forth in the Maastricht Treaty and the Stability and Growth Pact. The criteria are related to the growing significance of fiscal policy in the face of a voluntary waiver of independent monetary policy. The fiscal criteria imposed by the aforementioned official documents were intended to protect the common currency from the adverse impact of an unsound fiscal policy of any member country. Those of the countries analysed who have already adopted euro and those who aspire to do so are closely monitored for their ability to run sound fiscal policies and to reform their public finances. The current fiscal situation of Greece only confirms the necessity of observing the agreed fiscal standards.

The analysis of fiscal policies run by the Central and Eastern Europe countries in question demonstrates a significant divergence in their approach to individual aggregates, but also many regularities which all of them share. It can be observed that all those countries are subject to a competitive pressure with respect to the fiscal burdens imposed within their economies. While competing for investment capital, the Central and Eastern Europe countries reduce the fiscal burdens and that results – for all of them – in the public revenue-to-GDP ratios below the European average. Therefore it may be assumed that in this way those economies have been trying to acquire the capital necessary to finance their long-term economic growth. However, while the decisions to put their public sector revenues low are

relatively easy, the decision to curb public expenditure is not necessarily so. In this context, the position of Hungary seems particularly dangerous as its public spending level has exceeded the European average and is coming close to that of Scandinavian countries.

A very different approach to their budgets was adopted by Lithuania, Latvia and Estonia. Those countries adjusted their public spending to low public revenues and run a small-budget policy. In order to maintain the adopted fiscal standards, those countries had to enforce unpopular reforms which allowed to keep spending low. Obviously, it could be argued that The Hungarian policy might be devised for a long-term success. The high public spending levels might favour the absorption of EU funds. However, this concept should be bringing high rate of economic growth, while the situation in Hungary is just the opposite.

Most of the other countries tried to adjust their public spending to the revenues earned, thus keeping the budget deficit at a safe level. It seems that for a majority of the countries in question considered the risk of uncontrolled deficit too high. They decided that a curb in public spending and a reform of public finances present a better chance for sustainable economic growth than solving the social problems or stimulating growth through an increase in public spending. For the new EU member countries, keeping the budget deficit below the reference value of 3% of GDP was also a prerequisite of prospective accession to the monetary union. It should be noted that the prerequisite has been met by a majority of the countries analysed. Unfortunately, Poland has had problems with keeping the budget deficit low that are secondary only to those suffered by Hungary. The statistical data demonstrate that neither Poland nor Hungary is now capable of regularly meeting the convergence criterion of budget balance. This is the more obvious that a majority of the countries analysed are able to keep their budget positions close to balance or even in surplus.

Running a fiscal policy oriented towards long-term goals will be related to keeping the public debt below the reference value of 60 % of GDP. Most of the countries in question keep this ratio at very low levels. Such a policy allows reduction of the costs related to public debt servicing. However, it may also reduce the capacity for stimulating economic growth with public spending and for EU aid funds absorption.

The objective of the adopted approach to fiscal policy is attaining a high rate of sustainable economic growth. The decisions related to public revenues and spending, budget deficit and public debt are to foster this primary objective notwithstanding the criteria set forth in the European treaties. However, compliance with the fiscal criteria allows reaching a rate of

economic growth that is definitely higher than the one obtained while exceeding the deficit and/or debt reference values. The example of the EU member countries of Central and Eastern Europe clearly demonstrates the relationship between the high fiscal standards and the rate of economic growth. The public revenue levels, budgeted below the European average due to competing for investment capital, have enforced other measures related to public spending, budget balance and – consequently – public debt. Running a prudent fiscal policy required the countries of Central and Eastern Europe to follow the socially controversial path of system transformation. However, this brought about a high rate of economic growth. Therefore it may be concluded that maintaining the low levels of public revenues and spending as well as budget deficit and public debt ensure not only meeting the convergence criteria but also a higher rate of economic growth than that attained by the non-compliant countries.

The analysis has demonstrated the risks related to unsound selection of fiscal policy instruments that are run by the countries of Central and Eastern Europe. The core objective of fiscal policy is attaining a high rate of sustainable economic growth. However, the emerging economies are often tempted to achieve the short-term social objectives. The budget deficit may be utilised to achieve such objectives e.g. to maintain a political consensus. Still, a frequent side effect is an increased public debt. The Hungarian economy makes an example of the adverse impact of unsound selection of fiscal instruments to reach short-term objectives. The sluggish GDP is just an outcome of such policies. Consequently, the next objective of Hungarian government must be restoring the balance of public finances. It seems that the Hungarian government suffers from a deficit – first voluntary and then imposed – of instruments to create a long-term, sustainable economic growth. It seems that the fiscal solutions applied by the Baltic states or Romania are best-suited to the specifics of the emerging economies of Central and Eastern Europe. Maintaining the discipline of public finances, low budget deficit and consequently low public debt translate into high rates of economic growth. In this case, the primary objective of fiscal policy prevails over the short-term goals. Moreover, in an economy maintaining the discipline of public finances, the fiscal instruments are easier to apply in a situation of such a global economic downturn as the one we saw in the second half of 2008. An analysis of the processes arising from the fiscal policies adopted by Hungary or other countries discussed here seems to be an exercise recommendable for Poland, which still runs the risk of applying the fiscal instruments to short-term goals at the expense of long-term economic growth.

References:

- [1] Eurostat (20.02.2011),
http://epp.eurostat.ec.europa.eu/portal/page/portal/government_finance_statistics/data/main_tables
- [2] FATAS, A., MIHOV, I. (2003), „On Constraining Fiscal Policy Discretion in EMU”, *Oxford Review of Economic Policy*, 19:112-131
- [3] OWSIAK, S. (2002), *Finanse publiczne. Teoria i praktyka* [*Theory and Practice of Public Finances*, in Polish], Warszawa: Wydawnictwo Naukowe PWN.
- [4] PIOTROWSKA, M. (2007),
<http://mikro.univ.szczecin.pl/bp/pdf/41/10.pdf> 16.02.2010.

THE CONCEPT OF TRANSACTION COSTS AND THE FUNCTIONING OF THE ECONOMY IN SELECTED REGIONS OF THE WORLD

Marian Zalesko

University of Białystok
mzalesko@uwb.edu.pl

Key words:

transaction costs – economic system – economic changes

Abstract:

The increasing complexity of economic processes generates increasing costs. Transaction costs are becoming more and more important in the structure of operating costs in the economy. Their size in modern market economies in many countries exceeds 50% of the national income and increases during the time. The article aims to present research on the economics of transaction costs. This topic should become an area of interest for larger group of economists.

Introduction

The increase in operating costs of the economy requires their identification. Transaction costs have important role in this area. In the opinion of R. Coase, a leading representative of the institutional economics, the concept of transaction costs is crucial to understand the rules of the economic system [4, 6]. Meanwhile, analysis of transaction costs is still hardly visible in the modern economic thought.

This article aims to present the size of transaction costs in the economies of selected countries. The study will pay attention to the problems associated with defining transaction costs. It presents also some problems resulting from the method for measuring them.

1. Outline of the economics of transaction costs

Issues relating to transaction costs are among the major directions of the research in the new institutional economics. The foundations of the theory of transaction costs were created by R. Coase. He noted that the transactions to be concluded in the economy accompanied by a variety of costs, which correspond to the "friction forces" in the physical system. He also emphasized that little attention is paid to the transaction costs in the developing of the economic models. As a result, the theory is often far from the problems of the economy in practice [3, 386-405].

In O. Williamson's opinion the economics of the transaction costs is a valuable direction of the research. It is characterized by comparative, institutional approach to the study of economic organization in which transactions are the basic unit of analysis. It has an interdisciplinary character as it takes into account the economic, legal and organizational aspects. It has a relatively wide range of interests and broad application. Practically all the relationships, economic or others, in the form of a contract can be advantageously analyzed and evaluated using the concepts of the economics of transaction costs. This applies to most explicit and implicit contractual relations [13, 387].

2. Defining the transaction costs

It is assumed that the concept of transaction costs has been introduced into the economics by R. Coase, and J. Hicks. Two prominent economists in their work from the 30s The twentieth century [3, 386-405, 7, 1-19] have attempted to replace the concept of friction in the economic system (the term used by economists in the nineteenth century), with the cost category. But they did not use the term of transaction cost not directly nor unambiguously. Coase used the term of the cost of the functioning of the price mechanism. Hicks, in turn, used the cost of transfer of assets. Formally, the term of transaction cost (in truth, treated as a brokerage fee) was introduced to economics in the mid-twentieth century, by J. Marschak [9, 71-100].

This raises the question: How to define a transaction cost? K. Arrow has defined transaction costs as the "costs of running the Economic System" [1, 48]. J. Wallis and D. North, in turn, argue that "transaction costs are the costs associated with making exchanges, the costs of performing the transaction function" [12, 97]. In Polish economic literature interesting definition of transaction costs was presented by W. Stankiewicz. In his opinion, "transaction costs are part of the total costs of the socio-economic systems, which includes expenditures on conclusion and implementation of all types of transaction" [10, 170].

The economic literature usually distinguishes three types of transaction costs. E. Furubotn and R. Richter divided them into: market transaction costs, hierarchical transaction costs (costs of managing the enterprise) and the political transaction costs. Market transaction costs are the costs of spontaneous cooperation based on competition. Management costs in the enterprise consist of costs of maintaining the company organizational structure on the one hand and costs of decision-making in the company on the other. Political transaction costs are expenses incurred by the state for the organization and maintenance of wider structures of state administration and the costs of creating and maintaining the shape of the constitution

confers politico-economic system of the state [6, 43]. It should be noted that transaction costs are endogenous in nature in relation to the direct costs of production.

3. Measuring transaction costs and their size in selected economies

Attempts to measure transaction costs have not brought a uniform method of calculating them. The most famous example in the economic literature to measure transaction costs can be found in the work of J. Wallis and D. North's¹ [12, 95-161] and it relates to the U.S. economy. In order to calculate the size of transaction costs in the economy, researchers divided the economy into production sector and the transactions sector. The first plays the transformation function, a second transaction function. Then, they spitted the transactions sector of the economy into the private and the public sector. In the next step the private sector was divided into transactional industry and non-trading industry. They assumed the amount of resources that can be used to carry out the functions of the transaction in both forms of the industry. Transaction costs in the transactional industry are understood as a gross value of production created by the resources. Transaction costs in the nontransaction industry are the labour costs of employed people in accomplishing the transactional functions in various industries, such as labor cost accountants, lawyers. The third type of costs, which appeared in the study was defined as public transaction costs. Their measure is the scale of expenditures incurred by the government to carry out the functions of the transaction. North and Wallis use two ways of measuring such spending. In the first method (I) they divide government's activity into transaction and non-transaction. Estimating the size of transaction costs is carried out here on the basis of analogues to calculate them in the private sector transaction. In the second case (II), the government is treated as a nontransaction industry. Transaction costs are here the size of the wage bill. Table 1 presents results of the research.

¹ It is worth noting that the North and Wallis seem aware of the imperfections of the method of measuring transaction costs, which they presented. They state unequivocally that "We attempt to measure the level of transaction services provided in the economy, not the level of total transaction costs" [12, 99].

TAB. 1:

Percentage share of the transaction sector in the GNP in the U.S. (1870-1970)

Year	Private sector	Public sector		Total value	
		I	II	I	II
1870	22,49	3,6	1,7	26,09	24,19
1880	25,27	3,6	1,7	28,87	26,97
1890	29,12	3,6	1,7	32,72	30,82
1900	30,43	3,67	1,71	34,10	32,14
1910	31,51	3,66	1,93	35,17	33,44
1920	35,10	4,87	2,07	39,98	37,17
1930	38,19	8,17	2,62	46,35	40,81
1940	37,07	6,60	4,83	43,69	41,92
1950	40,30	10,95	4,33	51,25	44,63
1960	41,30	14,04	4,05	55,35	45,36
1970	40,80	13,90	5,86	54,71	46,66

Source: study based on [13, 121].

The data presented in Table 1 indicate the growing importance of the transaction sector in the U.S. economy. The share of the resources involved in the transaction sector in the GNP in the United States ranged from approximately 26% in 1870 to nearly 55% in 1970 (according to first method of calculations).

The increase in the resources consumed by the transactional sector in this country was driven by the major structural changes in the economy. "These have included the shift from rural to urban living, the shift in the composition of output away from agricultural and manufacturing toward the Extractive Industries, and then, more recently, the growth of services and the growth of government, the changing size of Firms from the late Nineteenth Century, the and the growing sophistication of Economic organization" [12, 120]. Wallis and North said that "The growth of the transaction sector is the growth of a function Necessary to the Coordination of the Tremendous amount of resources have been committed That is the market over the last hundred years" [12, 125].

One can find in literature the results of the size of transaction costs in other countries. B. Dollery and Leong W. shows the size of transaction costs in the GDP of Australia. In the years 1911-1991 their size increased from 35% to 60% [5, 207-231]. A similar trend was observed in Japan, Germany and France. D. Eissrich shows the size of transaction costs in the GDP of these countries for the years 1960-1990. In Japan, the share of transaction costs in

the GDP increased from 40% in 1960 to 56% in 1990. In Germany increased, respectively from 38% to 52% and in France from 34% to 63% [8, 329].

Attempts to estimate the transaction costs were also taken in transition economies, like Poland and Bulgaria. The study of transaction costs in the Polish economy was conducted by A. Sulejewicz and P. Graca-Gelert. The size of transaction costs in 1996-2002 was estimated between the range of about 50% and over 67% [11, 227-262]. In Bulgaria, the scale of transaction costs was estimated for the years 1997-2003 by G. Chobanov, H. Egbert and A. Giuredzheklieva. Their calculations showed that during that period transaction costs increased from 37.5% to 52.7% [2].

Transaction costs in modern market economies have increasingly larger share in the total costs. Their size increases during the time. It is worth to point out that the dynamics of transaction costs in developing countries, like Poland and Bulgaria were clearly higher as compared to the trends observed in developed market economies, in results from economic transformations in the post-communist countries in the Europe.

Summary

Transaction costs are an important part of the costs of the functioning of the economy. Their value increases from year to year. This trend is visible both in highly developed countries (US, Japan, Germany) as well as in less developed market economies (Poland, Bulgaria). The increase of the transaction costs results from the growing complexity of the economic systems.

References:

- [1] ARROW, K. J. The Organization of Economic Activity: Issues Pertinent to the Choice of Market versus Nonmarket Allocation. [In:] *The Analysis and Evaluation of Public Expenditure: The PPB System*, Vol. 1, US Joint Economic Committee, 91st Congress, 1st Session, Washington DC 1969, US Government Printing Office, pp. 47-64.
- [2] CHOBANOV, G., EGBERT, H., GIUREDZHEKLIEVA, A. *The Transaction Sector in the Bulgarian Economy*, Paper prepared for the ISNIE 2007 Conference Reykjavik, Iceland (June 21-24), <http://www.isnie.org/assets/files/papers2007/egbert.pdf>, (date of access 18.11.2011)
- [3] COASE, R. H. *The Nature of the Firm*, "Economica" 1937, No. 4, pp. 386-405. ISSN 0013-0427
- [4] COASE, R.H. *The Firm, the Market, and the Law*, University of Chicago Press, Chicago 1988. ISBN: 978-0226111018

- [5] DOLLERY, B. E., LEONG, W. H. *Measuring the transaction sector in the Australian Economy, 1911-1991*, "Australian Economic History Review", 1998, vol. 38, no. 3, s. 207-231. ISSN 0004-8992
- [6] FURUBOTN, E. G., RICHTER, R. *Institutions and Economic Theory. The Contribution of the New Institutional Economics*, The University of Michigan Press, Ann Arbor 2000. ISBN 0-47208-680-4
- [7] HICKS, J. R. *A Suggestion for Simplifying the Theory of Money*, "Economica" 1935, No.2, pp. 1-19. ISSN 0013-0427
- [8] MAŁYSZ, J. Instytucje a koszty transakcyjne w świetle neoinstytucjonalnej ekonomii. „*Ekonomista*” 2003, No. 3, pp.315-339 ISSN 0013-3205
- [9] MARSCHAK, J. *The Rationale for the Demand for Money and of "Money Illusion"*, "Metroeconomica" 1950, No. 2, pp.71-100. ISSN 0026-1386
- [10] STANKIEWICZ, W. *Ekonomia instytucjonalna. Zarys wykładu*, Wydawnictwo Prywatnej Wyższej Szkoły Businessu, Administracji i Nauk Komputerowych w Warszawie, Warszawa 2007. ISBN: 978-83-86031-46-7
- [11] SULEJEWICZ, A., GRACA-GELERT. P. *Kształtowanie się poziomu kosztów transakcyjnych w Polsce w latach 1996-2002*. [In:] Wzrost gospodarczy w krajach transformacji: konwergencja czy dywergencja? (ed.) R. Rapacki, Polskie Wydawnictwo Ekonomiczne, Warszawa 2009. ISBN: 978-83-208-1808-6
- [12] WALLIS, J. J., NORTH, D. C. *Measuring the Transaction Sector in the American Economy, 1870-1970* [in:] *Long-Term Factors in American Economic Growth*, [ed.] S.L. Engerman, R.E. Gallman, University of Chicago Press, Chicago 1986, pp. 95-161. ISBN: 0-226-20928-8
- [13] WILLIAMSON, O. E. *The Economic Institutions of Capitalism, Firms, Markets and Relational Contracting*, Free Press, New York 1985. ISBN 0-02-934821-8

Hradec Economic Days

Volume 2

Issue 1

Double-blind peer-reviewed proceedings part II. of the international scientific conference Hradec Economic Days 2012 Economic

Development and Management of Regions

January 31st and February 1st, 2012

Editor: Pavel Jedlička

Hradec Economic Days are published annually

Edition size: 150 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 978-80-7435-172-3