

ZU - UNIVERSITY OF ZILINA  
The Faculty of Operation and Economics of Transport and Communications,  
Department of Economics

## **GLOBALIZATION AND ITS SOCIO-ECONOMIC CONSEQUENCES**

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prof. Ing. Jaroslav BELAS, PhD.

University of Zilina, Slovak Republic  
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Dr.h.c. prof. Ing. Tatiana COREJOVA, PhD.  
assoc. prof. Ing. Viktor V. DENGGOV, Ph.D.  
prof. Ing. Valentina V. GERASIMENKO, Ph.D.

University of Zilina, Slovak Republic  
State University in St. Petersburg, Russia  
Lomonosov Moscow State University,  
Russian Federation

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Administration, Praha, Czech Republic

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University of Zilina, Slovak Republic  
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## PROVISION OF TRADE CREDIT UNDER THE CONDITIONS OF GLOBALIZATION

Anna Siekelová<sup>1,a,\*</sup>, Ivana Podhorská<sup>2,b</sup>

<sup>1</sup>University of Zilina, The Faculty of Operation and Economics of Transport and Communications,  
Univerzitná 1, 010 26 Zilina, Slovakia

<sup>2</sup>University of Zilina, The Faculty of Operation and Economics of Transport and Communications,  
Univerzitná 1, 010 26 Zilina, Slovakia

<sup>a</sup>anna.siekelova@fpedas.uniza.sk, <sup>b</sup>ivana.weissova@fpedas.uniza.sk

\*Corresponding author

**Abstract.** The existence of business entities is significantly affected by economic, political and social factors of the country. There probably is not a sector in which companies do not have smaller or bigger financial problems at the time of global economic difficulties. Offering trade credit is a strategic tool in the hands of the company. There are businesses that have a significant proportion of assets bound in receivables. A significant component of receivables is represented by trade receivables. Financial problems cause deterioration of customer's payment discipline that negatively affects the solvency of the business entity. Recent surveys have shown improvement of payment discipline of business entities. Nevertheless, the situation is not favourable. Business entities are subjected to credit risk. It is due to the fact that many receivables are paid after maturity date and some of them are not paid at all. Credit risk belongs to a group of financial risks. The risk faced by each entity that provides trade credit. The success or failure of the business entity depends on the ability to identify this risk and minimize it. Receivables management is one of the tools how to successfully reduce the emergence of bad debts in the company. In providing trade credit company emphasizes the careful selection of its business partners. The aim of this paper is to determine the optimal amount of short-term receivables on an individual company as well as the draft of the general credit risk rating model of the customer.

**Keywords:** trade credit, late payment, receivable, credit risk.

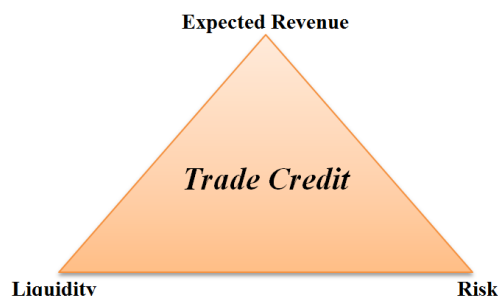
**JEL Classification:** G30, G17, F60.

### 1. Theoretical aspects of providing trade credit

Supplier-customer relationships arise between entities in the market. These entities have the available funds at different times. Supplier does not require payment of the supply of goods or services at the moment of delivery to overcome this timing mismatch. It is allowed to pay at some point in the future to customer. (Hu and Lin, 2009) It is a process of providing trade credit. Providing trade credit has become a common part of business. Receivables keep a significant part of the capital in the company. Most of the company's receivable has a character of trade credit. Favorable payment terms to customers can be a competitive advantage. The purpose of providing trade credit is to increase the revenue that is due to increased sales. We can say that providing trade credit is such marketing as financial decisions. In terms of marketing it is a sales promotion, in terms of corporate financial management providing trade credit is a measure to increase profits through efficient investment of capital to its customers. (Režňáková, 2010)

As part of our contribution we deal with providing trade credit from the perspective of corporate financial management. On trade credit we are going to look like on any other financial investment in terms of expected return, liquidity and risk.

Figure 2: Triangle of investment in term of trade credit



Source: Own processing

Expected return is represented by profit from increased sales. Under the liquidity we can understand the maturity of the trade credit but also the possibility of trade credit to be converted into cash before the expiry date. Provision of trade credit is also connected with the risk that invoice will not be paid properly and on time by customer according to the agreed contractual terms and conditions. This is one of the basic kinds of financial risk, also called credit risk.

### 1.1 Expected revenue of providing trade credit

The following formula can be used for the calculation of the expected revenue from the sale.

$$\text{expected revenue} = \text{the percentage of contributions to cover fixed costs} \times \text{increased sales} \quad (1)$$

We should also take into account some specific features connected with the provision of trade credit, in particular the cost associated with the provision of trade credit. We can mention opportunity costs. (Michalski, 2012) As mentioned above, a significant part of capital is bound in receivables. By offering trade credit company temporarily waive its right to use the capital that would be gained by immediate payment at the moment of delivery of goods or services. Furthermore, it is also the increased administrative costs associated with the management of trade credit in company. (Spuchlakova et al., 2014; Valaskova et al., 2014) An enterprise that does not have enough free capital and provides trade credit, often must obtain the necessary capital from other sources, the most common form – bank loans. Thus, we can talk about the cost of raising capital; usually take the form of interest costs. Last but not least it is the cost of providing a discount in the event that the customer pays within a specified period of less than maturity of receivable. Most of the costs which were mentioned do not directly appear in the records of the company. It distorts view of providing trade credit and also leads to the arguments about cost-free trade credit. Režňáková presents utilization annual effective interest rate ( $r_e$ ) as an option to calculate the cost of trade credit. (Režňáková, 2010)

$$r_e = (1 + r)^t - 1 \quad (2)$$

Where:

- $r_e$  annual effective interest rate,
- $r$  nominal interest rate for the period (the discount rate),
- $t$  the number of periods over which the remuneration repeats.

In case that the company provides trade credit to its customer under the following conditions *the maturity of the trade credit is 30 business days, if the customer pays within 5 days from the delivery of goods services the discount rate is 2% of trade credit*, we can determine the cost of

trade credit as follows. Credit costs (without taking into account the time of his maturity) are  $0.02 / (1 - 0.02) = 2.0408\%$ . The number of periods over which the remuneration repeats (t), if the discount is taking into account, can be calculated as:

$$t = \frac{365}{30 - 5} = 14.6 \quad (3)$$

Consequently, it is possible to calculate the annual effective interest rate as follows.

$$r_e = (1 + 0.020408)^{14.6} - 1 = 0.343069 \quad (4)$$

The cost of trade credit in the chosen company is 34.31%. So business gets a chance to compare the cost of trade credit to the cost of other forms of credit.

## 1.2 Liquidity of trade credit

Under the liquidity we can understand the maturity of the trade credit but also the possibility of trade credit to be converted into cash before the expiry date.

The main provisions of Directive 2011/7/EU on combating late payment in commercial transactions are connected with payment terms. Public bodies must pay for the goods or services within 30 calendar days. Only in very exceptional circumstances, it is possible to extend this period to 60 days. Days invoice outstanding between companies was set at 60 calendar days. Enterprises still have the possibility to modify the maturity date by mutual agreement under the condition that such extension is not grossly unfair to the creditor. (2011) The following table shows a comparison of average maturities that Slovak companies provide their customers in 2015 and 2016.

Table 1: Average payment term that are allowed by companies in Slovakia

	<b>B2C</b>	<b>B2B</b>	<b>Public Sector</b>
<b>2016</b>	17	22	25
<b>2015</b>	15	19	18

Source: (Intrum Justitia, 2016)

Based on the survey it can be stated that the average maturity has increased, most significantly in the public sector. 45% of Slovak companies also confirmed that it have encountered demand to extend the period of payment by its customer in 2016. It's not just the situation in Slovakia. The situation is the same in Europe. Almost half of businesses confirmed that they meet customer's demands for extending the maturities. Most of them also allow repaying debt through instalments. (Li et al., 2016) The focus of Slovak export markets is European countries. Slovak Republic has the highest positive balance in 2015 with Germany, UK, Poland, Austria, France, Czech Republic, Spain, Italy and Netherlands. (SARIO, 2015) The following table shows average payment term that are allowed by companies in selected countries.



Table 2: Average payment term that are allowed by companies in selected countries

	<b>B2B</b>	<b>B2C</b>	<b>Public Sector</b>
<b>Germany</b>	12	14	14
<b>UK</b>	25	29	27
<b>Poland</b>	21	24	23
<b>Austria</b>	18	23	24
<b>France</b>	36	41	46
<b>Czech republic</b>	18	21	25
<b>Spain</b>	44	57	65
<b>Italy</b>	31	60	88
<b>Netherlands</b>	21	27	29

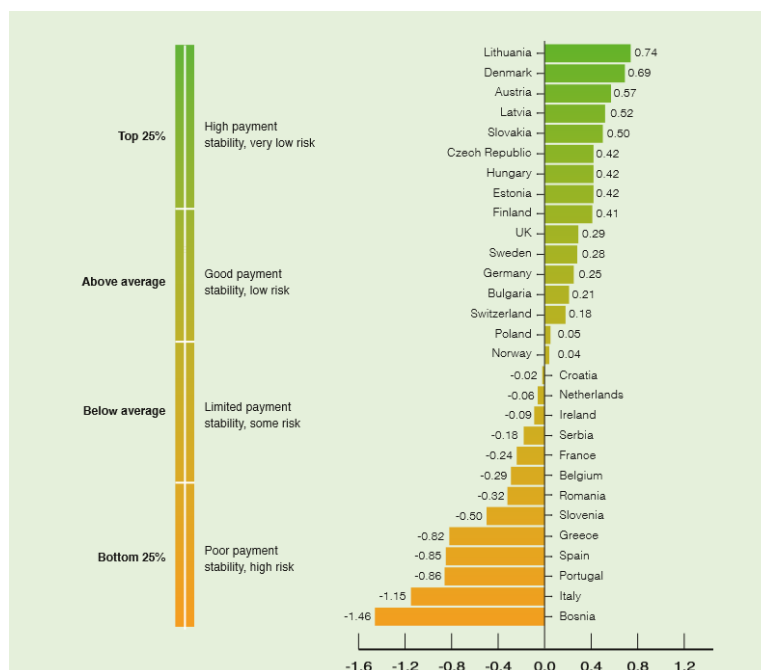
Source: (Intrum Justitia, 2016)

The provision of trade credit in the world for businesses with bad credit history becomes an opportunity to obtain funding. When setting maturities companies should take into account the cash cycle, hence the need for funds to some point to cover its own commitments, as well as the cost of short-term foreign capital in the event that it was necessary to additionally get to bridge timing differences between revenue and expenditure in company. Maturity in providing trade credit is usually individual and depends on the specific client. Generally, the repayment term is lower to new client than to a client with whom company has a positive previous experience with payment in trade credits. Part of this subchapter is also the possibility of obtaining funds before the maturity of trade credit. Entrepreneurs who have money tied up in accounts receivable can reach their finance before the maturity of the debt due to redemption, albeit at the expense of paid commissions. Redemption of short-term receivables is called factoring and forfeiting is redemption of long-term receivables. According to available data from 2015, VUB Factoring, as one of the leaders in the field of factoring in Slovakia, achieved total sales of 380.1 million EUR, of which 57.1 million EUR represents debt collection and 323.0 million EUR is "pure" factoring turnover. The greatest amount of debt was repurchased towards foreign companies (up to € 163.7 million EUR), the amount of repurchased receivables in domestic factoring was 156.5 million EUR and it was 2.8 million EUR in import factoring. (VÚB Factoring, 2015)

### 1.3 Risk connected with providing trade credit

Basic of economic perception of receivables consists in providing trade credit. Trade receivables arise from the implementation of the business relationship between business partners. Trade credit is given to the customer as a sign of trust and fair trade relations. (Gama and Van Auken, 2015; Kozak, 2009) Credit risk is particularly important in international business. The author Černohlávková (2014) divides risks in international business on country risk that is associated with the choice of land for business activities, commercial risk that is associated with the choice of business partner and currency risk associated with the role of individual currencies in international business. The results of European Payment Index Report 2016 the risk index connected with late payments of selected European countries

Figure 2: European Payment Index 2016



Source: (Intrum Justitia, 2016)

A situation in which all receivables are paid properly and on time is unrealistic. (McGuinness and Hogan, 2016) Despite the fact that the company must accept that offering trade credit is connected with a significant risk of non-payment, it is necessary to know the tools how to minimize that risk. (Dengov and Gregova, 2010) Documentary credit and documentary collection can be used in international transactions as hedging instruments. (Chen et al., 2007) According to the latest available data, the most common reason for non-payment of receivables is insolvency of business partner. (Intrum Justitia, 2016) So we will deal with assessing of creditworthiness of client. If company is able to assess client creditworthiness it is presumption that company is able to minimize credit risk in providing trade credit. (Kim and Kang, 2016)

## 2. Trade credit management in the company

Credit policy plays an important role in trade credit management. It sets out the basic procedures in the provision of trade credit to avoid any possible problems with debt collection in the future. (Elsila, 2015) It has preventive role in the management of trade receivables in the company. Many businesses start to deal with receivables at a time when they are not paid properly and on time. We incline to the opinion of several authors who deal with this topic and highlight the proactive system of receivables management in the company. It means that the company must deal with receivables even before its inception. (Mian and Smith, 1992) Selection of suitable business partners that company decides to provide trade credit and setting of correct credit limits are basic precondition for reduction of late payment. We will deal with this topic in the following subsections.

## 2.1 Determination of trade credit limits

Amount of limit trade credit varies depending on the client. Under this subchapter we will focus on determining the optimal amount of trade credit that company provides. (Loeser, 1988) It is an optimization for the amount of trade receivables in a company.

**Model example:** Company has contractually agreed payment periods ranging from 30 to 60 days with their customers. Optimal amount of receivables can be determined using the following formula.

$$\text{receivables}_{\text{opt}} = \frac{\text{collection period of receivables} \times \text{sales}}{360} \quad (5)$$

Of course this is a very simplistic approach to setting a limit on the amount of trade receivables in the company. It is necessary to take into account the payment period of liabilities in the company, which should copy collection period of receivables as well as the real time collection of receivables in the company, which may be longer than 60 days in the event that receivables are not paid properly and on time. (Gorczyńska, 2011) If the collection of receivables decreases company achieves its sales at the lower bound of funds in trade receivables.

## 2.2 General credit risk rating model of the customer

The starting point for determining the creditworthiness of the customer is financial analysis. (Abdou et al., 2016) In determining the creditworthiness of the customer it is necessary to take into account quantitative and also qualitative criteria. (Misankova et al., 2015) To determine the client's creditworthiness based on quantitative indicators is commonly used some prediction models. These models are based on calculation of quantitative indicators. (Bod'a and Uradnicek, 2016) Taking into account the fact which indicators are most often used in these models, we propose to use the following indicators to assess creditworthiness of the customer.

Table 3: Chosen indicators for general credit risk rating model of the customer

Indicators	Calculation	Recommended Value
Return on assets	$\frac{EBIT}{total\ assets} \times 100$	14%
Return on equity	$\frac{EAT}{equity} \times 100$	Min. amount of the current interest rate
Return on sales	$\frac{EAT}{sales} \times 100$	10%
Quick ratio	$\frac{Current\ assets - Inventory}{Current\ liabilities}$	Min. 1
Current ratio <sup>1</sup>	$\frac{Current\ assets}{Current\ liabilities}$	Min. 1,5
Collection period of receivables	$\frac{The\ average\ amount\ of\ trade\ receivables}{sales} \times 360$	60 days (necessary to follow up the sector averages)
Payment period of liabilities	$\frac{The\ average\ amount\ of\ trade\ liabilities}{Operating\ costs} \times 360$	60 days (necessary to follow up the sector averages)
The degree of self-financing	$\frac{Equity}{Total\ assets}$	More than 30%
Flow debt	$\frac{Foreign\ sources}{Operating\ CF}$	

Source: Own processing

The qualitative part of assessing the creditworthiness of the customer should take into account the sector in which it operates its market position through calculation of market characteristics, company prospects for the future, management level but also the way to ensure sales. (Kadlečík and Markovič, 2015)

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### References

- [1] Abdou, HA., Tsafack, MDD., Ntim, CG., Baker, RD. (2016) Predicting creditworthiness in retail banking with limited scoring data. *KNOWLEDGE-BASED SYSTEMS*, vol. 103, pp. 89-103.
- [2] Bod'a, M., Uradniecek, V. (2016) The portability of Altman's z-score model to predicting corporate financial distress of slovak companies. *TECHNOLOGICAL AND ECONOMIC DEVELOPMENT OF ECONOMY*, vol. 22, pp. 532-553.
- [3] Dengov, V.V., Gregova, E. (2010). Economic decision-making under uncertainty and risk. Methodology and criteria for decision-making. *Ekonomicko-manazerske spektrum*, vol. 4, pp. 28-45.

<sup>1</sup> results can be distorted by the amount of bad debt and unsold inventory in the enterprise

- [4] Directive 2011/7/EU on combating late payment in commercial transactions.
- [5] Elsilá, A. (2015) Trade Credit Risk Management: The Role of Executive Risk-Taking Incentives. *JOURNAL OF BUSINESS FINANCE & ACCOUNTING*, vol. 42, pp. 1188-1215.
- [6] Gama, APM., Van Auken, H. (2015) The Interdependence between Trade Credit and Bank Lending: Commitment in Intermediary Firm Relationships. *JOURNAL OF SMALL BUSINESS MANAGEMENT*, vol. 53, pp. 886-904.
- [7] Gorczynska, M. (2011) Accounts Receivable Turnover Ratio. The Purpose of Analysis in Terms of Credit Policy Management. *8th International Scientific Conference on Financial Management of Firms and Financial Institutions*. Ostrava, Czech Republic, pp. 112-118.
- [8] Hu, XW., Lin, XZ. (2009) The Causes and Risk Management of SME's Accounts Receivable Based on Information Asymmetry. *International Small and Medium Enterprise Forum on SME Growth and Sustainability*. Beijing, PEOPLES R CHINA, pp. 210-215.
- [9] Chen, J. Chao, XL., Wang, SY. (2007) Delayed cash payment, receivable and inventory management. *IEEE International Conference on Networking, Sensing and Control*. London, England, pp. 105-110.
- [10] Intrum Justitia (2016). European Payment Report 2016. [Online]. Available: <https://www.intrum.com/globalassets/countries/norway/documents/2016/european-payment-report-europa-2016.pdf>
- [11] Kadlečík, K., Markovič, P. (2015). *Hodnotenie kreditného rizika odberateľa*, Bratislava, SR: Wolters Kluwer.
- [12] Kim, J., Kang, P. (2016) Late payment prediction models for fair allocation of customer contact lists to call center agents. *DECISION SUPPORT SYSTEMS*, vol. 85, pp. 84-101.
- [13] Kozak, A. (2009) Receivable management and customer loyalty in one step. *BWK*, vol. 61, pp. 48-49.
- [14] Li, DY., Lu, Y., Ng, T., Yang, J. (2016) Does Trade Credit Boost Firm Performance? *ECONOMIC DEVELOPMENT AND CULTURAL CHANGE*, vol. 64, pp. 573-602.
- [15] Loeser, D. (1988) Improving accounts receivable management. *JOURNAL OF ACCOUNTANCY*, vol. 166, pp. 116-117.
- [16] Machková, H., Černohlávková, E., Sato, A. et al. (2014). *Mezinárodní obchodní operace*, Praha, Česká republika: Grada.
- [17] McGuinness, G., Hogan, T. (2016) Bank credit and trade credit: Evidence from SMEs over the financial crisis. *INTERNATIONAL SMALL BUSINESS JOURNAL*, vol. 34, pp. 412-445.
- [18] Mian, SL., Smith, CW. (1992) Accounts receivable management policy - theory and evidence. *JOURNAL OF FINANCE*, vol. 47, pp. 169-200.
- [19] Michalski, G. (2012) Efficiency of accounts receivable management in Polish institutions. *9th International Conference on European Financial Systems 2012*. Brno, Czech Republic, pp. 148-+.

- [20] Misankova M., Spuchlakova E., Frajtova – Michalikova K. (2015) Determination of Default Probability by Loss Given Default, *Procedia Economics and finance*, vol. 26, pp. 411-417.
- [21] Režňáková, M. et al., (2010). *Řízení platební schopnosti podniku*, Praha, Česká republika: Grada.
- [22] SARIO (2015). Exportné trhy. [Online]. Available: <http://www.sario.sk/sk/exportujte-do-zahranicia/exportne-trhy>
- [23] Spuchlakova, E., Frajtova – Michalikova K., Birtus, M. (2014) Credit Risk Measurement. *Advances in Education Research*, vol. 61, pp. 75-79.
- [24] Valaskova, K., Gavlakova, P., Dengov, V. (2014) Assessing Credit Risk by Moody's KMV Model, *Advances in Education Research*, vol. 61, pp. 40-44.
- [25] VÚB Factoring (2015). VÚB Factoring obrat za rok 2015. [Online]. Available: <https://www.vub.sk/sk/faktoring/o-nas/novinky/hnacim-motorom-rastu-vub-boli-uvery.html>

# MATERIAL DEPRIVATION AND ITS REFLECTION IN THE SLOVAK SOCIETY

Silvia Šipikalová<sup>1,a</sup>

<sup>1</sup>Department of Social Development and Labour, Faculty of National Economy, University of  
Economics in Bratislava, Dolnozemska cesta 1, 852 35 Bratislava, Slovakia

<sup>a</sup>email:silvia.sipikalova@euba.sk

\*Corresponding author

**Abstract.** Globalization processes, due to which markets and production in different countries become interdependent, has brought fundamental changes in the inequalities of society. In all economically developed countries the impacts of globalization have significantly changed the proportion of distribution of socially created wealth for the benefit of the highest social classes. The processes of economic globalization affect selectively. We can say that globalization makes inequality, poverty and social exclusion more visible and increases the sensitivity of their perception. The indicator of material deprivation expresses multidimensionality of poverty and social exclusion. Material deprivation in Slovak condition was not investigated until accession to the European Union. Since 2005 the Slovak Republic has participated in the regular statistical survey European Union Statistics on Income and Living Condition (EU-SILC) whereby we get a reflection of the state of material deprivation. The intention of this paper is using secondary analysis of statistical data of EU-SILC identified the extent of materially deprived persons in the Slovak Republic who are due to a lack of resources excluded from the acceptable living standard of Slovak society. The attention is further focused on the selected dimension of material deprivation and potential risks of persistence of this phenomenon in the Slovak society.

**Keywords:** globalization, inequality, poverty, material deprivation

**JEL Classification:** I39, O15, R29

## 1. Introduction

V posledných rokoch je pomerne veľká pozornosť venovaná nerovnostiam na globálnej úrovni, pričom jedným z katalyzátorov je globalizácia. Globalizačné procesy, v dôsledku ktorých sa trhy a výroby v rôznych krajinách stávajú od seba závislými, priniesli zásadné zmeny v nerovnostiach spoločnosti. Vo všetkých ekonomicky vyspelých krajinách sa dôsledkom globalizácie výrazne mení proporcia rozdeľovania spoločensky vytvoreného bohatstva v prospech najvyšších vrstiev, pričom procesy ekonomickej globalizácie pôsobia selektívne. S rozvojom trhovej ekonomiky zostali v podnikaní zachované prvky spoločenskej zodpovednosti iba ojedinele. Väčšinou sa týkajú veľkých nadnárodných spoločností alebo bánk a zameriavajú sa na kultúru alebo poskytovanie štipendií. Prioritou väčšiny firiem je ale zisk (Poláčková, 2015, A, s. 583). Sociálne dôsledky ekonomickej transformácie, globalizácie a hospodárskej recesie znamenajú rast počtu osôb, ktoré z dôvodu rozličných znevýhodnení podstupujú zvýšené riziko sociálneho vylúčenia (Pongrácz a kol., 2015, s.5). Môžeme konštatovať, že globalizácia robí nerovnosti, chudobu i sociálne vylúčenie viditeľnejšími a zvyšuje citlivosť ich vnímania. V súvislosti s tým Európska únia (EÚ) v dokumentoch venujúcich sa európskej sociálnej politike kladie dôraz na integrovaný a koherentný charakter

politik inklúzie, čo je zdôvodňované tým, že ich cieľom nie je len doplniť príjem osôb do určitej spoločensky akceptovanej hranice, ale vytvoriť podmienky pre participáciu na ekonomickom a sociálnom živote (Džambazovič & Gerbery, 2005). V riešení sociálnych problémov dnešnej spoločnosti zohrávajú významnú úlohu aj iniciatívy sociálnej ekonomiky na lokálnej úrovni (Poláčeková, 2015, B)

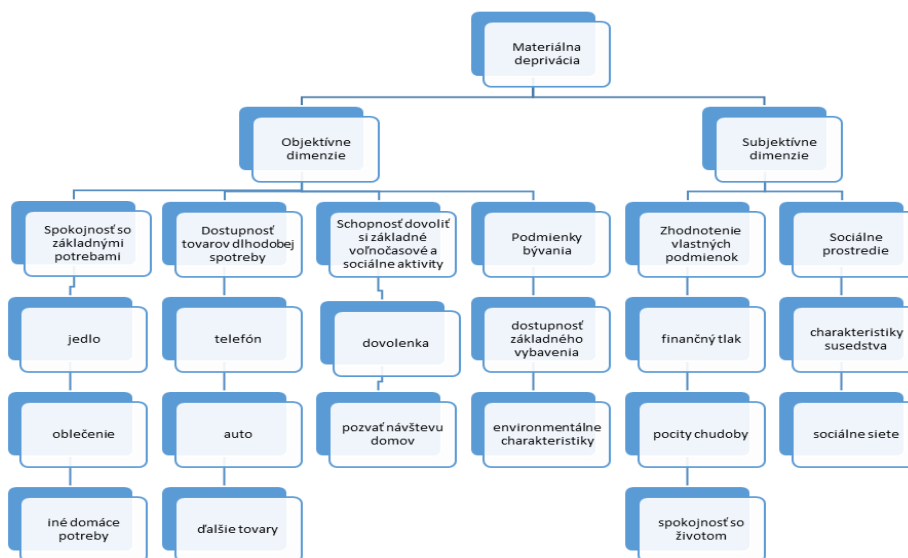
Pochopenie chudoby ako aj sociálneho vylúčenia vychádza preto z vnímania viacerých aspektov života, na ktorých meranie sa využívajú priame a nepriame ukazovatele merania chudoby a sociálneho vylúčenia či už peňažného alebo nepeňažného charakteru. K priamym nepeňažným indikátorom chudoby a sociálneho vylúčenia patrí aj materiálna deprivácia, ktorá je objektom nášho nasledujúceho skúmania.

## 1.1 Vymedzenie materiálnej deprivácie

Pri vymedzení materiálnej deprivácie sa všeobecne poukazuje na nedostatok hmotných statkov, finančné ťažkosti a na neschopnosť jednotlivca žiť dôstojný život. Väčšina autorov definuje materiálnu depriváciu ako vylúčenie z minimálnej prijateľného spôsobu života vo vlastnej spoločnosti i samo z dôvodu nedostatočných zdrojov (Guio & Maquet, 2007, Ayala & Navarro, 2007, Whelan et al 2002, Perry, 2002, Lyte et al. 2001). Ďalšie spoločná definícia sa vzťahuje k nedostatku spoločensky vnímanej potreby (Deutsch, J., et al., 2005, Bradshaw & Finch, 2003; Nolan & Whelan, 1996). Gerbery (2012, s. 11) definuje materiálnu depriváciu ako vynútený nedostatok určitých predmetov alebo vynútená neúčast' na určitých aktivitách. Podľa neho nie je vecou voľby, životného štýlu, ale výsledkom bariér alebo odopretia prístupu k zdrojom či aktivitám.

V literatúre o materiálnej deprivácii sa tak stretávame s celým radom typológií materiálnej deprivácie a rôznymi prístupmi (napríklad rôzne komponenty analýzy), na základe ktorých Boarini & Mira D'Ercole (2006) v štúdiu OECD identifikovali hlavné zložky materiálnej deprivácie. Obrázok 1 predstavuje jednoduchý rozklad širokého pojmu materiálnej deprivácie do jej rôznych rozmerov a pre každý z nich hlavné zložky a jednotlivé položky. Autori pri skúmaní materiálnej deprivácií uplatňujú tak ako objektívne ako aj subjektívne hľadisko merania tohto javu, i keď väčší počet komponentov je objektívneho charakteru.

Figure 1 Rozdielne dimenzie a komponenty materiálnej deprivácie



Source: Boarini & Mira D'Ercole (2006, s. 16)



Je na zvážení každej krajiny, ktoré komponenty a položky v rámci materiálnej deprivácie bude skúmať, aby mala dostatok informácií o materiálnych podmienkach obyvateľov danej krajiny. Členské štáty EÚ v rámci spoločnej otvorenej metódy koordinácie a jednotného štatistického zisťovania o príjmoch a životných podmienkach (EU-SILC) zachycujú depriváciu pomocou viacerých dimenzií, aby zhodnotili situáciu vylúčenia z minimálne prijateľného spôsobu života kvôli nedostatku zdrojov.

V štatistickom zisťovaní EU-SILC sú identifikované 3 kľúčové dimenzie deprivácie<sup>2</sup>:

*ekonomická dimenzia*, tzn. domácnosť si nemôže dovoliť:

- čeliť neočakávaným výdavkom,
- raz do roka týždennú dovolenku mimo domu,
- platiť záväzky (nájom, hypotéka, účty za elektrinu),
- jesť mäso, ryby a ekvivalentné proteíny každý druhý deň,
- udržiavať domov primerane teplým;

*dimenzia nedostatku predmetov dlhodobej spotreby*, tzn. domácnosť si nemôže dovoliť:

- mať auto,
- mať práčku,
- vlastniť farebný televízor,
- telefón,
- mať počítač;

*dimenzia bývania*, tzn. obydlie domácnosti trpí:

- príliš tmavým bytom s nedostatkom denného svetla,
- zatekajúcou strechou/vlhkými stenami/podlahami/základmi,
- žiadnou vaňou alebo sprchou v byte,
- žiadnou vnútornou splachovacou toaletou.

Tieto indikátory ponúkajú syntetické informácie o materiálnych životných podmienkach obyvateľov EÚ.

## **2. Reflexia materiálnej deprivácie s dôrazom na oblasť bývania v podmienkach SR**

Vstupom SR do EÚ sa začala skúmať materiálna deprivácia v rámci pravidelného štatistického zisťovania EU-SILC, i keď nie je až v takom centre záujmu čelných predstaviteľov v porovnaní s ostatnými sociálno-ekonomickými javmi. Na základe údajov EU-SILC 2006 až 2014, môžeme pozorovať zlepšenie pri napĺňaní ekonomickej dimenzie materiálnej deprivácie, nakoľko necelých 40 % slovenských obyvateľov podľa posledne zverejnených údajov nemá problém pri napĺňaní jednotlivých položiek oproti 27,3 % obyvateľom z EU-SILCu 2006. Od začiatku merania materiálnej deprivácie podľa zadefinovaných kritérií ma väčšina obyvateľov problém s napĺňaním 1 položky, resp. 2 položiek. Problém s uspokojovaním všetkých položiek malo podľa EU-SILCu 2014 len 1,5 % obyvateľov, čo je však nárast od EU-SILCu 2010 o 0,4 p.b.

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<sup>2</sup> Spracované podľa: Guio, A.C. – Fusco, A. – Marlier, E.: A European Union Approach to Material Deprivation using EU-SILC and Eurobarometer Data, s. 4

Table 1: Materiálna deprivácia pre ekonomickú dimenziu podľa počtu položiek deprivácie v SR (%)

Krajina	EU-SILC 2006	EU-SILC 2008	EU-SILC 2010	EU-SILC 2012	EU-SILC 2014
0 položiek	27,3	34,3	35,6	40,3	39,7
1 položka	21,2	22,9	22,8	21,6	22,3
2 položky	23,0	20,9	21,5	19,7	19,9
3 položky	19,3	17,2	13,6	12,4	12,2
4 položky	7,5	3,9	5,3	4,9	4,4
5 položiek	1,6	0,8	1,1	1,1	1,5

Source: vlastné spracovanie na základe štatistických údajov Eurostatu z EU-SILC2006-2014 [ilc\_mddd01]

Podľa výsledkov dimenzie predmetov dlhodobej spotreby môžeme konštatovať, že väčšina domácností nemá problém s využívaním zadefinovaných predmetov. Kým podľa výsledkov EU-SILCu 2006 si mohlo dovoliť všetky predmety necelých 63 % obyvateľov, tak podľa EU-SILCu 2014 to bolo už 83,2 %. V priebehu niekoľkých rokov si tak slovenské domácnosti môžu dovoliť väčšinu predmetov dlhodobej spotreby, čo súvisí so znižovaním cien predmetov dlhodobej spotreby, častejším čerpaním spotrebných úverov slovenských domácností ale aj so zvyšovaním životnej úrovne obyvateľov.

Table 2: Materiálna deprivácia pre dimenziu predmetov dlhodobej spotreby podľa počtu položiek deprivácie v SR (%)

Krajina	EU-SILC 2006	EU-SILC 2008	EU-SILC 2010	EU-SILC 2012	EU-SILC 2014
0 položiek	62,8	74,2	79,0	82,3	83,2
1 položka	23,3	17,9	15,0	12,3	12,0
2 položky	12,2	7,0	4,7	4,6	3,8
3 položky	1,3	0,7	1,0	0,5	0,5
4 položky	0,2	0,2	0,2	0,2	0,2
5 položiek	0,2	0,1	0,1	0,2	0,3

Source: vlastné spracovanie na základe štatistických údajov Eurostatu z EU-SILC2006-2014 [ilc\_mddd02]

Posledná dimenzia materiálnej deprivácie – oblasť bývania spôsobuje slovenským obyvateľom najmenšie problémy. Až 91,4 % obyvateľov Slovenska sa nestretáva so zadefinovanými problémami vo svojich obydliach. Najčastejšie obyvatelia majú problém s 1 položkou obydliach.

Table 3: Materiálna deprivácia pre dimenziu bývania podľa počtu položiek deprivácie v SR (%)

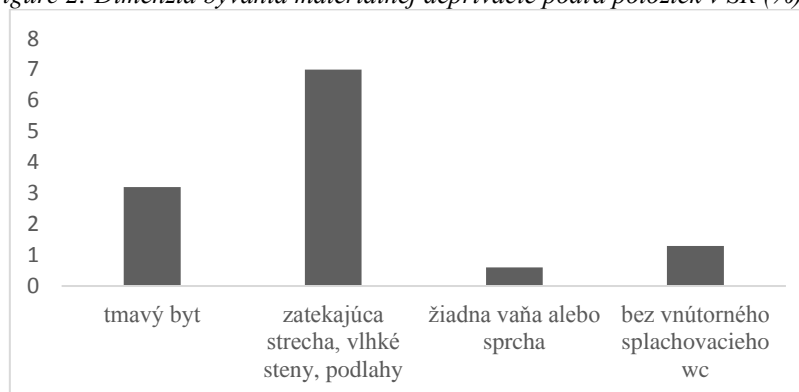
Krajina	EU-SILC 2006	EU-SILC 2008	EU-SILC 2010	EU-SILC 2012	EU-SILC 2014
0 položiek	89,3	88,4	91,5	89,0	91,4
1 položka	7,5	9,5	7,4	8,6	6,1
2 položky	2,5	1,9	0,8	2,0	1,8
3 položky	0,5	0,2	0,2	0,4	0,3
4 položky	0,2	0,1	0,0	0,1	0,4

Source: vlastné spracovanie na základe štatistických údajov Eurostatu z EU-SILC2006-2014 [ilc\_mddd04]

I keď dimenzia bývania materiálnej deprivácie predstavuje najmenej problémovú dimenziu, budeme sa jej viac venovať, nakoľko náš výskumný projekt sa zaoberá kvalitou bývania v podmienkach SR.

V oblasti bývania 7 % obyvateľov SR označilo v štatistickom zisťovaní EU-SILC2014, že má problém so zatekajúcou strechou, vlhkými stenami či podlahami. Vlhké prostredie má nepriaznivý vplyv nielen na zhoršovanie podmienok bývania ale aj na zdravotný stav obyvateľov.

Figure 2: Dimenzia bývania materiálnej deprivácie podľa položiek v SR (%)

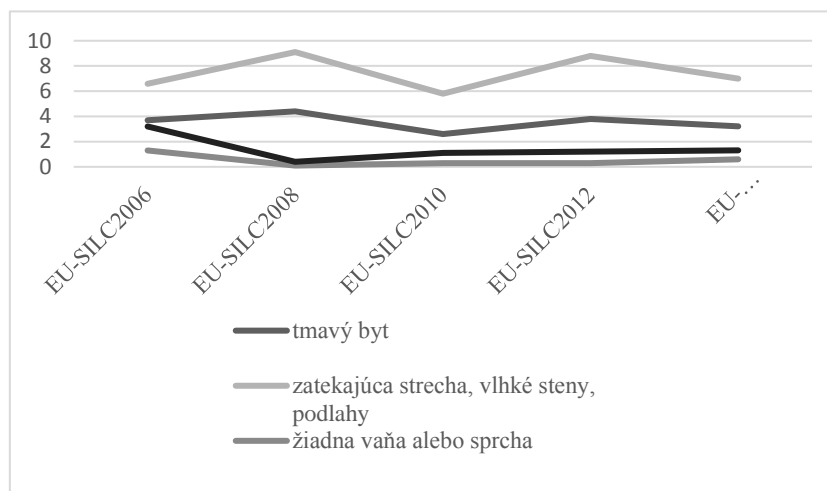


Source: vlastné spracovanie na základe štatistických údajov Eurostatu z EU-SILC2014

Druhým najčastejším problémom, s ktorým sa obyvatelia stretávajú vo svojich domovoch, bol tmavý byt s nedostatkom denného svetla. Viac ako 3 % obyvateľov nie je spokojných s denným svetlom vo svojich domovoch, čo súvisí predovšetkým so stavbou danej nehnuteľnosti. Len 1,3 % obyvateľov nemá vo svojom obydli vnútorné splachovacie wc a 0,6 % obyvateľov nemá žiadnu vaňu ani sprchu. Na základe výsledkov EU-SILC2014 môžeme konštatovať, že väčšina obyvateľov SR nemá problém s kvalitou svojho bývania, i keď sú na Slovensku lokality, ktoré nespĺňajú základné podmienky kladené na dôstojné bývanie. Ide predovšetkým o segregované lokality, v ktorých bytové stavby nespĺňajú stavebné normy či hygienické štandardy. Na Slovensku žije približne 403 tisíc Rómov, čo predstavuje 7,4 % populácie. V prípade Rómskej populácie nezamestnanosť dosahuje takmer 100 %. Môže to byť dôsledkom nízkeho vzdelania, pracovných skúseností, nedostatku príležitostí a predsudkov zamestnávateľov (Pongrácz, 2015, s. 595). Práve nedostatok finančných zdrojov týchto domácností ich predurčuje k nedôstojným podmienkam bývania.

V období medzi štatistickým zisťovaním EU-SILC2006 až 2014 môžeme vidieť rozdielny vývoj medzi jednotlivými položkami v oblasti bývania. Kým v rokoch 2006 až 2008 pokleslo percento obyvateľov, ktorí nemali vnútorné splachovacie wc, nemali vaňu alebo sprchu v obydli, tak naopak vzrástol počet obyvateľov, ktorí mali problémy so zatekajúcou strechou, vlhkými stenami či podlahami ako aj tmavým bytom s nedostatkom denného svetla. V rokoch 2008 až 2010 bol trend vývoja v týchto dvoch skupinách položiek opačný. V období 2010 až 2012 vzrástol počet ľudí, ktorí mali problém v oblasti bývania s výnimkou položky žiadna vaňa ani sprcha.

Figure 3: Vývoj absencie niektorej položky dimenzie bývania materiálnej deprivácie (%)



Source: vlastné spracovanie na základe štatistických údajov Eurostatu z EU-SILC2006-2014

Od roku 2012 menej obyvateľov má problémy s tmavým bytom a zatekajúcou strechou či vlhkými stenami alebo podlahami. Mierne rastie počet obyvateľov bez sprchy, vane a vnútornej splachovacej toalety, i keď ich počet nedosahuje hodnoty roku 2006. Môže to byť zapríčinené absenciou kanalizácie v určitých lokalitách.

Vzhľadom na zadefinované položky v dimenzii bývania materiálnej deprivácii je dôležité, aby v priebehu času sa znižovalo percento obyvateľov, ktorí majú problém s niektorou z uvedených položiek, pretože každý občan by mal mať právo na minimálny štandard bývania.

### 3. Conclusion

Jednou z priorít vlád je vytvárať vhodné podmienky pre zvyšovanie blahobytu obyvateľstva. Napriek tomu v každej spoločnosti existuje skupina osôb, ktorá nie je schopná vlastniť statky a služby ako aj participovať na živote spoločnosti ako je to spoločnosťou vnímané ako nevyhnutné. Ide pritom o vynútený nedostatok z dôvodu nedostatku peňažných zdrojov ako aj z dôvodu cenovej dostupnosti niektorých statkov. Materiálna deprivácia je súčasťou aj slovenskej spoločnosti, pričom obyvatelia majú najviac problémov s ekonomickou dimenziou materiálnej deprivácie, čo súvisí s nedostatkom finančných zdrojov ako aj nedostatočnými rezervami vo forme úspor rizikových skupín obyvateľstva. V meraní blahobytu obyvateľov je bývanie dôležitou dimenziou. Vhodné bývanie je jedno zo základných ľudských práv spolu s jedlom a vodou. Napriek tomu skoro 9 % obyvateľov Slovenska má problém s bývaním či už vo forme zatekajúcej strechy, vlhkosti, nedostatku denného svetla alebo postrádaním splachovacej toalety, vane či sprchy. Bývanie je tiež silno prepojené s ďalšími dimenziami blahobytu ako je zdravie, príjem, spokojnosť so životom. Je preto dôležité nájsť spôsoby ako zvyšovať kvalitu bývania obyvateľov vybraných lokalít, či už vo forme rekonštrukcie, výstavby ale aj zvyšovania uvedomenia obyvateľov o dôležitosti kvality bývania. Zásadným problémom tejto skupiny osôb je nedostatok finančných zdrojov, ktorý im bráni presťahovaniu či prestavbe svoje nehnuteľnosti. Jedným z riešení je poskytnutie sociálneho nájomného bývania pre rizikové skupiny obyvateľstva, čo však je len dočasným riešením a môže spôsobiť sociálne vylúčenie tejto skupiny osôb v prípade výstavby sociálnych bytov v okrajových častiach mesta/dediny, čo môže vyústiť aj do deviantného správania.

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## References

- [1] Ayala, L. and Navarro, C. (2007) "The dynamics of housing deprivation." *Journal of Housing Economics*, vol.16, No.1, pp. 72-97.
- [2] Boarini, R. and Mira d'Ercole, M. (2006). Measures of Material Deprivation in OECD Countries. OECD Social, Employment and Migration Working Papers. OECD Publishing. [Online]. No. 37, pp.72. Dostupné: <http://dx.doi.org/10.1787/866767270205>
- [3] Bradshaw, J. and Finch, N. (2003). "Overlaps in dimensions of poverty", *Journal of social policy*, vol. 32, No. 4, pp. 513-525.
- [4] Deutsch, J., et al. (2005) "Material deprivation in Europe: Which expenditures are curtailed first?" *Social Indicators Research*, vol. 120, No.3, pp. 723-740.
- [5] Džambazovič, D. a Gerbery, D. (2005). "Od chudoby k sociálnemu vylúčeniu," *Sociológia*, roč.37, číslo 2, s.143-176.
- [6] Gerbery, D. (2012). *Vybrané aspekty materiálnej deprivácie*. Bratislava: Inštitút pre výskum práce a rodiny, 2012, s. 43.
- [7] Guio, A.C., Fusco, A. and Marlier, E. (2009). A European Union Approach to Material Deprivation using EU-SILC and Eurobarometer data, *Integrated Research Infrastructure in the Socio-economic Sciences (IRISS) Working Paper Series*, No19, pp.29.
- [8] Guio, A. C. and Maquet, E. (2007). Material deprivation and poor housing. Comparative EU Statistics on Income and Living Conditions: Issues and Challenge. [Online]. pp. 28. Dostupné:[http://stat.fi/eusilc/guio\\_maquet.pdf](http://stat.fi/eusilc/guio_maquet.pdf)
- [9] Lyte, R., Maître, B., Nolan, B. and Whelan, C. T. (2001) "Persistent and consistent poverty in the 1994 and 1995 waves of the European Community Household Panel Survey", *Review of income and wealth*, vol. 47, No 4, pp. 427-449.
- [10] Nolan, B. and Whelan, C. T. (1996) "Measuring poverty using income and deprivation indicators: alternative approaches", *Journal of European social policy*, No. 6, pp. 225-240.
- [11] Perry, B. (2002) "The mismatch between income measures and direct outcome measures of poverty", *Social Policy Journal of New Zealand*, Issue 19, pp. 101-127.
- [12] Poláčková, H. (2015, A) Area for social economy in agriculture. *Globalization and its socio-economic consequences: proceedings: 15th International scientific conference: 7th-8th October 2015, Rajecke Teplice, Slovak Republic*. - Zilina: University of Zilina, Faculty of operation and economics of transport and communications, Department of economics, 2015. ISBN 978-80-8154-145-2, s. 581-590.
- [13] Poláčková, H. (2015, B) Prvky sociálnej ekonomiky v histórii: Elements of social economics in history. *Nové výzvy pre sociálnu politiku a globálny trh práce 2015 : elektronický zborník vedeckých prác : medzinárodná vedecká konferencia : Veľký Meder, 14. a 15. máj 2015*. Bratislava: Národohospodárska fakulta EU, 2015, , 411-417.

- [14] Pongrácz, E. a kol. (2015). *Sociálna ekonomika*. 2 vyd. Bratislava: Vyd. EKONÓM, 2015. 184 s. ISBN 978-80-225-4138-1
- [15] Pongrácz, E. (2015). Social economy - an economy that focuses on human beings as an expression of social responsibility. *Globalization and its socio-economic consequences. Part 1: proceedings*: 15th International scientific conference: 7th-8th October 2015, Rajecké Teplice, Slovak Republic, ISBN 978-80-8154-145-2, s.591-596.
- [16] Whelan C.T., Layte R. and Maître B. (2002) "Multiple deprivation and persistent poverty in the European Union", *Journal of European Social Policy*, vol.12, No.2. pp. 91-105.
- [17] <http://ec.europa.eu/eurostat/web/income-and-living-conditions/data/database>
- [18] [www.statistics.sk](http://www.statistics.sk)

# THE ACTIVE ROLE OF THE STATE AND TAX COMPETITION IN THE ERA OF GLOBALIZATION

Sonia Kozub Skalska<sup>1,a,\*</sup>

41-703 Ruda Śląska ul. Jesionowa 17, Poland

<sup>a</sup>sonia.kozub.skalska@edu.uekat.pl

\*Corresponding author

**Abstract:** The tendency to strongly limit the role of the state should be mentioned among many effects of globalization. This is in line with the prevailing view, which says that the invisible hand of the market can be fallible but the visible one is crippled. Processes which accompany and propel globalization such as deregulation, liberalization and privatization are its legible and clear confirmation. On the other hand, among the effects of globalization, tax competition plays a key role and is used by the *strong* enterprises. Fiscal stimuli are a controversial tool, since their common use by different countries entails specific competition and thus the erosion of expected results. In this context, it is necessary, on the one hand to offer support for domestic companies (in particular in the sector of small and medium-sized enterprises), on the other hand, granting large foreign companies privileges as a precondition before making their investments should be avoided. The aim of this article is to show how large influence globalisation has on tax competition and how important in this respect is the active role of the state. This role should largely limit numerous of tax benefits for international corporations, which damage local businesses to maintain fair competition mechanisms. In order to present the intended objectives, it has been used literature research methods which are based on an analysis of domestic and foreign compact publications and articles.

**Keywords:** tax competition, globalization, tax privileges

**JEL classification:** H7, H87, H25

## 1. Introduction

Modern competition is determined more and more often, if only because of its geographical scope and instruments, as global, and includes both the state and the economy as well as the companies themselves. „globalization”, leading to the release of the market from the border barriers, eliminates the restrictions of competition. Just as there is no market without competition, so there is no free market on a global scale without opening to external competition. Globalization is a process of instruments’ disposal and means of protection against external competition" (Szymański, 2002). This is due to subjecting the whole international economic relations, the microeconomic logic – understood in terms of efforts (fight) to maximize own utility (profit). In this context, it can be said that one of the consequences of globalization is the contemporary tilt towards approach, which implies a strongly limited role of the state. This is in line with the prevailing view, according to which the invisible hand of the market can be fallible, but the visible one is crippled (Bhagwati, 2003) Driving processes of deregulation, liberalization and privatization, accompanying globalization are a clear proof of this. They are generally consistent with the well-proven, consistently implemented, Thatcher’s imperative TINA (*there is no alternative*). It is now generally agreed that globalisation along the dimensions of trade and equity inflows creates prosperity and, in turn,

helps rather than hinders the achievement of social' agendas such as reduced child labor, reduction of poverty and greater pay equity for women (Bhagwati, 2013).

Second, it considers the extent to which the mobility of capital has resulted in interjurisdictional capital tax competition, drawing on the theoretical tax competition literature, empirical evidence on corporate income tax rates, the strategic tax competition literature, and the relatively new literature examining interjurisdictional competition in the form of allowing tax avoidance (Zodrow, 2010).

## **2. The active role of the state in the face of challenges of global competition**

The active role of the state should be limited to the construction of modern development strategies which will undoubtedly assist domestic companies in coping with challenges posed by the global competition. It is important for the state to play its role actively also to draw on the best practices learned from other countries which allow to use the positive effect of the global competition process. It is obvious that the strong competition on a global scale is due to the transition of the economy to a higher level of development, it can be implied that it is based on two fundamental prerogatives (Dołęgowski, 2001):

- intensive growth through the development of customer orientation, reconfiguration of business operations, productivity, innovation, growth based on knowledge, information and services, creating added-value, dominance of structures and networking,
- globalization promoted by investments and multilateral regulations in trade, open markets, the supranational nature of financial policy and monetary policy, promoting the internationalization of enterprises, facilitating the functioning of the public sector.

From the analysis of prospects concerning global competition policy, the conclusion can be drawn that more and more importance is attributed to the institutionalization of the global economy. The decrease in effectiveness of instruments of national economic policy is being compensated by broader cooperation at international level. Popularization, in the broadest possible geographical dimension, specific model solutions, certainly is an incentive for development and running business on an international scale. In the interest of business, this „talk about globalization” is the best way to mobilize national solidarity in the fight against the most restrictive laws and institutions (Luttwak, 2000). There is an area for discussion, how desirable feature a decisive weakness of the state is? From this perspective, it is advisable for example to establish proper, working partnership on the line government - administration - business - non-governmental organizations. This is consistent with the view that economic competitiveness is the result of a complex and dynamic interaction between the government, enterprises and institutions operating at intermediate level (Lubiński, 1995). Coming back to the ongoing discussion on the possible impact of the state in the economic sphere, it should be emphasized that the main issue at the macro level is to create a framework for effective competition which ensures putting pressure on companies to make them more innovative and competitive on the international market (Meyer –Stamer, 1996). „Relations between micro-competition and macro-competition can be expressed in a manner similar to the relationship between the general balance of the system and the balance of its components. The level of competitiveness at the highest level is indeed determined by the level of competitiveness at lower levels, but not in a simple way, eg. in the form of a partial sum of competitiveness” (Zadorowa, 1990). It is important to be aware that the national success of a company translates into keeping the economy as a whole. The state creating regulations should consider this fact



as companies that are able to meet the global competition contribute to the economic growth of their country. It is known that the activity in the domestic market leads to hardening to global competition. On the other hand, the global external competition, in its positive aspect can be a very effective way to verify the attractiveness of the offer and answer the question whether it is possible to further economic expansion internationally and ultimately globally. A useful tool in the discussion on the role of the state, useful to identify the necessary adjustment measures at the macro level is a commonly known concept called Porter's diamond (a square/diamond of national competitive advantage), which comprises Michalski (2013):

- determinants of demand,
- factor-related determinants,
- strategy and organizational structure of a company and competition on the internal market,
- allied industries and supporting.

Referring to the impact on demand it should be acknowledged that today referring to Keynesian economics, it is not a popular intervention. On the other hand, factor-related determinants are elements on which the state basically has no impact beyond the possibility to transfer technology and participate actively in the process of brain drainage. Certainly in the face of global competition the largest reserves should be used in maintaining favorable conditions for entrepreneurial culture and competition. It is essential to create conditions for the development of entrepreneurship, first and foremost consistent and coherent competition policy. To achieve this goal it is necessary to create effective in enforcement, competition laws, both at national and international level. To put it in very simple terms, to create preferences for specific projects as it takes place in industrial policy.

Such actions contradict the logic of globalization, according to the view that any form of industrial policy could easily turn into plundering the state treasury or the exploitation of the luckless consumers, or both (Luttwak, 2000). Other basic limitations and theoretical controversies surrounding the principles and effectiveness of industrial policy have already been widely described and recognized:

It can be assumed, that direct state interference in economic processes is undesirable, it is facing the task of so-called systemic intervention - the construction of institutional incentives and forms of indirect support, which include for example the development of basic infrastructure, funding scientific research, results of which can then be adapted to the specific needs of companies (basic research), and finally prioritizing, wide access to higher education, in the face of the emerging global knowledge-based economy (human capital) (Zorska, 1998). The state should act as a catalyst and the subject, emphasizing the challenges (Porter, 2001).

From this perspective, the burden of solving the existing problems, almost exclusively, lies upon entrepreneurs. For most of them, this means that lack of developmental alternatives by forcing the active and conscious participation as important in the internationalization of its activities. Accompanied by constant restructuring processes (in terms of organization and processes), reorientation (seeking and developing new markets, the interaction of allied industries), the revitalization (the pursuit of knowledge, building key competencies) and the remodeling of the basic values and beliefs (Zahn, 1997). This is therefore, further confirmation of the thesis that globalization in the field of competition, and is primarily driven by microeconomic factors.

### **3. The controversy over tax competition**

In the national economies, the most noticeable manifestation of global competition can be seen in applying for foreign, direct investments. It is a very concrete manifestation of global competition. Perhaps the role of the state is weighing the benefits and costs of the so-called management of openness to the global economy. In the era of globalization, the scale, trends and specifics of international capital flows is the measurable indicator of confidence in economic policy, and thus the attractiveness of the investment and the prospects of achieving concrete results in the form of above-average profits. Therefore, to achieve such results developing countries compete in offering a wide range of tax incentives, which does not necessarily lead to positive results. Excessive dependence on external capital inflows exposes countries, in a situation of ongoing economic convergence, on more severe consequences of unexpected crises and even fluctuations in investment moods of cosmopolitan capital. Therefore, the threat to the economic stability of the state becomes even more likely. It begins with the early basic tax competition model, which derives conditions under which underprovision of public services occurs and tax harmonization unambiguously improves welfare for all states in the union (Zodrow, 2003).

In general, tax competition is costly and ineffective from the point of view of the world welfare, because the tax incentives do not affect the total amount of investment, only their location (Hoekman, Kostecki, 2002). In addition, it leads to a constant lowering of standards, limiting budget revenues and the need to limit state intervention, even in areas considered important. This situation, will increasingly be the subject of in-depth analyzes, in literature it has been defined as fiscal dumping (social dumping). The principle of leveling down in terms of taxes, increases dependence on external capital in this way, that various factors limiting the sovereignty of economic policy and the factors increasing contradiction between short-term and long-term interests, begin to support each other (Szymański, 2004).

Fiscal stimuli are a controversial tool, since their common use by different countries entails specific competition and thus the erosion of expected results (fading advantage with equal loss of revenue for the budget) (Wysokińska, 2001).

Among the negative effects, it can surely be mentioned undermining the confidence of citizens to their own country and the sense of its further functioning in such a shape. This is undoubtedly one of the reasons of atomization of contemporary socio-economic structures, and constant separation of economic competence between international (at the level of global organizations) and local where problems can be addressed most effectively because of gained knowledge, in accordance with the principle of subsidiarity.

Whether a coordinated reduction in the tax preferences granted to firms is beneficial or harmful for the competing countries depends critically on the elasticity with which the firms organization structure responds to tax discrimination incentives. A model extension with countries of different size shows that small countries are likely to grant more tax preferences than larger ones, along with having lower effective tax rates (Bucovetsky, Haufler, 2008).

### **4. Summary**

The desired situation seems to be a kind of resistance to external competition, but this feature seems to be assigned only to the most developed countries. It is fundamental to meet the following demands in the scope of economic policy (Gorynia & Wolniak, 1999):

- maintaining appropriate macroeconomic conditions conducive to the growth of the economy, reducing inflation and maintaining stability of the currency,
- supporting the privatization process as a necessary condition for attracting domestic and foreign investors,
- avoiding granting incidental and far-reaching concessions and / or privileges to large foreign companies as a precondition before making their investments,
- elimination of regulations and laws discriminating foreign companies,
- offering support for medium and large domestic companies undertaking programs of concentration of production, introduction of modern technologies and investing abroad,
- offering support for environmental investments made by domestic companies.

This can maintain the necessary stability and balance, both at the macro and micro level, which is the best response to competitive pressure. The main elements of this policy should be a natural consequence of thinking „anchored” in the problem of innovation in the economy. However, once again it needs to be recalled that the state plays here just a role of pulse generator or an intermediary between companies and their representative associations, between science and intermediaries, thereby improving the interaction of factors determining the location of investment. Systematic development of competitiveness means the transition from the factorial stage, through investment and innovation to the stage of wealth (Rymarczyk, 2003). A simple but rich in content recommendation, should also be remembered, which should inspire any action on the macroeconomic level: law-politics- ethics (Dołęgowski, 2001). Without this inner coherence, no undertaking has basically little chance of success.

## References

- [1] Bhagwati J., (2003). *Wolny handel dziś*, CeDeWu, Warszawa.
- [2] Dołęgowski T., (2001). *Współczesne koncepcje kapitalizmu globalnego i aliansowego*, [w:] *Wspólna Europa. Przedsiębiorstwo wobec globalizacji*, H. Brdulak, T. Gołębiowski (red.), SGH Kolegium Gospodarki Światowej, PWE, Warszawa.
- [3] Hoekman B., Kostecki K., (2002). *Ekonomia światowego systemu handlu. WTO: Zasady i mechanizmy negocjacji*, Wydawnictwo Akademii Ekonomicznej im. Oskara Langego, Wrocław.
- [4] Luttwak E., (2000). *Turbokapitalizm. Zwycięzcy i przegrani światowej gospodarki*, Wydawnictwo Dolnośląskie, Wrocław.
- [5] Morasch K., (2003). *Industrie- und Wettbewerbspolitik. Zentralisierung oder Dezentralisierung?*, Oldenbourg Wissenschaftsverlag GmbH, München.
- [6] Porter M., (2001). *Porter o konkurencji*, PWE, Warszawa.
- [7] Rymarczyk J., (2004). *Tendencje w rozwoju światowego systemu handlu*, [w:] *Rozwój regionalny i globalny we współczesnej gospodarce światowej*, Wydawnictwo Akademii Ekonomicznej im. Oskara Langego, Wrocław.
- [8] Szymański W. (red.), (2002). *Przedsiębiorstwo wobec globalizacji i integracji* SGH, Warszawa.
- [9] Szymański W., (2004). *Interesy i sprzeczności globalizacji. Wprowadzenie do ekonomii ery globalizacji*, Difin, Warszawa.

- [10] Wuntsch M., (1998). *International tax planning and organizational strategies of multinational companies*, [w:] *Contemporary problems of international economy*, edited by E. Oziewicz, Institute of Foreign Trade, University of Gdańsk, Sopot.
- [11] Wysokińska Z., (2001). *Konkurencyjność w międzynarodowym i globalnym handlu technologiami*, Wydawnictwo Naukowe PWN, Warszawa-Łódź.
- [12] Zahn E., (1997). *Rüsten für den Wettbewerb um die Zukunft*, [w:] *Wettbewerb um die Zukunft*, E. Zahn, S. Foschiani (Hrsg.), Schäffer-Poeschel Verlag, Stuttgart.
- [13] Zorska A., (1998). *Ku globalizacji? Przemiany w korporacjach transnarodowych i w gospodarce światowej*, Wydawnictwo Naukowe PWN, Warszawa.
- [14] Bucovetsky, S., Haufler, A. (2008) „Tax competition when firms choose their organizational form: Should tax loopholes for multinationals be closed?“, *Journal of International Economics*, 74 (1), pp. 188 - 201.
- [15] Bhagwati J. (2013) „Can We Still Defend Globalisation After the Current Crisis?“, *Economic Record*, 89, Suppl. 1, pp. 2 - 7.
- [16] Godfrey C., (2014). *Why corporate tax dodgers are not yet losing sleep over global tax reform*, Oxfam GB, UK.
- [17] Härtel H., (1997). *Steuerdumping oder Steuerwettbewerb?* [w:] *Wirtschaftsdienst* 1997/IX.
- [18] Lubiński M., (1995). *Konkurencyjność gospodarki czy przedsiębiorstwa*, [w:] *Gospodarka Narodowa* nr 6/1995.
- [19] Meyer-Stamer J., (1996). *Konkurencyjność systemowa*, [w:] *Gospodarka Narodowa* nr 3/1996.
- [20] Zadorowa H., (1990). *Warunki i cechy makrokonkurencyjności*, [w:] *Ekonomista* nr 2-3/1990.
- [21] Zodrow, G. R. and Mieszkowski, P., (1986). *Pigou, Tiebout, Property Taxation and the Underprovision of Local Public Goods*, *Journal of Urban Economics* 19, pp. 356–370.
- [22] Zodrow G. R. (2003) „Tax competition and tax coordination in the European Union“, *International Tax and Public Finance*, 10 (6), pp. 651 - 671.
- [23] Zodrow G. R. (2010) „Capital Mobility and Capital Tax Competition“, *National Tax Journal*, 63 (4), Part 2, Sp. Iss., pp. 865 - 901.

## GLOBALIZATION AS THE DETERMINANT OF HIGH-TECH SECTORS DEVELOPMENT

Anna Skórska<sup>1,a</sup>, Maria Balcerowicz-Szkutnik<sup>2,b</sup>, Jarosław Wąsowicz<sup>3,c</sup>,

<sup>1</sup> Anna Skórska, Department of Labour Market Research and Forecasting, University of Economics  
in Katowice, Katowice, 1 Maja 50 street, 40-287, Poland

<sup>2</sup> Maria Balcerowicz-Szkutnik, Department of Labour Market Research and Forecasting, University of  
Economics in Katowice, Katowice, 1 Maja 50 street, 40-287, Poland

<sup>3</sup> Jarosław Wąsowicz, Department of Labour Market Research and Forecasting, University of  
Economics in Katowice, Katowice, 1 Maja 50 street, 40-287, Poland

<sup>a</sup>anna.skorska@ue.katowice.pl, <sup>b</sup>maria.balcerowicz-szkutnik@ue.katowice.pl,

<sup>c</sup>jaroslaw.wasowicz@ue.katowice.pl

**Abstract.** Modern, innovative and competitive economy should be complex, harmonious, coherent, flexible and open. This means, without limitation, that economy is composed of main fields determining its modern development, its capacity to be transformed through the reallocation of production factors, as well as its ability to face international competition.

The direction and dynamics of changes taking place in highly developed countries indicate shifts towards high-tech industries and modern Knowledge Intensive Services. The development of high-tech sectors is determined by a number of factors of exogenous and endogenous characteristics, among which the features of a modern global economy, i.e. globalization, integration and the internationalization of production are highly important. From the point of view of structural policy and the labour market it is, therefore, essential to identify the fastest growing areas of the Polish economy, characterized by high growth in employment and productivity. Hence, the aim of this article is to determine trends in the evolution of employment structures in various sectors of economy in Poland compared to other European Union countries, with particular emphasis on high-tech sectors.

**Keywords:** employment, globalization, high-tech industry, Knowledge-Intensive Services

**JEL Classification:** F66, J21, O14.

### 1. Introduction

Contemporary economies are changing under the influence of many factors of endogenous and exogenous character. Transformations in economy structure are one of typical symptoms of occurring changes. Reallocation of labour resources is their derivative, and its reasons are seen in globalisation, development of information and communication technologies, as well as servicisation and re-industrialisation. Modern structure of contemporary economies that determines their high competitive position on global market is in a high degree based on knowledge and innovativeness. High technology industries and knowledge-intensive services are the areas of special importance in these types of economies. Taking into consideration the aforementioned reasons, the goal of the paper is to present spatial diversity in the level of development of high-tech industry and knowledge-intensive services in the countries of Central and Eastern Europe. Being aware of the distance separating Poland from Western Europe, the analysis covers the countries of Central and Eastern Europe that joined the European Union at the same time as Poland, in 2004, and in successive years. Therefore, the level of their social

and economic development at the time was comparable. The research period includes the years between 2004 and 2015.

## **2. Globalisation and structural changes**

Globalisation is a complex, multidimensional and multilevel process that affects economy, culture, development of societies, as well as the policy of many countries. This represents increase in internationalisation of domestic economies and permeation as well as convergence of the markets of goods and services, financial markets and labour markets. The processes of increasing division of labour and expansion of sales markets that are reflected in strengthening international economic relationships and expansion of international corporations is the essence of globalisation. Despite the differences occurring in perceiving globalisation and ways in which the notion is defined, it can be assumed that it is a historical process finishing the industrial era of social organisation that is characterised by supranational diffusion of financial capital and cultural patterns, the basis for which is development of new technologies (Bianchi & Labory, 2011; Massini & Miozzo 2010; Mateja, 2011).

Results of globalisation can be analysed and assessed on macro, mezo and microeconomic levels, however they should not be too much generalised. The impact of occurring changes on particular types of activities and economy sectors depends, among others, on their specific nature, size and market maturity, dynamics of growth, diversity of business models, entrepreneurship, etc. Globalisation offers new opportunities to the dynamics of development of companies, regions and countries, while affecting the increase of productivity and employment. It ought to be mentioned here, that globalisation has become the subject of many controversies; it is often perceived as the cause of further progress in deepening of disparities between countries and regions of diversified level of development and unfair division of profits between the rich and the poor (Garrett 2004; Davis & Rubin 2016; Abidi 2015). In this context attention is more often focussed on the idea of geolocation as a possibility to offer global solutions adjusted to local needs and demands, on the basis of the network of relationships between local and global dimensions of conducted actions and operations (Rubalcaba-Bermejo, 2004; Zeleny 2012). Contrary to what is believed, together with progressing globalisation, the importance of local conditions functioning on a global scale of enterprises is growing, and local economies are increasingly more dependent on their global environment.

Globalisation allows for reallocation of sources of production resources, including work, on international scale depending on their price and availability. Development of relationships between economies, growth of liberalisation and integration of trade markets, cooperation of regional blocs, such as European Union, affect conditions of running business activity. Globalisation is also one of the main driving forces for structural changes that are reflected in the process of relocation of labour resources. Therefore both direct and indirect influence on the number and quality of created and liquidated places of employment are observed in the sphere of labour markets. The largest controversies and social fears are associated with the loss of workplaces from highly developed countries, of high labour costs, to the countries of lower production costs, as a consequence of offshoring and outsourcing processes (OECD, 2007; Skórska, 2011; Wagner, 2011; Crinò, 2008; Wąsowicz 2015; Temouri et al., 2010). Delocation has impact not only on changes in employment structures, competitiveness of labour resources or qualifications of workers, but also on closer and farther environment. It ought to be emphasised here that the influence of these processes on local and regional labour markets is very strong, and variety as well as the network of mutual cause and effect relationships show

complexity of discussed issues. The criticism of occurring changes and their consequences contributed to starting the debate on the process of reshoring (Ellram, 2014), which is particularly strong in the USA. Reshoring that is associated with transferring workplaces back to highly developed countries, is mainly observed in industry, although it is shown that it may also concern the service sector in increasing degree. There are predictions that reshoring will constitute one of the most important trends in the 21st century, even though it certainly does not represent the end of offshoring (De Backer et al., 2016).

### 3. High-tech sectors – characteristics

Changes occurring in the contemporary world, including those associated with globalisation and development of technology, show the growth of importance of the areas that are largely based on application of knowledge. The areas include mainly the entities that belong to high-tech and knowledge-intensive industries. Defining and approaching them in traditional classifications is difficult. This category includes trades and products that in comparison with others are characterised by higher share of expenditures on research and development in the final value or added value, and application of advanced technologies that are subject to relatively fast „ageing”. Additionally, their typical features include high rate of people with university education, also those included in HRST, among the employed, and also cooperation with science centers, other companies providing knowledge-intensive services and producers of high-tech products. Their share in total production defines modernity of industry in a particular country, and also remarkably determines competitive position on international arena.

Figure 1: Classification of high-tech sectors

Category	Description	
High-tech industries	production of basic pharmaceutical substances, as well as medications and other pharmaceutical products	
	production of computers and electronic and optical products	
	production of aircraft, spaceships and similar machines	
Knowledge-intensive services (KIS)	high-tech services	activity associated with production of films, video recordings, TV programs, sound and music recording, broadcasting of public and subscription programs, activity associated with software and consultancy in the sphere of IT and related activities, service-providing activity in the sphere of information, scientific research and development work
	knowledge-based market services	waterways and air transport, legal and accounting activities, tax consultancy, activities of head offices, management consultancy activities; architectural and engineering activities, technical research and analyses, advertising, market and public opinion research, other professional, scientific and technology activities, activity associated with employment, security and investigation activity
	knowledge-based financial services	financial and insurance activity
	other knowledge-intensive services	publishing activity, veterinary activity, public administration and national defence, compulsory social security, education, health care and social assistance, activity associated with culture, recreation and sport

Source: own case study.

Delimitation of this sector by technology levels (domain method) was conducted on the basis of the list of domains (sectors), compliant with PKD 2007 (Polish Classification of Economic Activities 2007), published by OECD. It is presented in fig. 1.

While looking for analogies and references to industry sector, particularly *high-tech* industry, classification of services was created by Eurostat and OECD on the basis of the

criterion of knowledge intensity or research and development activity. According to adopted criterion, knowledge-intensive services (KIS) were distinguished. And even though the classification of high-tech industries does not bring any objections, the analysis of knowledge-intensive services demands mentioning that because of quite a broad criterion of classification that is adopted, serious differences between particular categories of services included in KIS are observed. Specific controversies are brought by including security services, waterways transport services, sport, recreation or some forms of activities associated with employment like for example temporary work agencies in this category of services (Skórska, 2012). We could be tempted to perform the selection of services included in KIS on lower level of aggregation, but this could bring problems to accessing statistical data and assessing the sector size. From the point of view of undertaken subject area, high-tech services ought to be particularly focused on.

### **3.1. Employment in high-tech industry in the countries of Central and Eastern Europe**

As a result of the process of re-industrialisation, additionally strengthened by globalisation, the importance of high-tech industries is growing. While in the 1970s they constituted around 5% of the world industrial production, currently they produce over 20% and they still show a growing trend. In 2015, the countries of the highest share in global export of high-tech products among European Union states included Germany (Euro 177 billion), Holland (Euro 102 billion) and France (Euro 98 billion). In Poland this share is significantly smaller (Euro 15 billion) with a negative balance in foreign trade. In 2015 the share in export of high-tech products in total export was 8.5%, whereas in import it was 12.6%. In Poland the export of electronics and telecommunication reached the highest value of over 42% of total export and import of high-tech products, similarly to the import of products of the same category. Unfavourable trade balance and relatively small share of high-tech industry production prove not only outdated structure of Polish economy, but they also have impact on limitation of the scope of changes in other economy sectors. This is because technological progress, the carrier of which are high-tech industries, automation, robotics, new solutions in the sphere of electronics or telecommunication, contribute among others to growth in productivity and replacement of manual work that does not demand high qualifications with work based on knowledge and competences of workers.

The situation is also reflected in the structure of employment in industry. In 2004 the number of people working in high-tech industry was not higher than 70 thousand, and constituted only 0.5% of all the people working in national economy. Even though in successive years increase in their number to 128 thousand was reported in 2015 (0.8% of total working population and respectively 4% of employment in industry), the position of Poland both in comparison with EU-28 and other countries of Central and Eastern Europe is rather unfavourable. The share of employment in high-tech industries in 2015 was 2.4% in Malta, 2.3% in Hungary and in Slovenia 2.1% - see tab. 1. Smaller rate was reached only in Romania, Latvia, Cyprus and Croatia. It ought to be mentioned here that the number of people working in high-tech industry in all analysed countries was not higher than 466 thousand.



Table 1: Employment in high-tech industries in selected countries of the European Union between 2004 and 2015

Country	2004		2006		2008		2012		2015		Changes	
	thous and	%	thous and	%	thous and	%	thous and	%	thous and	%	thous and 2004- 2014	% 2004 =100
EU-28	2 275	1.1	2 306	1.1	2 516	1.1	2 334	1.1	2 356	1.1	81	103.5
Bulgaria	13	0.4	16	0.5	29	0.9	24	0.8	26	0.9	13	200.0
Czech Republic	61	1.3	81	1.7	74	1.5	90	1.8	82	1.6	21	134.4
Estonia	11	1.8	7	1.1	7	1.1	7	1.2	7	1.1	-4	63.5
Croatia	5	0.3	8	0.5	14	0.8	9	0.5	10	0.6	5	200.0
Cyprus	:	:	1	0.1	2	0.4	2	0.4	2	0.4	:	:
Latvia	:	:	:	:	4	0.4	3	0.3	4	0.5	:	:
Lithuania	12	0.9	9	0.6	:	:	:	:	:	:	:	:
Hungary	101	2.6	98	2.5	108	2.8	102	2.7	96	2.3	-5	95.0
Malta	6	4	5	3.1	4	2.7	4	2.1	4	2.4	-2	66.7
Poland	69	0.5	84	0.6	125	0.8	131	0.8	128	0.8	59	185.5
Romania	38	0.4	29	0.3	51	0.5	57	0.7	57	0.7	19	150.0
Slovenia	10	1.1	10	1.1	17	1.7	15	1.7	19	2.1	9	190.0
Slovakia	34	1.6	41	1.8	43	1.8	33	1.4	31	1.3	-3	91.2

Source: <http://ec.europa.eu/eurostat/data/database> (accessed 10.08.2016)

Analysis of available data allows for stating that low share of high-tech industries in Poland, in comparison with some countries of Central and Eastern Europe, particularly Western Europe, constitutes an important obstacle for creation of modern and competitive economy structure based on innovations. Support from the state ought to be based on goals of long-term strategy of the state development with identified priority trades. It should be reflected in sector policies including industrial policy aimed at development of services, that are innovation oriented, etc. Consistent implementation of industrial policy of the state offers the opportunity to eliminate the distance separating Polish economy from highly developed countries. Support from the state is essential for enterprises that start activity in technologically advanced trades, and also for those that decide to manufacture products based on highly advanced technologies in the countries of lower level of economy and technology development. It should be supported by educational policy promoting investments in qualifications as the fundament for creation of high quality human capital. This is because further development of high technologies is not possible without adequately prepared workers. Legislation in the sphere of protection of property of scientific research results and creation of innovation systems is also highly important.

### 3.2. Development of knowledge-intensive services in selected states of the European Union

Changes in economy structure and its servicisation find their reflection not only in the growth of share of the service sector in total number of working population, but firstly in intra-sectoral changes. Increasingly higher complexity of global economy, growing specialisation, complicated network of relationships occurring not only between individual countries or regions, but also between industry and service sectors, have impact on increase in demand on knowledge delivered within KIS. This is reflected, among others, in growing number of people working in KIS in the whole European Union. Between 2004 and 2005 the dynamics of its growth was higher than 32%, and the share of employment in KIS grew only by 8 percentage points. Among the member states, the highest increase (more than double) was reported in Malta, whereas the smallest in Latvia and Lithuania (growth by 25-28%). It ought to be emphasised here that because of the size of Malta, the number of people employed there in KIS is over three times smaller than in Poland. Poland is located among the countries in which the

share of employment in KIS is lower than the European Union mean (in 2015 it was higher than 31.2%), even though it has been constantly growing – see tab. 2. Between 2004 and 2015 it grew by over 7 percentage points, which was equivalent to the increase in the number of workplaces in this area by nearly 1.7 million. However, remarkable differences occurring between particular categories of services ought to be emphasised here. The largest share of employment is observed in public sector (education, health care, administration, etc.), whereas significantly smaller share is observed in such areas as information and communication, as well as research and development activity that constitute the key elements of modern, competitive and innovative economies.

Table 2: *Emplment in KIS in selected countries of the European Union between 2004 and 2015*

Country	2004		2008		2012		2015		Changes	
	thous and	%	thousand	%	thousand	%	thousand	%	thousand 2004- 2014	% 2004= 100
EU-28	66 403	32.2	82 223	37.0	84 569	39.3	87 816	39.9	21 413	132.2
Bulgaria	659	22.2	913	27.2	876	29.9	945	31.2	286	143.3
Czech Republic	1 147	24.5	1 484	29.7	1 564	32.0	1 612	32.0	465	140.5
Estonia	164	27.5	205	31.3	215	35.0	229	35.8	65	139.6
Croatia	332	21.1	479	27.1	479	30.8	529	33.4	197	159.3
Cyprus	88	26.3	131	34.5	138	36.1	139	38.7	51	157.9
Latvia	251	24.6	339	32.2	319	36.5	322	36.0	71	128.2
Lithuania	359	25	435	30.6	428	33.6	450	33.8	91	125.3
Hungary	1 109	28.5	1 278	33.2	1 345	35.1	1 513	35.9	404	136.4
Malta	42	29.1	63	39.7	76	44.9	85	46.0	43	202.3
Poland	3 317	24.3	4 466	28.3	4 755	30.6	5 008	31.2	1 691	150.9
Romania	1 306	14.1	1 778	19.0	1 752	20.4	1 862	21.8	556	142.5
Slovenia	228	24.3	309	31.2	323	35.2	321	35.1	93	140.7
Slovakia	538	25.1	719	29.6	743	31.9	819	33.8	281	152.2

Source: Ibidem.

Considering the fact that high-tech services constitute an equivalent to high tech industries in sector II, conducted discussions encourage the Authors to formulate the question if the trend and dynamics of changes in these services is equally large. The analysis of available data allows for stating that between 2004 and 2015 the increase in employment in high-tech services occurred in majority of countries of Central and Eastern Europe, even though its dynamics was slower. In Poland, the number of people working in this area increased by 67 thousand which constituted an increase by almost 22%. A drop in this area was reported only in Hungary, Latvia and Croatia. However, it ought to be mentioned that despite small dynamics of growth, and in some countries decreasing number of people working in high-tech services, both the produced added value and the value of production is growing, the reasons of which can be seen in growing productivity of labour.

Summing up, there are many reasons why organisations decide to use external, specialised services, thanks to which demand on them is constantly growing. It is hard to imagine functioning of contemporary enterprises without professionally provided legal and tax services, market research and consultancy services in the sphere of management or IT. Access to specialist knowledge-based services allows enterprises to achieve comparative and competitive advantage, which is particularly difficult in conditions of constant change and conducted restructuring processes. It must be emphasised that because of specific nature of KIS and necessity to adjust offered solutions to individual needs of customers, participation in service-

providing process is necessary. Mutual close relationships with customers are established in the process of constant learning, communication and development of the skill of team cooperation. Combining these elements and abstract thinking as well as creative problem resolving contributes to achievement of success in providing knowledge-intensive services.

#### 4. Conclusion

Developing network of relationships and interactions occurring between individual economy sectors, together with other determinants, became the basis for changes in internal structure of sector II and III, with respect to both qualitative changes and quantitative transformations. They include, among others, employment growth, added value, export and productivity of high-tech industries and knowledge-intensive services. These changes take place together with increase in the level and dynamics of GDP, and as a result of broader scope of functions performed by services in economy. Changes within individual sectors allow for increase in work productivity, quality of offered goods and provided services, and emergence of new types of products and services. Many of them are associated with the process of information generating, collecting and processing. Innovative activity and new technologies, and particularly information and communication technologies that revolutionise the ways of production and supply of traditional products and services, and also offering possibilities to create totally new goods that have not existed before, perform an important role in these processes of change. Services are increasingly more often provided to recipients in packages, together with a specific, for example banking, insurance, etc. product. New types and forms of providing services that occur, changing services into products, and also the processes of industrialisation and reorganisation observed in the sector on a global scale show, that they actually determine the importance of structural changes that take place in contemporary economies of developed countries. Therefore the trend of discussion and attempts to answer the question of what is more important industry or services should be changed. It seems to be more reasonable to focus on searching for qualities that are common for both sectors, and consequent possibilities of their further development. In contemporary world it is hard to imagine effective functioning of industry, particularly high-tech without the possibility to use many specialised services. Similarly, demand on knowledge-intensive services is highly generated by advanced, innovative enterprises of industrial sector.

#### References

- [1] Abidi, O. (2015) How International Knowledge Assets Support Capability-Building in High-Tech Born Globals?, *Journal of Organisational Studies and Innovation*, vol. 2(1), pp. 1-27.
- [1] Bianchi, P., and Labory, S., (2011). *Industrial Policy after the Crisis. Seizing the Future*. Cheltenham: Edward Elgar Publishing Ltd., England.
- [2] Crinò, R. (2009) Offshoring, Multinationals and Labour Market: A Review of the Empirical Literature, *Journal of Economic Surveys*, vol. 23(2), pp. 197–249.
- [3] Davis, D.J. and Rubin, B.A. (2016) “Displacement in New Economy Labor Markets: Post-Displacement Wage Loss in High-tech versus Low-tech Cities”, *Social Science Research*, vol. 60, pp. 29-44.

- [4] De Backer K. *et al.* (2016). Reshoring: Myth or Reality?. *OECD Science, Technology and Industry Policy Papers*, No. 27, OECD Publishing, Paris. [Online]. Available: <http://dx.doi.org/10.1787/5jm56frbm38s-en>
- [5] Ellram, L.M. (2013) Off-Shoring, Reshoring and the Manufacturing Location Decision, *Journal of Supply Chain Management*, vol. 49(2), pp. 3-5.
- [6] Garrett, G. (2004) Globalization's Missing Middle. *Foreign Affairs* 83(6), pp. 72-83.
- [7] OECD, (2007). *Offshoring and Employment. Trends and Impacts*. [Online]. Available <http://www.oecd.org/sti/ind/offshoringandemploymenttrendsandimpacts.html>
- [8] Massini, S. and Miozzo, M., (2010). Outsourcing and Off Shoring of Knowledge-Intensive Business Services: Implications Innovation, (in:) *Handbook of Innovation and Services: A Multi-Disciplinary Perspective* (ed. by) Gallouj, F. and Djellal, F., Edward Elgar Publishing Ltd. England, pp. 469-500.
- [9] Mateja, Z. *et al.* (2011) High-Tech Sector and the European Lagging in the Globalized Economy. *Proceedings of 10<sup>th</sup> International Conference of Liberec Economic Forum*. Liberec, Czech Republic, pp. 286-294.
- [10] Rubalcaba-Bermejo, L. (2004) The globalisation of business services and the competitiveness of European ICT services. *Proceedings of XIV Conference RESER*, Castres, pp. 459-504.
- [11] Skórska A. (2011). Offshoring usług biznesowych – wyzwania dla rynku pracy (in:) *Transformacja gospodarki – poziom krajowy i międzynarodowy*, (ed. by) Kos, B., „*Economic Studies*” *Faculty Research Papers*, vol. 90, pp. 147-154.
- [12] Skórska A. (2012). *Wiedzołchłonne usługi biznesowe w Polsce i innych krajach Unii Europejskiej* [*Knowledge-intensive business services in Poland and other countries of the European Union*], University of Economics in Katowice, Katowice, pp. 117-119.
- [13] Temouri, Y. *et al.* (2010) The futures of offshoring FDI in high-tech sectors. *Futures* vol. 42(9), pp. 960-970.
- [14] Wagner, J. (June 2011) Offshoring and firm performance: self-selection, effects on performance, or both? *Review of World Economics*, vol. 147(2), pp. 217–247.
- [15] Wąsowicz, J. (2015) Produktywność pracy i koszty pracy jako determinanty chłoności zatrudnieniowej wzrostu gospodarczego w Unii Europejskiej, „*Economic Studies*” *Faculty Research Papers*, vol. 232, pp. 244-249.
- [16] Zeleny, M. (2012) High Technology and Barriers to Innovation: From Globalization to Relocalization, *Journal of Information Technology & Decision Making*, vol. 11(2), pp. 441-456.
- [17] <http://ec.europa.eu/eurostat/data/database> (accessed 10.08.2016)

# ON THE TRANSFORMATION OF HUMAN LABOR IN THE GLOBALIZATION PERIOD

Josef Šmajš<sup>1,a,\*</sup>

<sup>1</sup>Masaryk University, Faculty of Economics and Administration, Department of Corporate Economy,  
Lipová 507/41a, Pisárky, Brno, Czech Republic

<sup>a</sup>Josef.Smajš@econ.muni.cz

\*Corresponding author

**Abstract.** Globalization is the product of a spontaneous development of a predatory-oriented civilization (the Culture). If the contemporary economic system preserves its fascination with the productivity-oriented science, the amount of available human labor will continue to decline. And simultaneously there will continue and speed up the process of ravaging the Earth by both manufacturing and final personal consumption. If we want to return a part of the population back into the productive labor process, which is biologically determined in humans, we will have to perform a deep reaching biofile transformation of the human culture. It means that we will have to create purposeful technology gaps for human participation in the abiotic production, which could possibly be fully automated, and at the same time it is high time to start considering how to return a part of the human population from large cities back to the country, where they could care for animals, soils, forests and the beauty of the landscape. This could alleviate the problem, which is not being considered these days, and which consists in the fact that a part of the population cannot have the required biological and sociocultural prerequisites for the intellectually demanding work in the tertiary sector.

**Keywords:** job, globalization, automatization, personality demands

**JEL Classifiaction:** O13, O14, M14

## 1. Introduction

Práci pojmáme jako způsob, jímž člověk – prvek přírodního systému, ale i jediný tvůrce kultury – vnucuje svou vůli (individuální či kolektivní) části okolní přírody, tj. původně přírodním strukturám a procesům. Vlastní pracovní proces, řečeno jen schematicky, probíhá tak, že člověk svou vůlí ovládne nejprve sám sebe, tj. své vlastní bytostné síly. Ovládne přírodní síly uvnitř svého organismu, a to nejen síly mentální, nýbrž i síly fyzické, a teprve s jejich pomocí přinutí okolní fyzické struktury a aktivity přijmout požadovanou formu či směr působení.

Ještě klasičtí ekonomové, ale také např. německý filosof G. W. F. Hegel (1960) či španělský myslitel José Ortega y Gasset měli zjitřený smysl pro historický význam lidské práce. Ale někdejší glorifikaci práce dnes vystřídal zdvořilé mlčení. Ani ekonomické vědy, které práci tradičně řadí mezi tři základní výrobní faktory (půda, práce a kapitál), nezkoumají, jak práce souvisí s přírodou, s lidskou přirozeností, zdravím a štěstím člověka atp.

Svátek práce dnes slaví jen některé levicové strany a méně rozvinuté země. Mohlo by to znamenat, že jsme konečně pochopili také destruktivní roli lidské práce ve vztahu k Zemi. Na tu totiž nepřehlédnutelným způsobem upozornila už Hannah Arendtová (2007). „Práce stejně jako spotřeba jsou primárně stravujícími procesy, při nichž nedochází k proměňování, ale

k zničení matérie, a podoba, již práce propůjčuje svému „materiálu“, je jen přípravou k nastávajícímu zničení“ (Arendtová, 2007). Je však tento předpoklad správný?

## 2. Biologická podmíněnost práce

Souvislost práce s konzervativní lidskou přirozeností je dána tím, že naši hominidní předkové kdysi ztratili svou niku (přirozený domov) v korunách stromů afrických deštných pralesů. V důsledku náhlého vzniku velké příkopové propadliny se postupně ocitli v křovinaté savaně. Pod hrozbou úplného vyhynutí se museli relativně rychle přizpůsobit novým podmínkám. Život na stromech, pomineme-li stavbu jednoduchých hnízd, byl spíše „zábavou než prací“. Poskytoval dostatek rostlinné potravy ve formě plodů, hmyzu a jedlých výhonků, byl přirozeným úkrytem před pozemními šelmami a hady, zajišťoval nerušenou možnost nočního odpočinku atp.

*Život v savaně naopak připomínal vyhnání z ráje, vyžadoval obtížnější způsoby získávání obživy. Bylo nezbytné v krátké době zvládnout rychlý a dlouhý pohyb po zemi bez pomoci předních končetin, nové způsoby obstarávání potravy, zajišťování bezpečí celé tlupy před predátory i přesnější komunikaci. Musela vzniknout nová lovecká strategie včetně používání ohně, lsti a vhodných nástrojů. Zdá se, že většina populací našich vzdálených předků v této době vyhynula.*

Populace, které se dokázaly přizpůsobit, se nacházely v období biologické plasticity (Flégr, 2006) a vytvářely základ nových druhů Homo. Do jejich genomu se prosazovala *útočná adaptivní strategie* včetně potřeby fyzické námahy a jazykové komunikace. Tedy až se sahá biologicky zakotvená lidská potřeba pracovat a mluvit (Chomsky, 2014). I když v této dlouhé etapě sběračství a lovectví, která trvala většinu historie anatomicky moderního člověka (100 – 200 tisíc let), nemůžeme ještě mluvit o práci v dnešním slova smyslu, v neolitu se již objevuje *práce jako fenomén utvářející člověka i kulturu*.

## 3. Přehlížená fáze zemědělství

Ve srovnání se sběrem a lovem, jejichž rámcové předpoklady byly zakódovány v lidském genomu už z období stromového způsobu života našich předků, byla zemědělská práce pro člověka patrně *intelektuálně náročnější aktivitou*: nepředpokládala pouze vrozený důvtip, obratnost a fyzickou sílu, nýbrž také *jistou úroveň pochopení vnitřní jednoty přírody*. Protože byla dostatečně transparentní, mohla pomalu rozvíjet lidské intelektuální schopnosti. Téměř nezatelný biologický vývoj člověka, probíhající desítky tisíc let v přirozených ekosystémech, se podařilo „obohatit“ novými podněty: nastal rychlý kulturní vzestup (Bronowski, 1985).

Pro klasickou zemědělskou technologii, jejíž význam se bohužel nepřipomíná, jsou důležité dvě okolnosti: *Za první*. Biologické předpoklady pro tuto práci má bez zvláštní přípravy ve svém organismu většina zdravé lidské populace. *Za druhé*. Už na úrovni obvyklého lidského rozumu v ní spolu s člověkem může *společně působit aktivita živé přírody*.

Zemědělství však vedle potravin produkuje i mnoho užitečných látek, rozvíjí se spolu s domácími řemesly (zejména s budováním staveb, předením a tkaním) a relativně snadno se v něm vytváří nová hodnota, jinak řečeno: renta, nadvýrobek, *společenské bohatství*. I když podíl přírody na tvorbě společenského bohatství je nezastupitelný i v oblasti práce abiotické

(řemeslné a průmyslové), v ekonomických vědách zvítězilo falešné přesvědčení, že *hlavním zdrojem bohatství je pouze práce*.<sup>3</sup>

Ale ještě jeden dnes používaný argument byl patrně *nekriticky převzat ze sféry zemědělství*. Všeobecně rozšířené tvrzení, že lidská práce přirozené struktury a vztahy na hmotné bohatství pouze upravuje, že jim, ekonomickou mluvou řečeno, *přidává hodnotu*. Příroda, která podle konvenčního ekonomického myšlení sama o sobě žádnou vlastní hodnotu nemá (výjimkou byly přírodní síly uvnitř člověka, tj. hodnota pracovní síly), prý bohatství nevytváří. Ale hlubší analýza problému ukazuje, že *příroda má nejvyšší možnou hodnotu o sobě a že lidská práce tuto nepodmíněnou hodnotu naopak snižuje* (Šmajš, 2015).

#### 4. Automatizace

Pomineme-li zajímavou historii práce řemeslné a průmyslové, vidíme, že vytvoření plně technických automatů, tj. úplné nahrazení původních biotických funkcí člověka (řemeslníka, obsluhy) technicky ovládnutými silami abiotické přírody, nepřináší jen zvýšení produktivní síly práce a úbytek fyzické dřiny lidí. Vede k radikální proměně kulturního systému, vyvolává ztrátu pracovních míst pro dělníky i dosud nejvyšší míru frustrace lidí ze ztráty práce.

Protože dnešní ekonomika je hodnotově podřízena predátorsky orientované kultuře, prosazuje se její tendence vytvářet zisk i za cenu *biologicky málo užitečných, či dokonce pro člověka i Zemi škodlivých produktů*.<sup>4</sup> Vzniká *společnost abiotické hojnosti*, která vysoce rozvinutou výrobou i záměrně podněcovanou abiotickou spotřebou *zabíjí živou přírodu*.

*Máme-li na mysli ekonomiku*, je zřejmé, že věda technicky aplikovaná ve výrobě, pronikavě zvyšuje produktivitu práce a poprvé zbavuje výrobní proces omezení, která vyplývala z předchozí přítomnosti živého člověka. Ekonomika může růst a expandovat, protože otevřeným polem pro nové vědění se už v průmyslové revoluci stával předmětný faktor, technika. *Formulováno s ohledem na člověka*, věda osvobozuje dělníky od namáhavé a monotónní práce, ale bohužel je také připravuje o nezbytnou kultivující produktivní práci vůbec. *Formulováno s ohledem na přírodu*, v predátorském duchovním paradigmatu se věda podílí na skrytém a zatím nejhlubším poškozování Země, a to nejen výrobou, ale *zejména konečnou osobní spotřebou*.

Ale ještě další problém je závažný. Ekonomika, kterou v jejím celku nikdo neřídí, svou svébytností a růstem vtahuje všechny občany bohaté spotřební kultury *bez jejich výslovného souhlasu* do nebezpečného procesu konzumace a zamořování Země. Stávají se z nich rukojmí nebezpečné protipřírodní expanze nadosobního kulturního systému. I když se předmětem jejich osobní spotřeby vedle potravin, ošacení a dalších předmětů nutných k životu, staly také nejvyspělejší formy spotřební techniky – osobní automobily, chladničky, pračky, myčky nádobí, televizory, počítače, mobilní telefony atp. – průmysl tuto techniku vyrábí jen s jejich minimální účastí. Proti své vůli se podílejí na pustošení Země.

V protipřírodní kultuře je proto automatizovaný výrobní proces podobně úzkým a hodnotově deformovaným užitím speciálního vědění, jakým je sociálně omezený ekonomický zájem podnikatelských subjektů. Abiotická automatizace je tak nejen nejvyšší úrovní rozvoje

<sup>3</sup> Ale toto zdánlivé opomenutí bylo patrně účelové: zakrylo jak *bořivý účinek abiotické práce na přírodu*, tak také fakt, že se pracovního procesu nutně účastní spektrum různých přírodních sil a procesů: živé systémy, chemické slučování, jevy tepelné, magnetické, elektrické atp.

<sup>4</sup> K problému predátorské orientace kultury viz Šmajš, J. (2013). How will the Promethean myth end? In: Human Affairs. Springer, vol. 23, pp. 495–506.

techniky, ale v protipřírodní kultuře i *historickou parodií na kdysi celistvou, kultivující a k přírodě i lidem ohleduplnou práci s nástrojem*.

## 5. Příroda a lidská práce

Proces abiotické automatizace výroby nepřímo ukazuje, že příroda je aktivita, že v ní dřímají síly, potence a struktury, kterých se kultura dokáže zmocnit. Po stisknutí příslušného tlačítka se bohatství vytváří umělým, předem nastaveným chodem vědou sestaveného, usměrněného a kontrolovaného technického systému. Účelově zaměřený abiotický výrobní proces se tak poprvé jevově *podobá přirozené produkci živých systémů v zemědělství*. Ale je to důkaz technokratické představy, že by umělé hmotné *bohatství mohlo dlouhodobě vznikat i bez živé lidské práce*? Domníváme se, že taková představa je chybná.

V čem je problematická? Za prvé v tom, že potřeba smysluplné lidské námahy byla u člověka, jak jsme již ukázali, zakotvena biologicky; za druhé v tom, že potřeba průmyslového zboží včetně abiotické spotřební techniky nemá ani naléhavost srovnatelnou s každodenní potřebou lidské obživy, ani přirozené meze na straně lidského těla. Další vývoj v tomto směru by nutně zničil člověka i kulturu.

Nástup automatizace a informačních technologií – na rozdíl od nástupu mechanizace – potřebu oné práce, kterou v konkrétním výrobním procesu nahrazuje, sice z velké části odstraňuje, ale v širším společenském měřítku se *požadovaný objem lidské práce paradoxně příliš nesnižuje*. Proč? Především proto, že dnešní kultura je umělým systémem, který tím, že se stává složitější a rozsáhlejší vyžaduje náročnou obnovu, správu a reprodukci.

## 6. Mohou všichni vyhovět nárokům intelektuální práce?

Osobnostní nároky klasické zemědělské, řemeslné a do jisté míry i průmyslové práce, v nichž se lidé střetávali především s přírodními procesy a strukturami (jimž byli evolučně přizpůsobeni), mohla bez větších problémů splnit společenská většina. Spolu s přesunem ekonomického zájmu z výroby na obchod, služby, dopravu, ochranu, finance atp., tj. i na reklamu a vnucování málo užitečných služeb a věcí širokému okruhu spotřebitelů, jsou sofistikovanou výrobní i kulturní sférou stále více požadovány *různé formy bezprostředně neproduktivní mentální práce*.

Tuto zatím nejhlubší proměnu obsahu i smyslu lidské práce vyvolává především *prudký růst účinnosti a diferenciací abiotické výroby*. Ten v predátorském duchovním paradigmatu kultury působí dvěma základními způsoby. *Za prvé*, podniky s ohledem na úsporu výrobních nákladů přednostně aplikují nové vědecké poznání, a proto propouštějí všechny bezprostředně neužitečné pracovníky. *Za druhé*, kulturní systém, podřízený podnikatelskému sektoru, pomáhá všem potenciálním spotřebitelům jejich málo naléhavé potřeby vnutit (namluvit), tj. svádět je k novým formám spotřeby a závislosti na různých bankovních, informačních, poradenských a bezpečnostních systémech.

*Výsledkem je kvalitativně nový nárok na úroveň lidské pracovní síly*, která již nenajde uplatnění v zemědělství ani v klasických továrnách. Jde o zvláštní objektivní požadavek, kterým se zužují možnosti uplatnění méně socializovaných, tj. méně duševně disponovaných či potenciálně méně altruisticky nadaných lidí na trhu práce. A takových lidí bohužel v dnešní populaci přibývá.



Novým vážným problémem se stává to, že komplexním emocionálním a intelektuálním nárokům bezprostředně neproduktivní práce už nemohou snadno vyhovět průměrné, výchovou, vzděláním i životem nevhodně zformované lidské bytostné síly. *Konzervativní lidská přirozenost, kdysi vytvořená přírodou, se dostává do rozporu s příliš odlišnými nároky umělého kulturního systému.*

Prokazatelně negativní účinek vlivu vyspělé kultury na lidskou populaci však *společenské vědy zaskočil*. Nejenže klesá úroveň obecné vzdělanosti, protože vědu dnes na místo člověka pohotově nasává hlavně technika. Ale nejvyšší úroveň techniky – současná mikroelektronika – nečekaně produkuje nový teoreticky nepředpokládaný jev: *polovzdělanost, digitální demenci* (Liessmann, 2008; Spitzer, 2014).

Lidé s nižší úrovní asertivity či s nevhodnou strukturou mentálních schopností, přestože nemají morální zábrany svým spotřebním způsobem života podporovat výrobu, obchod, reklamu a zbytečný konzum, se mohou ucházet jen o jistá zaměstnání: především ta, která nevyžadují ani teoreticky rozvinuté myšlení a sociální dovednosti, ani psychické dispozice v požadovaném směru ovlivňovat rozhodování jiných. Takže tito lidé mají dnes problémy najít zaměstnání, trpí deprivací (strádáním), mnozí žijí ze systému státních podpor, nebo bez prostředků: často se ocitají mezi bezdomovci, gamblery, narkomany i v tzv. rezervní armádě nezaměstnaných. A protože tito lidé obvykle nepracují, musí je podporovat stát.

## 7. Budoucnost lidské práce v globalizované kultuře

Živá lidská práce i živá příroda jsou dvěma příbuznými procesy, které se sice od počátku kultury střetávají, ale také se vzájemně doplňují a předpokládají. Technicky vyspělá civilizace může sice po jistou dobu žít z přednostní exploatace neživých přírodních sil, ale pouze za cenu, že omezený smyslový a tělesný kontakt člověka s přírodou, ztráta jeho možnosti bezprostředně spolupracovat „s čestným bohem“ (Einstein), ale i jeho snížená fyzická pracovní zátěž, *ublíží lidskému zdraví*. Proto přibližně v míře, v jaké je tradiční *lidská práce* nahrazována prací obelstěné přírody a přestává být osobnostně formativní aktivitou lidí, stává se z *ekonomické kategorie bohužel kategorií psychologickou a medicínskou*. Může se stát, že fyzicky náročná práce bude brzy pro část lidí *na lékařský předpis*.

Také „průmyslový model“ neustálého zvyšování produktivity zemědělské práce za pomoci vědy, chemizace a biologicky necitlivých technických inovací, který poškodil půdu i zdravotní stav zvířat a který způsobil nebezpečnou kontaminaci potravin cizorodými látkami, musíme *co nejrychleji opustit*. Decentralizace zemědělství s ohledem na udržení úrodnosti půdy, krásu venkovské krajiny a výrobu biopotravin, která by zahrnovala návrat práceschopné populace znovu na venkov, by tedy nebyla cestou zpátky: byla by naopak jedním z možných praktických východisek z nynější existenciální civilizační krize.

## 8. Conclusion

Plnohodnotnou práci jako jednotu fyzického a mentálního výkonu, kterou dnes v důsledku protipřírodně zaměřeného vědeckotechnického pokroku stále méně potřebuje globalizující se ekonomika, stále více potřebuje člověk i dlouhodobě možná lidská kultura. Tradiční práce, jejíž potřeba je patrně součástí dávné predispozice našeho vysoce konzervativního genomu, poskytuje člověku jako bytosti posedlé aktivitou a kreativitou možnost přímo se účastnit nadosobního procesu látkové výměny kultury s přírodou. Dodává mu společenskou důstojnost,

umožňuje mu realizovat pudově zakotvenou příležitost pečovat o biologickou zátěž svého organismu, přináší mu ničím nenahraditelné uspokojení a funkční slast.

Pochopíme-li tyto souvislosti, mohli bychom konečně přestat přehlížet člověku geneticky předepsanou potřebu práce. Ani v globalizované kultuře bychom neměli o jejím významu a smyslu pochybovat.

## References

- [1] Arendtová, H. (2007). *Vita aktiva neboli o činném životě*. Praha: Oikoymenh.
- [2] Birx, H. J. (ed.) (2006). *Encyclopedia of Anthropology*. Thousand Oaks, London, New Delhi: Sage Publications.
- [3] Bronowski, J. (1985). *Vzestup člověka*. Praha: Odeon.
- [4] Buchtová, B. (2002). Psychologie nezaměstnanosti. In Buchtová, B. et al. *Nezaměstnanost*. Praha: Grada.
- [5] Buchtová, B., Kukla, L., Okrajek, P., Šmajš, J., Kulhavý, V. (2014). Ontogenetická podmíněnost nezaměstnanosti. *Časopis lékařů českých*, roč. 153, 13-21 s.
- [6] Buchtová, B., Šmajš, J., Boleloucký, Z. (2013). *Nezaměstnanost*. Praha: Grada.
- [7] Burdie, P. (1998). *Contre - feux*. Propos pour servir á la résistance contre l'invasion néo-libérale. Paris: Éditions Raisons D'Agir.
- [8] Capra, F. (2004). *Tkáň života. Nová syntézy mysli a hmoty*. Praha: Academia.
- [9] Flégr, J. (2006). *Zamrzlá evoluce*. Praha: Academia.
- [10] Chomsky, N. (2014). *Disident Západu*. (Fiala, J. Ed.) Praha: Karolinum.
- [11] Hartmann, N. (1964). *Neue Wege der Ontologie*. Stuttgart: W. Kohlhammer.
- [12] Hawken, P., Lovins, A. and Lovins, H. (2003). *Přírodní kapitalismus. Jak se rodí další průmyslová revoluce*. Praha: Mladá fronta.
- [13] Hegel, G. W. F. (1960). *Fenomenologie ducha*. Praha: Svoboda.
- [14] Liessmann, K. (2008). *Teorie nevzdělanosti. Omyly společnosti vědění*. Praha: Academia.
- [15] Spitzer, M. (2014). *Digitální demence. Jak připravujeme sami sebe a své děti o rozum*. Brno: Host.
- [16] Šmajš, J. (2006). Culture; Nature; Technology. In: Birx, H., J., ed.: *Encyclopedia of Antropology*. Thousand Oaks, London, New Delhi: Sage Publications, pp. 636-640; 1700-1702; 2165-2167.
- [17] Šmajš, J. (2008). *Evolutionary Ontology. Reclaiming the Value of Nature by Transforming Culture*. New York and Amsterdam: Rodopi.
- [18] Šmajš, J. (2008). *Filosofie – obrat k Zemi*. Praha: Academia.
- [19] Šmajš, J. (2011). *Ohrožená kultura*. Brno: Host.
- [20] Šmajš, J. (2013) *Evoluční ontologie a problém podnikání*. Brno: Vydavatelství Masarykovy univerzity a Doplněk.

- [21] Šmajs, J. (2013). How will the Promethean myth end? In: *Human Affairs*. Springer, vol. 23, pp. 495–506.
- [22] Šmajs, J. (2015). Nature – new subject of morality. In: *Filosofický časopis*, vol. 63, no. 5, pp.749-756.
- [23] Šmajs, J. (2016). Ke konci školního roku troche jinak: Stroje a automaty připravují lidi o rozum. Žijeme v iluzi ekonomického růstu, varuje filozof. [Online]. Dostupné z: <http://www.parlamentnilisty.cz/arena/monitor/Ke-konci-skolního-roku-trochu-jinak-Stroje-a-automaty-připravují-lidi-o-rozum-Žijeme-v-iluzi-ekonomického-rustu-varuje-filozof-442779>.
- [24] Šmajs, J. (2016). On the Basis of Evolutionary Ontology. In: *Filosofický časopis*, vol. 64, no. 3, pp.437-445.
- [25] Šmajs, J. (2016). Proč přehlížíme fenomén lidské práce. [Online]. Dostupné z: <http://neovlivni.cz/esej-filozofa-smajse-o-cene-prace/>.

# MONETARY POLICY RESPONSES TO THE GLOBAL FINANCIAL CRISIS SHAPING THE NEXT STAGE FOR THE EUROPEAN MONETARY INTEGRATION

Eszter Solt<sup>1,a,\*</sup>

<sup>1</sup>Dennis Gabor College, 1119 Budapest, Mézők utca 39, Hungary

<sup>a</sup>solt@gdf.hu

\*Corresponding author

**Abstract** This paper aims to discuss the monetary policy responses given to the challenges of the recent global financial crisis. It focuses on financial globalization by examining how it gave rise to the crisis. Lessons have been drawn from the crisis and the flaws preceding the Great Recession. The thorough analysis of the policy measures taken to mitigate the serious effects of the crisis creates a basis for shaping the next stage of operating the single currency system. The complexity of the financial systems and profound changes since the 1970s called for reforms to make the global financial system more resilient to shocks. The deep financial integration increased the euro area's vulnerability to shocks and cross-border contagion. Without the bold use of unconventional central bank tools as a response to recession, the meltdown of the financial system might not have been avoided. Central banks implemented quantitative easing (QE) by purchasing financial assets simultaneously increasing the money supply. The European Central Bank was the first major central bank to cut the interest rates below zero. The unconventional tools, however, have been ineffective in increasing inflation. Consequently, economies are likely to have to face a deflationary pressure. The paper aims to examine how monetary policy could better contribute to financial stability and how the tools of monetary and macroprudential policies can strengthen the resilience of the global financial system and reduce the vulnerability of EMU as the long-run stability of the euro area is vital for the future of Europe.

**Keywords:** financial globalization, monetary policy, integration, unconventional measures, central bank

**JEL Classification:** E5

## 1. Introduction

Burst of financial bubbles that brought underlying economic problems to the surface developed into a financial and economic crisis at global level in 2008. The financial crisis turned into a debt crisis and euro crisis. The crisis has posed new challenges to fiscal and monetary policies in all the countries, including the euro area. Taking the impacts on the banking system and the risk for sovereign debtors into account the economies had to face a new situation, which aggravated the conduct of monetary policy. Nevertheless the 2008 financial crisis was worse than the Great Depression the recovery seems to be better than 25 to 30 % fall in the GDP that happened in the Depression (Bernanke, 2014) owing to the appropriate response to it. The way of recovery also differs in the US and the UK from that in the euro area. The correct assessment of the crisis is vital in terms of setting the right monetary policy, which may as well determine

the depth of the effects and the manner or the speed of recovery. Such as estimating the output gap. Different sizes of output gaps require different policy measures. This paper focuses on the monetary policy responses to the global financial crisis in the Economic and Monetary Union. The financial crisis turned into a debt crisis and euro crisis. The recession has brought the structural and operational weaknesses of the Economic and Monetary Union to the surface. My argument is that the economic situation within the euro area in 2007-09 stemmed from its vulnerability and fragility owing to its architecture. At the union level, the crisis has highlighted that institutional reforms are necessary to implement for two main reasons. One is that the euro area should develop effective mechanisms of fiscal supervision and policy co-ordination. The other is should a recession occur in any EMU country, it is important to stop its escalation in the particular country and its contagion to other countries. In my paper I first document the effects of the global financial crisis and the underlying economic problems contributing to its escalation focusing on providing a correct assessment. The second chapter reveals the reasons for the euro area's greater exposure to the global and sovereign crises, while the third chapter analyses the monetary policy responses to the crisis given by the ECB. The fourth chapter assesses the impacts of its measures completed with a brief comparison with the steps taken by the US and the UK central banks. Finally, I close my study with my conclusions.

## **2. The Assessment of the Crisis: Cyclical and Structural Components**

In the late 1970s a radical a financial deregulation process began that accelerated the evolution of financial markets. The „New Financial Architecture” (NFA) refers to the integration of financial markets with light government regulation of the era characterized above. NFA created a framework for flawed practises and institutions. The true nature of the underlying situation seems to be difficult to reveal since trading of over-the-counter (OTC) derivatives. A shadow banking was constructed alongside the regulated sector. Crises manifest the linkages between the financial sector and the real economy. A financial crisis often occurs together with a remarkable change in credit volume and asset prices; disruptive financial intermediation, immense balance sheet problems and significant government support. Information asymmetries exist among intermediaries and in financial markets. Lagged GDP growth is positively associated with the probability of a credit boom (Dell’Ariccia et al, 2013). Increases in international financial flows can strengthen credit booms. Structural factors such as financial liberalization and innovation facilitate more risk taking and can also trigger credit booms. Empirical studies found crises were often preceded by financial liberalization (Dell’Ariccia et al, 2013). Regulation, supervision, and market discipline is not quick enough to catch up with greater competition and innovation. Nevertheless, the recent global financial crisis demonstrated some new factors in terms of its roots. These new and common factors in the framework of the „New Financial Architecture” led to the severest financial crisis since the Great Depression. Financial markets of moderate size support growth, while too large they have a weakening impact, moreover they can negatively affect it (Manganelli et al, 2013). Restoring confidence in the financial system, if possible at all, required immense government participation. Financial crises have large economic costs. An indication of the significant costs that crises incur is consumption and overall welfare. A decline in consumption during recessions associated with financial crises is typically seven to ten times larger than those without such crises in emerging markets. The most remarkable hit on the real economy from a financial crisis is the lack of credit. Kroszner (2007) points out that after banking crises sectors grow more slowly so they naturally need more external financing owing to banks’ limited lending capacity. Sectors more dependent on external finance grow relatively less. „Creditless

recoveries” are more common after banking crises and credit booms. The timing of crises is more difficult to predict than identifying vulnerabilities. The phrase "Minsky moment" refers to the situation when a market fails or falls into crisis after a long period of speculation or unsustainable growth. What we have seen in the recent case of the financial crisis was a slow movement of the global financial system toward „money manager capitalism”, as Minsky put it, that collapsed in 2007. Wray (2009) named it the „Minsky half-century”.

### **3. Macroeconomic Instability and the Incomplete Design of the Economic and Monetary Union**

The incomplete design of EMU concerns the ability to manage liquidity or solvency problems (Pisani-Ferry et al, 2010). As argued by Obstfeld and De Grauwe (2012), the financial dimension of macroeconomic stability was largely overlooked. The deepening of the financial integration and the expansion of the financial-sector at the same time undermined financial and macroeconomic stability. De Grauwe (2013) refers to the close linkage between the sovereign and the banks as a “deadly embrace” The phenomenon that bank portfolios from the Northern part of the euro area were diverted toward the periphery of economies in Southern-Europe strengthened risk. Low nominal interest rates and easy access to credit fostered demand and inflation reducing real interest rates, which had destabilizing effects. This process ended up in cumulating current account deficits and external liabilities. The main factor contributing to the euro area crisis in 2009 derives from the financial/fiscal trilemma suggested by Obstfeld (2013). The new policy trilemma for currency unions is constituted by the impossible simultaneous maintaining of cross-border financial integration, financial stability, and national fiscal independence. Any diagnosis that overemphasises the lack of enforcement of existing fiscal rules is partial. Pisani-Ferry (2012) provides a useful organizational structure for understanding the unforeseen consequences of intense financial market growth and proposes an alternative trilemma based on no monetary financing, lack of centralized fiscal functions, and national banking systems. It is the impossible trinity of strict no-monetary financing, bank-sovereign interdependence and no co-responsibility for public debt. My argument is that the turmoil in the euro area in the period after the outburst of the crisis finds its roots in financial vulnerabilities of the incomplete design of the Economic and Monetary Union. Initially, architects were concerned with monetary policy, fiscal policy, and structural reform in nonfinancial markets e.g labor markets leaving the financial dimension out of scope. The process of financial integration, ruling optimism concerning risk and growth as well as global liquidity created credit conditions at the time the EMU began to work that resulted in excessive borrowing. Asset price bubbles occurred in housing and in the sovereign debts increasing banks’ exposure to the risk of collapse creating the „too-big-to-fail” (TBTF) issue. Preventing TBTF banks from failing might be necessary for maintaining the stability of the financial system in the short run. Bailing out TBTFs, however, is likely to lead to a less stable financial system in the long run due to moral hazard. The theoretical basis of the creation of the monetary union is optimal currency area theory that considers exogenous shocks rather than the endogenous dynamics of capitalism. Diagnostic failure prevailing in the North blames government profligacy for the euro-crisis. Both allow disguising the design flaws of the euro area. The central bank as the lender of last resort is supposed to counterbalance the instability of capitalism stemming from its nature. It implies two responsibilities: injecting liquidity in the banking sector and to the government bond markets. The ECB as a lender of last resort in the government bond markets has an infinite capacity of buying government bonds. The European Stability Mechanism (ESM) that became operational in October 2012 has limited resources and

cannot credibly commit to such an outcome. The fact that resources are infinite enables the bank to stabilize bond rates. Maastricht has brought the loss of two economic policy levers, monetary and exchange rate policies, and has left two other, the national fiscal policies and the EU budget itself. It means national governments are restrained in reacting to asymmetric shocks, the outcome of which depends to a great extent on the relative phasing of business cycles between each member state and on the ability that cycles can be responded through the EU budget. In summary, emphasizing the lack of enforcement of existing fiscal rules provides a partial diagnosis to the euro crisis. The euro area's inherent weaknesses revealed by the crisis have made euro-area vulnerable. At the core of its vulnerability stands the impossible trinity (Pisani-Ferry, 2012) Secondly, the euro area has deprived itself of the shock absorbers most economies can lean on to reduce the negative effects of demand shocks and fully expect a central bank to respond an economic downturn. My argument is that euro-area crisis was not a sovereign-debt crisis. The fact that Belgium and Italy, which entered the crisis with extraordinarily high debts did not land in serious trouble, while Ireland and Spain, which entered the crisis with low levels of sovereign debt, needed bail-outs underpins this statement. The problem was massive capital flows across borders, which encouraged high levels of private borrowing in the economies that at last got into trouble. Massive sovereign debt was the symptom rather than the cause of the crisis.

#### **4. Monetary Policy Measures Taken in the Euro area**

Since the financial crisis, broke out a more active monetary policy has been implemented by the European Central Bank (ECB) and by other major central banks. The adoption of a new mandate for the supervision of the Euro area banking system meant a fundamental change in 2014. The communication policy aims to enhance confidence and reduce uncertainty about the future growth of the economy. Nevertheless, some fundamental features have not been amended regarding the institutional framework or the independence of the Bank. The monetary policy strategy of the ECB has remained at its mandate to maintain a Harmonized Index of Consumer Prices (HICP) inflation rate of close to but below two percent. The measures implemented aimed specifically at enhancing credit support. They are defined as „non-standard, unconventional measures” and are considered part of the Bank's toolkit, but „by definition exceptional and temporary in nature” (ECB, 2014, February 5).

##### **4.1 The Modified Refinancing Operations of the European Central Bank**

The ECB policy response to the crisis focused on ensuring the provision of the liquidity with the interbank market or other short-term financing being frozen. Modifications to the Bank's operation included cutting the policy rate from 4.25 percent to 1 percent and an additional lowering to 0.15 percent in the periods from October 2008 to May 2009 and from December 2011 to June 2014 respectively. „Enhanced credit support” implies allocating liquidity through Main Refinancing Operations (MROs) and Long-Term Refinancing Operations (LTROs). As a result banks had unlimited access to central bank liquidity with collateral requirements being eased several times including the extension of the list of assets eligible as collateral. The maturity of long-term refinancing operations was extended from the original three months to six and, by a further extension, to one year.<sup>5</sup> In December 2011 and February 2012 two massive very Long-Term Refinancing Operations (VLTROs) were conducted with a maturity of three

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<sup>5</sup> The ECB implemented three and six-month full allotment Long-Term Refinancing Operations (LTROs) in November 2008 (€ 300 billion) plus 12-months LTROs in June 2009 (€ 442 billion).

years. The use of the Long-term Refinancing Operations facility shows an asymmetry. Banks in Spain, Italy, Greece, Ireland and Portugal account for 70 to 80 percent of the total borrowing since 2010 (ECB). On the other hand, banks in the North reduced their dependence on the ECB operations to minimum levels owing to the fact that they had capital inflows in quest for safety. The very long-term refinancing operations was designed to be a euro area-wide policy but it was the banks from the South of the euro area affected by the liquidity crisis to a higher degree that took this opportunity. The excess liquidity in the euro area has dropped significantly since 2013 and has been nearly completely re-absorbed as banks were allowed to repay LTRO facility credit before maturity. I conclude this facility was an effective measure to deal with the liquidity crisis of 2011-2012. It ensured stable three-year financing of banks, subsidised the banking system contributing to the restoration of its profitability and provided support to government bond market as banks partly used the funds for buying government bonds due to their higher yields. Without the facility existing lending might have collapsed. Nonetheless, little did LTROs do to prompt lending to the private sector as banks rather deposited ECB funds at the central bank or purchased government bonds instead. The main change in the size of the ECB balance sheet was caused by the two Very Long-Term Refinancing Operations (VLTROs). The first was implemented in December 2011 with an amount of € 489 billion, and the second in February 2012 with an amount of € 529 billion, both with a three-year maturity and the option for early repayment after one year. In addition to these measures, the reserve requirements were reduced from 2 percent to 1 percent. At the end of the period between September 2008 to April 2010 the ECB introduced the Covered Bond Purchase Programme 1 (CBPP1)<sup>6</sup> to promote the ongoing decrease in money market term rates, to encourage lending and to improve market liquidity in the private debt securities market. The first major change in communication tools of the ECB took place in 2012 when risk premiums for Spain and Italy reached their peak, Draghi<sup>7</sup> (July 26, 2012) confirmed that within their mandate, the ECB is ready to do „whatever it takes to preserve the euro.” The second change the ECB reflected was presented in April 2013 as shifting from „non-standard measures are temporary in nature” to „policy stance will remain accommodative for as long as needed” (Draghi, April 15, 2013). The third change appeared in April 2014 suggesting the possibility of implementing „unconventional instruments” owing to the risk of a prolonged period of low inflation. (Draghi, April 3, 2014)

#### **4.2 The Securities Market Programme (SMP) and Outright Monetary Transactions (OMT)**

The Securities Market Programme (SMP) was initiated in May 2010. This period from May 2010 to August 2011 was characterized by the sovereign crisis mounting rapidly, the Greek crisis and the bailouts of Greece, Ireland, and Portugal. Nonetheless, the ECB was reluctant to act as a lender of last resort for sovereigns. In this phase the ECB bought Greek, Irish, Portuguese, Italian and Spanish government bonds to be held to maturity. The purchases were fully sterilised through fixed term deposits because of potential inflation fears. The ECB raised interest rates from 1.00 percent to 1.25 percent in April 2011 and to 1.5 percent in July 2011. The SMP was not renewed. The impact of SMP can be assessed positive as it contributed to reducing the level and the volatility of government bond yields. The extraordinary operating

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<sup>6</sup> CBPP1 programme reached a relatively small amount of €61 billion. In November 2011, the ECB launched a second CBPP with a total volume of €40 billion but interrupted it in October 2012 after covered bonds totalling €16.4 billion had been purchased.

<sup>7</sup> Mario Draghi succeeded Jean-Claude Trichet as the President of the European Central Bank as the on 1 November 2011



measures of the ECB such as the implementation of six-month, one-year and three-year LTROs, Securities Markets Programme (SMP), Covered Bond Purchase Programme 1 and 2 (CBPP1, CBPP2) may fall in the category of unconventional measures as they use the CB balance sheet to directly affect market prices and conditions beyond a short-term interest rate. (Borio & Disyatat 2010). These measures intended to change the composition of the assets on their balance sheet, the so-called qualitative easing (Lenza et al, 2010). The interest rate policy of the ECB included reducing the MRO interest rate to 0.75 percent in July 2011 due to bond market developments in Italy and Spain. The Bank reactivated SMP and implemented Covered Bond Purchase Programme 2 (CBPP2). The ECB introduced the new Outright Monetary Transactions (OMT) in September 2012. In fact it was the announcement that affected European bond yields as the programme had not been used. It allowed the ECB to purchase unlimited amounts of government bonds of member states that are already subject to a European Stability Mechanism (ESM). The OMT was to safeguard „an appropriate monetary policy transmission and the singleness of the monetary policy” (ECB, September 6 2012). The period from August 2011 to May 2013 saw the euro area sovereign debt crisis accompanied with increased banking sector strain, which compelled the ECB to declare in August 2012 that the non-standard measures would be there as long as necessary. Thus the change in communication according to which „all our non-standard monetary policy measures are temporary in nature” resulted in increased uncertainty, even more liquidity demand and rapid deleveraging. The ECB was forced to become a committed lender of last resort for the banking system. Between January 2013 to May 2013 with less tension in money and bond markets and the banks’ repaying their loans, the size of the ECB balance sheet and excess liquidity showed a decreasing trend. Early repayment<sup>8</sup> of Very Long-Term Refinancing Operations (VLTROs) implies that the banks are less reliant on ECB funds but it is the indicator of banks’ reluctance to credit as well. Between June 2013 to May 2014 money market interest rates showed remarkable volatility, which was reflected in the variability of EONIA<sup>9</sup> rate. The ECB considering inflationary outlook as well responded by reducing the MRO rate by 25 basis points to 0.25 percent in November 2013. The marginal lending facility rate was cut to 0.75 percent and deposit rate to 0.0 percent reducing the corridor width from 150 basis points to 75 basis points becoming asymmetric.

### **4.3 Introduction of a Forward Guidance Strategy**

Forward guidance as a new monetary policy tool, an innovation in the Bank’s communication strategy, was introduced in July 2013 with the main idea introduced by Krugman (1998). It aims to clarify the future path of key interest rates, reduce uncertainty and the interest rate volatility. This policy leads to a drop in short-term rates for an extended period of time while inflation expectations increase. As forward guidance is not time consistent, it is not credible. Its effectiveness has been undermined by the lack of benchmark or thresholds based on relevant variables. Moreover, forward guidance has not been strictly defined.

### **4.4 The Effects of ECB Measures**

Early repayments and the consequent decrease in excess liquidity have made the EONIA rate converge towards the rate of MROs since late 2013. It technically reached the zero bound. In the second and third quarter of 2014 the euro area economy slowed down unexpectedly while some peripheral countries were falling in recession again. Inflation rates continued decreasing,

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<sup>8</sup> VLTROs were implemented with a three-year maturity and the option for early repayment after one year

<sup>9</sup> Euro Overnight Index Average. The EONIA rate is the 1-day interbank interest rate for the Eurozone. It can be considered as the 1 day EURIBOR rate

with negative rates spreading to more countries strengthening fears of price deflation. In 2014, the interest rates on MROs and on the deposit facility were lowered by 20 basis points, to 0.05 percent and to -0.20 percent respectively, while the rate on the marginal lending facility was reduced by 45 basis points, to 0.30 percent in line with the Governing Council's Forward Guidance. The ECB launched two private sector asset purchase programmes in fall 2014, an asset-backed securities purchase programme (ABSPP) and a new Covered Bond Purchase Programme (CBPP3). The programmes aimed to encourage greater lending to the private sector. The amounts altogether took up about €32 billion by end of 2014, but the purchases were to continue at a monthly rate of €10 billion. The HCPI rate's turn to negative for the eurozone average in December 2014 together with weak economy outlook made the ECB Governing Council take up quantitative easing (QE). An expanded asset purchase programme (EAPP) was launched in January 2015. The programme include purchasing private and government securities assets in the value of €60 billion per month. In the wake of the Lehman collapse and exploding sovereign debt crisis in the eurozone unconventional measures taken by the central banks were mainly aimed at stabilising specific segments of financial systems. They are referred to as „credit easing”. They include SMP and VLTROs programmes, and similarly the backup facilities established by the FED. The interventions were conducted well before short rates reached their lower bound and can be regarded as lender of last resort function of central banks.

## 5. Assessment of Monetary Policy Responses

When responding to the crisis as severe and long as the recent one central banks in the US and in Europe took “non conventional” or “non standard” monetary policy measures. As the short-term nominal interest rates have been brought down close to zero and inflation targeting and Taylor rules are not enough to overcome the slow pace of growth or recession. Despite intensive easing in the US and the UK by the Fed and the BoE, they have not yet been able to reduce the output gap down to the levels of 2007. In the euro area monetary easing has been low compared to the US or the UK. Several major advanced economies got close to a liquidity trap. At that point standard monetary policy becomes ineffective because nominal interest rates hit zero. Given these circumstances and the economy needs more monetary stimulus, demand is still insufficient, the central bank deploys unconventional or non standard monetary policies. Negative interest rates are employed to avoid a recession after reaching a liquidity trap. Another option is the central bank's purchasing government debt or private debt in primary or secondary markets. In the US the Fed has been buying Treasury bonds and bills and agency mortgage backed securities (MBS). The BoE has been buying only gilts and no private debt. The ECB has been buying some government debt from peripheral Member States in the secondary markets, but sterilizes these purchases. Raising inflation expectations to lower real interest rates may be a radical but effective solution. The ECB's policy response to the crisis focused on ensuring the liquidity and restoring the bank-lending channel. To achieve its goal the bank modified its existing monetary policy tools. It includes increasing the average maturity of its refinancing operations, easing the collateral requirements, and allocating liquidity at a fixed rate and full-allotment basis. These measures proved appropriate and effective to deal with the liquidity crisis. The Federal Reserve and the Bank of England opted for a more radical and unconventional way in terms of monetary policy with their swift decision to respond the crisis by implementing large-scale asset-purchases programmes. The ECB should also be the lender of last resort in the government bond markets just like the central banks of economies that issue debt in their own currencies (DeGrauwe, 2013). The ECB was reluctant to act as a lender of last resort until the end of 2011 and in 2012, when ECB stated that non-standard measures

would be available as long as necessary, and placed 1 trillion VLTROs (see chapter 3.1.). The Fed and the BoE had implemented QE long before. The ECB has one primary objective, price stability and the others are subordinated to the first while the Fed and the BoE have more than one, monetary stability and financial stability. This difference may provide an explanation to ECB's hesitant reaction. The measures implemented by the ECB can be framed as endogenous credit easing because of the focus on relaxing bank collateral requirements and funding liquidity constraints.

## 6. Conclusion

Having assessed the effects of unconventional or non standard monetary policies I conclude that without a swift deployment of innovative policy tools the meltdown of the financial sector could not have been avoided. These measures mitigated the harsh impacts of the global financial crisis on the real economy in terms of output, unemployment and inflation. The ECB's policy response to the crisis focused on ensuring the liquidity and restoring the bank-lending channel. To achieve its goal the bank modified its existing monetary policy tools. It includes increasing the average maturity of its refinancing operations, easing the collateral requirements, and allocating liquidity at a fixed rate and full-allotment basis. These measures proved appropriate and effective to deal with the liquidity crisis. The Securities Market Programme and the Covered Bonds Purchase Programme were aimed to buy particular assets with a scope and impact limited and short-lived. The Outright Monetary Transactions programme was announced to purchase unlimited amounts of government bonds of member states subject to a European Stability Mechanism (ESM) programme. Although not used its announcement had an impact on government bond yields within the EMU. The programme demonstrated that the ECB is determined to maintain the integrity of the euro area. Through injecting liquidity the Bank managed to stabilize expectation and prevent contagion of the financial turmoil (Gianonne et al, 2012). A safer global financial system and a more sustainable approach to financial market development and financial globalization, however, would support massive economic growth.

## References

- [1] Bernanke, B. (2014) The Federal Reserve, Looking back, looking forward at the Annual
- [2] Borio, C.-Disyatat, P. (2010) Global imbalances and the financial crisis. Reassessing the Role of International Finance, *Asian Economic Policy Review*, vol. 5 issue 2, December 2010.
- [3] Borio, C.-Disyatat, P. (2011) Global imbalances and the financial crisis: Link or no link?, *BIS Working Papers*, No. 346, May 2011.
- [4] De Grauwe P. (2013) The European Central Bank as lender of last resort in the government bond markets, *Cesifo Economic Studies*, vol. 59 issue 3 September 2013, pp. 520-535.
- [5] DeGrauwe P. (2013) Design failures in the Eurozone: can they be fixed?, European Economy, *Economic Papers*, No. 491 | April 2013, Brussels
- [6] DeGrauwe P. (2013) The Governance of a Fragile Eurozone, *Australian Economic Review*, vol. 45, issue 3 August 2013, pp.255-268.

- [7] Dell’Ariccia G., Laeven, L., Suarez G. (2013) Bank Leverage and Monetary Policy's Risk-Taking Channel: Evidence from the United States, *Economic Papers*, No. 491 | April 2013, Brussels
- [8] Draghi, M. (2013) The role of monetary policy in addressing the crisis in the euro area, Speech by Mario Draghi, President of the ECB, at the “Room for discussion” of the Study Association SEFA and the Faculty of Economics and Business, Amsterdam, 15 April 2013 *European Central Bank Monthly Bulletin*, February, 5 February 2014.
- [9] Gianonne, D., Lenza, M., Pill, H. (2012) The ECB and the Interbank Market, *Economic Journal*, vol. 122 issue 564, pp. F467-F486.
- [10] Gianonne, D., Lenza, M., Pill, H. (2012) The ECB and the Interbank Market, *Economic Journal*, vol. 122 issue 564, pp. F467-F486.
- [11] Jawadi, F. (2015) What have we learned from the 2007-2008 Financial Crisis?, Papers presented at the second International Workshop on Financial Markets and Nonlinear Dynamics (Paris, June 4-5, 2015) published online August 2016.
- [12] Kroszner, R. S., Laeven, L., Klingebiel, D. (2007) Banking crises, financial dependence and growth, *Journal of Financial Economics*, vol. 84 issue 1, pp. 187-228.
- [13] Laeven, L., Levine, R. (2009) Bank governance, regulation and risk taking, *Journal of Financial Economics*, 93, pp.259-275.
- [14] Lenza, M., Pill, H. (2010): Monetary policy in Exceptional Times, *ECB Working paper series*, No 1253 / October 2010
- [15] Manganelli, S., Popov, A. (2013) Financial dependence, global growth opportunities and growth revisited, *Economics Letters*, vol. 120 issue 1, pp. 123-125.
- [16] Meeting of the American Economic Association, Philadelphia, Pennsylvania, 3 January, 2014.
- [17] Minsky, H. P. (1995) Financial factors in the economics of capitalism, *Journal of Financial Services Research*, vol. 9 issue 3-4, pp. 197-208.
- [18] Obstfeld, M. (2012) Financial flows, financial crises and global imbalances, *Journal of International Money and Finance*, vol. 31 issue 3, Special Issue SI, pp.469-480.
- [19] Obstfeld, M. (2013): Finance at center stage: Some lessons of the euro crisis, *European Economy. Economic Papers*, No. 493 | April 2013, Brussels
- [20] Pisani-Ferry, J. (2012): The Euro Crisis and the New Impossible Trinity, *Bruegel Policy Contribution* 2012/01, January 2012
- [21] Pisani-Ferry, J., Sapir, A. (2010) Banking crisis management in the EU: an early assessment *Economic Policy*, Issue 62 pp.341-373.
- [22] Wray, R. (2011): „Minsky Crisis“, Levy Economics Institute of Bard College Working Paper No.659, March 2011 <http://www.bankofengland.co.uk/markets/Pages/sls/default.aspx>

## GLOBAL AND REGIONAL TRENDS IN FDI: SOME ADVANTAGES BUT ALSO PROBLEMS

Dusan Soltes<sup>1,a,\*</sup>

<sup>1</sup>Comenius University, Faculty of Management, Odbojarov 10, 820 05 Bratislava, Slovak Republic

<sup>a</sup>dusan.soltes@fm.uniba.sk

\*Corresponding author

**Abstract.** The paper is dealing with some problems existing in the current global and regional trends in the FDI – Foreign Direct Investments that in the last 20-25 years i.e. since the Fall of the Berlin Wall have become one of the dominant features of the ongoing globalization and/or also the parallel running regional integration. Practically all countries and regions have become an active part of these processes not only of globalization but also global and regional trends in FDI. Every country, region, integration group of states have been nowadays an integral part of these most attractive parts of globalization and regional integration. In the paper we are going to deal not only with various positives generally associated with and expected from these FDI global and regional trends but we are trying to analyse also some negatives in this respect that to some extent are putting into question the generally expected FDI related benefits like new jobs, new technology, know how, etc. It is a result of our research that the incoming FDI are not always representing only some positive impacts on the socio-economic development in the particular FDI destination either on the level of region, country, etc. There are often also some negatives associated with the incoming FDI like e.g. monopolistic behaviour, a very intensive and exploiting work systems, obsolete technology due to existence of cheap labour, various benefits for foreign investors like tax holidays, incentives, etc. that are hindering situation on the market and are discriminatory towards domestic businesses, etc. In the paper we are going to present at least some basic pros and cons related to the global and regional trends in FDI on the basis of our long year ongoing research in this important but also a rather controversial problem area of FDI within the contemporary trends in globalization and regional integration.

**Keywords:** foreign direct investments, globalization, regional integration, incentives global and regional trends in FDI

**JEL Classification:** E22, F21, F62, H54

### 1. Introduction

It is an undisputed fact that one of the main expected and desired outcomes of the whole ongoing globalization and regional integration has been an increased FDI inflows into the countries practically all over the world. Just in the last year 2015, global flows of foreign direct investment rose by about 40 per cent, to \$1.8 trillion, the highest level since the global economic and financial crisis began in 2008 (UNCTAD, 2016). In this respect especially developing countries and countries in transition like those from the Central and Eastern Europe (CEE) have been among those who have often seen in FDI almost a “miraculous medicine” that could “cure” all deficiencies but also inefficiencies of their often very seriously undercapitalized and not the best handled national economies and thus to solve all related problems. As in various other similar cases also the whole area of FDI and their potential benefits have been accompanied by various “myths” and totally or at least partially justified „beliefs“ that not always correspond to the particular reality of the potential FDI benefits.

In the next parts of this paper we are dealing with some of the basic expected benefits from FDI in more general context and will try also to justify what has to be done in order the particular FDI could bring the benefits as expected. In this respect, the main results as well as conclusions and recommendations as presented in this paper are drawn from the ongoing bilateral joint research of the e-Europe R&D Centre at the Faculty of Management of the University of Bratislava and the Katz Graduate School at the University of Pittsburgh that has started yet in 2001 under the framework of the NISPA/NASPAA Program and being funded by the USAID and has been in other forms continuing until now.

## **2. Main benefits expected from the global and regional trends in FDI and what is the reality**

In the available literature it is always mentioned what kind of main benefits from the incoming FDI the host countries, regions, etc. could be expecting (Soltes, 2004). In this part of the paper we are going to present some of the main and most expected potential benefits as expected from incoming FDI but at the same time we are trying also to demonstrate what is needed to prepare in order the FDI would really and in fact bring all those potential benefits for the host country.

In this connection we have to stress that FDI inflows not always bring all the benefits as expected from their presence in the particular country. It is also important to realize that also in the area of FDI not always their quantity and/or volumes are the most important indicators on the success in FDI inflows (Soltes, 2001). In most cases much more important is their quality, development and innovation potential. In summary especially it is their value adding character. Some FDI apologetics would argue that FDI mean a long-term relation and thus also the benefits are not always seen immediately or not so soon. That is in principle true but equally it is also true that some FDI by their nature and their "value adding" potential just simply cannot bring the same benefits as some other kind of FDI. There is a lot of empirical evidence especially from the CEE countries that we just cannot expect the same benefits from the FDI coming e.g. through privatization of banks or coming into other similar sectors as e.g. from the so-called "green field" investments and/or investments into modern high tech and/or export oriented production, etc. (Wenzel, 2004)

If from this wider point of view we assess the FDI inflows then we could come to the following main conclusions and/or recommendations.

### **2.1 FDI as a source of the readily available capital**

The first potential benefit expected from FDI is that they are bringing into the country a readily available capital. In principle it is true, but...However, if FDI come to the country e.g. through the privatization of banks that before their sale to the foreign investors had to be "revitalized" i.e. their portfolio had to be cleaned of the so-called bad and/or „toxic“ loans that are often much higher than the FDI themselves. Then from the macroeconomic point of view there is not possible to speak about any readily available capital. If the re-vitalization of a bank has required e.g. over three billion Euro and the incoming FDI was only about half of that amount then we could hardly speak about any readily available capital. Another important aspect of "readily available capital" is related to that important economic concept of "a capital" as such. Its substance is that those funds acquired through FDI have to be used as a capital i.e. for further investments into business, trade, production, etc. where it could be further accumulated, re-invested, etc. But if funds from FDI inflows are used as an extra source for

various kinds of incentives, promotions, social programs, reforms, removing and cleaning existing debts, etc. then it is evident that in such a case FDI just simply cannot bring any of those benefits as generally expected..

## **2.2 FDI as a source of new technologies**

The second potential and much expected benefit from FDI is that they will bring into the recipient country new modern technologies. Unfortunately, we have again to state that in the countries with very low labour costs and/or in the other words with the very cheap labour as it is in the case of most CEEC – and they even promote their countries with such low labour costs in order to attract FDI into their countries - then there is no specific motivation for foreign investors bringing in any new modern technology. As a rule the latest technology is a rather expensive component within the overall incurred costs for foreign investors thus they are rather conscious regarding the investment into new technologies as in addition they have to take into account also various other considerations. For example it is evident that with the new technology as a part of FDI there are related also various other extra costs that could make their overall investment a rather more costly and thus also less efficient. Such extra costs are related to the costs of: purchasing or hiring a modern technology or its production, its transport and insurance, preparation of the installation site, installation itself, testing and verification, training of the local workforce, etc.

## **2.3 FDI and the R&D**

With the previous benefit i.e. the new technologies as a part of FDI inflows is very closely related also an another potential benefit and that is the so called R&D - research and development or FDI into the research and development facilities where in mutual cooperation foreign and domestic researchers would be preparing new technologies, new products, services, etc. and thus making the local production more competitive on the global or regional markets. The investment into R&D are usually a qualitative addition to the particular modern innovative production so for the foreign investor it is quite logical that they will try to place also the particular research and development as close to the actual needs of production as it is possible and desirable for their mutual efficient interaction. It is clear that the most of R&D facilities are not oriented towards some kind of sophisticated theoretical research but rather to very practical and pragmatic needs of the particular modern innovative production. The examples not only from the USA, the EU but also from various other parts of the world clearly demonstrate that combination of the foreign capital coming into the country through FDI and its combination with the local universities know how have been one of the most efficient ways how to get full benefits from FDI and also from local universities (UNCTAD, 2012). Therefore, if a country has to attract FDI inflow into R&D then it has to create for that also some necessary precondition not in the form of the classical industrial parks but through parks oriented towards local universities, scientific parks, innovative parks and like that.

## **2.4 FDI and new, especially foreign markets**

Another important benefit expected from FDI inflows has been that they have to contribute to the opening of new markets especially for production being produced locally in the FDI sites. But in brief, we could state that again such a benefit is not available automatically. It is possible to achieve it mostly only if and when the FDI are coming into new, perspective and innovative productions. It is more than clear that e.g. FDI coming through privatization into banks and other financial institutions have of course no evident potential regarding new foreign markets

whatsoever. The same is also regarding some traditional industrial sites – so called brown field investments – as again if it is sector producing some products that have been difficult to place on the global markets like e.g. various iron and steel products, but also textile, footwear, etc. then even the FDI cannot help much in reversing such a situation.

## **2.5 FDI and integration into the TNCs and their global and regional markets**

With the previous potential benefit of new markets is very closely related also an another important benefit and that being that FDI are an important vehicle also for bringing into the country the TNC i.e. transnational corporations as one of the most important symbols and actual dominators of the whole contemporary globalization (Helpman, 2003). For example typical representatives of TNCs are large chains of department stores. In most cases they are really meeting expectations on the "green field" investments as in general they are building new shopping malls, centres, etc. mostly on real green fields on the outskirts of cities with new jobs, new technologies and services, etc. But on the other hand it has also to be added that the opening of these big modern shopping malls have also to the large extent contributed to the liquidation of many small shopping outlets that just could not withstand the fierce price competition from their much bigger and stronger competitors hence in many cases they have just increased the numbers of unemployed people. In addition these chains of department stores have - except some positives - brought in also some negative factors as they to the large extent increased also import of cheap and often not of high quality foreign goods that in many cases make the domestic production redundant and thus also increasing unemployment, etc. In addition they are forcing local suppliers into not the most favourable conditions in their business relations. Hence in many cases TNC are not creating new jobs but rather reducing them in potential competitors and/or local suppliers and local partners become a part of TNC but on the less beneficial conditions then have their foreign suppliers/exporters.

## **2.6 FDI as a vehicle for clustering, concentration, matching and various other cooperative programs with local businesses**

Another important potential benefit expected from FDI closely related to the previous one has been the area of various matching, clustering, spill-over, integration oriented programs and/or processes between the foreign investors on the one side and local businesses on the other hand. One of the main positives of all these various programs and processes are first of all seen in positive effects of foreign investors and their business entities on the local partners who in general are supposed to serve for them as either suppliers or contractors, distributors, etc. In this connection it is very important to have a good national strategy with various forms of matching programs that would help foreign investors to find their new local partners as otherwise they would use their traditional partners, suppliers, contractors from abroad. One cannot just expect that foreign investors will be main initiators of the matching programs; they are mostly their primary users. As a consequence, if such matching programs do not exist or not offered in the particular host country then foreign investors rather avoid such a country or in the better case to the large extent they then prefer as suppliers or various other partners their former partners from abroad.

## **2.7 FDI and an increase in the quality of locally produced goods and services**

Another important potential benefit from the FDI is their contribution to the higher quality of the locally produced products, services, etc. (UNCTAD, 2012). Thus also better opportunities are crated for acquiring new markets and that again leads to expanded production,



more jobs, higher employment, higher and more stable incomes in the particular region and thus a higher domestic demand and again expended production, new jobs, etc.

Under normal circumstance it is almost an automatically achievable benefit as foreign investors bring into the host country their brand names, production standards, know-how and thus also the required quality standards corresponding to the particular products on the global markets. But again in order to achieve this kind of benefits it is necessary to create also some necessary preconditions regarding availability of the necessary technology, qualification of the workforce, technological discipline, quality of the raw materials, etc. In view of this it is of utmost importance to prepare for foreign investors locally reliable suppliers, subcontractors, partners whose services would meet necessary quality standards according international standards like ISO 9002, etc. as otherwise, FDI will again seek their suppliers from the outside of the particular region or country, etc.

## **2.8 FDI and respect for intellectual property rights and protection of environment**

In general, foreign investors with their know-how, new technologies are bringing into the host country also a higher standard and respect for the protection of their intellectual property rights. However, in most developing countries and countries in transition the general respect and legal protection and respect and enforcement of laws are still rather low. One of the reasons has been that this kind of rights did not have a long history in these countries. Only after the demise of socialism and beginning of the transition to the modern market economy also this new phenomenon has come to fore. Hence it is again up to the host country to prepare such a legal environment for FDI regarding the protection of the intellectual property rights as well as protection of environment that foreign investors will not be afraid to bring into the country the latest technologies, production of the latest brand names products on the other hand also a technology that could be environmentally friendly.

## **2.9 FDI and new modern management style and business ethics**

New modern management style and business culture and ethics are another potential benefits from FDI inflows. The more FDI flows into the particular country, the more positive effects from the foreign investment sites are becoming available not only for the particular sites but also for the whole country. It is proved, that even one solid foreign investor in a particular region could positively affect the business culture and management style in the whole region. Of course all that only in case that the particular region has created good favourable business conditions for foreign investors. If that is the case then a foreign business entity can positively effect all its partners on the vertical as well as horizontal levels. First of all on the vertical level it means all suppliers on the side of inputs and all customers on the side of outputs. Among the most common methods in this respect are such methods and standards as Just-In-Time, TQM, ISO9002, etc. On the horizontal level the potential positives are also quite evident in case that there is created a healthy business environment with the fair market competition without “clientelism”, “favouritism”, corruption, etc. Hence it is again up to the host country and its regions to be so-called „learning“ regions i.e. they are able to learn and then also implement the latest management techniques into their management styles and policies.

## **2.10 FDI as a tool for "physical integration" of the host country into ongoing globalization and regional economic integration**

As we already know, FDI is one of the most efficient ways and means how to integrate host country into the processes of ongoing globalization and regional integration e.g. through TNC.

Especially it is true as far as the so called "physical integration" is concerned. In general FDI is one of the most efficient ways and means how to achieve so called "physical" dimension of regional integration. The materialized FDI (i.e. according to the particular definition: a long-term relations and interests) coming from e.g. the EU to the host country are the best guaranty that there will be from the particular foreign investors a direct interest in mutual integration of both countries into the particular International structures like e.g. into the EU and thus also to protect and secure their FDI in the particular country. Hence it is again up to the host country to create such a business environment that would be beneficial for FDI so the foreign investors will be interested in establishing the long term investments relations with and in that country.

### **2.11 FDI and the cross-border cooperation and integration**

One of the most important aspects related to FDI is also the so-called cross-border cooperation. From the world of FDI we could bring a lot of positive examples how important for a country's sustainable development is this kind of cross-border cooperation. For example Mexico's experiences how to lure FDI from the USA and also those from the thirds countries destined for the USA into its "maquiladoras" i.e. special economic zones on their common border is one of the positive examples how to properly utilize the concept of cross-border cooperation. Similar examples we could bring also from other parts of the world like e.g. special economic zones in China on the border with its special entity Hong Kong that i sone of the main sources and hubs for foreign investors and their FDI.

As we know FDI nowadays need also a little bit more than just rely on the strategically good location of the country. Perhaps it is still true in the terms of geography. But as far as the FDI inflows are concerned then in addition to the good geography it is needed to add also something more tangible like e.g. special economic zones (similar to those in China) or industrial and other types of parks similar to those as e.g. in Mexico, Indonesia, Malaysia for investors from Singapore, etc.

### **2.12 "Visibility" of regions and FDI as the most important vehicle for regional development**

In general, regional development is considered as one of the main potential benefits from FDI inflows. Again as in the previous case, foreign investors have to be advised in due time on individual regions where and under what conditions they could place their FDI. According to many foreign investors as a rule they are mostly not coming to the particular region and even not to a specific country. Only on the availability of various sources of information they finally make their decision regarding the selection of the particular country and a region for their FDI inflows.

What is needed it is mainly to prepare a kind of regional development strategy and then also a suitable and efficient system of information for foreign investors in order they could learn all necessary information as they need for their investment decisions. First of all, regions themselves have to make their regions „visible“ i.e. not to be waiting for FDI but actively propagate and promote their regions otherwise it is not realistic to expect that foreign investors will be searching for them. As a rule foreign investors are not behaving as business explorers, researchers or discovers of "terra incognita". As one foreign investor put it quite clearly, they are also not a kind of charities supporting regional development. On the contrary they are businessmen who need to be navigated to the best investment opportunities for their capital and as a rule better ones than those in their home countries.

### **2.13 FDI and creation of new jobs**

One of the weakest part of many pro-investment strategies has been its insufficient orientation towards one of the most important potential benefits of FDI i.e. regarding the job creation. Unfortunately, again we have to repeat that if the growth in FDI inflows has been mainly through privatization and/or various other forms of sale and acquisitions of the former state properties by foreign investors then the expected benefits in job creation is very hard to achieve. Especially in the case of the so-called "brown field" investments i.e. investments into existing facilities this kind of benefit is almost not existing. As a rule in such cases after the particular change of ownership, one of the first steps of the new foreign owners has usually been "rationalization" or „restructuring“ i.e. reducing so-called over-employment through reduction of redundant jobs. Due to this development then, FDI not only are not creating new jobs but in many cases are on the contrary substantially reducing their numbers and thus directly contributing to the growing unemployment. As we have illustrated it also in connection with some of the previous potential benefits, many of them if not properly prepared and handled could in fact lead to the reduction even in the existing jobs. It is again a clear consequence of the low quality FDI coming into a country as simply only so-called "green-field" investments i.e. investments into new production facilities in fact have a full potential for achieving the particular benefit in job creation (Bellak, 2008). However, it is also not the best way how to create new jobs through FDI. Especially in case if the host country is offering various extra benefits like e.g. cheaper energies, incentives, tax breaks and holidays for every created job. In many case then foreign investors are creating them so expensively that if the same incentives would be offered to domestic SME there would be created many more new jobs and much cheaper than through such overpaid FDI.

### **2.14 FDI is an important source for higher standard of living, but again...**

Undoubtedly, FDI is an important source for achieving a higher standard of living. After all achieving this benefit should express the very purpose of all social activities and processes i.e. helping people in improving the quality of their life. After all, this last benefit in principle has been synthesizing if not all then at least many of the previous benefits.

Although, as we have demonstrated also in the particular parts regarding these and other benefits from FDI inflows, they all are first of all potential benefits only and not always and under any circumstances they turn also to become the real benefits. The same is true also regarding their synthesis into the higher standard of living of people as the result of FDI inflows into the particular region, country, etc. In general, nobody could deny such a positive impact of FDI on the standard of living of the local people. Without any specific research we could bring a lot of examples from all various parts of the world where thanks right to FDI inflows the standard of living has substantially improved. The standard of living e.g. in the Republic of Ireland, Portugal, Spain, Mexico, China, Singapore, Hong Kong, South Korea, etc. are the best examples how the record high FDI inflows in the given period of time or more or less permanently has substantially improved the standard of living of the local people, irrespective of their geographic location, political or their socio-economic or democratic systems.

## **3. Conclusion**

In the previous parts of this paper we have focused on some more systematic approach towards FDI and their potential regarding a positive impact on various aspects of the overall socio-economic development. All these potential benefits could turn into reality only if and

when the particular government administration will properly define its macroeconomic priorities and will create corresponding conditions for foreign investors (UNCTAD, 2015). In this connection the best expression on the overall assessment of the FDI could be found in (UNCTAD, 1999) where K. Annan that time the UN Secretary General has stated: „...FDI can indeed contribute to economic development .it can complement and catalyst economic activities and performance of domestic enterprises, but it may also hinder them, ... governments need maximize their positives and minimize any negative effects it may have ...“.

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### **References**

- [1] Bellak, Ch. et al. (2008), Labour costs and FDI flows into Central and Eastern European Countries: A survey of the literature and empirical evidence, Structural Change and Economic Dynamic, Volume 19, Issue 1, pp.17-37, Elsevier Amsterdam 2008.
- [2] Helpman et al (2003). Export versus FDI, Working Paper 9439, National Bureau of Economic Research, Cambridge, MA 02138, USA
- [3] Soltes, D. (2001): Globalization, Regional Economic Integration and the Foreign Direct Investments. In: The 6th International Conference on Global Business and Economic Development, Vol. The East European Prospectives - New Jersey, Montclair State University, ISBN 0-9660656-6-2
- [4] Soltes, D. (2004): Global trends in FDI and Regional Integration, KEPS Bratislava 2004, 330 p. ISBN 80-968606-1-5,
- [5] UNCTAD World Investment Report (2016) , Investor Nationality: Policy Challenges, United Nations, New York and Geneva, Geneva 2016
- [6] UNCTAD World Investment Report (1999) Foreign Direct Investment and the Challenge of Development. United Nations. New York and Geneva, 1999.
- [7] UNCTAD World Investment Report (2012), Towards a New Generation of Investment Policies, United nations New York & Geneva, Geneva 2012
- [8] UNCTAD World Investment Report (2013), Global Value Chains: Investment and Trade for Development, United Nations New York & Geneva 2013
- [9] UNCTAD World Investment Report (2015) - Reforming International Investment Governance, United Nations New York & Geneva, Geneva 2015
- [10] Wenzel, T., (2004) Foreign Bank Entry into Emerging Economies: An Empirical Assessment of the Determinants and Risks Predicated on German FDI Data, Discussion Paper, Series 1: Studies of the Economic Research Centre No 01/2004, Deutsche Bundesbank Frankfurt 2004, ISBN 3-35821- 76-X

## SECURITY AS AN ASPECT OF THE QUALITY MANAGEMENT IN LOCAL SELF- GOVERNMENT IN AGE OF GLOBALIZATION

Viktor Šoltés<sup>1,a,\*</sup>, Zuzana Štofková<sup>2,b</sup>

<sup>1</sup>University of Žilina, Faculty of Security Engineering, Department of Security Management,  
Univerzitná 8215/1, 010 26 Žilina, Slovak Republic

<sup>2</sup>University of Žilina, Faculty of Operation and Economics of Transport and Communications,  
Department of Economics, Univerzitná 8215/1, 010 26 Žilina, Slovak Republic

<sup>a</sup>Viktor.Soltes@fbi.uniza.sk, <sup>b</sup>Zuzana.Stofkova@fpedas.uniza.sk

\*Corresponding author

**Abstract.** The importance of local self-government in the socio-economic development arises from the very nature of self-government. People living in a particular territory have a need to independently decide matters, which are directly linked to their interests. Initially in most European countries the scope of rights on local self-government differs. The emergence of the European Union raised the need to establish a uniform standard for local self-governments. The continuing globalization creates the need for empowering the local level. Interconnection and cooperation of local self-government with local businesses and non-governmental sector is playing an increasingly greater role in the age of globalization. Quality in local self-government may be judged from several aspects. One of the aspects which directly affect the quality of life is security. The role of local self-government, inter alia, is to ensure public order, protect the environment and cooperate in the protection of citizens against threats to life and health. This task can be fulfilled only by the quality of the security services. Evaluation of the quality of public services is very important for the management of municipality. Therefore, local self-governments are introducing quality assessment and building a quality management system. The paper deals with examination of the quality of services in the field of security in the selected municipality based on a survey of public opinion. The aim is to identify the perception of security of citizens, as an aspect of quality management in local self-government and propose measures for effective actions to enhance the sense of security.

**Keywords:** Quality management, Security, Local self-government

**JEL Classification:** C83, R28, R58

### 1. Introduction

Každý človek sa snaží žiť svoj život podľa svojich predstáv a dosahovať stanovené ciele. Splnením takýchto cieľov dokáže uspokojiť svoje potreby. Cesta k uspokojovaniu týchto potrieb je v mnohých prípadoch ovplyvňovaná pôsobením rôznych faktorov, ktoré ovplyvňujú aj kvalitu života. V súčasnom globalizovanom multikultúrnom svete má na kvalitu života jedinca vplyv množstvo činiteľov. Jedným z najdôležitejších činiteľov, ktorý sa prelína so všetkými ostatnými činiteľmi je bezpečnosť. Pocit bezpečia, resp. nebezpečenstva je v súčasnosti v rámci sveta a Európy najdiskutovanejším problémom súvisiacim s ilegálnou migráciou, terorizmom a vojnou v Sýrii. Slovenská republika sa v rámci vnútornej bezpečnosti sústreďuje na zabezpečenie vnútorného poriadku s čím súvisí ochrana osôb, majetku a životného

prostredia. Štát v rámci preneseného výkonu štátnej správy delegoval na miestnu správu (obce) úlohu zaistenia verejného poriadku. Manažment obce musí vytvárať vhodné podmienky pre rozvoj svojich obyvateľov, pretože len vďaka rozvoju obyvateľov sa môže rozvíjať aj samotná obec. Obec musí poskytovať svojim obyvateľom kvalitné verejné služby a kvalitne vykonávať ochranu verejného poriadku. Hodnotenie kvality poskytovaných verejných služieb je pre manažment obce veľmi dôležité. Preto miestne samosprávy zavádzajú hodnotenie kvality a budujú systém manažmentu kvality.

## **2. Kvalita života**

Definovať činitele ovplyvňujúce kvalitu života nie je možné. Ľudská bytosť je jedinečná, má svoje vlastné potreby a žije svoj vlastný život, ktorý je ovplyvňovaný rôznymi udalosťami. Kvalitu života preto každý človek vníma z iného pohľadu a posudzuje ju podľa svojich vlastných kritérií. Skupina odborníkov Svetovej zdravotníckej organizácie definovala kvalitu života ako individuálne vnímanie životnej situácie človeka v kontexte kultúrneho a hodnotového systému, v ktorom žije a vo vzťahu k jeho cieľom, očakávaniam, normám a záujmom (Van Kamp et al., 2003).

### **2.1 Dimenzie kvality života**

Jednou z oblastí, ktorá bezpochyby vplýva na kvalitu života každého jedinca je bezpečnosť. Potreba bezpečia sa totiž objavuje aj vo všetkých ďalších oblastiach života človeka. Medzi ďalšie oblasti, ktoré ovplyvňujú kvalitu života a zároveň sa prelínajú s bezpečnosťou patrí sociálna súdržnosť, trh práce, vzdelanie, nezamestnanosť, možnosti bývania, zdravotná starostlivosť a podobne (Somlea et al., 2013). Indikátory, prostredníctvom ktorých možno merať kvalitu života v miestnej správe možno zoskupiť do šiestich dimenzií (Ira et al., 2005):

- demografickej (stredná dĺžka života pri narodení, dojčenská úmrtnosť),
- vzdelanostno-informačnej (podiel obyvateľov s najvyšším dokončeným vysokoškolským a základným vzdelaním, vybavenosť domácností internetom),
- bezpečnostnej (úroveň majetkovej a násilnej kriminality),
- materiálneho komfortu a sociálnych istôt (index zamestnanosti, úroveň vzdelania, veľkosť bytu),
- vybavenosti bytov (podiel trvalo obývaných bytov I. kategórie),
- environmentálnej (podiel obyvateľov pripojených na verejnú kanalizačnú sieť).

### **2.2 Manažment kvality**

Manažment predstavuje súbor prístupov a metód, ktoré používajú vedúci pracovníci na zvládnutie vytýčených cieľov (Rusu, 2016). Poznatky manažmentu sú rozvíjané predovšetkým v oblasti podnikania, avšak uplatňujú sa aj vo verejnej správe (Štofková et al., 2014). Medzi využívaním manažmentu v súkromnej a vo verejnej správe sa prejavujú rozdiely, ktoré sú spôsobené tým, že verejná správa nie je orientovaná na zisk, uspokojuje verejné potreby, je financovaná z verejných zdrojov a pôsobia tu vonkajšie záujmy (Simonova & Novak, 2016).

V súvislosti s úspešnosťou firmy či subjektu verejnej správy je okrem kompetentných manažérov dôležitá aj kvalita produktov a služieb, ktoré poskytuje (Rostášová, 2010). Všeobecné požiadavky na systém manažérstva kvality v súčasnosti stanovuje norma STN EN ISO 9000: 2009 „Systémy manažérstva kvality. Požiadavky“ (Priede, 2012).

### 3. Bezpečnosť

Pojem bezpečnosť možno vnímať v dvoch rovinách. Tradičný význam bezpečnosti, za ktorý je považovaná vonkajšia bezpečnosť, sa odvodzuje od zahraničnej politiky a medzinárodných vzťahov.

Základnou úlohou vonkajšej bezpečnosti je zabezpečiť samostatne a v koalícii štátnu zvrchovanosť a územnú celistvosť Slovenskej republiky (Belan, 2015). Bezpečnosť Slovenskej republiky je v súčasnosti zviazaná s bezpečnosťou ostatných štátov v euroatlantickej oblasti a závisí od globálnej bezpečnosti. V rámci vonkajšej bezpečnosti priniesol so sebou proces globalizácie aj úlohu podieľať sa na zaručovaní bezpečnosti, stability a zmiernovaní následkov kríz iných štátov a národov.

Druhú rovinu bezpečnosti tvorí vnútorná bezpečnosť. Podľa koncepcie Vnútornej bezpečnosti Slovenskej republiky ide o súhrn vnútorných bezpečnostných podmienok, legislatívnych noriem a opatrení, ktorými štát zabezpečuje demokraciu, ekonomickú prosperitu, bezpečnosť občanov, ako aj presadzovanie právnych a morálnych noriem.

#### 3.1 Vnímanie bezpečnosti

Bezpečnosť môže byť vnímaná z dvoch stránok. Objektívne vnímanie bezpečnosti zahŕňa hodnotenie existencie, resp. neexistencie reálnych hrozieb, nezávislých na vnímaní pozorovateľa. Subjektívne vnímanie bezpečnosti závisí od vnútorných vlastností poznávajúceho subjektu, a nie od vlastností skúmaného subjektu (Hofreiter, 2015).

V prípade subjektívneho vnímania môžu nastať štyri rôzne situácie: stav bezpečnosti (ohrozenie je reálne, ohrozený subjekt si to uvedomuje a dokáže riziko znížiť), falošná bezpečnosť (ohrozenie je reálne, ohrozený subjekt o tom nevie a riziko si neuvedomuje), stav ohrozenia (ohrozenie je reálne, ohrozený subjekt si to uvedomuje ale riziko znížiť nevie) a falošné ohrozenie – ohrozenie neexistuje, subjekt má falošnú predstavu ohrozenia, ktoré sa v skutočnosti nevyskytuje a zbytočne mŕňa energiu a zdroje).

#### 3.2 Manažment bezpečnosti osôb a majetku na miestnej úrovni

Obec je samostatný územný samosprávny celok Slovenskej republiky. Základnou úlohou obce pri výkone samosprávy je starostlivosť o všestranný rozvoj jej územia a o potreby jej obyvateľov. Jednou z takýchto potrieb je aj potreba bezpečnosti (Štofko et al., 2013).

Pri výkone samosprávnych funkcií je obec povinná zabezpečovať verejný poriadok. Na tento účel je oprávnená zriadiť obecnú políciu, ktorej primárnou úlohou je zabezpečovanie verejného poriadku v obci, spolupôsobenie pri ochrane obyvateľov obce pred ohrozením ich života a zdravia (Gecíková & Papcunová, 2013). Okrem toho plní úlohy na úseku prevencie, dbá o ochranu životného prostredia a spolupracuje s útvarmi Policajného zboru pri ochrane majetku obce a občanov.

Manažment v miestnych samosprávach bezprostredne ovplyvňuje život občanov. V oblasti manažmentu bezpečnosti občania hodnotia subjektívne výsledky starostlivosti o ich bezpečnosť a majetok (Štofková et al., 2016).

#### 4. Prieskum vnímania kvality manažmentu bezpečnosti

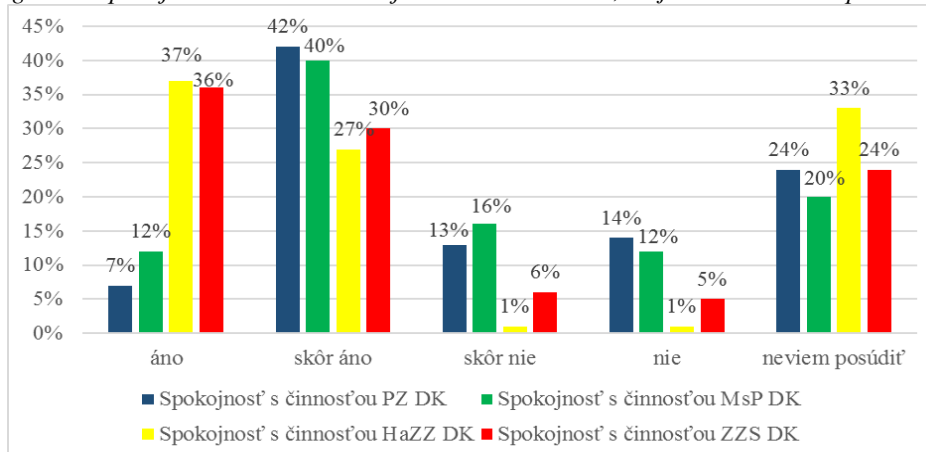
Kvalitu vo miestnej samospráve možno definovať ako mieru naplňovania oprávnených požiadaviek zákazníkov na príslušnú verejnú službu alebo občanov na kvalitu života v danej obci. Služby majú prevažne nemateriálny charakter, čo spôsobuje problémy s meraním ich kvality (Rashman & Radnor, 2005). Vo verejnej správe sa na hodnotenie kvality odporúča zaviesť Spoločný systém hodnotenia kvality, ktorého hlavným cieľom je orientácia organizácií verejnej správy na rozvíjanie kvality, zvyšovanie efektívnosti, vlastnej výkonnosti a riešenie svojich úloh v prospech občana za pomoci nástrojov kvality (Belajová et al., 2014).

Jedným z nástrojov hodnotenia kvality manažmentu je zber dát o spokojnosti obyvateľov s poskytovanými verejnými službami (Titu & Bucur, 2016). Takýto zber dát je možné vykonať prostredníctvom prieskumu verejnej mienky.

Pre skúmanie kvality poskytovaných služieb v oblasti bezpečnosti mesta Dolný Kubín bol vytvorený dotazník, ktorého cieľom je bolo zistiť vnímanie bezpečnosti obyvateľmi, ako jedného z aspektov manažmentu kvality obce. Na základe vyhodnotenia a výsledkov prieskumu verejnej mienky bude možné navrhnúť opatrenia na zefektívnenie aktivít pre zvýšenie pocitu bezpečia.

Prvé otázky prieskumu boli určené na zistenie spokojnosti obyvateľov mesta s vybranými útvarmi, pôsobiacimi na jeho území, ktorých úlohou je zaisťovať ochranu osôb a majetku. Obrázok 1 znázorňuje spokojnosť obyvateľov s činnosťou policajného zboru, mestskej polície, hasičského a záchranného zboru a záchrannej zdravotnej služby Dolný Kubín.

Figure 1: Spokojnosť s útvarmi zaisťujúcimi ochranu osôb, majetku a životného prostredia



Source: Vlastné spracovanie

Obyvatelia mesta Dolný Kubín sú jednoznačne spokojní s činnosťou hasičov a záchranárov pôsobiacich v meste. S činnosťou bezpečnostných zborov, za ktoré možno považovať mestskú políciu a policajný zbor, však už občania tak jednoznačne spokojní neboli. Napriek tomu je možné konštatovať, že väčšina obyvateľov je spokojných so všetkými útvarmi, ktorých úlohou je zabezpečovať ochranu ich života, zdravia, majetku a životného prostredia. Najväčšia nespokojnosť v mesta však panuje s oboma bezpečnostnými zbormi, naopak so záchranármi a s hasičmi je nespokojné len minimum obyvateľov.

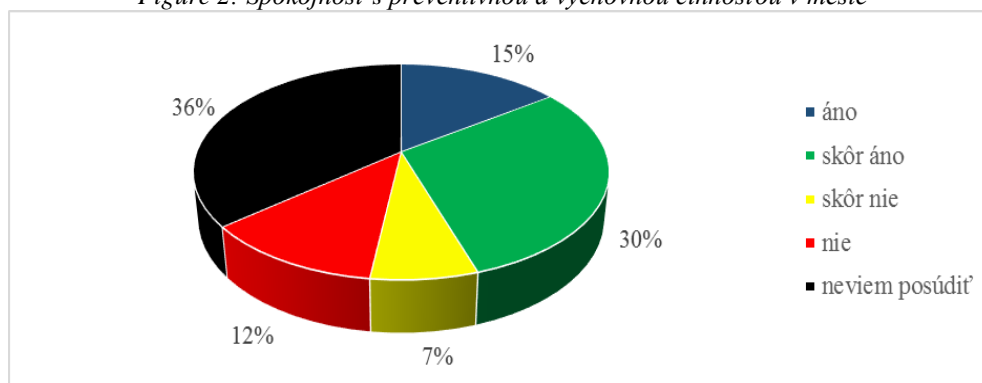
Dôležitým a zarážajúcim zistením je však fakt, že viac ako pätina opýtaných nevedela posúdiť činnosti jednotlivých útvarov. Príčin tohto stavu môže byť mnoho – občania nemajú dostatok informácií o pôsobení týchto útvarov z dôvodu nezájmu; občania zatiaľ



nepotrebovali pomoc žiadneho z týchto útvarov; útvary nedostatočne informujú o svojej činnosti; útvary vykonávajú nedostatočnú preventívnu činnosť a nedostávajú sa do povedomia občanov. Prácu HaZZ DK nevedelo posúdiť najviac respondentov, čo je do istej miery pochopiteľné z dôvodu, že s príslušníkmi tohto zboru sa bežní ľudia dostávajú len v mimoriadnych situáciách ako sú povodne a požiare, prípadne dopravné nehody. Činnosť MsP DK nevedelo posúdiť 20 % respondentov čo je vzhľadom na ich úlohy vymedzené zákonom vysoké číslo. Občania by príslušníkov tohto poriadkového útvaru mali stretávať každodenne v uliciach mesta a mali by vnímať ich činnosť čo najviac aj cez preventívne akcie. Otázne však ostáva, či obyvatelia nevedia posúdiť činnosť mestskej polície práve preto, že ich táto činnosť nezaujíma alebo preto, že o ich činnosti nemajú dostatok informácií.

Ďalšia otázka bola zameraná na informovanosť a spokojnosť obyvateľov mesta s preventívnymi a výchovnými akciami realizovanými v meste. Obrázok 2 vyjadruje graficky názory obyvateľov na to, či preventívna a výchovná činnosť je dostatočná a napomáha k zvýšeniu bezpečnosti v meste.

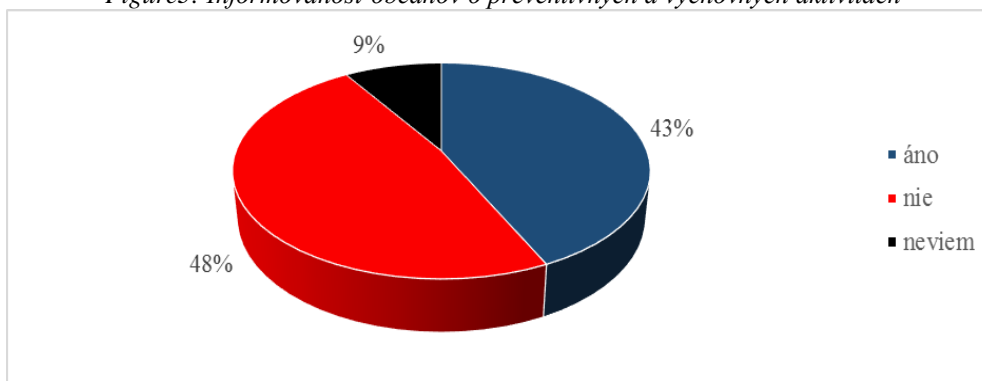
Figure 2: Spokojnosť s preventívnou a výchovnou činnosťou v meste



Source: Vlastné spracovanie

Takmer polovica opýtaných si myslí, že preventívna a výchovná činnosť je dostatočná alebo skôr dostatočná. Nespokojnosť s touto činnosťou vyjadrilo 10 % respondentov a označilo ju za nedostatočnú. Viac ako jedna tretina respondentov nevedela posúdiť preventívnu a výchovnú činnosť v meste. Podobne ako pri posudzovaní spokojnosti s útvarmi pôsobiacimi v meste na úseku ochrany osôb, majetku a životného prostredia sa vytvára doplňujúca otázka, či občanov táto problematika nezaujíma alebo o preventívnej a výchovnej činnosti nevie. Obrázok 3 znázorňuje informovanosť občanov o preventívnych a výchovných aktivitách.

Figure3: Informovanosť občanov o preventívnych a výchovných aktivitách

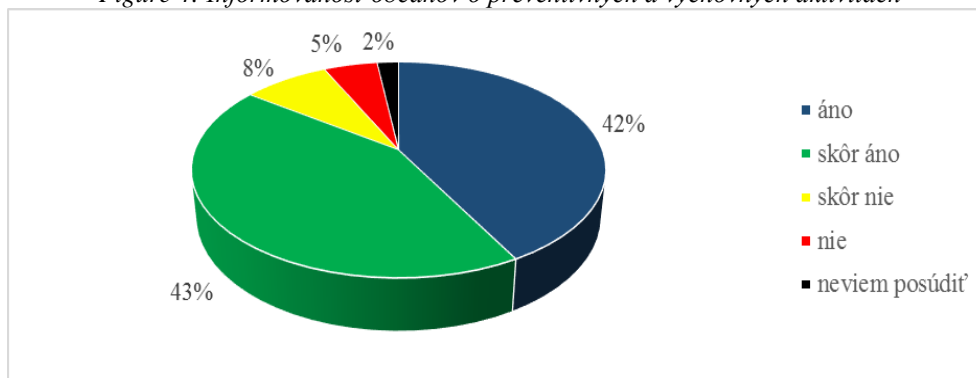


Source: Vlastné spracovanie

Informovaných o preventívnych a výchovných aktivitách je 43 % obyvateľov mesta. Z prieskumu je zrejmé, že takmer polovica respondentov o takýchto aktivitách nie je vôbec informovaná. Ide o celkom významný podiel obyvateľstva, čo indikuje nedostatok manažmentu mesta s komunikáciou a prezentáciou svojej činnosti navonok.

Posledná otázka prieskumu verejnej mienky bola zameraná na celkový pocit bezpečia v meste. Obrázok 4 vyjadruje názory respondentov na to, či sa cítia v meste bezpečne.

Figure 4: Informovanosť občanov o preventívnych a výchovných aktivitách



Source: Vlastné spracovanie

Až 85 % respondentov sa v meste cíti bezpečne alebo skôr bezpečne. Ide o dobrý signál vzhľadom na to, že viac ako pätina z nich nevedela posúdiť činnosť jednotlivých útvarov pôsobiacich za účelom ochrany ich života, zdravia, majetku a životného prostredia a takmer polovica z nich nebola informovaná o preventívnych a výchovných aktivitách v meste. V meste sa necíti bezpečne 5 % respondentov, čo je síce malé číslo ale samospráva by sa mala snažiť o to, aby sa každý jeden občan cítil na jej území bezpečne. Zhodnotiť pocit bezpečia nevedeli 2 % obyvateľov, čo je vzhľadom na súčasnú bezpečnostnú situáciu na Slovensku a vo svete normálne.

## 5. Conclusion

Zmeny spoločensko-ekonomických podmienok krajín vyvolané procesom globalizácie si nutne vyžadujú zmeny v spravovaní ich ekonomických a sociálnych procesov. Tie následne vyvolávajú potrebu implementácie nových manažérskych princípov a metód aj do verejnej správy. Manažment kvality, ktorý je bežne zavedený v podnikoch je potrebné postupne zavádzať aj do zložiek verejnej správy. Miestna samospráva je časťou verejnej správy, ktorá bezprostredne ovplyvňuje život obyvateľov. Kvalita v miestnej samospráve môže byť posudzovaná z viacerých aspektov. Jedným z nich je kvalita služieb, ktoré samospráva poskytuje. V súčasnosti vplyvom globalizácie, migrácie a nepokojov vo svete zohráva čoraz väčší význam otázka bezpečnosti. Jednou z úloh miestnej samosprávy je zaistiť ochranu osôb, majetku a životného prostredia. To je možné dosiahnuť len prostredníctvom kvalitných služieb na úseku bezpečnosti.

Jedným z nástrojov manažérstva kvality vo verejnej správe je zber dát prostredníctvom prieskumov verejnej mienky s cieľom zvyšovania kvality poskytovaných služieb. V meste Dolný Kubín bolo prostredníctvom dotazníkového prieskumu zistené, že veľa obyvateľov nevie posúdiť činnosť útvarov pôsobiacich na úseku ochrany. Respondenti, ktorí sa vedeli vyjadriť prejavili spokojnosť s ich činnosťou, pričom menšia spokojnosť bola zaznamenaná u bezpečnostných zborov, ktorými sú policajný zbor a mestská polícia. V meste neprevláda ani

spokojnosť s preventívnou a výchovnou činnosťou, dôvodom čoho môže byť slabá informovanosť s takýmito aktivitami. Napriek tomu sa takmer všetci obyvatelia v meste cítia bezpečne a len minimum respondentov považuje situáciu v meste za nie bezpečnú.

Za hlavné nedostatky podľa prieskumu verejnej mienky možno považovať nedostatočnú spokojnosť obyvateľov s prácou bezpečnostných zborov, nedostatočnú preventívnu a výchovnú činnosť a nedostatočnú informovanosť o tejto činnosti. Za nedostatok možno považovať aj to, že pätina respondentov nevedela zhodnotiť činnosť útvarov zaisťujúcich ochranu osôb, majetku a životného prostredia. Mesto by sa teda malo zamerať predovšetkým na zvýšenie povedomia o vykonávanej preventívnej činnosti a zvýšiť počet preventívnych aktivít. Taktiež by malo v miestnych a regionálnych novinách, rozhlase a televízii informovať o svojich úspechoch a inej činnosti. Hliadkovacia činnosť mestskej polície by mala byť zvýšená, obyvatelia by mali poznať svojich mestských policajtov, mali by mať s nimi dobré, priateľské vzťahy. Občania by sa následne nebáli so svojimi problémami obrátiť na príslušníkov, ktorí by im ochotne s ich problémami pomohli. Následne by sa zvýšila spokojnosť s ich prácou a rovnako by to mohlo stimulovať zvýšenie pocitu bezpečia.

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### References

- [1] Belajová, A., Gecíková, I., Papcunová, V., (2014). *Kvalita samosprávneho manažmentu na miestnej úrovni*, 1. vydanie. Bratislava, Slovensko: Wolters Kluwer.
- [2] Belan, L., (2015). *Bezpečnostný manažment : manažérstvo bezpečnosti*, 1. vydanie. Žilina, Slovensko: Žilinská univerzita.
- [3] Gecíková, I., Papcunová, V., (2013). The structure of personal facilities local government offices in the Slovak republic, *Conference proceedings - 16 international colloquium on regional sciences*, Valtice, Czech republic, 2013, 451-458 p.
- [4] Hofreiter, L., (2015). *Manažment ochrany objektov*. Žilina, Slovensko: EDIS, 2015.
- [5] Ira, V., Michálek, A., Podolák, P., (2005) Kvalita života a jej regionálna diferenciácia v Slovenskej republike, *Životné prostredie: revue pre teóriu a tvorbu životného prostredia*, 291-294 s.
- [6] Priede, J., (2012), Implementation of Quality Management System ISO 9001 in the World and its Strategic Necessity, *Procedia Social and Behavioral Sciences*, Volume 58, 1466-1475 p.
- [7] Rashman, L., Radnor, Z., (2005). Learning to improve: Approaches to improving local government services, *PUBLIC MONEY & MANAGEMENT*, Volume 25, Issue 1. 19-26 p.
- [8] Rostášová, M. (2010). Significance and process of compilation the biography of knowledge in firms for analysis current situation of knowledge economy in regions, *Hradecké ekonomické dny 2010*. Hradec Králové, Czech Republic: Gaudeamus, 2010. 77-81 p.

- [9] Rusu, C., (2016). From Quality Management to Managing Quality, *Procedia Social and Behavioral Sciences*, Volume 221, 287 – 293 p.
- [10] Simonova, S., Novak, J., (2016). Implementation of Quality Principles for Public Services Providing, *Current Trends in Public Sector Research*, Volume 20, 406-414 p.
- [11] Somlea, I. N. H., Marian, L., Ferencz, I. S., (2013). Customer satisfaction analysis by the implementation of Quality Management System in a public institutuion, *Procedia Economics and Finance*, Volume 15, 1071-1076 p.
- [12] Štofko, S., et al., (2013). *Manažment bezpečnosti v miestnej samospráve*, 1. vydanie. Žilina, Slovensko: EDIS.
- [13] Štofková, J., Stríček, I., Štofková, K., (2016). Data analysis in quality management of the network enterprise, *Production management and engineering sciences*. London, Great Britain: CRC Press/Balkema. 273-278 p.
- [14] Štofková, K., Štofková, J., Štofko, S., (2014). Survey of knowledge management utilization in organizations, ICERI2014 Proceedings, 1725-1729 p.
- [15] Titu, M. A., Bucur, A., (2016). Models for quality analysis of services in the local public administration, *QUALITY & QUANTITY*, Volume 50, Issue 2, 921-936 p.
- [16] Van Kamp, I., Leidelmeijer, K., Marsman, G., de Hollander, A., (2003), Urban Environmental Quality and Human Well-Being Towards a Conceptual Framework and Demarcation of Concepts; a Literature Study, *Landscape and Urban Planning*, Volume 65, Issue 1-2.

## PSYCHOLOGICAL-ETHICAL ASPECT OF BRAND VALUE IN THE PLANE OF THE GLOBAL VALUE CHAIN

Tatiana Soroková<sup>1,a,\*</sup>, Daniela Petříková<sup>2,b</sup>

<sup>1</sup>Department of Economic Sciences, Faculty of Economics, Technical University of Kosice, Némcovcej  
32, 040 11 Kosice, Slovak Republic

<sup>2</sup>Department of Economic Sciences, Faculty of Economics, Technical University of Kosice, Némcovcej  
32, 040 11 Kosice, Slovak Republic

<sup>a</sup>tatiana.sorokova@tuke.sk, <sup>b</sup>daniela.petrikova@tuke.sk

\*Corresponding author

**Abstract.** Currently, the diversity of goods and services makes their identification and the ability to differentiate products in any kind of different manufacturers. Thanks to the quality brand and an ethical approach to client companies can expand in the world of competition. The concept of global value chains is not only the economic and ethical and psychological dimension of the inputs and outputs of production and marketing operations that result in the production of the product and its value on the market. The automotive industry in the world economy is a priority area for the perception of the image importance of global value chains in the plane of the dynamics of globalization and flows in the context of psychological and ethical insufficiency. The production of final products requires many different components, which is the automotive industry linked with many other sectors of the economy. Mega scandal in the automotive industry Volkswagen Company in 2015 in the US market is an economic and ethical issue that concerns the entire automotive company continuously in the plane of the global value chains.

**Keywords:** globalization, global value chains, brand value, ethics, automotive

**JEL Classification:** D60, P46

### 1. Introduction

*„Značka je to, čo ostane, keď vám zhorí továreň.“ David Oligvy*

Všeobecne pod pojmom značka vnímame nie len meno výrobcu produktov, ale celý rad ďalších atribútov spojených s fungovaním firmy. Americká marketingová asociácia, ktorej patrí prvenstvo v danej problematike, definovala pojem značka nasledovne: „Značka je meno, názov, znak vytváraný prejav alebo kombinácia predchádzajúcich prvkov. Jej zmyslom je odlíšenie tovarov alebo služieb jedného predajcu alebo skupiny predajcov od tovarov alebo služieb od konkurenčných predajcov.“ (Kotler, 2001) Pojem značka býva často zamieňaný slovom „brand“, ktoré má pôvod v Nórsku, pričom slovo bolo odvodené od slova „brandr“ čo znamená „páliť“. Dôvodom použitia práve tohto slova, bolo vypaľovanie značiek na tele zvierat, vďaka čomu ich majitelia mohli identifikovať. To vysvetľuje doslovný význam slova „brand“. Obrazný význam, ktorý je chápaný pod týmto pojmom dnes, v sebe zahŕňa viaceré atribúty produktu, ktoré si zákazník uchováva v mysli. Na začiatku celého brandingu stojí výber vhodného mena. Vďaka tomu si môžeme značku nie len zapamätať, ale aj monitorovať jej povest, ktorá je výsledkom konkurenčného procesu a nadväzuje na dlhodobé investičné

hodnoty, finančné zdravie, racionálne využívanie podnikových aktív, kvalitu manažmentu, výrobkov a služieb, schopnosť prilákať, rozvíjať a udržať schopných pracovníkov, pričom odráža sociálnu a ekologickú zodpovednosť. (Sandu, 2015) Ak výrobca nestanoví na začiatku vhodné meno, ktoré môže znamenať polovicu úspechu, neskôr dokáže len veľmi ťažko zmeniť meno značky. (Healey, 2009) „Logotyp“ predstavuje originálne graficky upravený názov spoločnosti. „Logo“ vzniklo skrátením slova „logotyp“ a predstavuje grafické znázornenie mená spoločnosti, ktoré je doplnené piktogramom. (Timpan, 2012). Výber produktu spotreby na základe značky znamená akceptáciu kvality i hodnotu sociálneho statusu. Byť globálnou značkou so sebou prináša výhody, ale aj určité riziká. Ak dôjde k chybe v dcérskej spoločnosti, môže to ovplyvniť postavenie značky na celosvetovom trhu. Spoločnosť môže byť predaná s vysokým ziskom vďaka silnej značke, ktorá je známa na trhu. (Healey, 2009) Ekonomický význam značky je veľmi dôležitý, predstavuje výsledok globálnych hodnotových reťazcov a nekvalita v určitom článku tohto reťazca môže spôsobiť značný problém i krach na trhu, prinajmenšom zastavenie rastu, a tým zníženie konkurencieschopnosti na trhu spotreby.

## 2. Globálne hodnotové reťazce

Koncept globálnych hodnotových reťazcov (GHR) je mapovaný už niekoľko desaťročí. Podstatou myšlienky komoditných reťazcov bola analýza vstupov a výstupov výrobných operácií, ktoré vedú až k výrobe finálnych produktov. V 80. rokoch 20. storočia sa v svetovej literatúre o odchode, dodávkach či predaji začína aktívne používať pojem komoditný (Porter, 1998) a neskôr (Bair, 2005) hodnotový reťazec, nakoľko snaha autorov smerovala k popisu aj organizácie výroby. Dnes pod pojmom „globálny hodnotový reťazec“ rozumieme úplný súbor aktivít, ktoré firmy a ich pracovníci vykonávajú od počiatočného konceptu výrobku, až po jeho distribúciu a použitie spotrebiteľmi. Vznik GHR je výsledkom rastúcej medzinárodnej del'by práce, ktorá doteraz nikdy nemala taký intenzívny rast, ako sa objavuje v dobe súčasného stavu rozvoja globalizácie. Del'ba práce sa prejavuje vo fragmentácii výrobných operácií, ktoré sú distribuované v jednotlivých krajinách sveta, kde daná výroba má pre firmy a spoločnosti najväčší ekonomický význam. Existuje niekoľko indikátorov, ktoré poukazujú na stupeň fragmentácie výroby. Najčastejšie používanými indikátormi sú index participácie a index dĺžky produkčnej reťaze. Vyspelé krajiny sveta sú konkurencieschopné vďaka vysokému objemu pridanej hodnoty v exportovaných tovaroch a službách. Na určenie konkurencieschopnosti krajiny je dôležité zistiť, v ktorej krajine a v ktorom štádiu produkcie pridaná hodnota vznikla. Vo všeobecnosti platí, že sofistikované aktivity hodnotových reťazcov sú lokalizované vo vyspelých krajinách. Existujú možnosti posunu, kde firmy a spoločnosti môžu vďaka posunu získať vyšší objem miezd a ziskov, ako aj významnejšie pozície v rámci reťazca. Medzi základné stratégie patrí posun v rámci procesov, posun v rámci produktov, funkčný a sektorový posun. (Slušná et al., 2015) Jednotlivé krajiny sa špecializujú na tie časti výrobného procesu, v ktorých majú komparatívnu výhodu. Rozloženie kompetencií v reťazci vo veľkej miere závisí od charakteru konkrétneho výrobného procesu. Vo všeobecnosti sa rozlišujú reťazce riadené kupujúcimi a reťazce riadené výrobcami (napr. automobilový priemysel). Z hľadiska previazanosti kľúčovej firmy s jej dodávateľmi môžeme rozlíšiť 5 typov správy GHR: 1. riadenie trhom, 2. modulárne riadenie, 3. prepojené riadenie, 4. priame riadenie, 5. hierarchické riadenie. (Slušná et al., 2015) Jednotlivé krajiny v podstate súťažia o získanie článku pracovných aktivít v rámci celého reťazca. Konečným efektom zdarného fungovania GHR je dosahovanie optimálneho pomeru medzi vstupmi a výstupmi. Mapovanie GHR je realizované na mikro aj makro úrovni, pričom ich neodmysliteľnú súčasť tvorí etika a psychológia posunov v rovine hodnotových článkov, ktorá je spojená vždy s ľudským fenoménom práce, s ľudským

fenoménom riadenia i spotrebiteľského absolutória, bez ktorého by samotné GHR nemali význam.

### **3. Etické problémy v rovine globálnych hodnotových reťazcov**

Takmer v každom výrobnom a spotrebiteľskom procese vznikajú v rovine pracovnej interakcie etické problémy, ktoré predstavujú obrovský reťazec rôznorodých nezrovnalostí, ktoré v rámci globálnej fragmentácie práce priamo korešpondujú s kultúrnym statusom a socializačnými zvláštnosťami danej krajiny. Nonetika sa prejavuje v najrozmanitejších podobách, počnúc pracovnými podmienkami robotníkov a ťažko pracujúcimi deťmi tretieho sveta až po výrobu a predaj falzifikátov, ktoré poškodzujú dobré meno a povest' renomovaných firiem. Nebezpečné a nezdravé pracovné a životné podmienky, ktoré sú zároveň, v mnohých prípadoch, hendikepované ekologickými imperatívmi, sú výzvami a dôležitými faktormi, ktorými je potrebné sa zaoberať, prísne ich monitorovať a bez ktorých globálne hodnotové reťazce nemôžu svojvoľne fungovať. Hnutie Fair Trade, okrem vyššie spomínaných problémov sa snaží zaistiť medzi spotrebiteľmi, „etický shopping“, ktorý sa stáva v tomto období, priam módnym trendom. Konečným článkom v rámci globálneho hodnotového reťazca je spotrebiteľ, zákazník, ktorý je na jednej strane hnacou silou výroby, ale na druhej strane, je súčasťou problému, kvôli enormne rastúcim nárokom na kreativitu výrobkov ako aj na samotné nonetické správanie zákazníkov. (Schlegelmich & Öberseder, 2007) Problémy ekologickej vhodnosti a porušovanie práv duševného vlastníctva sú v rovine etiky reťazcov často diskutované. V poslednej dobe sa tiež spochybňuje etika presunu výroby z jednej krajiny do druhej, podľa toho, ako to vyhovuje majoritnému vlastníkovi výrobného procesu. Taktiež problémy pohybujúce sa v dodávateľskom reťazci, proces export a import musia byť kontrolované ako "fair podiel" na procese tvorby hodnôt. Konflikt etických úvah o otázkach marketingu a s ním súvisiacich krokov, napr. obalový fenomén, (Varadarajan & Menon 1988) sa zdá, že nie je tak rýchlo schopný dodržať etické princípy. Podobne aj cena produktov predstavuje značný etický problém, nakoľko masy zákazníkov zabudnú na etiku a bez váhania sú ochotní platiť za falzifikáty vždy, keď je cena prístupná či nízka (Stöttinger et al., 2003) (Penz et al., 2008)

Etické dôsledky v sebe snúbia výzvy pre akýkoľvek globálny hodnotový reťazec ako aj obchodného vodcu, ktorý robí určité rozhodnutia a zapája sa do akcií, ktoré spočívajú v „self záujme“ určitého článku GHR. Ide o rozmer etického egoizmu, etického relativizmu či utilitarizmu, (to znamená, usilovať sa o "win-win" scenáre pre všetky zúčastnené strany GHR, bez neúcty k akémukoľvek článku reťazových strán (Kantian etika) pri dosahovaní osobných alebo spoločenských výhod. (Mujtaba, 2013)

V súčasnom procese GHR existuje syndróm etického egoizmu, ktorý tkvie v presadzovaní a dlhodobom rozvoji vlastných záujmov firmy aj za cenu nonetických rozmerov. V dôsledku toho vzniká otázka, ako môže firma získať dôveru svojich zákazníkov, rovnako ako môžu fungovať vládne regulátory a ako tieto skutočnosti môžu obnoviť svoju poškodenú povest'. (Mujtaba et al., 2015) Tie predstavujú kľúčové otázky, ktoré je potrebné rešpektovať a vedieť nájsť pravdivé odpovede i v prípade takého škandálu, akému čelí firma Volkswagen. (Cavico & Mujtaba, 2016)

### **4. Automobilový priemysel SR v globálnych hodnotových reťazcoch**

Automobilový priemysel (ďalej len AP) predstavuje dominantné priemyselné odvetvie v Slovenskej republike. Pre AP je zvlášť typická bohatá komplexná štruktúra dodávateľskej

siete. Od myšlienky a nákresového plánu, cez dodanie základnej suroviny k predaju finálneho výrobku zákazníkovi vstupuje množstvo subjektov, ktoré sa špecializujú na jednotlivé fragmenty tvorby budúceho finálneho výrobku. Automobilový priemysel, v rovine globalizačnej dynamiky, celosvetovo prešiel za posledné desaťročie výraznými zmenami, ktoré súvisia s dodávateľsko-odberateľskými vzťahmi, pričom konkurencia a nové druhy automobilov s kombinovaným alebo elektrickým pohonom predikovali tieto zmeny ešte v markantnejšej podobe. V roku 2013 v SR, oproti predchádzajúcim obdobiam, bol dosiahnutý rekord v počte vyrobených vozidiel a tento trend pokračuje. Príchodom ďalšej automobilky Jaguar Land Rover bude tento trend pokračovať, a tak bude AP naďalej dominantným odvetvím ekonomiky, s jeho priamymi efektmi na DPH, zamestnanosť či pridanú hodnotu, ako aj efektmi, ktoré AP generuje nepriamo a indukované v mnohých ostatných odvetviach. V súčasnosti Slovenská republika získala status jedného z vedúcich výrobcov automobilov v strednej Európe. Na poprednú pozíciu sa dostala vďaka automobilkám Volkswagen Slovakia v Bratislave, PSA Peugeot Citroën Slovakia v Trnave a Kia Motors Slovakia v Žiline. Najvýznamnejším pre Slovensko je výrobný koncern Volkswagen, s ktorým sa spája škandál v eticko-psychologickej rovine.

Výroba automobilov viedla k rastu zamestnanosti nie len priamo v automobilovom priemysle, ale aj v sektoroch vyrábajúcich komponenty, ktoré sú nevyhnutné pri výrobe vozidiel. Po celej krajine je rozmiestnených mnoho dodávateľských závodov pre automobilový priemysel. V roku 2016 pribudne na Slovensku ďalší automobilový výrobca, Jaguar Land Rover. S množstvom nových pracovných miest v Nitrianskom kraji to znamená pre našu krajinu aj prílev významnej zahraničnej investície. Vďaka štvrtému výrobcovi by sme sa mali udržať nad hranicou milión vyrobených áut ročne.

## 5. Pohľad na koncern Volkswagen

K založeniu spoločnosti Volkswagen došlo v roku 1937 v nemeckom meste Wolfsburg. V období druhej svetovej vojny dostala fabrika nové meno – Volkswagenwerk GmbH. Okrem zmeny mena došlo aj k zmene produkcie. Spoločnosť sa v tomto období špecializovala na výzbroj pre ozbrojené zložky Nemecka. (Volkswagen, 2015) V roku 1952 sa spoločnosť postupne stala internacionálnou, a to založením spoločnosti Volkswagen Canada Ltd. v Ontáriu a v Toronte. V ďalšom roku vznikla dcérska spoločnosť v Brazílii, Volkswagen do Brasil Ltda. V roku 1959 sa umiestnila na prvom mieste vo výrobe automobilov v Brazílii. V roku 1964 sa začala výroba v mexickom meste Puebla na základe vysokého dopytu na amerických trhoch. V 60. rokoch minulého storočia došlo k rozšíreniu portfólia o ďalšie modely a taktiež k spojeniu s výrobcom Auto Union a NSU Motorenwerke a premenovaním na Audi AG. V 70. rokoch sa začalo s výrobou modelov VW Golf a VW Passat, ktoré sú produkované dodnes. V roku 1982 expandovala spoločnosť na trh Číny, čínskou Shanghai Tractor & Automobile Corporation. V tomto roku automobilka získala aj koncern SEAT. V roku 1991 sa spoločnosť Volkswagen dostala aj do štátov východnej Európy získaním značky Škody a závodu v Bratislave. V 90. rokoch koncern získal luxusné značky Bentley, Bugatti a Lamborghini. V roku 2008 získala automobilka VW podiel v oblasti výroby nákladných automobilov vo švédskej spoločnosti Scania. Dnes sa Volkswagen radí medzi najväčších svetových producentov automobilov na všetkých významných trhoch.

*Značky koncernu:* Volkswagen, Audi, Seat, Škoda Auto, Lamborghini, Bugatti, Scania, Bentley a Porsche. *Koncern v číslach:* Volkswagen Slovakia sa radí medzi najväčšie spoločnosti Slovenskej republiky. Na Slovensku pôsobí od roku 1991 v Bratislave a vyrába osobné vozidlá



a prevodovky. V Martinskom závode sa vyrábajú jednotlivé komponenty. Oficiálna stránka spoločnosti uvádza k roku 2014 počet zamestnancov 9 900, na základe čoho sa Volkswagen Slovakia radí medzi najväčších slovenských zamestnávateľov. Ďalším významným ukazovateľom spoločnosti je jedno z popredných miest v exporte Slovenska. Bratislavský závod v súčasnosti vyrába Audi Q7, Volkswagen Touareg, Volkswagen UP!, Volkswagen e-up!, ŠKODA Citigo, SEAT Mii a karosérie pre Porche Cayenne. Vozidlá vyrobené na Slovensku smerujú celkom do 148 krajín po celom svete. Závod Volkswagenu v Bratislave je jediný, ktorý vyrába vozidla piatich rôznych značiek v jednej fabrike. (Volkswagen, 2014)

*Výroba vozidiel:* Najvýznamnejšiu časť produkcie predstavuje výroba vozidiel v závode v Bratislave. V roku 2014 tu bolo vyrobených celkom 394 474 automobilov. *Výroba prevodoviek:* Volkswagen Slovakia zaoberá výrobou prevodoviek od roku 1994. V hale Agregáty sa vyrobené prevodovky montujú do vozidiel Volkswagen, Audi, SEAT a ŠKODA. V roku 2014 bolo vyrobených 285 000 kusov. *Výroba komponentov:* Výrobu komponentov v bratislavskom závode odštartovala produkcia prírubových hriadeľov v roku 1995. O päť rokov neskôr bola výroba presťahovaná do závodu v Martine. V novom závode došlo k nárastu produkcie o 6,1%. V roku 2014 bolo vyrobených 34 900 000 komponentov. *Zamestnanci:* Volkswagen Slovakia sa radí k najväčším zamestnávateľom na Slovensku. V roku 2014 bol v oblasti priemyslu vyhodnotený ako najatraktívnejší zamestnávateľ. V rámci všetkých odvetví získal Volkswagen Slovakia druhé miesto z hľadiska atraktivity. V roku 2014 Volkswagen zamestnával 9 900 ľudí. *Obrat:* I z hľadiska obratu sa Volkswagen Slovakia radí medzi najväčšie spoločnosti. V roku 2014 predstavoval obrat 6,17 miliárd eur. *Export:* Volkswagen Slovakia je najväčším vývozcom na Slovensku. Produkcia putuje do 148 krajín po celom svete. *Investície:* Volkswagen Slovakia počas pôsobenia na Slovensku preinvestoval vyše 3,01 miliardy eur. (Volkswagen, 2014)

## 6. Vypuknutie škandálu koncernu - poškodenie značky

Hodnotu značky spoločnosti Volkswagen vážne negatívne ovplyvnil škandál, ktorý sa prejavil v psychologicko-etickej rovine. 19. 9. 2015 internetový portál Reuters uviedol správu, že Volkswagen bude musieť stiahnuť pol milióna áut, pretože je v nich nainštalovaný prístroj, ktorý dokáže podať nepravdivú informáciu o množstve vypúšťaných emisií. Takisto došlo k obvineniam firmy zo strany amerického Úradu pre ochranu životného prostredia z pokusu o zámerné obchádzanie zákonov. Výška pokuty, ktorá hrozí spoločnosti Volkswagen, bola spočiatku odhadovaná na 18 miliárd amerických dolárov (15,76 miliardy eur). (Gardner & Woodal, 2015) 21. 9. 2015 sa zastavil predaj štvorvalcových dieselových vozidiel VW a podobných automobilov značky Audi na trhu USA. K zastaveniu došlo v súvislosti s manipuláciou testov výfukových plynov. 22. septembra 2015 zdroj Reuters informoval o prekontrolovaní emisii naftových vozidiel VW a Audi Južnou Kóreou. Tento krok bol následkom priznania automobilky o manipulácii emisných testoch v USA. V posledných rokoch došlo v USA k prudkému nárastu predaja nemeckých vozidiel na úkor miestnych značiek. (Cremer, 2015) Tri dni od vypuknutia celého problému došlo k poklesu cien akcií spoločnosti VW o viac ako 30%. Emisný škandál ovplyvnil aj ostatné automobilky. Spoločnosť BMW zaznamenala pokles akcií o 6%. (Sheahan, 2015) Došlo aj k priznaniu o montovaní softvéru falšujúceho výsledky testov emisií v autách s naftovým motorom. Volkswagen priznal, že zavádzajúci softvér bol v 11 miliónoch dieselových áut. Konkrétne v modeloch Jetta, Golf, Beetle a Audi A3, ktoré boli vyrobené v rokoch 2009 až 2014 a taktiež v modeloch Passat vyrobených v roku 2014 až 2015. (Škandál, 2016) Po dvoch mesiacoch od vzniku emisnej aféry a jeho každodennej medializácii, začala spoločnosť podnikat kroky, ktoré by mohli byť

kompenzáciou pre poškodených klientov v USA. Firma ponúka Visa kartu na ktorej je 1000 dolárov. Polovicu zo sumy je možné použiť na nákup v spoločnosti VW. O túto kartu požiadalo približne 120-tisíc majiteľov dotknutých áut. (Shepardson, 2015, A) V rámci fungovania GHR emisný škandál zasiahol aj značku Bosch. Došlo k obžalobe v súvislosti s podvodným systémom v motoroch Volkswagen, ktoré boli vytvorené danou spoločnosťou. (Shepardson, 2015, B) V USA sa navyše podnikajú ďalšie kroky na odškodnenie približne 600-tisíc majiteľov áut. Predaj automobilov začiatkom roka 2016 síce v USA mierne rastie, no na druhej strane došlo k poklesu podielu na americkom trhu. Dôsledky škandálu majú dopad najmä na environmentálne prostredie, pričom dochádza k identifikácii ekologických dôsledkov a dôsledkov na zdravie obyvateľstva. (Burki, 2015) (Krall, 2015) (Oldenkamp, 2016)

## **7. Konkurencia spoločnosti Volkswagen v škandáloch: Mitsubishi, Toyota Motor**

*Mitsubishi:* emisný škandál sa od polovice mája 2016 týka aj japonského výrobcu automobilov značiek Mitsubishi. Po medializácii aféry sa akcie tejto automobilky prepadli o tretinu svojej hodnoty. Nízke ceny akcií využila automobilka Nissan, ktorá kúpila väčšinový podiel v hodnote takmer 2 miliardy eur. Tento škandál sa podpísal na akciách spoločnosti Mitsubishi podobne v porovnaní s vývojom akcií VW po emisnom škandále. V závere septembra došlo k výraznému odchýleniu cien akcií VW od ostatných dvoch konkurentov, ktoré neboli ovplyvnené emisnou aférou. Práve naopak, od októbra do decembra došlo k nárastu cien akcií oboch konkurentov. Medzi hodnotami akcií BMW a Mitsubishi neboli výrazné rozdiely, až do druhej májovej polovice, kedy sa médiami začali šíriť správy o Mitsubishi v súvislosti s emisným škandálom. Následne došlo k prepadu cien o vyše 30%. Aj japonská automobilka *Toyota Motor* čelila v posledných rokoch silnému tlaku médií a vyšetrovaniu z dôvodu nechceného zrýchľovania áut. Vyšetrovanie americkej vlády potvrdilo chybné plynové pedále a problém s krytinou podlahy, ktorá v niekoľkých prípadoch pedál zablokovala. Toyota v súvislosti s touto kauzou čelí stovke žalôb dodnes. Vyšetrovanie začalo v roku 2009, keď v Kalifornii tragicky zahynul diaľničný strážnik s celou rodinou. Automobilka bola nútená zvoliť do servisov po celom svete viac ako 14 miliónov áut. V roku 2014 bola najväčšej automobilke sveta stanovená pokuta vo výške 1,2 miliardy dolárov. (Podvody v, 2016)

## **8. Conclusion**

Spoločnosť Volkswagen si počas dlhoročného pôsobenia vybudovala významné postavenie na svetovom trhu. Zákazníci túto značku spájajú s kvalitou, účelným dizajnom, spoľahlivosťou a množstvom iných benefitov. Vrchný súd Európskej únie ustanovil pokutu pre nemeckú automobilku Volkswagen vo výške 90 mil. eur. V aktuálnej situácii, ktorá nie je priaznivá, by sa mal koncern zamerať na udržanie starých zákazníkov, ktorým vznikli komplikácie v súvislosti s emisným škandálom. Zákazníci zvolaní do servisov z dôvodu opravy chyby by mali byť vybavení expresne a bez dodatočných finančných nákladov. Etika a psychologický rozmer nedôvery vrazil pečať koncernu, ktorý bude musieť za zámerné zavádzanie „platiť“ nie len pokutami a ústretovosťou k podvedeným zákazníkom, ale etickým zlyhaním v povedomí všetkých obyvateľov krajín, ktorí priamo i nepriamo boli poškodení v environmentálnom rozmere, ktoré predstavujú imperatív ekológie dnešnej doby.

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## References

- [1] Bair, J. (2005) Global Capitalism and Commodity Chains: Looking Back, Going Forward. *Competition & Change*, vol. 9, no. 2, p. 153-180.
- [2] Burki, T. K. (2015) Diesel cars and health: the Volkswagen emissions scandal. *The Lancet Respiratory Medicine*, vol. 3. No. 11, pp.838-839.
- [3] Cavico, F. J., Mujtaba, B. G. (2016). Volkswagen Emissions Scandal: A Global Case Study of Legal, Ethical, and Practical Consequences and Recommendations for Sustainable Management. *Global Journal of Research in Business and Management*, vol. 4, no. 2, pp. 411-33.
- [4] Cremer, A. (September, 2015) Volkswagen says 11 million cars hit by scandal, probes multiply. *Reuters*. [Online]. Available: <http://uk.reuters.com/article/uk-usa-volkswagen-idUKKCN0RM08920150922>
- [5] Gardner, T., Woodal, B. (September 2015) Volkswagen could face \$18 billion penalties from EPA. *Reuters*. [Online]. Available: <http://www.reuters.com/article/us-usa-volkswagen-idUSKCN0RI1VK20150918>
- [6] Healey, M. (2009). *Co je branding?*, Praha: Slovart, s.r.o.
- [7] Kotler, P. (2001). *Marketing Management. 10. rozšírené vyd.*, Praha: GRADA Publishing.
- [8] Krall, J. R., Peng, R. D. (2015) The Volkswagen scandal: Deception, driving and deaths. *Significance*, vol. 12, no. 6, 12-15.
- [9] Mujtaba, B. G. (2013). *Managerial Skills and Practices for Global Leadership*. ILEAD Academy.
- [10] Mujtaba, B. G., Cavico, F. J., Nonet, G., Rimanoczy, I., Samuel, M. (2015). Developing a legal, Ethical, and Socially Responsible Mindset for Business Leadership. *Advances in Social Sciences Research Journal*, vol. 2, no. 6, pp. 9-26.
- [11] Oldenkamp, R., Van Zelm, R., Huijbregts, M.A.J. (2016) Valuing the Human Health Damage Caused by the Fraud of Volkswagen. *Environmental Pollution*, 212, pp. 121-127.
- [12] Penz, E., Schlegelmilch, B. B., Stöttinger, B. (2008). Voluntary Purchase of Counterfeit Products: Empirical Evidence from four Countries, *Journal of International Consumer Marketing*, vol. 21, no. 1, pp. 67-84.
- [13] Podvody v automobilovém průmyslu zasáhly VW, GM, Suzuki nebo Mitsubishi. (2016). *Čtk.* [Online]. Available: <https://www.web4trader.cz/podvody-v-automobilovem-prumyslu-zasahly-vw-gm-suzuki-nebo-mitsubishi/>
- [14] Porter, M. E. (1998) *The Competitive Advantage: Creating and Sustaining Superior Performance*, NY: Free Press.

- [15] Sandu, M. C. (2015) Reputation—An Important Element for Automotive Industry Profit?. *Procedia Economics and Finance*, 32, 1035-1041.
- [16] Sheahan, M. (September 2015). German transport ministry to start fact-finding at VW this week. *Reuters*. [Online]. Available: <http://uk.reuters.com/article/usa-volkswagen-ministry-idUKB4N1170120150922>
- [17] Shepardson, D. (November 2015, A). Volkswagen says 120,00 U.S. diesel owners will get gift cards, repairs. *Reuters*. [Online]. Available: <http://www.reuters.com/article/us-volkswagen-usa-idUSKCN0T737H20151118>
- [18] Shepardson, D. (December, 2015, B) Bosch sued over alleged role in VW diesel emissions scandal. *Reuters*. [Online]. Available: <http://www.reuters.com/article/us-volkswagen-emissions-bosch-idUSKBN0TK5OK20151201>
- [19] Schlegelmich, B. B., Öberseder M. (2007) Ethical Issues in Global Supply Chains, *Symphonya. Emerging Issues in Management*, (symphonya.unimib.it) (2), pp. 12-23.
- [20] Slušná, Ľ., Balog, M. a kol. (2015). *Automobilový priemysel na Slovensku a globálne hodnotové reťazce*, Bratislava: Slovenská inovačná a energetická agentúra.
- [21] Stöttinger, B., Penz, E., Schlegelmilch, B. B. (July 2003). *Why 'The Real Thing' is sometimes Less Attractive: Insights into Purchasing Behavior for Counterfeit Goods*, Annual Meeting of the Academy of International Business, Monterey, California.
- [22] Škandál Volkswagenu. (2016). *DenníkN*. [Online]. Available: <https://dennikn.sk/tema/volkswagen/>
- [23] Timpan, J. (August 2012). Vlastnosti dobrého loga podniku. [Online]. Available: <http://unie-grafickeho-designu.cz/vlastnosti-dobreho-loga-obsahly-clanek/#.VyHXwvmLTIU>
- [24] Varadarajan, R., Menon A. (1988) Cause-Related Marketing: A Coalignment of Marketing Strategy and Corporate Philanthorpy, *Journal of Marketing*, vol. 52, no. 3, pp. 58-74.
- [25] Volkswagen Slovakia (2014) *Fakty a čísla*. [Online]. Available: [http://sk.volkswagen.sk/content/medialib/vwd4/sk/downloads/cisla-a-fakty-2014/\\_jcr\\_content/renditions/rendition.file/cisla\\_fakty\\_volkswagen\\_slovakia\\_2014.pdf](http://sk.volkswagen.sk/content/medialib/vwd4/sk/downloads/cisla-a-fakty-2014/_jcr_content/renditions/rendition.file/cisla_fakty_volkswagen_slovakia_2014.pdf)

# GLOBALIZATION AND DEVELOPMENT OF SUSTAINABLE PUBLIC TRANSPORT SYSTEMS

Iosif Spirin<sup>1,a,\*</sup>, Dmitry Zavyalov<sup>2,b</sup> and Nadezhda Zavyalova<sup>3,c</sup>

<sup>1</sup>Russia, 117997, Moscow, Stremyanny lane 36

<sup>2</sup> Russia, 117997, Moscow, Stremyanny lane 36

<sup>3</sup> Russia, 117997, Moscow, Stremyanny lane 36

<sup>a</sup> ivspirin@yandex.ru, <sup>b</sup> zavyalov.dv@rea.ru, <sup>c</sup> zavyalova.nb@rea.ru

\*Corresponding author

**Abstract.** Adverse consequences of the active use of private motorized vehicles in the urban areas have become a global concern. One of the practical solutions to that problem can be found in the development of sustainable public transport systems providing mobility, accessibility and customer service comparable to private vehicles. Sustainable transport systems are designed to improve the service quality, reduce pollution, limit the state subsidies to urban transport, increase the efficiency of transport networks and land usage, enhance the mobility of people with disabilities and prevent conflicts of interests among the public transportation stakeholders. The development of sustainable public transport systems brings together engineers, researchers, marketing specialists, urban designers and customer service managers, social workers to produce the innovative solutions to public transportation and help create universal strategies to global problems associated with urbanization. A sustainable transport system must also provide mobility and accessibility to all urban residents in a safe and environment-friendly mode of transport. This is a complex task when the needs and demands of different people may not only be different but often conflicting. The article focuses on marketing approach to standardizing the quality of public transport services, examines organizational issues of public transportation management systems. To incorporate the interests of all the public transportation service stakeholders, the continual improvement mechanism is offered.

**Keywords:** public transport, sustainable transport systems, quality criteria, satisfaction index

**JEL Classification:** L91, L98, L15

## 1. Development of sustainable transport systems as global challenge

More than a half of the world population lives in the urban areas. This indicator is higher in the developed countries reaching 70% and is expected to increase two or three times by 2050<sup>10</sup>. Effective and efficient public transport systems have become a vital component of high living conditions and also a stimulus for regional economic development. Famous architect and urbanist Le Corbusier (1887 – 1965)<sup>11</sup> has formulated the necessity for the urban areas successful development to be coherent with the development of their public transport systems. The key role of transport systems in the sustainable development was first recognized by the

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<sup>10</sup> UNIDO – United Nations Industrial Development Organization, (2014). Sustainable Cities Hubs of Innovation, Jobs, Industrialization, and Climate Action, [www.unido.org](http://www.unido.org)

<sup>11</sup> Charles-Edouard Jeanneret-Gris

United Nations' Agenda 21<sup>12</sup>. During the 2012 United Nations Conference on Sustainable Development (Rio+20) the transportation and mobility were named central to sustainable development and the important role of municipal governments in setting a vision for sustainable cities was emphasized<sup>13</sup>. The notion of the Sustainable Public Transport Systems (SPTS) has been evolving as an answer to the global challenges of urban areas development. SPTS brings together engineers, researchers, marketing specialists, urban designers, customer service managers, social workers to produce the innovative solutions to public transportation and help create universal strategies to global problems associated with urbanization. The Chinese researches (Xu et al., 2010), monitoring the transport management system of Beijing from 1949 to 2008. Their research is based on a time series analysis of statistical data. The influence of the control system for the ground public transport and metro on the formation of demand for passengers was installed.

The major problems of SPTS are information technologies, planning of urban environment, quality of life and passenger expectations, regulation and tariffs, traffic organization and control. A review of modern approaches towards SPTS and coordinated transport policy is contained in article (Stead, 2016). The next of strategies and integrated policy for promoting more sustainable transport policies are discussed: (1) targets and indicators, (2) benchmarking, (3) transfer, (4) experimentation and innovation, (5) visioning/envisioning. Transport policy must be integrated and combined with the soft shapes encourage passengers to use public transport.

World largest cities act as centers of attraction for the high number of people but also concentrate adverse results of human activity such as ecological problems, overcrowding of transport hubs and motorways, traffic jams, social tensions, crime. These issues worsen the quality of life in the urban environment and require particular attention from the local authorities. As reported (Lowson, 2003) in the UK developed transportation system a personal rapid transit known as the Urban Light Transport (ULTra). ULTra provides connections between the main points on the various routes of public transport. In contrast to other forms of public transport, there is no waiting, stopping, or transferring. Energy consumption and emissions are reduced by 3 times.

Among the major problems of urban areas is the provision of high-quality public transport services. To ensure the highest level of transportation service while achieving associated benefits and meeting the goals of environmental integrity, social equity, and economic efficiency the following issues are to be considered:

- providing a standardized approach to public transport operations and satisfying customers' needs and expectations;
- ensuring accessibility of transport systems to all categories of passengers;
- pollution control and shift to sustainable modes of transport;
- the continuous increase in transport and road safety;
- reduction of state participation in the financing of transportation systems while maintaining the social guarantees;

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<sup>12</sup> United Nations Conference on Environment & Development Rio de Janeiro. Available: <https://docs.google.com/gview?url=http://sustainabledevelopment.un.org/content/documents/Agenda21.pdf&embedded=true>

<sup>13</sup> United Nations Conference on Environment & Development Rio de Janeiro. Available: <http://rio20.net/wp-content/uploads/2012/06/N1238164.pdf>

- efficient and integrated use of existing and planned transport and land-use infrastructure;
- parking space management;
- creation of efficient multimodal public transport network that will facilitate the interconnection and interoperability of associated transport networks;
- using scientific approaches to transportation research and system planning;
- facilitating innovation in public transportation technology and service;
- prevention of stakeholders' conflicts of interests;
- continuous improvement of public transport legislation;
- a strategic approach to transport system development;
- increase the economic efficiency of the entire transport system.

Polish colleagues believe necessary to ensure equal access to public transport and to show its advantages, to use information technology, to implement targeted transport policy, to develop eco-friendly transport (Malasek, 2016). The combination of these measures is a new transport paradigm. The major goal of SPTS is the creation of comfort urban environment by integrating the best of technological, ecological, economic, social, organizational practices to provide the highest quality of customer service combined with the rational and environment-friendly use of resources.

## **2. Creation of sustainable transport systems**

Implementation of SPTS has been an object of various scientific research projects. Irrespective of the place or conditions for the introduction of SPTS, the set of problems it is supposed to resolve is similar from country to country. One of the key issues of SPTS is to attract private vehicle users. Among the first solutions to that problem was the establishment of various limitations to the use of private vehicles in the urban areas. That, however, is not only restricts the freedom of mobility means but may also have an adverse influence on the car market. The rational solution is to create competitive public transportation systems which can provide the level of comfort comparable with the use of private vehicles, satisfy the mobility needs and offer the highest level of customer service. The experience of Singapore demonstrates the success of coordinated state policy and transport development strategy.

Improving the sustainability of transport systems is a common European problem. The stability is influenced by various factors. Italian scientists have carried out research to develop methodologies designated for different cities (Persia et al., 2016). The analysis was conducted to 50 cities by 200 indicators. The result was selected the 53 most significant indicators included in three main groups: the status indicators, sustainable development indicators, policy indicators. Cluster analysis showed that cities are divided into 5 characteristic groups. For each group of cities were recommendations for transport policies aimed at sustainable development.

Canadian scientists (Miller et al., 2016) developed by the Public Transit Sustainable Mobility Analysis Tool (PTSMAT) framework, which uses composite sustainability index techniques along with research into transport sustainability to propose a new transit analysis tool that can be used in both planning/decision making and research contexts. The sustainability index is calculated and is then used to develop management decisions and rational scenarios of transport policy.

## 2.1 Public transport service quality

Standardizing quality requirements and implementing regular improvement of public transport services are the necessary conditions to encourage private vehicles users to change their mobility habits and simulations to encourage private vehicles users to charge their mobility habits and simulating the use of bicycles, pedestrian routes and public transport (Taniguchi & Fujii, 2007).

Initially, public transport service quality criteria derived from the norms and metrics used by the transportation companies (Spirin, 2006). To control and improve the service quality, the service providers use the following performance measurements:

- Accessibility (network, area covered, operating hours, concessionary tariffs);
- Length of trip time including entrance, exit, internal movements, transfer to other modes of public transport;
- Reliability (adherence to schedule, safety, guarantee of service);
- Comfort (usability and comfort of passenger facilities, seating, and personal space)

These metrics are traditionally used by the majority of public transport companies in Russia and represent the service providers' view of the performance measurement. To standardize the service quality definition and measurement, the research was conducted for the city of Moscow allowing to integrate the passengers' requirements and expectations of the public transport service quality (Asaliyev et al., 2016). The research was based on marketing approach to service quality measurement and included focus groups, interviews, passenger surveys, analysis of transport infrastructure and its influence on the quality perceived. The representative sample included place of residence, age and sex distribution.

Appropriate management policies of the transport service provides for "soft" measures aimed at reducing car use by encouraging travel by public transport, bicycles and pedestrian traffic. The article (Taniguchi & Fujii, 2007) recommended practice detailed surveys of passengers and to publish information about the use of public transport.

The transport service was evaluated by the respondents using the following quality criteria:

- Accessibility: included seven variables. Results ranged from 0.56 to 0.85 points. The "Ticketing availability" received the lowest score;
- Reliability: included one variable – predictability of trip time (score 0.77);
- Safety: consisted of seven variables. Results ranged from 0.74 to 0.91. The "Feeling of safety and comfort" had the lowest score;
- Information: consisted of seven variables. Results ranged from 0.21 to 0.84. "Information" as an aggregate measurement received the lowest score among all the quality criteria. The majority of criticism concerned the providers' web-site information and unavailability of mobile apps;
- Comfort: consisted of eight variables. Results ranged from 0.46 to 0.86. The "Availability for the people with restricted abilities" received the lowest score;
- Customer care consisted of eight variables. Results ranged from 0.65 to 0.87. The "Staff attitude" received the lowest score. The passengers highlighted unfriendliness of drivers and ticket salespersons;

In Moscow, the passengers' opinions on the quality of public transport service has distributed as follows: 40% – satisfied; 35% – moderately satisfied; 11% – completely satisfied; 11% – dissatisfied; 2% – completely dissatisfied; 1% – no answer.



The results of the research project allowed comprising a list of new requirements for the public transport service providers. For example, the interactive passenger information system is to be introduced the onboard and boarding/alighting points Wi-Fi networks have been expanded. The use of new technological advances, computer and internet equipment at public transport facilities confirms the global tendency (Cohen-Blankshtain & Rotem-Mindali, 2016).

Based on the survey results the new standard for the service quality of Moscow public transport has been developed. Compliance with the standard is to become a basic requirement for the future contracts between municipal authorities and the service providers. The involvement of private subcontractors in public transportation is one of the strategic objectives of Moscow city management in the sphere of public-private contracts and public entrepreneurship.

## **2.2 Reducing environmental impact**

Transport systems are being the source of about 80% of pollution in the urban areas. The world community looks for the ways of reducing the negative impact of motorized vehicles by improving the engine construction, imposing new norms and limits on emissions, stimulating the use of electrical and hybrid cars by using tax incentives for low-emission vehicles and introducing strategic programs for the development of eco-friendly transport (Lue et al., 2016).

The program of a technical upgrade of Moscow city public transport, introduced by the city authorities, has resulted in emissions being decreased by half for the period of 2011-2015. The contribution of public transport buses in the total CO<sub>2</sub> emissions in 2014 was only 0.79% as compared with the share provided by the passenger cars – 85% (Donchenko et al, 2016). The number of passengers using the two types of transport is roughly the same, making the passenger cars far less eco-friendly.

One of the early Moscow public transport development programs which started at the beginning of the 2000-s considered the usage of buses with smaller seating capacity as a means to increase clients` mobility. The number of vehicles on route increased dramatically causing confusion among the passengers. The boarding/alighting points for these buses were located near the subway stations thus reducing the transfer time. A large number of smaller buses arriving and departing at the transfer points at the same time many, delayed traffic and worsened the difficult road situation in the city. Making use of the chaotic situation in the public network system, a lot of unregistered service providers appeared. The majority of them worked without necessary license and technical control and by using the public transport infrastructure they managed to form an alternative transportation network. It took several years to realize the gravity of the problem and by 2016 the majority of routes for the buses of smaller seating capacity had been canceled.

Another modern tendency in Moscow public transport system is the revival of electric transport (trams and trolleybuses) which has been losing its market share for the past decades. During the 90-s these types of transport were considered to be bulky and inefficient, and many routes have been canceled. Now the reverse process is taking place. The trams and trolleybuses have proved to be more reliable and eco-friendly as compared with city buses. The urbanists' idea to close the central part of Moscow for the private vehicles has once again called for the reconstruction of old tram lines. In August of 2016, the Moscow government has announced that the orders of new tram wagons would be doubled.

## 2.3 Rational use of city infrastructure

Currently, the volume of passenger transport by different transport types distributed as follows: 36% – surface public transport (bus, tram, trolleybus); 29.2% – subway; 20.5% – passenger cars; 14.3% – railroad<sup>14</sup>.

Moscow is among the cities with the largest number of motorized vehicles and yet, has a smaller road network as compared with other world capitals (see Table 1).

One of the biggest problems of Moscow is its overloaded road network. The total length traffic jams sometimes reach 800 km, with an average traffic congestion length of 1-2.5 km. City road planning, developing in the Twentieth century was considering neither the drastic increase in the number of vehicles nor the necessity of parking space.

Table 1 Road network density

City	Population (million)	Road network density (km per sq.km)	Number of motorized vehicles (million)
Deli	15,3	19,2	4,8
Tokyo	12,6	18,3	7,6
New-York	8,2	12,4	n/a
London	7,5	9,3	4,8
<b>Moscow</b>	<b>10,5</b>	<b>5</b>	<b>3,3</b>
Singapore	4,4	5	0,4

Source: GB National Statistic, DfT Road Traffic Statistic, Deloitte Touch Tohmatsu, NY DOT, LTA Annual Research, Economic Survey of Delhi, U. S. Department of Transportation, HH Transport Department, Moscow Department of Transportation

The municipal program for organizing paid parking in the city center started in 2013. It has now begun to pay off. The average speed in the city center raised by 15% and the city budget has received additional income. The mobile apps provided vehicle users not only with the useful instrument to search for the free parking lots by also with the fast and easy payment methods. Serious fines imposed on the violators has helped to change the situation with chaotic parking but at the same time caused a wave of disapproval from the car owners who claimed to be “robbed” by the authorities.

Another challenge for the municipal government was unsuitability of the road network and transportation system for the usage of bicycles. A bicycle can be an efficient, clean and efficient method of transport. To promote this mode of transportation, the authorities have started to modify the present road network creating bicycle tracks, developing renting stations and organizing spaces for bicycle owners in the public transport. The situation is changing but too slowly. This is explained by the relatively short bicycle season in Moscow and by the fact that many people do not feel safe riding in the city. The use of experience of the Netherlands of promoting the bicycle use despite weather condition (Thomas et al., 2013) might help to change the situation. About 25% of Dutch people use the Bicycle for travel in the cities. The researchers note that weather is the main factor causing variation. In cities with snowy winters, the use of the bike has seasonal restrictions.

To create the efficient multimodal public transport network that will facilitate the interconnection and interoperability of associated transport networks, it is necessary to

<sup>14</sup> Moscow Department of Transportation. Annual Report (2015). Available at: [http://dt.mos.ru/the-state-program-of-the-city-of-moscow/files/annual\\_report\\_2015.pdf](http://dt.mos.ru/the-state-program-of-the-city-of-moscow/files/annual_report_2015.pdf)

maximize the use the existing transportation networks. In September 2016 Moscow transportation department has put into operation the so-called Moscow Central Ring (MCR) – former cargo railroad ring rebuilt for passenger transportation. The MCR being connected with the subway network is supposed to redirect existing passenger traffic into more efficient routes decreasing the trip time and increasing comfort. Moscow subway system incorporates more than 3,5 thousand subway cars, 13 route lines, and 200 stations. The lines have a length from 32 to 45 km with 17-25 stations on each line.

The new MCR has the length of 54 km and 31 stations. It was constructed using the infrastructure of Cargo Railroad thus no new land was required. The first weeks of exploitation of the MCR have shown that from 10% to 20 % of its users are the subway passengers who ceased using the subway transfer points easing up the subway's rush-hour tension. The change in the passenger traffic will require a revision of other transportation networks and international experience might be of interest as a global problem.

The MCR was incorporated into Moscow subway system which made the travel and ticketing information it clearer and easy to understand.

#### **2.4 Ensuring equal accessibility to public transport system for all categories of passengers**

As research shows about 10% of Moscow public transport passengers have restricted mobility. This category of passengers includes people with disabilities, parents with small children, pregnant women. To avoid any discrimination, SPTS must provide equal mobility for all passengers which means, that transportation environment must be adaptive to ensure accessibility of network for all categories of travelers. A similar approach is used in the UN Convention on rights of persons with disabilities, which was ratified by the majority of the countries.

To make the transportation environment equally accessible to all the passengers the following steps must be taken:

- Universal vehicle design to be usable by all people to the greatest extent possible, without the need for adaptation or specialized design;
- Universal boarding/alighting points design to be usable by all people to the greatest extent possible, without the need for adaptation or specialized design;
- Provide and maintain pedestrian passage in the proximity of the boarding/alighting points;
- Provide access to visual, audio and tactile information in accordance with transportation choice of the people with restricted mobility;
- Avoid overcrowded routes and vehicle.

Additional attention must be paid to the communications with the social, public, and other organizations representing the interests of the people with restricted mobility. It is necessary to facilitate the introduction of their proposals to improve the current public transportation system.

To meet the objective mentioned above, Moscow authorities have acquired new vehicles with low loading deck, additional air-conditioning systems and wider sitting space. To transport the passengers with restricted abilities, the “social taxi” service with concessionary tariffs was introduced.

### 3. Conclusion

During the past decade, the municipal authorities of the city of Moscow have been gradually introducing the principles of Sustainable Public Transportation Systems. The development of standardized approach to the measurement of public transport quality based on research with the participation of the authors (Asaliyev et al., 2016) and active participation of private companies in public contracts for the development of Moscow transport network allows the city management to meet sustainability objectives. The results of the city management efforts have been noted during the annual Sustainable Transport Award 2016 which took place in New-York. The is one of the results of the step-by-step formation of a modern public transport network in the city. The prizewinning cities have shown significant progress in the following fields:

- Traffic jam decrease;
- Emissions control and management;
- Passenger mobility;
- Increase trip safety;
- Bicycle usage.

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### References

- [1] Asaliyev, A.M., Zavyalova, N.B., Zavyalov, D.V. et al. (2016). *Marketing approach to public transport quality management*. Novosibirsk, Russia: Center Nauchnogo Sotrudnichestva.
- [2] Cohen-Blankshtain, G. and Rotem-Mindali, O. (2016) Key research themes on ICT and sustainable urban mobility, *International Journal of Sustainable Transportation*, vol. 10, issue 1, pp. 9-17.
- [3] Donchenko, V., Kunin, Y., Ruzski, A., Barishev, L., Trofimenko, Y. and Mekhonoshin, V. (2016) Estimated atmospheric emission from motor transport in Moscow based on transport model of the city. *Transportation Research Procedia: 6th Transport Research Arena (TRA)*. Warsaw, Poland, vol. 14, pp. 2649-2658.
- [4] Lowson, M. (2003) New Approach to Effective and Sustainable Urban Transport, *Transportation Research Record*, issue 1838, pp. 42-49.
- [5] Lue, A., Bresciani, C., Colorni, A., Lia, F., Maras, V., Radmilovic, Z., Whitmarsh, L., Xenias, D. and Anoyrkati, E. (2016). Future priorities for a climate-friendly transport: A European strategic research agenda toward 2030, *International journal of sustainable transportation*, vol. 10, issue 3, pp. 236-246.
- [6] Malasek, J. (2016) A set of tools for making urban transport more sustainable. *Transportation Research Procedia: 6th Transport Research Arena (TRA)*. Warsaw, Poland, vol. 14, pp. 876-885.

- [7] Miller, P., de Barros, A.G., Kattan, L. and Wirasinghe, S.C. (2016) Analyzing the sustainability performance of public transit, *Transportation Research Part D – Transport and Environment*, vol. 44, pp. 177-198.
- [8] Persia, L., Cipriani, E., Sgarra, V. and Meta, E. (2016). Strategies and measures for sustainable urban transport systems. *Transportation Research Procedia: 6th Transport Research Arena (TRA)*. Warsaw, Poland, vol. 14, pp. 955-964.
- [9] Spirin, I.V. (2006). *Public passenger transportation*, Moscow, Russia: Akademkniga.
- [10] Stead, D. (2016) Key research themes on governance and sustainable urban mobility, *International Journal of sustainable transportation*, vol. 10, issue 1, pp. 40-48.
- [11] Taniguchi, A. and Fujii, S. (2007) Promoting public transport using marketing techniques in mobility management and verifying their quantitative effects, *Transportation*, vol. 34, issue 1, pp. 37–49.
- [12] Thomas, T., Jaarsma, R. and Tutert, B. (2013) Exploring temporal fluctuations of daily cycling demand on Dutch cycle paths: the influence of weather on cycling, *Transportation*, vol. 40, issue 1, pp. 1–22.
- [13] Xu, M., Ceder, A., Gao, ZY., Guan, W. (2010). Mass transit systems of Beijing: governance evolution and analysis, *Transportation*, vol. 37, issue 5, pp. 709–729.

## GLOBALIZATION AND MONETARY POLICY TOOLS AT THE ZERO LOWER BOUND

Miroslav Sponer<sup>1,a</sup>, Martina Sponerová<sup>1,b</sup>,

<sup>1</sup>Masaryk University, Faculty of Economics and Administration, Department of Finance, Lipová 41a,  
602 00 Brno, Czech Republic

<sup>a</sup>sponer@econ.muni.cz, <sup>b</sup>136615@mail.muni.cz

**Abstract.** The dramatic events of the global financial crisis acted as a coordination device for expansionary policy interventions in all advanced economies. A significant number of central banks have lowered their rates in response to the global financial crisis in order to mitigate its consequences and meet their monetary policy goals and have announced that they expect rates to be at low levels for a significant period of time. Depending on the particular situation of their economy and financial sector, central banks around the world have turned their attention to various unconventional monetary policy measures, such as negative interest rates on deposits, various forms of quantitative or qualitative easing, and foreign exchange interventions. The article explains the reasons for further easing monetary policy and for choosing suitable monetary policy tools. It analyses the causes leading up to the foreign exchange intervention by the Czech National Bank in November 2013 and its consequences. The article examines the use of exchange rate by the Czech National Bank as a monetary policy instrument at the zero lower bound on interest rates and discusses its expected benefits in the case of the Czech Republic. The article has a nature of applied research focused on the field of monetary policy. The article contains analytical views of various unconventional monetary policy measures and formulates synthetic viewpoints based on multi-criteria exploration.

**Keywords:** deflation, exchange rate, foreign exchange interventions, monetary policy, zero lower bound

**JEL Classification:** E31, E52, E58, F31

### 1. Introduction

Prior to the global financial crisis the interest rate channel was mainly responsible for the transmission of monetary measures to the real economy. Monetary policy was usually implemented by open market operations to target nominal short term interest rates. Due to price rigidities, central banks implicitly controlled not only the nominal, but also real interest rates over the short and medium runs. Real interest rates affect the decisions of firms to invest and private households to consume. (Woodford, 2003) Central banks can also influence the term structure, if long term interest rates reflect the expected compound yield of revolving short term investments. (Goodhart, 1984) However, the transmission of monetary policy became impaired since the financial crisis. Due to increased uncertainty commercial banks restricted credit to firms. To ease monetary conditions and provide additional liquidity, central banks quickly reduced their policy rates. As a consequence, short term interest rates approached the zero lower bound. The main refinancing rate in the euro area fell from 4.25 in October 2008 to 1 percent in May 2009. The decline has been even more pronounced for the US. The policy rate was reduced from 5.25 percent in July 2007 to 0.15 percent in December 2008. With short term interest rates at the zero lower bound, central banks lost the conventional instruments to steer

the monetary stance and to provide further stimulus to the real economy. (Hamilton & Jing, 2012)

The global financial and economic crisis and the ensuing economic contraction and decline in inflation forced many central banks around the world to start using unconventional monetary policy instruments. The Federal Reserve and the European Central Bank purchased securities and injected massive amounts of liquidity into the economy in 2007–2015. While the Federal Reserve raised liquidity mainly by pursuing outright asset purchases of debt and mortgage-backed securities, the ECB responded with additional loans to the banking system and extended the list of eligible collateral banks had to provide. These differences reflect the institutional frameworks under which both the Fed and the ECB operate, i.e. whether the financial and credit system is dominated by capital markets, such as in the US or by banks, as in the euro area. The distinction between the Fed and ECB policies became less clear, as the ECB decided to launch huge asset purchasing programs. They started in 2015 and will probably last three years. (Bowman et al., 2015)

In September 2011 the Swiss National Bank announced a minimum exchange rate of the franc against the euro backed by interventions in the foreign exchange market. The Swiss experience is valuable because the intervention took the form of a one-sided exchange rate commitment. This means it shares some features with the strategy chosen by the Czech National Bank.

The Czech National Bank in the second half of 2008 entered an unprecedented period of cutting interest rates, which reached a record low (technical zero) level in November 2012. The monetary policy easing was also strongly aided by a spontaneous depreciation of the Czech koruna in response to a contraction in both external demand and the domestic economy. The exchange rate at that time proved its ability to act as an automatic adjustment mechanism, a mechanism available to the Czech economy thanks to its independent monetary policy.

In November 2013 the Czech National Bank (CNB) started to use the exchange rate as an instrument within its inflation targeting regime in the form of a publicly declared, one-sided exchange rate commitment. The CNB took this step after its monetary policy rates had hit the zero lower bound in autumn 2012 and the need to ease the monetary conditions further had gradually increased, with observed and forecasted inflation both heading well below the central bank's two per cent target and the Czech economy experiencing the longest recession in its history. The CNB's analyses were indicating that inflation would turn negative in early 2014 and there was a danger that this would turn into long-term deflation with all its adverse impacts on the economy. (Franta et al., 2014)

The CNB Bank Board decided to start using the exchange rate as an additional instrument for easing the monetary conditions by adopting an explicit and publicly communicated exchange rate commitment. The CNB will intervene in the foreign exchange market to weaken the Czech koruna so as to maintain the exchange rate of the koruna against the euro close to CZK 27 to the euro. The CNB made it clear that it was resolved to intervene in such amounts and for as long as needed to achieve the desired exchange rate level with the aim of smoothly fulfilling its inflation target in the future.

## 2. Monetary Policy Tools at the Zero Lower Bound

Following the global financial crisis, central banks in the major economies have adopted a whole range of new measures to influence monetary and financial conditions. The measures have gone far beyond the pre-crisis typical mode of operation – controlling a short-term policy rate and moving it within a positive range.

Depending on the particular situation of their economy and financial sector, central banks have turned their attention to various unconventional monetary policy measures, such as negative interest rates on deposits, various forms of quantitative or qualitative easing, and foreign exchange interventions. (Borio & Disyatat, 2010)

Experience with negative deposit interest rates is very limited and their economic consequences are in general very unclear. Moreover, in some pieces of legislation in the Czech Republic, penalty interest is bound in a multiplicative manner to the discount rate. This may lead to severe legal complications if the rate is lowered beyond zero. In addition, the general legislation forbids negative interest rates in certain types of contracts. (Lízal & Schwarz, 2013)

Quantitative easing is activity undertaken by the central bank that leads to intentional and significant growth in the size of its balance sheet. The central bank buys long-term government bonds (or other high-quality assets). In such operations, liquidity in the financial system increases. The central bank simultaneously sends out a signal to the economy that it intends sooner or later to achieve price growth by issuing money. The main channel of effect is therefore an effort to reduce long-term nominal interest rates and increase inflation expectations, thereby stimulating investment and demand through lower long-term real interest rates. Quantitative easing also usually fosters a weakening of the domestic currency, hence acting through the exchange rate transmission channel.

Qualitative easing involves the central bank conducting operations intended to change the composition of its balance sheet away from government debt securities towards riskier and less liquid assets, holding constant size of its balance sheet. The financial sector can transfer risky and illiquid assets to the central bank and thereby obtain more liquid and less risky instruments to cover its needs. This results in a decline in the risk premium, which in turn boosts investment in riskier projects. The final result is a rise in economic activity and inflation. (Gambacorta et al., 2014)

Credit easing represents a mixture of the above two approaches. The central bank expands its balance sheet so that average liquidity decreases and/or the riskiness of its assets increases. This activity is aimed at affecting the cost and availability of loans, and such measures are usually targeted at a specific, non-functional market segment. (Baumeister & Benati, 2013)

Monetary policy can also be eased with the aid of an explicit commitment (forward guidance) about future monetary policy interest rates, for example in the sense that the central bank intends to maintain the policy rate at a certain level for a certain time or until the economic conditions change. This tool aimed at bringing about market expectations that very low policy interest rates would be maintained for some time in the future, thereby reducing medium-term and longer-term market interest rates. There were a number of variants of forward guidance policy. (Borio & Zabai, 2016)

Foreign exchange interventions or exchange rate are among the tools available to an open economy for ending deflation and escaping the zero lower bound (ZLB). Their use as an extraordinary monetary policy instrument was proposed by McCallum (McCallum, 2000) and Svensson. (Svensson, 2001) These authors pointed out numerous advantages of using the



exchange rate as an unconventional monetary policy tool. Using a small macroeconomic model, McCallum (McCallum, 2000) showed that at the ZLB a central bank in an economy open to foreign trade can successfully apply a policy rule that adjusts the rate of depreciation of the domestic currency to stabilize inflation and the real economy. In his approach, the exchange rate is an operating target of monetary policy and the exchange rate path corresponding to the policy rule is secured by central bank interventions in the foreign exchange market. The author concluded that this instrument can be very effective in achieving monetary policy objectives.

From a terminological perspective, the use of foreign exchange interventions as a monetary policy instrument is defined as an approach where the size of foreign currency purchases in the market is specified but the impact on the exchange rate is uncertain and depends on market conditions. The direction in which the central bank is trying to shift the exchange rate is thus clear, but the size of the shift is not. Many central banks use such policy even away from the ZLB. By contrast, the use of the exchange rate as an instrument at the ZLB is defined as an approach where the central bank chooses and possibly also publicly declares the specific exchange rate level it wants to attain and is prepared to intervene in the foreign exchange market in unspecified and potentially unlimited amounts to attain that level. The CNB's choice in the form of the declaration of an asymmetric exchange rate commitment falls into the latter category and therefore differs fundamentally from the use of conventional foreign exchange interventions.

## **2.1 Monetary Policy Transmission in the Czech Economy**

As a consequence, foreign exchange interventions have been selected as the most appropriate monetary policy tool when interest rates hit the zero bound and cannot be lowered any further. Moreover, given that the Czech economy is very open, it seems only logical to choose them over the alternatives.

Empirical studies of monetary policy transmission in the Czech Republic employ a wide range of approaches. Bayesian VAR with time-varying parameters was used to evaluate changes in monetary policy transmission in the Czech Republic by Franta. (Franta et al., 2013) The authors found the exchange rate pass through to be relatively stable, while the responsiveness of prices to monetary policy shocks increased. A comparison of the results obtained using four estimation techniques (VAR, structural VAR, Bayesian VAR, and factor-augmented VAR) is provided by Borys. (Borys et al., 2009) The authors find both prices and output to decline after a monetary policy tightening, with the maximum response occurring after about one year.

Estimations using VAR, Bayesian VAR, and time-varying parameter VAR show that the fall in prices after an unexpected interest rate hike reaches its maximum after about 5–6 quarters. The response of prices to an exchange rate shock reaches its maximum after one year according to both the VAR and Bayesian VAR estimates. The impact of the crisis is estimated in two ways – using the time-varying parameter VAR and estimating the Bayesian VAR on the full sample as well as the pre-crisis subsample. Both approaches suggest that the transmission of monetary policy shocks was not substantially affected by the crisis in the Czech Republic. (Babecká et al., 2013)

## **2.2 Foreign Exchange Intervention by the Czech National Bank**

The primary monetary policy objective as laid down in the Act on the CNB is to maintain price stability. Since January 1998, this has been achieved under an inflation targeting regime

in which the CNB tries to keep inflation close to a declared target. Since 2010, the CNB's inflation target in terms of the consumer price index has been set at 2% with a tolerance band of  $\pm 1$  percentage point. This target is in line with the practice of advanced economies.

The Czech economy went through a lengthy economic recession in 2012–2013 owing to weak external and in particular domestic demand, reflecting budget consolidation and low household and business confidence. The labor market situation deteriorated. There was a risk that inflation would turn negative at the start of 2014 after the effect of tax changes faded away and that deflationary expectations would emerge, leading to a halt in the nascent economic recovery or even a renewed economic downturn. All this was going on in a situation where monetary policy interest rates were at technical zero and the room for using standard monetary policy instruments had thus been exhausted. In November 2013, the CNB, in line with its previous communication, started to use the exchange rate of the Czech koruna as an additional instrument for easing monetary policy. The one-sided commitment means that the CNB is ready to prevent excessive appreciation of the koruna below CZK 27 to the euro by intervening in the foreign exchange market, while allowing the koruna's exchange rate to float on the weaker side of this level.

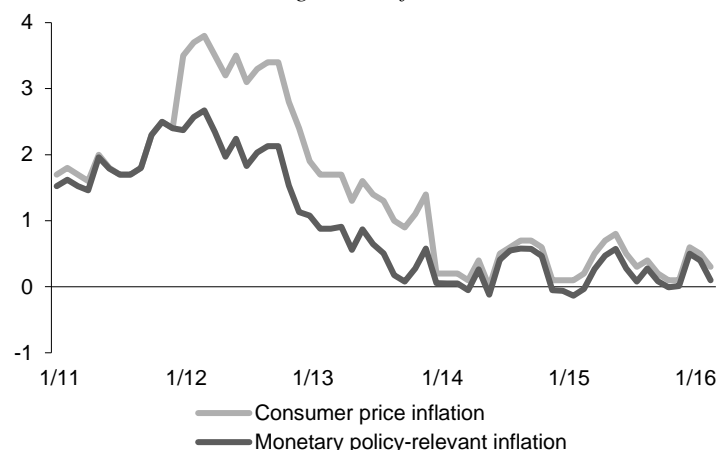
Following the announcement of the exchange rate commitment the koruna quickly depreciated beyond the exchange rate commitment level. It then soon stabilized close to CZK 27.50 to the euro, which suggests that the exchange rate commitment quickly established a strong degree of credibility. The exchange rate stayed at this level throughout 2014 with no need for interventions by the CNB.

The Czech economy benefited from the weakening of the exchange rate. The economy grew by 2% in 2014. In addition easing monetary policy, the growth was due to the unwinding of the restrictive effect of domestic fiscal policy and, to a lesser extent, to a recovery in external demand. The weakening of the koruna's exchange rate boosted not only export growth, but also growth in domestic investment and consumption, as firms and households stopped deferring their expenditure. The economic recovery positively affected the labor market through a rise in employment and renewed wage growth in the corporate sector. However, headline inflation remained well below the CNB's target, or below the lower boundary of the tolerance band around the target, owing to deflation abroad and a decline in world commodity prices.

The exchange rate was markedly weaker in the first half of the year 2015, but in the summer it appreciated towards the commitment level and the CNB started to intervene automatically to maintain the commitment by buying euro on the foreign exchange market.

Czech economic growth accelerated sharply in early 2015 and economic activity increased by 4.3% in the year as a whole. All components of domestic demand, and in particular gross capital formation and household consumption, contributed to the annual growth in GDP. Economic growth continued to be supported by easy monetary conditions via the weakened koruna and by exceptionally low interest rates. Growth was also aided significantly by government investment, linked chiefly with the drawdown of EU funds from the previous programming period. Falling oil prices and rising external demand also acted in the same direction. The robust economic growth had a favourable impact on the labor market, fostering a continued increase in employment and an acceleration of wage growth. The average inflation rate in 2015 as a whole was 0.3%, the lowest level since 2003. This exceptionally low inflation rate was due mainly to a marked and deepening annual decline in fuel prices reflecting the drop in world oil prices and, in the second half of the year, also falling administered prices and a halt in food price inflation.

Figure 1: Inflation



Source: [http://www.cnb.cz/en/monetary\\_policy/inflation\\_reports/2016/2016\\_III/index.html](http://www.cnb.cz/en/monetary_policy/inflation_reports/2016/2016_III/index.html)

Both headline and monetary policy-relevant inflation increased slightly at the start of this year, but remained well below the CNB's target (Figure 1). The growth of the Czech economy slowed at the end of last year. It will continue to follow this trend this year. The actual and expected inflation developments during 2016 signals that significantly expansionary monetary conditions needed to be maintained and that sustainable fulfilment of the 2% target, which is a condition for a return to conventional monetary policy, would not occur until 2017.

At its monetary policy meeting on 4 August 2016, the Bank Board decided to continue using the exchange rate as an additional instrument for easing the monetary conditions. The Bank Board stated that the Czech National Bank will not discontinue the use of the exchange rate as a monetary policy instrument before 2017.

### 3. Conclusion

The global financial and economic crisis and the ensuing economic contraction and decline in inflation forced many central banks to start using unconventional monetary policy instruments. The global financial crisis acted as a coordination device for expansionary policy interventions in all advanced economies. They were supposed to be exceptional and temporary – hence the term “unconventional”. They risk becoming standard and permanent, as the boundaries of the unconventional are stretched day after day.

This paper describes the CNB's experience with using the exchange rate as a monetary policy instrument since November 2013 after reaching the zero lower bound in a situation of growing risks of deflation due to insufficient demand. The most interesting aspects of the CNB's experience include the debate on how to use the exchange rate as a monetary policy instrument at the ZLB and on how transparent it should be. This debate eventually resulted in the choice of a publicly declared, one-sided exchange rate commitment, i.e. the exchange rate level below which the CNB will not let the currency appreciate, using potentially unlimited foreign exchange interventions to this end. Looking back, it is clear that this exchange rate commitment quickly established a strong degree of credibility.

The use of foreign exchange interventions to ease monetary conditions in an open economy is a rational choice. This monetary instrument is used only when interest rates are at a zero level, i.e., when the standard natural tool is no longer available. The pass through at the zero lower bound is significantly higher than that assumed on the basis of past experience during

normal times. The depreciation helps net exports, which is a good side-effect stimulating the economy. And finally, the power of the central bank when intervening against its own currency is not limited by the volume of reserves. In essence, in an economy with abundant liquidity in the banking sector, such as the Czech Republic, foreign exchange interventions are the most efficient way to implement quantitative easing.

### Acknowledgment

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### References

- [1] Babecká Kucharčuková, O., Franta, M., Hájková, D., Král, P., Kubicová, I., Podpiera, A. and Saxa, B. (2013) What We Know About Monetary Policy Transmission in the Czech Republic, Collection of Empirical Results. *CNB Research and Policy Notes*, vol. 1.
- [2] Baumeister, C. and Benati, L. (2013) Unconventional Monetary Policy and the Great Recession: Estimating the Macroeconomic Effects of a Spread Compression at the Zero Lower Bound. *International Journal of Central Banking*, 9(2), pp. 165 – 212.
- [3] Borio, C. and Disyatat, P. (2010) Unconventional Monetary Policies: An Appraisal. *The Manchester School*, vol. 78(s1), pp. 53-89.
- [4] Borio, C. and Zabai, A. (2016) Unconventional Monetary Policies: A Re-appraisal. *BIS Working Papers*, No. 570.
- [5] Borys, M. M., Horváth, R. and Franta, M. (2009) The Effects of Monetary Policy in the Czech Republic, An Empirical Study. *Empirica*, vol. 36(4), pp. 419 - 443.
- [6] Bowman, D., Londono, M. and Sapriza H. (2015) U.S. Unconventional Monetary Policy and Transmission to emerging market economies. *Journal of International Money and Finance*, vol. 55(C), pp. 27 – 59.
- [7] Czech National Bank. (2016). Monetary Policy, Inflation Reports, Available: [http://www.cnb.cz/en/monetary\\_policy/inflation\\_reports/2016/2016\\_III/index.html](http://www.cnb.cz/en/monetary_policy/inflation_reports/2016/2016_III/index.html)
- [8] Gambacorta, L., Hofmann, B. and Peersman, G. (2014) The Effectiveness of Unconventional Monetary Policy at the Zero Lower Bound: A Cross-Country Analysis. *Journal of Money, Credit and Banking*, vol. 46(4), pp. 615 – 642.
- [9] Goodhart, C. (1984). *Monetary Policy in Theory and Practice*. Macmillan, London.
- [10] Hamilton, J. and Wu, Jing (2012) The Effectiveness of Alternative Monetary Policy Tools in a Zero Lower Bound Environment. *Journal of Money, Credit and Banking*, vol. 44, pp. 3 – 46.
- [11] Franta, M., Horvath, R. and Rusnak, M. (2013) Evaluating Changes in the Monetary Transmission Mechanism in the Czech Republic. *Empirical Economics*, vol.5.
- [12] Franta, M., Holub, T., Král, P., Kubicová, I., Šmídková, K. and Vašíček, B. (2014) The Exchange Rate as an Instrument at Zero Interest Rates: The Case of the Czech Republic. *CNB Research and Policy Notes*, vol. 3.

- [13] Lízal, L. and Schwarz, J. (2013) Foreign Exchange Interventions as an (un)conventional Monetary Policy Tool. *BIS Papers*, No. 73(i), pp. 127 - 143.
- [14] McCallum, B. T. (2000) Theoretical Analysis Regarding a Zero Lower Bound on Nominal Interest Rates. *Journal of Money, Credit and Banking*, 32, No. 4, pp. 870 - 904.
- [15] Svensson, L. E. O. (2001) The Zero Bound in an Open Economy: A Foolproof Way of Escaping from a Liquidity Trap. *Monetary and Economic Studies*, 19(S-1), pp. 277 - 312.
- [16] Woodford, M. (2003). *Interest and Prices: Foundations of a Theory of Monetary Policy*. Princeton University Press, Princeton.

## THE SELECTED GLOBAL BANKRUPTCY MODELS

Erika Spuchlakova<sup>1,a,\*</sup>, Katarina Frajtova Michalikova<sup>2,b</sup>

<sup>1</sup>University of Zilina, Faculty of Operation and Economics of Transport and Communications,  
Department of Economics, Univerzitna 1, 010 26 Zilina, Slovak Republic

<sup>2</sup> University of Zilina, Faculty of Operation and Economics of Transport and Communications,  
Department of Economics, Univerzitna 1, 010 26 Zilina, Slovak Republic

<sup>a</sup>erika.spuchlakova@fpedas.uniza.sk, <sup>b</sup>katarina.michalikova@fpedas.uniza.sk

\*Corresponding author

**Abstract.** Globalization is one of the most commonly used terms in contemporary business and politics and has both positive and negative connotations. By globalization we mean the cross-border connection and integration of societies, economies and cultures. The forecast of bankruptcy of great value to investors, creditors, lenders and anyone who relies upon the company viability. As a consequence, numerous studies has tried to develop models enhancing early bankruptcy forecasting. Prediction of corporate bankruptcy is a phenomenon of increasing interest to investors/creditors, borrowing firms, and governments alike. Timely identification of firms' impending failure is indeed desirable. By this time, several methods have been used for predicting bankruptcy. Bankruptcy prediction has long been an important and widely studied topic. In order to timely discern the emerging danger of instability in the enterprise, it is necessary to preform financial analyses, statistics and reports, which generate necessary data that the top management needs to draw up the necessary strategies. Using financial variables as predictors we focused on bankruptcy model review mainly on LOGIT, PROBIT, Neutral Network and Genetic programing model which are appropriate to predict business failure or bankruptcy.

**Keywords:** globalization, bankruptcy, forecasting

**JEL Classification:** G17, C52, C53

### 1. Introduction

Financial analysis can be seen as a set of activities designed to identify and evaluate complex financial and economic situation. Currently, it is an essential part of any successful operation of the enterprise. This includes a number of fields. This article mainly focuses on bankruptcies models - Altman' s Z-score model. Bankruptcies models assess financial position according to the value of one of the final numerical scores, and are designed to determine whether the company in the near future danger of bankruptcy. Today is continuously changing economic environment, and together with these changes there is also a change in companies that are part of the environment. Management of financial risk in companies is a major area of managerial skills as it significantly determines the current and future financial performance of the company. (Belas, et. al., 2015). Successful company when its economy without analysing their financial situation should be sought. (Pitrova, 2013)

Financial analysis is used to a comprehensive assessment of their financial situation. It helps to identify (i) whether the company is profitable enough, (ii) whether is effective using their

assets, (iii) whether the company has an appropriate capital structure and (iv) whether it is able to pay its debts on time. (Spuchlakova & Michalikova, 2015). Knowing the financial situation is for the company in terms of time necessary both to the past, but especially for estimation and forecasting future developments.

Financial analysis is an integral part of financial management because it informs the company about how the individual sciences, which assumptions he was able to meet and where it was a situation that the company wanted to avoid. The results of the analysis covers not only the company itself, but are also available for users who are connected with the undertaking economically, financially and so on. (Spuchlakova & Michalikova, 2015)

Bankruptcy of enterprise is a very important economic effect. The health and achievement of the enterprise are two of widespread concern to policy makers, participants of industry, investors, and managers (Gazdikova & Sustekova, 2009). It is also the problem that affects the economy of every one country. The number of failing enterprises is important for the economy of a country and it can be considered as an index of the development corporate bankruptcy is a very important economic phenomenon. The health and success of the firms are of widespread concern to policy makers, industry participants, investors, and managers (Kollar et al., 2015). It also is a problem that affects the economy of every country. The number of failing firms is important for the economy of a country and it can be considered as an index of the development and robustness of the economy (Siskos & Zopounidis, 1998). The high individual, economic, and social costs encountered in corporate failures or bankruptcies have spurred searches for better understanding and prediction capability (McKee & Lensberg, 2002).

Prediction of corporate bankruptcy is a phenomenon of increasing interest to investors/creditors, borrowing firms, and governments alike. Timely identification of firms' impending failure is indeed desirable (Gazdikova & Sustekova, 2009). By this time, several methods have been used for predicting bankruptcy. Early research focused primarily on univariate models such as individual financial ratios. Among these studies Beaver (1966) is more noticeable than the others. He introduced a univariate technique for the classification of firms in two groups using some financial ratios. The ratios were used individually and a cut-off score was calculated for each ratio on the basis of minimizing misclassification. The univariate methods were later criticized, in spite of its considerable results, because of the correlation among ratios and providing different signals for an enterprise by ratios (Siskos & Zopounidis, 1998).

## **2. Multiple discriminant analysis**

Later research turned to multivariate models. Researchers found that corporate bankruptcy can be affected by many different factors at the same time. Altman (1968) introduced a multivariable technique, multiple discriminant analysis (MDA), for failure prediction. Because this study made use of more than one variable for bankruptcy prediction and applied an advanced statistical technique for determining the relationship among predictor variables, it was of much interest.

MDA provides good predictions but suffers from some limitations. Hence, variety methods introduced to overcome MDA shortcomings and improving accuracy. These methods can be grouped in two categories: statistical and artificial intelligence models. First group consists of Logit (Foreman, 2002, Ohlson, 1980 and Zavgren, 1985), Probit (Casey et al., 1986 and Theodossiou, 1991), Linear Probability (Stone and Rasp, 1991 and Vranas, 1992) Cumulative Sums (Kahya & Theodossiou, 1999), and etc. Neural Networks (Altman et al.,

1994, Coats and Fant, 1993 and Jo et al., 1997), Genetic Algorithms (Shin and Lee, 2002 and Varetto, 1998), Case Based Reasoning (Park & Han, 2002), Rough Sets (Dimitras et al., 1999 and McKee and Lensberg, 2002), Support Vector Machine (Min & Lee, 2005), and etc, constitute second group. Some of these models have high predictive accuracy levels but because of absence bankruptcy theory, attempts to establish a generally accepted model for bankruptcy prediction are not successful. Some studies have provided comprehensive surveys on bankruptcy prediction methods such as Dimitras et al., 1996 and Jones, 1987, and Kumar and Ravi 2007.(Spuchlakova & Michalikova, 2016)

A common approach to bankruptcy prediction is to review the literature to identify a large set of potential predictive financial and/or non-financial variables and then develop a reduced set of variables, through some combination of judgmental and mathematical analysis that will predict bankruptcy (Kollar & Bartosova, 2014). In this study we implemented such approach for variables selection stage. After this, a relatively new technique for bankruptcy prediction, Genetic programming, constructed an accurate classification model for bankruptcy prediction. This model was benchmarked with the MDA, the most common used classification model for this subject. In the rest of the paper, first, we discuss about GP and MDA, two techniques were used for bankruptcy prediction modelling.

### 3. Logit vs. Probit

Despite the fact that models based on multivariate discriminant analysis have been quite successful, these models coming up against criticism. This criticism can be found in the papers published by Joy and Tollefson (1975), Moyer (1977) and Ohlson (1980). According to the authors, the limitations of discriminant analysis are (Kliestik et.al 2015)

- (i) these models consider only a normal distribution of independent variables,
- (ii) these models calculate only with homogeneity of variation-covariance matrix, and
- (iii) these models assumed only a linear relationship between the independent variables.

According Cisco & Vasanic (2012), the result of these limitations is that the models generated by this method are applied inappropriately and not suitable for any enterprise. Especially the first two conditions encountered on problems and are the subject of criticism of this method. Therefore there was effort to find a method that would be able to better predict the bankruptcy. Thus, there are models based on binary options. The most common representatives are LOGIT and PROBIT that do not “suffer” with these two limitations.

LOGIT and PROBIT models consist of historical data. From the original amount of variables, the selected variables with greatest predictive value are chosen by using a special regression analysis. The result is, as for the discriminant analysis, the equation but with the different interpretation. These models determine the likelihood of situation arises – in our case the bankrupt is the situation. The difference between LOGIT and PROBIT is only in expected distribution of errors regression. The normal distribution is used by PROBIT model, and the logistic distribution is used by LOGIT model (Kliestik et al, 2015)

### 4. Neural-Network

The inherent non-linear neural network structure is particularly suitable for capturing many complex real-world problems. Simulation of real-world conditions by neural networks are among the most sophisticated methods of simulation conditions of the real world Neural networks reveal nonlinear dynamic processes taking place the stock market in real time and in



certain cases of spatiotemporal follows the structure of such phenomena. Implementation fragment of artificial intelligence in predicting development underlying the conditional selection of an appropriate structure Use network. Over the last years have been proposed several models of neural networks that have been optimized for address a specific issue. Models of neural networks have not only an excellent ability to learn from experience, but they are so useful for non-parametric method that does not require a lot of limiting factors in terms of the process, whose values are the subject of its learning and memory in the process of coaching and life. Ability learning network is undeniable advantage in obtaining the necessary learning and scaling data that also form the input to the network

Research studies on using Neural- Networks for bankruptcy prediction started in 1990, and are still active. There are a number of reasons why a nonlinear approach would be superior to a linear approach. Moreover, many of those who have developed neural models have identified their final sets of variables simply on account of their popularity in the financial literature. (Svabova & Durica, 2016)

Neural networks classify enterprises to simulate the processes that take place in the human brain. The neural network is made up of plenty who process parts - neurons and connections between them. Each neuron receives input data which can be several issues and one weighted output that represents its significance. The output can be the end result or input to another neuron. Neurons are associated in layers that can be several, it depends on the complexity of the problem being studied. In predicting bankruptcy. Neural network analysis of ratio indicators and other relevant data, looking for the relationship between input and output, which is an indication as to whether this is a healthy business or bankrupt. The advantage of the neural network that are able to learn and evolve. When you stop learning, weight variables are no longer changed and the network is ready to classify a company as inputs. Another advantage is that the neural network is a non-linear network and is not limited by problems of linearity. Among the authors who have dealt with neural networks to predict the decline include, for example Tam (1991), Wilson and Sharda (1994), Yang et al. (1999), and Anadarajan al. (2001) as it was shown in the publication of Svabova & Durica (2016).

## 5. Conclusion

Enterprises, during their lifetime, are getting to various crisis situations. One of the situation is even the failure or bankruptcy of enterprises. That is the reason why the importance of prediction methods come to the fore, which can identifying the critical aspects that could threaten the enterprises in the future. This fact is the major strength, because the enterprise can obtain a comprehensive view of the enterprise financial position.

Enterprise may use this mentioned bankruptcy models (LOGIT, PROBIT and Neural Network) in the case when it wants to find out how it will fare in the future. Their calculation is not difficult, the evaluation is fast and we often can easily get an idea of the overall situation. It should be understood that it cannot be wholly relied only on overall assessment, but it is necessary to look also for the construction of the variables used in these models and the value of partial indicators, especially in cases when these indicators reached extreme levels, either very low or high and look for the causes of such results.

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## References

- [1] Belas, J., Kljucnikov, A., Vojtovic, S. and Sobekova-Majkova, M. (2015). Approach of the SME Entrepreneurs to Financial Risk Management in Relation to Gender and Level of Education. *Economics & Sociology*, vol. 8, no. 4, pp. 32-42.
- [2] Cisko, S. Vasanic, M. (2012) Predikcia rizika zlyhania podnikateľských subjektov pomocou logistickej regresie. *Podniková ekonomika a manažment*, 2, pp. 76-86. ISSN 1336- 5878.
- [3] Gazdikova, J. Sustekova, D. (2009) Selected statistical tools for financial analysis. *Ekonomicko-manazerske spektrum*, Vol. 3, No 2, pp. 8-11, 2009.
- [4] Gondzarova, B. (2015). Reasons of Crisis in a company and possibility of their prevention in Global environment. In: *Globalization and Its Socio-Economic Consequences*. pp. 144-149.
- [5] Gundova, P. (2015) Prediction Methods of Financial Situation in Czech Companies in Globalization. In: *Globalization and Its Socio-Economic Consequences*. pp. 163-170.
- [6] Kliestik, K., Kocisova, K., Misankova M. (2015), Logit and Probit Model used For Prediction of Financial Health of Company, *Procedia Economics and finance*, Vol 23, ISSN 2212-5671, pp. 850-855,
- [7] Kliestik, T., Majerova, J. and Lyakin A. N. (2015) Metamorphoses and Semantics of Corporate Failures as a Basal Assumption of a Well-founded Prediction of a Corporate Financial Health, In: *3rd International Conference on Economics and Social Science (ICESS 2015), Advances in Education Research*, Vol. 86, ISSN 2160-1070, p.p. 150-154, 2015.
- [8] Kocisova, K. Misankova, M. (2014) Prediction of Default by the Use of Merton's Model and Black and Cox Model, In: *4th international conference on applied social science (ICASS 2014)*, Advances in Education Research, Vol. 51, p.p. 563-568, Singapore, Singapore, ISSN: 2160-1070. 2014.
- [9] Kollar, B. Bartosova, V. (2014) Comparison of Credit Risk Measures as an Alternative to VaR, In: *2nd International Conference on Social Sciences Research (SSR 2014)*, *Advances in Social and Behavioral Sciences*, Vol. 5, pp. 167 - 171, Hong Kong, Singapore Management and Sports Science Institute, 2014, ISSN: 2339-5133.
- [10] Kollar, B. Kramarova, K. Valaskova, K. (2015) The Financial Distress Analysis of the Stated-Own Company by Applying Chosen Default Prediction Models in Condition of Slovakia, In: *3rd International Conference on Economics and Social Science (ICESS 2015)*, Advances in Education Research, Vol. 86, pp. 160 - 167
- [11] Michalikova, K. Spuchlakova, E. (2015) Portfolio Optimization. . *4<sup>th</sup> World Conference on Business, Economics and Management (WCBEM-2015)*, Vol. 26, pp.1102-1107

- [12] Micudova, K. (2013) Original Altman Bankruptcy Model and Its Use in Predicting Failure of Czech Firms. Conference: *11th International Conference on Liberec Economic Forum* Location: Sychrov, Czech Republic
- [13] O'Leary, D.E. (1998)- Knowledge acquisition from multiple experts: An empirical study. *Management Science*. Vol. 44, pp. 1049-1058
- [14] Pitrova, K. (2013). The Altman's Z-Score Model - Comparing the Model Parameters of Czech Companies with the Original Altman's Study Results. Conference: *17th International-Business-Information-Management-Association Conference* Location: Milan, Italy Creating Global competitive economies: A 360-degree approach, pp.495-504, 2013
- [15] Reznakova, M. Karas, M. (2015) The Prediction Capabilities of Bankruptcy Models in a Different Environment: An example of the Altman Model under the Conditions in the Visegrad Group Countries. *Ekonomicky casopis* Volume: 63 pp. 617-633,
- [16] Siskos, Y, Zopounidis, C. (1998). Recent devopments in multiple objective optimization. *Journal of Global Optimization*. Vol. 12, pp.158-169
- [17] Spuchlakova E. Michalikova, K. (2015) Optimization of Portfolio selection based on risk in the condition of Globalization. *Globalization and its Socio-Economics Consequences 2015*. pp.413-418
- [18] Spuchlakova, E. Michalikova, K. Misankova, M. (2015) Risk of the Collective Investment an Investment Portfolio. *4<sup>th</sup> World Conference on Business, Economics and Management (WCBEM-2015)*, Vol. 26, pp.167-173
- [19] Spuchlakova, E. Michalikova, K Birtus, M. (2014) Credit Risk Measurement. *2<sup>nd</sup> International Conference on Economics and Social Science (ICESS 2014)*. Vol.61, pp.75-79
- [20] Svabova, L. Durica, M. (2016) Correlation Analysis of Predictors Used in Bankruptcy Prediction Models in Slovakia, *Ekonomicko-manazerske spektrum*, Vol. 10, No 1, pp. 2-11.

## CHANGING OF CONSUMER PREFERENCES IN RELATION WITH THE GROWTH OF WELFARE OF THE POPULATION

Karel Šrédľ<sup>1,a,\*</sup>, Alexandr Soukup<sup>1,b</sup> and Elizbar Rodonaia<sup>1,c</sup>

<sup>1</sup>Faculty of Economics and Management, Czech University of Life Sciences in Prague, Kamýcká 129,  
165 00, Prague, Czech Republic

<sup>a</sup>sredl@pef.czu.cz, <sup>b</sup>soukupa@pef.czu.cz, <sup>c</sup>elizbar07@gmail.com

\*Corresponding author

**Abstract.** A change in consumer preferences in choices of food products can be observed in the Czech Republic and also globally around the world. This change is manifested in the consumers' moving from buying lower-quality food towards more quality products. The cause of this phenomena is the current economic growth in the country, which is subsequently manifested in the growth of the average income. In 2015, economic growth in the CR reached 4.3%. This means that compared to the same period of 2015 it has grown by 4.4%, which in real terms, after subtracting inflation, means 3.9 %. In economic theory, this development can be expressed using the ordinal approach by the change of the consumer optimum. The aim of the paper is to express this change in consumer behaviour according to the model of consumer choice in the ordinal approach, by the demand for better-quality food products as seen in the case of sales of domestically produced wine. This is also reflected in the business of Czech wine producers. The Znovín Znojmo winery's retreat from the formal strategy of producing cheap wine is paying off. The sales, revenues and profit were mostly influenced by the increased sale of vintage and attributive wines. On the contrary, the sale of cheaper wines have decreased. The company started decreasing its production several years ago for reasons of low profit margins and competition from other cheap and often poor-quality wine.

**Keywords:** consumer preferences, consumer optimum, demand function, economic prosperity, wine

**JEL Classification:** D11, E21, Q02

### 1. Introduction

"In recent years, consumers have developed an interest in the type and the quality of food they eat" (Kljusuric et al., 2015). A change in consumer preferences in choices of food products can be observed in the Czech Republic. This change is manifested in the consumers' moving from buying lower-quality food towards more quality products. The cause of this phenomena is the current economic growth in the country, which is subsequently manifested in the growth of the average income. In 2015, economic growth in the CR reached 4.3%. Thus average wage has currently reached 26,480 CZK. This means that compared to the same period of 2015 it has grown by 4.4%, which in real terms, after subtracting inflation, means 3.9 %. Czech economic growth in Q1 2016 (+ 3%) was the sixth highest among the countries of the European Union (CSO, 2016). More significant growth was recorded only in Malta, Romania, Sweden, Slovakia and Spain. The Czech economy is thriving due to the increase in domestic demand and household consumption expenditure and the good condition of foreign trade.

## 2. Material and Methods

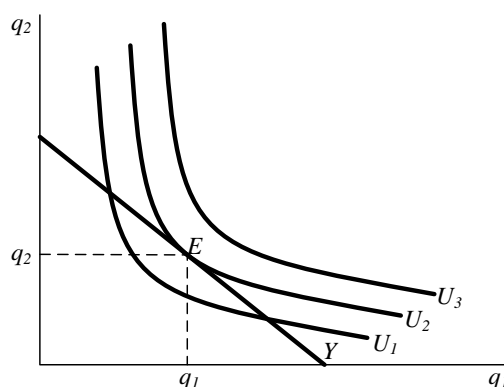
“Over the past 20 years, the luxury segment of the wine industry has experienced steady growth, yet understanding of consumer perceptions and motivation for luxury wine consumption is still underdeveloped” (Wolf et al, 2016). In economic theory, this development can be expressed using the ordinal approach of utility by the change of the consumer optimum. The aim of the paper is to express this change in consumer behaviour according to the model of consumer choice in the ordinal approach, by the demand for better-quality food products as seen in the case of sales of domestically produced wine.

### 2.1 Consumer decision-making model

The basic model of Pareto efficiency applied to simple consumer choice in the ordinal utility approach is widely known. We will use it as the basis for creating a mathematical model for a more advanced analysis of consumer choice.

We assume that a consumer uses two goods and that the income he spends to purchase these equals  $Y$ .

*Figure 1: Indifference curve and the optimum point in the model of two common goods*



*Source: Own processing*

The indifference curve reflects the consumer's preferences regarding these two goods. Each indifference curve that lies further from the starting point expresses a higher level of utility. Therefore, the combination that lies on such a curve would be preferred by a consumer to the combination that lies on a lower-placed indifference curve. The consumer's budget constraint is given by the line  $Y$ . If he spends his entire income by dividing it to cover the cost of both goods, the selected combination must lie on this line. Therefore point  $E$  is the optimum point for such a consumer, as it is a geometrical representation of the maximum achievable utility. There are many partial models of indifference analysis, but essentially only two basic options.

The preferential coefficients in the functions of utility may or may not be constant in relation to the quantity of consumed goods. We can consider a simple or more complex form of these functions, in which coefficients depend or do not depend on the quantity of utilized goods. We will use the following asymmetric function of utility.

$$U = (a + e \cdot q_1) \cdot q_1 + b \cdot q_2 + q_1 \cdot q_2 \quad (1)$$

$$U = a \cdot q_1 + e \cdot q_1^2 + b \cdot q_2 + q_1 \cdot q_2 \quad (2)$$

$U$  – utility ( $U > 0$ )

$q_1$  – quantity of good 1 consumed ( $q_1 > 0$ )

$q_2$  – quantity of good 2 consumed ( $q_2 > 0$ )

$a$ ,  $b$  and  $e$  are coefficients expressing consumer preference

$a$  – consumer preference parameter for good 1

$b$  – consumer preference parameter for good 2

$e$  – may take any value ( $e > 0$ ,  $e < 0$ ,  $e = 0$ )

Using the usual procedure to compare the ratio of marginal utilities of both goods and the ratio of their prices with the equation of budgetary constraint, we get:

$MU_1$  – marginal utility of good 1

$MU_2$  – marginal utility of good 2

$P_1$  – price per unit of good 1

$P_2$  – price per unit of good 2

$$MU_1 = a + 2 \cdot e \cdot q_1 + q_2 \quad (3)$$

$$MU_2 = b + q_1 \quad (4)$$

$$Y = P_1 \cdot q_1 + P_2 \cdot q_2 \quad (5)$$

$$\frac{MU_1}{MU_2} = \frac{P_1}{P_2} \quad (6)$$

$$\frac{a + 2 \cdot e \cdot q_1 + q_2}{b + q_1} = \frac{P_1}{P_2} \quad (7)$$

$$\frac{a + 2 \cdot e \cdot q_1 + \frac{Y}{P_2} - \frac{P_1}{P_2} \cdot q_1}{b + q_1} = \frac{a + \frac{Y}{P_2} + \left(2 \cdot e - \frac{P_1}{P_2}\right) \cdot q_1}{b + q_1} \quad (8)$$

$$b \cdot P_1 + P_1 \cdot q_1 = a \cdot P_2 + Y + 2 \cdot e \cdot P_2 \cdot q_1 - P_1 \cdot q_1 \quad (9)$$

$$b \cdot P_1 + 2 \cdot P_1 \cdot q_1 = a \cdot P_2 + Y + 2 \cdot e \cdot P_2 \cdot q_1 \quad (10)$$

$$P_1 = \frac{Y + a \cdot P_2 + 2 \cdot e \cdot P_2 \cdot q_1}{2 \cdot q_1 + b} \quad (11)$$

$$q_1 = \frac{Y + a \cdot P_2 - b \cdot P_1}{2 \cdot (P_1 - e \cdot P_2)} \quad (12)$$

For our purposes, it will suffice to use a more basic model with constant coefficients of preference, assuming that  $a = 0$ ,  $e = 0$ ,  $b > 0$ . We will observe the changes in the course of one year, i.e. in the short term, within which consumer preferences do not change.

$$P_1 = \frac{Y}{2 \cdot q_1 + b} \quad (13)$$

$$q_1 = \frac{Y - b \cdot P_1}{2 \cdot P_1} \quad (14)$$

We assume that  $b > 0$ , as wine is a non-essential good.

## 2.2 Demand for consumer good: wine

Relationships (13) and (14) can also be understood as functions of the demand for good 1 (wine), if we assume that the other variables, with the exception of  $P_1$  and  $q_1$ , are constant.

The prices and quantities of wine between 2014 and 2015 are as follows:

$$P_1 = 89, P'_1 = 90, q_1 = 2,9, q'_1 = 3,2 \quad (15)$$

(in accordance with the table above, quantities are given in millions of units):

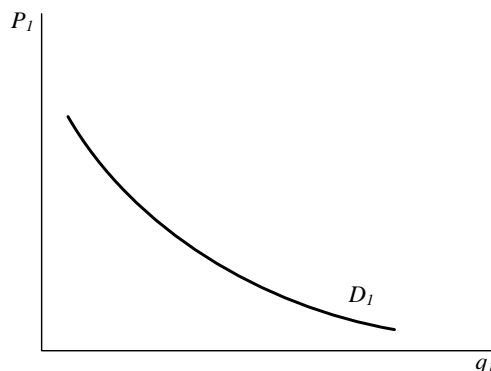
$$Y = 712, Y' = 774, b = 2,2 \quad (16)$$

The most probable explanation is the change in demand for wine, which is the result of increased consumer income. Theoretically, it could also be caused by changes in consumer preference, which, however, is not expected in the short term.

This might be caused by an increase in income or a shift in consumer preference, which is manifested in consumer demand for wine. We will assume the change in the form of an increase in income with no change in consumer preferences. We will follow consumer behaviour in relation to the consumption of wine (good 1) and the consumption of good 2, which we consider to be a composite good.

The change in demand is visible in the following graphs.

Figure 2: Demand for wine

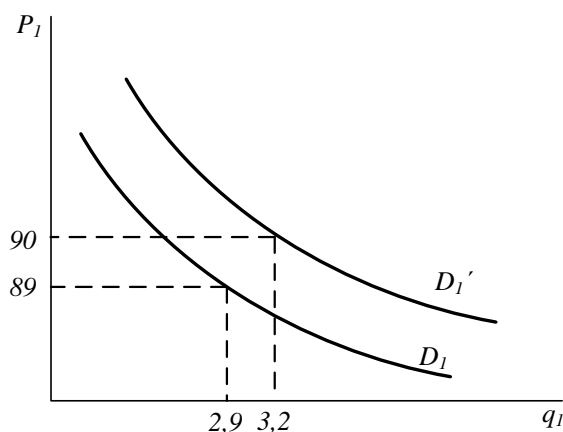


Source: Own processing

$$q_1 = \frac{712 - 2,2 \cdot P_1}{2 \cdot P_1} = \frac{356 - 1,1 \cdot P_1}{P_1} \quad (17)$$

$$P_1 = \frac{356}{q_1 + 1,1} \quad (18)$$

Figure 3: Change in demand for wine caused by an increase in consumer income



Source: Own processing

$$P_1 = \frac{356}{q_1 + 1,1} \quad (19)$$

$$P_1 = \frac{356}{q_1 + 1,1} \quad (20)$$

In such a case, the increase in consumer spending and hence the income of the company corresponds to the situation when  $b > 0$ , in which case  $|E| \geq 1$ ; in other words, the demand for wine (good 1) is elastic. Wine behaves as non-essential good, i.e. above a certain price  $P_1^*$ , the demand for this good would cease ( $q_1 = 0$ ). In graph 3, we can see that as a result of the increase in consumer income, the curve of demand for wine shifted to the right – the price and the quantity of demand both increased. A considerable attention of the media and both expert and laic public is at present given to raising the prices of food and agricultural products (Severová & Bendl, 2013).

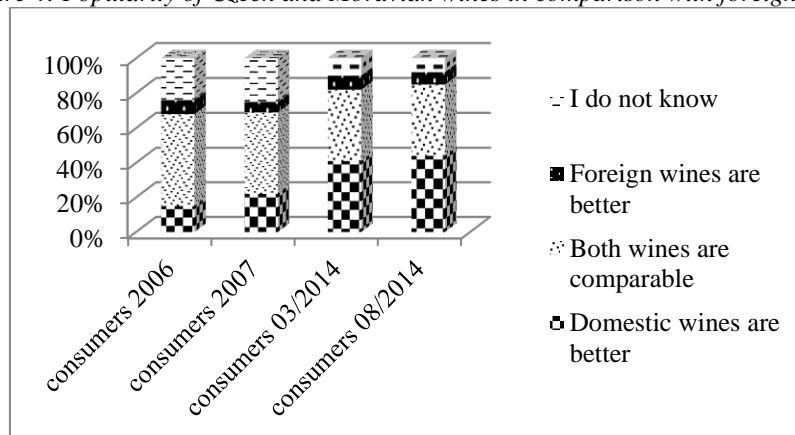
### 3. Results and Discussion

#### 3.1 Popularity of Wines from Moravia and Bohemia with Domestic Consumers

In recent years, the popularity of wines from Moravia and Bohemia has been significantly increasing. The Viticultural Fund has consistently released opinion surveys comparing the respective popularities of domestic and foreign wines, taken from a representative sample of Czech consumers.



Figure 4: Popularity of Czech and Moravian wines in comparison with foreign wines



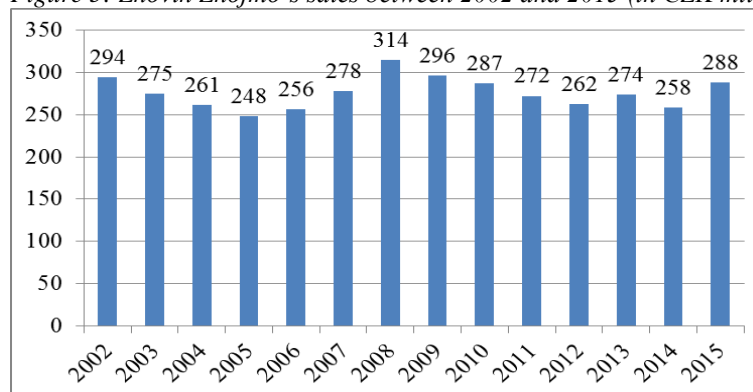
Source: Wine Growers Association CR, 2014

According to the survey (see Figure 4), in August 2014, the popularity of domestic wines became dominant. Compared to 2006, their popularity increased by almost 30 percent. It can be assumed that the main reason could be the increasing quality of domestic wines and their good promotion. The long-term strategy of chain stores is to support local suppliers which also cover the Bohemian and Moravian wine-growers, such as the Znovín Znojmo winery (Severová et al, 2011).

### 3.2 More expensive wines brought the Znovín Znojmo company record profit

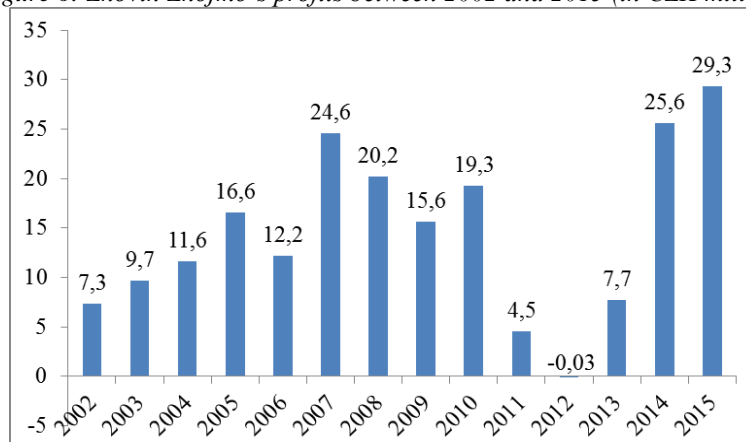
The Znovín Znojmo winery's retreat from the formal strategy of producing cheap wine is paying off. William Harlan states that firms "strive to produce what could be considered luxury wines if the word luxury is understood in the full, rich, life-enhancing sense" (Harlan, 2016). Food quality and safety belong to the most important factors of building the image of the product or brand (Horská et al., 2011). In 2015, the sales of one of the largest wineries in the Czech Republic rose by 12% to CZK 228 million, and the profit by 14% to CZK 29.3 million. It is the most since 1995, when the company began to publish annual reports.

Figure 5: Znovín Znojmo's sales between 2002 and 2015 (in CZK million)



Source: Annual reports of Znovín Znojmo

Figure 6: Znovín Znojmo's profits between 2002 and 2015 (in CZK million)



Source: Annual reports of Znovín Znojmo

In 2015, Znovín sold 3.2 million litres of wine in total, which means 10% more than in the previous year. The sales, revenues and profit were mostly influenced by the increased sale of vintage and attributive wines. The Lacenta viridis series was the most successful, together with Ledňáček říční and also the new series with glass stoppers – Sauvignon green and Sauvignon tropical. For example Ledňáček říční is a typical representative of terroir series of wines. The terroir is one of two aspects which affect consumers' authenticity perceptions of a wine and their willingness to pay for it (Moulard et al, 2015). Also we can say that being a private but managed winery and belonging to a closed quality circle maximizes quality reputation (Dressler, 2016).

On the contrary, the sale of cheaper wines have decreased, in particular the 1-litre bottles. The company started decreasing its production several years ago for reasons of low profit margins and competition from other cheap and often poor-quality wine (Znovín, 2016). On the other hand it is profits that are the main interest of the market participants (Gangur & Plevný, 2014).

The fact that the majority of wines sold come from the company's own vineyards (nowadays 500 ha), had a great impact on the company's results. Year-on-year, their acreage increased by approximately one tenth, as in April 2016 the company bought about 50 ha of vineyard in the vicinity of their headquarters in Šatov, i.e. the vineyard locations Peklo and Na vinici. Only a few years ago, Znovín owned only several dozen hectares, and the majority of grapes were sourced from grape-growers. In order to avoid fluctuation in prices as a result of poor harvests, the company began to acquire its own vineyards. In the future, the company aims to make up to four fifths of its production from its own grapes (Kütner, 2016). "The search for authenticity is one of the cornerstones of contemporary marketing" (Brown et al., 2003). "However, confusion surrounds the management of authenticity from a brand perspective" (Beverland, 2006).

In 2016 Znovín anticipates a similar level of sales, despite the recent spring frosts, which damaged about 15 to 20% of the company's vineyards. Vineyard keepers in Znojmo are monitoring the effects of weather and vegetation development on their vineyards.

#### 4. Conclusion

In the countries experiencing economic growth the changes in consumer preferences are manifested concurrently. In particular, the tendency to replace goods of lesser quality with

better and more expensive goods is occurring. This effect of an increase in the standard of living also has an impact on the structure of production. At the Znovín Znojmo winery, the growth in the sale of quality wine leads subsequently to higher sales and greater profit. The Znovín Znojmo winery is also pleased with their acquisition of vineyards, thanks to which they do not need to buy from grape-growers; the majority of the wines sold come from their own vineyards, of which, nowadays, the company owns five hundred hectares. However, the decisive factor is the increase in the standard of living due to the consumption of quality products.

### Acknowledgment

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### References

- [1] Beverland, M. (2006) The ‘real thing’: Branding authenticity in the luxury wine trade, *Journal of Business Research*, vol. 59, pp. 251-258.
- [2] Brown, S., Kozinets, R.V. and Sherry, J.F. (2003) Teaching old brands new tricks: retro branding and the revival of brand meaning, *Journal of Marketing*, vol. 67, pp. 19–33.
- [3] Czech Statistical Office (CSO) (2016). Hlavní makroekonomické ukazatele. [Online]. Available: [https://www.czso.cz/csu/czso/hmu\\_cr](https://www.czso.cz/csu/czso/hmu_cr)
- [4] Dressler, M. (2016) Strategic winery reputation management – exploring German wine guides, *International Journal of Wine Business Research*, vol. 28, pp. 4 – 21.
- [5] Gangur, M. and Plevný, M. (2014) Tools for Consumer Rights Protection in the Prediction of Electronic Virtual Market and Technological Changes, *Amfiteatru Economic*, vol. 16, pp. 578-592.
- [6] Harlan, W.H. (2016) The aesthetics and ephemerality of luxury wine, *International Journal of Wine Business Research*, vol. 28, pp. 102 – 104.
- [7] Horská, E., Urgeová, J. and Prokešínová, R. (2011) Consumers’ food choice and quality perception: Comparative analysis of selected Central European countries, *Agricultural Economics*, vol. 57, pp. 493-499.
- [8] Kljusuric, J. G., Cacic, J., Misir, A. and Čačić, D. (2015) Geographical region as a factor influencing consumers' perception of functional food - case of Croatia, *British Food Journal*, vol. 117, pp. 1017-1031.
- [9] Kütner, D. (2016) Dražší vína přinesla Znovínu rekordní zisk, *E15*, 20.5.2016, p. 5.
- [10] Moulard, J., Babin, B.J. and Griffin, M. (2015) How aspects of a wine’s place affect consumers’ authenticity perceptions and purchase intentions: The role of country of origin and technical terroir, *International Journal of Wine Business Research*, vol. 27, pp. 61 – 78.
- [11] Severová, L. and Bendl, S. (2013) Cartels and their behaviour on food markets, *Agricultural Economics*, vol. 59, pp. 81-89.
- [12] Severová, L., Kopecká, L., Svoboda, R. and Brčák, J. (2011) Oligopoly competition in the market with food products, *Agricultural Economics*, vol. 57, pp. 580-588.

- [13] Wine Growers Association (2014). Aktuality. [Online]. Available: <http://www.svcr.cz/aktuality>
- [14] Wolf, H.L., Morrish, S.C. and Fountain, J. (2016) A conceptualization of the perceptions and motivators that drive luxury wine consumption, *International Journal of Wine Business Research*, vol. 28, pp.120 – 133.
- [15] Znovín Znojmo, a.s. (2016). O Znovínu. [Online]. Available: <http://www.znovin.cz/>

# THE GAME THEORY AND SHALE GAS IN A GLOBAL ECONOMY

Vojtěch Stehel<sup>1a,\*</sup>, Petr Šuleř<sup>2b</sup>

<sup>1</sup>University of Žilina, Univerzitná 8215/1, SK-010 26 Žilina, Slovakia

<sup>2</sup>University of Žilina, Univerzitná 8215/1, SK-010 26 Žilina, Slovakia

<sup>a</sup>stehel@mail.vstecb.cz , <sup>b</sup>petr.suler@cez.cz

\*Corresponding author

**Abstract.** Natural gas is a fossil fuel used as a source of energy for cooking, heating, electricity generation and as fuel for vehicles etc. The total estimated remaining economically recoverable reserves of natural gas would last 250 years at current consumption rates. Natural gas is a commodity with certain specifics. On one hand, there is a great need for it but, on the other hand, its particular deposits allow it to be used as an instrument of political negotiations. Newly discovered possibilities of extraction and distribution are changing both geopolitical risks and the commodity's price. New discoveries also enable shale gas to be transported into Europe. In this paper, the game theory is applied in analysing how these new possibilities influence prices in global economy. We use game theory to analyse this situation because the game theory examines conflict situations, i.e. what players do and what they should do. The conflict situation is every situation where people make decisions. For example a manager makes a decision about the price of his product especially in a global economy. We have many areas of game theory. The dynamic game is a part of them. These kinds of games are used to examine credible and noncredible threats. Credible or noncredible threats mean the real possibility of distribution of shale gas into Europe.

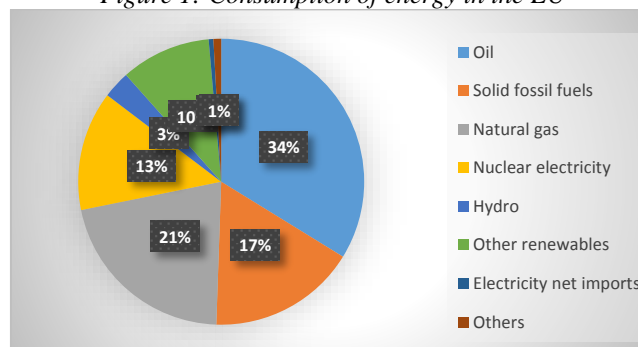
**Keywords:** Natural gas, game theory, dynamic game

**JEL Classification:** C70, C73, Q30

## 1. Introduction - EU and gas

The European Union and its states use a wide range of energy sources for production. One of the primary sources is gas. This gas had formed around 20% of the total share in 2014 (Eurogas 2015) and became the second most important source. The following figure shows the share of individual components. Due to low environmental pollution and relatively high inventories of this raw material, it is assumed that consumption of the material will grow in the future (EIA 2013). A fact supporting this claim is that an established infrastructure exists which utilizes this raw material in the industry or at the end consumer.

Figure 1: Consumption of energy in the EU



Source: EUROGAS 2016.

Yet gas may be of use in a whole variety of industries. Thanks to low emissions, it can substitute types of fuels that are more expensive, or not possible to use due to air pollution. This fact comes to the fore when there is pressure in the EU to ensure that every year there is a gradual reduction in greenhouse gas emissions. At the same time in 2015, gas was utilized by 1/3 in the industry, 23% was used for the production of heat and electricity, and 41% was consumed directly. (EUROGAS 2016).

However, because it is a non-renewable source of energy, the production and distribution of it are dependent on the sources of this material. The material occurs only partially in the European Union, with far more occurrences in other destinations, such as America, Asia and others (EUROGAS 2016). The rate of utilization of these resources depends on the economic profitability for the resource owner (Hašková 2011).

The reserves in Europe are relatively low while in contrast the consumption of this commodity is relatively high, and is assumed to increase in future. It is understood that the consumption will partly be implemented by the EU from its own resources, but part will have to be imported, with an assumption that in the future the ratio between these quantities will deepen in the favour of importation. From a geographic standpoint the nearest supplier is Russia. This fact had been taken advantage of, with pipelines being built in the past that allowed transport of this commodity to the EU.

Russia is thus one of the major exporters of gas to the EU. Most gas flows into Western European countries (82%), while Middle European countries collect around 18%. Despite figure 4 showing that Russia is not the only supplier for the EU, it is in the position of a monopoly to several states it is geographically closest to. However, this situation may not be comfortable to a whole number of countries as it imposes a geopolitical risk.

A Geopolitical risk can be seen in several situations. The first of these is a dispute with the supplier in which the bargaining power of the supplier, who has a monopoly, is extremely strong and in some cases may be theoretically exploitable. A given example could be an event in 2015, when the price for Ukraine was much higher than for other European countries, which could have been the result of non-payment, as claimed by Russia, or consequence of the abuse of monopoly power on the market and geopolitical pressure on Ukraine (E15.cz 2015 ).

States usually try to control monopolised markets, or liberalize them. The reason for the general regulation and liberalization of monopolised markets is the fact that the monopoly can achieve significant surpluses at the expense of the consumer (Heissler 2010).

## 2. Game theory

The game theory examines decision processes, from strategic decisions that can have a significant impact on the survival of an enterprise (Vochozka 2015) or its level of profitability, to trivial decisions made when playing games such as rock paper scissors. Every game is defined by wins, players and strategies. Players are decision makers who participate in the game. These may be intelligent or unintelligent individuals. Strategies are possible procedures which can be implemented by the player. Payments are then defined by playing with various combinations of strategies.

There are many areas of game theory that are used to describe a realistic environment. Each game has certain preconditions that enable its solution, but sometimes they can be rather limiting for a real description. For example, if we assume that an intelligent player always maximises their benefit, we find that in the real world, this condition may not always be met. We cannot devote this article to the entire vast area of game theory and will therefore focus on the parts which can be applied to the situation of gas trade in the international market. The first of these areas is one of the most known situations, which is the prisoner's dilemma.

The prisoner's dilemma is based on the principle of two players (thieves, who had been arrested). These players must decide in parallel and independently of each other, they cannot make an arrangement with the second player. It is therefore a noncooperative game. In the case of this game, it is observed whether the players will confess or remain silent. The payments for individual scenarios are shown in figure no. 5.

Figure 2: Prisoner's dilemma

		Offender B	
		Stay silent	Confess
Offender A	Stay silent	-1, -1	-10, <u>0</u>
	Confess	<u>0</u> , -10	<u>-5</u> , <u>-5</u>

Source: Carmichael 2005 – translated and modified.

The resulting solution is indicated by underlining the values which meet in a cell, which is determined by "confess" strategies for player A as well as for player B. This is not, however, the optimal value in the given game. If the players could communicate, the preferable strategy for both would be to stay silent, but this is not possible due to the premise of the game. More in Carmichael, 2005. This type of game can be applied to the situation in economy when there are two companies on the market which share the market (duopoly).

The solution is sought using the Nash equilibrium, which searches for maximum values in the columns for the first values in the table (part of the matrix for player A). Subsequently, the maximum values are sought in the rows (part of the matrix for player B). The reason for this procedure is to find the best answers in the case of the opponent selecting a specific strategy. The state of equilibrium occurs when the maximum value in a column meets with the maximum value in a row. Every game, however, does not necessarily have an optimal strategy.

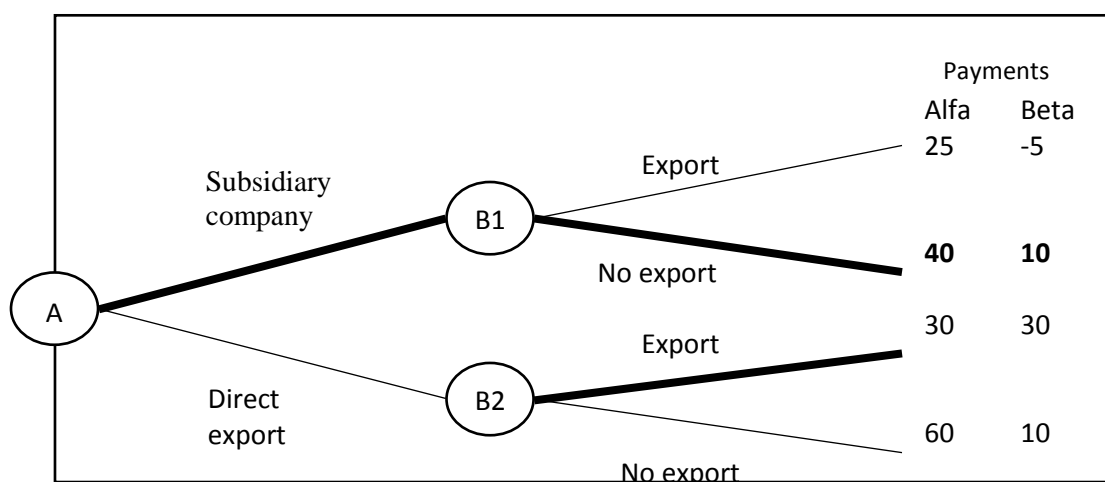
The disadvantage of the previous game is the fact that it considers parallel decision making for players that cannot cooperate. In practice, however, there are many situations where one player chooses a strategy and the second responds to this. For these reasons new games were created, called sequential games (Wiecek 2015).

These games are displayed with the help of a tree, shown in the following figure no. 6. The figure represents an example where the company Alfa is deciding whether to continue with direct export, which is cheaper, or to establish a subsidiary company for export which will cost it more money, but on the other hand, its products will not be as vulnerable to competition from another state.

The solution of this game is sought using backward induction. This means that we proceed from the outcome of the game toward the first decision. At each decision point we find the most optimal choice for the decision-makers (players).

Figure 7 shows that the decision points are B1, B2 and A. It has been stated that in the game, Alfa decides first and Beta reacts to it. When using backward induction, we will first assess the points B1 and B2. For Beta in situation B1, it is more advantageous not to export, as indicated by thicker lines. On the contrary, for situation B2 it is better to export. Alfa therefore knows that if it decides to export through its subsidiary, Beta will not export to the given destination and vice versa. When comparing the returns that these situations would result in for Alfa, it is clear that it will select the option to export through a subsidiary, since there is a real threat that Beta will export.

Figure 3: Sequence game



Source: Carmichael 2005 – translated and modified.

### 3. Application of game theory in area of gas

The real application of game theory can be very complex. The premises that some games have are set to be able to work with a mathematical apparatus, and thus find relevant solutions. If we disregarded these premises, the situation could arise that some games would have an extremely complex mathematical system with which we would only very difficultly search for specific solutions, or the mathematical apparatus would not exist at all (Chvoj 2011). The situation is similar in the case of international gas trade, but with a combination of several areas of game theory, it is possible to analyze and evaluate the situation.

The reason for the combination of several game theory areas are results from empirical research studies. These studies had evaluated one of the most noted situations, the prisoner's dilemma, and concluded that the results do not always match rational behaviour (Budinský 2010). The explanation of this phenomenon are the facts that were mentioned above, i.e. the premises of games. While playing games in isolation it is almost impossible for a normal player



to disregard the experience they had acquired while playing many games earlier. From these experiences, behavioural patterns were shaped, which in isolation could have appeared as the player behaving in an irrational manner (Budinský 2010). Given these conclusions, it is quite natural that even one decision-making situation can be assessed by far more than one game or one type of game.

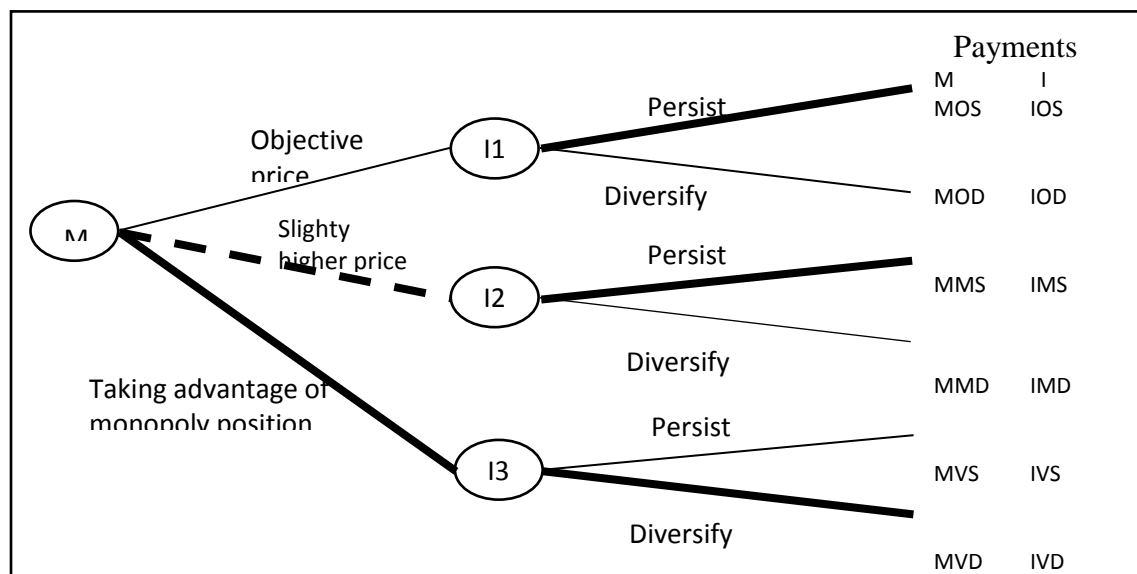
Each game is defined by players, strategies and payments. In our case, the players will be a monopolist gas supplier (Russia), who will decide first, and the state, which uses gas in its energy mix. The strategy of the player - monopolist could be a "fair price" (i.e. a price that would correspond to the real market), higher costs and exploitation of its monopolist position in the form of supplying to other geopolitical objectives. The strategy of the state, which is dependent on supplies from the monopolist supplier (importer) is to remain in the same state or to build an infrastructure for the diversification of gas supply. In the first phase however, the game appears to the players like a situation where the monopolist can supply either for an objective price or a slightly higher price. An objective price is the price which allows coverage of the cost of capital. The slightly higher price is the price covering capital costs and additional profit, but the amount must not exceed a certain limit which the recipient is able to accept.

Just as is the case with most games, if they are related to a real situation, it is extremely difficult or virtually impossible to define the amount of benefits arising from individual situations and trying to determine an objective measure for these would lead to the length of this article greatly exceeding its range. For these reasons, the payments will be determined based on variables, which in effect allows the solution of games as if it were a numerical expression.

There are several reasons for the complexity of the determination of these payouts. The first one is the sole calculation of the costs, because it is very difficult to determine the amount of costs associated with the loss of market or price reduction. Another reason are indirect costs associated with the exploitation of the geopolitical situation. Lastly, the decision must take into account not only the objective measure of payment for a given company, but rather the payment expected by a politician. In other words, a greater benefit could stem for the company from one situation, but the political situation for a given politician may bear greater personal benefit (being re-elected for example, because the perception of society may differ from objective analyzes).

The first part is a sequential game. The monopolist supplier decides first, they decide on a strategy as defined above. A graphical representation of the case is shown in the following figure.

Figure 4: Tree graph of gas distribution game



Source: Author.

Figure 8 shows the structure of the tree for the monopolist player, and in the case of gas, the import country. Individual wins are marked with variables, which are determined by the first letter representing a player (I = importer, M = monopolist), the second letter represents the strategy of the monopolist (O = objective value, M = slightly higher price, V = taking advantage of monopoly position).

A prerequisite of the game is that the cost of diversifying the gas suppliers is very high. It is necessary to build an infrastructure and address a wide range of international agreements and related processes. For these reasons, it can be assumed that:

$$\Leftrightarrow IMD < IMS \text{ } IOD < IOS, \quad (1)$$

Where

- IOD is the payment of the importer in the case of the monopolist setting an objective price and the importer diversifying nevertheless,
- IOS – payment of the importer in the case of the monopolist setting an objective price and the importer remaining in their current condition without diversification,
- IMD – payment of the importer in the case of the monopolist setting a higher price and the importer choosing to diversify,
- IMS – payment of the importer in the case of the monopolist setting a higher price and the importer choosing to remain in their current condition.

Given the above information, it is logical that with the use of backward induction the suitable strategy for the importer is to remain in their current condition for nodes I1 and I2. The same is assumed by the monopolist, who may, thanks to this, set a slightly higher price, because it can be assumed that it is not advantageous for the importer to diversify. This strategy is marked by a thicker dashed line in figure 8. In the event that the monopolist would have no third strategy, this would mean a state of equilibrium, because the benefits for the monopolist are defined by payments to which the following applies:

$$MOD < MOS \Leftrightarrow MMD < MMS \Leftrightarrow MOS < MMS, \quad (2)$$

Where MOD is the payment of the monopolist in the case of the monopolist setting an objective price and the importer diversifying nevertheless  
 MOS – payment of the monopolist in the case of the monopolist setting an objective price and the importer remaining in their current condition without diversification,  
 MMD – payment of the monopolist in the case of the monopolist setting a higher price and the importer choosing to diversify,  
 MMS – payment of the monopolist in the case of the monopolist setting a higher price and the importer choosing to remain in their current condition.

It is important to emphasize, however, that the amount of payment is based on the perception of benefit for people who make the decisions, not on the real benefits to society. For example, a weak politician might assume that the diversification strategy would be reasonable long term despite the slightly higher price, but the promoting of building a new infrastructure would be so costly for them, that they will consciously or subconsciously lean towards the analyzes which will argue that the strategy to remain in a stable state is preferable.

Thus the situation developed up to 2009 (Lochner 2011). That year, however, gas supplies were discontinued for whole number of states that had not participated in the conflict and the effect of a geopolitical risk indicated a third strategy by the monopolist. Due to this fact the importer began to perceive the revenues and expenses for perseverance and diversification differently. It was clear that a longer period of time with no gas supply would be a nightmare scenario, not only in financial terms but in terms of the impact it would have on society which would be reflected on the people (politicians) that can make decisions about strategies in the area of gas. The resulting cost of construction, or loss of utilisation, is perceived as inferior in comparison with the cost of the failure to diversify.

$$IVS < IVD, \quad (3)$$

Where: IVD is the payment of the importer in the case of the monopolist capitalising on their position of a monopoly for geopolitical objectives and importer diversifying,  
 IVS – payment of the importer in the case of the monopolist capitalising on their position of a monopoly for geopolitical objectives and the importer remaining in their current condition.

From the perspective of the monopolist supplier, it is obvious that

$$MVD < MVS, \quad (4)$$

Where: MVD is the payment of the monopolist in the case of the monopolist capitalising on their position of a monopoly for geopolitical objectives and importer diversifying,  
 MVS – payment of the monopolist in the case of the monopolist capitalising on their position of a monopoly for geopolitical objectives and the importer remaining in their current condition.

Since this fact is obvious to the monopolist, the question remains as to why this scenario had occurred in reality, i.e. the monopolist abusing their position and limiting supplies. The reason behind this is probably that the equation  $IVS < IVD$  may not be apparent. Respectively, it may not be apparent, provided that the position was taken advantage of for a short period of time. This aspect, however, had a major impact on the perception of benefit in the case of the optimal

strategy, where the price is slightly higher and the importer accepts this fact (does not diversify). This psychological effect had led to many political representatives choosing diversification as their political program, as the short-term exploitation strategy of the monopolist, who took advantage of their monopoly position, led to a change in equation no. 1 to the following form.

$$IOD < IOS \Leftrightarrow IMD > IMS, \quad (5)$$

## 4. Conclusion

Due to this fact Slovakia made modifications to the pipeline, which have allowed a reverse flow of gas from Austria via the Czech Republic. (Tyden.cz 2015). Poland has built a system with which it is possible to deliver LNG by tankers. In 2015 it made an agreement with Qatar (E15.cz 2015) and in 2016 took advantage of the new option of shale gas (iDnes.cz 2016). Poland still wants to seize new opportunities for the distribution of gas to areas that cannot diversify in a similar way. The threat in the form of a monopolist supplier has thus proved realistic.

This fact was not only analysed by the various states affected by the situation itself, but also by companies. For these reasons included, bearings have been used in Australia for the future production of LNG for the world market. (iDnes.cz 2016). It can be assumed that even with the diversification of the given sector, there will still be an oligopolistic position which will enable the reach of returns above the cost of capital.

### 4.1 Future development and limitations of the study

It can be expected that in the future in the countries of the EU, and especially those that had been fully dependent on a monopoly until now, diversification will occur and a certain degree of a duopoly, or oligopoly, will be reached. At this moment, games of the prisoner's dilemma type will arise, where individual players (suppliers) may secretly try to reach an agreement. As shown in Carmichael (2005) this will depend upon the difference between the amount of benefit in the case of a breach of the agreement and vice versa, when it is respected. Thanks to completely different destinations and geopolitical contradictory positions, it can be assumed, however, that the agreements will not occur or will have limited validity. It will thus be a repeated prisoner's dilemma game.

Due to increased competition, a short term price decline may be expected which corresponds to the development of the price of gas exported by Gazprom, as according to the company Boolberk (2016). It should be noted, however, that the reduced price is established not only due to the pressure on world markets for liquefied natural gas (LNG), but also by linking gas prices to petroleum with a certain delay effect.

## References

- [1] Arora, V., Y. Cai, 2014. U.S. natural gas exports and their global impacts, *Applied Energy*, Volume 120, 1 May 2014, Pages 95-103, ISSN 0306-2619.
- [2] Bergin, J., D. Bernhardt, (1995). Anonymous sequential games - existence and characterization of equilibria, *ECONOMIC THEORY*, Volume 5, Pages 461-489, ISSN: 0938-2259

- [3] Budinský P., Valenčík, R. a kol., (2010). *Teorie redistribučních systémů : (Jak číst společenskou realitu a oč tu běží?)*. 1. vydání. Praha : Vysoká škola finanční a správní. Edice EUPRESS. 155 s. ISBN 978-80-7408-044-9.
- [4] Carmichael, F., (2005). *A Guide to Game Theory*. Edinburgh : Pearson Education. 286 s. ISBN 0-273-68496-5
- [5] Castillo L., C.A. Dorao, (2013). Decision-making in the oil and gas projects based on game theory: Conceptual process design, *Energy Conversion and Management*, Volume 66, February, Pages 48-55, ISSN 0196-8904.
- [6] Denik.cz, (2015), *Cena ruského plynu pro EU by mohla klesnout až o 35 procent*; [online]. [cit. 2016-08-24]. Dostupné z: <http://www.denik.cz/ekonomika/cena-ruskeho-plynu-pro-eu-by-mohla-klesnout-az-o-35-procent-20150213.html>
- [7] E15.cz, (2015). *Do Polska dorazil první tanker se zkapalněným zemním plynem*; [online]. [cit. 2016-08-24]. Dostupné z: <http://zpravy.e15.cz/byznys/prumysl-a-energetika/do-polska-dorazil-prvni-tanker-se-zkapalnenym-zemnim-plynem-1254521>
- [8] E15.cz, (2015). *Konec závislosti na Rusku, do Polska přiteče plyn po moři*; [online]. [cit. 2016-08-24]. Dostupné z: <http://zpravy.e15.cz/byznys/prumysl-a-energetika/konec-zavislosti-na-rusku-do-polska-pritece-plyn-po-mori-1240950>
- [9] E15.cz, (2015). *Ukrajina nezaplatila za plyn, může to ohrozit i Evropu, varuje Gazprom*; [online]. [cit. 2016-08-24]. Dostupné z: <http://zpravy.e15.cz/byznys/prumysl-a-energetika/ukrajina-nezaplatila-za-plyn-muze-to-ohrozit-i-evropu-varuje-gazprom-1165954>
- [10] EIA, 2012. *Effect of increased natural gas exports on domestic energy markets*; [online]. [cit. 2016-08-24]. Dostupné z: [http://energy.gov/sites/prod/files/2013/04/f0/fe\\_eia\\_ing.pdf](http://energy.gov/sites/prod/files/2013/04/f0/fe_eia_ing.pdf)
- [11] EUROGAS, 2016. *STATISTICAL REPORT 2015*; [online]. [cit. 2016-08-24]. Dostupné z: <http://www.eurogas.org/uploads/2016/flipbook/statistical-report-2015/mobile/index.html#p=1>
- [12] Finon D., C. Locatelli, (2008) Russian and European gas interdependence: Could contractual trade channel geopolitics?, *Energy Policy*, Volume 36, Issue 1, January, Pages 423-442, ISSN 0301-4215.
- [13] Gazprom, (2016). *Delivery statistics*. [online]. [cit. 2016-08-24]. Dostupné z: <http://www.gazpromexport.ru/en/statistics/>
- [14] Goldthau A., (2008). Rhetoric versus reality: Russian threats to European energy supply, *Energy Policy*, Volume 36, Issue 2, February, Pages 686-692, ISSN 0301-4215.  
Hašková, S., P. Kolář, (2011). The mathematic modeling of proces economization of natural resources. *Proceedings of the 29th International Conference Mathematical Methods in Economics 2011* (Dlouhý, M., and Skočdoplová, V., eds.). Professional Publishing, Prague, pp. 224-229. ISBN 978-80-7431-058-4
- [15] Heissler H., Valenčík, R., Wawrozs P., (2010). *Mikroekonomie středně pokročilý kurz*. 1. vydání. Praha : Vysoká škola finanční a správní. Edice EUPRESS. 288 s. ISBN 978-80-7408-040-1.

- [16] iDnes.cz, (2016). *Průlom na trhu energií. První tanker s břidlicovým plynem vyrazil z USA*; [online]. [cit. 2016-08-24]. Dostupné z: [http://ekonomika.idnes.cz/prvni-tanker-s-bridlicovym-plynem-vyrazil-z-usa-fuz-/eko-zahranicni.aspx?c=A160225\\_103359\\_eko-zahranicni\\_fih](http://ekonomika.idnes.cz/prvni-tanker-s-bridlicovym-plynem-vyrazil-z-usa-fuz-/eko-zahranicni.aspx?c=A160225_103359_eko-zahranicni_fih)
- [17] Lochner S., (2011). Modeling the European natural gas market during the 2009 Russian–Ukrainian gas conflict: Ex-post simulation and analysis, *Journal of Natural Gas Science and Engineering*, Volume 3, Issue 1, March 2011, Pages 341-348, ISSN 1875-5100
- [18] Patria online, (2014). *Rusko zdražilo Ukrajině plyn o další čtvrtinu. Kyjev hovoří o šikaně a čeká omezení dodávek*; [online]. [cit. 2016-08-24]. Dostupné z: <https://www.patria.cz/zpravodajstvi/2604749/rusko-zdrazilo-ukrajine-plyn-o-dalsi-ctvrtinu-kyjev-hovori-o-sikane-a-ceka-omezeni-dodavek.html>
- [19] Sagen E. L., M. Tsygankova, (2008). Russian natural gas exports—Will Russian gas price reforms improve the European security of supply?, *Energy Policy*, Volume 36, Issue 2, February, Pages 867-880, ISSN 0301-4215.
- [20] Söderbergh B., K. Jakobsson, K. Aleklett, (2010). European energy security: An analysis of future Russian natural gas production and exports, *Energy Policy*, Volume 38, Issue 12, December, Pages 7827-7843, ISSN 0301-4215.
- [21] Tyden.cz, (2014). *Putin může zastavit dodávky plynu EU. Kvůli neplatiči Kyjevu*; [online]. [cit. 2016-08-24]. Dostupné z: [http://www.tyden.cz/rubriky/zahranici/evropa/putin-muze-zastavit-dodavky-plynu-eu-kvuli-neplatici-kyjevu\\_303834.html](http://www.tyden.cz/rubriky/zahranici/evropa/putin-muze-zastavit-dodavky-plynu-eu-kvuli-neplatici-kyjevu_303834.html)
- [22] Vochozka, M., Z. Rowland a J. Vrbka, (2015). Evaluation of credibility of civil construction companies in South bohemia. In *Innovative Economic Symposium 2015*. 1. vyd. České Budějovice: Vysoká škola technická a ekonomická v Českých Budějovicích. s. 145-161, 17 s. ISSN 2464-6369.
- [23] Wiecek, P., E. Altman, (2015). Stationary Anonymous Sequential Games with Undiscounted Rewards. *JOURNAL OF OPTIMIZATION THEORY AND APPLICATIONS*. Volume 166, Pages 686-710, ISSN: 0022-3239

## **E-GOVERNMENT SERVICES FOR BUSINESSES PROVIDED IN THE GLOBALISED WORLD**

Jana Štofková<sup>1,a,\*</sup>, Katarína Gašová<sup>2,b</sup>, Alexandra Rovňanová<sup>3,c</sup>

<sup>1</sup>Department of Communications, the Faculty of Operation and Economics of Transport and Communications, University of Žilina

<sup>2</sup>Department of Communications, the Faculty of Operation and Economics of Transport and Communications, University of Žilina

<sup>3</sup> Department of Communications, the Faculty of Operation and Economics of Transport and Communications, University of Žilina

<sup>a</sup>jana.stofkova@fpedas.uniza.sk, <sup>b</sup>katarina.gasova@fpedas.uniza.sk,  
<sup>c</sup>alexandra.rovnanova@fpedas.uniza.sk

\*Corresponding author

**Abstract.** Globalisation leads to an interconnected and interdependent world with free transfer of capital, goods and services across national frontiers. It represents a move towards the economic, financial, trade and communications integration. The terms globalization and informatisation have different meaning, but there is a marked overlap between their social, political, economic and cultural functions. The advent of communications technologies has accelerated the pace and scope of international trade. The informatisation of public administration is a significant tool for public administration modernisation, which supports its operation optimization and the services improvement. The Slovak republic has an ambition to build the information society at the level of the most developed countries of the European Union. The developed countries invest to innovative technological solutions with aim to accelerate economic growth and ensure the long-term sustainable development. The developed countries which has implemented electronic services are currently focused on their further development, comfort of use and the stakeholders participation in the process of further improvement. The contribution deals with e-Government services, which are currently available for businesses through the central public administration portal of Slovak republic and describes CEP service. Also the benefits of e-Government services for businesses are discussed. Despite the benefits are governments experiencing problems with the stakeholders motivation for implementation of new electronic services. The contribution discuss the results of survey focused on the usage of the Internet for electronic communication with public administration in the Slovak republic.

**Keywords:** e-Government, Government to Business, e-Government services, Businesses, Globalization

**JEL Classification:** H11, M00, F60

### **1. Introduction**

Globalisation is an active process of cross-border expansion. It is related to a structure of cross-border facilities and economic linkages, which has been constantly increasing and changing as much as the process is strengthening. Globalisation is an inevitable and unstoppable process. A benefit of globalisation is the promotion of free market, which effects the increase of efficiency and productivity. Globalisation and information forces redefine the industry,

politics, culture and the basic rules of social order. Societies have no choice, they have to adapt to these changes. Globalisation can be understood from different perspectives. (Štofková & Štofková, 2010) (Jankalová, 2012) Interconnectivity mostly characterises economic and financial aspects, resulting in market globalisation. Globalisation is also characterised by information and communication technologies which reduce cultural and religious diversity. (Mitková & Mariak, 2015)

Globalisation brings an excess of knowledge, information and new impulses, which despite all efforts is not an average person able to handle. Life in a global society brings risks. (Soltes, 2016) In relation to globalisation can be people divided into two groups: sceptics and hyperglobalists. Sceptics claim that the world is not more integrated and the whole idea of globalisation is false. On the other hand, hyperglobalists claim that globalisation is real and changes everything. It transforms the structure of the state, the nature of the economy and expand economic interconnection and competition. National states will be liquidated and city states will dominate and directly access the economy of globalisation (e.g. Hong Kong, London, New York, Barcelona). (Križan, 2016) (Dengov & Gregová, 2015)

Based on the changes which have occurred in the world, we can conclude that hyperglobalists are closer to the truth. However, hyperglobalists focus only on the economy, which is not correct. The economy is the driving force to intensification the globalisation, but globalisation is not just the economy. A lot of globalisation changes come from the social, cultural and political sphere. Important role in the globalisation development had communication revolution, which was gained by the electronic communication and the Internet. (Máliková, 2015) (Kramárová & Valášková, 2015)

In the post-industrial information society knowledge and information value production represent the dominant driving force of the society, instead of industrial technologies. Informatisation is a process in which information and communication technologies shape the cultural and civil communication of society. (Remišová & Búciová, 2012) (Klobučník & Bačík, 2016)

Globalisation and informatisation are two different phenomena, that overlap in social, economic and cultural functions. Globalisation and technological development bring a number of changes, which force businesses, but also the governments to react. The information and communication technology development has changed the way how people obtain information, communicate, work, purchase good and affects their everyday life. (Stríček & Štofková, 2013; Kuchár & Štofková, 2010) The Internet revolution has opened new opportunities for all economic operators. This progress can not be stopped. The government, which wants to meet the citizens' changing demands and needs of provided public services, must adapt to this progress. This results in an implementation of e-Government. (Šagát et al., 2015) (Chlebíková & Bielíková, 2015)

A few definition of e-Government can be found in scientific literature. One of them was presented by United Nation Organisation: „*e-Government refers to the use of information and communication Technologies, such as Wide Area Networks, the Internet and mobile computing – by government agencies.*” While OECD noted that: “*electronic government refers to the use of information and communication technologies, particularly the Internet, as a tool to achieve better government.*” (OECD, 2003).

According to Silcock is “*e-Government the use of technology to enhance the access to and delivery of government services to benefit citizens, business partners and employees.*” (Silcock, 2001). Heeks claims, that e-Government in a broad sense is all use of information technology



in the public sector. It covers a broad range of managerial issues: from high-level strategy to detailed tactics, from the technicalities of data flow and process mapping to the politics of e-Government. (Heeks, 2005)

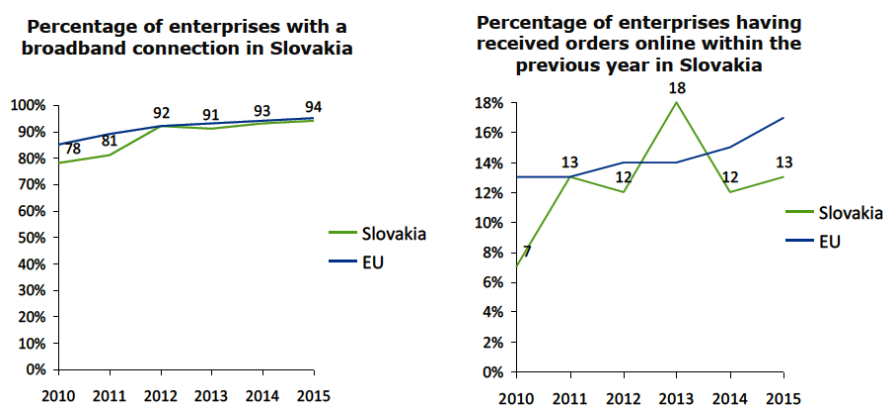
According to Spirakis, Spiraki and Nikolopoulos is electronic government the use of Information and Communication Technology in the transformation of government, primarily aiming to the improvement of accessibility, effectiveness and responsibility. It is based on the diffusion of the information and the information policy development. Electronic government guides to increasing citizens' participation and active citizens' development affecting the mechanisms of democracy.” (Spirakis et al., 2010)

We can conclude that the term e-Government describes the electronic handling of administration and democracy processes in the context of governmental activities by means of information and communication technologies to support public duties efficiently and effectively.

## 2. The importance of the Internet for e-Government

The business sector is affected by the Information and Communication Technology development, which was reflected in the new forms of business (B2B, B2C). Businesses through their innovation support the development of new technologies to keep existing and obtain new customers. Governments are forced to keep up with these innovations and progress and include them into their manifesto. Businesses want to be informed about what are government agencies and their employees doing. One of the appropriate media for the provision of this information is the Internet. Government web portals and sites can provide required information online and in real time. (Wirtz & Daiser, 2015)

Figure 1: Percentage of enterprises with a broadband connection and having received orders online within the previous year in the Slovak republic.



Source: (European Commission, 2016)

National agency for network and electronic services (NASES) is responsible for the increase of broadband Internet access. This aim was not successfully fulfilled from 2007 to 2013, because the implementer did not have sufficient capacity and the implementation process was more difficult than was expected. Construction of national and regional networks is scheduled for the period from 2014 to 2020. Regional networks constructed with state support have to be accessible for all potential operators. Fiber optic cables are now the most used construction technology, which offers unlimited capacity, high reliability and transmission quality. It is important to invest in support of demand for broadband connection to ensure long-term

sustainable solution e.g. through new electronic services provided by local government. (NASES, 2016)

TNS Slovakia realised a satisfaction survey of provided e-Government services in December 2014. In the survey participated 400 businesses from all Slovak regions. All of them are connected to the Internet, in 84% of them have all employees access to the Internet. 59% of businesses prefer electronic communication over the Internet. 45% of respondents communicate with public administration on a weekly basis. The most common used e-Government services were of health and social insurance contributions for employees, income tax returns and value added tax returns. (NASES, 2015)

## 2.1 ICTI Business Model of public administration web portal of the Slovak republic

Businesses can utilize a mailbox set up on the public administration portal [www.slovensko.sk](http://www.slovensko.sk) to communicate with the public administration institutions. The portal provides services for legal entities, too. Topics of offered services are divided into the following categories:

*Figure 2: Topics of offered e-Government services for businesses in the Slovak republic.*

<b>Administrative and economic operation of the business:</b>	<b>Commencement of a business:</b>	<b>Responsible business:</b>
<ul style="list-style-type: none"> <li>- value added tax,</li> <li>- corporate income tax,</li> <li>- local taxes and fees,</li> <li>- other taxes,</li> <li>- business expansion,</li> <li>- excise duty,</li> <li>- statistics, reporting and other reporting obligations,</li> <li>- accounting, and</li> <li>- public procurement.</li> </ul>	<ul style="list-style-type: none"> <li>- documents necessary for the commencement of business,</li> <li>- reporting obligations after the registration of business,</li> <li>- registration of legal persons, and</li> <li>- registration of trade.</li> </ul>	<ul style="list-style-type: none"> <li>- environmental permissions, sustainability and other dimensions,</li> <li>- use and protection of forest,</li> <li>- land use and conservation, and</li> <li>- use and protection of soils.</li> </ul>
<b>Business support:</b>	<b>Business:</b>	<b>Termination of business:</b>
<ul style="list-style-type: none"> <li>- subsidies,</li> <li>- other support, free access to information, in, archives, and</li> <li>- state aid.</li> </ul>	<ul style="list-style-type: none"> <li>- services – 41 individual + 4 information services,</li> <li>- fair competitive struggle, and</li> <li>- goods.</li> </ul>	<ul style="list-style-type: none"> <li>- bankruptcy and new start,</li> <li>- sale of a business, and</li> <li>- termination of business.</li> </ul>
<b>Intellectual property:</b>		
<ul style="list-style-type: none"> <li>- copyright, related rights and rights related to copyright.</li> </ul>		

Source: (NASES, 2016)

Business is redirected through the portal [www.slovensko.sk](http://www.slovensko.sk) to the financial administration of the Slovak Republic ([www.financnasprava.sk](http://www.financnasprava.sk)) in case of getting information about custom duties, charge, rate or making payment of taxes through the portal. If business wants to obtain information e.g. about Intellectual Property, he is forwarded to the Ministry of Justice of the Slovak Republic ([www.justice.gov.sk](http://www.justice.gov.sk)). For the use of e-Government service - operation of driving schools - customer is redirected to a single information system for road transport ([www.jiscd.sk](http://www.jiscd.sk)). To obtain information and use service e.g. authorizing the cutting of trees the customer is redirected to a specific page of the city where a cutting action is (eg. if Žilina - [www.e-sluzby.zilina.sk](http://www.e-sluzby.zilina.sk)). For information about exports is directed to the site of the Ministry of Economy of the Slovak republic ([www.portal.mhsr.sk](http://www.portal.mhsr.sk)). Electronic reporting of activities of self-employed farmer is only possible in Nitra, through the central portal the candidate is

redirected to the page of Nitra ([www.nitra.sk](http://www.nitra.sk)). Business can transfer payroll to social insurance fund electronically through the e-service social insurance ([www.esluzby.socpoist.sk](http://www.esluzby.socpoist.sk)). Statutory representative or executive who owns an electronic identity card (eID card) together with qualified electronic signature and reader can through the web portal of public administration fill out the forms, in which are due to the link with the register of individuals pre-populated with the current personal data of logged business executive. In August 2015 4,745,718 individuals, 704,281 legal entities and 6,031 public authorities had an electronic mailbox. (NASES, 2016)

We developed the following ICTI Business Model, based on the analysis of collected services for businesses, which are available on the web portal [www.slovensko.sk](http://www.slovensko.sk):

*Figure 3: ICTI Business Model of Central Public Administration Portal of the Slovak republic.*

ICTI Business Model	
Information Business Model	Communication Business Model
<ul style="list-style-type: none"> <li>- offer mandatory information about all services – for information about some services redirection to web portal of responsible agency</li> <li>- offer non-mandatory information: statistics, RSS feeds.</li> </ul>	<ul style="list-style-type: none"> <li>- offer dynamic communication: telephone support +421235803083 Monday to Friday from 8 to 18.00 p.m., connected with specially trained operators,</li> <li>- offer automated communication: users can sent comments, suggestions by electronic contact form, users can search information about individual services through the search engine located on the web portal.</li> </ul>
Transaction Business Model	Integration Business Model
<ul style="list-style-type: none"> <li>- offer partial online services: download of application and request forms through web portal</li> <li>- offer full online services: the Trade registry services, a single contact point services, the Companies register services, after redirection to web portal of the financial administration: submission of tax returns, fulfilment of financial obligations, which flow from the law (tax payments, court and administrative fees online).</li> </ul>	<ul style="list-style-type: none"> <li>- is underdeveloped.</li> </ul>

*Source: (Author)*

Currently it is possible to use e-Government services through the following web browsers: Internet Explorer, Mozilla Firefox, Google Chrome and Opera. A public authority may require to use a particular browser for some services, e.g. in selected services of trade registry, a single contact point, which require to sign an online form using qualified electronic signature. The condition for using these services is the use of the Internet Explorer browser (version 6.0 is the minimum required), whose experts do not consider as a safe one. According to them, the most vulnerable versions are 6 and 7. Even though the newer versions 10 was attacked by hackers and the version 9 is no longer considered as secure. Microsoft recommends switching to the latest version 11, which addressed deficiencies of version 10<sup>th</sup>. (NASES, 2016)

According to the Act no. 305/2013 the scope of power electronic form by public authorities and on amendments to some laws (Act on e-Government) are from August 1, 2016 automatically activated electronic mailboxes for delivery of all legal persons. In practise, this means that the electronic mailboxes of legal persons may be served official decisions in electronic form. Delivered the electronic decision to the mailbox has the same legal effect as documents in paper form. Access to the mailbox automatically has statutory representative or executive of a legal entity. Statutory representative or executive can log into mailbox by ID

card with an electronic chip and a personal security code, which can be equipped on the department of documents at the District Police Headquarters or in the contact centre of the Ministry of Interior. Without ID cards with activated chip cannot be content in the mailbox accessed and controlled. The mandatory activation of electronic mailboxes does not apply to individuals - businesses. (Národná rada SR, 2016)

## **2.2 Central electronic folder (CEF)**

CEF is the Slovak implementation of the international concept of Single Window - a single point for agendas of the foreign trade. CEF allows all stakeholders of international trade and transport give all standardised information and documents in a single entry point and thus meet all requirements related to the import, export and transit. CEF leads to cost savings through the implementation of electronic administration, time savings, reducing the administrative burden, providing accurate and relevant information, and contributes to transparent administration. (The Financial Directorate of the SR, 2016)

### **Functioning of the system can be divided into three phases:**

1. Data retrieval - providing information without the need of registration, directly through the portal CEF about conditions under which is possible to realise foreign trade transaction. After defining parameters (typical goods, countries, type of transport, quantity, expected date of completion, etc.) the system will evaluate and provide a comprehensive view of the conditions under which is feasible a foreign trade transaction. Based on the information the entrepreneur decides whether it is interesting for him to realize the transaction or not. If so, CEF will enable to him to obtain all the necessary licenses in one place.
2. Paperwork - CEF allows to obtain licenses and documents, and to facilitate a communication with the competent authority. Based on the results of information phase CEF provides for the business case a list of necessary licenses and makes an application for receiving them. (Financial Directorate of the SR, 2016)
3. Completion - enables to make a customs declaration by electronic means and with the relevant annexes required in the declaration. CEF also provides information about the status of licenses, the status of customs procedures for the exchange of information between the CEF and the customs information system.

User Interface of the CEF Information System, which represents the web portal, infodesk and workdesk traders and officers, is designed as a web application meeting accessibility standards. This application is built to be compatible with current versions of most prevalent browsers (Google Chrome, Mozilla Firefox, Internet Explorer), and there is no need to install additional applications on the client PC. It is required only to install tools for creating qualified electronic signature - QES. CEF enables exporters, importers and carriers a complete and comfortable fittings of necessary administration associated with the movement of goods, including quicker handling and placing of goods, helping to significantly reduce the costs arising from the delay in shipment. (Financial Directorate of the SR, 2016)

## **3. Conclusion**

Digitisation, globalisation, international connecting of individuals and businesses and movement from the industrial to the information, and then knowledge society are key reasons for the importance of e-Government. E-Government brings both financial and time savings for all stakeholders. Businesses can use electronic government services at any time, from any

location, but must be connected to the Internet. Public administration currently offers services to businesses from the seven categories, covering all possible situations that may arise in business.

ICTI Business Model has been outlined, based on the analysis of electronic services provided by public administration through the web portal [www.slovensko.sk](http://www.slovensko.sk). The analysis showed that the Integration Business Model has not been sufficiently developed yet. The integration model is essential for the development of e-Government, because stakeholders directly participate in the processes of design, construction, implementation and delivery of e-Government services. The building of an effective e-Government needs to meet the customers' needs and requirements. E-Government is not implemented only with the aim of customers to show interest in the use of electronic services, but also to improve customers' skills to use electronic services.

Central Electronic Folder brings benefits for businesses, too. CEF allows all stakeholders of international trade and transport to give all standardised information and documents in a single entry point and thus meet all requirements related to the import, export and transit. This single point provides time, financial savings, accurate and relevant information.

According to the Act on the e-Government (since August 2016) all legal entities have activated an electronic mailbox for electronic delivery of official documents. Businesses can receive official communications directly to electronic mailboxes whilst the electronic document has the same legal obligation as his old paper form.

The satisfaction of businesses with e-Government services is affected by the existence of the central web portal of public administration. It represents a single place providing all the necessary information about services. Therefore, should be e-Government projects focused on building of the central government portal and eliminating the current fragmentation of provided services between different public administration departments.

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## References

- [1] Dengov, V., V. and Gregová, E. (2015). Global experience in overcoming adverse selection in the insurance markets. *Globalization and its socio-economic consequences: 15th international scientific conference*. Rajecké Teplice, Slovak republic. pp. 102 – 109.
- [2] European Commission. (2016). *eGovernment in Slovakia*. [Online]. pp. 5. Available: [https://joinup.ec.europa.eu/sites/default/files/ckeditor\\_files/files/eGovernment%20in%20Slovakia%20-%20February2016\\_v1\\_00.pdf](https://joinup.ec.europa.eu/sites/default/files/ckeditor_files/files/eGovernment%20in%20Slovakia%20-%20February2016_v1_00.pdf)>
- [3] Financial Directorate of the SR. (2016). *Introduction to CEP Phases and Functions*. [Online] Available: <https://www.cep.financnasprava.sk/cep/portw/cep.ui.cms/eng/Businesses/IntroductiontoCEPPhasesandFunctions.aspx>
- [4] Heeks, R. (2005). *Implementing and Managing eGovernment: An International Text*. London, UK: Sage.

- [5] Chlebíková, D. and Bieliková, A. (2015). Business environment and measurement of competitiveness of Slovak republic. *Financial management of firms and financial institutions: 10th international scientific conference*. Ostrava, Czech Republic. pp. 422-428.
- [6] Jankalová, M. (2012). Business Excellence evaluation as the reaction on changes in global business environment. *Procedia – social and behavioural sciences*. vol. 62. pp. 1056-1060.
- [7] Klobučník, M. and Bačík, V. (2016). Local self-government structure in the EU member states in 2011. *Journal of Maps* Vol. 12, No. 4, pp. 671-675.
- [8] Kramárová, K. and Valášková, K. (2015). Globalization and transfer pricing: brief analysis of the legislation in the Slovak republic. *Globalization and its socio-economic consequences: 15th international scientific conference*. Rajecké Teplice, Slovak republic. pp. 353-361.
- [9] Križan, F. (2016). Transformation of retailing in post-communist Slovakia in the context of globalization. *E a M: Ekonomie a Management* Vol. 19, No. 1, pp. 148-164.
- [10] Kuchár, S. and Štofková, K. (2010). Elektronische Kommunikationsmärkte - ein bedeutender Faktor für die Entwicklung der Informationsgesellschaft. *Sächsische Fachtagung "Telekommunikationsanwendungen 20 Jahre Sächs-tel e.V."*, Dresden, pp. s. E1-E11.
- [11] Máliková, L. (2015). Socio-economic changes in the borderlands of the Visegrad Group (V4) countries. *Moravian Geographical Reports* Vol. 23, No. 2, pp. 26-37.
- [12] Mitková, Ľ. and Mariak, V. (2015). The first globalized generation – generation Y. *Globalization and Its Socio-Economic Consequences: International Scientific Conference [15th]*. Rajecké Teplice, Slovak republic. pp. 457-461.
- [13] Národná rada SR. (2016). *Zákon o elektronickej podobe výkonu pôsobnosti orgánov verejnej moci a o zmene a doplnení niektorých zákonov (o e-Governmente)*.
- [14] NASES (2015). Prieskum: Spokojnosť s vybranými e-službami verejnej správy 2014 – Business sektor. [Online]. pp. 9-11. Available: <http://www.informatizacia.sk/782-menu/20299s>
- [15] NASES. (2016). *Central Government Portal*. 2016. [Online]. Available: <https://www.slovensko.sk/en/title>
- [16] OECD (2003). *The e-Government imperative*. Paris, France. pp. 23-25. [Online]. Available: [http://www.keepeek.com/Digital-Asset-Management/oecd/governance/the-e-government-imperative\\_9789264101197-en#.V965S\\_mLTIU#page23](http://www.keepeek.com/Digital-Asset-Management/oecd/governance/the-e-government-imperative_9789264101197-en#.V965S_mLTIU#page23)
- [17] Remišová, A. and Búciiová, Z. (2012). Measuring corporate social responsibility towards employees. *Journal for East European Management Studies* Vol. 17, No. 3, pp. 273-291.
- [18] Silcock, R. (2001). What is E-government. *Parliamentary Affairs*, Vol. 54, No. 1, pp 88-101.
- [19] Spirakis, G., Spiraki Ch. and Nikolopoulos K. (2010). The impact of electronic government on democracy: e-democracy through e-participation. *Electronic Government, an International Journal* Vol. 7, No. 1, pp. 75–88.

- [20] Stríček, I., Štofková, K. and Keil, R. (2013). The development of market for electronic communications in the Slovak Republic. *Sächsische Fachtagung "Zukunftstechnologien zur Heimvernetzung"*. Dresden, pp. 311-314.
- [21] Šagát, V., Nemec, J. and Klimovský, D. (2015). What kind of control is delivered by regional self government in Slovakia. *Current Trends in Public Sector Research 2015: International Conference [19th]*. Šlapanice, Czech Republic. pp. 78-83.
- [22] Šoltés, V. et al. (2016). Education in information security. *Conference proceedings INTED 2016*. 10th international technology, education and development conference Valencia, IATED Academy, pp. 4418-4424.
- [23] Štofková, K. and Štofková, J. (2010). Implementation of the knowledge management as a competitive advantage. *2<sup>nd</sup> International conference on education and new learning technologies*. Barcelona, Spain. pp. 1323-1328.
- [24] Wirtz, B. W. and Daiser, P. (2015). *E-Government: Strategy process instruments*. 1. st ed. German University of Administrative Sciences, Germany: Speyer.

## SOME INDICATORS OF QUALITY OF LIFE IN A GLOBALIZED WORLD

Zuzana Štofková<sup>1,a,\*</sup>, Stanislav Štofko<sup>2,b</sup>

<sup>1</sup>University of Žilina, Faculty of Operation and Economics of Transport and Communications,  
Department of Economics, Univerzitná 8215/1, 010 26 Žilina, Slovak Republic

<sup>2</sup> University of Žilina, Faculty of Security Engineering, Department of Security Management,  
Univerzitná 8215/1, 010 26 Žilina, Slovak Republic

<sup>a</sup>Zuzana.Stofkova@fpedas.uniza.sk, <sup>b</sup>Stanislav.Stofko@fbi.uniza.sk,

\*Corresponding author

**Abstract.** Life quality assessment is defined by many indicators of quality of life. The perception of quality of life at the international, national and regional level is different. The overall objective and subjective qualitative aspects of human development affect the health, social, economic, and many other factors in globalized world. Lifestyle, values and trends in today's society tend to conversion. Quality of life is interpreted as a reaction to the problems of society, which must address the citizens and of course also the company. It is the identification of these problems, and also specification of possible solutions. An important boundary condition is the recognition of the importance of the natural balance in the relationship between people and their environment. Quality of life is a multidimensional phenomenon. It has a social, individual, material, spiritual and cultural dimension. Value orientation changes during the life society, depending on the socio-economic and political circumstances. Objective and subjective social indicators of quality of life include for example crime rates, feeling of security etc. It is not possible simply talk about quality of life, if not take into account such factors as the subjective understanding of criminality and safety. People feel especially threats of their personal safety and their property. With these threats, respectively criminality we meet daily. A survey of subjective perception of safety was performed. Several results of this survey conducted among the inhabitants point need of safety.

**Keywords:** Quality of life, safety, subjective indicator

**JEL Classification:** I32, C83, R10

### 1. Introduction

Kvalita života, ako aj stanovenie jednotlivých jej zložiek (indikátorov) je interdisciplinárnym problémom. Ide o oblasť, v ktorej sa prekrýva výskum z viacerých vedeckých odborov, ako sú sociológia, ekonómia, politológia, ekológia, demografia, filozofia, etika, psychológia a ktorého riešenie vyžaduje integrovanie a syntézu hľadísk rôznych vedných disciplín. (Andrasko, 2010A)

Kvalita života sa skúma na rôznych úrovniach – od hodnotenia životnej úrovne populácie v príslušnom štáte, cez porovnanie potrieb špecifických skupín obyvateľov, až po meranie individuálnej spokojnosti. Kvalita života skúma jednak objektívne podmienky života, ako napr. bývanie a dĺžku prežitého života, ale zahŕňa aj subjektívne vnímanie kvality života -pocit dobrého života a sebarealizácie, spokojnosť so životom. (Andrasko, 2010B)



Existuje niekoľko významných oblastí, ktoré bezprostredne ovplyvňujú kvalitu a udržateľnosť života. Ide o sociálnu súdržnosť, sociálny štát, trh práce a zamestnanosť, vzdelanie, štruktúru populácie, bývanie, rodinu, starostlivosť o zdravie, vonkajšiu a vnútornú bezpečnosť, ochranu životného prostredia a pod. (Corejova & Stofkova, 2007)

K základným potrebám občanov patrí ich istota a bezpečnosť. Občania chcú žiť v podmienkach bezpečného prostredia. Kriminalita sa stala súčasťou každej oblasti našej spoločnosti. Vývoj kriminality znepokojuje občanov, jej prejavy sú čoraz viac agresívnejšie a sofistikovanejšie. Narastá potreba zavedenia účinných opatrení na prevenciu proti kriminalite. Z tohto pohľadu je aj problematika bezpečnosti uvedená v texte pozornosť. (Soltes & Stofko, 2015)

## **2. Sociálno-ekonomický aspekt kvality života**

Kvalita života sa postupne stáva dôležitou východiskovou kategóriou sociálnej politiky a postupne aj ďalších oblastí spoločenského života. (Vyrost et al., 2007) Odkedy je možné vývoj kvality života analyzovať, je táto významným konceptom v medzinárodnom vývoji, presadzuje sa vo väčšej miere ako životný štandard (založený hlavne na príjmoch). Štandardné ukazovatele kvality života zahŕňajú nielen blahobyt a zamestnanosť, ale tiež životné prostredie, fyzické a mentálne zdravie, vzdelanie, oddych (rekreáciu), voľný čas a sociálnu príslušnosť. (Svobodová, 2008, Gajdoš & Ručinský, 2010)

Medzinárodné porovnávanie je dôležitým nástrojom pre zistenie reálnej pozície krajiny v určitom geopolitickom priestore a hľadania riešení pre žiaduce rozvojové trendy a stanovené ciele. Väčšmi využívanou metódou v medzinárodnom porovnávaní kvality života je Index ľudského rozvoja (HDI- Human Development Index). Ide o syntetický sociálno-ekonomický ukazovateľ. Od roku 1990 je skúmaná objektívna stránka kvality života vo vyše 150 krajinách sveta a podáva informácie o stupni vývoja spoločnosti (vyjadruje priemerný stupeň výkonnosti krajiny). Spája meranie priemernej očakávanej dĺžky života pri narodení, vzdelanie a životný štandard v snahe kvantitatívne vyjadriť možnosti dostupné jedincovi v rámci danej spoločnosti. (Worldbank) Podľa tohto indexu Slovenská republika zaujíma miesto približne v jednej šestine zo 182 hodnotených krajín sveta. Podľa uvedených správ Slovensko patrí medzi vyspelé krajiny sveta, ktoré svojim obyvateľom poskytujú relatívne dobré podmienky pre svoj rozvoj. Jeho kultúrny a sociálny potenciál je však omnoho vyšší, vzdelanie sa môže stať prostriedkom postupného zvyšovania kvality života.

Existujú rozdiely v teórii a v praxi, je škála kvantitatívnych metód merania, ktoré sa využívajú na vyjadrenie kvality života. (Majerník et al., 2016) Vyhodnocovanie úrovne kvality života, ako aj hľadanie vhodných merateľných ukazovateľov je určite dôležité, nie je však všeobecne uznávané. Situácia je spôsobená hlavne tým, že kvalita života v podstate sa dá vyjadrovať relatívne samostatnými spôsobmi, ako objektívna a subjektívna stránka.

## **3. Vývoj názorov na niektoré aspekty kvality života**

Životnú úroveň vyjadrujú predovšetkým materiálne a ekonomické podmienky ako prostriedky uspokojovania základných potrieb občanov. Vysoká miera uspokojovania týchto materiálnych potrieb ešte neznamená skutočnú kvalitu života. Americký ekonóm a sociológ J. K. Galbraith sa považuje za prvého autora, ktorý použil v roku 1958) pojem kvalita života. Následne v 60-tych rokoch a začiatkom 70-tych rokov vzniklo niekoľko koncepcií, ktoré sa zaoberali vzťahom medzi spôsobom života a kvalitou životného prostredia. Záujem sa

sústredoval na kvalitatívne aspekty životného štýlu, na odhalenie indikátorov kvality života. Kvalita života bola chápaná aj v subjektívnom zmysle ako spokojnosť jednotlivcov so životnými podmienkami. (Rapley, 2004)

Štúdia E. Dienera a E. Suha (1997) uvádzala tri základné záujmové oblasti skúmania ukazovateľov kvality života, zahŕňajúce kvantitatívne i kvalitatívne dáta:

- ekonomické indikátory, ktoré sledujú príjmové rozvrstvenie vo vnútri spoločnosti,
- sociálne indikátory zahŕňajúce otázku zdravia a zdravotníctva, kriminality, vzdelania a školstva a rôzne empiricky získané demografické ukazovatele,
- indikátory subjektívnej psychickej pohody (well being), ktoré sa vzťahujú k reakciám jednotlivcov na ich vlastný život. (Tokárová & Kredátus, 2002)

Názory na druh a počet indikátorov individuálnej kvality života (Individual Quality of Life) sa líšia. Všeobecne sa za základ hodnotenia považuje šesť ukazovateľov - fyzická pohoda, materiálna pohoda a kvalita medziľudských vzťahov, sociálne a občianske aktivity, osobnostný rozvoj, seberealizácia, rekreácia.

Definície kvality života majú spoločné, ale aj rozdielne znaky. Svetová zdravotnícka organizácia (WHO) definuje kvalitu života ako vymedzenie toho, „ako človek vníma svoje postavenie v živote v kontexte kultúry, v ktorej žije, a vo vzťahu k svojim cieľom, očakávaniam, životnému štýlu a záujmom“.

Nositel' Nobelovej ceny za ekonómiu Ámartya Sen hovoril o kvalite života ako o „dostupnosti možností, z ktorých si človek môže vybrať pri napĺňaní svojho života“. Vzhľadom na to, že rástol záujem o ukazovatele kvality života a regionálneho rozvoja s viacerými indikátormi, tieto sa používali v analýzach pri hodnotení úrovne regiónov a štrukturálnych programov regionálneho rozvoja. Ako združený ukazovateľ, bol používaný ukazovateľ RDI (Rural Development Index) na analýzu hlavných faktorov regionálneho rozvoja, a tiež na hodnotenie kohéznej politiky štrukturálnych programov na rôznych regionálnych úrovniach. (Michalek & Zernechow, 2007)

#### 4. Prístupy k meraniu kvality života

V priebehu osemdesiatych a deväťdesiatych rokov prebiehali diskusie o podstate kvality ľudského života a ako ju môžeme merať. Presné, spoľahlivé a teoreticky uspokojivé meranie kvality života zatiaľ neexistuje. Je to spôsobené hlavne tým, že meranie obsahuje dve relatívne samostatné pohľady - objektívne a subjektívne.

Existujú teoretické koncepty, ktoré sa snažia komplexne vystihnúť kvalitu života. Niektorí autori do modelov kvality života uvádzajú štyri, resp. šesť domén:

- oblasť zdravia: zahŕňa denné aktivity, zisťuje potrebu lekárskej asistencie, dostatok spánku, pracovnú kapacitu, celkovú mobilitu jedinca,
- psychologické aspekty: zisťujú mieru koncentrácie, pozitívnych emócií, negatívnych emócií, telesný vzhľad, spiritualitu, sebahodnotenie,
- sociálne vzťahy: osobné vzťahy, sexuálna aktivita, sociálna opora,
- faktory prostredia: finančné zdroje, podmienky bývania, doprava, dostupnosť služieb, bezpečnosť, možnosti voľno-časových aktivít. (Frankovsky et al., 2009)

Konštrukcia kvality života so šiestimi doménami:

- fyzické zdravie: energia a únava, bolesť a diskomfort, spánok a odpočinok,
- psychologická doména: telesný imidž a vzhľad, negatívne emócie, pozitívne emócie, sebaúcta, myslenie, učenie, pamäť a koncentrácia,
- úroveň nezávislosti: mobilita, každodenné aktivity, závislosť na liekoch a medicínskych pomôckach, pracovná kapacita,
- sociálne vzťahy: osobné vzťahy, sociálna podpora, sexuálna aktivita,
- prostredie: finančné zdroje, sloboda, fyzická bezpečnosť a istota, zdravie a sociálna starostlivosť, domáce prostredie, možnosti získať nové informácie a zručnosti, fyzikálne prostredie, doprava,
- spiritualita (náboženstvo) osobné presvedčenia: náboženské, spirituálne, osobné presvedčenia. (Fedakova & Jelenova, 2004)

Bezpečnosť predstavuje fenomén ovplyvňujúci kvalitu života človeka predovšetkým prostredníctvom pocitov strachu a osobnej bezpečnosti. (Betakova et al., 2014) Práve vysoká miera kriminality v mestách podnietila záujem o túto problematiku. V súčasnosti sa s ňou už pomerne bežne stretávame i na poli geografie, a to najmä v rámci získavania poznatkov o priestorovom rozmiestnení tzv. rizikových areálov, v ktorých sa kriminalita koncentruje, resp. vysvetlenia priestorových variácií v jej úrovni. Významný pokrok, ktorý geografický výskum v oblasti kriminality zaznamenal najmä v 90. rokoch bol predovšetkým výsledkom rozvoja možností digitalizácie dát a ich aplikácie v prostredí GIS. Problémom, s ktorým sa výskum kriminality stretáva od počiatku, je otázka dôveryhodnosti údajov, resp. miery, do akej tieto reprezentujú realitu. Napriek tomu, že väčšina výskumných prác využíva dáta z oficiálnych zdrojov (napr. policajné štatistiky), tieto veľmi pravdepodobne nepredstavujú úplný, s realitou zhodný súbor údajov. Tento fakt vyplýva najmä z toho, že nie všetky spáchané trestné činy sú ohlásené a teda ani oficiálne zaznamenané. Kriminalita tak má do istej miery konšpiratívny charakter (Michálek 2000).

## 5. Subjektívne hodnotenie kvality života

Vlastné hodnotenie života - táto kvalita sa vzťahuje ku subjektívnemu hodnoteniu života. Všeobecne je vyjadrená termínmi, ako sú subjektívny blahobyt („subjective wellbeing“), spokojnosť so životom („life-satisfaction“) a šťastie. Ako už bolo spomenuté, najčastejším nástrojom merania kvality života je kvalitatívny a kvantitatívny prieskum. (Stofkova et al. 2011)

Európska komisia organizovala prieskum subjektívneho vnímania kvality života v európskych krajinách EQLS („European Quality of Life Survey“), ktorého cieľom bolo zisťovanie úrovne kvality života a zisťovanie trendov v dosahovaní vyššej miery uspokojenia občanov. Európska spoločnosť sa v dôsledku globalizácie, starnutia obyvateľstva a presunu k znalostnej ekonomike rýchlo mení. Zmeny majú za následok pesimistickejší pohľad na život a vyššiu úroveň nespokojnosti, dokonca aj v prípade, keď ekonomické ukazovatele poukazujú na rast a všeobecné zlepšenie podmienok. Európska komisia spolupracuje s členskými štátmi tiež pri zbere štatistických údajov pre porovnanie európskych miest (na Slovensku v Bratislave a Košiciach). Výsledky prieskumov týkajúce sa rôznych aspektov života v mestách užitočne dopĺňajú inak získané kvantitatívne údaje.

Prieskum ukázal, že obyvatelia miest, ktorí boli zahrnutí do prieskumu sú spokojní s kvalitou a množstvom služieb, obzvlášť v oblasti dopravy, zdravotníctva a kultúrneho vyžitia. Úroveň a

kvalita verejných priestranstiev sa tiež stretli so všeobecnou spokojnosťou. Ďalej respondenti hodnotili ekonomickú situáciu, kde sa názory obyvateľov rôznili. Viac než polovica respondentov z miest priznala, že majú finančné problémy. Respondenti sa tiež vyjadrovali ku stupňu bezpečnosti v mestách, kde boli vyjadrenia väčšinou pozitívne (najviac v mestách severnej Európy). Taktiež sa posudzovala prítomnosť imigrantov v mestách, kde boli realizované hodnotenia. Respondenti identifikovali tri hlavné problémy v mestách, pričom uvádzali najviac nasledovné aspekty: zníženie nezamestnanosti, vytváranie nových pracovných miest, dostupnosť a kvalitu zdravotnej starostlivosti a dostupnosť a kvalitu vzdelávacích inštitúcií.

V Slovenskej republike bolo realizované meranie kvality života v rámci medzinárodného výskumu zameraného na hodnotenie subjektívne vnímanej kvality života s názvom Slovenský index kvality života (SIQZ). Dotazník sa skladal z pätnástich otázok. Prvá časť sa týkala spokojnosti s osobným životom, druhá časť spokojnosti so životom na Slovensku.

## 6. Regionálne indexy vývoja spokojnosti, resp. nespokojnosti obyvateľstva

Pre potreby sledovania spokojnosti obyvateľstva vo vybranom regióne je možné použiť dotazníkový prieskum na zisťovanie názorov širokej verejnosti. Takýto bol vykonaný pre regionálnu samosprávu, pre potreby rozhodovania. (Štofková, 2013)

### 6.1 Index celkovej spokojnosti obyvateľstva

Index slúži na sledovanie celkovej spokojnosti obyvateľstva ( $I_C$ ) vyhodnocovaného z ročného dotazníkového prieskumu. Princíp spočíva vo vypočítaní hodnoty indexu nasledovne:

$$I_C = \frac{\text{Celkový počet kladných odpovedí}}{\text{Celkový počet odpovedí}} \quad (1)$$

Celkový počet kladných odpovedí získame z realizovaného prieskumu, jednoduchým súčtom odpovedí „spokojný“ a „veľmi spokojný“. Celkový počet odpovedí predstavuje súčet odpovedí každého respondenta na každú oblasť výskumu. Pre potreby spresnenia a vylúčenia skreslenia indexu je potrebné od celkových odpovedí odpočítať odpovede „neviem posúdiť“. Tie je možné v prípade potreby posudzovať v individuálnom indexe, ale pre potreby zistenia celkovej spokojnosti sú nie sú relevantné. V spomínanom prieskume bolo položených 19 otázok a odpovedalo 455 respondentov a počet neurčitých odpovedí bol 788. Celkový počet odpovedí v daných dotazníkoch sa vypočítal ako počet otázok krát počet respondentov bez počtu neurčitých odpovedí, teda  $(19 * 455) - 788 = 7857$  odpovedí.

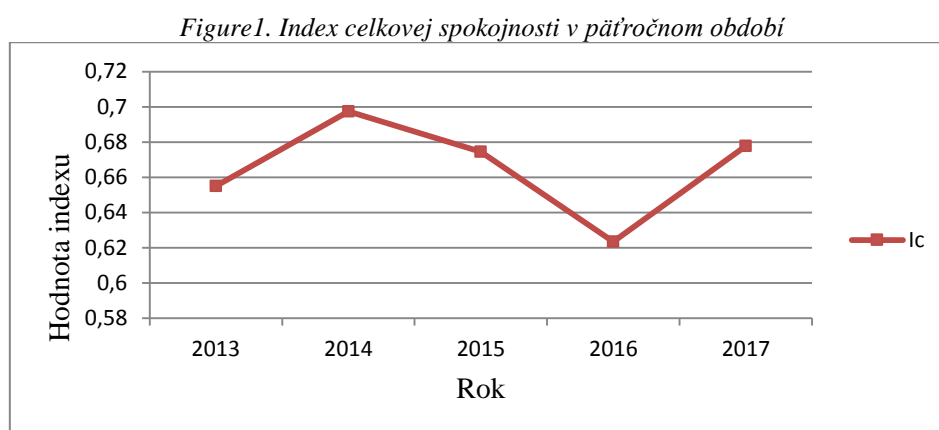
Ak vychádzame z toho, že v dotazníku bolo po prepočte celkovo 5147 kladných odpovedí, index celkovej spokojnosti sa vypočítal nasledovne:

$$I_C = \frac{\text{Celkový počet kladných odpovedí}}{\text{Celkový počet odpovedí}} = \frac{5147}{7857} = 0,65 \quad (2)$$

Pri prieskume bola zistená hodnota indexu celkovej spokojnosti 0,655084638, ktorá sama o sebe nemá vypovedaciu hodnotu. Jej význam by bol viditeľný až v časovom úseku viacerých prieskumov, kde by bolo možné sledovať jeho vývoj v jednotlivých rokoch. Z pravidla platí, že hodnota vyššia od počiatkovej hodnoty bude znamenať nárast celkovej spokojnosti, keďže narastie počet kladných odpovedí.

Zo simulácie na obrázku 1 vidieť teoretický príklad vývoja indexu za štyri roky s predpokladaným zlepšením spokojnosti v roku 2014, následným znížením spokojnosti v rokoch 2015, 2016 a opätovným zvýšením spokojnosti v roku 2017.

Z obrázku 1 je zrejmé, že primárnym cieľom samosprávy by malo byť zabezpečovanie rastúcej tendencie tohto indexu, až po priblížení sa k nereálnej hodnote, kedy by bol IC = 1 (úplná spokojnosť vo všetkých oblastiach).



Sourcej: vlastné spracovanie

V prípade potreby môže byť využitá aj inverzná hodnota daného indexu v podobe indexu celkovej nespokojnosti  $I_{CN}$ . Princíp výpočtu by ostal zachovaný, len s rozdielom, že do pomeru k celkovej početnosti odpovedí by sa uviedol počet záporných odpovedí, čiže súčet odpovedí „nespokojný“ a „veľmi nespokojný“.

$$I_{CN} = \frac{\text{Celkový počet záporných odpovedí}}{\text{Celkový počet odpovedí}} \quad (3)$$

Pri následnom grafickom vyjadrení, ako je uvedené v predošlom príklade, by bolo cieľom samosprávy dbať na zabezpečenie klesajúcej tendencie indexu nespokojnosti a to po hodnotu  $I_{CN} = 0$  (nulová nespokojnosť).

## 6.2 Index celkovej spokojnosti obyvateľstva

Pri stanovení indexu čiastkovej spokojnosti ( $I_n$ ) môže byť využitý rovnaký princíp, ako pri indexe celkovej spokojnosti. Rozdiel spočíva v tom, že index čiastkovej spokojnosti môže byť zameraný na jednotlivé oblasti prieskumu ( $n = \text{oblasť 1, oblasť 2} \dots i$ ) a tým ponúknuť detailnejší pohľad na vývoj spokojnosti v jednotlivých oblastiach. Tento index čiastkovej spokojnosti môžeme využiť aj v problematike pocitu bezpečia občanov.

Výpočet indexu je podobný ako v predchádzajúcej časti, s tým rozdielom, že nebudeme brať celkové početnosti odpovedí, ale len početnosti odpovedí v jednotlivých oblastiach výskumu. To znamená, že celkový počet odpovedí v jednej otázke bude rovný počtu respondentov očisteného od počtu respondentov, ktorí sa k danej otázke nevedeli vyjadriť. Počet kladných odpovedí bude opäť súčtom odpovedí „spokojný“ a „veľmi spokojný“ v danej otázke. Samotný výpočet potom bude nasledovný:

$$I_n = \frac{\text{Počet kladných odpovedí v otázke } n}{\text{Počet odpovedí v otázke } n} \quad (4)$$

kde:  $n$  - počet poradové označenie  $n$  - tej otázky.

Ak opäť zoberieme ako príklad dotazník, s počtom respondentov 455, neurčitých odpovedí v prvej otázke bolo 12 a počet kladných odpovedí 386, čiastkový index pre prvú otázku je počet odpovedí v otázke 1 = celkový počet respondentov – počet neurčitých odpovedí v otázke 1 = 455 – 12 = 443, potom:

$$I_1 = \frac{\text{Počet kladných odpovedí v otázke 1}}{\text{Počet odpovedí v otázke 1}} = \frac{386}{443} = 0,87 \quad (5)$$

Výpočtom bol získaný čiastkový index obdobne ako celkový index. Pre štatistické vyhodnotenie je vhodné vypočítať index pre každú otázku a tie následne porovnať v jednom obrázku. Indexy je možné tiež použiť inverzným spôsobom pre vyjadrenie nespokojnosti v jednotlivých otázkach, ako pri indexe celkovej nespokojnosti.

## 7. Conclusion

Kvalita života je viacrozmerný fenomén. Má rozmer spoločenský, individuálny, materiálny, duchovný a kultúrny. Hodnoty sú objektom záujmu človeka, sú základným motivačným impulzom pre jeho činnosť. Subjektívna stránka kvality života je chápané ako celkovú spokojnosť človeka so životom a vecami okolo nás. Subjektívnu stránku kvality života môžeme získať napr. pomocou dotazníkov. Výsledky prieskumov, resp. výskumov môžu pomôcť pri rozhodovaní rôznym aktérom v spoločnosti.

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## References

- [1] Andrasko, I. (2010 A). Urban-rural complementarity as an aspect of local and regional development. *Proceedings 13th International Colloquium on Regional Sciences*, Boretice, Czech Republic, pp. 268-274.
- [2] Andrasko, I. (2010 B). Quality of life and housing quality - theoretical aspects and example of housing stock quality evaluation. *Proceedings 13th International Colloquium on Regional Sciences*, Boretice, Czech Republic, pp. 300-306.
- [3] Betakova, J., Dvorsky, J. and Haviernikova, K. (2014). Social Capital and Safety Perception as Aspect of Improving Regional Competitiveness of Territory. *Proceedings 2nd International Conference on Management Innovation and Business Innovation (ICMIBI 2014)*, Bangkok, Vol. 44, pp. 68-73
- [4] Corejova, T. and Stofkova, K. (2007). Regional innovation systems and diagnostics environment. *Proceedings 5th Scientific International Conference on Hradec Economical Days Economic growth and development in the region 2007*, pp. 103-106.

- [5] Fedakova, D. and Jelenova, I. (2004). Correlates of social and emotional intelligence. *Studia Psychologica*, Vol. 46, pp. 291-295.
- [6] Frankovsky, M., Istvanikova, L. and Stefko, R. (2009). Strategies of behavior in demanding managerial work situations in social contexts. *Studia Psychologica*, Vol. 51, no 2-3, pp. 231-236.
- [7] Gajdoš, J. and Ručinský, R. (2010). *Kvalita života- vybrané problémy*. [Online]. EU PHF v Košiciach. [Online]. Available: <http://www3.ekf.tuke.sk/konfera2010>
- [8] Majernik, M., Daneshjo, N. and Repkova Stofkova, K. (2016). Modeling the process of business management systems control. In: *Communications: scientific letters of the University of Žilina*, Vol. 18, no. 2, s. 93-98.
- [9] Michálek, A. (2000). Vývoj a regionálna distribúcia kriminality na Slovensku. *Kriminalistika*, XXXIII. [www.mvcr.cz](http://www.mvcr.cz)
- [10] Michalek, J. and Zarnekow, N. (2012). Application of the Rural Development Index to Analysis of Rural Regions in Poland and Slovakia. *Social indicators research*, Vol. 105, Is:1, pp. 1-37
- [11] Rapley, M. (2004). Quality of Life Research. A Critical Introduction. [Online]. Available: [http://www.dnd.ca/crs/pdfs/qol\\_e.pdf](http://www.dnd.ca/crs/pdfs/qol_e.pdf)
- [12] Svobodová, N., (2008). Kvalita života. In: *Vliv změn světa práce na kvalitu života. Soudobá sociologie*. Praha: VŠE a ČAV. Available: [http://kvalitazivota.vubp.cz/prispevky/soudoba\\_sociologie\\_II\\_kvalita\\_zivota-svobodova.doc](http://kvalitazivota.vubp.cz/prispevky/soudoba_sociologie_II_kvalita_zivota-svobodova.doc)
- [13] Soltes, V. and Stofko, S. (2015). The impact of population movement on security in the age of globalization. In: *Globalization and its socio-economic consequences : 15th international scientific conference*, Proceedings, Part II, pp. 773-778.
- [14] Štofková, Z. (2013). *Návrh aplikácie ukazovateľov kvality života pre vyhodnocovanie plnenia programov hospodárskeho a sociálneho rozvoja v Slovenskej republike*. Žilina: Žilinská univerzita v Žiline, 195 s.
- [15] Stofkova, K. and Stofkova, J. (2011). Research of strategic management utilization for support of education activities and regional development. *EDULEARN 2011 Proceedings*, pp. 5036-5040.
- [16] Štofková, J., Madleňák, R. and Repková Štofková, K. (2015). *Business Management*. Bratislava: Dolis, 178 p. ISBN 978-80-970419-7-7
- [17] Tokárová, A. and Kredátus, J. (2002). *Kvalita života a ľudské práva v kontextoch sociálnej práce a vzdelávania dospelých*. Prešov: Prešovská univerzita, 66 p. ISBN 80-8068-088-4.
- [18] Vyrost, J., Kentos, M. and Fedakova, D. (2007). Value orientations as factors of social trust, political participation, and life satisfaction. *Studia Psychologica*, Vol. 49, No 4, pp 283-294
- [19] [www.worldbank.org](http://www.worldbank.org)

# PROPOSAL FOR OPTIMIZING THE TIMETABLES WITHIN TRAM SUBSYSTEM OF URBAN PUBLIC TRANSPORT FROM THE INTERNATIONAL CONCEPTION

Ondrej Stopka<sup>1,a\*</sup>, Rudolf Kampf<sup>1,b</sup>, Jan Lizbetin<sup>1,c</sup> and Martina Hlatka<sup>1,d</sup>

<sup>1</sup>The Institute of Technology and Business in Ceske Budejovice, Faculty of Technology, Okruzni  
517/10, 37001, Ceske Budejovice, Czech Republic

<sup>a</sup>stopka@mail.vstecb.cz, <sup>b</sup>kampf@mail.vstecb.cz, <sup>c</sup>lizbetin@mail.vstecb.cz,

<sup>d</sup>martina.hlatka@seznam.cz

\*Corresponding author

**Abstract.** Tram transport is a type of rail transport used within the urban public transport. At present, trams are usually equipped with the electric drive and electric current is drawn from the trolley line using the trolley booms. Unlike rail transport, tram transport is often built within the roads, carries only the passengers and has shorter distances among stops, lighter and shorter vehicles, and shorter transport intervals, etc. In some countries, it is common that tram and rail subsystems are interconnected. Tramways also include the fast trams which are operated in a slightly different way. For example, they are always conducted beside the roads to avoid the congestions, and are also used as a backbone transport mode. Fast tram is most common in the United States of America that were pioneer of a revolution in transport. This revolution represented a fundamental impulse for the globalization initiation in the world. This paper deals with the practical solution and proposals in context of optimizing the timetables within tram subsystem. At the beginning of the paper, individual advantages and disadvantages of tram subsystem from the global conception are presented. The following chapter outlines the theoretical basis regarding the quality evaluation of tram system. The most important part of the paper presents a specific model example to optimize using the heuristic algorithm to coordinate the tram subsystem lines. Undoubtedly, tram system may help to achieve better managing the growth in the transportation demands and impact of the globalization in passenger transport.

**Keywords:** optimization, timetable, tram subsystem, globalization, urban public transport

**JEL Classification:** L92, R42

## 1. Introduction

Tram subsystem has indisputable **advantages** which include the following ones (Jakimavicius & Burinskiene, 2013), (Rajsman et al., 2012): (1) electric current for the propulsion of the car can be generated from available energy resources, (2) in terms of environmental pollution caused by harmful emissions and carcinogenic soot, tram transport is environmentally friendly, (3) electric propulsion enables energy-optimal movement of the cars within the tram network: using efficient digital control and regulation of the propulsion, the possibility of recovering electrical energy back into the traction power network in the processes of regenerative braking etc., (4) energy savings on the traction – rolling resistance of e.g. the steel-wheel/ steel-rail combination is ten times smaller than that of the tyre / bituminous



carriageway combination, (5) with the proper design and construction of the rail track, the rails can be used in parallel with urban road transport, (6) long service life of rails and low costs of rail track maintenance, (7) metal wheels ensure reliability even in adverse weather conditions (rain, snow, icing), particularly in the case of nonadhesive rail track, (8) relatively easy maintenance of the shape of the metal wheels (wheelsets) without having to be calibrated.

However, the tram subsystem has a number of **disadvantages** which include (Jakimavicius & Burinskiene, 2013), (Melville & Minnery, 2015): (1) in order to ensure safe movement of trams within the routes of urban public transport, it is necessary to construct and maintain traction and rail network, (2) non-independent operation, (3) tram subsystem of urban public transport is more vulnerable, traction network especially in the central urban areas must be designed so that there is a real possibility of diversion, (4) compared to trolleybus subsystem, it is costly and time-consuming to construct tram lines, (5) low coefficient of adhesion makes this type of wheel arrangement unable to cope with major climbs so the transition to nonadhesive track is necessary, (6) due to the long braking distance (track brakes, interlocking plant), low coefficient of adhesion requires a high level of safety, (7) low adhesion requires installation of additional equipment in order to improve the acceleration and braking (Anti-Slip Regulation system of driving wheelsets, Anti-lock Braking System), (8) a high proportion of unsprung weight.

## 2. Tram subsystem quality evaluation

Due to the large number of variables affecting the quality and economics of urban public transport, it is not possible to require the maximum compliance with all indicators. There are rather complex links among the indicators. In a number of cases, the achievement of one indicator leads to deterioration of another indicator (Chen et al., 2016), (Geurs et al., 2006), (Kozachenko et al., 2016), (Krile et al., 2009), (Waillat, 2006).

As the optimal solution in terms of transport efficiency does not correspond to the optimal solution from the passengers' point of view, a compromise needs to be found there. The main problem in evaluating the transport solutions and various alternatives is that some of the social and economic phenomena of transportation cannot be expressed in monetary terms (Poliakova & Kubasakova, 2014). When evaluating, we could come to the conclusion that investing in the development of public transport focused on improving the quality cannot be covered from documented savings and that the investments are spent inefficiently. This occurs because at the beginning, the realization of majority of the requirements for improving the relocation increases the operating costs (Dicova & Ondrus, 2010), (Melville & Minnery, 2015), (Sienkiewicz & Holyst, 2005).

### **System of public transport may be evaluated from various perspectives:**

- From the passengers' point of view, the overall time spent travelling by the public transport vehicles,
- Safety in transportation,
- Time distance between the individual urban public transport stations and stops,
- Interstation distances within the urban public transport network,
- Maximum intervals on the urban public transport routes,
- Use of the normal capacity of the urban public transport vehicles,
- Regularity and reliability of the urban public transport services,
- Passengers' comfort during the transportation,

- Cruising speed within the urban public transport network (Gogolova & Bartosova, 2013), (Kicova & Jarina, 2014), (Kozachenko et al., 2016).

### 3. Optimization of the timetables

Optimization of the timetables involves striving for coordination of timetables so that it best satisfies passengers' needs for transportation. In this respect, two problems can be dealt with (Cenek et al., 1994), (Filak, 2009):

- Coordination of transport services (lines in general) on the shared segment of the route,
- Coordination of public transport lines within the transport network in order to ensure smooth interchange.

The quality criterion of individual timetables in the timetables is the overall travel time of all passengers per a given time unit. The shorter the travel time is, the more effective the solution needs to be considered.

Travel time includes the whole period of time that a passenger/element spends travelling within the transport network. This period could be divided into three parts (Bartuska et al., 2015), (Cenek et al., 1994), (Kliestik, 2013):

- Gathering of passengers at the bus stop,
- Getting on and off the public transport vehicle,
- In-vehicle time.

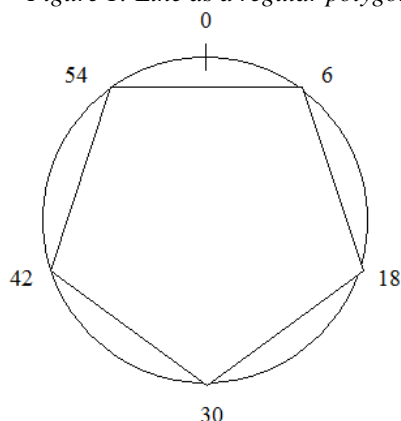
If the system of lines is considered fixed, by changing timetables and departure times, it is possible to influence only the time losses that arise when waiting for a tram in terms of all passengers gathered at the bus stop to get on one vehicle only (Bartuska et al., 2015), (Cejka et al., 2016), (Filak, 2009), (Kozachenko et al., 2016).

#### 3.1 Line as a regular polygon on the circle

An integer number  $c$  and a value  $d$  indicating chosen line (interval between the departures of consecutive trams). Also,  $c$  must be an integer multiple of  $d$ . The number of lines of given route running in the period  $c$  is calculated as  $m=c/d$ . The departures of these trams  $t_1, \dots, t_i, \dots, t_m$  are expressed as  $t_i = [u_0 + (i-1) \times d] \bmod c$ .  $u_0$  value indicates the departure time of the first tram, and it applies that  $0 \leq u_0 < c$  (Gnap et al., 2003), (Jakimavicius & Burinskiene, 2013), (Kozachenko et al., 2016).

The line thus described can be depicted on the circle with a  $c$  circumference as a regular  $m$ -polygon, where individual peaks represent departure times of individual vehicles. If  $m=1$ , the line is depicted as a single point on the circle. If  $m=5$ , the line is showed as a regular pentagon (see Figure 1).

Figure 1: Line as a regular polygon

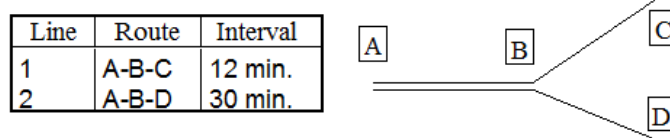


Source: Authors

### Shared segment:

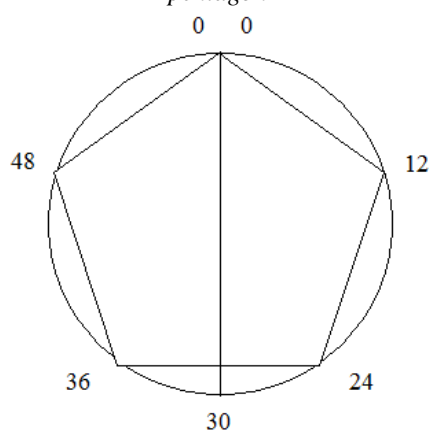
Shared segment is a section of network which is served by more than one line (Gnap et al., 2003), (Jakimavicius & Burinskiene, 2013). The case of two lines with their routes and intervals are showed in Figure 2 and 3.

Figure 2: Shared segment of network - two lines



Source: Authors

Figure 3: Shared segment of network in the case of two lines serving the section, depicted as a regular pentagon



Source: Authors

In this case, the shared segment is the A-B section. Again, the two lines can be depicted on the circle. The circumference of the circle must be equal to the common multiple of the intervals of both lines, which is, in this case, 60.

It can be seen in Fig. 2 that the departures of the individual trams in the given segment will be at the following points of time: 0, 0, 12, 24, 30, 36, 48, {60 (0)}. The interval between the departure times of the consecutive trams is: 0, 12, 12, 6, 6, 12, 12.

Coordinating lines in the shared segment means setting the departure times from the initial stop in the segment so as to complete the polygon representing the given segment as regular as possible depending on certain criterion (Gnap et al., 2003). As one of the possible criteria, it is possible to take the overall time losses of the passengers waiting for a tram, which is calculated as follows (Eq. 1):

$$z = \frac{q}{2} \sum_{i=1}^n (t_{i+1} - t_i)^2 \quad [\text{min}], \quad (1)$$

where:  $z$  - overall time losses of all passengers waiting for the tram [min],  $t_{i...n}$  - departure times in the shared segment [min],  $q$  - the volume of passengers waiting for the tram [min.].

It is evident that the arrangement of departures in the shared segment is not the most suitable one, since at the 0 time there are two simultaneous trams departing. The situation can be improved by rotating one polygon (change in  $u_{01}$  or  $u_{02}$ ) by chosen value. Any of the polygons may be turned. According to the [CEK], there are as many possibilities of rotating the polygon as the length of the shorter interval between two given lines. If for example  $u_{01}=2$  is chosen, the departures in the shared segment will be as follows: 0, 2, 14, 26, 30, 38, 50, {60 (0)}. The value of objective function will be as follows:

$$z = \frac{200}{2} \times [(2-0)^2 + (14-2)^2 + (26-14)^2 + (30-26)^2 + (38-30)^2 + (50-38)^2 + (60-50)^2] = 61600$$

The following part of the paper deals with the optimal solution to the aforementioned problem when using other criteria.

With regard to the broad variety of the lines coordination possibilities in the shared segments depending on selected criterion or the shape and complexity of the transport network, technical literature gives only general formulations and classification of the problems (Sienkiewicz & Holyst, 2005), (Tahmasseby & Van Nes, 2008).

### 3.2 Heuristic algorithm for coordination of lines in the shared segments of the network

The basic philosophy of the algorithm is to improve the current state by shifting the departure times (Cejka et al., 2016), (Cerny & Kluvanek, 1989), (Trpisovsky & Prusa, 2014).

**Initial information:** (see Table 1):

Table 1: Initial information within the heuristic algorithm for the lines coordination in the shared segments

$L_i$	Lines ( $i=1..N_L$ )
$H$	Set of all segments of the network
$c^j$	Period of the day ( $j=1..N_C$ )
$m_{ij}$	Number of trams running per a given period
$h_k$	Segment of network ( $k=1..N_H$ )
$w_k$	Weight of edge ( $k=1..N_H$ )
$L_K$	Number of lines serving the segment
$t'_{ijl}$	Departure times for a line in the given period ( $l=1..m_{ij}$ )
$t'_{ijlx}$	Departure times $t'_{ijl}$ in the $x$ -th segment
$\delta t'_{ijl}$ $\delta f_{ijl}$	Allowed deviations from departure times

Source: Authors

The aim is to find the initial departure times for all lines, periods and individual trams in the first segment  $ijl$  to minimize the value of the objective function  $f$ .

### Step 1:

Value assignment  $t_{ijl} = t'_{ijl}$ .

### Step 2:

Choose any set of departures  $T: T = \{ t'_{ijl} \}$ . The chosen set of trams must be of the same line. It is preferable for the trams to be from the same period (Cejka et al., 2016), (Cerny & Kluvanek, 1989, (Erlander, 1980).

### Step 3:

Given that all chosen trams are  $t'_{ijl} + \delta t'_{ijl} \leq t_{ijl} + I$ ,  $t_{ijl} = t_{ijl} + I$ , assignment is done. The conversion of the value of the objective function is performed. In case its value decreased, go back to step 2. If it is not the case, the  $t_{ijl}$  variable is assigned the original value (Bartuska et al., 2015), (Cejka et al., 2016), (Cerny & Kluvanek, 1989).

### Step 4:

If for all chosen trams applies that  $t'_{ijl} - \delta t'_{ijl} \geq t_{ijl} - I$ , then  $t_{ijl} = t_{ijl} - I$  assignment is done. The conversion of the value of the objective function is performed. If its value increased, step 2 is taken again. Otherwise,  $t_{ijl}$  variable is assigned its original value and step 2 is taken again.

The algorithm is ended if no lower value of the objective function can be found for any set of trams of the line (Bartuska et al., 2015), (Cerny & Kluvanek, 1989).

### Sub-algorithm- Criterion calculation:

For all  $k$  segments,  $m$  increasing sequence (Eq. 2) of the departure times of all trams of the line running/serving this segment in  $j$  period is assigned, where:

$$m = \sum_{i \in L_k} m_{ij} \quad [\text{min}], \quad (2)$$

The sequence is designated as  $T^k_j$ ;  $T^k_j = [t^k_{jl}]$ .

General criterion based on the criterion of the time loss of all passengers waiting for the tram (Eq. 3):

$$z = \sum_{k \in H} \left( w_k \times \sum_{j=1}^N \sum_{l=1}^m (t^k_{jl+1} - t^k_{jl})^2 \right) \quad [\text{min}], \quad (3)$$

or on the criterion of the minimal time interval between departure times of two consecutive trams (Eq. 4):

$$z = \sum_{k \in H} \left( w_k \times \sum_{j=1}^N \min_l (t^k_{jl+1} - t^k_{jl}) \right) \quad [\text{min}], \quad (4)$$

## 4. Conclusion

Urban public transport is characterized as an activity connected with a purposed relocation of people and specified material objects in anticipated volumes and determined temporal and spatial context using the appropriate means of transport and technologies (Geurs et al., 2006), (Kanis & Dolinayova, 2015), (Melville & Minnery, 2015), (Waillat, 2006).

The paper deals with the practical solutions in the context of optimizing the timetables within the tram subsystem (urban public transport) from the global conception. The most important

part is the example of using a heuristic algorithm for coordinating lines in the shared segments of the network.

Creation of work shift (time segments in timetables of various means of transport) is very complicated. Therefore, there are not any various approaches using simple heuristic algorithms. In most cases, hybrid genetic algorithms are used as methods for creating the optimal timetables. The information on creation of work shift using heuristic algorithms is hard to obtain, since most of the scientific publications on this topic have “commercial character“ and it is necessary to pay for it (Cerny & Kluvanek, 1989), (Dicova & Ondrus, 2010), (Tahmasseby & Van Nes, 2008).

Determining the appropriate type of timetables within the urban public transport could help to achieve better managing the growth in the transportation demands and impact of the globalization in passenger transport.

## References

- [1] Bartuska, L., Cejka, J. and Caha, Z. (2015) “The Application of Mathematical Methods to the Determination of Transport Flows”, *Nase More*, vol. 62, No. 3, pp. 91-96.
- [2] Cejka, J., Bartuskova, P. and Bartuska, L. (2016) Application of Mathematical Methods in Transport and Logistic Area. *Proceedings of the APLIMAT 2016 - 15th Conference on Applied Mathematics*. Bratislava, Slovak Republic, pp. 225-235.
- [3] Cenek, P., Klima, V. and Janacek, P. (1994). *The Optimization of Transport and Communication Processes*, 1st ed. Zilina, Slovak Republic: EDIS Publishing.
- [4] Cerny, J. and Kluvanek, P. (1989). *Fundamentals of Mathematical Theory of Transport*, 1st ed. Bratislava, Slovak Republic: Veda Bratislava.
- [5] Chen, X. Y., Liu, Z. Y. and Currie, G. (2016) “Optimizing Location and Capacity of Rail-Based Park-and-Ride Sites to Increase Public Transport Usage”, *Transportation Planning and Technology*, Vol. 39, Issue 5, pp. 507-526. DOI: 10.1080/03081060.2016.1174366.
- [6] Dicova, J. and Ondrus, J. (2010) “Development of Public Passenger Transport in Slovakia”, *Logi - Scientific Journal on Transport and Logistics*, vol. 1, No. 1, pp. 20-25.
- [7] Erlander, S. (1980). *Optimal Spatial Interaction and the Gravity Model*, 1st ed. Berlin, Germany: Springer, pp. 1-13.
- [8] Filak, J. (2009) Evolutionary Optimization of Tour Timetables. *Proceedings of the STUDENT EEICT 2009 - 15th International Conference*. Brno: Brno University of Technology, Czech Republic, pp. 240-242.
- [9] Geurs, K., Haaijer, R. and Van Wee, B. (2006) “Option Value of Public Transport: Methodology for Measurement and Case Study for Regional Rail Links in the Netherlands”, *Transport Reviews*, Vol. 26, Issue 5, pp. 613-643. DOI: 10.1080/01441640600655763.
- [10] Gnap, J., Cajchan, J. and Sulgan, M. (2003) “Measuring Methodology for Real Bus-Stop Distances of Mass Passenger Transport Lines”, *Communications*, Vol. 5, No. 3, pp. 8-9.
- [11] Gogolova, M. and Bartosova, V. (2013) “To Evaluate the Quality of Public Passenger Transport - Public Transport of Zilina”. *Ekonomicko-manazerske spektrum*, vol. 7, No. 1, pp. 65-69.

- [12] Jakimavicius, M. and Burinskiene, M. (2013) "Multiple Criteria Assessment of a New Tram Line Development Scenario in Vilnius City Public Transport System", *Transport*, Vol. 28, Issue 4, pp. 431-437. DOI: 10.3846/16484142.2013.869253.
- [13] Kanis, J. and Dolinayova, A. (2015) "The Possibility of Increasing the Efficiency of the Market Liberalization of Passenger Rail Transport in Slovak Republic", *Ekonomicko-manazerske spektrum*, vol. 9, No 1, pp. 26-33.
- [14] Kicova, E. and Jarina, L. (2014) "The Evaluation of Infrastructural Projects Focused on Quality Increasing in Public Personal Transportation", *Logi - Scientific Journal on Transport and Logistics*, vol. 5, No. 1, pp. 79-87.
- [15] Klietk, T. (2013) Optimization of Transport Routes Based on Graph Theory as a Part of Intelligent Transport Systems. *Proceedings of the Transport Means 2013 - 17th International Conference on Transport Means*. Kaunas, Lithuania, pp. 308-311.
- [16] Kozachenko, D., Vernigora, R., Balanov, V., Berezovy, N., Yelnikova, L. and Germanyuk, Y. (2016) "Evaluation of the Transition to the Organization of Freight Trains Traffic by the Schedule", *Transport Problems*, vol. 11, Issue 1, pp. 41-48. DOI: 10.20858/tp.2016.11.1.4.
- [17] Krile, S., Zagar, D. and Martinovic, G. (2009) "Better Bandwidth Utilization of Multiple Link Capacities with Mutual Traffic Correlation", *Technical Gazette*, vol. 16, No. 4, pp. 11-18.
- [18] Melville, E. and Minnery, J. (2015) "Public Transport, Urban Form and Urban Structure: The Example of Brisbane's Tram System", *Australian Planner*, Vol. 52, Issue 2, pp. 156-168. DOI: 10.1080/07293682.2014.957333.
- [19] Poliakov, B. and Kubasakova, I. (2014) "The Problematic Implementation of Integrated Transport Systems in Slovakia", *Autobusy: Technika, Eksploatacja, Systemy Transportowe*, Vol. 5, pp. 104-110.
- [20] Rajsman, M., Tolic, I. and Papic, M. (2012) "Development of Tram Transport System Modelling in the City of Zagreb", *Technical Gazette*, Vol. 19, Issue 4, pp. 965-971.
- [21] Sienkiewicz, J. and Holyst, J. A. (2005) Public Transport Systems in Poland: From Bialystok to Zielona Gora by Bus and Tram Using Universal Statistics of Complex Networks. *Proceedings of the 17th Marian Smoluchowski Symposium on Statistical Physics*, Zakopane, Poland, pp. 1771-1778.
- [22] Tahmasseby, S. and Van Nes, R. (2008) Impacts of Infrastructures on Reliability of Urban Rail Bound Public Transport Networks. *Proceedings of the 14th International Conference on Urban Transport and the Environment in the 21st Century*. Malta, vol. 101, pp. 185-194. DOI: 10.2495/UT080181.
- [23] Trpisovsky, M. and Prusa, P. (2014) "Regional Public Transportation Services Modelling", *Nase More*, vol. 61, No. 3-4, pp. 77-82.
- [24] Waillat, P. (2006) The Challenges of New Information Technologies Applied to Public Transport and Rail Operations. *Proceedings of the 12th International Conference on Urban Transport and the Environment in the 21st Century*. Prague, Czech Republic, vol. 89, pp. 713-721. DOI: 10.2495/UT060691.

# IMPACT OF GLOBALIZATION ON HUMAN RESOURCE MANAGEMENT IN THE INFORMATION AND COMMUNICATION SECTOR

Mariana Strenitzerová<sup>1,a,\*</sup>, Miriam Garbárová<sup>2,b</sup>

<sup>1</sup>University of Žilina, Faculty of Operation and Economics of Transport and Communications,  
Department of Communications, Univerzitná 8215/1, 010 26 Žilina, Slovakia

<sup>2</sup>University of Žilina, Faculty of Operation and Economics of Transport and Communications,  
Department of Communications, Univerzitná 8215/1, 010 26 Žilina, Slovakia

<sup>a</sup>mariana.strenitzerova@fpedas.uniza.sk, <sup>b</sup>miriam.garbarova@fpedas.uniza.sk

\*Corresponding author

**Abstract.** The impact of globalization and labour market development very closely relate to the human resource management and personnel policy of companies operating in information and communication (ICT) sector. The ICT sector is one of the most dynamic sectors in the European Union. It represents a significant proportion of gross domestic product and employment in the EU. Goods and services in ICT sector are important driver of productivity growth and economic efficiency in all sectors. For this sector are typical high level of entry qualification (academic education) and together a high level of maintained qualification, skills and knowledge, standards and norms. The information and communications sector is also characteristic by the most dynamic progress and changes (at the technological and legislative level). It follows that at this sector it should be put high emphasis especially to the human resource management and personnel policy. The paper deals with the development tendencies of personal area and human resource management in information and communication sector in Slovakia and abroad. The accent is mainly oriented to the using of new trends in recruiting of qualified personnel (e.g. interest of graduates in ICT sector, HR marketing), economic aspect of personal work (e. g. optimization of personnel costs, labor productivity, performance of employees, human resource controlling) and in applying the strategic management principles of human resource activities in ICT companies.

**Keywords:** information and communication sector, human resource management, human resource marketing, human resource controlling

**JEL Classification:** E24, M54

## 1. Globalization in the ICT sector

The issue of globalization affecting employment is frequently discussed topic. Foreign researchers, such as Potrafke (2010), Haipeter (2012) and Leggett (2013) addressed this issue in relation to changes in the labour market. Impact of globalization on employment and its structure in the conditions of Slovak Republic was examined by Javorčík and Kaminski (2004), Lesáková (2004), Juríčková & Stanek (2015), Hajdúchová & Giertliová (2015), Svetozárová & Cocul'ová (2015).

Globalization and labour market development are related to the human resource management and personnel policies of ICT companies. Managers are under continuous pressure to get in line



with the globalization process and to be flexible in relation to employees and general public. As the result, such changes are defined by many authors (Brožová, 2003; Dušková, 2005; Němcová & Marková, 2015) as changes which affect the character of the labour market and human resource management. These significant changes include: employment increase in services sector; growth of the strategic importance of human capital; risks and uncertainty associated with continuous changes; new forms of ICT; creation of competitive advantage at the markets on the basis of creativity, learning, adaptation and ability to transform knowledge into technical and technological innovations; increase in well-paid jobs and positions based on knowledge; flexibility of work.

The ICT sector is one of the most dynamic sectors in the European Union (EU). It represents a significant part of GDP and employment in the EU. ICT sector has a huge potential for economic growth and recovery of the industry after the depression. The European Strategy called Digital Agenda 2020 ascribes half share on the EU's economic growth to ICT in the last 15 years and it sees this sector as the main driving force of convalescence after the depression that is in compliance with the requirements for a long sustainable growth.

The ICT sector is characterized by the most dynamic progress and changes (at the technological and legislative level). In current turbulent environment, the ICT companies seek to the most efficient use of their resource, costs optimization and to identify factors that help them gain a competitive advantage. According to Vartiak (2016), large companies operating in the ICT sector, such as Cisco Systems, pay special attention to human resource in their annual reports, focusing on security, education and rewarding. For this sector, a high level of entry qualification (academic education) and a high level of maintained qualification, skills and knowledge, standards and norms, are typical. It follows that at this sector, an emphasis on the human resource management and the personnel policy should be put.

## **2. Analysis of the services sector “J – Information and communication” from the perspective of human resource management**

The tertiary sector, which includes all types of services (paid and unpaid) – trade, transport and communications, is the fastest growing sector of the national economy. Its main positive characteristics are low capital intensity, high rate of implementation of scientific and technological progress and high productivity growth. Section “J” is the branch of tertiary sector that in Slovak Republic employs 65,500 people (2015) and is still increasing; 10 largest ICT companies in Slovakia employ more than 1/3 of employees; the unemployment rate in the ICT sector is growing by 75.00 % slower than in other sectors; it achieves the highest total monthly labour costs per employee in comparison with other service sectors (2,368 €/employer/month); the average nominal monthly wage has increasing tendency and in the year 2015 amounted € 1,785 (Table 1).

The ICT sector is the sector with a high potential for human resource management, the highest unit labour costs and the highest average wage comparing with other sectors of the national economy. This is also evidenced by a continual increase of the number of employees. Nowadays, the companies operating in the ICT sector are very popular for potential employees and their demand is ever-rising. In following period it is still expected increase in sales, employment and average wages. The success of ICT companies depends specifically on the abilities and skills of their employees. Their quality is the result of the effective functioning of the process of human resource management with a focus on human resource development, strategic management and economic character of the work with human resource.

Table 1 Selected economic indicators by SK NACE Rev. 2

<b>J Information and Communication</b>			
<b>Indicator</b>	<b>Measure</b>	<b>2014</b>	<b>2015</b>
Turnover – indices	Percentage	103.3	106.0
Average registered number of employed persons	Thousands persons	56.6	65.5
Job vacancies	Quantity	152	–
Job vacancy rate	Percentage	0.3	–
Indices of employment	Percentage	108.8	102.9
Monthly labour costs	€/emp./month	2,368	–
Average monthly wages	€	1,742	1,785
Indices of average nominal monthly wages	Percentage	98.9	102.4
Indices of real monthly wages	Percentage	99.0	102.7

Source: Authors according to [slovak.statistics.sk](http://slovak.statistics.sk)

## 2.1 Labour market analysis in the ICT sector

Impact of the economic crisis on the global labour market is highly accelerated regrouping of labour power needs in the ICT sector (Klimko & Rievajová, 2015). It can be expected that in the medium-term horizon, it comes to further job growth, particularly in some areas. For example, technological progress contributes for creation of working places in the ICT sector.

The survey of recruitment agency Grafton Recruitment (Ježek, 2016) confirmed that the labour market offers plenty of vacancies for ICT professionals, whereas the ICT sector is missing 20,000 ICT professionals. The greatest demand is for moderately experienced professionals with 2-3 years experience, the most desirable are developers and analysts, as well as consultants and the ICT systems administrators (e.g. Java programmer, C++ programmer, PLC programmer, software tester, NET developer, C ++ developer).

ICT companies also deal with qualification incongruity, when universities respond to the labour market trends slowly and the level of technical knowledge is declining. The most required skills of ICT professionals are programming and application development, helpdesk and technical support, security and compliance with requirements, web development, database administration, business intelligence and analytics, mobile applications and tools administration, networks, big data. Apart from the expertise, the employers put emphasis on other skills such as project management, process analysis and testing. However, university graduates represent mostly training costs for employers.

## 3. HR marketing of ICT companies

Nowadays, in the era of globalization, companies cope with the so-called hyper competition, whilst it causes a fight for highly qualified human resource. ICT companies, in an effort to differentiate them and act interesting, can gain a competitive advantage just by application of HR marketing. It serves to searching and recruiting a quality human capital and for its stabilization. ICT companies rival also of those candidates who meet the primal requirements only partially. Recent graduates receive greater opportunity, too. Active HR marketing of ICT companies uses many tools, for example analysis of the recruitment strategy of competitive ICT companies, headhunting, researches of decision-making criteria of target group of candidates, social-studies (BigData), employer value proposition, campus management and so on. More successful are those ICT companies that bet on the active and quick action in connection with the supply of attractive working conditions. These are not just an attractive salary, but also the working environment, work on interesting projects and career opportunities and education. ICT companies accede to benefits modification. For example, they increase the pension and life-

insurance contribution, the number of holiday days, they implement fully covered meals contribution, they allow flexible working hours or partial home office, and they provide language courses. Language skills can affect the pay assessment and are important especially in multinational ICT companies (Copuš, 2015)

Consulting firm PricewaterhouseCoopers elaborated a study in field of remuneration and benefits in the ICT sector. The ICT sector is traditionally rank among the first places in employee remuneration and providing benefits. The study results of remuneration and providing benefits show that: 76.00 % of ICT companies reevaluate the salaries once a year, the others reevaluate irregularly; employees have above-standard medical care (more than 40.00 % of ICT companies); the employee benefits include extra holidays; the above-standard education belongs among other benefits (43.50 % of ICT companies) – language training and professional certificates; reimbursement of mobile phone bills (55.00 % of ICT companies); employees receive insurance contributions (43.00 % of ICT companies) and social, cultural and sport events are reimbursed by the ICT companies (68.00 % of ICT companies).

### **3.1 Headhunting in the ICT sector**

For the ICT sector it is characteristic that almost 20.00 % of jobs is occupied by people who do not seek a new job currently. Recruiters and head-hunters have to seek and reach out those people actively, most often through online channels, such as social networks LinkedIn and Facebook. Recruitment agency Grafton Recruitment identifies about 15.00 % of ICT professionals placed just through the LinkedIn network and it estimates that during the year 2016 it will be a 100 % increase in the number of jobseekers placed by this network. It is necessary to know how to enchain this type of candidates, whether by offered work, quick negotiation, or financial conditions. Addressed candidates are more open to deal, they are more flexible and they have a greater tendency to compare their current working conditions with new job opportunities, they are usually more experienced and skilled, and therefore they have a higher value at the labour market (Ježek, 2016)

### **3.2 Campus management in the ICT sector**

Slovak government in the field of employment sets the key role: to reduce high unemployment – especially young people, mainly graduates. According to the working paper from the European Commission "Country Report Slovakia 2015" (European Commission, 2015), unemployment of young people in Slovakia declined slightly to 28.90 %, but it is still one of the highest unemployment in the EU (Béřešová, 2015).

The young generation of employees, called Generation Y (Millennials, the Net Generation, iGeneration), stands at the start of their careers and enters to the labour market. In 2025 this generation will be present about 75.00 % of the global workforce (Horváthová & Čopíková, 2015). It is necessary for ICT companies to be able to utilize the potential offered by the generation Y. For example in recruitment, selection and intake of young employees, in addition to traditional and approved approach (cooperation with universities, participation in student fairs), ICT companies should make greater use of modern technologies that are close to representative of Generation Y and young people are used to work with them normally. It is concerned using of social media (LinkedIn, Google+, Vidao, Xing, Facebook), video-visiting card, video-questionnaire, online assessment centre, online psychodiagnostics and so on. It is also appropriate that ICT companies should have a current offer of job vacancies published on their web sites or career portals and they should use information systems of universities or faculties. It is popular to recruit future employees through various business games taking place

over the Internet, too. ICT companies should pay more attention to applicant's personality and his incorporation into the culture of the company and into the team during interview.

For ICT sector it is typical that the employers have the high interest of graduates. It is due to the lack of skilled ICT specialists with experience in the labour market. Although, sometimes university graduates represent increase training costs for employers, ICT companies often cooperate with universities in recruitment of potential employees from the students. For several consecutive years, the employers have the highest interest of the graduates from the Faculty of Informatics and Information Technologies, Slovak Technical University in Bratislava. At average ten different employers look over the curriculum vitae of its graduate. Follow up the Faculty of Electrical Engineering and Computer Science (Informatics), the Technical University in Košice and the same faculty at the Slovak Technical University.

### **3.3 Flexibility of work in the ICT sector**

In connection with the global development and globalization trends, it changes the basic economic activity – work. The flexibility still asserts in the world (Němcová & Marková, 2015). Whereas the ICT sector records the greatest labour shortage, ICT companies try to improve working conditions, so in financial assessment, as well as non-financial benefits (e.g. flexibility of work and working time).

In last decade, many European countries observed a growing trend of using flexible forms of employment and organization of working time. For the EU countries, the more flexible labour markets are one of the key objectives on the national and international level within the European Employment Strategy, and by Deloitte (2015) it can be see the significant demand for flexibility of work hours. While abroad, the flexibility of work are standard, in Slovakia they occur less. Research of consulting firm Deloitte in 2015 has shown that flexibility at the workplace has six times more influence to labour turnover mitigation as a rise in salary. So with this small change, the company can get more satisfied and loyal employees whose efficiency increases and who are beneficial for company.

Creating variable forms of work and work hours modification in terms of its increased flexibility are also desirable in the ICT sector. Among ICT companies, the most practised are: flexible working time, variable work hours/ sliding labour time, compressed/ condensed workweek, part-time job, working time accounts/ bank of working hours, homeworking and teleworking.

## **4. Strategic human resource management in ICT companies**

ICT companies aware that they obtain quality employees in the labour market very difficult or they have to spend considerable financial resource on their development and education. This has led ICT companies to manage human resource not only at the operational level but also at the strategic level – and deal with a number of strategic questions: What demands will be required to employees of ICT companies in the future? What knowledge, skills and attitudes will employees need to absorb? What new needs and demands will appear in the employees of ICT companies? To which commercial offers will employees of ICT companies face in the labour market? How ICT company retain quality employees? What will motivate employees of ICT companies to achieve the required performance? What styles of leadership and management will bring the highest efficiency of employees of ICT companies?

Strategic human resource management enables ICT companies to harmonize corporate strategy with personnel objectives (Kollár & Rebeták, 2015), (Poniščiaková & Gogolová, 2015). Strategic fields, to which ICT companies pay exceptional attention, relate to effective recruitment and selection of employees, for which they use modern tools of HR marketing, effective education and staff development (development of programming skills, career development), employee motivation, flexibility of work, financial results of personnel work, innovation (e.g. innovation management, talent management). The knowledge is important human capital for expansion into global market as well as for exchanging experience in the intercultural environment (Čorejová & Al Kassiri, 2015).

#### **4.1 Application of personnel controlling as an instrument of strategic management in ICT companies**

It is necessary to pay proper attention to the economic aspects of personnel work in the strategic management of human resource. Optimization of personal costs, monitoring of labour productivity and efficiency of individual employees, investment return to human capital are the main areas that a personnel controlling goes into. Implementation of personnel controlling in ICT companies has cardinal importance. It represents a strategic tool of human resource management, which results mainly make felt in the long term period. Its merit is the personnel objective setting, information gaining about planned and actual levels of personnel processes, deviations detection of reality from plan using a variety of quantitative and qualitative personnel indicators, their analysis and measures design to eliminate inadequacies in human resource management (Olexová, 2011).

Appropriate instruments selection of personnel controlling and individual personnel indicators setting is not a simple process. Their structure, frequency of monitoring and level evaluation depends on the size of the ICT company, its organizational structure and number of employees. During personnel controlling implementation, it is necessary to lay stress also on the definition of competencies and access privileges of staff participated in personnel controlling and also on the adaptation of personnel information system to personnel controlling conditions.

### **5. Conclusion**

The ICT sector is an important pillar of the economy. However, according to the Association of ICT Slovakia, it is unappreciated and neglected by the government in Slovakia. The ICT sector has a significant and ever-rising influence on the economy and employment therefore it should be among the priorities of the government program. In a global view and from the perspective of the ICT sector, Slovakia's competitiveness is reduced by some of the problem areas. Europe lack from professional ICT skills and digital literacy increasingly, what causes that to year 2015 professional users, who should fill 700,000 jobs in the ICT area, were missing. (Digital Agenda 2020). In consequence, Digital Agenda 2020 has set out seven priority areas, where the 6<sup>th</sup> priority relates on increases in digital literacy, digital skills and person inclusion improvement. ICT development does not mean only alignment of public finance into the sector but also an extensive change in mind of public machinery. This change builds mostly on the concept of e-government, on the application of modern principles of personnel activities of ICT companies, as well as on the technical study program encouragement aimed at ICT at the universities.

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## References

- [1] Bérešová, G. (2015) Employment Policy of the European Union and the Slovak Republic. *Proceedings of the 15th International Scientific Conference of Globalization and its Socio-economic Consequences*. Rajecské Teplice, Slovak Republic. pp. 19-26.
- [2] Copuš, L. (2015) Influence of Selected HR Competencies on the Performance of Organizations (Comparison of Indian and European Organizations). *Proceedings of the 15th International Scientific Conference of Globalization and its Socio-economic Consequences*. Rajecské Teplice, Slovak Republic. pp. 94-101.
- [3] Čorejová, T. and Al Kassiri, M. (2015) The Power of Knowledge-Intensive Services. *Proceedings of the 4th International Conference on Social Sciences and Society (ICSSS 2015)*. Paris, France. pp. 354-357
- [4] DELOITTE (2015): Global Human Capital Trends 2015. Leading in the new world of work. Deloitte University Press, [Online] 112(2) pp. 43-44 Available: <http://www2.deloitte.com/content/dam/Deloitte/at/Documents/human-capital/hc-trends-2015.pdf>
- [5] Hajdúchová, I. and Giertliová, B. (2015) The impact of Globalization on the Employment development in the SR. *Proceedings of the 15th International Scientific Conference of Globalization and its Socio-economic Consequences*. Rajecské Teplice, Slovak Republic. pp. 171-180.
- [6] Horváthová, P. and Čopíková, A. (2015) Generation Y and Its Impact on the Performance of Personnel Activities. *Proceedings of the 15th International Scientific Conference of Globalization and its Socio-economic Consequences*. Rajecské Teplice, Slovak Republic. pp. 217-223.
- [7] Prieskum personálnej agentúry Grafton Recruitment (Ježek, 2016) [Online] Available: <https://www.grafton.cz/o-nas/medialni-zona/tiskove-zpravy/pruzkum-grafton-studujte-technicke-obory-a-ucte-se-jazyky>
- [8] Päť najvyhládavanejších pozícií v slovenskom a českom IT. [Online] Available: <https://www.grafton.sk/blog/2016/07/pat-najvyhladavanejsich-pozicii-v-slovenskom-a-ceskom-it>
- [9] Klimko, R. and Rievajová, E. (2015) Trends in the Labour Markets of the European Union. *Proceedings of the 15th International Scientific Conference of Globalization and its Socio-economic Consequences*. Rajecské Teplice, Slovak Republic. pp. 297-302.
- [10] Kollár, B. and Rebeťák, M. (2015) Development of Employees as a Tool of Increasing Corporate Performance. *Proceedings of the 15th International Scientific Conference of*

- Globalization and its Socio-economic Consequences*. Rajecské Teplice, Slovak Republic. pp. 308-311.
- [11] Němcová, I. and Marková, H. (2015) Flexible Work Arrangements as a Part of Globalized World. *Proceedings of the 15th International Scientific Conference of Globalization and its Socio-economic Consequences*. Rajecské Teplice, Slovak Republic. pp. 485-497.
- [12] Olexová, C. (2011) Nástroje personálneho controllingu. *Scientific papers of the University Pardubice*, vol. 20, pp. 114-125
- [13] Poniščiaková, O. and Gogolová, M. (2015) Exploiting the Potential and Possibilities of Conscious Human Resource Management in the Process of Globalization. *Proceedings of the 15th International Scientific Conference of Globalization and its Socio-economic Consequences*. Rajecské Teplice, Slovak Republic. pp. 597-603.
- [14] PayWell. 2016 - Prehľad komplexných platových údajov a zamestnaneckých výhod na Slovensku. [Online] Available: <http://www.pwc.com/sk/sk/poradenstvo-ludske-zdroje/paywell.html>
- [15] Rebríček vysokých škôl na Slovensku. Akých absolventov vyhľadávajú zamestnávateľia? [Online] Available: <http://www.profesia.sk/cms/newsletter/jun-2016/rebricek-vysokych-skol-na-slovensku-akych-absolventov-vyhladavaju-zamestnavatelia/45135?detail=1>
- [16] Svetozárová, N. and Cocul'ová, J. (2015) Analysis of Employees Performance Evaluation in the Stage of Globalization. *Proceedings of the 15th International Scientific Conference of Globalization and its Socio-economic Consequences*. Rajecské Teplice, Slovak Republic. pp. 731-736.
- [17] Vartiak, L. (2016). CSR reporting of companies on a global scale. *Procedia Economics and Finance*, Vol. 39, pp. 176-183.
- [18] Význam IKT sektora pre Slovensko (2011). IT Asociácia Slovenska. [Online] 52(2). pp. 4-5. Available: <http://www.itas.sk/sites/default/files/docs/vyznam%20ikt%20pre%20slovensko.pdf>

## NEW INTANGIBLE ASSETS DERIVED FROM GOODWILL – GLOBALIZATION OF POLISH ENTITIES' ACCOUNTING PRACTICE

Marzena Strojek-Filus<sup>1,a</sup>, Ewa Wanda Maruszewska<sup>2,b,\*</sup>

<sup>1</sup>Department of Accounting, University of Economics in Katowice, ul. 1 Maja 50, 40-287 Katowice,  
Poland

<sup>2</sup>Department of International Accounting, University of Economics in Katowice, ul. 1 Maja 50,  
Katowice, Poland

<sup>a</sup>marzena.strojek@ue.katowice.pl, <sup>b</sup>ewa.maruszewska@ue.katowice.pl

\*Corresponding author

**Abstract.** Goodwill is a complex construct presented in statement of financial position as a consequence of acquisition or consolidation procedure. Based on the International Financial Reporting Standard No. 3 “Business combinations” it is presented in financial report as an excess of purchase price over fair value of net assets acquired. Separate from goodwill, the acquirer recognizes research and development assets acquired in a business combination and other intangible assets that meet either the separability criterion or the contractual-legal criterion. Following the above, goodwill disclosed in financial report shall subsume the value of acquired intangible asset that is not identifiable as of the acquisition date. The aim of the article is to identify different assets derived from goodwill disclosed in financial reports prepared by entities doing business in Poland. Literature review concerning economic substance of goodwill precedes the empirical part of the article. A study was carried out on the financial data of one of the biggest company doing business in media sector in Poland. The main research method was analysis of information presented in financial reports prepared in accordance with International Financial Reporting Standards. As a result of the study authors show that new intangible assets have been disclosed for the last 10 years. Findings show that Polish entities are also incorporated into global financial reporting trends.

**Keywords:** intangible assets, accounting for business combinations, consolidation, goodwill.

**JEL Classification:** G32, G34, M41

### 1. Introduction

In a business combination under IFRS 3<sup>15</sup>, the acquiring company recognizes the entirety of intangible assets acquired, including assets that were not disclosed in the statement of financial position of the acquiree. Intangible assets are to be either disclosed separately in the group of intangibles or should be presented under the aggregate asset called “goodwill”. The disclosure of goodwill is a consequence of consolidation procedure (consolidation goodwill) or legal merger of companies (non-consolidation procedure). Goodwill (consolidation and non-consolidation goodwill; hereafter: goodwill) is a complex economic construct disclosed in the statement of financial position in the group of intangibles, and it represents future economic

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<sup>15</sup> IFRS 3 – International Financial Reporting Standard No 3 „Business Combinations“. IFRS Foundation.



benefits acquired along with other net assets of merged entity. These future economic benefits are a collection of various individual components that should be described separately for each acquired entity, i.e. core deposit relationship in banks (Morgan, 1991), customer relations that are in the center of marketing (Gupta & Lehmann, 2003; Dennis-Escofier & Munter, 1994; ter Braak et al., 2013) and management sciences research (Cassel et al., 2000; Nair & Narasimhan, 2006), long-term contract commitments, and brands (Sinclair & Keller, 2014) or observable reputation trading (Hakenes & Peitz, 2007). Furthermore, numerous features characterize future benefits expected by the acquirer, i.e. possibility of precise description of future benefits, time of benefits occurrence, and estimations done in the valuation procedure. Therefore, goodwill disclosure in financial reports requires theoretical background, high practical competences, and thorough knowledge of business model and business operations at the same time. Goodwill should consist of the above-mentioned items only if they are inseparable from other assets or the entity as a whole. On the other hand, goodwill cannot serve as a “catch-all” category for all intangibles as it results in understating of other items in assets, overstatement of the total assets value in the years following the business combinations, as well as in the underrating the amortization in the following accounting periods. Actual separation from goodwill and going concern value occurs then intangibles are transferred from acquiree to acquirer and expected future value is observed. Separable identifiability of intangibles together with faithful valuation are key issues when disclosing new intangibles as a consequence of business combination. The aim of the article is to identify different types of intangible assets derived from goodwill and disclosed separately in financial reports during the last 10 years.

## **2. Recognition of intangible assets separated from goodwill**

As a part of business combination accounting the acquirer is required to allocate the purchase price to the tangible and identifiable intangible assets and liabilities acquired. By cause of the valuation of assets, and particularly intangibles, based on fair value measurement, acquirer has significant discretion as to how to allocate the purchase price. On one hand, fair value is considered nowadays as the best measurement method that enables to capture wide range of economic aspects of business transactions. On the other hand, fair value – because of its complexness – is a subject of recent criticism as the most controversial method in modern accounting (Veron, 2008) mainly due to numerous estimates engaged in the valuation procedure and non-financial performance indicators used in managerial performance assumptions. Previous studies show that managers use the discretion in order to under or over allocate the purchase price to goodwill (Bugeja & Loyeung, 2015).

Besides the ambiguity of fair value regulations underlying the measurement procedure, identifiability is another crucial issue of intangibles classified by the acquirer. An intangible asset is identifiable if it meets either the contractual legal criterion or separability criterion. An intangible asset meets the contractual legal criterion if it arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights and obligations. An intangible asset is separable if it is capable of being separated or divided from the entity and sold, transferred, licensed etc., either individually or together with related contract, identifiable asset or liability, regardless of whether the entity intends to do so. Only identifiable assets are subject to recognition at the day of acquisition. The following categories of identifiable intangible assets can be derived apart from goodwill:

- customer-base intangible assets, i.e. customer lists, contract commitments;
- marketing related intangible assets, i.e. trademark, internet domain, brands;

- technology based intangible assets, i.e. patented technologies, computer software, research and development projects, trade secrets, and technology patents;
- contract related intangible assets, i.e. advertising contracts, construction permits, employment contracts, licence to fly in air transportation sector;
- artistic-base intangible assets, i.e. musical rights, photography rights, audio-visual material, publishing rights, copyrights and online content of company's website.

An identifiable intangible asset of any type is a present value of expected future net cash flows that represent the recovery with a return of prior investment in developing and securing a base of customer relations. Intangibles separated from goodwill should have the same underlying attributable as buildings or stock and its "wasting" characteristics should have similar predictability (Zaichkowsky et al., 2010).

Management and accounting literature states that a patently contradiction hides important information from investors (Sinclair & Keller, 2014; Gosman et al, 2004; Lev & Zarowin, 1999): brands are mandated as assets as a result of business combinations while internally created are forbidden to be disclosed as such. The above dichotomy is a result of regulations of international accounting standards, which clearly state that only certain internally generated intangible assets are to be recognized in financial reports. Brands, mastheads, customer lists, and publishing titles are excluded from intangibles disclosed in financial reports if they are internally generated. Financial reports' disclosure of internally created goodwill is also banned. Contrary, under the IFRS 3, the acquirer is obliged to recognize the above-mentioned items using fair value as a measurement tool. Because of the above, business combinations seize the opportunity to present brands or price major customers.

The identifiable intangible assets separated from goodwill at the time of acquisition differ across the industries and circumstances of the business combination (Sacui & Szatmary, 2015). Nevertheless faithful representation of economic phenomena underlying the accounting numbers requires thorough and in-deep analysis of its substance and attributes characterizing the recognized asset with no physical substance.

### **3. Materials and methods**

Given our focus is on achieving the aim of the study, we conducted an analysis of consolidated financial reports of capital group Cyfrowy Polsat (herein: Polsat) for years 2006-2015. The company chosen for the study is one of the longest listed on Polish Stock Exchange. The time when company started trading its shares is important in the study as we analyzed 10-years period in order to show changes in intangibles' disclosures over time. We assume that the 10-years time span allows observing trends in the range of separated intangibles as well as shows the development of how information is presented. Furthermore, it provides long term information about conducted acquisitions besides information about changes in identification of new intangibles over time and disclosure of goodwill arising from business combinations.

During the period under analysis, company encompassed into analysis finalized (on May 7, 2014) the acquisition of Metelem Ltd. (herein: Metelem). Metelem is indirectly controlling 100% shares of other important player on media market in Poland. As a result, Polsat has become the biggest media and telecommunication group in the region providing also LTE Internet services, pay television, and mobile telephony. Operational and financial operation integration was the natural consequence of Polkomtel acquisition and it was presented as at December 31, 2014 in consolidated financial statement of Polsat.

Polsat presents financial information in consolidated report in accordance with International Financial Reporting Standards as approved for use in the European Union. All financial reports were subject to audit by KPMG or PricewaterhouseCoopers. All consolidated financial data were collected from Polsat website and analyzed by the authors.

#### 4. Discussion

The analysis of the consolidated financial reports of Polsat capital group shows that a systematic particularization of the intangible items in the statement of financial position and supplementary notes has occurred over the 10 years' period. It consisted in highlighting new items as the major components of fixed assets. At the same time there was a steady increase in the share of intangibles in the assets. Table 1 shows main groups of intangible assets disclosed in financial reports, along with growing share of intangibles in total assets.

Table 1: Intangible assets in the consolidated financial reports of capital group Polsat from 2006 to 2015 [in kPLN]

Year	Total assets	Value of intangible assets' group disclosed in financial reports	Intangibles' share in total assets [%]	Main groups of intangibles in the financial reports			
				Goodwill	Customer relations	Brands	Other intangible assets
1	2	3	4	5	6	7	8
2015	26,490	18,748	70.80	10,606	3,639	2,081	2,422
2014	27,339	19,518	71.40	10,585	4,256	2,086	2,591
2013	5,676	3,631	63.97	2,603	-	891	137
2012	5,561	3,497	62.88	2,568	-	848	81
2011	5,325	3,306	62.09	2,412	-	840	54
2010	1,015	75	7.41	52	-	0.3	23
2009	774	14	1.83	-	-	-	14
2008	757	12	1.57	-	-	-	12
2007	595	11	1.93	-	-	-	11
2006	353	4	1.25	0.014	-	-	4

Source: Own work based on consolidated financial statements of Polsat for 2006 – 2015.

In the early years of the period considered (2006 and 2007) intangible assets were presented in the statement of financial position as *Goodwill* and *Other Intangible Assets*, or as one item *Intangible Assets*. On the other hand, intangible assets were presented in the consolidated balance sheet in the studied last two years as:

- goodwill,
- customer relationship,
- brands,
- other intangible assets.

Intangible assets with goodwill accounted for only 1.25% of total assets in 2006, while for 1.93% in 2007. A negligible share of goodwill in intangible assets should be emphasized – it did not occur in 2007, and it accounted for 0.32% of the value of intangible assets in the balance sheet in 2006. In turn, at the end of 2015 intangible assets were up 70.8% of assets, while at the end of 2014 – 71.4%. There was a significant increase in goodwill, which, in 2015, accounted for up to 56.57% of the total of intangible assets, and for 54.23% in 2014. Table 2 reports detailed financial data (presented in overall amounts in column 8 of table 1) that reflect the categories and amounts of other intangibles recognized in the period 2006-2015.

Table 2: Intangible assets' additional information derived from the consolidated financial reports of capital group Polsat from 2006 to 2015 [in kPLN]

Year	Value of other intangible assets	Detailed information regarding the types of other intangible assets				
		Software and licenses	Concessions	Miscellaneous	Under development	Advance payments
<i>I</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
<b>2015</b>	2,422	681	1,659	12	71	-
<b>2014</b>	2,591	641	1,831	14	106	-
<b>2013</b>	137	50	25	17	45	-
<b>2012</b>	81	37	11	17	16	-
<b>2011</b>	54	26	14	1	12	0.2
<b>2010</b>	23	13	-	1	9	-
<b>2009</b>	14	9	-	0.4	5	-
<b>2008</b>	12	10	-	0.6	0,9	-
<b>2007</b>	11	5	-	0.05	6	-
<b>2006</b>	4	4	-	-	0.1	-

Source: Own work based on consolidated financial statements of Polsat for 2006 – 2015

Crucial information to the objective of the paper is the purchase of 100% shares in Metelem entity by Polsat on 7 May 2014. Thus the last two years of the period considered include the effects of the purchase of shares in a subsidiary, which was entered for the procedure of consolidation of financial reports. According to information contained in the consolidated financial report as at 31.12.2015, as a result of this transaction, the capital group of Polsat became the owner of Poland's largest customer base (individual, business, corporate and pre-paid service users). The base consisted of 5.9 million customers. The Group had 26.9% market share in terms of the number of SIM card contracts at this point in time.

During the purchase price allocation of the Metelem for consolidation purposes of the financial reports Polsat identified and valued marketing intangible assets – customer relationships, licenses and the trademark. Note 37 shows that for the purpose of finalizing the transaction the following fair value of intangible assets of Metelem was ultimately established [in kPLN]:

Customer relationship	4,640,100
Telecommunication licenses	1,600,000
Brand	1,230,000
Other intangible assets	688,200

The fair value of customer relationship was assessed through the income approach using the multi-period excess earnings method (MEEM). The following periods of use were adopted for the valuation purposes: relationship with retail customers – 10 years, with roaming customers – 13 years, with wholesale customers – 3 years, infrastructure leasing – 3 years. The brand has been valued through the income approach using the relief from royalty method. The adopted useful life is 51 years.

The fair value of net assets was a negative value and amounted PLN (2,063,500k). As a result of the conducted transaction, goodwill was disclosed at the amount of PLN 7,982,500k. Calculations related to the determination of goodwill are as follows [in kPLN]:

Purchase price (consideration transferred)	5,919,000
- The value of net identifiable assets at fair value	(2,063,500)
Goodwill	7,982,500

Goodwill was disclosed in the consolidated statement at the following amounts [in kPLN]:

Goodwill	<u>2015</u>	<u>2014</u>
As at 01.01.	10,585,300	2,602,800
Purchase of 100% shares in Metelem		7,982,500
Purchase of 100% shares in Orsen	16,300	
Purchase of 100% shares in RadioPIN	4,800	
As at 31.12.	10,606,400	10,585,300

The consolidated statement of financial position as at 31.12.2014 showed *Customer relationship* item in line with the following calculation [in kPLN]:

As at 01.01.2014	0
Purchase of subsidiary	4,640,400
<u>- Amortization</u>	<u>(384,200)</u>
As at 31.12.2014	4,255,800

The amortization costs of this year were accounted for as at 31.12.2015.

Another important item shown in the consolidated financial report is the brand at the following values [in kPLN]:

As at 01.01.2014	890,800 (other brands)
Purchase of the brand	1,230,000
<u>- Amortization of the brand</u>	<u>(34,900)</u>
As at 31.12.2014	2,085,900
As at 01.01.2015	2,085,900
<u>- Amortization of the brand</u>	<u>(5,300)</u>
As at 31.12.2015	2,080,600

It should be emphasized that in the consolidated financial report for the year 2014 (and similarly for the year 2015) there were disclosed both the full amount of purchased goodwill and new items of intangible assets hived off from the assets of Metelem.

The statements for the years 2006-2009 in Note 21 showed further particularization of intangible assets, other than goodwill, divided into: software and licenses, other, in construction. In subsequent years, in Note 17, this item was already widely developed into entries: software and licenses, licenses for television broadcasting, other, other intangible assets under construction.

## 5. Conclusions

Intangible assets have become an increasingly important factor in economic life and the success of capital groups in modern business operations (Stolowy et al., 2001) in spite of their complex nature and ambiguity of legal regulations (Maruszewska & Strojek, 2016). With the increase of the intangible assets' share in total assets' amount the importance of this construct is growing, especially from the point of view of faithful representation of economic phenomena

financial reports purport to represent. The above situation brings about the need for more detailed financial and non-financial information disclosed in financial reports. On the other hand, it is an opportunity for managers to create favorable picture of the entity in financial reports.

Recognition of new intangibles is primarily done through the abridgment of goodwill. The observed phenomenon deserves positive appraisal because goodwill tends to be seen as a questionable item in financial reports primarily due to ambiguity of its definition and valuation estimates. The study is in accordance with previous literature showing the importance of new intangibles and – at the same time – stressing the vague accounting norms relating to intangible assets (Dahmash et al. 2009).

In this article we investigated whether Polish capital group recognized intangibles in accordance with the trends observed on global financial markets. We find that Polish accounting practice follows worldwide trends in financial reporting in terms of recognition of new intangibles derived from goodwill and changing measurement methods used in valuation process. We furthermore showed different types on new intangibles recognized during the analyzed 10-years period. We assume that separating brands or customer relations from goodwill increases the transparency and the relevance of financial information disclosed in financial reports. Furthermore, future research could investigate faithful measurement of new intangible assets, particularly when taking into account the implications on reported net earnings in the years following business combination.

## References

- [1] Bugeja M., Loyeung A. (2015). What drives the allocation of the purchase price to goodwill? *Journal of Contemporary Accounting & Economics*, 11, 245-261.
- [2] Cassel, C.M., Hackl, P., Westlund A.H. (2000). On measurement of intangible assets: a study of robustness of partial least squares. *Total Quality Management*, 11(7), 897-907.
- [3] Dahmash, F.N., Durand R.B., Watson, J. (2009). The value relevance and reliability of reported goodwill and identifiable intangible assets. *The British Accounting Review*, 41, 120-137
- [4] Dennis-Escoffier, S., Munter P. (1994). How tax and financial reporting for intangible assets changes under new law. *Journal of Corporate Accounting and Finance*, Spring, 307-313.
- [5] Gosman, M., Kelly, T., Olsson P., Warfield, T. (2004). The profitability and pricing of major customers. *Review of Accounting Studies*, 9, 117-139.
- [6] Gupta, S., Lehmann D.R. (2003). Customer as Assets. *Journal of Interactive Marketing*, 17(1), 9-24.
- [7] Hakenes, H., Peitz M. (2007). Observable reputation trading. *International Economic Review*, 48(2), 693-723.
- [8] Lev, B., Zarowin, P. (1999). The boundaries of financial reporting and how to extend them. *Journal of Accounting Research*, 37(2), 353-386.
- [9] Maruszewska, E.W., Strojek-Filus, M. (2016). Ambiguity of goodwill regulations – a case of Polish publicly traded enterprises. *ACRN Oxford Journal of Finance and Risk Perspectives. Special Issue of Finance Risk and Accounting Perspective*, 15(1), 52-72.

- [10] Morgan B.W. (1991). The Economic Reality of Deposit Intangibles. *Accounting Horizons*, March, 75-77.
- [11] Nair, A., Narasimhan R. (2006). Dynamics of competing with quality- and advertising-based goodwill. *European Journal of Operational Research*, 175, 462-474.
- [12] Sauci, V., Szatmary, M.C. (2015). Intangible assets in business combinations. *Review of International Comparative Management*, 16(3), 385-397.
- [13] Sinclair, R.N., Keller, K.L. (2014). A case for brands as assets: Acquired and internally developed. *Journal of Brand Management*, 21(4), 286-302.
- [14] Stolowy, H., Haller A., Klockhaus V. (2001). Accounting for brands in France and Germany compared with AS 38 (intangible assets): An illustration of the difficulty of international harmonization. *The International Journal of Accounting*, 36, 147-167.
- [15] ter Braak, A., Deleersnyder, B., Geyskens I., Dekimpe, M.G. (2013). Does private-label production by national-brand manufacturers create discounter goodwill? *International Journal of Research in Marketing*, 30, 343-357.
- [16] Veron, N. (2008). Fair Value Accounting is the Wrong Scapegoat for this Crisis. *Accounting in Europe*, 5(2), 63-69.
- [17] Zaichkowsky, J.L., Parlee, M., Hill, J. (2010). Managing industrial brand equity: developing tangible benefits for intangible assets. *Industrial Management Marketing*, 39, 776-783.

## SOCIAL ASPECTS OF COMPANY MANAGEMENT IN ERA OF GLOBALIZATION

Viera Sukalova<sup>1,a,\*</sup>, Pavel Ceniga<sup>2,b</sup>

<sup>1</sup>University of Zilina, Faculty of Operation and Economics of Transport and Communications,  
Department of Economics, Univerzitna 1, 010 26 Zilina, Slovak Republic

<sup>2</sup>University of Zilina, Faculty of Operation and Economics of Transport and Communications,  
Department of Economics, Univerzitna 1, 010 26 Zilina, Slovak Republic

<sup>a</sup>sukalova@fpedas.uniza.sk, <sup>b</sup>pavel.ceniga@fpedas.uniza.sk

\*Corresponding author

**Abstract.** Globalization leaves traces also in the world of work. It provides new opportunities, offers new challenges. The new three-dimensional world of work represents a bridging distances, requiring swift action and dictates all-round quality. New era brings new values to work in an atmosphere of trust with a high degree of implementation, organizational independence, but also a requirement for high performance. Social aspects, such as the development and expansion of social protection measures promoting social dialogue, respect and realization of fundamental principles and rights at work are increasingly tapping into corporate governance, particularly in human resource management and corporate social responsibility. Social responsibility and its social priorities are now very topical issue and a matter of debate economic, social and political institutions; not only in Slovakia, but prioritizing the issue is also accentuated in the European Union. The paper is focused on possible solutions to social demands in the management of human resources in the company during the period of globalization in the context of European Union policies.

**Keywords:** company management, social responsibility, globalization, work organization

**JEL Classification:** J5

### 1. Introduction

Social aspects of company management are nowadays discussed at EU and also member states level. Although the new trends in the development of personnel policies accommodating families gradually become established in Slovakia, there is still a general level of awareness and ways of its application in practice is relatively low and lacking institutional platform and a systematic approach to business support harmonization. It is also clear that the issue of entrepreneurship is very topical area of interest. With the concept of globalization is currently being encountered in almost all areas of our life (economics, politics, culture, communication, environment, etc.), is a worldwide phenomenon observed especially in recent decades and most comprehensive external factors that affect the quality of life of individuals and entire companies. (Kozubikova, L, et. al., 2015).

### 2. The globalization of the world of work

Globalization leaves traces in the world of work. It provides new opportunities, offering new challenges. The opening of international market sharply increased standard of living and prolonged life expectancy. Many people in developing countries, globalization has enabled



access to education. (Stiglitz, 2003) The new three-dimensional world of work represents a bridging distances, requiring swift action and dictates all-round quality. It brings new values to work in an atmosphere of trust with a high degree of implementation, organizational independence, but also a requirement for high performance. This approach is called Murke theory that determines the future of the world of work by three basic trends:

- Creativity arises not from individual genius, but teamwork,
- Teamwork is based on new knowledge know-how,
- The future belongs to creative people. (Stýblo, 2008)

Globalization brings new social aspects into process of management.

## **2.1 The effects of globalization on the company management**

The most difficult of social consequence of globalization is considered unemployment. Increasing production automation reduces the need to hire new people. Nobel Prize in Economics Vassily Leontief says that the role of the human being slowly fades away in production, disappeared as the role of horses in agriculture. (Barancová, 2002) This must be to respond to the competitive pressures of the globalized labour market; according to Armstrong (1999, pp. 54-56) in such a way that they are "customer-led", shorten response time to customer needs, emphasize quality and continuous improvement, introduce new technologies, flexible working and reduce costs. Reduce the number of permanent staff and are increasingly using the so-called temporary staff (working agreement) or through outsourcing by reducing the costs of employing people and allows the company to regulate their number as needed in the enterprise. We talk about flexible enterprises. It further states than others affects the way organizations and people management:

- Decentralization and delegation of decision-making,
- Lean organizational structures,
- Complex quality,
- Employing fewer specialists,
- Developing flexible workforce,
- More projects and cross-cutting initiatives and teamwork,
- Increased need for managers to develop their skills in human relations, team management and motivation.
- Increased customer orientation.
- Continuing professional development of human resources.

## **2.2 The globalized labour market**

In addition to fast growing greening the work environment it is important to ensure the necessary resources required to support the performance of the economy. Primary needs of the globalized labour market become increase the flexibility of the workforce and the ability to adapt to changing conditions quickly (flexible) to react. For the employee it means to be able in the course of working life facultative change various types of work, in terms of different professions or is within the scope of one profession. To increase the flexibility of employees and the continuous development of their professional skills is necessary to establish an effective system of education. Another need is to increase labour mobility. Temporary migration or commuting is prerequisites for the development of professional career and business development. Schengen enlargement helps to build an effective and flexible labour market in Europe. The globalization of the world of work is also very closely linked to the importance of

information and communication technologies (direct access to information regardless of time and space). Changes in work organization represent a shift from the traditional, relatively closed operating systems with rigid, hierarchical structures to more open, more flexible, decentralized, networked-based system with the innovation process. (Svobodová, 2006) Changes in work organization require solutions of sustainable work and sustainable human resources management.

### **2.3 Sustainable work and healthy working conditions**

For the area of work organization and working hours are particularly important trends occurring in the composition of the workforce. In practice, this phenomenon manifests itself as an increase in the average age of employees and increasing the proportion of older employees. However, there arises the problem of unemployment both the elderly and on the other hand, there is a need to create specific working conditions, such as the establishment of training courses to acquire technical skills, limiting overtime and multi-shift work, shortening working hours and working time. (Svobodová, 2003) Active aging workforce study by the European Foundation for the Improvement of Living and Working Conditions has been an ongoing problem not only in European policy objectives is the need to increase the employment rate of older workers aged 55 to 64 years due to increases in the average exit age from the labour market. To achieve these objectives, it is necessary to improve the working conditions conducive to job retention for life. The ability to maintain a job varies depending on the individual occupational groups and to a large extent influenced by aspects of sustainable work, such as shift work, night work, tiring or painful positions (served space legislation in the field of health and safety and ergonomics), stressful work, disharmony work and personal life, poor career opportunities and job insecurity (in the matter of human resource management and labour flexibility). According to U. Beck (2004), the dynamics of the development of the labour market massively accelerated. Structural changes in the economy less and less lead to lifelong employment and a "normal" employment. As a consequence, a corresponding increases in economic uncertainty and job dissatisfaction, which is global in nature and is gaining permanent and Slovakia. Therefore it shall take on even greater existential importance to the need for interconnectivity of family life and economic systems. (Cabelkova, 2015)

### **3. Corporate social responsibility – the concept of modern management**

Support reconciliation of work and private life by the employer falls within the concept of promoting gender equality and equal opportunities in the workplace and is an integral element of the social aspect of so called Corporate social responsibility (CSR). The concept of CSR is supported by many multinational and international organizations. The European Union has given the issue for the first time comprehensively addresses in special document - The Green Paper, which in 2001 issued by the European Commission. This document contains the first EU- definition of CSR basic principles, tools and approaches, with the aim of this document was to launch a debate on concepts and methods for promoting and strengthening CSR in the European as well as global level.

Despite the fact that the concept of CSR is developing for decades, there is still a clear universally accepted definition. The European Commission in the abovementioned document, the Green Paper defines CSR as a concept in which companies integrate social and environmental concerns in their business operations and in their relationship with stakeholders on a voluntary basis.

France et. al. (2006) refers that it is important a continuous commitment of the company to behave ethically and contribute to economic development and at the same time strive to improve the quality of life of employees and their families, as well as the local community and society as a whole. On the other hand, the views of critics perceive the concept rather than merely creating the impression of a socially responsible company, questioned the link between responsible behaviour and its impact on the successful operation of the company and consider it only as a tool of public relations, respectively inefficient operation of the enterprise. (Kunz, 2012)

According to Steinerová (2008), in practice responsible company voluntarily:

- operates in accordance with high ethical principles.
- cultivates good relations with its trading partners,
- complies with fair access to customers
- cares for its employees,
- supports for the regions in which it operates.

In the social area CSR manifests monitoring and minimizing the negative impacts of activities on a social system in which it operates. It is primarily care about the health and safety of employees; Dialogue with interest groups (stakeholders); human capital development; compliance with labour standards; prohibition of child labour; work-life balance; equal opportunities for men and women and other disadvantaged groups; Workplace diversity - ethnic minorities, disabled and older workers; ensure the retrain redundant workers for their further application and job security; corporate philanthropy; sponsorship and volunteering.

The main principles by Kasparov and Kunz (2013) include:

- Voluntary - companies implement CSR activities entirely voluntarily beyond the law
- Active cooperation of all stakeholders (i.e. Stakeholders) - allows you to create so-called "Win-win" situation.
- Transparency and open dialogue between stakeholders - businesses should enable stakeholders to access information not only economic,
- Complexity and the viability of the company with regard to the so-called. The "triple bottom line business" - companies focus on economic, social and environmental aspects of its activities,
- Systematic and long-term time horizon - CSR is included in the business strategy, processes and values the company at all levels.

## **4. The perception of the social problems and discussion**

Devoted employees form the basis of each company. Working is for them a major source of income to meet their needs. It is also the place where they spend most of the day and affects their health and personal lives. The company is in the competition qualified and executive employee of a major element of success.

### **4.1 Main problems perceived by employees**

In 2016 we carried out research by questionnaire in the field of the perception of social aspects with 318 respondents – employees of various small and medium-sized enterprises (193 men and 125 women) in Zilina region. The results of the research showed us following main shortcomings:

- Unfairness in pay
- Motivation

- Discrimination in terms of age and sex
- Lack of access to further education
- Low level of career growth
- Low level of labour flexibility with regard to the harmonization of private life and work
- A large amount of overtime
- Problem of the return of women after maternity to work.

We recorded also some differences in the perception of the social aspects of men and women. For example, pay inequity count up to 66% of women but 37% of men; discrimination was met to 49% of women, 27% of men perceived discrimination in terms of age. The perception of career opportunities is also worse for women; also problem solutions reconciling work and family. 76% of respondents never participate in the dialogue to address social problems at work; 42% would avoid negotiations in this area for fear of losing their jobs. This demonstrates the importance of employee representatives in the company. The satisfaction of employees is based on various aspects, to motivate them to work performance and results of an evaluation of their employer. Problem seems to be also motivation. Financial motivation used to meet the needs of all employees, but not always enough. Basis of fair remuneration consists of employee evaluation, focusing on either the work or the working behaviour. For employees is important benefit not only in material form as salary or other monetary rewards but also other non-cash benefits. Non-financial and non-material rewards are associated with a feeling of satisfaction, joy and usefulness of an employee from the work or sound relations between management and employees and favourable working conditions. Employee motivation can have in some cases a discouraging effect on others.

## 4.2 Discussion

Several studies have confirmed that satisfied employees are more productive and have fewer absences. Conversely, dissatisfaction among employees leads to poor quality of work, a weaker performance, or negative attitude towards customers. The SMEs are becoming ever more expanding the subconscious the fact that "only" to increase the salary of the employee does not print to better performance. This requires create a system of complex personnel and incentive program that helps improve working staff morale and satisfaction. (Rezác, 2009) The organization should encourage self-education of its employees and use various stimulation, for example financing of studies, provision of paid leave for study beyond the legal company funds or holidays, corporate training, reimbursement or other vocational training form of support. At the same time the successful conclusion of the study should be accompanied with adequate financial contribution. Educated staff is necessary to maintain, due to their expertise and investment to put into their business.

For employees is very important the satisfaction of working life. When defining individual careers, it is necessary to take into account the ambitions of individuals and the purpose of their incorporated into the enterprise-wide system of seats. Depending on whether it is necessary to manage the routing of all employees towards meeting corporate objectives, which is one of the most important tasks recruiters. The negative impact of working life to personal life can be eliminated in many ways. Flexible forms of work are not a normal part of our working culture. The only exception is the flexible working time, which is now used in many companies. In contrast, working from home, job sharing locations and reduced working hours are not common. Flexible type of work can affect their personal lives. Support the family life can provide a contribution to child care, in large companies can build corporate preschool. The idea

of interconnection between work responsibilities and family life has become a major concern of a number of research studies and objective attention to the public at large (Jones, Burke, & Westman, 2006). Current is dedicated to increasing interest factor and a factor of environmental balance areas, their impact on quality of life, support by the enterprise and impact on the individual himself. The implementation of family-friendly measures brings to the enterprise in addition to the aforementioned benefits and on the other hand, expenditure incurred for their implementation. Evans (2001, p. 82) characterizes the types of costs associated with the implementation of measures throughout the process as follows: Before the introduction-administrative costs including the creation of pro-family strategy, the cost of the decision who will be the beneficiaries of the measures. During insertion - costs of informing employees about the existence of measures, the costs of giving advice on how to use the individual measures, the development, approval and contractual treatment of individual working hours. After the introduction of measures - costs of their maintenance (e.g. provision or support for childcare), the cost of working areas due to the increased total number of employees (job-sharing, and so on.), the cost of training employees returning back to work, technical equipped to work from home, the cost of continual coverage workplace where the expedited-time etc.

Company should also establish mechanisms to prevent discrimination of certain groups of workers (women, older people). The same rules should also work with paid workers. One of the main principles of modern company management is the diversity of the workplace. This principle applies to employment of minority groups, such as ethnic minorities, disabled or older people.

## **5. Proposal of system solution to address social aspects in management**

Social responsibility of management is not only a voluntary activity of the company, but also a legal obligation. With the concept of responsibility it is logically combines legal responsibility, that the legal understanding of the requirements of social responsibility. Legal understanding of the business is based on the perception of the business entity as an entity that is responsible for its obligations in making a profit as a business places. Liability of the company, however, seen as a responsibility within the purview of legislative norms, not beyond the law as a voluntary act to interested parties (stakeholders to). Behaviour in accordance with the law is indeed correct, but it is something that the company must make ex leg. Unless we are talking about social responsibility and we mean what companies do for their employees, suppliers, customers and other interested persons, or for the environment freely. In doing so, employers create conditions for the continuous development and updating of skills, the conditions for improving employment, prosperity and energy use for achieving career success and also private satisfaction.

When introducing a new approach in line with the social responsibility, we propose the following procedure:

1. Including a new philosophy to business strategy; informing management and employees with the philosophy of sustainable corporate social responsibility and value creation sharing with all stakeholders, with an emphasis on human resources management.
2. Commitments made and targets - a changing in thinking in relation to human resources, acceptance of the undertaking new approach and objectives of management, support for the introduction of specific measures and changes. This means the integration of human resources in key areas of concern of creating shared values, setting strategic goals.

3. Assigning responsibilities and competencies - determination of the responsible person and his competency in attaining the goals - a coordinator of the realization team.
4. Planning and implementation measures - planning is done on the basis of the conclusions of the analysis of the company in order to identify gaps and take steps to eliminate them. The measures can be implemented through the certified standard SA 8000. The introduction of the management system of social responsibility, which specifies transparent, measurable and verifiable requirements for social responsibility.

Within the internal preparations, the company shall notify all the standard requirements, it reveals the shortcomings and integrates the standards established procedures into the existing enterprise management system. Then can be started the certification process in three steps:

Evaluation of the audit readiness - in which shall be assessed in compliance with current regulations and evaluate current practices in relation to the requirements of the SA 8000 auditors found deficiencies to be rectified before the certification audit;

Certification audit - consisting of checking and evaluating the implementation and effectiveness of the system according to the standard. After a successful audit certificate is issued certificate for three years;

Surveillance audits - verifying every six months stability and improvement of the system. After the three-year period – refresh validity.

Monitoring and evaluation of the objectives fulfilment.

Monitoring and reporting strategic objectives arise from the obligation, and the specific objectives and measures taken as well as selected indicators. This activity allows you to identify shortcomings and correct the ongoing activities in the interest of all stakeholders.

This proposal is a system solution for the sustainable management of human resources applicable also to small and medium-sized enterprises.

## **6. Conclusions**

The basic trends of the corporate social policy include the development of appropriate and flexible working conditions, improving the quality of environment and quality of life of employees, with a particular emphasis on working conditions for selected groups of employees. The strongest means to maintain a skilled workforce is undoubtedly care about their welfare, ensuring income security, quality of work, respecting their requirements in line with the need for harmonization of work with family responsibilities. The problem of the social aspects of corporate social responsibility brings in the management dilemmas and it is therefore appropriate to focus attention on system solutions also in this field. Support from all stakeholders to contribute to ensuring that every employee can at every stage of the life at work and in the family circle parallel to experience good and full life.

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## References

- [1] Armstrong, M., (1999). *Personální management*. Praha: Grada Publishing.
- [2] Barancová, H., (2002). *Sociálnoprávne následky globalizácie svetovej ekonomiky*. Právnická fakulta Trnavskej univerzity: JURA EDITION. p. 79.
- [3] Beck, U., (2004). *Risikogesellschaft*. Auf dem Weg in eine endere Moderne. In Časopis sociologického ústavu Slovenskej akadémie vied. 38/2006. Frankfurt am Main: Suhrkamp. 1986, čes. překlad Riziková společnost. Praha: Slon. Dostupné na internete: <https://www.sav.sk/journals/uploads/02061033OndrejKovic.pdf>
- [4] Čábelková, I. (2015). The effect of social transfers on the level of unemployment of disabled in EU countries. *Economics and Sociology*, vol. 8, no. 1, pp. 298-307.
- [5] Evans, J. M., Lippoldt, D.C., Pascal, M., (2001). *Labour Market and Social Policy*. Trends in Working Hours in OECD Countries. Paris, Organisation for Economic Co-operation and Development.
- [6] Franz, J., Nezhyba, J., Heydenreich, C. , (2006) Když se bere společenská odpovědnost vážně. 1. vyd. Brno: Ekologický právní servis. p.72.
- [7] Jones, F., Burke, R., Westman, M., (2006), *Work-life balance: a psychological perspective*. Hove: Psychology press.
- [8] Kašparová, K., Kunz, V., (2013) *Moderní přístupy ke společenské odpovědnosti firem a CSR reportování*. Praha: Grada.
- [9] Kunz, V., (2012). *Společenská odpovědnost firem*. Praha: Grada, p. 208.
- [10] Kozubikova, L., Belas, J., Bilan, Y. and Bartos, P. (2015). Personal characteristics of entrepreneurs in the context of perception and management of business risk in the SME segment. *Economics and Sociology*, vol. 8, no. 1, pp. 41-54.
- [11] Řezáč, J., (2009). *Moderní management*. Brno : Computer Press, p.400.
- [12] Steinerová, M., (2008). *Koncept CSR v praxi*, průvodce odpovědným podnikáním [online]. Aspra, p. 33.
- [13] Stiglitz, J. E., (2003). *Jiná cesta k trhu*. Praha: PROSTOR, 2003. p.403.
- [14] Stýblo, J., (2008). *Management současný a budoucí*. PBtisk: Příbram: Professional Publishing, p. 186.
- [15] Svobodová, L., (2003). *Vliv nových způsobů organizace práce na pracovní podmínky a pracovní pohodu*. Praha: VÚBP.
- [16] Svobodová, L., (2006). *Kvalita pracovního života – změny ve světě práce, modely, indikátory*. Praha: Výzkumný ústav bezpečnosti práce.

## WOMEN IN MANAGEMENT

Rozalia Sulikova<sup>1a,\*</sup>, Lubomira Strazovska<sup>2,b,\*</sup>

<sup>1</sup>Comenius University in Bratislava, Faculty of Management, Odbojarov 10, 820 05 Bratislava, Slovak Republic

<sup>2</sup>Comenius University in Bratislava, Faculty of Management, Odbojarov 10, 820 05 Bratislava, Slovak Republic

<sup>a</sup>rozalia.sulikova@fm.uniba.sk, <sup>b</sup>lubomira.strazovska@uniba.sk

\*Corresponding author

**Abstract.** Globalization is the most important change that has occurred in 20<sup>th</sup> and in 21<sup>th</sup> century in the business world. It is associated not only with the free movement of workers, strong worldwide competition, constantly changing customer demands, new technologies etc. but also with the social changes. One of the most visible changes is the effort of women to more equally participate in a global work environment, to achieve economic independence and to penetrate the middle and senior management. Despite the fact that the status of women in society around the world has changed compared to the past women still face various forms of discrimination. For example, in many countries women do not reach the same level of education as men do, they are not equally remunerated for the same work compared to men. Furthermore, the share of women in the top management position is still on a low level. To eliminate these types of discrimination and to enhance the number of women in top management the European Commission has recently submitted proposals for legally binding quotas for women on corporate boards of European companies. The goal of this scientific paper is to highlight the importance of women participation in top management in global work environment, to point out not only the selected barriers women are facing in their effort to reach top-management position but also to show the benefits that women can bring to the company.

**Keywords:** globalization, company, management, women

**JEL Classification:** J 71, L 25

### 1. Status of women in the labor market in Slovakia and EU

One of the consequences of globalization are changes in a labor market. Special category of the labor market are women, as valuable potential of economic development. For their integration into work life it is necessary that both society and companies create tools that would allow women to participate on work and entrepreneurial processes. Especially women-mothers with infant children are reliant on assistance from both the society and employers when they aim to combine their professional duties with a family life. The Europe 2020 Strategy places emphasis on greater participation of women in the labor market, which is a prerequisite for boosting growth and tackling the demographic challenge in Europe. In addition to that strategy, there is the European Commission initiative to establish voluntary self-regulatory measures to achieve 40 percent of women on the boards of private companies by 2020. Special initiative "Women on the Board" - Europe's commitment was signed by 12 Member States, including the Slovak Republic (Milošovičová & Urbanová, 2013).

Based on the statistical data (Eurostat, 2015) in 2014 female employment rate in EU-28 was 59.6%, whereas the employment rate of men was 70.1%. The employment rate of men in 2014



was consistently higher than employment rate of women in all 28 EU Member States. In 2014 the percentage of employed women (aged 20-64 years) in Slovakia was only 53.4%, which is below the EU average. Lower rate is present for example Malta, with recorded employment rate of women at 49.3%. In Italy, Greece and Czech Republic the differences in employment rates between the sexes ranged from 16 to 18 percentage points. In Sweden and Latvia the difference between employment rates of both genders was relatively small. In Slovakia the employment rate of women is still hampered by the lack of availability of childcare and prices for such services. The employment rate of women (aged 25-49 years) with children under the age of six years is below 40% while for men of the same age group and marital status it is 83%. This reflects the lack of quality and affordable child care services and relatively long parental leaves.

Increase in women participation in the labor market up to the EU-15 average could increase Slovak GDP by 1.6 percentage points (Country Report Slovakia, 2015).

### **1.1 Women in management positions**

Character of organizations in Slovakia has changed under the influence of globalization. Existence of multinational corporations increasing the proportion of women in the labor market and free movement of workers brought with them also a culturally diverse work environment. In particular, the clash of people from different cultures and the need of cooperation between themselves are situations that have to be treated as efficiently as possible by managements of organizations. Nowadays, aspiration of women to penetrate the top management positions in organizations brings different view on the diversity of work environment in the organizations. These aspirations might be in many countries still confronted with discrimination in terms of a gender. Even in the EU not all the member countries are relieved from prejudice that the roles of top managers are for men and the role of women in society is primarily in the child care and family care. On the other hand, there has been made quite a few positive changes in terms of utilization of women human capital in Slovakia and the whole EU in recent years. Those are mainly the changes in legislation, particularly the novelization of the Act No. 365 / 2004 Coll. on equal treatment and on protection against discrimination and changes and supplementations of some acts (Antidiscrimination Act) of 2015 which aims to eliminate this negative phenomenon (Peráček & Mittleman, 2015, A).

According to the survey conducted by Grant Thornton there is only 24% of senior management positions worldwide held by women. In Europe the situation is getting better. The number of women in top management positions in Europe is growing faster than in other continents. For example, in Poland there is up to one third of women in top positions. Similar situation is in Italy, France or Spain where their proportion exceeds 20% (Hospodárske noviny, 2013). This situation might be occurring also thanks to the fact that they have obliged to adhere the quotas determining the number of women in top management positions.

This imbalance between proportions of men and women in top management roles may improve by intention of European Commission to increase the representation of women in top management of companies up to 40% by 2020. Companies that will not comply with these rules could face the sanctions. This EU proposal raised a vigorous discussion on pros and cons of introduction of such quota. Gender discrimination can be observed even in the differences in pay for equal work of equal value between men and women. In Slovakia these differences are above the EU average despite the fact that Slovak women achieve higher education in comparison with men. This gap is caused by gender segregation in the labor market and with longer periods of career breaks of women (European Commission, 2015). The biggest pay gaps

between men and women were in the age groups 35-39 years and 40-44 years. The difference in average gross monthly salary was more than € 300 (MLSAF, 2014).

## **1.2 Selected major barriers of women presence in top management positions - research results**

One of the major barriers of filling top managerial positions by women in companies in many countries is different perception of men and women in relation to their role in society or in attribution of personality characteristics. In general, the most common barrier in perception of individuals is a tendency to stereotype. In relation to gender there is *stereotype in perception of roles and jobs* - managerial positions in many cultures are seen as typically male professions, thus women with the aspiration to managerial position encounter many obstacles. Different perception of gender roles of men and women in society in many countries persists until present days in variable intensity. This fact determines different way of education of men and women. Another example is the child care or the house care that are still explicitly seen as a responsibility of women.

*Stereotypes in perception of personal characteristics* – even nowadays we can frequently observe attributing of certain personal characteristics based on gender, regardless of the reality. Women are more likely than men attributed to characteristics such as: modesty, emotionalism, intuitiveness, dependence, sensitivity and so on. It is also frequent to encounter the association on personality characteristics according to career path or position that the individual occupies. For example, effective management behaviour is associated with characteristics such as assertiveness, decisiveness, ability to be successful or dominance are rather attributed to men. This is a negative form of stereotype which influences further behaviour of individuals.

Stereotypes have negative impact on several processes in organizations such as communication, recruiting and selection, employee evaluation or career growth. Dennis and Kunkel (2004) point out based on a survey that promotion to top management positions is often in favour of men. Gender as the biggest obstacle in career development of top manager has been also confirmed by study of Straub (2007).

Demonstrations of such barriers in perception of men and women are basis of discrimination. Organizations themselves can help to drive back this stereotype perception of roles of men and women by supporting women in their career development, supporting the development of required managerial skills through special development programs for women, by positive feedback and supporting the efforts of women towards their career development.

Another significant barrier for women's efforts to penetrate top management positions is organizational culture, particularly so-called "Long-hours culture" in the organizations and networking (Ogden et al., 2006). Demand for the extended working time is stress factor for women and often an obstacle in family care and child care. In Slovakia, the lack of state-owned pre-school facilities also contributes to the situation. So even the mothers of pre-school children have to stay at home because they cannot afford to pay for private child care. Topic of Work-Life Balance (W-L-B), which is already discussed in organizations abroad is still not present in Slovakia. The importance of W-L-B for the presence of women in top management is indicated in results of research based on the data from 87 Spanish companies (Adam, 2016). It proves, although not directly, that the presence of women determines the introduction of this policy in the company, and their absence determines disregarding of this topic.

It is obvious that the need of harmony between work and private life is necessary for healthy lifestyle for both men and women. It is even more important in case of child care. This is confirmed as a barrier in career growth by study of Cross (2010).

Another barrier allowing discrimination of women in their efforts to achieve senior leadership positions are also *structural disadvantages* in the organization, which according to Straub (2007) may occur in the process of recruiting, selection for leadership roles and in the process of assessing competency of candidates. It is unequal-unfair treatment of candidates.

Another barrier related to the representation of women in top management can be *self-confidence* of women. Women are not always self-confident enough (especially after more years of work absence and lack of contact with their profession). They do not claim for the status corresponding with their skills, education and experience or they are not assertive enough to claim their rights. In this article, we stated the selected significant barriers for women on their career path to the top position in management. Here we list some activities that help to eliminate these barriers:

- Respecting fundamental ethical principles in the organization.
- Creating an organizational culture that supports gender equality.
- Creating an organizational culture that supports a work-life balance.
- Reconciling work and family duties – e.g. introducing flexible forms of work - flexible working hours, part-time work, working from home.
- Ensuring child care by the organization and the state.
- Succession planning that would fairly reflect competences.
- Training programs for managers – e.g. workshops to develop managerial skills especially for women.
- Mentoring of female candidates for management positions.
- Adhering fairness in remuneration.

Those actions would not only significantly reduce stress but they would also lead to higher motivation, productivity, satisfaction and loyalty. The organization would also earn benefit in the form of good reputation. A general legal base of the principle of parity and equality of opportunities for women and men appears from the Article 12, paragraph 2 of Constitutional Act of the Slovak National Council. 460/1992 Coll. The Constitution of the Slovak Republic which guarantees fundamental rights and liberty in Slovak Republic to everyone regardless of sex, race, colour, language, faith and religion, political or other opinions, national or social origin, association with national or ethnic group, wealth, family line or other status. No one should be harmed, preferred or discriminated because of those reasons. This clause of the Constitution is directly linked to the first principle of the Act no. 311/2001 Coll. Labor Code, as amended, the status of *lex generalis* of labor law that develops these rights in detail (Peráček & Mittleman, 2015, B).

### 1.3 Positives and negatives of women in top management

Several scientific studies deal with the question of women's contribution to the organization. In the following text we point out the contribution of women to the organization from the perspective of experts, based on the results of existing researches in this area.

#### Positives:

According to the research by Isidro and Sobral (2015) participation of women on Corporate Boards in companies in the EU is highest in the Nordic countries and lowest in southern Europe. Their findings point out that higher proportion of women positively determines economic benefit of companies, compliance in the area of promoting ethical and social principles which positively determines value of the company. It is not a direct impact on the value of the company but rather significant indirect impact. Similar findings were also confirmed by research by Rogers et al. (2013), Campbell (2008) who made research in Spanish companies, Hillman and Dalziel (2003) who speak about benefits coming from unique skills and abilities of women to increase performance of company and contribute to increase of company value. Another effect that was assessed positively is that presence of women in key positions increased controlling activities in top management.

Importance of contribution of women's specific skills in companies emphasizes research of Hafsi and Turgut (2013). In his study points out to enhanced of company's reputation through social responsibility and philanthropy when women are in top positions. New and creative ideas and international experience are among other benefits stated by this study.

Based on survey Singh et al. (2008) and Labelle et al. (2010) came to the conclusion that presence of women in top management supports behaviour in management in accordance with ethical principles and that it increases motivation, satisfaction and justice. Employees tend to avoid also unethical practices. Tyson and Jackson (1997) see the benefits of women in management in their personality features. They point out that women are more intuitive and empathic, able to think creatively and encourage innovation, able to better motivate and positively influence others and lead the organization with regards to its objectives. They stress that women have also better ability to adapt to growing insecurity. Also Litz and Folker (2002) acknowledge in their researches that women's higher emotionality and effort to cooperate is a significant contribution for effective team management.

According to L. Laukova, representative of top management in Slovakia, the diversity of personal characteristics brought by presence of women in top management a significant benefit for the organizations. Men are more rational in their work approach, more penetrative and more goal oriented. In contrast, women focus more on details, on solving of work relationship issues where their emotionality plays important role (TASR, 2015). It should be also noted that high level of emotional intelligence plays important role in current culturally diverse work environment. These particular strengths help in effective leading, creating of positive working atmosphere, solving problems from different point of view and strengthening of effective communications. Therefore, women can become a competitive advantage for the organization.

#### Negatives:

However, researches reveal not only the positive aspects of women at the top management positions but also point out associated difficulties. Williams and O'Reilly (1998, acc. Isidro, H. & Sobral, M., 2015) suggest that the heterogeneous groups in terms of gender cooperate harder, they experience more emotional conflicts resulting in more time needed for decision making. Similar results were presented also in research that was executed in Norwegian companies that points out to a weakening of decision-making and efficiency in top management with higher women penetration (Bohren & Strom, 2011).

## 2. Conclusion

Gender equality is fundamental right and a fundamental value of our society. It is one of important indicators of presence of democratic principles in the society. Also in Slovakia the environment started to be favourable for promoting gender equality also in professional life of women. It is also thanks to the contribution of a changed mind-set of a young generation that gained experience while living abroad and in different cultures. Even in work environment employers more and more often make efforts to contribute towards harmonization of work and personal lives of employees, to enable flexible working conditions especially in the area of forms of work and organization of work time. Furthermore, perception of roles of men and women in society has changed as well. Current view of role of women in society is different as a result of overcome stereotypes. Women of the new generation are more self-confident, they are establishing themselves on labour market, they believe in their abilities and they are not afraid to claim their rights and follow their goals in the process of career development. They are more economically independent. Men, more often than in the past, accept women in position as their superior or even go for parental leave.

Equality of women in professional life brings many positive aspects both for society and for organizations. Therefore, it is important to support the effort of women to reach higher management positions. However, it is important to emphasize that the main criteria for promotion to management position should be the individual's skills and her/his professional competences as positive discrimination in relation to women may disrupt healthy working environment.

## References

- [1] Adame, C. et al. (2016). Work-life balance and firms: A matter of women? *Journal of Business Research*. Vol. 69, No. 4, pp. 1379-1383.
- [2] Bohren, O. and Strom, R. (2010). Governance and politics: Regulating independence and diversity in the board room. *Journal of Business Finance and Accounting*. Vol. 37 (9-10), pp. 1281-1308.
- [3] Campbell, K. and Minguez-Vera, A. (2008). Gender diversity in the boardroom and firm financial performance. *Journal of Business Ethics*. 83 (3), pp. 435-451.
- [4] Cross, C. (2010). Barriers to the executive suite: Evidence from Ireland. *Leadership and Organization Development Journal*. 31 (2), pp. 104-119.
- [5] Dennis, M. R. and Kunkel, A. D. (2004). Perceptions of men and women, and CEOs: The effects of gender identity. *Social Behavior and Personality*. 32 (2); pp. 155-172.
- [6] Európska Komisia. (2015). Správa o krajine Slovensko. [online]. Available: [http://ec.europa.eu/europe2020/pdf/csr2015/cr2015\\_slovakia\\_sk.pdf](http://ec.europa.eu/europe2020/pdf/csr2015/cr2015_slovakia_sk.pdf)
- [7] Eurostat. Štatistika zamestnanosti. (2015). [online]. Available: [http://ec.europa.eu/eurostat/statistics-explained/index.php/Employment\\_statistics/sk](http://ec.europa.eu/eurostat/statistics-explained/index.php/Employment_statistics/sk)
- [8] Hafsi, T. and Turgut, G. (2013). Boardroom diversity and its effect on social performance: Conceptualization and empirical evidence. *Journal of Business Ethics*. 112 (3), pp. 463-479.
- [9] Hillman, A. and Dalziel, T. (2003). Boards of directors and firm performance: Integrating agency and resource dependence perspectives. *Academy of Management Review*. 28 (3), pp. 383-396.

- [10] Hospodárske noviny. (25.3.2013). Ženy majú emócie. A náskok pred mužmi. [online]. Available: <http://dennik.hnonline.sk/ekonomika-a-firmy/540869-zeny-maju-emocie-a-naskok-pred-muzmi>
- [11] Isidro, H. and Sobral, M. (2015). The effects of women on corporate boards on firm value, financial performance and ethical and social compliance. *Journal of Business Ethics*. 132 (1), pp. 1-19.
- [12] Labelle R. et al. (2010). Ethics, diversity management and financial reporting quality. *Journal of Business Ethics*. 93 (2), pp. 335-353.
- [13] Litz, R. A. and Folker, C. A. (2002). When He and She Sell Seashells: Exploring the relationship Between Management Team Gender-Balance and Small Firm Performance. *Journal of Developmental Entrepreneurship*. Vol. 7, No. 4, pp. 341–358.
- [14] Milošovičová, P. and Urbanová, G. (2013). Gerechtere Vertretung von Frauen bei der Besetzung von Spitzenpositionen in Handelsgesellschaften. Theory and practice in management. *Proceedings of the Scientific papers of PhD. Students and Young Researchers*. Bratislava, Slovakia, pp. 86-93.
- [15] MPSVRSR. (2014). Národná stratégia zamestnanosti SR do roku 2020. [online]. Available: <https://www.employment.gov.sk/files/slovensky/praca-zamestnanost/podpora-zamestnanosti/narodna-strategia-zamestnanosti-slovenskej-republiky-do-roku-2020.pdf>
- [16] Ogden, S. M. et al. (2006). Clearing the way for gender balance in the management of the UK financial services industry. Enablers and barriers. *Women in management Review*. Vol. 21. No. 1, pp. 40-53.
- [17] Peráček, T. and Mittelman, A. (2015, A): The legal regulation of television and radio broadcasting content and the control of administrative bodies with the particular reference to the protection of juveniles. *Proceedings of International Multidisciplinary Scientific Conferences on Social Sciences and Arts*. Albena, Bulgaria, p. 745.
- [18] Peráček, T. and Mittelman, A. (2015, B): The current trends in the development of the right of intellectual property (not only) in the conditions of Slovak republic. *Proceedings of International Multidisciplinary Scientific Conferences on Social Sciences and Arts*. Albena, Bulgaria, p. 722.
- [19] Rogers, W. et al. (2013). Do investors value a firm's commitment to social activities? *Journal of Business Ethics*. 114 (4), pp. 607-623.
- [20] Singh, V. et al. (2008). Newly appointed directors in the boardroom: How do women and men differ. *European management Journal*. 26 (1), pp. 48-58.
- [21] Straub, C. A. (2007). Comparative analysis of the use of work-life balance practices in Europe. Do practices enhance females' career advancement? *Women in management Review*. Vol. 22. No. 4, pp. 289 – 304.
- [22] TASR. (15.11.2015). Pozitívna diskriminácia ako cesta pre ženy do top manažmentu. Aj za cenu vynúteného rešpektu? [online]. Available: <http://www.hlavnespravy.sk/j-richter-pozitivna-diskriminacia-moze-byt-cestou-ako-dostat-zeny-do-popredia/47896>
- [23] Tyson, S. and Jackson, T., (1997). *Organizační chování*. 1st ed. Praha: Grada Publishing.

# A CLOSER VIEW OF THE STATISTICAL METHODS GLOBALLY USED IN BANKRUPTCY PREDICTION OF COMPANIES

Lucia Svabova<sup>1,a,\*</sup>, Marek Durica<sup>2,b</sup>

<sup>1</sup>Department of Economics, Faculty of Operation and Economics of Transport and  
Communications, University of Zilina, Univerzitna 1, 010 26 Zilina, Slovakia

<sup>2</sup>Department of Quantitative Methods and Economic Informatics, Faculty of Operation and  
Economics of Transport and Communications, University of Zilina, Univerzitna 1,  
010 26 Zilina, Slovakia

<sup>a</sup>lucia.svabova@fpedas.uniza.sk, <sup>b</sup>marek.durica@fpedas.uniza.sk

\*Corresponding author

**Abstract.** Prediction of bankruptcy of companies is in the last years a very widespread topic, which many scientists in different countries are dealing with. The effort of researchers leads to a prediction model with high prediction level, that is either able to predict a bankruptcy of companies or can, with some probability level, classify the companies into a group of failed or a group of non-failed ones. Prediction models used for failure prediction are derived by using various multivariate statistical methods. Often used methods are for example: multivariate discriminant analysis, logistic regression, classification trees, or in the last years, method of neural networks came to the fore. In the article we provide a closer view of these frequently used statistical methods and analyze their advantages and disadvantages in terms of data requirements. Some of the often used methods require the fulfilment of several assumptions, so we will focus on these assumptions, the way they can be tested and possible modification of data in case that some assumption of the method is not met. Proper use of the statistical methods consequently ensures correct using of statistical tools and will lead to creation of a strongly predictive model with statistically significant level of bankruptcy prediction.

**Keywords:** bankruptcy prediction models, failure prediction, multivariate statistical methods

**JEL Classification:** C38, G33

## 1. Introduction

Crashing companies meets every market (not only) economy in the world. The consequences of failure are the reason for the research and development of methods and models that predict failure in advance. In a market economy the consequences will affect all subjects entering into relationship with the businesses, mainly creditors of the firm. On the other side also banks implements modern methods of risk management to their system. (Cipovova & Belas, 2012)

The issue of failure of businesses in the literature referred to by various terms, such as failure prediction, prediction of bankruptcy, credit risk assessment, etc. Despite differences in terminology, the aim is to anticipate the insolvency of companies, which is a fundamental cause of company extinction.

The first work dedicated to the issue of failure prediction began to appear in the 30s of the 20th century. They focused mainly on comparison of the financial ratios between companies

which have failed, and those that did not fail. One of the first works about this topic was an article by Fitzpatrick in 1931 (Fitzpatrick, 1931). This work was inspiring for several papers till the 60s of the 20th century.

The first work where attention was dedicated to the ex-ante analysis was the work of W. H. Beaver. He was the first who used financial ratios to predict actual company failure. (Beaver, 1966) Beaver proved that financial ratios may be successfully used to predict insolvency of companies. He also showed that not all variables have the same predictive ability. Beaver proposed using the so-called dichotomous classification test. Using this method are selected variables with the highest predictive ability, which are then used as one predictor with multiple degrees of freedom. Problem of this method was the ambiguity of prediction if according to one indicator the company is going to bankrupt but not according to other or others. In order to eliminate this disadvantage there were theoretically examined and referred to practice models based on complex (multivariate) statistical methods. Their principle is a simple combination of characteristics (financial ratios) to comprehensive integrated variable based on which companies can be classified clearly.

The first applied multivariate method was multivariate discriminant analysis (MDA). A typical representative of using this method is E. I. Altman, whose model through his work became a standard of the company failure prediction. (Altman, 1968) Fundamentals of the MDA are to find such linear combination of financial ratios that distinguishes the best between two groups of companies – failure companies and healthy companies.

Later, method of regression analysis was applied, especially logistic regression (LOGIT models). The first author who introduced the use of this method was J. A. Ohlson. The fundamentals of this method are to find dependence of logistic variable (1 – failure company, 0 – healthy company) on several independent variables (financial ratios). (Ohlson, 1980)

The application of artificial neural networks (ANN) and genetic algorithms (GA) in failure prediction is the result of artificial intelligence research and rapid development of computer technology. According to the economists the main limitation of this method is its non-transparency, because all models based on ANN are in fact used in practice as a so-called “black boxes”. On the other hand, the benefit of this method is its high predictive ability. (Braspenning et al., 1995)

Another artificial intelligence type technique is classification and regression trees (CART) method. This tree-structured analysis was popularized by Breiman et al. (1984). CART builds classification and regression trees for predicting continuous dependent variables (regression) and categorical predictor variables (classification). (Breiman et al., 1984)

## **2. Multivariate Discrimination Analysis - MDA model**

Discriminant analysis method is suitable for the classification of observations into two or more groups. Discriminant analysis model was for the first time used by R. A. Fischer in 1936. Multivariate discrimination analysis classifies observations into two or more groups based on several variables. We need classification to two groups – failure companies and healthy companies.

MDA model consists of a linear combination of predictors. The aim of discriminant function is to provide the best distinction between the failure and healthy companies, which can be described as follows



$$Z = a_0 + a_1X_1 + a_2X_2 + \dots + a_nX_n, \quad (1)$$

where  $Z$  is the discriminant score,  $X_i$  denotes the value of the  $i$ th variable (financial ratio),  $a_i$  is corresponding linear discriminant coefficient ( $i = 1, 2, \dots, n$ ), and  $a_0$  is an intercept. (Li, 2010) The goal of classification is to minimize the number of wrongly classified companies. To minimize classification errors we find such function that generates the smallest size of interval in which the value of discriminant scores for both groups belong (gray area). The size of the gray area is negative depending on the distance of the mean values of discrimination score in groups and positively on the size of variance in both groups. Classification error is then minimal, if so-called Mahalanobis distance  $D$  is maximal

$$D = \frac{(\bar{Z}_1 - \bar{Z}_2)^2}{S_Z^2}, \quad (2)$$

where  $\bar{Z}_1, \bar{Z}_2$  is the mean value of the first and the second group, and  $S_Z^2$  is variance of  $Z$ . Thus, this procedure is used to find the best discriminant function. Then we must calculate cut-off point so-called critical score. Critical score depends on the frequency of the analyzed groups of companies. If frequencies are the same, critical score is calculated as the simple average of group discriminant score centroids

$$Z^* = \frac{\bar{Z}_1 + \bar{Z}_2}{2}. \quad (3)$$

If frequencies are not equal-sized, critical score is calculated as the weighted average of group discriminant score centroids. Then, discriminant score below the critical score indicates that the company is in failure and otherwise, discriminant score over the critical score indicates that the company is healthy. Of course, statistical software (SPSS, SAS, etc.) is usually used for making MDA analysis. These software usually calculate two discriminant functions, one for healthy companies and second one for failure companies. The company is classified in group of companies with greater value of discriminate score. (Kral et al., 2009)

The MDA model requires the following assumptions for the variables used for classification:

1. The randomness of the sample which is used to create discriminant function.
2. The normal distribution of independent variables in both groups.
3. The homogeneity of covariance matrices for both groups.

The fulfillment of the first assumption is achievable in practice if there exists sufficient data available representing both groups, i.e. group of healthy companies and group of default companies. Generally there are two ways to choose companies to the sample. The first way is the real random sampling of large companies groups with appropriate data (accounts, capital markets data, information from credit bureaus, etc.). The second method is used when there is no possibility to have sufficiently large base of the companies of both groups. In case of random selection from the small core set, it is not guaranteed representation of representatives of both groups in the sample corresponding to the actual ratio of the two groups in the real situation of companies.

Achieving the second requirement is a real practical problem. Normality of independent variables is achievable only with sufficiently large random sample. In addition, in recent times, we often meet with the inclusion of qualitative (dummy) variables into the models. These variables are usually transformed into nominal values (0 and 1), so that, they can be included in the discriminant function. But this type of variables does not follow the normal distribution.

However, recent research has shown that the use of dummy variables and also qualitative variables in discriminant analysis increases the success rate of classification.

A third assumption requires that the variables for both groups followed the comparable distribution. This assumption is necessary because of the design of tests of statistical significance, which are based on common variance of variables for both groups. For example, if some variable have higher variability in one group and lower in the second group, common variance may be relatively low and then the dependence should appear to be statistically significant although in fact it is not true. To eliminate this problem, we can drop some outliers or completely omit variables strongly correlated with other inputs. (Sandstrom, 2011)

### 3. Logistic regression - LOGIT model

Logistic regression is applied mainly in cases where the dependent variable is not continuous but binary (dichotomous or alternative), i.e. it may take only two values. Logistic regression is based on multiple linear regression model, which is similar to the discriminant analysis. Variable “Y” that can be explained by financial ratios (explanatory variables), takes a value 1, if the company is failure (success), and 0, if it is financial healthy (no success). For this reason we cannot use classical regression model, but modified regression analysis (LOGIT models) can be used. (Sandstrom, 2011)

Let  $p$  be a probability that company is in failure (probability of success). Value of  $p$  is between 0 and 1. Therefore, we cannot model  $p$  using the classical regression model. Variable  $p$  must be transformed. The fraction  $\frac{p}{1-p}$  reflects the odds that the company is healthy, to the fact that the company is in failure. Logit is defined as

$$\text{Logit}(p) = \ln\left(\frac{p}{1-p}\right) \in (-\infty, \infty). \quad (4)$$

Logit can be used as dependent variable in classical regression model

$$\text{Logit}(p) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n. \quad (5)$$

Then, the probability  $p$  that company is in failure is

$$p = \frac{e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n}}{1 + e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n}} = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n)}}. \quad (6)$$

We assume that company is in failure if this probability is over the cut point (usually 0,5). Otherwise, if this probability is less than cut point, company is healthy. (Tinoco and Wilson, 2013)

As one can see, LOGIT model is based on a special type of regression model. The classical regression model has a number of assumptions that are difficult to meet in practice. However, the LOGIT model does not require meeting of the assumption of normality and constant variance, too. The only one assumption is the independence of predictors. For the proper functioning of the model it is necessary to have data about at least 50 companies. If LOGIT model is used correctly, there is no problem with excessively adaptation of model to dataset (overfitting).

LOGIT can be used for the same purposes as the MDA model. Big advantage of LOGIT is that it has fewer preconditions. On the other side, LOGIT is difficult to computational complexity, and the interpretation of results is more complicated. LOGIT model usually has

better discriminatory ability than related MDA model. Practical experience have shown that the quality of LOGIT model is usually better than quality of other models. (Kral et al., 2009)

#### **4. Classification and Regression Trees - CART model**

A decision tree analysis is widely used method of classification. A decision tree classifies data to some tree structure which is generated from a training data. The root node contains the whole sample. If the units at some node of tree structure belong to the same group, so that no more decisions are needed, the node will be a leaf node which indicates the value of the target group. If the units at the node belong to two or more groups, such that the node has to be split, the node will be a decision node. From a practical point of view, one important advantage of decision trees in company failure prediction is the ability to generate easily understandable decision rules. This feature is not shared by many artificial intelligence approaches (e.g. ANN). (Brezigar-Masten and Masten, 2012)

CART is one of decision tree methods developed by Breiman et al. (1984). The CART algorithm is a binary recursive tree structure which asks only the yes/no questions, so the parent nodes are always divided into two child nodes with searches for all possible variables and all possible values in order to find the best split. More important variables appear in the upper nodes and have significant impacts on the prediction of target values because movement down to one side at the upper nodes of the tree could bring much different results from those on the other side. On the other hand, less important variables, located at lower nodes of the tree, are less effective than those at upper nodes, but still related to outcomes of the tree analysis, so they are also considerable as factors. (Bae et al., 2010)

CART method has many advantages, no assumptions and is computationally fast. In most cases, the interpretation of results of a classification tree is very simple. This simplicity is useful not only for classification of new observations, but can also often yield a much simpler explanation why observations are classified in a particular manner (e.g., in company failure analysis, it is much easier to present a few simple yes/no questions to management, than some exact mathematical equations). (Kral et al., 2014)

CART method does not require specification of any functional form and does not require variables to be selected in advance, because this algorithm will itself identify the most significant variables and eliminate non-significant ones. The results of this method are invariant to monotone transformations of its independent variables. Changing one or several variables to its logarithm will not change the structure of the tree. Only the splitting values, but not variables, in the questions will be different. (Stachova et al., 2015)

Outliers can negatively affect the results of many statistical models, but not this model. This is because splitting algorithm of CART will easily handle noisy data (the outliers are separated in a separate node). This property is very important, because financial data very often have outliers due to financial crisis or some defaults. Algorithm of CART is flexible and has an ability to adjust in time. The main idea is that learning sample is consistently replenished with new observations. It means that CART tree has an important ability to adjust to current situation.

Of course, as any model, method of CART has its own weaknesses or disadvantages. At first, CART may have unstable decision trees. Modification of learning sample, such as eliminating several observations, could lead to radical changes in decision tree, as increase or decrease of tree complexity, and changes in splitting variables and values. Obviously,

classification results will change with the use of new classification tree. Therefore, instability of trees can negatively influence the financial results.

Second disadvantage of CART is that this algorithm splits only by one variable. In other words, all splits are perpendicular to axis. Although, if data have more complex structure, then CART may not catch the correct structure of the data. For example, CART cannot correctly identify question  $x - y \leq 0$  because in split question can participate only one variable. In this case, splitting algorithm will generate many splits (nodes) at the border of  $x - y = 0$  line. In the end CART will grow a huge tree where almost each observation at the border will be in a separate node. But despite the big tree, classification will be done correctly. (Timofeev, 2004)

## 5. Artificial neural networks – ANN model

Artificial neural networks are algorithms that are patterned as the structure of the human brain. They contain a series of mathematical equations that are used to simulate biological processes such as learning and memory. In a neural network, the goal is modeling and predicting of dependent variable based on the values of some predictor variables.

ANNs use only inductive approach. If there is found some empirical regularity in the learning sample at the beginning, this regularity is used for predicting future failure of companies. Inductive models are often referred to be the so-called “black boxes”, that can be used to generate quick results, but the logic may not be fully understood. The disadvantage of black boxes is we do not know what is happening between inputs and outputs (in hidden layers). However, the inductive approach, even though it is a black box, may show as very useful when it is difficult or impossible to design a derivable rules for determining certain phenomenon (in our case company failure). (Paliwal and Kumar, 2009)

Generally, ANNs consist of a large number of basic elements called neurons, which are linked by synapses. Neurons are arranged in layers. Each neuron receives input from neurons of the previous layer and processes them by a linear, or more usually, non-linear function. The result is transmitted to neurons in the next layer. These neurons also process the received input with other functions and send a new output to the next layer of the network. After one or more hidden layers network generates the final result. In the case of predicting company failure, result may be, for example, a numerical score approaching 0 for failure companies and approaching 1 for healthy subjects. (Tkac and Verner, 2016)

ANN model is widely used classification tool because there are many advantages of this method. These model requires less formal statistical training to develop. Working ANN models can be developed by newcomers within a relatively short time frame. Neural networks can be trained using both continuous and categorical input and output variables, although some transformations of the data may be necessary depending on the software being used. Networks tend to work best when the data have been normalized. (Nasri, 2010)

Neural networks can implicitly detect complex nonlinear relationships between independent and dependent variables. If a significant amount of nonlinearity between the predictor variables and the corresponding outcomes exists in a training data set, then the network will automatically adjust the connection weights in its structure to reflect these nonlinearities. Also, ANNs have the ability to detect all possible interactions between predictor variables. The hidden layer of ANN gives it the power to detect interactions between input variables. (Tu, 1996)

ANNs are a black boxes. This is the main disadvantage of using this method. So that, models based on ANN have limited ability to explicitly identify possible causal relationships. Another

disadvantage of ANN model is great requirement to computational resources and these models may be more difficult to use. The output of a neural network model may be harder to interpretation.

ANN models are prone to overfitting. The ability of a neural network model to model interactions and nonlinearities implicitly may also be a disadvantage because it may lead to overfitting a training data set. Generally, overfitting may be prevented by limiting the number of hidden nodes, or by limiting the amount of training using cross-validation. Although both methods are potentially useful, limiting the amount of training using cross-validation is the most popular because it is the least computationally intensive. (Tu, 1996)

## 6. Conclusion

In this paper we analyzed the most common used methods for prediction of company failure: multivariate discriminant analysis, LOGIT, classification and regression trees and artificial neural networks. We focused on the advantages and disadvantages of these methods. Application of MDA method requires fulfillment of the most assumptions, but on the other hand, it is one of the most used methods that provide good results in classification of companies. LOGIT method is based on the model of logistic regression, where the variables used as predictors have to fulfill only one assumption about independency. Moreover, this method have very good prediction ability. CART method have many advantages, no assumptions, simple interpretation and is computationally fast. On the other hand, the solutions may be unstable and the resulting tree may sometimes be really huge. ANN method have no assumption, is applicable for almost every problem and is able to handle with more complex data structure. But their main disadvantage is that they are black boxes, so the process of obtaining the result is unclear and the interpretation of results is very hard.

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## References

- [1] Altman, E.I. (1968). Financial Ratios. Discriminant Analysis and Prediction of Corporate Bankruptcy. *Journal of Finance*, vol. 23, pp. 589–609.
- [2] Bae, H.-K., Olson, B.H., Hsu, K.-L., and Sorooshian, S. (2010). Classification and regression tree (CART) analysis for indicator bacterial concentration prediction for a Californian coastal area. *Water Science and Technology*, vol. 61, iss. 2, pp. 545-553.
- [3] Beaver, W.H. (1966). Financial Ratios as Predictors of Failure, Empirical Research in Accounting. *Journal of Accounting Research*, vol. 4, pp. 71-111.
- [4] Braspenning, P.J., Thuijsman, F., and Weijters, A.J.M.M. (1995). *Artificial Neural Networks: An Introduction to ANN Theory and Practice*. Berlin Heidelberg, Germany: Springer-Verlag.
- [5] Breiman, L., Friedman, J., Stone, C.J., and Olshen, R.A. (1984). *Classification and Regression Trees*. New York, USA: Chapman and Hall/CRC.

- [6] Brezigar-Masten, A., and Masten, I. (2012). CART-based selection of bankruptcy predictors for the logit model. *Expert Systems with Applications*, vol. 39, iss. 11, pp. 10153-10159.
- [7] Cipovova, E. and Belas, J. (2012). Impacts of selected methods of credit risk management on bank performance. *Proceedings of the 8th European Conference on Management, Leadership and Governance*. Pafos, Cyprus, pp. 465-473.
- [8] Fitzpatrick, P.J. (1931). A Comparison of the Ratios of Successful Industrial Enterprises with Those of Failed Companies. *The Certified Public Accountant*.
- [9] Kral, P., Kanderova, M., Kascakova, A., Nedelova, G., and Valencakova, V. (2009). Multivariate Statistical Methods with focus on problems in economic practice. Banska Bystrica, Slovak republic: Matej Bel University. (In Slovak)
- [10] Kral, P., Stachova, M., and Sobisek, L. (2014). Utilization of Repeatedly Measured Financial Ratios in Corporate Financial Distress Prediction in Slovakia. *Proceedings of 17th international scientific conference Applications of Mathematics and Statistics in Economics*. Jerzmanowice, Poland, pp. 156-163.
- [11] Li, H., Sun, J., and Wu, J. (2010). Predicting business failure using classification and regression tree: An empirical comparison with popular classical statistical methods and top classification mining methods. *Expert Systems with Applications*, vol. 37, iss. 8, pp. 5895-5904.
- [12] Nasri, M. (2010). Application of Artificial Neural Networks (ANNs) in Prediction Models in Risk Management. *World Applied Sciences Journal*, vol. 10, iss. 12, 1493-1500.
- [13] Ohlson, J.A. (1980). Financial Ratios and the Probabilistic Prediction of Bankruptcy. *Journal of Accounting Research*.
- [14] Paliwal, M., and Kumar, U.A. (2009). Neural networks and statistical techniques: A review of Applications. *Expert Systems with Applications*, vol. 36, iss. 1, pp. 2-17.
- [15] Sandstrom, A. (2011). *Handbook of Solvency for Actuaries and Risk Managers: Theory and Practice*. Boca Raton, FL, USA: Chapman and Hall/CRC.
- [16] Stachova, M., Kral, P., Sobisek, L. and Kakascik, M. (2015). Analysis of financial distress of Slovak companies using repeated measurements. *Proceedings of 18th international scientific conference Applications of Mathematics and Statistics in Economics*. Jindrichuv Hradec, Czech republic.
- [17] Timofeev, R. (2004). *Classification and Regression Tree (CART): Theory and Applications* (Master's thesis). Retrieved from <http://edoc.hu-berlin.de/master/timofeev-roman-2004-12-20/PDF/timofeev.pdf>.
- [18] Tinoco, M.H., and Wilson, N. (2013). Financial distress and bankruptcy prediction among listed companies using accounting, market and macroeconomic variables. *Expert Systems with Applications*, vol. 30, pp 394-419.
- [19] Tkac, M., and Verner, R. (2016). Artificial neural networks in business: Two decades of research. *Applied Soft Computing*, vol. 38, pp. 788-804.
- [20] Tu, J.V. (1996). Advantages and disadvantages of using artificial neural networks versus logistic regression for predicting medical outcomes. *Journal of Clinical Epidemiology*, vol. 49, iss. 11, pp. 1225-1231.

# MARKETING PARADIGMS TRANSFORMATION AND GLOBALIZATION PATTERNS

Yuliya Syaglova<sup>1,a,\*</sup>

<sup>1</sup>Prospekt Vernadskogo 82, 119571, Moscow, Russia

<sup>a</sup>y.syaglova@mail.ru

\*Corresponding author

**Abstract.** The author examines the issue of the marketing paradigm cycle. The aim of the research is to forecast the trends of dynamics of the marketing paradigms. The most realistic issue is the transition from the relationship marketing paradigm where the producer of the goods dominates over its buyer in order to improve and adapt with the change of technological structure and consumer psychology. As part of the study of the marketing paradigm cycle the author concluded that paradigms represent a dynamic cyclic model. All stages of the paradigm cycle, modifications including, are simultaneously present in the target market segments due to the customer loyalty, having situational point. This circumstance determines the migratory nature of consumer segments in the context of the total number of consumer audience. The article also examines the question of the marketing paradigms transformation and globalization patterns. The aim of the study is to identify the main patterns and forecast the transformation of marketing paradigms. The author's interpretation of the evolution of marketing paradigms development allows to conclude that the Genesis of marketing paradigms assumes their transformation with centrifugal deployment of the evolutionary spiral along the time axis — from the past to the future. The author also infers that between the previous and the subsequent stage of each cycle a number of marketing concepts are being formed and keep on existing in the future, which are prerequisite and necessary for the essential transformation of the current evolutionary stage and its further replacement by the next one.

**Keywords:** Marketing paradigms, evolution, genesis, transformation, marketing concepts.

**JEL Classification:** M31, O31, M11, F63

## 1. Introduction

Marketing science basically contains the principle of diversity of the marketing techniques, each of which has its own individual effectiveness and field of application. At the same time, simultaneous use of these techniques provides for the final synergistic effect. As a result, such marketing definition as the "marketing complex" or the so-called "marketing mix" was assumed and developed.

### 1.1 Hypothesis

Cyclicity is observed in the genesis of marketing paradigms. Moving from a paradigm of the manufacturer domination 4P, recognized at the beginning of the 20th century, towards the paradigm of the consumer domination 4C, which became an alternative to the previous paradigm, and further through the paradigm 4R, which combined the dominants of the first and second paradigms and added the partnership relationships to the concept 4E, saturating these relations with emotional intelligence, the task of the study is to forecast further dynamics of the paradigmatic marketing development. The most realistic is the scenario of withdrawal from

partnership relationships of domination of the manufacturer and supplier of a selling proposition over its buyer/consumer for the purpose of improvement, innovative transformation and adaptation in accordance with any changes in the technological mode and consumer/buyer psychology.

## 2. Material and methods

The marketing mix strategy as the quantitative accumulation of information was turned into concept, where the notion of the marketing mix, proposed by the Harvard Professor from the USA Borden (Borden, 1964) on the basis of Culliton's work in the middle of the last century, was recognized as the most valuable one. Since then this definition has not only been widespread and accepted, but is a regular subject for discussion in the marketing science.

Professor McCarthy (McCarthy, 1960) points out, aiming at formalization of the marketing mix, is the most widely recognized and the first in order. The work covers four marketing tools, called for simplicity, brevity and ease of remembering by their initial letter "P": Product, Price, Place, Promotion. Due to its simplicity, the 4P being the essence of the marketing mix concept is not only widespread and recognized, but also appears to be a marketing imperative.

Subsequently, the author of the heuristic concept of the marketing mix Borden offered his own more extended model of the marketing mix, comprising 12 elements.

Everybody was attracted by the facility of understanding the concept of McCarthy - names of all tools begin from the same letter. By this simplified formula McCarthy identified four different classes of tools illustrating four principal marketing functions. As it is well known, McCarthy did not describe each of the elements of the marketing mix in detail, and confined himself only to the wording description of the classes of these elements.

It is widely believed by the followers of his concept that he did it deliberately for the purpose of these classes being evolutionary filled and adapted to any changes in the overall marketing situation (Ginevicius et al, 2012). In our view, currently this conceptual principle by Borden and McCarthy allows to consider each of the elements of the marketing mix as a collective category of marketing techniques, tools that can be used both independently and jointly with other marketing techniques of this category while observing the principle of substitution (interchangeability) and synergistic strengthening of joint actions within this category.

This form of marketing mix classification began to spread more quickly and successfully than the concept proposed by Borden, literally replacing it. Under such circumstances, McCarthy's adherents persistently attempted to extend 4P to make them acceptable for efficient practices developing quantity of its P-elements firstly up to five elements, and later as noted by Booms and Bitner and later Kotler, with the approval of the scientific community, added three more supplementary P-elements: People, Process, Physical Evidence. Ultimately, easy-to-remember formula by McCarthy became as complex as the formula by Borden. This illustrates the viability of the oldest proverb - "Hell is full of good meaning and wishing".

Relying on the immense popularity of the marketing mix concept, its less recognized modifications began to flourish which might be applicable to individual branches of economic activity: in e-commerce (Zhang & Zhu, 2013), Internet, green marketing, social marketing, direct marketing, customer- oriented marketing, etc (Ke, 2015).

According to the opponents to the 4P concept, marketing, unlike the economy, must be mostly based not on the material flows but on the management of consumer behavior, since



end-users were initially acknowledged as the core marketing concept in business, and the modern approach to it presupposes the management of consumer values as suggested by M. Porter in 1985.

The second most attractive concept was 4C, proposed by the Professor of the Columbia University in the USA Lauterborn (Lauterborn, 1990), who modified the marketing mix from 4P to 4C: Customer value, Customer cost, Convenience, Communication. Herewith, he noted that these elements of the marketing mix orientate a company towards the buyer, whereas 4P of the marketing mix by McCarthy orientates a company towards the seller.

Emergence of a new concept of the marketing mix meant, essentially, the change of the paradigm focusing the marketing efforts of the companies from manufacturers and suppliers of 4P goods to the 4C paradigm, called "4C neoclassical paradigm". Bearing in mind that 4C concept is fully consumer-centric, some marketing theorists viewed it as the customer-orientated concept. However, this concept allows to judge about the category of "values" in marketing rather lopsidedly, with the only value offered by the company to its customers and consumers from the use of such concept, not assuming that clients have different "value" and "cost" for the company.

In response to the criticism of the numerous opponents of the classical 4P marketing paradigm, who were not satisfied by a newly created 4C neoclassical paradigm due to its low recognition by the members of the marketing scientific community, at the end of the 20th century the next marketing paradigm (the third in order, post-economic) - relationship marketing - was formed. For the first time, the name of this concept Relationship Marketing was mentioned by the American Marketing Professor Berry (Berry, 1983) in the context of service marketing to describe a new approach to marketing, orientated to more long-term interaction with consumers (Li Z. & Li J., 2013).

In the development of this concept modern marketers - promoters of the concept of the Relationship Marketing - offer to rename it into the Customer Mix, Portfolio of Customers. Along with the aforementioned 4C, they include other elements into it bringing the number of elements to 11C (Rong, 1996): Customers, Categories (categories - category management tools), Capabilities, Cost, profitability and value, Control of the contact to cash process, Collaboration and integration (Liao, 2013), Customization (customization of the selling proposition), Communications, interaction and positioning (interaction with buyers and suppliers, positioning of the company) (Poorangi & Khin, 2011), Customer measurement (evaluation of the company's activities by the buyers) Customer care (Ku et al., 2016), Chain of relationships (chain of relationships - a tool of relationship marketing with suppliers and buyers) (Grundey & Daugelaite, 2011).

Prerequisites of the genesis of the post-economic relationship marketing began to emerge at the end of the 20th century in response to the outlined growth of commodity production and crises of the merchandise distribution at that time. Interaction of the integrated participants of the marketing channels becomes their competitive advantage. Besides, it is the interaction of the participants, rather than the physical process of the physical movement of goods, that becomes a key value for a new marketing paradigm

The period of formation of the post-economic approach in marketing (1980-1990) is characterized by a significant increase in the amount of research in the field of relationship management in which such non-economic categories as trust, relationship commitment, communication, value come to the fore. It created new understanding of the competitive advantages - due to formation of the intangible assets of companies, such as brand, positioning,

creating of consumer values, etc. Trout with his colleagues Ries and Rivkin in 2003 developed the concept of positioning, according to which a selling proposition should be perceived by consumers as if it is a unique one, i.e. the only one. At the same time this proposition must differentiate, i.e. differ, from other selling propositions in the same target markets. Concurrently, these authors formulated the key slogan for business: "Differentiate or die!" Herewith, the developers of this concept suggested that the uniqueness provides for the advantage while the positioning and differentiation exist not in the market reality, but in the minds of the target consumer segments: "It is better to be the first in the mind of the buyer than in the market!" This conceptual approach to communications with consumers was aimed at deliberate modification of their behaviour through modification of their psyche (unconsciousness).

To be fair it is worth noting that the concept of positioning under discussion defined as an imperative of the post-economic marketing by Trout, Rivkin and Ries at the turn of the twentieth and twenty-first centuries, relied on the already proposed marketing concept of the Unique Selling Proposition (USP), suggested by the Director of the American advertising agency, a leading figure in the American advertising, Reeves in 1960. The concept by R. Reeves implied the maximum consideration of perceptual psychology of the selling proposition by the target consumer audience (Meurer, et al., 2015).

Works by Gordon (Gordon, 2001) added to the development of the heuristic paradigm of the relationship marketing. He presented the chain of values by M. Porter through a continuous cyclical process of identifying, creating, presenting new values together with buyers, and further on, joint receipt and distribution of benefits from these activities among the participants of interaction. This paradigm 4R - Relationship, Relevancy, Retrenchment, Rewards is the third in order and includes understanding, focusing of attention and management of the value generated through joint activities of the suppliers of the selling proposition and buyers chosen by them in the presence of their interdependence and mutual adaptation, as professor Kiselev points out (Syaglova, 2015). Unlike the concept of the value chain by Porter, consumers become a part of the value process in the works by Gordon.

Emergence of the new (the fourth in order) marketing paradigm called empirical / experiential marketing (experiential marketing — based on experiences, impressions, emotions, feelings, etc.) was due to the awareness of the need and the possibilities to play on sensations, feelings, experiences of consumers with a view to achieve a synergy effect. The name of this marketing paradigm was given by American Professor Schmitt (Schmitt, 2001). He outlined basic marketing imperatives of the turn of the third millennium and suggested achieving a holistic (generalization, perception) consumer experience as the target of the experiential marketing, and identified five key elements of the communication complex, called strategic emotional modules: sensations, feelings, reflection, empathy and action.

The author thinks these five modules by Schmitt can be specified through 4E mnemonic formula - Experience, Emotions, Empathy and Excogitation.

Simultaneously with the work by Schmitt, American marketing consultants Pine (II) and Gilmore published their work, where they defined this new marketing paradigm as the "experience economy". They predicted evolutionary growth from economic proposals to experience: "... when a person buys experience, he pays for unforgettable moments of his life, prepared for him by the company, i.e. for the feelings and sensation granted to him..."

Since 4E concept does not change essentially 4R paradigm content, it is reasonable to assume the scenario whereby the transition from partnership relations to domination of the

manufacturer/supplier of a unique selling proposition (USP) will be accompanied by a successive change of the intermediate concepts. In this connection, it is worth noticing, that 4E concept is changing into the transformative concept 4T - the concept of the consumer training to the characteristics and possibilities of using a selling proposition, its complete set, mixing, preparation, adaptation, personalization, etc.

In our opinion, the following tools can be specified for this concept:

1. Training education — training the consumer/buyer to the specific procedures charging the choice, purchase and consumption of a sales proposition with emotional and other empirical content, including associative-metaphorical perception.
2. Teaching — provision of the information and methodical, entertaining-figurative content required for the execution of the first clause through omni channel messages.
3. Tutoring — systematic, unobtrusive monitoring of consumer learning through conferences, competitions, social media marketing, lead generation, etc.
4. Tutelage — protection of consumers from unwanted procedures of the selling proposition consumption leading to unintended consequences.

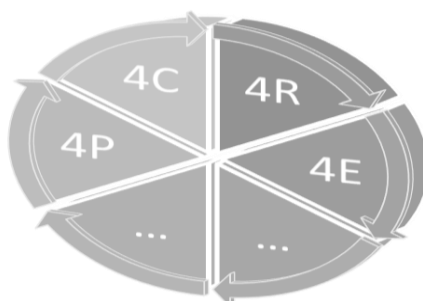
In the evolution of marketing paradigms, one can observe the following main stages:

1. The 4P paradigm of domination of the manufacturer, which received its recognition in the early XXth century. The authors of this paradigm are N. Borden and E. J. McCarthy.
2. The 4C paradigm of domination of the consumer, which became an alternative to the earlier paradigm. The author of this paradigm is Robert Lauterborn.
3. The 4R paradigm of partnership marketing (relationship marketing), bringing together the dominants of the first and second paradigms through partnership, the authors of which are L. Berry and J. Gordon.

The author suggest that the genesis of the marketing paradigms implies their transformation, which is cyclical in nature with centrifugal deployment of the evolutionary spiral along the time axis from past to the future.

The paradigm marketing cycle (Syaglova, 2015), shown in figure 1, is derived from the evolutionary stages: from the basic P-C-R to the varieties P'-C'-R', shown in figure 2.

*Figure 1: Dynamic cyclic model of "Wheel of marketing paradigms"*

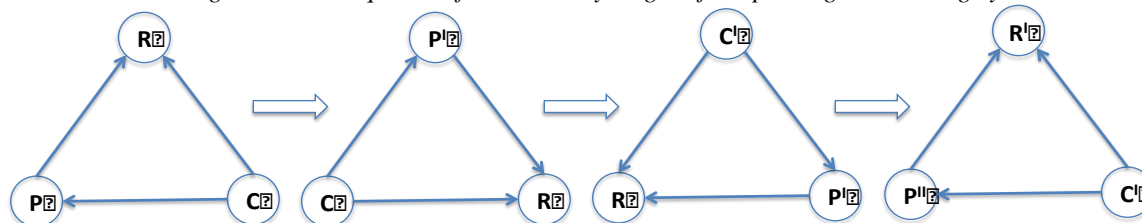


*Source: (Kiselev, V., Syaglova, Y. (2016). The marketing paradigms transformation (cyclical dynamic model). The manuscript was deposited in the Russian copyright society. Certificate №23672 dated 05.04.2016.)*

Between the previous and the subsequent stages of this cycle a number of concepts are formed and further exist, filling them with additional elements (Kiselev & Syaglova, 2016).

These concepts are prerequisites and need for a substantial transformation of the current evolutionary stage and its change for the subsequent one. Concepts, due to the fact that they are not universally accepted (unlike paradigms), occur in multiple numbers and exist simultaneously, forming a cloud of conceptual diversity.

Figure 2: The sequence of evolutionary stages of the paradigm marketing cycle



Source: (Syaglova, Y.V. (2015) Systemic analysis of marketing paradigms, Innovations and investments, vol. 12, pp. 70-73.)

This conceptual diversity is generated through conceptual freedoms, the existence of which is a response of market players to the imperative of the current marketing paradigm. The number of such concepts and the extent of their differences express the measure of paradigmatic disagreement between these market players.

The variety of marketing concepts through the convergence of their inherent marketing tools contributes to the progressive change of the evolutionary stage of the paradigm cycle. In the current time period, the 4E concept of emotional marketing (in the original author's edition), saturating the 4R paradigm of relationship marketing with emotional intelligence, offered by Schmitt, B., Pine II (Pyne, 2005), B. Joseph and Gilmor, James H, is an expression of disagreement of buyers and consumers with marketing tools inherent in the 4R paradigmatic stage. At the same time 4R is an important stage and in the current time period is the peak of the trigon P-C-R, which reflects the result of conjugation of interests of a significant share of market participants using and endorsing the tool set inherent in the 4P and 4C evolutionary stages of the paradigm cycle. However, due to the accumulation of the disagreements of market players with instrumental imperatives inherent in the 4R step, the top of the specified trigon will consistently change to P', then to C' and R'. It is possible that in the future the stage of paradigmatic disagreement will have been formed.

Simultaneously with the 4E concept initiated by dissatisfaction of the consumption sphere the transformational concept of 4T is being formed, in which it is supposed to teach the consumers the characteristics and possibilities to use trade offers, its configuration, blend, preparation, adaptation, personalization, etc., initiated by the dissatisfaction of the production sphere participants and expressing their disagreement with the parity toolkit of the 4R stage.

At any time this parity condition of the trigon may collapse, since each system participant is trying to obtain more favorable terms of market activity 'pulling the blanket on him'. In this case, the measure of disagreement of the production sector with the parity established at the 4R stage is the 4T concept.

At the same time, the consumer sector also expresses its disagreement with the parity established at the 4R stage. The representatives of this sector wish to receive impressions, which are the toolkit of the 4E concept, through their shopping experience. Thus, each participant in

the areas of vertical distribution on each evolutionary stage of the paradigm cycle may stimulate within the frame of market practices the formation and application of new marketing concepts, reflecting a measure of collective disagreement with the current imperative, which, in essence, is the generator of a new idea.

New concepts spreading in the market environment force the trigon (the wheel of marketing paradigms) to rotate, with the result that there comes the subsequent stage of the paradigm cycle. Figure 1 shows that each subsequent stage has an index that distinguishes it from the similar ones, located in the timeline beforehand: 4R', 4S', 4R', etc.

It is advisable to single out a few patterns that, in our opinion, characterize the development of marketing thought in the changing economic environment.

*The first* - a cloud of conceptual diversity is being objectively formed between paradigmatic stages in the timeline. Between 4R and 4P' stages two marketing concepts - 4E and 4T - have been formed and exist simultaneously in the form of conceptual diversity of. As has been mentioned, this very diversity has emerged as a conceptual response to the disagreement of participants in the areas of vertical distribution with the imperative tools corresponding to the current paradigm (4R), substantially distinguishing it from other paradigms. In its essence the cloud of the conceptual diversity is due to the conceptual freedom of the indicated market players, reflected in the easily accessible potential deviation of the marketing behavior of the participant from the imperative in favor of the benefit.

*The second* - each participant of the market environment in favor of his own benefit can spontaneously deviate in his marketing behavior from the imperative marketing concept. This fact is the explanation of the continuous genesis of new marketing concepts.

*The third* - Evolutionary stages of marketing paradigms are systemically aggregated in the form of the trigon: three elements are connected to each other by highly important relationships. The top of the trigon is imperative. This top is dynamic and for this reason the previous evolutionary stage of the paradigmatic genesis changes for the subsequent one. However, the sequence of these stages is constant: R-C-R.

*The fourth* - the wheel of marketing paradigms is rotating along a centrifugal spiral path, unfolding from the centre to the periphery. Herewith the trigon P-C-R is being replaced by P'-C'-R' and etc. Turbulence of economic processes encourages the participants of the vertical distribution to initiate the change of the peaks of these trigons.

*The fifth* - graduations of the timeline of the centrifugal spiral rotation path of the marketing paradigms wheel are in the exponential dependence ( $f=e^x$ , where  $e=2,7...$  is Euler's number) where the higher up the scale of time, the smaller the distance between the tick marks. This distance over time tends to zero, bringing the function to the singularity.

### 3. Conclusion

All subsequent events of the paradigmatic genesis will rapidly replace each other till the moment when due to changes in the market environment the marketing toolkit will be modified in a convergent way. Following this phenomenon a new era of the genesis of marketing paradigms and concepts will come. It is possible that even in a decade the paradigmatic genesis will start anew with a 4P stage.

## Acknowledgment

This paper is an output of the science project of system analysis of marketing paradigms and concepts of marketing, which is about the strengths and weaknesses of the marketing paradigms, questions of marketing paradigms evolution and establishing the laws for their further development in order to improve efficiency of business processes of the companies.

## References

- [1] Berry, L. (1983). *Relationship Marketing*. Chicago, USA: AMA.
- [2] Borden, N.H. (1964) The Concept of the Marketing Mix, *Journal of Advertising Research*, vol. June, pp. 2-7.
- [3] Ginevicius, R., Podvezko, V. and Ginevicius, A. (2012) Determining the effectiveness of enterprise marketing based on the 4p's model. *Proceedings of : 7th International Scientific Conference on Business and Management*. Vilnius, Lithuania, pp. 366-372.
- [4] Gordon, Y. (2001). *Relationship marketing*. Saint Peterburg, Russia: Piter.
- [5] Grundey, D., Daugelaite, I. (2011) Applying internal marketing paradigm for business partnership development. *Proceedings of International Conference on Current Issues in Management of Business and Society Development*. Riga, Latvia, pp. 262-273.
- [6] Kiselev, V., Syaglova, Y. (2016). The marketing paradigms transformation (cyclical dynamic model). *The manuscript was deposited in the Russian copyright society. Certificate №23672 dated 05.04.2016*.
- [7] Ke, J. (2015) Internet shopping marketing strategy research. *Proceedings of 5th International Conference on Education and Sports Education (ESE 2015)*. Melbourne, Australia, pp. 226-228.
- [8] Ku, Edward C., Wu, Wu-Ch. and Chen, Yan J. (2016) The relationships among supply chain partnerships, customer orientation, and operational performance: the effect of flexibility, *Information systems and e-business management*, vol. 2, pp. 415-441.
- [9] Lauterborn, R.F. (1990) New marketing Litany: 4Ps Pass; 4Cs Take Over, *Advertising Age*, vol.1 October, pp. 26-31.
- [10] Li Z. and Li J. (2013) Analysis of wine micro-blogging marketing using the theory of 4Cs. *Proceedings of the eighth international symposium on viticulture and enology*. Huludao, PEOPLES R CHINA, pp.263-268.
- [11] Liao, H. (2013) Websites marketing strategy of travel agency using an integrated theory of 4C and 4P. *Proceedings of International Symposium on International Marketing Science and Information Technology*. Nanning City, PEOPLES R CHINA, pp. 62-66.
- [12] McCarthy, E.J. (1960). *Basic Marketing: A Managerial Approach*. Homewood, IL, USA: Richard D. Irwin.
- [13] Meurer, A., Verner, L. and Janine F. (2015) The influence of customer services at relationship marketing: a study on the retail self-service, *Revista gestao organizacional*, vol. 1, pp. 4-24.
- [14] Poorangi, M., Khin, E. (2011) Value Innovation through partnership: delineating a conceptual paradigm. *Proceedings of 16th International-Business-Information-Management-Association Conference*. Kuala Lumpur, Malaysia, pp. 1752-1765.

- [15] Pyne, P. (2005). Experience economy: work - is the theater, and every business - the stage. Moscow, Russia: Villiance.
- [16] Schmitt, B. (2001). *Experiential Marketing: How to make the customer feel, act, and relate to your company*. Moscow, Russia: Fair-Press.
- [17] Rizan, M., Warokka, A. and Listyawati, D. (2013) Relationship marketing and customer loyalty: Do customer satisfaction and customer trust really serve as intervening variables? *Proceedings of 21st International-Business-Information-Management-Association Conference on Vision 2020: Innovation, Development Sustainability, and Economic Growth*. Vienna, Austria, pp. 1285-1295.
- [18] Rong, LC (1996) New breakthrough in marketing concept from 4P's to 11P's. *Proceedings of International Conference on Management Science and Engineering*. Moscow, Russia, pp.96-98.
- [19] Syaglova, Y.V. (2015) Systemic analysis of marketing paradigms, *Innovations and investments*, vol. 12, pp. 70-73.
- [20] Zhang, J. and Zhu, J. (2013) Research intelligent precision marketing model of E-commerce in big data. *Proceedings of international conference on industrial engineering and management science (Iciems 2013)*. Shanghai, PEOPLES R CHINA, pp. 1291-1294.

## INTERNATIONAL PROJECT SEINE-NORD – ENLARGEMENT OF THE EUROPEAN WATERWAY NETWORK

Julia Sykorova<sup>1,a</sup>, Andrea Galierikova<sup>2,b,\*</sup> and Jarmila Sosedova<sup>3,c</sup>

<sup>1</sup>University of Zilina, Department of Water Transport, Univerzitna 8215/1, Zilina, Slovak Republic

<sup>2</sup>University of Zilina, Department of Water Transport, Univerzitna 8215/1, Zilina, Slovak Republic

<sup>3</sup>University of Zilina, Department of Water Transport, Univerzitna 8215/1, Zilina, Slovak Republic

<sup>a</sup>julia.sykorova@gmail.com, <sup>b</sup>andrea.galierikova@fpedas.uniza.sk, <sup>c</sup>jarmila.sosedova@fpedas.uniza.sk

\*Corresponding author

**Abstract.** France is considered to be the country with the most extensive waterway network. French waterways are interconnected by many locks that are designed especially for small vessels type Péniche. Width of locks does not correspond to modern worldwide used vessels. Building of connection of the Seine River with Northern Europe ensures deepening and widening the channel in locations, where it is needed. The project Seine-Nord ensures the globalisation and cooperation between France and other European countries such as Belgium, the Netherlands and Germany. This project has been planned since 1975, but it delayed repeatedly for lack of funds. In 2009 there was declared a tender for building the Seine-Nord Europe Canal. The French government decided that the financing of the project will be ensured by the EU, the French Government, and the local government and partly through public-private partnerships. This will guarantee the best way of financing the project. Europe needs more inland ports and logistics services, as well as intermodal terminals, handling equipment, buildings and labour. The aim of the project is to build an inland waterway Seine-Scheldt till 2020. This project will improve the level of services provided by the inland water transport and also create, along the main international economic route, connections of inland ports in Paris, Lille, Brussels, Liege, Duisburg and others in Northern Europe.

**Keywords:** inland waterway, water transport, Seine, globalisation

**JEL Classification:** L91

### 1. Seine and its tributaries

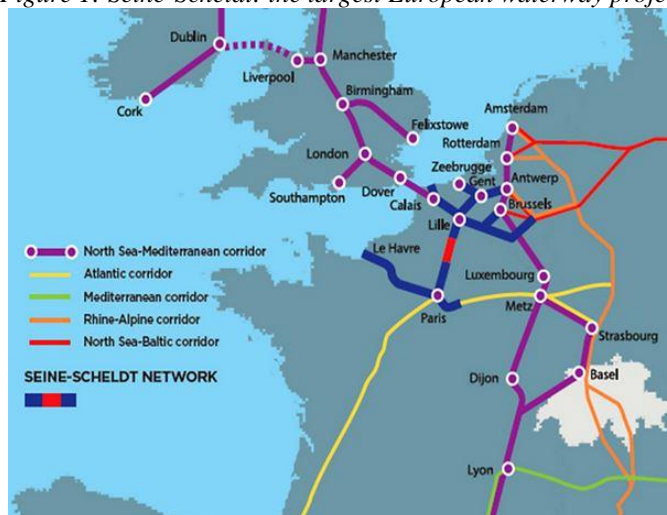
The Seine River flows mainly through France in the length of 776 kilometres. The navigable section of the river is 546 km long and it is classified as an international waterway class Vb (Kubec, 1993). The Seine River is navigable for big sea-going vessels between its estuary in Le Havre to the port de Gennevilliers near Paris.

The Oise River flows into the Seine about 30 kilometres below Paris. Oise is the river of international importance (classification class is Va) and it rises in Belgium. (Kubec, 1993) It connects Paris to the north and it is also an important connection of inland waterways of international importance to the Belgium. The connection of seaport Le Havre and Paris with the Scheldt River is established by the Canal du Nord, Canal de St. Quentin and Canal de la Sambre à l'Oise.



The Scheldt River rises in Gouy and ends after 350 km in the North Sea. It flows between France to Belgium, through the densely populated industrial areas where the water transport is intensively used. (Ministry of transport, 2016) The connection of Seine-Nord through the Scheldt River and canals is very important.

Figure 1: Seine-Scheldt: the largest European waterway project



Source: <https://ec.europa.eu/inea/en/connecting-europe-facility/cef-transport>

## 2. Characteristics of the Canal

The total length of the canal is 107 km (including 34 km of the Oise River, 47 km of Somme and 26 km in Pas-de-Calais). The first 18 kilometres are situated in the Oise Valley. From Noyon to Dunkerque – Excaut (Scheldt) the canal will be built on a hill in relation to preserving the valley. (Habets et al., 2010) The width of the canal is 54 m (but with a multimodal transport system, water tanks and an equipment is width 100 – 150 metres in the area of 2450 ha). It is designed for vessels with a draft of up to 3 metres (total depth is 4.5 m). The canal is classified according to AGN as an inland waterway of international importance Va-Vb. (Voies navigables de France, 2016)

The canal will consist of a series of seven dams with 7 discrete locks (high from 6.4 to 30 metres). This presents a staircase principle that aims to adjust to the terrain. In some parts of the canal, the width of the canal is reduced. This part of the canal is assigned for one-way shipping. Reductions occur in the transition Ribercout industrial area, where the canal's width is narrowed to 38 metres, but it also allows two-way navigation. To build the canal it was necessary to remove 55 million m<sup>3</sup> of soil. The volume of water needed to fill the canal is about 25 million m<sup>3</sup>. Embankments that will create the riverbank and quays have less of 20 metres. For initial filling the canal will retain water in the Oise River for 3-4 months (20 million m<sup>3</sup>). (Ficchi et al., 2016)

The canal has been designed to occupy the smallest area and reduce the impact on agriculture. The importance of the canal is also in the protecting of areas from the flood (Picardy Valley is prone to flooding). Dwell on the environment, therefore the construction of dams, riversides and ridges will be carried out so as to the best fit into the morphology of the territory. (Arnould & Deveughele) The preservation of wetlands, planting of greenery along the canal and maintaining the areas rich in the ecological terms is very important.

In the surrounding of the canal are built 4 industrial areas and also eight sectors of economic activity on the territory with a focus on: construction vehicles, chemicals, plastic, metal, metal processing, paper industry, agriculture, logistics and packaging and eco industries. (Diziain et al. , 2014)

The length of 107 km contains:

- 7 locks (de Montmacq, de Noyon, de Campagne, de Moislains, d'Havrincourt, de Marqulon – Bourion, d'Oisy – le – Verger)
- 3 canal bridges (Pont – canal de la Somme – the longest canal bridge on the world),
- 61 road and railway bridges (after the reconfiguration of the canal in 2014)
- In the future there is planned to build the railway in two sections (near Brie and Cambrai)
- 2 terminals
- 5 anchorages
- 1 water reservoir
- 4 platforms.

The line leads from Compiègne on the Oise River to Noyon, where the Canal du Nord starts. The Oise valley partially flows through the area of NATURA 2000. To avoid adversely affecting, there is used the existing lateral canal along Oise (which will expand) and the future water level is designed to reduce the level of groundwater and wet habitats. (Musil et al., 2015)

Then the canal follows the route of the Canal du Nord after its west side. The canal crosses the watershed between the rivers Somme and Oise near the existing canal tunnel La Panneterie 1061 metres long, but the level of 12.4 m above. In contrast to canal du Nord, the water level of new waterway does not decrease towards the Somme valley but flows by higher terrain along its western edge to the town of Peronne, where the canal crosses the valley by the canal bridge Pont canal de la Somme. (Vikolainen et al., 2015) The length of the bridge reaches 1330 m and will thus the longest canal bridge in the world. Compared to the water level of Somme River will be higher by 27 metres. This way ensures the elimination of intervenes in the ecologically sensitive area of the Somme.

Near Moislans, the route crosses Canal du Nord and passes on its east side. Watershed between the Somme and the Scheldt overcomes near existing canal tunnel Ruyalcourt. The canal remains on the east side of the Canal du Nord till the estuary into waterway Dunkerque – Scheldt. (Billen et al., 2009)

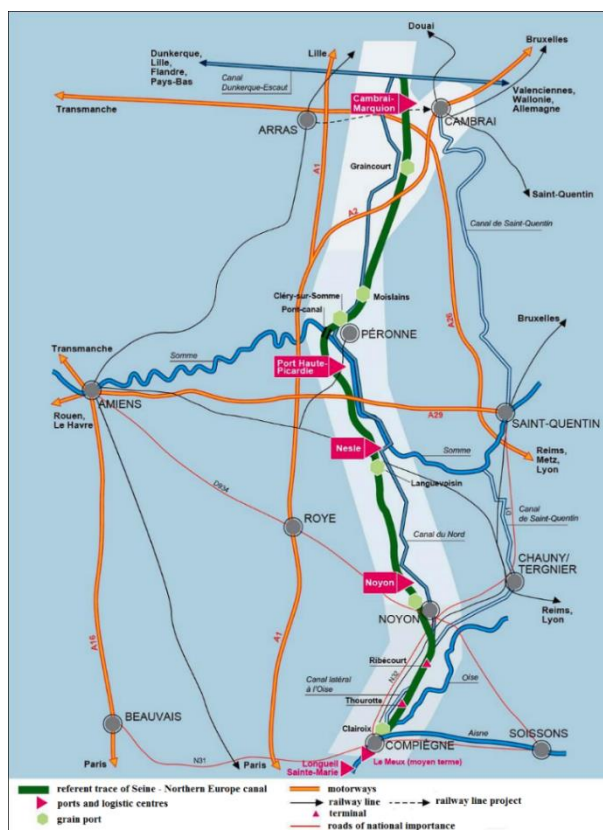
### 3. Connecting of Europe

At present, there is no inland waterway of adequate dimensions for commercial vessels, which connect the northern part of France from Paris through Oise to Belgium and the Netherlands. Therefore, the freight transport used more rail and road transport, which has repeatedly faced the problem of traffic congestion. After the building of the Canal Seine-Nord Europe, the negative impacts on the environment will be reduced because the water transport is the most environmentally-friendly transport sector. (deGuibert, 1997)

The project aims in 2020 to build an inland waterway Seine-Scheldt, which will improve the level of services provided by the water transport, and also create, along the main economic route, connections of inland ports in Paris, Lille, Brussels, Liege, Duisburg and others in northern Europe.

This project brings together France's inland waterway network with Belgium, the Netherlands, Germany and the major northern ports such as Le Havre, Rouen, Dunkirk, Zeebrugge, Antwerp and Rotterdam. (Klieštík, 2013) The project also connects the basin of Rhine with the Scheldt River. There will be built four multi-modal logistics hubs in France. (INEA 2016)

Figure 2: ports and terminals of Seine-Northern Europe canal



Source: <https://canal-seine-nord-europe.fr/>

The objective of the project is to remove the waterway bottlenecks between France and Belgium and to complete the missing links between the Seine and Scheldt rivers, and between Le Havre and Paris. The project is expected to have positive effects on traffic management, modal split, congestions and interoperability. The overall competitive position of the concerned regions will be improved. (European Commission, 2016)

The European Commission focuses on promoting and strengthening the competitiveness of inland navigation in the transport system and facilitates the integration into an intermodal logistics chain, which is related to support for the project Seine-Nord Europe as a priority project PP30 of the Trans-European transport network TEN-T. (Kalina et al., 2015). France wants to consolidate its position in the European water transport. Its market share has doubled in the next decade.

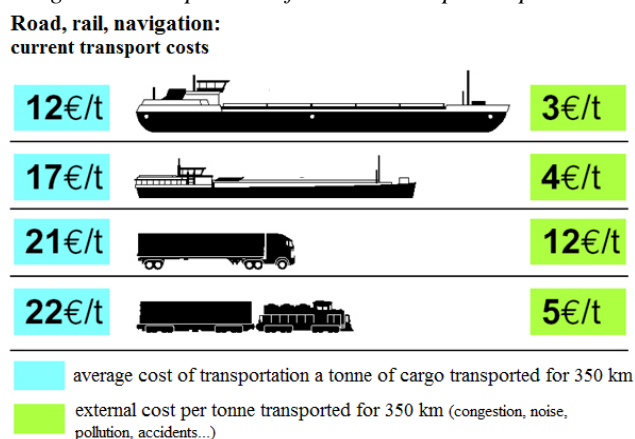
Canal Seine-Northern Europe, in parallel with the Canal du Nord can create 20 000 km European network of inland waterways. 106 kilometres long waterway allows vessels of Vb category to sail along this waterway in the direction from north to south, through France between rivers Scheldt and Seine. The line of the river will lead between Compiègne and Noyon across the Oise River. It is expected a significant reduction of road freight transport,

in particular in the section which is parallel to the A1 motorway. 7 million of tons of cargo per annum (mainly containerised), will be shifted from road to waterways.

#### 4. Benefits of the project

The project Seine – Nord Europe will increase the competitiveness of the region, inland waterway transport and the transport system. The canal will also reduce the negative impact of other modes of transport on the environment. This project will eliminate the construction of a European transport network and create a major international transport corridors for freight transportation (for ships up to 4 400 tons). The canal connects the French Waterways with Belgium, the Netherlands and Germany and major northern ports such as Le Havre, Rouen, Dunkirk, Zeebrugge, Ghent, Antwerp and Rotterdam.

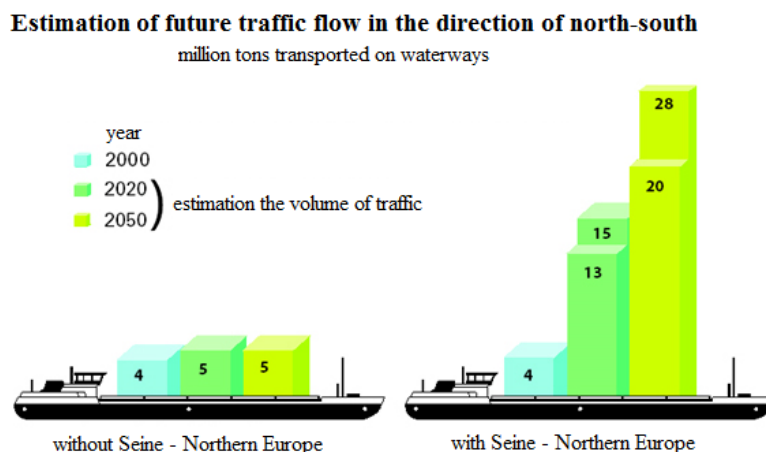
Figure 3: Comparison of costs in transport department



Source: <https://canal-seine-nord-europe.fr/>

It is expected a tripling of sailing in the direction of north-south by 2020. The transport costs will be reduced by 15-50%, due to the many advantages of water transport – reliability and safety. Seine-Nord Europe Canal should ensure the growth of intermodal transport. For carriers and shippers it means the increase of traffic and reducing costs – the vessel's deadweight 4 400 tons is the equivalent of 220 trucks (Fig. 4,5)

Figure 4: The expected increase in traffic volume in tonnes by 2020 – 2050



Source: <https://canal-seine-nord-europe.fr/>

Expected growth of inland waterway transport in 2020 is about 500,000 fewer cars and lorries by 2050, a decline of up to 2 million lorries. This means the limit of the growth of road transport emissions and greenhouse gas emissions.

## 5. Conclusion

The project Seine-Northern Europe is the outstanding project that offers environmental measures and a source of sustainable economic development for the region. The canal with total length 106 kilometres will link two major economic centres (Paris Basin and Nord Pas-de-Calais Region) with the Benelux countries and the chain of 7 maritime ports between Le Havre and Rotterdam. The goal is to arise a multimodal transport network by creating logistics hubs alongside the canal, providing connections with road and rail networks. The reliability of water transport, its safety and its ability to serve city centres without the inconvenience caused by road haulage and the lower costs; can make the Seine-Northern Europe canal a power for economic development in these regions.

In terms of traffic, between 13.3 and 15 million tonnes of goods will be transported along the Seine-Schelde link in 2020 (INEA, 2016), tripling total traffic along this north-south route. Faced with the congested roads of Benelux and northern Europe, it will provide an opportunity to transfer 4.5 billion tonne-kilometres from road to waterway by 2020 (representing 250,000-300,000 tonnes less CO<sub>2</sub> per year).

The project forms part of the EU's ambitious Trans European Transport Network (TEN-T), which aims to develop an efficient network of roads, railways, canals, rivers and airports across Europe. The project is partly funded by the European Union, is an important component of the plan allowing large inland barges to move goods more easily across Europe. Flanders' new government is determined to tackle chronic road congestion in the region by improving water transport. This European transport project will enhance sustainable development, improve the accessibility of regions and raise economic efficiency, supported at local, national and European level.

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## References

- [1] INEA, I. Priority project 30. Inland Waterways Seine-Scheldt. Available: <https://ec.europa.eu/inea/en/connecting-europe-facility/cef-transport>.
- [2] Arnould & Deveughele. (1988). Evolution of the bridge foundations across the Seine River in Paris. *12th International symp on engineering geology of ancient works, monuments and historical sites: preservation and protection*. Athens: A A Balkema, Rotterdam. Vol. 3. pp. 1715-1722.
- [3] Billen et al. (2009). Modelling the N cascade in regional watersheds: The case study of the Seine, SOMme and Scheldt rivers. *1st NitroEurope Open Science Conference and the European Greenhouse Gas Balance*. Belgium: Elsevier Science BV. Vol. 133. pp. 234-246.

- [4] deGuibert. (1997). Impact of navigation projects on the Seine River level downstream from Paris. *Conference on Risk of Flood in the Paris Region*. Paris: Revue generale electricite S A. Vol. 52. pp. 48-50.
- [5] Diziain et al. (2014). Urban logistics by rail and waterways in France and Japan. *8-th international conference on city logistics*. Amsterdam: Eksevier scuebce BV. Vol. 125. pp. 159-170.
- [6] European Comission. White paper. Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system.
- [7] Ficchi et al. (2016). Optimal operation of the Multireservoir system in the Seine River basin using deterministic and ensemble forecast. *Journal of water resources planning and management*. Vol. 142.
- [8] Fougieres, D (2002). The track of the river. The Seine and Paris. Urban history review - Becker Associates. Canada.
- [9] Habets et al. (2010). Multi-model comparison of a major flood in the groundwater-fed basin of the Somme River. *Hydrology and Earth system sciences*, Vol. 14. pp. 99-117.
- [10] Kalina et al. (2015). LNG - Great opportunity for the inland water transport . *Transport means 2015: proceedings of the 19th international scientific conference*, Lithuania. pp. 489-492.
- [11] Klieštik. (2013). Optimization of transport routes based on graph theory as a part of intelligent transport systems. *17th International Conference on Transport Means*, Lithuania. pp. 308-311.
- [12] Kubec. (1993). *Vodní cesty a přístavy. (Inland waterways and ports)* Prague 1993: University of Žilina with s a.s. EKOTRANS MORAVIA.
- [13] Ministry of transport, c. a. (12. 9 2016). Conception for development of inland water transport. *European agreement on main inland waterways of international importance* Appendix 1b. Available: <http://www.telecom.gov.sk/index/index.php?ids=6891> .
- [14] Musil et al. (2015). Risk management of dangerous goods transport. V. *Proceedings of 19th International Conference*. Transport Means. Vols I-VI, pp. 1460 – 1465.
- [15] Vikolainen et al. (2015). Negotiated space for the River Scheldt in Flanders. A longitudinal reconstruction of the policy debate to realize multifunctional retention capacity. *International journal of water governance*, Vol. 3, pp. 101-119.
- [16] Voies navigables de France. (12. 9 2016). *Canal Seine-Northern Europe*. Available: <https://canal-seine-nord-europe.fr/>

# IMPACT OF GLOBALIZATION ON FORMING CORPORATE GOVERNANCE VALUE CONSTITUENT THROUGH THE PRISM OF GENDER APPROACH

Irina Tkachenko<sup>1,a,\*</sup>, Irina Pervukhina<sup>2,b</sup>

<sup>1</sup>Ural State University of Economics, 62, 8 Marta Str., Office 566, Ekaterinburg, 620144, Russia

<sup>2</sup>Ural State University of Economics, 62, 8 Marta Str., Office 454, Ekaterinburg, 620144, Russia

<sup>a</sup>tkachenko@usue.ru, <sup>b</sup>ivp@usue.ru

\* Corresponding author

**Abstract.** Broadening the gender diversity of the board seems to be one of the challenges most corporations are facing globally. The presence of women on corporate boards and their impact on enhancing the value constituent are critical attributes of a well-functioning board and a measure of sound corporate governance (CG). To a large extent, the value-based model of CG is affected by how corporate board directors pursue ethical values. The paper makes an attempt to consider whether the board gender diversity enhances or hinders the development of civilized relations within the firm. A combination of key shareholders' attitudes, beliefs and values and stakeholders' values seems to be an important prerequisite of value-based CG.

In the first part of the article we overview recent efforts to increase the participation of women in boardrooms across the globe and present international evidence on how diversity of gender helps enhance workforce talent, streamlines decision-making, and strengthens a company's image. Though regulations and legislation to increase gender diversity on boards worldwide are changing the complexion of directors in some countries, the number of female directors is still relatively low - an average 12 percent. Then in the second part of the article we focus on a country-specific study and present the case of Russia. In Russian corporate boards the women's representation figure is twice as low as an average – women hold only 5.7 percent of corporate board seats. Special emphasis will be put on functioning women on boards of Russian companies with state participation.

**Keywords:** corporate governance, value constituent, gender diversity, women on boards

**JEL Classification:** G34 G38 J16 M14

## 1. Introduction

A board of directors is an important governance mechanism for many firms. Boards of directors often influence strategic decisions and company direction. Boards of directors provide the opportunities and structure for members to fulfill corporate governance duties and provide firm accountability. Board composition seems to be important too: number of directors, size of the board, and presence of large shareholders. Broadening the gender diversity of the board seems to be one of the challenges most corporations are facing globally. The presence of women on corporate boards and their impact on enhancing the value constituent are critical attributes of a well-functioning board and a measure of sound corporate governance (CG). The diversification of the Board (including gender diversification) provides a broader outlook on the development strategy, raises company's reputation and investment attractiveness.

According to a recent study by McKinsey & Company, gender diverse companies are 15 per cent more likely to have financial returns above their respective national industry medians (Hunt et al., 2015).

Boardroom gender diversity refers to the balance of gender composition of corporate boards. Males have conventionally dominated corporate leadership. Despite the improvements in female education and labor participation, and governments' social efforts to promote gender balance in recent decades, women are still significantly underrepresented on corporate boards compared to the percentage of women in the population as a whole. However, 2014 Survey of Women on Boards states that there is a slow but continuous increase in the overall percentage of women on boards globally. Women now hold over 12% of board seats at the world's largest and best-known companies, up 1.4% from a year ago but only a total increase of 3.1% since 2009. Among these companies, 64% have at least one female director, and nearly 13% have at least three women—a level that some research suggests may constitute a critical mass and allow women's leadership styles to come to the fore. Women make up a higher percentage of directors in developed markets (13.4%, up from 11.8% last year) than they do in emerging markets (8.8%, up from 7.4% last year).

## **2. Boardroom quotas**

Gender diversity in corporate leadership concerns efficient allocation of human talents as an economic resource. Many European countries have legislated an enforcing system for gender diversity. Norway took the lead: since January 2008, all listed companies have to abide by 40% of female directors or face dissolution. Spain has followed Norway's lead by enacting a law requiring companies to increase the share of female directors to 40% by 2015 (Adams & Ferreira, 2008). The United Kingdom proposes a minimum of 25%; Germany mandates 30% female representation in boardrooms. The Swedish government has enforced gender diversity as a legal requirement if companies do not voluntarily reserve a minimum of 25% of their board seats for female directors. In January 2011, France's National Assembly passed a law requiring French boards to be 20% female within three years and 40% female within six years. Similar to France, the EU adopted a proposal to European Union law in 2013 with a goal to fill 40% of non-executive board positions with female directors by 2020. In many cases, EU Member States have already begun introducing laws for company boards, including Belgium, France, Italy, the Netherlands, Spain, Portugal, Denmark, Finland, Greece, Austria and Slovenia (2014 Survey of Women on Boards).

In Asia and the Pacific boardroom gender diversity is significantly lower compared with North America and Europe. Australia has the highest diversity in the region 18.2%, and the Republic of Korea the lowest 1.9%. India and Malaysia are the only Asian countries that impose mandatory quotas for gender diversity. In June 2011, the Malaysian Cabinet approved a policy that requires companies with more than 250 employees to have 30% of senior management positions filled by women by 2016. In India, a new Companies Act was enacted in 2013 requiring all stock exchange listed companies to have at least one female on its board (Qian, 2016).

## **3. Researching the impact on company's performance**

The empirical studies that investigate the relationship between female boardroom representation and firm financial performance present mixed evidence.



In their recent research Bøhren & Staubo (2014) focus on Norway and its gender balance law, requiring 40% of the board to be female. While mandatory quotas in Norway increased representation of women on boards, they also imposed significant and costly constraints on Norwegian companies. Half the firms investigated changed an organizational form and thereby avoided the gender quota. The authors conclude that mandatory rules that impose gender requirements on firms, in fact, may lead to inefficient organizational forms and board composition. Firms affected by the quota are forced to hire new female directors to comply with the law, and there is no belief that these new directors will be as qualified as the current board members (Ferreira, 2015).

An overwhelming majority of other research, however, suggests that gender diversity is associated with positive performance, especially when there is quota requirement (for example, Carter et al., 2003; Campbell & Mõnguez-Vera, 2008; Adams & Raguathan, 2014). Faccio et al. (2016) also focus on organizational outcomes associated with firms run by women CEOs. They find that such firms have lower leverage, less volatile earnings, and a higher chance of survival compared to firms that are run by male CEOs.

Board gender diversity has been studied in non-Anglo Saxon governance contexts as well. Liu et al. (2014) investigate board gender diversity and firm performance in China's listed firms from 1999 to 2011 and find a positive and significant relation between board gender diversity and firm performance. They also document that boards containing three or more female directors have a stronger impact on firm performance compared to boards with fewer women. Gul et al. (2011) show that board gender diversity improves the informativeness of stock price and such a relation is stronger for firms with weaker corporate governance mechanisms. Using a sample of Japanese corporate bond issues, Tanaka (2014) found that firms with female outside directors enjoy lower cost of corporate public debt thus indicating the importance of gender-diverse boards. Cross-country data from a larger pool of Asian and Pacific countries (Qian, 2016) suggest that the appointment of female directors and a gender-diverse boardroom are on average positively associated with a firm's subsequent performance, but with large cross-country and cross-measurement differences. Firm performance is the highest when there are two females on the board.

Female representation in the boardroom is positively associated with not only financial performance: one of the takeaways found by 2014 Survey of Women on Boards is that companies with a higher percentage of women on board tend to be involved in fewer governance related controversies, including fraud, accounting, bribery, and corruption-related controversies, in the last three years. Gavrilov & Ratnikova (2014) analyze nonfinancial aspects of corporate economic effectiveness using a sample of 378 companies from 18 Western European countries over a period from 2007 to 2012. The conclusion that they have drawn is that the increase in the number (and proportion) of women on the board of directors leads to an increase in the effectiveness of the company only up to a certain threshold; further increase tends to decrease the effectiveness. Dezső & Ross (2012) analyzed panel data on the top management teams of the S&P 1,500 firms and found that female representation in top management improves firm performance but only to the extent that a firm's strategy is focused on innovation.

Still several authors have found little or no evidence of a positive effect of boardroom gender diversity on firm performance. Using UK data Gregory-Smith et al. (2014) find no support for the argument that gender diverse boards enhance corporate performance. Empirical data on 186 Dutch and Danish listed firms observed in 2007 indicates that there is no relation between board

diversity and firm performance (Marinova et al., 2016). Sila et al. (2016) investigate the relationship between boardroom gender diversity and firm risk and also find no evidence that female boardroom representation influences equity risk. Nevertheless, for some authors this does not dilute the case for more diverse boards. In this spirit Ferreira (2015, p.110) asserts: ‘I do not think that the lack of evidence that female board representation improves profitability is a problem. The business case is a bad idea anyway. When discussing policies that promote women in business, it is better to focus on potential benefits to society that go far beyond narrow measures of firm profitability.’

#### **4. Boardroom diversity: the case of Russia**

The business case for gender diversity in the Russian boardroom has not been treated in much detail in empirical literature. One of the first studies of the role of women in the boardroom was conducted over a decade ago by the Research Center of the National Association of Independent Directors (Cherkaev, n.d.). Their analysis of Russian companies listed on Russian stock exchanges showed that female board representation is looked upon as a positive trend. At the same time respondents stated that women are strongly underrepresented in the boards of directors. In spite of the fact that Russian social reports follow the General Reporting Initiative Standards, they disregard LA-11 and LA-12 indicators that include gender diversity factors. Back in 2004 women lead only 3% of Russian public companies. 53% of boards had no female directors; 32% of Russian companies had boards with one woman. The average female representation in boards of directors was 6.9%.

A decade has passed but there has been little progress. Legislative authorities have made no attempt to combat discrimination in the boardroom gender either through introducing gender quotas or setting voluntary targets by companies to push for an increase in the number of women on boards.

Currently men participation in the Russian labor force outsizes women participation by 13% (Schwab & Sala-i-Martin, 2015-16). General management is dominated by men. In Russian public companies 92% of all directors are men. If on average 12% of board seats globally are occupied by women, in Russia this figure is much lower. The percentage of board seats held by women is 5.7%. In 2014 women constituted only 4% of the members of the National Association of Independent Directors. Women are present on boards of 39% of Russian companies which is significantly low in comparison with other European countries (France - 100%; the UK - 97%; the USA - 95.2%; Italy - 87%; Switzerland - 85%; Spain - 68%). Among Russian companies, women currently hold 7.6% of all directorships, a decline from 8% in 2014, which is not in line with global heterogeneous trends in female board representation. Female representation among 90 new directors joining Russian public companies in 2014 was 8 persons (9%). However, an increase can be seen in the number of women in executive committees – from 9.1% in 2014 to 11.3% in 2015. Only 7.7% of non-executive board-member positions are occupied by women – the lowest proportion in Europe (Spenser Stuart, 2015). If this trend doesn't change, board diversity will continue to be at issue for Russian public companies.

#### **5. Conclusion**

Enhancing and improving board diversity must be an essential ingredient of a corporation's mission. Incorporating different backgrounds and viewpoints into decision-making helps develop an inclusive and therefore more profitable business model.

However, questions regarding whether board of director gender diversity increases or decreases firm value still remain open. The estimated effects of board diversity vary substantially across empirical specifications and methods. On the one hand, some researchers suppose that a large presence of female directors has a positive relation with firm's performance and governance structure, but on the other hand, other researchers find that female directors do not have any positive effect. Adams et al. (2015, p.78) conclude that: 'The mixed findings in the literature on the relationship between diversity and firm performance can be attributed to differences across studies in measures of performance, methodologies, time horizons, omitted variable biases, and other contextual issues'. And we can't but agree with them.

And one more thing. The experience of one of the authors of this publication (Tkachenko I.) as a professional independent director in boardrooms of several Russian companies with state participation allows us to share some personal observations about the impact of diverse board on board effectiveness and firm performance. We believe that there is no significant difference between male and female attributes of boardroom roles as long as a board member is professional, knowledgeable, proactive, exhibits leadership and collaborative skills and applies high ethical standards. At the same time, the presence of women in the Board of Directors can bring in positive changes in company's strategy, tactics, and decision making. In general, gender diversity in boardrooms can be viewed through the prism of the stakeholder model of CG bearing in mind that women can have a diversity of perspectives that can enhance board monitoring and thereby improve company performance.

## References

- [1] 2014 Survey of Women on Boards (Publication). (2014). MSCI.
- [2] Adams, R. B., & Ferreira, D. (2009). Women in the Boardroom and Their Impact on Governance and Performance. *Journal of Financial Economics*, 94, 291-309.
- [3] Adams, R. B., Haan, J., Terjesen, S., & Ees, H. (2015). Board Diversity: Moving the Field Forward. *Corporate Governance: An International Review*, 23(2), 77 – 82.
- [4] Adams, R. B., Hermalin, B. E., & Weisbach, M. S. (2010). The Role of Boards of Directors in Corporate Governance: A Conceptual Framework and Survey. *Journal of Economic Literature*, 48, 58–107.
- [5] Adams, R., & Ragunathan, V. (2015, August 1). Lehman Sisters. FIRN Research Paper. Available at SSRN: <http://dx.doi.org/10.2139/ssrn.2380036>
- [6] Bøhren, Ø. & Staubo, S. (2014). Does Mandatory Gender Balance Work? Changing Organizational Form to Avoid Board Upheaval. *Journal of Corporate Finance*, 8, 152-168.
- [7] Bøhren, Ø., & Strøm, R. Ø. (2010). Governance and Politics: Regulating Independence and Diversity in the Boardroom. *Journal of Business Finance & Accounting*, 37, 1281-1308.
- [8] Campbell, K., & Mínguez-Vera, A. (2008). Gender Diversity in the Boardroom and Firm Financial Performance. *Journal of Business Ethics*, 83(3), 435-451.
- [9] Carter, D.A., Simkins, B.J., & Simpson, W.G. (2003). Corporate Governance, Board Diversity and Firm Value. *Financial Review*, 38, 33-53.

- [10] Dezső, C. L., & Ross, D. G. (2012). Does Female Representation in Top Management Improve Firm Performance? A Panel Data Investigation. *Strategic Management Journal*, 33, 1072-1089.
- [11] Faccio, M., Marchica, M.-T., & Mura, R. (2016). CEO Gender, Corporate Risk-Taking, and the Efficiency of Capital Allocation. *Journal of Corporate Finance*, 39, 193–209.
- [12] Ferreira, D. (2015). Board Diversity: Should We Trust Research to Inform Policy? *Corporate Governance: An International Review*, 23(2), 108 – 111.
- [13] Gavrilov, D., & Ratnikova, T. (2014). The Impact of Gender Diversity of the Board and Ownership Structure on Corporate Performance: Evidence from Western Europe [in Russian] *Ekonomicheskii zhurnal VSE*, 18(3), 387-428.
- [14] Gregory-Smith, I., Main B. G., & O'Reilly, C. A. (2014). Appointments, Pay and Performance in UK Boardrooms by Gender. *Economic Journal*, 124(574), F109–F128.
- [15] Gul, F., Srinidhi, B., & Ng, A. (2011). Does Board Gender Diversity Improve the Informativeness of the Stock Price? *Journal of Accounting and Economics*, 51, 314–338.
- [16] Hunt, V., Layton, D., & Prince, S. (2015, January). Why Diversity Matters. Retrieved August 2, 2016, from [http://www.mckinsey.com/insights/organization/why\\_diversity\\_matters](http://www.mckinsey.com/insights/organization/why_diversity_matters)
- [17] Liu, Y., Wei, Z., & Xie, F. (2014). Do Women Directors Improve Firm Performance in China? *Journal of Corporate Finance*, 28, 169 – 184.
- [18] Marinova, J., Plantenga, J., & Remery, C. (2015, September 28). Gender Diversity and Firm Performance: Evidence from Dutch and Danish Boardrooms. *The International Journal of Human Resource Management*, 27(15), 1777-1790.
- [19] Qian, M. (2016). *Women's Leadership and Corporate Performance* (No. 472, ADB Economics Working Paper Series). Asian Development Bank.
- [20] Schwab K., Sala-i-Martin X. The Global Competitiveness Report 2015–2016. Available at: [http://www3.weforum.org/docs/gcr/2015016/Global\\_Competitiveness\\_Report\\_2015-2016.pdf](http://www3.weforum.org/docs/gcr/2015016/Global_Competitiveness_Report_2015-2016.pdf)
- [21] Schwab, K., & Sala-i-Martin, X. (n.d.). *The Global Competitiveness Report 2015–2016* (Publication). Retrieved June 21, 2016, from [http://www3.weforum.org/docs/gcr/2015-2016/Global\\_Competitiveness\\_Report\\_2015-2016.pdf](http://www3.weforum.org/docs/gcr/2015-2016/Global_Competitiveness_Report_2015-2016.pdf)
- [22] Sila, V., Gonzalez, A., & Hagendorff, J. (2016). Women on Board: Does Boardroom Gender Diversity Affect Firm Risk? *Journal of Corporate Finance*, 36, 26–53.
- [23] *Spencer Stuart Russia Board Index 2015* (Rep.). (n.d.). Retrieved August 25, 2016, from [https://www.spencerstuart.com/~media/pdf\\_files/research\\_and\\_insight\\_pdfs/russia\\_ru\\_webf\\_s4.pdf](https://www.spencerstuart.com/~media/pdf_files/research_and_insight_pdfs/russia_ru_webf_s4.pdf).
- [24] Tanaka, T. (2014). Gender Diversity in the Boards and the Pricing of Publicly Traded Corporate Debt: Evidence from Japan. *Applied Financial Economics*, 24(4), 247–258.
- [25] Черкаев, Д И. (n.d.). *Роль женщин в корпоративной ответственности и управлении* [*The Role of Women in Corporate Responsibility and Governance*]. Speech presented in The International Foundation for Social-Economic and Political Issues (The Gorbachev Foundation), Moscow. Available at: [http://www.gorby.ru/activity/conference/show\\_585/view\\_27307/](http://www.gorby.ru/activity/conference/show_585/view_27307/)

## APPROACHES TO CHOSEN CURRENT ISSUES OF GLOBALISATION

Mária Tokárová<sup>1,a,\*</sup>

<sup>1</sup>University of Economics in Bratislava, Faculty of National Economy, Department of Economic  
Policy, Dolnozemska cesta 1, 852 35 Bratislava, Slovak Republic

<sup>a</sup>maria.tokarova@euba.sk

\*Corresponding author

**Abstract.** The current turbulent environment in the world is marked by many changes, most importantly globalisation. It is a very important phenomenon, which has positive, as well as negative aspects. Globalisation features several conflicts that need to be resolved. National economies as well as the global economy are subject to fundamental changes in structure and functioning of the economy, both on the national and the trans-national levels. In order to resolve the current problems, new approaches need to be adopted. They include especially the development of a systematic perspective on new phenomena, the development of mutual connections and relationships, the need for interdisciplinarity and holistic approach, and the creation of architecture of mutual connections and relationships. The issue of globalisation is very extensive; therefore, it is not feasible to deal with a wide range of problems within this paper. We will focus on two important areas: technological change and issues of environmental damage. Within the framework of global economy, the topic of technological change includes two important processes happening in the present, more specifically the already mentioned technological change, as well as the processes of globalisation. The issue of environmental damage is characterised by the conflict between economy and nature. This means that the manifold increase in the intensity of unbearable exploitation of natural resources is in deep conflict with rational management.

**Keywords:** globalisation, impacts of globalisation, technological change, environment

**JEL Classification:** F6, F60, F64, O3

### 1. Introduction

Nowadays, we witness turbulent changes at the level of global economy, the economy of national states but also at the level of individual undertakings. The key factor of these changes is globalisation. It is a phenomenon which creates a complex of global priorities, facts and consequences in all spheres of life. It brings new qualitative changes and a huge production potential but, on the other hand, also threats and risks (Šikula, 2009). These are the conflicts of civilisation, which include the conflict in the global capital appreciation, the conflict in the social field, the field of human labour and human capital, the conflict between the mutual interdependencies of states and their entities, and the deformation of globalisation.

Thus, it can be stated and summarised that the present is characterised by global risks, which include economic, social, geopolitical, technological, and environmental risks (Global Risks, February 2008).

All listed risks are of high importance. They require global risk management. However, first it is needed to focus on the causes and how to prevent them (Jemala, 2008). Because the

characterisation and analysis of all risks exceeds the framework of this paper, we will only focus on two groups, i.e. technological and environmental risks.

## **2. Technological context of globalisation**

### **2.1 Characterisation of basic issues**

In the 1990s, all aspects of the development of globalisation experienced an unprecedented increase in intensity. The correlation of its individual sides and component parts deepened and globalisation took on a more complex character and a more developed demonstration. This makes it possible to identify deeper connections of the technological conditionality and directions of the globalisation processes, as well as to examine the already distinctive character of economic, social, and overall societal impacts, their advantages and disadvantages, but also their dilemmas and conflicts (Šikula, 1999).

The twenty-first century is undoubtedly a century of great technological progress. For the sake of completeness, we list movements that affect all spheres of human activity in the process of ground-braking technological change and that correspond to the decisive trends of technological progress. Here, we are talking about the explosion of information and communications technology (ICT), which accelerates in an outstanding way and transforms into a more and more intensive and omnipresent informatisation of society. The most demonstrative example is the internet and its rapid development, as well as the fact that the world of business came to realise the possibilities of its commercial use. It is the gate to the world of information society. Another example are biotechnologies and their swift development, as well as the connected sector of research and industry, the development of which is unstoppable. The fundamentally new transformation of the physical world is the focus of nanotechnologies. It is also needed to mention other directions of development of production, transportation, and energetic super-technologies, as well as solar technologies, which represent a promising alternative of energy production and the possibility of resolving the energy problem “from the other end”, i.e. by reducing the energy intensity. This is a breakthrough in superconductivity, which minimises the amount of energy needed per unit of power (Šikula, 1999, Toffler&Tofflerová, 1996).

At present it can be stated that ICT has become an important factor from the viewpoint of technological and evolutionary processes. ICT had several key features:

- it penetrated into all areas,
- it started to transform the overall area of global consumption,
- it also started to transform the functionality of individual sectors within economic mechanisms and changed their competitiveness but it also changed the relationship between the client and the producer (Staněk&Ivanová, 2015).

The ideas of robotics revolution, which started to appear in the middle of 1980s, did not come true. The revolution was supposed to eliminate hard, dangerous and unqualified human labour. However, in reality, there was a relocation of production to cheaper countries, which was favourable for producers as opposed to using complex robotised systems. A much more significant factor from the viewpoint of technological process was ICT. Another significant thing is the factor of individualisation of the manufactured produce and a change of economic paradigm, according to which it is only possible to decrease prices in the case of mass production. We need to pay attention to the development of energetic systems, development of alternative energy sources, which is also determined by the effort to decrease the energy

dependency on key global producers. And the question is, whether the whole truth is being said about alternative energy sources. What is important here is the fact that their use is connected with an exponential increase in the energy prices for end-users and a shift from the production of groceries towards alternative energy sources. Focus needs to be put on the importance of economical technologies (Gonda, 2015).

Thus, technologies are only a tool of possible change. However, what this tool will be used for only depends on the structure of society and people themselves. Also, it cannot be expected that technology itself will create a positive impact on future development and, at the same time, eliminate negative phenomena connected with technological change.

If we are supposed to assess the development in the field of technology and its impacts on the development of the human society, we can move along certain lines (Staněk et. al., 2015).

The first line is technical innovation. It changes the character of products, the character of technology, and it also radically transforms the character of manufactured produce, products, services, etc. The second line is technical innovation in the field of management organisation and especially in the field of ICT. The third line is represented by technologies that change the very biological foundation of human society, i.e. they change the form and functioning of the human organism. Technologies changing the relationship between the human society, economy and natural environment constitute the fourth line.

## **2.2 Impacts of technological change and globalisation**

These lines differ in their dynamics and impact on individual parts of society and economy. They also have different impacts in different territories on the planet, in different countries, continents, etc. Many scholars expect that the shift in technological parameters and level of products will make it possible to resolve all current problems from income polarisation to the process of greening the society. This is not the case, because, on the other side, there is a more and more obvious deepening of the difference between the technical equipment of the human society and the ability of human entities to absorb the new quality of connection between technology and humans, as well as the new quality of the society's technological level. It cannot be said that phenomena (such as Facebook, or the internet itself) have become universally acknowledged and only have a positive impact on the development of society. Similarly, if we, for instance, take some areas of the development of genetic engineering into account, they do not only include positive influences and efforts to eliminate illnesses from the human gene pool, but they also represent many hazardous phenomena that arise in combination with technological impacts.

## **2.3 Current views on technologies**

The present view on the huge technological wave sweeping over society, economy, individual continents or countries is varied and often contradictory (Staněk et. al., 2015). As a matter of fact, the development of technological change, for example in the field of robotics, information systems, and genetic engineering, continues. These processes are being presented as the main tool for solving social and economic problems. However, what is not mentioned is what employee and social impacts the new technologies might have on the development of employment structure, society structure, division of labour, financial transfers, etc. There is even an illusion that technological change should automatically solve all problems that led to today's deep social and economic crisis, including the disproportionate polarisation of wealth and poverty, problems of global consumption, etc. (Ivanová, 2013).

Thus, one of the key areas connected with technology is the issue of technology and society polarisation. If technologies really enabled a significant decrease in the prices of goods and services, the issue of income polarisation would take a back seat, as it would be possible for the majority of population to acquire high-quality goods for low prices. In this case, the majority of the population could benefit from technological impacts. Based on this, some theoretical concepts of technological change have developed, and they are supposed to secure general prosperity and wealth. These technologies are dealt with concisely in the well-known monography “Abundance: The Future is Better Than You Think” (Diamandis&Kotler, 2013). What is important is abundance for everyone, when technological breakthroughs in all areas of social activity make it possible for an optimal quality of life for the vast majority of the members of the society to be reached. On the other hand, there is the question whether such a layering of the relationship between technologies, availability of goods, acceptable price development and price level can really be taken into account.

The problem is based on the following question: if most of the labour in a society is replaced by automatic production systems run by computers in real time, which make use of robotic processes, how will we remunerate that part of population, which has been replaced by computers and which became unnecessary to secure the functioning of society (Staněk&Ivanová, 2015). Thus, ICT influences the overall labour market. The view on the relationship of informatisation and employment is changing fundamentally. In the development until now, what was characteristic was especially the gradual redirecting of labour force from agriculture to industry, from industry to services, and from services to the field of the quaternary sector, i.e. research and highly mental labour (Staněk&Staněk, 2005). Thus, in the global economy, the issue of employment acquires new dimensions (Juríčková&Staněk, 2004). For the sake of completeness, it is needed to mention also one of the most visible social and economic changes that are happening in the world today, namely aging of population (Loužek, 2008). Approaches taken over from population dynamics offer a great potential to the study of technological development. Technologies survive, flourish and perish in a similar way to animal species (Baláž, 2008).

An important factor is education and technological change. Educational system should react in advance and prepare systems enabling a change of occupation during a person's active life. For now, there is no such radical change of contents of educational systems. Based on the assumption that these systems are supposed to secure a system of life-long learning as a flexible adaptation to technological change and the ensuing educational and qualification requirements, especially the system of life-long learning should be developed, and it would form an organic part of educational activities and systems. In this context, new technologies prove to be rather problematic. They do not solve the problem of moving people back into employment, but rather create a new sphere of sales and services, which can be an interesting business but it is not a solution to the global problem of labour market. This means that new technologies, which developed in the field of learning systems, e-learning, and others, do not necessarily lead to a solution of key social problems connected, for instance, with unemployment, etc. (Ivanová, 2013). Thus, learning and education are a more and more important life-long destiny of humans, they are an attribute determining their social and work position. They are the basis of development of intellect and personality, and, eventually, also the whole society (Juríčková&Staněk, 2003).



### **3. Environmental damage**

#### **3.1 Starting points of the conflict between economy and nature**

The human dependency on nature was more complex from the beginning. Because people created culture by their new non-biological activities, the requirements to create and reproduce the super-personal cultural system were enforced with a growing intensity in conflict with the original biological interests of people. (The fact of superiority of cultural subsystems over individual people has been pointed out in the past by several authors, e.g. Weber, 1983.) The super-personal “interests” of culture were enforced. This is why, starting with the modern times, the non-biological “assessment” and studying of nature from technological and economic viewpoints gained prominence. The non-assessing but culturally determined knowledge with the truth as the criterion was more important. The long-term compatibility of the arising cultural structures with the original natural structures (values) was neglected. In the era when culture was not ecologically endangered, many great thinkers thought that man is the measure of all things and that the relationships between people and cultures are primary and more important than relationships between people and nature (Šmajš, 2010).

The development has shown that this is not the case. From the viewpoint of globalisation, the topics of environment, use of natural resources, and relationships between economy and nature are specific in several ways. On one hand, this is the area where people began to realise global connections and threats of the present model of economic development to a greater extent and in more precise terms. On the other hand, even though in the past decades, many pieces of evidence proving an alarming increase in the impact of the ongoing human plundering approach to nature have been collected, in practice, nothing changed for the better – on the contrary, the more and more intense globalisation sharpened the environmental problems even more. This is a short-term policy of exploitation. The results: while our predecessors understood earth as their mother and nourisher, today, people see it as a non-living object of their profit-seeking interests, which can be exploited and plundered at will (Šikula, 1999).

We are talking about the conflict between economy and nature, or environment, and there is a danger that it will end apocalyptically. The manifold increase in the intensity of the exploitation of natural resources ignoring the ecological costs is in deep conflict with rational management. The obvious and hidden conflicts are intensifying, as is the case with the fight to take control over sources of energy and water, habitable land, etc. A dangerous twist happened at the end of 1980s and the beginning of 1990s. The ecological footprint per person started to exceed the earth’s biocapacity, and the global production and consumption exceed the planet’s reproductive capacity (Šikula, 2009). Thus, human activity damages nature and the environment.

#### **3.2 Specification of the problems**

First warnings of changed conditions on the planet appeared as early as over thirty years ago. These were especially the following changes, which are still happening:

- the impact and bond between CO<sub>2</sub> emissions and natural methane, which is being released from permafrost,
- a change of waters and the availability of water sources,
- the risk of drought,
- a significant impact on biodiversity, illnesses, etc.,
- a potential impact of intensive animal farming in agriculture on the overall CO<sub>2</sub> emissions.

All this represents a much more complex mechanism of consequences of individual lines of development, but also of mutual connections between individual areas that must be examined as a whole rather than as isolated phenomena (Staněk et. al., 2015).

In the field of a change in the earth's natural conditions, the development of global economy in the society, and environmental damage, there are several areas of problems at the centre of attention. The first of them is the issue of global warming connected with the development of global economy from the viewpoint of greenhouse gas emissions. The probably still persisting idea that by reducing greenhouse gas emissions the catastrophic development can be stopped is rather naïve. The development of the planet's atmosphere is influenced by many factors, such as ocean currents, overall deforestation, melting of ice caps on the poles, warming of seas and oceans, pollution of the world's seas, etc. However, there are also other phenomena and little is known about their impacts on global warming. They include, for instance, the so called global dimming, cyclical glacial temperature variations, volcanic threats, oil extraction in continental shelves, and threats of ecological disasters, which create a very complex global system of mutual relationships and connections. The planet's natural conditions start to change radically, which will affect especially agriculture as the main food producer. The described change of natural conditions is evident in the change of hydrological conditions. This does not only lead to significant changes in the creation of monsoon rains and increase the threat of torrential rains and floods, but also interferes significantly with fishing, threatens food production possibilities, and gives priority to the issue of drinking water supply across the planet.

This is accompanied by a rise in hazardous phenomena, for instance new virus diseases, such as Ebola, malaria, etc. Climate change is a global process, which is a result of the impacts of individual internally connected factors and which is relatively independent from people. Global warming must be understood as a complex phenomenon, which is a great civilisation challenge that the human society has to face. The future shows that it is necessary to take a gradual increase in the significantly worsening impacts of climate change for the human society into account. The most important task is to withstand the processes of adaptation to the change of the earth's natural conditions (Staněk&Ivanová, 2015). With the interest of the future generations in mind, it is desirable to look for solutions for the listed problems, as well as ways to integrate ecological criteria into development strategies while respecting social criteria at the same time. This is in full accordance with the strategy of sustainable development (Tošovská, 2011).

### **3.3 Looking for solutions**

Let us ask a question: How and where should we look for the way out of these problems? It seems that the most efficient way of resolving the global environmental crisis is to combine the eco-efficiency and eco-sufficiency principles. Eco-efficiency means a radical increase in the efficiency of the use of natural sources of energy and raw materials using new revolutionary technologies, while eco-sufficiency means securing equality, or at least convergence of opportunities, on a level lower than the excessive consumption of an inhabitant of, for instance, the United States. This means reassessing the demand of that part of world that shows great overconsumption, so that the consumption can be increased in another part of the world, where people die of hunger, thirst, and as a result of epidemics and natural disasters (Šikula, 1999).

Another approach to solving the ecological crisis is represented by an opinion supporting the necessity of further economic growth (Valach, 2007). The answer to the question of economic growth is important from the viewpoint of future global economic strategy. However, to reveal it partially, an independent fundamental discussion needs to take place. It seems that the growth

direction is unfeasible. How to manage without it is suggested by the philosophy of natural and cultural symbiosis. The conflict between nature and culture accumulated by industrial growth gives rise to a requirement to resolve a set of tasks on the global future of mankind, its culture and management. It is spontaneously natural that we are in the spotlight of ourselves, for ourselves and in ourselves (Choluj, 2008).

#### 4. Conclusion

Globalisation is the phenomenon of the present, and it brings both benefits and risks. Risks are more dangerous, because they are connected to all spheres of life of society, they interfere with it radically and give rise to phenomena that the humankind has to face in a more and more serious form. They include a number of problems and conflicts. In this paper, we dealt with technological change (the conflict between economy and people, or society) and environmental damage (the conflict between economy and nature). Technologies represent huge progress but they are only a tool of possible change, and their actual use is dependent on the structure of society and people themselves. Similarly, the mechanism of a combined influence of changes that will cause change in the impacts of natural environment on human economy and society will not only change the society itself but also the functioning of economy. A change of natural conditions will radically change the overall image of today's society from the viewpoint of consumption, functioning, infrastructure, costs, production capacity, etc. This phenomenon is the basic paradigm of survival of human society in changing conditions.

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#### References

- [1] Baláž, V. (2008). Populačná dynamika komunikačných technológií. *Ekonomický časopis*, roč. 56, s. 113 – 130.
- [2] Choluj, V. (2008). Od prírody k človeku a jeho kultúre. *Filosofický časopis*, roč. 56, č. 2, s. 269 – 274.
- [3] Diamandis, P. H. & Kotler, S. (2013). *Hojnost. Budoucnost je lepší než si myslíte!* Praha: Nakladatelství Dokořán
- [4] Gonda, V. (2015). Recenzia Staněk, P., Ivanová, P. Súčasná tendencie ekonomickej globalizácie. *Ekonomický časopis*, roč. 63, č. 10, s. 1076 – 1080.
- [5] Ivanová, P. (2013). *Humanizácia ekonomiky a makroekonomické procesy v 21. storočí*. Bratislava: Vydavateľstvo EKONÓM, s. 135, s. 148 – 149.
- [6] Jemala, M. (2008). Globalizácia ako sústava procesov vytvárania vyspelejšieho, ale rizikového sveta. *Ekonomický časopis*, roč. 56, č. 9, s. 925 – 942.
- [7] Juríčková, V. & Staněk, P. (2003). Financovanie celoživotného vzdelávania v Slovenskej republike. *Ekonomický časopis*, roč. 51, č. 7, s. 796 – 810
- [8] Juríčková, V. & Staněk, P. (2004). Vplyv globalizácie na vývoj zamestnanosti a implikácie pre Slovensko. *Ekonomický časopis*, roč. 52, č. 11, s. 1188 – 1201.

- [9] Loužek, M. (2008). Je stárnutí populace tragédií? *Ekonomický časopis*, roč. 56, č. 6, s. 565 – 581.
- [10] Šikula, M. (1999). *Globalizácia – rázcestie civilizácie*. Bratislava: SPRINT vfra, s. 46 – 55, s. 105 – 106, s. 113 – 114.
- [11] Šikula, M. (2009). Kritická miera rozporov civilizácie a globálna ekonomická kríza. *Ekonomický časopis*, roč. 57, č. 8, s. 732 – 755.
- [12] Šmajš, J. (2010). Ekonomika a příroda – filosofická reflexe problému. *Ekonomický časopis*, roč. 58, č. 2, s. 126 – 143.
- [13] Staněk, P. & Ivanová, P. (2015). *Súčasnú tendencie ekonomickej globalizácie*. Bratislava: Vydavateľstvo ELITA, spol. s r. o., s. 7 – 49, s. 118, s. 14 – 144.
- [14] Staněk, P. & Staněk, V. (2005). Globalizácia a jej sociálne súvislosti. *Ekonomický časopis*, roč. 53, č. 2, s. 171 – 183.
- [15] Staněk, P. et. al. (2015). *Technológie, financie a budúcnosť globálnej ekonomiky*. Bratislava: Vydavateľstvo EKONÓM, s. 7 – 8, s. 23, s. 124 – 142.
- [16] Toffler, A. & Tofflerová, M. (1996). *Utváranie novej civilizácie*. Bratislava: Open Windows, s. 38.
- [17] Tošovská, E. (2011). Strategie „zeleného rustu“ a trh práce. *Ekonomický časopis*, roč. 59, č. 10, s. 987 – 1004.
- [18] Valach, M. (2007). Antropocentrický prístup k ekologické krízi. *Filosofický časopis*, roč. 55, č. 5, s. 735 – 759.
- [19] Weber, M. K. (1983). *K metodológii sociálnych vied*. Bratislava: Pravda.

# REGIONAL INTEGRATION AS THE FACTOR OF NATIONAL ECONOMIES'S DEVELOPMENT UNDER THE CONDITIONS OF GLOBALIZATION (THE CASE OF THE EURASIAN ECONOMIC UNION)

Tolstel M.<sup>1,a,\*</sup>, Pridachuk M.<sup>2,b</sup>

<sup>1</sup>400062 Prospekt Universitetski, 100, Volgograd, Russia

<sup>2</sup>400131 Gagarin Street, 8, 400131 Volgograd, Russia

<sup>a</sup> tolstelms@volsu.ru, <sup>b</sup>pridachuk@yandex.ru

\*Corresponding author

**Abstract.** The functioning of a modern economy shows that globalization leads to social, economic, political, technological differentiation while an integrated supranational associations conduct a more sophisticated economic, social, structural policy, which allows to offset the negative effects of globalization, as well as improve the competitiveness of its members. From the formal execution of the commitments related to the removal of tariff barriers in mutual trade, countries have moved to deeper integration, aimed not only at the growth of mutual trade, and to a greater extent on the development of national economies, increasing production in the framework of regional production systems, promoting the development of human capital. The analysis of trends in the development of regional economic integration (the Eurasian Economic Union (EEU)) in the context of globalization allows valid conclusions about the impact of integration processes on the development of national economies. The analysis of the globalization's indexes dynamics (the KOF Index of Globalization, the DHL Global Connectedness Index (GCI)) as the country engagement metrics into global economic processes shows that the low level of regional economic integration and the mismatch of economic cycles and balance of payments impose on the process of serious constraints. Economic studies show that the EEU members do not receive economic benefits from international integration because of many reasons, especially economic and political instability makes barriers for future prosperity of the EEU. Based on its review of the results of practical research regional integration problems the authors analyze the ways to improve situations and offer their own solutions for the specific problems.

**Keywords:** globalization, international economic integration, Eurasian Economic Union (EEU), economic development, economic growth

**JEL Classification:** C18, F02, F15, F36, F63

## 1. Introduction

The process of globalization has significant influence on the national economies. There globalization tendencies have increased especially since the 1970s, when deeper liberalization of international trade and investment flows started. Globalization brings new possibilities as well as new challenges for all actors of the world economy. However, a lot of countries, suffering from serious socio-economic backwardness and low level of human development, were not able to use them and they stayed on periphery of the globalized world economy for a

long time. While an integrated supranational associations conduct a more sophisticated economic, social, structural policy, which allows to offset the negative effects of globalization, as well as improve the competitiveness of its members. From the formal execution of the commitments related to the removal of tariff barriers in mutual trade, countries have moved to deeper integration, aimed not only at the growth of mutual trade, and to a greater extent on the development of national economies, increasing production in the framework of regional production systems, promoting the development of human capital (Stromquist, 2007).

The emergence of new international economic integration organizations predetermines the need to rethink the patterns of development models of regional integration processes, especially in the context of their impact on the economies of the participating countries under the conditions of globalization. The modern economic science is not yet able to determine the full effect of the integration processes implementation at the regional level.

The analysis of the globalization's indexes dynamics (the KOF Index of Globalization, the DHL Global Connectedness Index (GCI)) as the country engagement metrics into global economic processes shows that the low level of regional economic integration and the mismatch of economic cycles and balance of payments impose on the process of serious constraints. Economic studies show that the EEU members do not receive economic benefits from international integration because of many reasons, especially economic and political instability makes barriers for future prosperity of the EEU. Based on its review of the results of practical research regional integration problems the authors analyze the ways to improve situations and offer their own solutions for the specific problems.

Thus, the aim of our paper is to describe methodology for assessing the impact of regional integration on the national economies's development under the conditions of globalization (for example, the Eurasian Economic Union (EEU)); to present current economic situation of the participating countries and to show consequences of their involvement in integration processes for socio-economic development.

## **2. Overview of Globalization Indexes' Dynamics and Present Status of the EEU Members' Competitiveness**

Increasing attention to globalization has led to the development of several globalization indexes that aggregate across multiple variables to calculate summary measures of countries' globalization levels that are then used to rank them. The first such analysis to attract significant attention was produced by the consulting firm A.T. Kearney in collaboration with Foreign Policy magazine, and was released in 2001. But since that index has not been released since 2007, it will not be addressed further here. Rather, this section will focus primarily on other globalization indexes that have been published more than once and continue to be updated: the DHL Global Connectedness Index and the KOF Index of Globalization.

### **2.1 The DHL Global Connectedness Index**

The DHL Global Connectedness Index aims to provide the most comprehensive and timely account of the world's global connectedness, backed up by regional and country-level analysis covering 140 countries that encompass 99% of the world's GDP and 95% of its population. It focuses on 12 types of trade, capital, information, and people flows (or stocks cumulated from past flows) and is generated based entirely on hard data to separate the facts about global connectedness from fiction. The historical coverage stretches back to 2005 and subsumes more than 1 million data points. The DHL Global Connectedness Index takes a unique 3-D approach

to measuring globalization. It looks not only at the depth of international interactions but also at their geographic distribution (breadth) and their directionality (outward versus inward).

Depth measures countries' international flows relative to the size of their domestic economies. Overall, the depth of global connectedness remains quite limited – lower than many people think (Ghemawat & Altman, 2014).

In addition to depth, the DHL Global Connectedness Index also looks – unlike other globalization indexes – at breadth as well as several other measures of the distribution of international interactions. Breadth measures how closely a country's distribution of international flows across its partner countries matches the global distribution of the same type of flows. The index reveals that breadth of global connectedness is declining because advanced economies have not kept up with the big shift of economic activity to emerging economies: their breadth is declining while that of emerging economies is increasing (albeit from lower levels).

*Table 1: Global Connectedness Scores: Characteristics of the EEU Member Countries (period 2005-2013)*

Country	Global Connectedness Score (0-100)								
	2005	2006	2007	2008	2009	2010	2011	2012	2013
Armenia	35	33	35	39	42	43	45	44	44
Belarus	30	30	31	31	32	33	36	36	37
Kazakhstan	48	48	53	52	49	50	52	53	48
Kyrgyz Republic	27	29	29	32	24	22	23	24	26
Russian Federation	43	45	41	42	44	44	44	43	44

*Source: Ghemawat & Altman (2014).*

Table 1 clearly shows that the EEU member countries were not expected to be the top-ranked country in terms of overall global connectedness. In spite of this fact the Global Connectedness Score of the EEU member countries is constant over the long-term, over the period 2005-2013 it ranged from 2 to 10 percent. This current economic marginality is caused by various reasons, such as natural conditions, history, development after USSR (connected with economic instability). Due to various consequences – internal as well as external – since the 2013th economic situation has been improving, this could lead to the growth of the Global Connectedness Score in the future. However, it is necessary to say that the Global Connectedness Rank (out of 140 countries) for all the EEU members is still very low.

## 2.2 The KOF Index of Globalization

The KOF Index of Globalization was introduced in 2002 (Dreher, 2006) and is updated and described in detail in Dreher et al. (Dreher et al., 2008). Globalization is conceptualized as a process that erodes national boundaries, integrates national economies, cultures, technologies and governance and produces complex relations of mutual interdependence.

The KOF Globalization Index, which measures the economic, social and political dimensions of globalization, observes changes in the globalization of a series of countries over a long-term period. Based on 23 variables, the KOF Globalization Index 2016 covers 187 countries and relates to the period 1970 to 2013.

More specifically, the three dimensions of the KOF index are defined as:

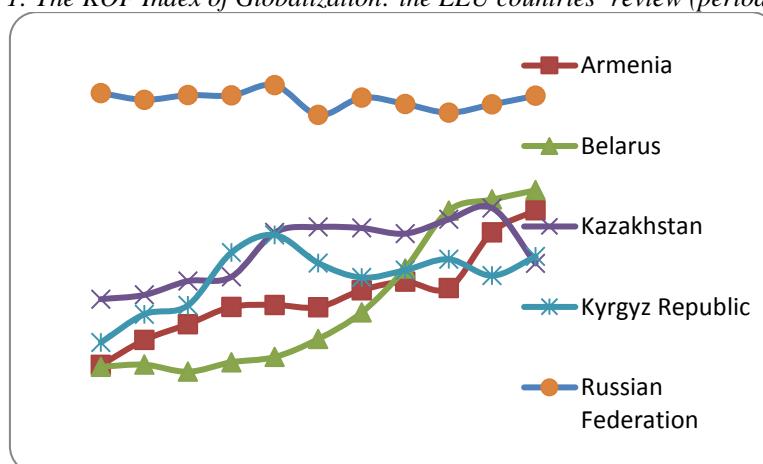
- economic globalization, characterized as long distance flows of goods, capital and services as well as information and perceptions that accompany market exchanges;
- political globalization, characterized by a diffusion of government policies;
- social globalization, expressed as the spread of ideas, information, images and people.

The current KOF Globalization Index reflects the extent of economic, social and political globalization in 2013. According to the Index, the degree of globalization in 2013 increased very little compared to the preceding year. While the Index continued to stagnate in the industrialised countries, Eastern Europe and the Asian and Pacific regions recorded a rise.

According to the KOF Globalization Index, the Netherlands were the most globalised country in the world in 2013, closely followed by Ireland in second and Belgium in third place. The same three countries occupied the first three places in the previous year's globalization ranking (The KOF Index of Globalization aggregated graphs, 2014).

What about the EEU members (Figure 1), the biggest climbers in the overall index in 2013 were Armenia (+1.87), Kyrgyz Republic (+1.63). Substantial setbacks were recorded by Kazakhstan (−17 ranks).

Figure 1: The KOF Index of Globalization: the EEU countries' review (period 2003-2013)



Source: own elaboration on the basis of the KOF Index of Globalization aggregated graphs, [cit. 2016-08-02].  
 Available: <http://globalization.kof.ethz.ch/>

According to the Index, the Russian degree of globalization increased very little compared to the preceding year. But we expect the index growth in the near future for the EEU members.

### 2.3 The Global Competitiveness Index and Assessing Progress toward the EEU' Sustainable Growth

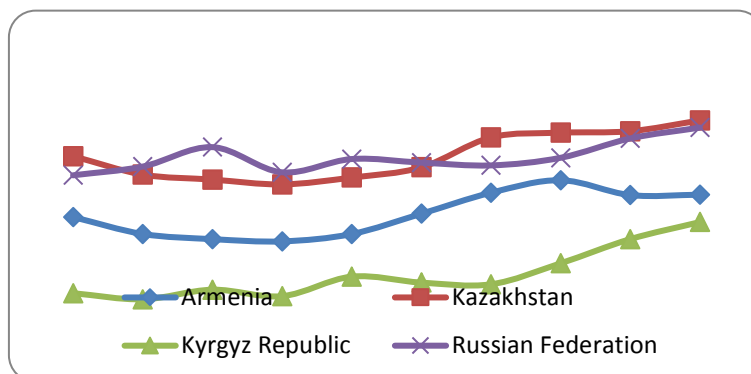
The Global Competitiveness Index has been used as an important tool by policymakers of many countries over the years. Since its first publication in 2005, the Global Competitiveness Index (GCI) has been used by the World Economic Forum to assess the level of productivity of an economy, which determines its long-term growth potential.

This open-endedness is captured within the GCI by including a weighted average of many different components, each measuring a different aspect of competitiveness. The components are grouped into 12 pillars of competitiveness: Institutions; Infrastructure; Macroeconomic



environment; Health and Primary education; Higher education and Training; Goods market efficiency; Labor market efficiency; Financial market development; Technological readiness; Market size, both domestic and international; Business sophistication; Innovation (World Economic Forum (2016)).

Figure 2: The Global Competitiveness Index: the EEU countries' review (period 2007-2016)



Source: own elaboration on the basis of the Competitiveness Dataset, [cit. 2016-08-02]. Available: [www3.weforum.org/docs/gsr/2015-2016/GCI\\_DataSet\\_2006-2015.xlsx](http://www3.weforum.org/docs/gsr/2015-2016/GCI_DataSet_2006-2015.xlsx)

Figure 2 shows changes in the positions of The GCI ranking. The situation is similar. According to the Index, the EEU countries' competitiveness increased very little compared to the preceding year. At the time of writing, the Russian economy continues to face many deeply rooted challenges that will have to be addressed for the country to strengthen its competitiveness. It is reflected not only on the Russian economy, but also on the EEU economies, instantly depriving them long-term growth potential.

### 3. The Eurasian Economic Union (EEU): Realities and Perspectives of the National Economies's

The Eurasian Economic Union (EEU) – an international organization of regional economic integration, which ensures freedom of goods and services movement, capital and labor, and a coordinated and coherent policy in the sectors of the economy. The Eurasian Economic Union's members are Kazakhstan, Belarus, Armenia, Kyrgyzstan, and Russia (Table 2).

The EEU is established for the purpose of comprehensive modernization, cooperation and increase of national economies competitiveness and the creation of conditions for stable development in the interests of raising the population living standards through the integration of scientific-technical, production, labor and financial resources.

In comparison with January – December 2014 the mutual trade proportion in total foreign trade in the EEU has increased from 12.3% to 13.5%. Index of diversification all the countries of the EEU show the gap from the values of developed countries, which empirically determines the range of this index in the range 0.2–0.4, but higher values of developing countries 0.8–0.9. Integrated the EEU market is more focused on products from other countries. In 2014, this indicator began to grow in Russia and Armenia; in Kazakhstan the level of trade factor terms remains at a low level. Thus, competitive potential of the EEU countries according to the factor conditions remains low, which shows the high degree of dependence on external and market conditions (Halmi, 2013).

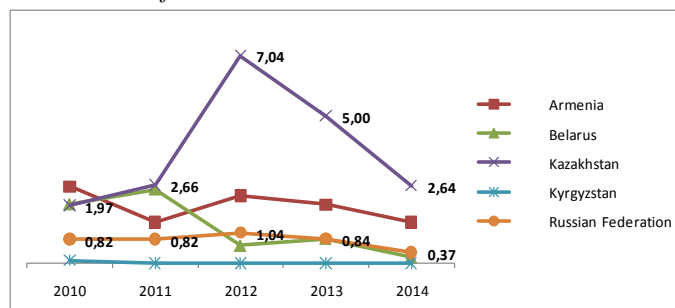
Table 2: Characteristics of the EEU Member Countries (at 01.01.2016)

Country	Population, million people	GDP, billion US dollars	GDP - per capita, thousands US dollars	Inflation rate, %	Unemployment rate, %	Current account balance, million US dollars
<b>Russia</b>	142.4	3471.0	23.7	15.4	4.4	61.9
<b>Belarus</b>	9.6	168.2	17.8	15	0.7	-3
<b>Kazakhstan</b>	18.2	430.5	24.7	5.3	5.1	-5.91
<b>Kyrgyzstan</b>	5.7	19.81	3.4	8.1	8	-1.3
<b>Armenia</b>	3.1	25.22	8.4	5.6	17.8	625

Source: CIA World Factbook (2016).

Of all the countries participating in the EEU, only Russia is an investment donor since 2009, the size of its outward investment remains persistently high, outstripping volumes of incoming direct investment in the range of 12–13%. This indicates the presence of financial and investment potential to build a competitive advantage. The leader of the investment proceeds were Kazakhstan and Belarus, however, after the crisis in 2010–2011 foreign direct investment in Belarus fell significantly, as the economy of this country has failed to overcome internal economic crises and negative trends. Kazakhstan continues to attract foreign investors because of its raw material industry retain its attractiveness. From the point of competitive potential view the most successful is positive balance of direct investments to Armenia. Figure 3 shows a decrease in the overall level of investments in the EEU countries since 2012.

Figure 3: The Ratio of Inward and Outward Investments in the EEU countries



Source: UNCTAD (2016).

Accordingly to the decline in investment inflows in the countries of the EEU has increased markedly negative trends related to a redirection of trade flows. Causes deterioration in the financial and investment background have become a general economic downturn, unsatisfactory structure of the national economy, the state of the currency market and reduction of financial resources due to decrease of volumes of direct investments and remittances which for some countries of the EEU (Armenia, Kyrgyzstan) have a substantial influence and determine investment background.

Thus, the level of financial and investment competitiveness of the EEU countries is not homogeneous, different levels of investment potential development (the acceptable level can be considered the Russian investment resources, provided the redirection to the domestic market or the market of the EEU partners) that predetermines the need to increase and diversify the sources of investment resources. This requires the accelerated format of the regulatory mechanisms of the common financial market of the EEU, the development of supplemental incentives to spur domestic investors. It will also contribute to the stabilization and increase of

regulation efficiency of the EEU currency market (see for details for instance Pridachuk & Tolstel, 2016).

Signed on May 29 2014 Agreement on the Eurasian Economic Union is an institutional framework and strategy for the development of the EEU by 2025. The document contains a number of key guidelines for the development of activities within the scope of supranational competence. By 2025, it will form the core markets of the Union, which will have a significant multiplier effect on the development of all sectors of the EEU member economy.

In the short term (1–3 years) is expected to finish work on formation of legal, organizational and institutional conditions for the development of the Union. It's planned to continue systematic work on elimination of barriers, minimization of the exemptions and restrictions.

In the medium term (3–5 years) it's planned to improve the significance of synergistic projects on the agenda of cooperation and integration of the results of its implementation, including in real sector of economy, transport, infrastructure and other fields. In the medium term should manifest the effect of the complementarity of their economies, based on the competitive advantages of each member. Effective global positioning competitive advantages of the Union (territory size, market size, natural resources, transit potential, socio-cultural factor) should ensure the attractiveness of the member economies to investors, including attracting investment in potential integration projects.

In the long term (5–15 years) the growth of the EEU economies should be strengthened through the coordination of policies that create key conditions for the existence of integration effects: reducing inequalities between countries; adaptation to the integration into the global economy; improving the competitiveness of economies. A gradual elimination of barriers within the EEU, minimization of the exemptions and restrictions will lead to growth of trade and economic cooperation between countries-partners in the common market. The implementation of shared infrastructure, industrial, and other innovative projects will stimulate export growth and decline in the share of imports from third countries (Glazyev & Tkachuk, 2013). In the long term, the EEU is supposed to be active cooperation and addressing global problems at the level of integration associations of the world.

#### **4. Conclusion**

As shown by the analysis of the impact of different economic integration levels within the Eurasian Economic Union on the socio-economic development of the participating countries, the potential for enhancing the economic effect of integration remains significant. It will increase due to the growth of mutual trade - its share remains significantly lower than in the EU and other regional associations, and through deepening integration, with the creation of the EEU will cover not only market of goods but also the services market, labour and capital, which requires an appropriate institutional support (Pollack, 2001).

The expansion of the economic space greatly increases the potential of existing opportunities, which dramatically enhances the effect of the mentioned factors, differentiating and increasing their variability, this is especially important under the conditions of global instability. Industrial and trade policies of the EEU countries must meet the basic requirements and principles of national security of each participating countries and integration associations in general. Currently not yet developed a systematic approach to this problem, there is no comprehensive picture of the industrial, trade policies and policies aimed at ensuring national, including economic, security on a consistent basis.

## References

- [1] CIA World Factbook (2016). *Statistics* [online]. [cit. 2016-03-05]. Available: <https://www.cia.gov/library/Publications/the-world-factbook/geos/am.html>
- [2] Dreher, A. (2006), Does Globalization Affect Growth? Evidence from a new Index of Globalization, *Applied Economics*, vol. 38, 10: pp. 1091-1110.
- [3] Dreher, A., Gaston, N. and Martens, P. (2008) *Measuring Globalization - Gauging its Consequence*, New York: Springer.
- [4] Ghemawat, P. and Altman, S.A. (2014) DHL Global Connectedness Index 2014, Deutsche Post DHL, November 2014 [Online]. pp. 11-12. Available: [http://www.dhl.com/content/dam/Campaigns/gci2014/downloads/dhl\\_gci\\_2014\\_study\\_high.pdf](http://www.dhl.com/content/dam/Campaigns/gci2014/downloads/dhl_gci_2014_study_high.pdf)
- [5] Glazyev, S. and Tkachuk, S. (2013) Prospects of Development of Eurasian Economic Integration: from Customs Union to Eurasian Economic Union (conceptual aspect). *Russian economic journal*, № 1, p. 7.
- [6] Halimi, M. (2013). The investment decision and the economic growth. *Metalurgia International*, vol. 18, no. 2, pp. 210-213.
- [7] Pollack, M.A. (2001) International relations theory and European integration *Journal of common market studies*, vol. 39, iss. 2, pp. 221–244
- [8] Pridachuk, M. and Tolstel, M. (2016) International Economic Integration: Realities and Perspectives (the case of Eurasian Economic Union (EEU)). *Proceedings of International Conference on European Integration 2016*. Ostrava, Czech Republic, pp. 790-799.
- [9] Scharpf, Fritz W. (2010) The asymmetry of European integration, or why the EU cannot be a 'social market economy. *Socio-economic review*, vol. 8, iss. 2, pp. 211–250
- [10] Stromquist, N.P. (2007). Internalization as a response to globalization: Radical shifts in university environments. *Higher education*, vol. 53, no. 1, pp. 81-105.
- [11] The Competitiveness Dataset, [cit. 2016-08-02]. Available: [www3.weforum.org/docs/gsr/2015-2016/GCI\\_DataSet\\_2006-2015.xlsx](http://www3.weforum.org/docs/gsr/2015-2016/GCI_DataSet_2006-2015.xlsx)
- [12] The KOF Index of Globalization aggregated graphs, [Online]. Available: <http://globalization.kof.ethz.ch/>
- [13] UNCTAD (2016). *Statistics* [online]. [cit. 2016-03-05]. Available: <http://unctadstat.unctad.org/wds>
- [14] World Economic Forum (2016). Global Competitiveness Report. [Online]. 8(9). Available: <http://reports.weforum.org/global-competitiveness-report-2015-2016/>

# CHANGES IN PERFORMANCE OF SLOVAK AGRICULTURE DRIVEN BY INTEGRATION AND GLOBALIZATION

Marian Tóth<sup>1,a,\*</sup>, Drahoslav Lančarič<sup>1,b</sup> and Radovan Savov<sup>1,c</sup>

<sup>1</sup>Faculty of Economics and Management, Slovak University of Agriculture in Nitra, Slovakia

<sup>a</sup>marian.toth@uniag.sk, <sup>b</sup>drahoslav.lancaric@uniag.sk, <sup>c</sup>radovan.savov@uniag.sk

\*Corresponding author

**Abstract.** The paper focuses on profitability and risk of crop and animal production based on an analysis of farms operating in Slovak Republic. After 1989, Slovak agricultural sector was transformed from centrally planned economy to the market economy. Fundamentally, this process was based on privatization. The year 2004, when Slovakia joined EU and adopted Common Agricultural Policy (CAP), farmers received their first direct payments. New political regulations, quotas, requirements and single payment system led to the number of substantial changes that have been ultimately impacting economic development in the sector and priorities of farmers. Nowadays, the majority of utilized agricultural area (UAA) (74.64% in 2014) is cultivated by large farms with over 500 hectares, while the UAA per farm in the EU is much lower. Therefore, also measures implemented through CAP result different in Slovakia. Based on individual farm data we analyze profitability of farms divided into groups based on the type of production into crop and animal. Using descriptive statistics and portfolio theory we simulate the total farm profitability and volatility of animal and crop production in Slovakia. Based on the results we conclude that in the long run crop farms are profitable and profit from crop production is used to cover the losses from animal production in mixed farms. Farms focused on animal production only are efficient and profitable, but the profitability is lower in comparison with crop farms. Performance of animal farms is less volatile than performance of crop farms.

**Keywords:** agriculture, farms, performance, financial statements

**JEL Classification:** M21, F15, G30, G38

## 1. Introduction

Before 1989, Slovak agriculture consisted of cooperatives and state farms with large acreage, without existence of private companies. Since that time the number of private companies (Joint Stock Company (JSC.), Limited Liability Company (Ltd.)) has been gradually increasing, because this type of legal form is considered to be more effective. (Pokrivčák et al, 2005). During this period agricultural production decreased and in this way adapted to a domestic demand influenced by the lower purchasing power of population and by changes that occurred in the structure of consumption and in consumer behaviour of the population (Michalski, 2015). Since the year 1995 the level of production has stabilised. In 2004 Slovakia adopted EU Common agricultural policy. Since that more farms became profitable. However, new political regulations, quotas, requirements and single payment system led to a number of substantial changes that have been ultimately impacting economic development in agriculture and priorities of farmers. In the years 2003, 2007 and 2009 agricultural production, and in particular crop production, was affected by extraordinarily dry weather, which influenced total

agricultural production and the economic situation of farms. Not only the legal structure has been changing, but also the crop production has been year to year on the increase (except of year 2009), while the animal production has been in general decreasing. Controlling and complex information on processes in farms are more important (Váryová et al, 2015, Prístavka et al, 2010). Therefore we decided to focus on changes in performance of farms based on the production in Slovakia driven by integration (adopting Common agricultural policy) and globalization. We especially focus on profitability and risk measured by volatility of return on equity (ROE).

Risk in agriculture has been a matter of worldwide concern since 1933, when the concept of risk analysis had been introduced (Hardaker et al, 2004). Agriculture is a sector facing particularly large risks, resulting mainly from natural factors outside the control of farmers. The resulting variations in farm output, combined with a relatively low price responsiveness of supply and demand, also cause agricultural markets to be rather volatile (Tangermann, 2011). The sources of risks, that are relevant in agriculture have different characteristics, and can be classified in very different ways (Huirne et al, 2000; Holzman and Jorgensen, 2001). Sources of risk of Slovak agriculture include biological nature of production, dependency on climatic conditions, seasonality, animal and plant health, prices instability, policy regulations, and range of macroeconomic factors (Serenčes et al, 2010).

There have been several approaches to measure agricultural risk resulting from different focus of authors. Some of them are focused on agricultural risk of individual farms, others took into account the whole aggregate level (El Benni and Finger, 2013; Špička and Vilhelm, 2013, Just and Pope, 2003). Because farms can be thought of as assets within an overall portfolio, agricultural producers also paid attention to the concept of diversification and portfolio theory. In the Markowitz portfolio theory, total risk is standardly measured by the mean-variance model and standard deviation of stock return (Markowitz, 1952). But, not all businesses provide the ability to raise their capital in the form of stocks. These businesses represent unquoted companies, to which the majority of agricultural companies belong. The stocks, considered in the original model, represent the equity securities, and the return on stock reflects simply the return on equity invested into the business. Therefore, it might be assumed that to be able to measure the risk of unquoted companies, the deviation of return on equity could be considered, as well. In order to focus on other than security market the alternative of Markowitz theory approach, the Simple index model, was created (Sharpe, 1963). In SIM the input variables used in analysis are the accounting fundamentals of companies. SIM approach was applied in the number of studies, such as usage of gross and net returns (Gempesaw et al, 1988), farm equity returns (Baginski and Wahlen, 2003), book to market ratios (Fama and French 1995) or cash flow variability (Cohen et al, 2009; Da, 2009). It empowers our assumption to measure the market risk of unquoted farms, using the return on equity ratio ROE.

The risk analysis of agriculture, using the Markowitz approach, has been applied to a number of studies. They mainly focused on the certain part of agriculture production, for example, Peterson and Leuthold (1987) used the portfolio approach to examine the cattle feeding problem, Sanchirico et al (2005) use portfolio theory to develop optimal management of fisheries, Gempesaw et al. (1988) applied the model to Delaware farm sector market portfolio or in more recent study Libbin et al (2004) applied the Markowitz portfolio model directly to a series of New Mexico farms. Many other studies could be mentioned, because the range of applications is really wide. Similarly, we decided to focus our study on examining market risk and return of Slovak agriculture sector and its changes driven by globalization and integration

over the time. Farms operating in Slovakia were included into several portfolios, according to share of animal production.

## 1.1 Material and Methods

The data used for the analysis are the database of Ministry of Agriculture and Rural Development of the Slovak Republic, over the period 2004 - 2014. For our analysis, data were selected according to the production orientation to the subset of crop farms and animal farms. The selecting criterion was the share of animal production based on sales. We created 8 portfolios of farms. One for all farms and seven based on share of animal production ranging from 0 to 100%. For calculation 5-years moving averages were used for two periods: 2004-2008 and 2010-2014.

The modified Markowitz portfolio theory approach was used to estimate the total risk of eight portfolios. We assumed that the return of the investor is based on the profit of the farm and the equity invested. Therefore, we considered return on equity ROE (Eq. 1) to be equivalent to the return on stocks, generally used in the case of quoted companies. Measuring volatility of return in the Markowitz portfolio theory is based on the average return over the observed period for each investment. We calculated the average return on equity EROE<sub>i</sub> (Eq. 2) for each individual farm.

$$ROE_i = \frac{\text{Earnings After Taxes}}{\text{Shareholders Equity}} \quad (1)$$

$$EROE_t = \sum_{i=1}^t ROE_i \cdot d_i \quad (2)$$

Where ROE<sub>i</sub> is return on equity of farm “i”, d<sub>i</sub> is a weight of ROE<sub>i</sub> over the observed period (5 years, d<sub>i</sub> = 0.20), t is number of years in observed period, i, j are individual farms. The individual risk of each farm (σ<sub>i</sub>) is calculated using the standard deviation.

$$\sigma_i = \sqrt{\sum_{t=1}^t (ROE_t - EROE_t)^2 \cdot d_t} \quad (3)$$

Where σ<sub>i</sub> is standard deviation of the individual return on equity (individual farm risk), ROE<sub>i</sub> is individual return on equity, EROE<sub>i</sub> is average individual return on equity.

The portfolio risk (σ<sub>p</sub>) is determined by three variables: weight of the individual investment in portfolio (w<sub>i</sub>), standard deviation of the individual investment - individual risk (σ<sub>i</sub>), and covariance, relation between the ROE<sub>i</sub> and ROE<sub>j</sub> (σ<sub>ij</sub>). To take into account market portfolio of all agriculture farms, the weight w<sub>i</sub> of each farm is determined by farm market share, which is the share of the farm's equity on the total equity of all farms. The covariance represents the relationship between returns on equity of farms (Eq 4) and Σ covariance matrix (Eq. 5). The portfolio risk is then measured according to eq. 6

$$\sigma_{ij} = \frac{1}{n} \sum_{t=1}^n (ROE_{it} - EROE_{it})(ROE_{jt} - EROE_{jt}) \quad (4)$$

$$\Sigma = \begin{bmatrix} \sigma_{11} & \sigma_{12} & \sigma_{13} & \dots & \sigma_{1k} \\ \sigma_{21} & \sigma_{22} & \sigma_{23} & \dots & \sigma_{2k} \\ \sigma_{31} & \sigma_{32} & \sigma_{33} & \dots & \sigma_{3k} \\ \dots & \dots & \dots & \dots & \dots \\ \sigma_{k1} & \sigma_{k2} & \sigma_{k3} & \dots & \sigma_{kk} \end{bmatrix} \quad (5)$$

$$\sigma_p = \sqrt{\sum_{i=1}^n w_i^2 \cdot \sigma_i^2 + \sum_{i=1}^n \sum_{j=1}^n w_i \cdot w_j \cdot \sigma_{ij}} \quad (6)$$

Where  $w_i$  is an individual weight of  $i$ -farm (farm's equity) in a portfolio (total equity of all farms) and  $n$  is number of farms.

The expected return on equity of portfolio is estimated by the multiplication of  $k \times 1$  vector of individual weights of portfolio ( $w$ ) and  $k \times 1$  vector of corresponding individual expected returns on equity (the sum of multiplication of each farm's expected ROE and its share in the market portfolio).

$$EROE_p = \sum_{i=1}^n EROE_i \cdot w_i \quad (7)$$

Where  $EROE_p$  is expected portfolio return on equity and  $EROE_i$  is the average return on equity of individual farm.

## 1.2 Structure of Slovak Agriculture

The farm structure of agricultural primary sector consists of wide range of farms, which number, use of cultivated area and size has been constantly changing. In the year 2014 the total number of farms was 17 708, which together operated on 1 883 220 ha of utilized agricultural area (UAA).

From the point of the size of the farm (the utilized agricultural area size), is structure of farms in Slovakia different compared to the EU average. It results from the historical development of agriculture in former Czechoslovakia before 1989. Nowadays, the majority of UAA (74.64% in 2014) is cultivated by large farms with over 500 hectares, while the UAA per farm in the EU is much lower. Therefore, also measures implemented through CAP result different in Slovakia. The division of the farms and their percentage share on the total utilized agricultural area is shown in Table 1.

Table 1. UAA per farm as a percentage of total area

Years	Category of the Utilized Agricultural Area						
	0-5 ha	5-10 ha	10-50 ha	50-100 ha	100-250 ha	250-500 ha	over 500 ha
<b>2010</b>	0.99	0.94	3.43	2.91	6.8	7.91	77.74
<b>2011</b>	0.99	0.95	3.75	2.95	6.42	8.20	76.75
<b>2012</b>	0.99	0.98	3.97	2.94	6.60	8.28	76.24
<b>2013</b>	1.01	1.04	4.23	2.97	7.04	8.21	75.49
<b>2014</b>	1.04	1.09	4.52	3.1	7.07	8.55	74.64

Source: Data of the Agricultural Paying Agency Slovakia (2015).

This distribution of land, with many small farms sharing a low percentage of agricultural land and a few large holdings farming the vast majority of the UAA, explains the very high average area per farm in Slovakia.

In 2004 CAP was implemented in Slovakia. Public funds in form of EU subsidies support farms. New member states including Slovakia opted for single area payment scheme (SAPS) which means, that the majority of support is distributed based on cultivated hectares of the farm. More hectares means more financial support. Only small part is linked to the type of production (crop or animal). This form of support is in combination with large farms in Slovakia changing the performance of farms. Farmers are since 2004 continually decreasing animal production in favour of crop production. The share of animal production decreased from 57.8% in 2004 to 41% in 2014. EU subsidies are decoupled from production which means they are not production



linked. Farmers are not motivated to produce and the intensity of support is increasing. Subsidies per sales and per hectare increased after adopting CAP (see table 2). Large farms in combination with improved technology result to a decrease of employment in Slovakia. This can be observed on the hectares per employee ratio.

Table 2. Characteristics of Slovak farms

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Subsidies per ha	123	184	205	238	267	289	323	298	280	271	272
Hectares per employee	24,6	26,8	27,9	29,0	30,7	31,7	34,6	37,4	40,2	40,7	35,2
Share of animal production	57,8%	54,6%	53,9%	52,8%	49,4%	50,5%	46,7%	44,0%	40,2%	39,6%	41,0%
Number of farms	1285	1410	1364	1364	1317	1382	1304	1412	1480	1483	1490
Income per hectare	21,7	-1,0	8,2	41,4	31,4	-68,0	-7,8	52,2	21,9	-13,0	40,8
Income per employee	534	-26	229	1201	962	-2154	-271	1955	880	-529	1435
Subsidies on total sales (%)	18,1%	25,4%	27,9%	31,1%	32,6%	34,5%	50,8%	43,8%	34,3%	31,1%	32,2%

Source: own calculation.

There are differences in performance of farms based on the type of production (table3). We observed two periods: 2004-2008 and 2010-2014. Generally agriculture in Slovakia has very low profitability. On average the profitability did not change when comparing the observed periods. Also the risk measured as a farm portfolio ROE volatility is constant and changed from 1.21% in 2004-2008 to 1.95% in 2010-2014.

Table 3. Situation in agriculture in period 2004-2008

2004-2008	All farms	Share of animal production on total production						
		0	0-20	20-40	40-60	60-80	80-100	100
Average profitability (ROE)	1,83%	6,47%	9,48%	2,53%	1,14%	0,08%	2,05%	-7,18%
Risk	1,21%	4,21%	5,70%	1,47%	1,80%	1,10%	0,39%	9,51%
Share on number of farms	100,00%	15,22%	10,41%	13,84%	17,96%	17,62%	21,17%	3,78%
Number of farms	874	133	91	121	157	154	185	33
Subsidies per ha	240,69	203,76	206,2	209,19	220,95	255,82	298,73	315,23
Hectares per employee	28,7	31,04	50,3	31,08	25,78	26,63	27,8	21,8
Income per hectare	26,36	83,54	53,99	31,49	17,81	8,89	28,83	-86,08
Income per employee	756,45	2593,14	2715,78	978,93	459,13	236,71	801,33	-1876,83
Subsidies on total sales (%)	0,3	0,22	0,4	0,25	0,24	0,32	0,49	0,23

Source: own calculation.

Increased competition caused by globalization and integration resulted in increased productivity. Sales per employee increased from 22 665€ per year in the first period to 33 309€ per year in the second period. Also the income (profit) per employee did increase from 756€ to 1 043€ per year (see table 3 and 4).

Table 5. Situation in agriculture in period 2010-2014

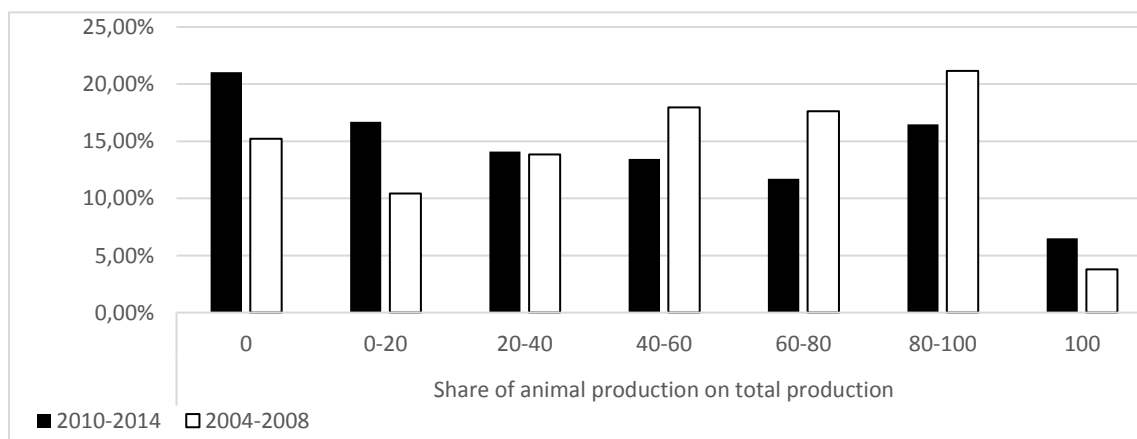
2010-2014	All farms	Share of animal production on total production						
		0	0-20	20-40	40-60	60-80	80-100	100
Average profitability (ROE)	1,60%	7,33%	2,76%	1,70%	1,32%	-1,14%	-0,26%	0,18%
Risk	1,95%	4,92%	5,31%	2,81%	4,34%	1,58%	0,97%	1,77%
Share on number of farms	100,00%	21,04%	16,70%	14,10%	13,45%	11,71%	16,49%	6,51%
Number of farms	922	194	154	130	124	108	152	60
Subsidies per ha	288,86	220,36	247,17	270,3	293,26	323,62	364,72	371,1
Hectares per employee	39,75	58,7	55,26	39,06	33,36	35,24	34,27	31,76
Income per hectare	26,24	120,47	40,22	33,56	-6,4	-10,69	5,11	10,43
Income per employee	1043,2	7071,07	2222,36	1310,83	-213,43	-376,62	174,96	331,4
Subsidies on total sales (%)	0,34	0,22	0,35	0,29	0,32	0,42	0,5	0,46

Source: own calculation.

Profitability of farms differs based on the share of animal production. In the period 2004-2008 the most profitable farms measured by ROE were those with 0-20% share of animal production and farms specialized on animal production only were generating loss over 7%. The situation did change in the period 2010-2014. The most profitable farms have 0% share of animal production. Also the farms specialized on animal production only are profitable now. Mixed farms with share of animal production from 60-80% are generating loss. The integration and globalization of Slovak agriculture is resulting in specialization of farms and farms are limiting animal production to limit the loss. Animal farms used to be risky and majority of the risk was systematic. The most profitable farms are the most risky. Generally the animal production is considered to be less risky when compared to crop production. The situation in 2010-2014 in Slovakia is in line with this assumption.

The changed system of subsidies in 2004 to SAPS is changing also the structure of farms. In the period of 10 years (2004-2014) the share of animal production decreased. In the first period farms with more than 50% of animal production were dominant. The percentage share of specialized crop farms and farms with crop production less than 20% did increase by more than 5% each.

Figure 1. Share of farms based on the share of animal production on total number of farms



Source: own calculation, table 3 and 4.

The productivity of farms did increase. Crop farms are more productive than animal farms. Specialized crop farms did increase the productivity by 100%. Other farms have lower productivity than specialized crop farms. The productivity of animal farms is lower. The higher the share of animal production on total farm production the lower the productivity. This is due to the fact, that the animal production is more labor demanding.

## **2. Conclusion**

In 2004 Slovakia joined the EU. The agricultural market became a part of the EU agricultural market. The protection in form of customs and administrative restrictions was abolished and the market became global and integrated. Farms in Slovakia are large when compared to EU average. Therefore the system of support in form of subsidies has different effects in Slovakia than in old member states. We observed the period from 2004 to 2014 on a sample of individual farms focusing on structural changes in production based on the integration and globalization. Based on the results we conclude the productivity of farms did increase. Crop farms are more productive than animal farms. Profitability of farms differs based on the share of animal production. The most profitable farms have 0 share of animal production. Mixed farms with share of animal production from 60-80% are generating loss. The integration and globalization of Slovak agriculture is resulting in specialization of farms and farms are limiting animal production to limit the losses. In the long run, crop farms are profitable and profit from crop production is used to cover the losses from animal production in mixed farms. The most profitable farms are the most risky. Generally the animal production is considered to be less risky when compared to crop production.

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## **References**

- [1] Baginski S. P., Wahlen J. M. (2003): Residual Income Risk, Intrinsic Values, and Share Prices. *The Accounting Review*, 78: 327-351.
- [2] Cohen R. B., Polk C., Vuolteenaho T. (2009): The price is (almost) right. *Journal of Finance*, 64: 2739-2782.
- [3] Da Z. (2009): Cash flow, consumption risk, and cross-section of stock returns. *Journal of Finance*, 64: 923-956.
- [4] El Benni N., Finger R. (2013): Gross revenue risk in Swiss dairy farming. *Journal of Dairy Science*, 96: 936-948.
- [5] Fama E. F., French K. F. (1995): Size and book-to-market factors in earnings and returns. *Journal of Finance*, 50: 131-155.
- [6] Gempesaw C. M., Tambe A. M., Nayga R. M., Toensmeyer U. C. (1988): The Single Index Market Model in Agriculture. *Northeast Journal of Agricultural and Resource Economics*, 17: 147-155.

- [7] Hardaker J., Huirne R., Anderson J., Lien G. (2004): *Coping with risk in agriculture*. CABI Publishing, ISBN 0-85-199973-5.
- [8] Holzman R., Jorgensen S. (2001): Social Risk management: A New conceptual framework for social protection, and beyond. *International Tax and Public Finance*, 8: 529-556.
- [9] Huirne R., Meuwissen M., Hardaker B., Anderson J. (2000): Risk and risk management in agriculture: an overview and empirical results. *International Journal of Risk Assessment and Management*, 1: 125-136.
- [10] Just R. E., Pope R. D. (2003): Agricultural risk analysis: adequacy of models, data, and issues. *American Journal of Agricultural Economics*, 85: 1249-1256.
- [11] Libbin J. D., Kohler J. D., Hawkes J. M. (2004): Does Modern Portfolio Theory Apply to Agricultural Land Ownership? Concepts for Farmers and Farm Managers. *Journal of the American Society of Farm managers and Rural Appraisers*, 67: 85-96.
- [12] Markowitz H. M. (1952): Portfolio Selection. *Journal of Finance*, 7: 77-91.
- [13] Michalski G. (2015): Agency Costs in Small and Medium Wood Industry Enterprises with Full Operating Cycle and Cash Levels. *Procedia Economics and Finance*, 34: 461-468.
- [14] Peterson P. E., Luethold R. M. (1987): A portfolio approach to optimal hedging for a commercial cattle feedlot. *Journal of Futures Markets*, 7: 443-457.
- [15] Pokrivčák J., Serenčేశ R., Kuzma F. (2005): Slovak agriculture and Slovak agricultural policy. *Acta agraria et silvestria*, 44: 159-171.
- [16] Prístavka, M., Hrubec, J., Kotus. M. 2010: The integrated management system in manufacturing organization, In: *Research methods improvement*, Dnipropetrovsk : Yurii V. Makovetsky,
- [17] Sanchirico J. N., Smith M. D., Lipton D. W. (2005): Ecosystem Portfolios: A Finance-Based Approach to Ecosystem Management. *Proceedings of the Conference AERE Workshop 2005: Natural Resources at Risk*, Jackson Hole, 33.
- [18] Serenčేశ P., Serenčేశ R., Tóth M., Čierna Z., Rábek, T. (2010): *Financie v poľnohospodárstve (Finance in Agriculture)*. SPU, Nitra, ISBN 978-80-552-0438-3.
- [19] Sharpe W. F. (1963): A Simplified Model for Portfolio Analysis. *Management Science*, 9:77-93.
- [20] Špička J., Vilhelm V. (2013): Determinanty rizikového prostredia zemédelských podniků v České republice. (Determinants of risk environment of farms in the Czech Republic). *Acta Oeconomica Pragensia*, 21: 69 - 87.
- [21] Tangermann S. (2011): Risk management in Agriculture and the Future of the EU's Common Agricultural Policy. *ICTSD*, Issue Paper, 34.
- [22] Váryová, I., Vanová, A.F., Košovská, I., Krajčirová, R. (2015): Information Tools of Cost Controlling in Entities of Agricultural Primary Production in Slovakia, In: *24th International Scientific Conference on Agrarian Perspectives - Global Agribusiness and the Rural Economy*, Prague, 502-509

## THE REQUIREMENT OF FLEXIBILITY AND LABOUR MOBILITY AS A RESULT OF GLOBALIZATION

Silvia Treľová\*

Comenius University in Bratislava, Faculty of Management, Odbojárov 10, 820 05 Bratislava 25,  
Slovak Republic

silvia.trelova@fm.uniba.sk

\*Corresponding author

**Abstract.** Globalization as a phenomenon is a driving force of economic changes. Elimination of communication barriers and trade barriers has resulted in the creation of an open and free world market. The competition of companies is growing and competition growth on a global scale has a great impact on the Slovak economy and Slovak labour market. The nature of the enterprise changes, knowledge economy based on education is becoming increasingly important. A particular importance in the labour force has its flexibility and mobility, to which this contribution will focus. The flexibility of the labour force is based on the willingness to carry out work in flexible forms of employment and the organization of working time (new forms of labour organization). Through the flexibility and mobility can be achieved consistency between the profile of the job and the profile of the employee, while the profile of the job is a priority for the employer (the employer efforts to find the most appropriate employee to be recruited). The increased labour mobility is a potential for employment growth, whereas it is based on changes in spatial location of the labour force and in the movement of workers between different fields of work. This results in changes in the structure of employment. Global competition continues to grow and the terms as knowledge economy, job flexibility and mobile workforce and are becoming more frequent.

**Keywords:** globalization, flexibility, labour mobility, labour force, knowledge economy

**JEL Classification:** F66, J21, J62, M51

### 1. Globalisation and strong competitive environment

Currently, globalization, international cooperation, free movement of goods, services, investment and people are common phenomenon in a society. Globalization is understood as the process by which states interconnect the fields of economics, politics or culture. Globalization as internationalization and liberalization represents an increase in the number of transactions (movement of goods, investments) and interconnectedness of countries. Membership of the EU provides a great benefit for the countries. Among the most prominent positives and impulses we advise foreign investments and entry to international European markets. Being a member of the EU but also has its negative side - the strong competitive environment.

For the purpose of economic development there is the effort of the countries to achieve an appropriate economic growth. The economic performance is affected by closely related factors such as geography, demography, specialization, productivity, availability of physical and human capital, developed infrastructure and innovative capacities. The impact on economic performance have structural changes through the labour productivity growth. The development

of gross domestic product (GDP) which is a basic indicator of measuring economic performance, influences the development of (un)employment. With GDP growth is logically linked to the growth of the average monthly wage in the economy. The effort to raise employment, increase GDP and increase the average monthly wage can be observed in the current conditions of the Slovak Republic.

Not excluding other EU countries, also Slovak Republic has seen the liberalization of the economy and improving the business environment in economic policy. This has also led to an increase in foreign direct investment, which positively affected also the economic growth of the country (in 2007, the economic growth in Slovakia reached a record level of 10.3%). Hajdúchová and Giertliová (2015) note that confirms the multiplier effect of investments. It results from the fact that if investments are spent efficiently, GDP is growing faster and unemployment is reducing. "Investments clearly contributed to the decline in the unemployment rate so nationwide as well as in individual regions, and to the growth in living standards and consumption by households. Foreign investors in Slovakia attracted relatively cheap, yet skilled workforce and favorable tax conditions as well as the forthcoming entry of Slovakia into the euro area. Foreign investment, however, were mainly made for the automotive and electronics industries, the main Slovak export industries. "Foreign investors were attracted to Slovakia relatively cheap, yet skilled workforce and favorable tax conditions as well as the forthcoming entry of Slovakia into the euro area. Foreign investment, however, were directed mainly to the automotive and electronics industries, the main Slovak export industries." (Stachová & Šuplata, 2013) The fact that products of these industries are the most exported abroad, provides us one of the largest economic growth in Europe. For example, "Volkswagen is also involved to a significant extent on Slovak exports, and 99% of total production is exported." (Milošovičová & Paškrťová, 2015) Because we have a relatively cheap labour force and various products intended for intermediate consumption are imported to Slovakia, Slovakia becomes the assembly workshop for surrounding countries. However, it has both positive and negative side. On the one hand it is good, because as a result of mass production we are highly competitive, our economy is growing and wages are rising. On the other hand, such development can have a negative impact, because if we increase wages in the sector, investors may move their production to other countries (eg. Romania, Ukraine).

In this context it should be noted that the Slovak economy, similar to the economy of several EU countries, grew until 2008, when the economy was negatively affected by the global economic crisis. After the global economic crisis has affected export, international trade and employment, since 2010 the economies of EU states seek to slow but steady growth since 2010.

## **2. The nature of the workforce in the light of current needs**

The openness of the Slovak economy suggests the flow of foreign business entities in Slovak Republic. These are mainly the foreign economic operators from different EU Member States, mainly from Germany, Austria and France. The removal of discriminatory barriers introduced a rival entities - competitors on the market the equal conditions for economic activities, which also applies to Slovakia. The largest group consists of entrepreneurs who use the institute of investment aid and state aid. „State aid became an important tool enhancing competition and providing transparent functioning of EU internal market.“ (Nováčková, 2005)

Although foreign investors in Slovakia are concentrated primarily in developed regions with a functioning developed infrastructure with sufficient qualified workforce and potential for further development, the operation of foreign business entities has positively affected

employment in Slovakia. The number of new jobs has increased, the unemployment rate has fell. Recently, however, companies in Slovakia began to face the modern-day problem – the lack of available and skilled labour (especially in the manufacturing sector). It is a paradox, despite still relatively high unemployment rate of 10 percent in Slovakia (data for March 2016 according to the Statistical Office) many companies feel the lack of suitable labour force. Almost one third of Slovak employers (28%) can not in the long term occupy their positions. What is the cause? We can say that free labour force would also be enough, but it is such workforce that does not have qualification requirements to perform the work or is less available. It is necessary to ask the question: What happens when the resources of free and qualified labour force exhausted? Where the companies take employees?

The solution to this actual problem can be seen in the educational system of domestic human resources, which can help to reduce long-term unemployment and linking education with labour market needs (re-qualification, the form of dual education). As Olšovský (2014) states, "according to the OECD study, high rate of youth unemployment in our country is mainly attributed to insufficient training in secondary vocational schools. The pupils of these schools have a problem with the transition from school to work, because they did not obtain the skills and knowledge required in the labour market." Therefore, it is also the issue of dual education nowadays in the Slovak Republic so high actual and discussed and the education system in the form of dual education engages more and more companies - employers' bodies. The employers are aware that also due to development time they need the skilled and flexible employees, and an appropriate way to get them is to educate them prior to the entry into employment. This is particularly the automotive and engineering industry.

One of the quickest and most effective measures to solve the problem with lack of suitable labour force can be the employment of skilled and educated labour migrants and foreign students. The important role plays the regulated migration, therefore it is necessary to open the door to such economic migrants who will correspond exactly to needs of our labour market. In addition to the required education there is important a reliability and good work habits, which are typical example for Romanian employees. In this context the question arises whether there is no need to worry about increased inflow of foreigners on our territory and that it would not necessary to regulate to a certain extent the employment of foreign nationals, such as e.g. in neighboring Austria. The Austrian legislature for this purpose adopted the law against wage and social dumping (May 2011), which regulates, for example also wage conditions for foreign of nationals working in Austria. (Wirtschaftskammer Österreich, 2015)

## **2.1 The issue of flexible labour force**

At present, the companies emphasize the employee's flexibility, as is underlined by Procter and Ackroyd (2001). The employees are expected willingness and especially the ability to perform a variety of tasks and work, which requires multilateral skills of employees. The issue of flexibility is closely related to education. "The importance of education has been growing rapidly with the changes that we are part of - whether we want or not. The world is globalized, distances become smaller, development is accelerating. Of course, those who are prepared, educated, knowledgeable, active, increasingly affecting development. Therefore, education, globalization and Europe are our great challenge. Labour and technology markets are now changing rapidly. What was once developed for a century or a generation, nowadays varies in 10, 5 years and less. It is important that we do not become illiterate in this new changing environment, because the risk is very real and concrete. Demographic researches of our and European population show that people are less, but the human age is prolonging, the population

is aging, the active life is prolonging. It will be necessary to work longer, retire later and thus longer to learn. Lifelong education ceases to be a matter of narrow groups and becomes the strategy. As necessary to adapt conditions in the market or in society through laws, it is necessary to adapt a human, because if he is flexible, can respond and actively adapt. If not, other adaptations are not sufficient. Then we have the educated people unemployed or the schools leave fresh clients of social agencies." (Figel', 2006)

Whereas, the companies must be able to adapt to changes in demand, they are using various forms of flexible working. „Flexibilization" refers to the changing work practices by which firms no longer use internal labour markets or implicitly promise employees lifetime job security, but rather seek flexible employment relations that permit them to increase or diminish their workforce, and reassign and redeploy employees with ease.“ (Šukalová & Ceniga, 2015)

The flexibility of the labour force is based on the willingness to carry out work in flexible forms of employment and the organization of working time (new forms of work organization). Classical employments, for which is typical a daily eight-hour working time, work equally spread over five days a week and the performance of work for an indefinite period, are now in the background and the foreground are getting flexible forms of employment. The most common atypical forms of employment are especially employment for a fixed term employment and employment with reduced working time. "Introduction of flexible working arrangements the companies are trying not only tailored to meet the employees, but especially to cope with the constantly changing and turbulent requirements of surrounding. The companies are constantly focus on achieving such objectives as cost savings, transferring risk to others, increasing the company's competitiveness.“ (Němcová & Marková, 2015) The non-standard forms of employment with elements of flexibility is homely work or telework, employment through agencies, employments concluded with different categories of employees, such as the managers (management contract as understood under the employment contract), adolescents, pupils of secondary vocational schools (employment contract with a pupil of secondary vocational school or a pupil of vocational school), and the spirituals. In practice, there are also other forms of atypical employment, particularly casual work, irregular assistance, on-call work, for which, however, there are doubts whether they should be carried out in an employment. Agreements on work performed outside of employment represent specificity of Slovak legislation. Such agreements may establish an employment relationship only in accordance with Czech law. These are forms of work existing alongside the employment. Flexible forms of employment are one of the most typical signs of flexibility in labour law. Flexible forms of work are considered to be advantageous for both employees as well as employers. To what extent this is true, depends on the type of flexible working arrangements. "It should be stressed that flexibility is not just a way to reduce labour costs in order to develop productivity and competitiveness, but it can be an important instrument to deal the problem of unemployment, as well as the question of harmonizing between family life of man and his job." (Frk, 2014)

## **2.2 The issue of labour mobility**

Because in the Slovak Republic people must often commute to work,, especially from more distant regions where the access to employment is a problem, the amount of free labour force is not available. Many unemployed people live in locations where it is difficult to commute to work and move somewhere for work is for them complicated and costly. We meet with the opinions of people that find a job they not be paid, because to travel more than it earned.



Flexibility is connected with mobility. As a result of modernizing of labour markets it is important to empower the status of people by supporting the development of their skills throughout their lives. The aim is to increase their participation in the labour market and better to match the labour market offer with demand, including labour mobility. (Kormančíková, 2013) Flexible employees are able to adapt and link their abilities, allowing them to exercise different roles and functions within the organization, as well as mobility between different jobs. "Today there is more frequent among employees to rotate jobs and even professions. Those who are working all life in one company are taken into account as "rigid" employees, unwilling to face new challenges and expand their horizons in a different company. In other words, they are inflexible." (Svobodová, 2003) Flexible employees can be employed in various professions and organizations in terms of distance in the more remote regions, or even abroad. „The globalisation process gives an opportunity for migration, change of the place of residence and finding a job in other countries with suitable qualifications and skills.“ (Kawa, 2010) Opening of the labour market are increasing employment opportunities, enforces the geographical mobility. Especially educated young people leave to work abroad (international mobility).

The globalization also applies to the movement of people as free labour force and begins to promote the importation of foreign labour force (eg. the Ukraine, Romania, Bulgaria, Hungary). The employers are beginning to look people in the neighboring countries, which is confirmed by recruitment agencies. According to the Executive Director of recruitment agency Express People - Petra Dosedla "the interest of employers in foreign employees is indisputable and has an increasing tendency. While in the past five years the trend of employment of workers from other countries was continuous, in the last 18 months we register a geometric growth of interest in this group of employees" (TASR, 2016) So we think that even if the Slovak labour market is still relatively homogeneous, the next few years will be more diversified. It will be interest in foreign workers from other European countries. Employment in the labour market could also find people from outside the European Union, especially migrants who obtain a work permit in Slovakia.

As a result of labor migration on the labor market the internal environment of enterprises is changing. The companies employ qualified professionals from diverse cultural backgrounds with the knowledge of different languages, it gradually begins to change the internal environment towards the interculturality and multilingualism. Currently this process continues and affects practically all internal processes. (Szarková, 2011)

### **3. Conclusion**

Globalisation offers opportunities for global development and growing of competitive advantages for individuals, companies and states. International economic relations have a broader dimension. They contribute to the development of the economy, liberalization, increasing competition, the free movement of capital and financial services and in particular the development of cooperation in the field of investment. The investments determine the dynamics of economic development, long-term economic growth and overall economic performance. (Nováčková, 2007) As a result of globalization (trade liberalization), the number of foreign companies operating in Slovakia increased and the inflow of these business entities on our territory demonstrates the openness of the Slovak economy. The presence of foreign enterprises in Slovakia contributes to economic development, improving the performance of the Slovak economy, innovation and the modernization of production and not least to increase the number of new jobs. The action of foreign business entities in different parts of the country

provides the regional disparities for the Slovak labour market. We can say that foreign business entities are highly contribute to economic growth, employment of citizens as well as foreign trade, whereas a number of foreign entities export their products outside the Slovak Republic.

We believe that a fundamental precondition of successful business is flexibility and readiness for changes which are linked to new information technologies and the growth of global competition. „The fast rate of innovation and changes in products and technologies asks for the capacity of the workforce to be flexible more than ever. Knowledge has become the most valuable asset, and thus highly educated and well-trained people represent key resources of the companies.“ (Bajzíkova et al., 2013) It slowly ceases to apply that an individual can be sure of one job throughout his career. "To provide its employees a long-term employability in the labour market through vocational training is the obligation and the possibility of the organization towards each other and to its employees. That does not mean that it will be the employability in the same profession, region or organization.“ (Frk, 2014)

Current employer organizations require skilled and qualified people, but the requirements of employers are unable to meet with what the unemployed people offer. There are few capable and qualified people, is not easy to get them and therefore the value of talented people in the market is growing. Vocational education and training with the system of dual education directly at the employer is a suitable instrument for harmonizing of the number of graduates of vocational training in different training branches and fields of study with labour market needs. Changes in the field of education and training to the labour market have the impact on changes in social and economic development of Slovakia. The development of human resources can actually improve social conditions for raising the quality of life for the citizens of our country. (Hlásna & Horváth 2012) For economic situation in Slovakia it is necessary that the structure of the Slovak education system has been adjusted so that the companies will find the right people when they want to create new jobs.

If the employers have a problem finding enough workers because the domestic labour market is exhausted, they may find their employees from among skilled migrants.

In the future, we can expect that the problem of free labour force will continue to deepen and the filling of vacant posts in Slovakia will be an increasing problem for employers and a brake on future business development, expansion of production and services. Availability of skilled labour workforce may be in the future one of the biggest barriers for foreign investors in Slovakia and may negatively affect the continuing of economic growth in Slovakia.

## References

- [1] Bajzíkova et al. (2013) Are flexible work arrangements attractive enough for knowledge-intensive businesses? *Proceedings of 9th international strategic management conference*. Riga, LATVIA, pp. 771-783.
- [2] Fígel', J. (2006) Vzdelanie – kľúč k budúcnosti Európy. [Online]. Available: [http://www.kas.de/wf/doc/kas\\_8548-544-1-30.pdf](http://www.kas.de/wf/doc/kas_8548-544-1-30.pdf)
- [3] Frk, V. (2014) Zmeny, očakávania a výzvy profesijného vzdelávania zamestnancov. *Vzdelávanie a sociálna stratifikácia*. University of Prešov. [Online]. pp. 50-71. Available: [http://www.pulib.sk/web/kniznica/elpub/dokument/Mayerova1/subor/Frk\\_Vladimir.pdf](http://www.pulib.sk/web/kniznica/elpub/dokument/Mayerova1/subor/Frk_Vladimir.pdf)
- [4] Hajdúchová, I. and Giertliová, B. (2015) The impact of globalization on the employment development in the SR. *Globalization and its socio-economic consequences*. Žilina:

- University of Žilina, Slovakia. [Online]. pp. 171-180. Available: [http://ke.uniza.sk/sites/default/files/content\\_files/globalizationproceedingspart-i\\_0.pdf](http://ke.uniza.sk/sites/default/files/content_files/globalizationproceedingspart-i_0.pdf)
- [5] Hlásna, S. and Horváth, M. (2012) Komponenty kvality života detí, mládeže a dospelých v edukačných a právnych aspektoch. 1. vydanie. Báčsky Petrovec: BPS Ekselent DOO, pp. 126.
- [6] Kawa, M. (2010) Role of cooperative movement under globalisation conditions. *Economic development and management of regions*. Hradec Kralove, Czech Republic. [Online]. pp. 173-177. Available: [http://fim2.uhk.cz/hed/data/sbornik/SBORNIK2010\\_I.pdf](http://fim2.uhk.cz/hed/data/sbornik/SBORNIK2010_I.pdf)
- [7] Kormančíková, B. (2013) *Stratégia Európa 2020*. Government Office in SR. Available: <http://archiv.vlada.gov.sk/sepavs/data/files/8002.pdf>
- [8] Milošovičová, P. and Paškrťová, L. (2015) Development of Slovak-German economic relations. *Globalization and its socio-economic consequences*. Žilina: University of Žilina, Slovakia. [Online]. pp. 439-447. Available: [http://ke.uniza.sk/sites/default/files/content\\_files/globalizationproceedingspart-i\\_0.pdf](http://ke.uniza.sk/sites/default/files/content_files/globalizationproceedingspart-i_0.pdf)
- [9] Němcová, I. and Marková, H. (2015) Flexible work arrangements as a part of globalized world. *Globalization and its socio-economic consequences*. Žilina: University of Žilina, Slovakia. [Online]. pp. 485-497. Available: [http://ke.uniza.sk/sites/default/files/content\\_files/globalizationproceedingspart-ii\\_0.pdf](http://ke.uniza.sk/sites/default/files/content_files/globalizationproceedingspart-ii_0.pdf)
- [10] Nováčková, D. (2005). State aid in Slovakia. *Economic policy in the new EU member countries*. Ostrava, Czech Republic, pp. 401-407.
- [11] Nováčková, D. (2007) The protection and promotion of investments in the Slovak Republic. *Economic growth and development in the region*. Hradec Králové, Czech Republic, pp. 87-93.
- [12] Olšavský, F. (2014) Územná samospráva na Slovensku ako aktér trhu práce. *Právni, sociální a ekonomické aspekty společenských vztahů*. Hodonín, Czech Republic, pp. 20-29
- [13] Procter, S. and Ackroyd, S. (2001) Flexibility. In: Redman, T. and Wilkinson, eds. *Contemporary Human Resource Management - Text and Cases*. London: Financial Times
- [14] Stachová, P. and Šuplata, M. (2013) The economic dimension of regional policy in the Slovak Republic. *Contemporary Issues of World Economics and Politics*. Smolenice, Slovakia, pp. 650-660.
- [15] Svobodová, L. (2003). Flexibilita, její výhody i problémy. *Vliv změn světa práce na kvalitu života*. č. MPSV 1J039/05-DP1. [Online]. Available: [http://kvalitazivota.vubp.cz/prispevky/flexibilita\\_jeji\\_vyhody\\_i\\_problemy-svobodova.pdf](http://kvalitazivota.vubp.cz/prispevky/flexibilita_jeji_vyhody_i_problemy-svobodova.pdf)
- [16] Szarková, M. (2011) The analysis of intra-company e-communication tools in slovak enterprises. *Economic development and management of regions*. Hradec Kralove, Czech Republic. [Online]. pp. 332-337. Available: [http://fim2.uhk.cz/hed/data/sbornik/SBORNIK2011\\_I.pdf](http://fim2.uhk.cz/hed/data/sbornik/SBORNIK2011_I.pdf)
- [17] Šukalová, V. and Ceniga, P. (2015) Illegal work – risk of young people in the world of work in globalization. *Globalization and its socio-economic consequences*. Žilina:

- University of Žilina, Slovakia. [Online]. pp. 792-799. Available:  
[http://ke.uniza.sk/sites/default/files/content\\_files/globalizationproceedingspart-ii\\_0.pdf](http://ke.uniza.sk/sites/default/files/content_files/globalizationproceedingspart-ii_0.pdf)
- [18] TASR (March 2016). Firmy na Slovensku hľadajú ľudí v zahraničí, na východe sa obzerajú po Maďaroch. [Online]. Available: <https://www.istp.sk/clanok/10273/Firmy-na-Slovensku-hladaju-ludi-v-zahranici-na-vychode-sa-obzeraju-po-Madaroch>
- [19] Wirtschaftskammer Österreich (2015) Arbeits- und Sozialrechts-Änderungsgesetz 2014 (Gesetz gegen Lohn- und Sozialdumping). [Online]. Available: [https://www.wko.at/Content.Node/branchen/oe/sparte\\_iuc/Werbung-und-Marktkommunikation/Gesetz\\_gegen\\_Lohndumping.html](https://www.wko.at/Content.Node/branchen/oe/sparte_iuc/Werbung-und-Marktkommunikation/Gesetz_gegen_Lohndumping.html)

## THE UNITED STATES AND RUSSIA ON THE GLOBAL ARMS MARKETS

Irina R. Tulyakova<sup>1,a,\*</sup>

<sup>1</sup>Saint Petersburg State University, Faculty of Economics, Department of Economics and  
Economic Policy, Tchaikovskogo str. 62, a. 310, Saint Petersburg, 191194, Russia.

<sup>a</sup>irinatulyakova@mail.ru

\*Corresponding author

**Abstract.** The global weapons and military equipment (WME) markets are the place of fierce competition between the main players. The ideological confrontation of the two systems had ended at the beginning of the 1990<sup>s</sup>. However, the battle of the chief weapons exporters for this very profitable field of the global trade is hardly over. The yearly foreign sales of the arms-producing industries are counted in tens of billions dollars. The global economic recession of the last few years only serves to exacerbate the competition within these markets. The advantage in the WME production acquired by the US and Russia in the course of the 40-years long arms race of the 20<sup>th</sup> century gave them the position of the main players in the global WME markets. As a result, for almost a quarter of a century the US and Russia has been the chief exporters of the WME. This article is devoted to the analysis of the state and behavior of the military expenses of the two countries – the US and Russia. The amount of the military expenses directly corresponds to the scale of the military production and the volumes of the arms sales in the global market. This topic of research has long and truly held an important place within the scientific interests of the author of this article (Тулякова, 2005, Tulyakova, 2015). Using the vast statistical data of the international and national analytical centers, the article analyses the export behavior of the US and Russia in value terms at the beginning of the new century, as well as the physical flow of weapons, the commodity structure of the sales of both countries, and compares the groups of their partner-countries in regards of the WME sales. The completed research leads to the conclusion that the export positions of both countries are comparable, despite the notable difference in GDP and GDP per capita.

**Keywords:** military expenditure, military-industrial complex, the world arms market, armaments and military equipment

**JEL Classification:** F14, L64, O57

### 1. Introduction

The second half of the 20<sup>th</sup> century is known as a “cold war” period. It is a period of confrontation between the two superpowers – the US and the USSR. In the course of their 40 years long arms race these countries developed a specialized sector of the economy, known as the Military-Industrial Complex (MIC). For many years, the arms-production had been getting financial support on an ever-increasing scale. By the end of the “cold war” period, the global military expenses reached their maximum. However, the weapons production did not exclusively cover the demands of the national defense of the countries themselves, but also included the countries of their political environment. The US has been and remains in present the central force of the NATO, while the USSR held the central position among the Warsaw Pact countries. Within these dissenting camps, the weapons were distributed according to their own rules. (Kniazeva & Sakalova, 2007)

By the end of the 20<sup>th</sup> century, the geopolitical situation had radically changed. The end of the “cold war”, elimination of the former and the evolution of the new threats to national securities lead to a substantial reformation of the military production in many countries, most notably in the US, Russia and the developed European countries. This caused a considerable transformation of the WME markets, such as a growing competition, a blurring of the spheres of influence of particular countries, and an evolution of the new weapons suppliers and consumers.

The global military expenses, which predetermine both the arms-production and the sales of military goods, that had initially lowered within the first years after the end of the “cold war” began to grow again. The global WME markets acquired a great significance both as a source of profit (Liu et al., 2014) and as an instrument for the influence on particular countries in various parts of the world. At the same time, the main players of the global weapons markets did not change, they are still – the US and Russia.

A lot of works were devoted to the research of the behavior of the military expenses and their influence on the economic growth, as well as the situation in the global WME markets (Akerman & Seim, 2014, F-De-Cordoba & Torres, 2016, etc). The Military-Industrial Complexes (MIC) of the US and Russia, their transformation and influence on the other sectors of the economy are also subject for an extensive research (Dunlap, 2011, Kosals & Izyumov, 2011, etc).

*The goal* of this article was to carry out the qualitative and quantitative analysis of the military expenses of the US and Russia and compare their positions in the global WME markets, using the extensive statistical data of the international and national analytical centers. We set ourselves the following *tasks*: to compare the WME export behavior of the US and Russia in the value terms and the physical weapons flow at the beginning of the new century, and to analyze the commodity structure of the sales of both countries. Besides, we also compare the groups of the partner-countries of both the US and Russia in regards to the WME sales.

## 2. Methodology

The current study was based on the method of statistical data processing. The author has good experience in such kind of research both in this and other fields of the economy (Тулякова, 2011, Dengov & Tulyakova, 2015). The factual and statistical basis of the study came from the open sources of international and national research agencies.

The most authoritative agencies in the world are Stockholm International Peace Research Institute (SIPRI) and Congressional Research Service (CRS). Many researchers, including those interested in the global military markets, use the statistical data, supplied by these agencies. Unlike the SIPRI data, which is completely open, only certain reports of the CRS are publically available (Liu et al., 2014). In Russia, there are several analytical agencies, including Center for Analysis of World Arms Trade (CAWAT), and the data on Russian export can be also found on the Center for Analysis of Strategies and Technologies web-site (CAST).

However, when using the data of the analytical center, one has to take into the account that different calculation methods may produce the vastly different results. For instance, the data provided by the SIPRI, due to the so-called “trend-indicator” tends to skew upward the results for the countries, producing the cheaper weapons systems. According to their method, similar types of arms are assigned the same valuation base. Thus, they often tend to exaggerate the export shares of Russia and China in comparison to the shares of other exporting countries, such as the US, France and Great Britain. The CAWAT carries out the calculation of the value exports upon

the delivery to the customer. One can only agree with the SIPRI in that the US and Russia hold the first and second place according to their WME export volumes (CAWAT, 2016).

The UN Register of Conventional Arms (UNROCA), created in 1991 by the UN Resolution, can serve as the source of information on the physical weapons flow. The Register is the only global instrument for the transparency of the weapons transfer between the countries. Starting with 1993, Russia sends there the information on the WME export/import on a yearly basis. This article uses the data, provided by the SIPRI, the CAWAT and the UNROCA.

### 3. The Military Expenditures of the US and Russia

In the absolute figures, the military expenses of our country had been approximately comparable to those of the US only at the end of the Soviet period. (In 1990 they were approximately two times lower than the military expenses of the US). During the next 25 years, Russia stayed considerably behind in regards of the amount of finances spent on the defense. In the beginning of the new century, this difference became more than 14 times (Table 1).

Table 1: Military Expenditure by country in constant (2014) US billions dollars

	1990	1995	2000	2005	2010	2011	2013	2014	2015
USA	554,7	433,2	414,8	610,2	758,0	748,6	650,1	609,9	595,5
Russia	269,5	31,3	28,8	43,0	60,9	65,0	79,0	84,7	91,81

Source: SIPRI Military Expenditure database (<https://www.sipri.org/databases/milex>)

It surely influenced the situation in the arms-production, the re-equipment of the national armed forces and the sales in the global WME markets.

Despite the fact that the population of Russia is currently approximately 2.2 times less than the population of the US, our military expenses per capita are also considerably lower than in the US (Table 2).

Table 2: Military Expenditure per capita by country in current US dollars

	1990	1995	2000	2005	2010	2011	2013	2014	2015
USA	1224	1047	1069	1700	2254	2279	2020	1912	1854
Russia	763,1	85,9	63,1	191	411	491	615	579	454

Source: SIPRI Military Expenditure database (<https://www.sipri.org/databases/milex>)

Striving to restore the approximate parity lost in the 1990<sup>s</sup>, during the last 15 years Russia has been gradually increasing its military expenses, whereas the share of military expenses in the GDP of the US has been lowering within the last five years. It can be seen in the Table 3. However, it is obvious that in the absolute figures of the military expenses, the US is still far ahead of Russia.

Table 3: Military Expenditure by country as percentage of Gross Domestic Product (%)

	1990	1995	2000	2005	2010	2011	2013	2014	2015
USA	5,3	3,6	2,9	3,8	4,7	4,6	3,8	3,5	3,3
Russia	-	4,1	3,6	3,6	3,8	3,7	4,2	4,5	5,4

Source: SIPRI Military Expenditure database (<https://www.sipri.org/databases/milex>)

According to the foreign analysts, the growing military expenses during the existing recession in the Russian economy signify the possibility of the diversion of funds, such as the cuts in various social programs, as well as in the expenses for education and public health services (Bradshaw & Connolly, 2016). One can find the indirect proof of this conclusion in the

data of the Table 4, depicting the share of the military expenses of the country within the total state expenses.

*Table 4: Military Expenditure by country as percentage of Government spending (%)*

	2000	2005	2010	2011	2013	2014	2015
USA	-	11,4	11,8	11,9	10,6	9,8	9,2
Russia	10,8	11,3	10,1	10,3	11,1	11,8	13,7

Source: SIPRI Military Expenditure database (<https://www.sipri.org/databases/milex>)

However, according to the absolute figures of the military expenses and their share in the global military expenses, Russia is not even on the second, but rather on the fifth place. Table 5 shows the rating of the TOP-10 countries with the highest military expenses as of 2014.

*Table 5: The countries with the largest military spending in 2014*

country	military spending, billions of dollars	the percentage of total world spending %
USA	654,254	39,5
China	131,575	7,9
Saudi Arabia	80,775	4,9
UK	65,827	4,0
Russia	63,935	3,9
France	52,006	3,1
Japan	46,125	2,8
Germany	46,102	2,8
India	37,975	2,3
South Korea	33,855	2,0

Source: Yearbook CAWAT -2015 ([http://www.armstrade.org/files/yearly\\_2015\\_1\\_1.pdf](http://www.armstrade.org/files/yearly_2015_1_1.pdf), )

It would seem that after the end of the “cold war” and the ideological confrontation of two political systems the global military expenses could have decreased with the released funds redirected to the humanitarian fields. However, they continue to grow and presently constitute about 2.5% of the global GDP. Moreover, it happens despite the fact that the leading military spender, the US, has been recently reducing both the growth rates and the absolute figures of its expenses. This undoubtedly is a consequence of the escalation of global tensions, as well as the evolution and exacerbation of the local armed conflicts.

In any event, the high level of the global WME expenses stipulates the political and economic significance of the global weapons markets. The high expenses of particular countries are responsible for their place in the rating of the major weapons exporters or importers (Tocoian, 2015).

#### **4. The Place of the US and Russia on the Global Arms Market**

Already for a long time, many agencies have been putting Russia at the second place after the US in the ratings of the major weapons suppliers. According to the SIPRI data, the actual export of Russia has been growing for 15 years. Despite the fact that the military expenses of Russia are still several times lower compared to the US (in 2015 they were 6.5 times lower, see Tab. 1), the WME export volumes of both countries to the global markets are comparable. Moreover, according to the estimations of the SIPRI, in 2013 the Russian export exceeded the American one (Table 6). The obvious export orientation of the Russian MIC dates back to the 1990s, when the sales at the external markets were almost the only survival means for the defense industry in the absence of both the state financing and the re-equipment program for the national armed forces.



Table 6: Arms export from United States and Russia, 2010-2015 (in constant (1990) millions of dollars)

	2010	2011	2012	2013	2014	2015	total
USA	8098	9104	9163	7687	10470	10484	55006
Russia	6172	8695	8480	8107	5468	5483	42404

Source: SIPRI database (<https://www.sipri.org/databases/milex>)

The miniscule volume of the Russian import of the military production (compared to the export volume) means that, firstly, Russia is able to manufacture almost the entire range of military production and does not need the import from abroad (Table 7); and secondly, that Russia is still isolated from the military R & D of other developed countries.

Table 7: Arms import to United States and Russia, 2010-2015 (in constant (1990) millions of dollars)

	2010	2011	2012	2013	2014	2015	total
USA	1111	995	1180	802	566	565	5220
Russia	22	11	98	153	206	88	578

Source: SIPRI database (<https://www.sipri.org/databases/milex>)

Until the most recent time, the markets, where the US and Russia sold their military production, nearly did not overlap at all.

Table 8: Arms exports from United States, 2010-2015 (in constant (1990) millions of dollars)

country	Total for the period	Exports for the period in % of total
Saudi Arabia	4906	8,9
UAE	4438	8,1
South Korea	4199	7,6
Turkey	3128	5,7
Singapore	3048	5,5
Taiwan	2914	5,3
India	2825	5,1
Iraq	2378	4,3
Australia	1966	3,6
Pakistan	1892	3,4
others	23312	42,5
total	55006	100

Source: SIPRI database ([http://armstrade.sipri.org/armstrade/html/export\\_values.php](http://armstrade.sipri.org/armstrade/html/export_values.php))

The Table 8 gives the idea about the major importers of the American WME. The export of the US is diversified among a great number of countries. Moreover, the partner-countries of the US are mostly the rich ones. Actually, the main consumers of the WME of the US are the Gulf States (Khanna, 2010).

The partners of Russia are presented in the Table 9.

For some years, the main consumers of the Russian weapons have been and still are India and China. The greater shares of these countries are the result of a historical co-operation. However, exactly this situation presents a very serious risk for the Russian export. Both India and China are rapidly developing countries, striving for the regional and global leadership. As such, they are be extremely eager to build up their own defense industry, sufficient for the national security.

Table 9: Arms exports from Russia, 2010-2015 (in constant (1990) millions of dollars)

country	Total for the period	Exports for the period in % of total
India	16554	39,0
China	4705	11,1
Viet Nam	3959	9,3
Algeria	3329	7,9
Venezuela	1955	4,6
Azerbaijan	1890	4,5
Syria	1222	2,9
Iraq	947	2,2
Indonesia	675	1,6
Kazakhstan	664	1,6
others	6504	15,3
total	42404	100

Source: SIPRI database ([http://armstrade.sipri.org/armstrade/html/export\\_values.php](http://armstrade.sipri.org/armstrade/html/export_values.php))

Whereas China has presently almost completed a national military-industrial complex and has already entered the global market in the role of the exporter, India is still in the process and for now remains one of the major importers of the WME, including the Russian production (Bitzinger, 2015). However, there are certain changes in the Russian-Indian relationship as well. For almost a half of a century, the USSR and then Russia remained a chief military supplier for this country. Presently, Russia still maintains a leading position in the Indian market, however, there is increasing competition with other exporters, in particular the US and France (Toulyakova, 2011). Generally speaking, we can conclude that the situation of the market “division” between the main “players” still holds true, yet in the recent years the interests of Russian and American weapons exporters started to overlap more strongly. Russia tries to enlarge its footprint in the weapons markets of the rich Middle East countries (the UAE, Qatar, Saudi Arabia), while the US strives to win over the importers from India, Vietnam, Azerbaijan.

The commodity structure of the weapons export of the US and Russia is shown in the Tables 10 and 11. As one can easily see from this data, both countries manufacture all the main products for which there is a global demand.

Table 10: Arms exports from United States, 2010-2015 (in constant (1990) millions of dollars)

Weapon category	Total for the period	Exports for the period in % of total
Aircraft	32833	59,7
Air defence systems	2293	4,2
Armoured vehicles	5271	9,6
Artillery	352	0,6
Engines	1949	3,5
Missiles	8214	14,9
Naval weapons	350	0,6
Sensors	2351	4,3
Ships	1167	2,1
others	226	0,5
total	55006	100

Source: SIPRI database ([http://armstrade.sipri.org/armstrade/html/export\\_values.php](http://armstrade.sipri.org/armstrade/html/export_values.php))

In regards of the commodity structure, nearly half of all the export of both the US and Russia consists of the aircrafts. The share of missiles of both countries is nearly identical. At the same time, Russia exports a larger quantity of naval vessels (Тулякова, 2014) and air defense systems.

Table 11: Arms exports from Russia, 2010-2015 (in constant (1990) millions of dollars)

Weapon category	Total for the period	Exports for the period in % of total
Aircraft	18751	44,2
Air defence systems	4249	10,0
Armoured vehicles	4481	10,6
Artillery	220	0,5
Engines	2276	5,4
Missiles	5574	13,1
Naval weapons	152	0,4
Sensors	799	1,9
Ships	5667	13,4
others	237	0,5
total	42404	100

Source: SIPRI database ([http://armstrade.sipri.org/armstrade/html/export\\_values.php](http://armstrade.sipri.org/armstrade/html/export_values.php))

The statistical data for export and import was given according to the SIPRI databases. Different methods of calculation of the financial return from the WME sales in different agencies provide varied statistical results. If we consult the data of the UNROCA, the second place of Russia in the WME export becomes even more obvious. The physical flow for the export of the main types of weapons for all the registered years (1992-2014) is given in the Table 12.

Table 12: Exports from USA and Russian Federation all years (1992-2014) in pcs

	Battle tanks	Armoured combat vehicles	Artillery systems	Combat aircraft	Attack helicopters	Warships	Missiles and missile launchers
USA	5624	12353	3855	1673	643	51	25294
Russia	1362	4204	1643	674	608	39	25685

Source: The UN Register of Conventional Arms (<http://www.un-register.org/HeavyWeapons/Index.aspx?CoI=RU&type=2&year=0&#Inkreg>)

In this table, we can see that for almost all the positions the US sales in physical terms considerably exceed those of Russia. Moreover, taking into the account the different cost of weapons for the US and Russia removes the last doubts concerning the leadership of the US.

Within the recent period, the US and Russia retain their leading positions in the global WME markets. This way the countries can both gain the certain economic advantages and successfully pursue their political interests in the particular parts of the world.

## 5. Conclusion

The completed analysis lead the author to the following conclusions:

1. The US and Russia are still the chief weapons exporters in the global markets. Though the Russian military expenses are several times lower than the American, higher export orientation of the Russian MIC provides the Russian Federation with the means to not only maintain, but even strengthen their positions in the global WME markets.

2. To restore the approximate military parity Russia has to spend a considerably bigger share of the total state expenses than the US for the military purposes. In the situation of a prolonged economic recession and the sanctions/counter sanctions regimes, Russia has to cut the expenses for the social purposes, such as public health service, education, culture, pension and welfare.

3. With the second place in the WME export, Russia holds only the fifth position in the world in regards to the total amount of the military expenses. It proves that starting with 1990<sup>s</sup>, Russia had intensively developed the export of the WME instead of pursuing the re-equipment

of its own military forces; and only in the last 5-7 years, it accepted and started to implement an ambitious program of the re-equipment of the national armed forces. Besides, Russia does not need to spend much money on the import of the military production.

4. The country-by-country division of the export markets of the US and Russia continues to exist. The higher diversification of the markets and volumes of the WME export of the US ensures that country both higher financial stability and predictability of the export flows. Besides, their weapons importers are largely rich stable countries, whereas among the consumers of the Russian weapons there are many poor countries (such as Venezuela, Iraq, Vietnam, Syria etc.) of problematic paying capacity. The Russian export is further endangered by the growing desire of China and India (the traditional importers of the Russian WME) to build up their own internal manufacturing of the competitive production.

5. Russia should continue to exploit the traditional advantages of the Russian WME: wide product range, comparatively low prices, high reliability and simple operation of even the newest and most advanced weapons.

## References

- [1] Akerman, A. and Seim, A. L. (2014). The global arms trade network 1950-2007, *Journal of Comparative Economics*, vol. 42, issue 3, pp.: 535-551.
- [2] Bitzinger, R. A. (2015). Comparing Defense Industry Reforms in China and India, *Asian Politics & Policy*, vol. 7, issue 4, pp.: 531-553.
- [3] Bradshaw, M., and Connolly, R. (2016). Barrels and bullets: The geostrategic significance of Russia's oil and gas exports, *Bulletin of the atomic scientists*, vol. 72, issue 3, special issue, pp.: 156-164. WOS:00037587910000.
- [4] SAWAT (2016). Аналитическая Записка. Комментарий к очередному ежегодному докладу СИПРИ. [Online]. Available: <http://www.armstrade.org/files/analytics/342.pdf>; <http://www.armstrade.org/files/analytics/183.pdf>.
- [5] Dengov, V.V. and Tulyakova, I.R. (2015). Credit Risk Analysis for the Telecommunication Companies of Russia: Statistical Model. *Proceedings of the 2nd International Multidisciplinary Scientific Conferences on Social Sciences and Arts (SGEM)*, Book 2. Albena, Bulgaria, pp. 139-146.
- [6] Dunlap, Ch. (2011). The Military-Industrial Complex, *DAEDALUS*, vol. 140, issue 3, pp.: 135-147.
- [7] F-De-Cordoba, G. and Torres, J. L. (2016). National Security, Military Spending and the Business Cycle, *Defence and Peace Economics*, vol. 27, issue 4, pp. 549-570. .
- [8] Khanna, N. and Chapman, D. (2010). Guns and Oil: an Analysis of Conventional Weapons Trade in the Post-Cold War Era, *Economic Inquiry*, vol. 48, issue 2, pp: 434-459.
- [9] Kniazeva, L., Sakalova, E. (2007). Efficiency of international capital movement in conditions of globalization. *Ekonomicko-manazerske spektrum*, Vol. 1, No 2, 47-51.
- [10] Kosals, L. and Izyumov, A. (2011). The Russian Defence Industry Confronts the Market: Findings of a Longitudinal Study, *Europe-Asia Studies*, vol. 63, issue 5, pp. 733-756.

- [11] Liu, S., Jiang, Y. and Ye, K. (2014). Research on the Motivation of Conventional Weapons Exporting-Empirical Analysis Based on Panel Model. *4th International Conference on Applied Social Science (ICASS)* Singapore, vol. 51, pp. 65-71.
- [12] Liu, S.Q., Li, Y.F. and Xiao, X.Y. (2014) Comparative Analysis on Data Sources of Arms Trade. *International Conference on Business, Economics and Management (BEM 2014)*, vol. 1, pp. 59-63.
- [13] Tocoian, O. (2015). The Home Market Effect in International Arms Trade, *Economic Inquiry*, vol. 53, issue 4, pp.: 1751-1764.
- [14] Toulyakova, I.R. (2011). Military-technical Cooperation of Russia and other Countries: State, Problems and Prospects, *Vestnik of Saint-Petersburg University. Ser. 5: Economics*, vol. 4, pp.: 53-62. RSCI:17037726.
- [15] Tuliakova, I.R. (2015). The Position of Russia in The World Arms Markets, *Маркетинг MBA. Маркетинговое управление предприятием*, Т. 6, № 2, с. 116-131.
- [16] Тулякова, И.Р. (2005). *Рынки вооружений и оборонно-промышленный комплекс России*. Диссертация на соискание ученой степени кандидата экономических наук / Санкт-Петербургский государственный университет, Санкт-Петербург, РФ.
- [17] Тулякова, И.Р. (2011). Использование методов экономико-математического моделирования при производстве военной продукции и ценообразовании, *Application of Quantitative Methods in Economics Professional seminar*. University of Žilina in Žilina, Zilina, Slovakia, pp. 334-344.
- [18] Тулякова, И.Р. (2014). Место Санкт-Петербурга в судостроительной отрасли России, *Общество: Политика, Экономика, Право*, № 1, с. 100-106.

## THE IMPACT OF TAX RATE ON ACTIVITY OF SMALL ENTERPRISES: INTERNATIONAL EXPERIENCE AND RUSSIAN CASE

Tumanyants Karen<sup>1,a,\*</sup>

<sup>1</sup>Chair of economic theory and economic policy of Volgograd State University, Russian Federation,  
400062, Volgograd, pr. Universitetskiy, bldg #100

<sup>a</sup>tka210@gmail.com

\*Corresponding author

**Abstract.** Since 2008 regional authorities have had the right to set the tax rate for small enterprises in the range from 5 to 15% instead of a single 15% rate that had been used before. Most of Russian regions (56) have implemented differentiated tax rates for different taxpayers. 15 regions have set a single lowered rate for all taxpayers, while in 12 regions tax rate remained unchanged. The research focused on testing the hypothesis that low tax burden has a favourable effect on the small enterprise's development. In the regression equation the number of small enterprises, the number of employees, turnover and investment were used as dependent variables. Apart from the tax rate, regressors included the following control variables: gross regional product per capita, economic potential and investment risks ranking of the region by the agency "Expert". The relationship between the mentioned indicators was modeled with logarithmic-linear and doubly-logarithmic functions both without a time lag and with a one-year time lag. The results of assessment of the models do not provide sufficient evidence to prove the hypothesis. Regions with a lower tax rate show better performance in the number of new enterprises and turnover. However, no influence on the dynamics of employment and investment was found. Multiple research papers prove similar effects of lowered tax rate in other countries. The analysis of international experience shows that the effectiveness of fiscal stimulus depends on the solution of such problems as corruption, availability of funding, labor force quality, infrastructural limitations.

**Keywords:** tax, tax rate, small enterprise

**JEL Classification:** D22, E62, H25

### 1. Introduction

The development of micro and small enterprises (MSE) remains on the agenda in the most countries in the world (Schubert, 2015). In the global practice, the use of taxation is the most widely-practiced way of supporting business activity. However, its effectiveness is discussible, which can be seen in the different approaches to fiscal policy depending on the country. More than 80% of emerging market and developing economies implement tax holidays or tax exemptions, while among advanced economies only 20% do (IMF, 2016). In just 10 of the OECD member states there are reduced rates for MSE, but only 4 countries in this organization have not implemented special taxation orders for MSE. Empirical analysis of the impact of low tax rate on the dynamics of economic indexes is generally complicated (Auten & Carroll, 1999). The results of entrepreneurship are subjects to many different factors (Kim & Suh, 2015, Martinez-Vazquez & Torgler, 2009). Identification of the effect, caused by the change in taxation is highly problematic.

There are several special taxation orders for small businesses in Russia, including a simplified system of taxation (SST). The tax rate on net income used to be universal across the country and was equal to 15%. During the economic crisis of 2008 the authority to set the tax rate used in SST went from the federal level to the regional one. Tax rate on net income could be set in the range of 15 to 5%. Differentiation of tax rate for different categories of tax-payers was introduced in 56 regions of Russian Federation. 15 subjects set a unified low tax rate for members of SST, while 12 left the tax burden of businesses unchanged. Comparison of business development in the three groups of regions of RF based on econometric models gives a unique opportunity to test the hypothesis about positive effects of low tax rate on business activity of small enterprises.

Similar market situation, regulatory-legal base, social-political environment in each group of subjects of RF can be explained by sustainable differences in tendencies of business development since 2009 “*ceteris paribus*”, caused by different tax rates. Obligatory deductions on social, medical and pension insurances of workers reduce the tax on net income. The personal income tax, in the context of research, can be considered neutral to the results of entrepreneurial activity. Therefore, potential effect on business activity can be correlated primarily with the unified income tax rate, in absence of distorting effect of other taxes. That makes the conclusions more consistent.

## **2. International practices of fiscal stimulation of micro and small enterprises**

During the recent decades a tendency to lower the tax rates on business has formed in majority of countries. The average corporate tax rate on income has lowered in 2004-2012 from 19.2% to 16.5% in 181 countries in the world (World bank, 2014). Average corporate tax rate in the OECD member countries has dropped from 50.9% in 1982 to 25.0% in 2015 (OECD, 2015). However, the evaluation of consequences of fiscal stimulus proves to be quite the opposite.

The calculations made by Bruhn M. (Bruhn, 2011) that used the data about 128 countries from World Bank Enterprise Surveys in 2005-2010 have shown an increase in investment, sales and GDP as well as tax evasion in response to the lowered tax rates. The analysis of the data about 85 countries (Djankov et al, 2010) shows that diminishing taxes by 10 percentage points caused the growth of investment by 2% of the GDP. However, Kawano L. and Slemrod J. (Kawano & Slemrod, 2012) see the impact of the corporate tax rate change on the tax base in the OECD member countries from 1980 until 2004 as weak. Klemm A. and van Parys S. (Klemm & van Parys, 2012) analyzed the data about 44 developing countries in 1985-2004 also did not confirm any major impact of tax rate on the economic growth. In the paper by Šimović H. and Deskar-Škrbić M. (Šimović & Deskar-Škrbić, 2013) the tax multiplier is a negative figure, but is statistically negligible. von Haldenwang C. and Ivanyna M. (von Haldenwang & Ivanyna, 2012) based their research on the data about 177 countries from 1990 until 2008 and discovered a positive dependency between the tax rate and the logarithm of GDP per capita.

Perhaps, the difference in the reaction to tax policy changes can be explained by some other factors, for example, the level of economic development of the country (James, 2013). In particular, Hansson A. (Hansson, 2012), who researched the data about Sweden from 1985 until 2000, Bruce D. and Mohsin M. (Bruce & Mohsin, 2006), who analyzed the US statistics in 1950-1999, and Fossen F. and Steiner V. (Fossen & Steiner, 2009), who based their research on German data in 1991-2001, also concluded that tax rates did not stimulate self-employment. Meanwhile, Engelschalk M. and Loeprick J. (Engelschalk & Loeprick, 2015) in their paper

concerning countries with transition economies use the following examples. A preferential 9% tax rate that was levied on turnover of MSE's in Latvia in the end of 2010 has led to a rapid growth in the number of self-employed. By June 2011 their number has soared to nearly 4000, while in October 2010 it was under 1000. The transition to flat personal income tax rate of 19% in 2004 in Slovakia caused a dramatic rise in number of self-employed by 14.6% to 462,2 thousand people, while prior to that change self-employment had been stagnating around 380 thousand. In Ukraine the number of legal entities and individual entrepreneurs increased by 2.5 and 13 times accordingly in the span of 13 years after 12 different taxes had been replaced with a single 5% tax on turnover, including VAT (3% excluding VAT).

At the same time researchers come to arguable results even when they attempt to evaluate the consequences of change in tax policy in one country. For example, de Wet A. H., Schoeman N. J. and Koch S. F. (de Wet et al, 2005) have confirmed the negative correlation between the dynamics of GDP in real terms and direct taxes in SAR from 1968 until 2003. However, Amusa A. (Amusa, 2004) has discovered a positive correlation between the investment and tax rate on the capital.

Ljungqvist A. and Smolyansky M. (Ljungqvist & Smolyansky, 2014) have described the negative effect of corporate tax increase in the USA on employment and income, but no positive outcomes of lowered tax rates were found. On the other side, the growth of investment that resulted from the tax reform of 1986 in this country Carroll R., Holtz-Eakin D., Rider M. and Rosen H.S. (Carroll et al, 2000) assess as 20% on each 10 percentage points taken away from marginal tax rate. Based on the data from the second half of the last century and the beginning of the current one Romer C. D. and Romer D. H. (Romer & Romer, 2010) have determined a negative impact of increased taxes on the output in the USA.

The controversy in the conclusions proves the need for correct separation of the economic effect of lowered tax rates from other circumstances that influence entrepreneurial activity. Such opportunity is offered by the data across regions of Russian Federation starting from 2009.

### **3. Russian case-study**

The changes in the federal legislation of Russia have granted local authorities the right to set the tax rate on the net income used in the SST. The tax rate in different regions can be as low as 5% and as high as 15% instead of just a single tax rate of 15% that used to be in place before. The analysis of comparative dynamics of MSE development in Russian regions allows for a test on the positive influence of the lowered tax rate on their economic activity.

#### **3.1 Methodology and data base of the study**

Four dependent variables were used in the econometric model: the change in the number of legal entities in each Russian region, the change in the number of employees, turnover and investment in 2007-2013. The same variables were used for individual entrepreneurs, but for 2008-2013 and excluding investments. The controlled variables were gross regional product per capita, as well as investment potential and risk of the region. The latter two were taken from the rating of investment attractiveness of Russian regions made annually by the rating agency "Expert".



Table 1: Descriptive statistics

Variable	Mean value	Median value	Minimum value	Maximum value	Standard deviation
Number	21078,3	12239,0	206,0	243978,0	32225,3
Number_IE	29973,1	22287,5	113,0	190079,0	26930,5
Employee	137779,0	88717,5	1068,0	2035600,0	203324,0
Employee_IE	35201,0	25244,0	35,0	412982,0	37797,4
Turnover	251,8	120,2	1,6	5930,1	556,5
Turnover_IE	91,3	66,0	0,2	607,1	88,4
Investment	5522,6	2664,1	0,0	64107,6	7589,6
GDP_per_capita	305274,0	196128,0	46174,4	4003353,8	443831,0
Potensial	42,0	42,0	1,0	83,0	23,9
Risk	42,0	42,0	1,0	83,0	24,0
Tax_net_income_rate	13,2	13,6	5,0	15,0	2,9

Source: Federal Statistical Agency of RF (2015) *Small and Middle Entrepreneurship in Russia* [Online]. Available: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/publications/catalog/doc\\_1139841601359](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1139841601359), Rating Agency "Expert" (2015) *Rating of Investment Attractiveness of Russian Regions*. [Online]. Available: <http://raexpert.ru/ratings/regions/2015/>

Modelling of the regression was conducted with the use of ordinary least squares method (OLS) and the model of fixed effects (MFE), which are commonly used in this kind of research (Kawano & Slemrod, 2012, von Haldenwang & Ivanyna, 2012, Djankov et al, 2010).

### 3.2 The results of modelling

Robust results of the research have not given a solid proof of the hypothesis about a positive economic impact of a lowered tax rate. On the one hand, regions, where lowered tax rate is in place, have more MSEs and their turnover is higher. These criteria on average showed 2% growth with each percentage point taken away from the tax rate (table 2). Such dependency is true for both small enterprises and individual entrepreneurs when the coefficient of determination in the OLS-equation is appropriate. However, such dependency is non-existent in MFE-equation. Coefficient by the net income tax rate either switches the sign or loses its significance. The main issue of the equations with lag variables is a low coefficient of determination. This coefficient must not be higher than 10%. Dynamics of employment and investment activity in the MSE-sector also slightly reacts to the tax rate.

Table 2: The value of the coefficient by net income tax rate and  $R^2_{adj}$  in the models

Dependent variable	OLS	OLS (lag 1 year)	MFE	MFE (lag 1 year)
Change in the number of small enterprises	-0,02*** $R^2_{adj}=0,74$	-0,05** $R^2_{adj}=0,04$	0,01* $R^2_{adj}=0,79$	-0,04 $R^2_{adj}=0,02$
Change in the number of individual entrepreneurs	-0,02* $R^2_{adj}=0,77$	-0,03* $R^2_{adj}=0,03$	-0,01 $R^2_{adj}=0,79$	-0,03 $R^2_{adj}=0,03$
Change in the number of employees of small enterprises	0,01 $R^2_{adj}=0,78$	-0,02 $R^2_{adj}=0,05$	0,02*** $R^2_{adj}=0,79$	-0,04* $R^2_{adj}=0,03$
Change in the number of employees, hired by individual entrepreneurs	0,03*** $R^2_{adj}=0,63$	0,02 $R^2_{adj}=0,02$	0,01 $R^2_{adj}=0,62$	-0,02 $R^2_{adj}=0,02$
Change in turnover of small enterprises	-0,02* $R^2_{adj}=0,77$	-0,05** $R^2_{adj}=0,05$	0,01** $R^2_{adj}=0,81$	-0,05** $R^2_{adj}=0,03$
Change in turnover of individual entrepreneurs	-0,02* $R^2_{adj}=0,67$	-0,02 $R^2_{adj}=0,01$	-0,01 $R^2_{adj}=0,69$	-0,02 $R^2_{adj}=0,03$
Change in investment of small enterprises	-0,01 $R^2_{adj}=0,49$	-0,07*** $R^2_{adj}=0,08$	0,03 $R^2_{adj}=0,48$	-0,07** $R^2_{adj}=0,05$

\*p<0,1; \*\*p<0,05; \*\*\*p<0,01

Similar conclusions can be made by the analysis of a doubly logarithmic model (table 3). Decrease in the tax rate by one percent leads to the increase in the number of MSE and output by 0,2 - 0,3% among legal entities, as well as among individual entrepreneurs. In case of individual entrepreneurs, the results of coefficient evaluation by the net income tax rate in the log-log models, created by OLS, were confirmed for MFE. No dependency of investment and number of employees of small businesses was found. Modelling of regressive equations with a yearly time lag between the dependent variables and regressors did not lead to a discovery of any statistically significant dependency.

Table 3: The value of the coefficient by the logarithm of net income tax rate and  $R^2_{adj}$  in the models

Dependent variable	OLS	OLS (lag 1 year)	MFE	MFE (lag 1 year)
Change in the number of small enterprises	-0,25*** $R^2_{adj}=0,64$	-0,44** $R^2_{adj}=0,02$	-0,09 $R^2_{adj}=0,73$	-0,35 $R^2_{adj}=0,03$
Change in the number of individual entrepreneurs	-0,22*** $R^2_{adj}=0,67$	-0,31** $R^2_{adj}=0,06$	-0,22*** $R^2_{adj}=0,67$	-0,24 $R^2_{adj}=0,04$
Change in the number of employees of small enterprises	0,05 $R^2_{adj}=0,65$	-0,24 $R^2_{adj}=0,03$	0,04 $R^2_{adj}=0,7$	-0,38 $R^2_{adj}=0,04$
Change in the number of employees, hired by individual entrepreneurs	0,28*** $R^2_{adj}=0,48$	0,11 $R^2_{adj}=0,02$	-0,04 $R^2_{adj}=0,49$	-0,18 $R^2_{adj}=0,03$
Change in turnover of small enterprises	-0,17** $R^2_{adj}=0,68$	-0,47** $R^2_{adj}=0,03$	-0,07 $R^2_{adj}=0,75$	-0,51** $R^2_{adj}=0,04$
Change in turnover of individual entrepreneurs	-0,22** $R^2_{adj}=0,50$	-0,20 $R^2_{adj}=0,01$	-0,19** $R^2_{adj}=0,55$	-0,12 $R^2_{adj}=0,05$
Change in investment of small enterprises	0,01 $R^2_{adj}=0,37$	-0,62*** $R^2_{adj}=0,05$	0,23 $R^2_{adj}=0,41$	-0,56* $R^2_{adj}=0,06$

\*p<0,1; \*\*p<0,05; \*\*\*p<0,01

## 4. Conclusion

All in all, the tax rate is not a factor that limits development of MSE in Russian Federation. The potential of other tax incentives for small businesses (tax holiday, tax exemption, tax credit and others) in Russia requires continuous research. The results of this paper confirm the conclusions of Dhillon A., Wooders M. and Zissimos B. (Dhillon et al, 2006), James S. (James, 2013), Nam C.W. and Radulescu D.M. (Nam & Radulescu, 2007), who proved that low tax rates can not compensate for bad investment climate in the country. Possibly, such factors as administrative barriers, corruption, access to infrastructure or credit sources impose restrictions on the activity of small businesses in Russia. The use of data about Russian regions for the research of non-tax determinants of small business development can become a perspective direction of further scientific research.

## References

- [1] Amusa, A. (2004) A Macroeconomic Approach to Estimating Effective Tax Rates in South Africa, *SAJEMS NS*, vol. 7, N 1, pp. 117-131.
- [2] Auten, G. and Carroll, R. (1999) The effect of income taxes on household income, *Review of Economics and Statistics*, N 81, pp. 681-693.
- [3] Bruce, D. and Mohsin, M. (2006) Tax Policy and Entrepreneurship: New Time Series Evidence, *Small Business Economics*, 26 (5), pp. 409-425.

- [4] Bruhn, M. (2011) Reforming Business Taxes: What Is the Effect on Private Sector Development?, *World Bank Viewpoint Public Policy for the Private Sector Note*, N 330.
- [5] Carroll, R., Holtz-Eakin, D., Rider, M. and Rosen, H.S. (2000) Income Taxes and Entrepreneurs' Use Of Labor, *Journal of Labor Economics*, N 18 (2), pp. 324-351.
- [6] de Wet, A.H., Schoeman, N. J. and Koch, S. F. (2005) The South African Tax Mix and Economic Growth, *SAJEMS NS*, 8, N 2, pp. 201-210.
- [7] Dhillon, A., Wooders, M. and Zissimos, B. (2006) Tax Competition Reconsidered, *Journal of Public Economic Theory*, 9(3), pp. 391-423.
- [8] Djankov, S., Ganser, T., McLiesh, C., Ramalho, R. and Shleifer, A. (2010) The Effect of Corporate Taxes on Investment and Entrepreneurship, *American Economic Journal: Macroeconomics*, N 2(3), pp. 31–64.
- [9] Engelschalk, M. and Loeprick, J. (2015) MSME Taxation in Transition Economies Country Experience on the Costs and Benefits of Introducing Special Tax Regimes, *World Bank Policy Research Working Paper 7449*.
- [10] Fossen, F.M. and Steiner, V. (2009) Income Taxes and Entrepreneurial Choice: Empirical Evidence from two German Natural Experiments, *Empirical Economics*, 36 (3), pp. 487–513.
- [11] Hansson, A. (2012) Tax Policy and Entrepreneurship: Empirical Evidence from Sweden, *Small Business Economics*, 38, pp. 495–513.
- [12] IMF (2016) Fiscal Monitor Acting Now, Acting Together, Washington DC, April.
- [13] James, S. (2013) Effectiveness of Tax and Non-Tax Incentives and Investments: Evidence and Policy Implications. [Online]. Available: <http://dx.doi.org/10.2139/ssrn.2401905>
- [14] Kawano, L. and Slemrod, J. (2012) The Effect Of Tax Rates And Tax Bases On Corporate Tax Revenues: Estimates With New Measures Of The Corporate Tax Base, NBER Working Paper Series Working Paper 18440 [Online]. Available: <http://www.nber.org/papers/w18440>
- [15] Kim, Y. G. and Suh, J. (2015) What Determines Small Champions' Export Performance? Evidence from Korea Firm-Level Data, *Asian Economic Papers*, vol. 14, N. 2, pp. 138-155
- [16] Klemm, A. and Van Parys, S. (2012) Empirical Evidence on the Effects of Tax Incentives, *International Tax and Public Finance*, vol. 19, pp. 393–423.
- [17] Ljungqvist, A. and Smolyansky, M. (2014) To Cut Or Not To Cut? On The Impact Of Corporate Taxes On Employment And Income, NBER Working Paper Series Working Paper 20753 [Online]. Available: <http://www.nber.org/papers/w20753>
- [18] Martinez-Vazquez, J. and Torgler, B. (2009) The Evolution of Tax Morale in Modern Spain, *Journal of Economic Issues*, vol. 43, N 1, pp. 1-28
- [19] Nam, C.W. and Radulescu, D.M. (2007) Effects of Corporate Tax Reforms on SMEs' Investment Decisions under the Particular Consideration of Inflation, *Small Business Economics*, 29, pp. 101-118.

- [20] OECD (2015) Taxation of SMEs in OECD and G20 Countries, OECD Tax Policy Studies, No. 23, OECD Publishing, Paris. [Online]. Available: <http://dx.doi.org/10.1787/9789264243507-en>
- [21] Romer, C. D. and Romer, D. H. (2010) The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks, *American Economic Review*, 100, pp. 763–801.
- [22] Schubert, C. (2015) What Do We Mean When We Say That Innovation and Entrepreneurship (Policy) Increase “Welfare”?, *Journal of Economic Issues*, vol. 49, N 1, pp. 1-22
- [23] Šimović, H. and Deskar-Škrbić, M. (2013) Dynamic effects of fiscal policy and fiscal multipliers in Croatia, *Zb. rad. Ekon. fak. Rij.*, vol. 31, sv. 1, pp. 55-78.
- [24] von Haldenwang, C., Ivanyna, M. (2012) A Comparative View on the Tax Performance of Developing Countries: Regional Patterns, Non-Tax Revenue and Governance, *Economics-The Open Access Open-Assessment E-Journal*, vol. 6, pp. 1-44 [Online]. Available: <http://dx.doi.org/10.5018/economics-ejournal.ja.2012-32>
- [25] World Bank (2014) Paying Taxes 2014: The global picture Washington, DC: World Bank Group. [Online]. Available: <http://documents.worldbank.org/curated/en/143331468313829830/Paying-taxes-2014-the-global-picture>

## FORMING OF COLLECTIVE AND ECONOMIC SECURITY WITHIN THE FRAMEWORK OF UN CONCEPTION OF THE PEACEBUILDING

Vladimir Sh.Urazgaliev<sup>1,a,\*</sup>, Elena M. Korostyshevskaya<sup>2,b,\*</sup> and Galina A.  
Menshikova<sup>3,c,\*</sup>

<sup>1</sup>Saint Petersburg State University, Faculty of Economics, Department of Economics and Economic Policy, Tchaikovskogo str. 62, a. 310, Saint Petersburg, 191194, Russia

<sup>2</sup>Saint Petersburg State University, Faculty of Economics, Department of Economics and Economic Policy, Tchaikovskogo str. 62, a. 310, Saint Petersburg, 191194, Russia

<sup>3</sup>Saint Petersburg State University, Faculty of Sociology, Department of social management and planning, Smolnogo str. 1/3, 9-th entrance, Saint-Petersburg, 191124, Russia

<sup>a</sup>uvsh54@yandex.ru, <sup>b</sup>lenkor7@mail.ru, <sup>c</sup>menshikova.g.a@mail.ru

\*Corresponding author

**Abstract.** The article analyses the process of realization of legislative reforms the UN on creation of the system of international collective and economic security in the conditions of intensifying the global tendencies and contradictions in modern politics and economy. On the base of some fundamental UN documents studying's are shown the distinctions in approaches to problems of safety during creation of new model of global institutions in the field of political and economic governance. Undertaken research allowed us to educe the concept "Peacebuilding" as the formed global category and to confess its institutional fixing in form creation at the UN the Peacebuilding Commission (PBC) and Fund of Peacebuilding. The Fund comes forward as a structure of PBC single-sourcing that realizes separately from other organizations of global governance. It appears that being on the plenary powers and functions the original top of intergovernmental structures, PBC is able to influence on activity of global institutions inwardly and out of the system of the UN. At the same time, there is an obvious tendency to displace the process of management by conflicts from side of the UN from intergovernmental to the internal level. The authors of the article are do supposition, that development of peacebuilding institutions assisted the transformation of the centralized variant of global governance in form of UN economic security Council in the network decentralized structure taken away outside the UN.

**Key-words:** collective security, International economic security, Peacebuilding, Economic Security Council of UN

**JEL Classification:** F52, H56, F51

### 1. Introduction: The Phenomenon of security

From the conceptual point of view, security is form, method and result of permission and reproducing of contradiction between security and insecurity of subjects and objects of socially-natural reality in behalf on their security (Уразгалиев, 2016).

Security is the really unique phenomenon, through the prism of which it is possible to analyze any phenomena and process of human activity. Literature on security is enormous, for example, researchers analyze such types of it as international (Walter, 2016), social (Zanini,

2015), economical (Belousov et al., 2016), energetic (Sovacool, 2016, Tidwell & Smith, 2015), food (Weiler et al., 2015, Duggan & Naarajaervi, 2015, Dawson et al., 2016), innovative (Sakovich & Brovka, 2016), ecological security in the processes of urbanization (Han et al., 2015), water security in the small island of developing states (Belmar, 2016) and many others. In the offered article we will do an accent on the analysis of collective economic security in the context of becoming the UN's conception of peacebuilding.

## **2. The creation of international collective security**

The problems of creation the system of collective security in an international association were repeatedly examined on the different events of United Nations. For example, a report "More secure world: our shared responsibility" was made by the group of high level of the UN representatives on threats, calls and changes. It was announced on the December 2 in 2002 and was sanctified to create the effective system of the collective security, tied up with general values in regard to which it is necessary to form a "new consensus". The object of "new consensus" was confessed "security", but not in its traditional understanding, as in specific one, interpreting it as instrument of global control, based on "general values".

The essence of that consensus is simple: we all share responsibility for each other's security. In the absence of Member States (of UN - author) reaching agreement on the security consensus contained in the present report, the United Nations will underachieve. Its institutions will still only be as strong as the energy, resources and attention devoted to them by Member States and their leaders. » (UN Document A/59/565, 2004).

It was underlined in the report, that still separate national states come forward as the main acting figures. However in XXI century not a single state can lean only on its own forces, so collective strategies, collective establishments and sense of collective responsibility are quite needed therefore.

The case for collective security today rests on three basic pillars. Today's threats recognize no national boundaries, are connected, and must be addressed at the global and regional as well as the national levels. No State, no matter how powerful, can by its own efforts alone make itself invulnerable to today's threats. And it cannot be assumed that every State will always be able, or willing, to meet its responsibility to protect its own peoples and not to harm its neighbours. Some portion of those responsibilities should be taken up by the international community, acting in accordance with the Charter of the United Nations and the Universal Declaration of Human Rights » (UN Document A/59/565, 2004).

Key methodological principle of collective security system's functioning is the principle of afore-named threats prevention that closely follows with preventive application of military force. As a result, offered by the members of high level UN Group, the formula of collective security acquires a next kind: "prevention - avert - using force". Consequently, as well as in strategy of inhibition, the potential or real use of military-power factor appears to the important constituent for providing the conditions of security. It was announced: «Military force, legally and properly applied, is a vital component of any workable system of collective security, whether defined in the traditional narrow sense or more broadly as we would prefer... The maintenance of world peace and security depends importantly on there being a common global understanding, and acceptance, of when the application of force is both legal and legitimate » (UN Document A/59/565, 2004).

Pays attention on itself the distinction in going near collective security, contained in a head II the "Peace, Security and disarmament" in "United Nations Millennium Declaration" (UN Document A/RES/55/2, 2000), and analogical head III "Peace and collective security" of the Resulting document of the World summit outcome (UN Document A/RES/60/1, 2005). These heads differ substantially both by appearance and on content. If in the first document circle of the questions, related to the range of security problems, were put in a traditional manner similar to the times of cold war, then in the second one - focus is directed toward the collective actions related to introduction in the global agenda setting the conception of "peacebuilding".

### **3. Legislative recognition of peacebuilding as a global category**

In the report of the UN General Secretary on March 27, 2000 «We, the peoples: the role of the UN in the Twenty First century» (UN Document A/54/2000, 2000), as well as on "The Millennium forum" («We, the peoples: Millennium forum declaration and Agenda for action: the strengthening of the United Nations for the Twenty First century") (UN Document A/54/959, 2000), held on the 22-26 of May, 2000, one of the main theme was the question about collective security, in the center of which was put a set of peacebuilding goals and objectives.

At the Millennium Summit (6-8 September 2000) was held a division of the higher organizational structures, responsible for global economic and political governance (peacebuilding). As a result, the model of UN system of global international institutions are formed and transformed at the world summits in two types. The first type is represented by the UN conferences on environment and sustainable development and is linked to global economic governance. The second type represent the summits on the Millennium Development Goals, which form the institutional framework of the political branch of global governance. There was established a five-year cycle of world summits (2000, 2005, 2010, etc.).

In the United Nations Millennium Declaration (chapter B "Peace, Security and Disarmament") was noted that it is necessary «to make the United Nations more effective in maintaining peace and security by giving it the resources and tools it needs for conflict prevention, peaceful resolution of disputes, peacekeeping, post-conflict peace-building and reconstruction » (UN Document A/RES/55/2, 2000).

Thus, the essence of the concept of "peacebuilding" is the dissemination of the process of conflict management in the post-conflict adjustment with emphasis on domestic type of such conflicts. As a result, the formula of collective security, "prevention – avert – using force" was supplemented by the fourth link – "peacebuilding". Accordingly, in the international security concept of the UN was a change of priorities in the choice of objects for managing conflicts. For the involvement of national States and their surrounding regions in global governance, the main attention was paid not inter-state but internal conflicts. This process is identified as the Peacebuilding.

Institutional fixing of peacemaking issues was occurred in 2005 when on the world summit of the Millennium Development Goals was adopted the decision about creation of the UN Peacebuilding Commission (PBC) (UN Document A/RES/60/1, 2005)

This Commission was established simultaneously by the Security Council (UN Document S/RES/1645, 2005) and General Assembly (UN Document A/RES/60/180, 2005). Primary purposes and structure of PBC are presented in Resolution of UN Security Council «Post-Conflict Peacebuilding», adopted by Security Council on the 20.12.2005 (UN Document. S/RES/1645, 2005).

The results of PBC first five years' work are presented in a "Review of the UN Peacebuilding Architecture" (on July, 21 2010) (UN Document A/64/868-S/2010/393, 2010). According to the Report, the ideologists of PBC creation are displeased at both the restrictive scopes of its functioning (legalistically — it covers only the African continent) and influence on the processes of peacemaking activity of UN. In fact, if to cast aside general and politically necessary formulations, its main task is to serve as a higher legal instance, engaging to guide internal conflicts, and also to carry out connection between the institutions of global government inwardly and out of the UN. In named report was noted; «We are now at a crossroads: either there is a conscious recommitment to peacebuilding at the very heart of the work of the United Nations, or the Peacebuilding Commission settles into the limited role that has developed so far.». As to Commission, it should be seen as «a key actor by those outside as well as inside the United Nations system, including by the international financial institutions» (UN Document A/64/868-S/2010/393, 2010)

There appeared some disconnections between PBC and Peacebuilding Fund, which officially stands as independent directory structure, but was actually created for the financial „enticement" into PBC. At the same report says: «The Fund was conceived as a complement to the Commission's work but, in some respects, seems to have obscured it. Because it was established at the same time as the Commission and operates in parallel, there is a tendency to view the Commission as primarily a route to obtaining financing from the Peacebuilding Fund» (UN Document A/64/868-S/2010/393, 2010)

The relationship between PBC and Peacebuilding Fund becomes clear in the installation documents of Fund, in the text of UN General Secretary Report “Arrangements for establishing the Peacebuilding Fund” and additions to it “The Scope of Peacebuilding Fund”: «The Peacebuilding Fund is designed to support interventions that are considered critical to the peacebuilding process...The Fund will be managed by the head of the Peacebuilding Support Office, under the authority of the Secretary-General. Both the General Assembly and the Peacebuilding Commission will have a role in the governance arrangements for the Fund» (UN Document A/60/984, 2006).

According to Pavlenko V.B., PBC itself in a definite sense is the top of the intergovernmental structures evolution; it is a body that owns certain tools with the help of which global institutions within and outside the UN system "encouraged" to implement its recommendations and advices ... The fundamental decision on the establishment of the PBC is likely to have been taken back in 1997-1998. Pavlenko states: “it was then carried out the transformation of the entire "global plan", associated with the transition from the first, centralized version of the global governance, led by ESC (Economic Security Council – V. Urazgaliev), to the second - decentralized or network. As in the center of the network according to the plan of the organizers seem to be located exactly PBC, which, unlike the anticipated ESC functions, destined to engage in the global geo-strategic planning ... ” (Павленко, 2011). The resolution of UN Security Council on 27 of April 2016 (UN Document S/RES/2282, 2016) welcomes and recognizes the value of the PBC works as a special intergovernmental body designed to provide a strategic approach and coherence of peacebuilding efforts.



#### **4. The reforming of the concept of international economic security and the restructuring of the project of the external economic body of the United Nations - Economic Security Council**

For the first time in the political lexicon the concept of "national security" was introduced by US President Theodore Roosevelt in 1904. In 1934, another US president, Franklin D. Roosevelt first coined the term "national economic security". In international documents the term "economic security" has received the official status on December 17, 1985, when the 40th session of the UN General Assembly adopted the resolution "International economic security" (UN Document A/RES/40/173, 1985). It was recognized UN desire to build a micro-economic system, when the common efforts to create a fair and mutually beneficial international economic relations would contribute to the economic well-being of each state and the establishment of a new international economic order.

In 1987, the UN General Assembly in the resolution "International economic security" (UN document A / RES / 42/165, 1987) asked UN Secretary-General to undertake consultations on the issue of international economic security principles with the representatives of the different regions and to present the findings on this issue. And the UN secretariat report "The concept of international economic security" (UN document A / 42/314, 1987) was also made in 1987.

It stated that, as the international economic security is closely linked with other forms of security, presenting a complex conceptual structure, there emerge significant problems with its precise conceptual identity. Therefore, its review should be carried out in the broader context that includes all of the major global trends of our time.

In 1994, in the "Human Development Report", annually prepared in accordance with the United Nations Development Programme, all attention was paid to economic security issue, which was conceptually translated through the lens of human security as an integral concept of having a universal character. Thus, the UN experts proposed to reconsider the approach to the analysis of economic security by shifting attention from the security of the countries, territories and alliances to a comprehensive and universal concept of human security. This issue became the foundation on which, in accordance with resolution 1985, "International economic security", the UN assumed to start the "establishment of an international economic order." Since the components of human security are interdependent, the threat of its violation in some countries or regions should lead to the development of human security threats in other countries (regions), which, in turn, can cause a chain reaction of conflicts between all. It is therefore easier to ensure the security of humanity through the application of early preventive measures than late intervention.

In order to create within the framework of the United Nations reformation the preventive institutional mechanism for "the establishment of an international economic order", the development of which has intensified dramatically after the collapse of the USSR, it was decided to put in the UN reconstructed center the new supreme economic body - the Economic Security Council (ESC). The project gave to ESC some serious authority. Although officially proclaimed its non-binding decisions, it was assumed that the council would head a "political leadership" on the process of formation of an international consensus in the economic, social and environmental fields. Economic Security Council, of course, was not ready design of "world government" in its pure form, but clearly pointed to the motion vector in this direction.

Before the advent of this institution of the future obligations of ESC were partly fulfilled by the Commission on Sustainable Development. In the center of attention and activity of the

Commission was officially put "keeping the interconnectedness of economic, social and political dimensions of sustainable development, as well as the need to ensure cooperation on different levels."

## 5. Conclusion

However, for some reason, in 1997-1998. there was a transformation of the whole global plan associated with the transition from a centralized version of the global governance led by the Economic Security Council, to the second - decentralized, network one.

If the first variant was to create a subject of global power in the face of ESC and planned it within the UN, then the second, the alleged network decentralization of the subject, was put outside the organization. It was then that the existing inter-governmental institutions - the Group of Eight, the United Nations Conference on Environment and (sustainable) development - began to share their powers or to send them to new appearing structures – to the World Summit on the Millennium Development Goals, the Group of Twenty, the World Political Forum.

On such a foundation in 2000 began to build a slim and extensive network of global institutions, which is palliative in relation to ESC, decentralized model of global governance. It was elected the intergovernmental, implemented with the help of a bifurcated world summits institution organizing principle. One branch - the United Nations Conference on Environment and (sustainable) development - is the foundation of global economic governance, and the second, led by the World Summits on the Millennium Development Goals - the global political governance.

On September 25, 2015 in New York, the UN held a summit on sustainable development, where the development agenda has been approved for the period after 2015. The basis of new approach amounted 17 goals of sustainable development, replacing adopted in 2000, "Millennium Development Goals".

## References

- [1] Belmar, Y.N., McNamara, K.E. and Morrison, T.H. (2016) Water security in small island developing states: the limited utility of evolving governance paradigms, *Wiley Interdisciplinary Reviews Water*, vol. 3, iss.2, pp. 181-193. WOS:000371137700004
- [2] Belousov, S.A., Pavlov, A.Y., Batova, V.N., Sokolov, A.Y., Kolesnikov and A.V. Vyushkina, E.G. (2016) Neo-endogenous model of overcoming imbalances in economic -legal framework of Russia agrarian regions as a factor of economic security, *International Journal of Advanced and Applied Sciences*, vol. 3, is.4, pp. 20-24.
- [3] Duggan, N. and Naarajarvi, T. (2015) China in Global Food Security Governance, *Journal Of Contemporary China*, vol. 24, iss.95, pp. 943-960. [9] Sakovich, V.A. and Brovka, G.M. (2016) Innovative Security: Basic Concepts, Essence, *Science & Technique*, vol.15, iss.2, pp. 144-153, WOS:000374762500009
- [4] Han, B.L., Liu, H.X. and Wang, R.S. (2015) Urban ecological security assessment for cities in the Beijing-Tianjin-Hebei metropolitan region based on fuzzy and entropy methods, *Ecological Modelling*, vol. 318, special is. SI, pp. 217-225.
- [5] Sovacool, B.K. (2016) Differing cultures of energy security: An international comparison of public perceptions, *Renewable & Sustainable Energy Reviews*, vol. 55, pp. 811-822.

- [6] Tidwell, A.S.D. and Smith, J.M. (2015) *Morals, Materials, and Technoscience: The Energy Security Imaginary in the United States*, *Science Technology & Human Values*, vol. 40, is.5
- [7] United Nations General Assembly (1985) A/RES/40/173 International economic security, 119<sup>th</sup> plenary meeting, 40 session. p.136.
- [8] United Nations General Assembly (1987) A/RES/42/165 International economic security, 96<sup>th</sup> plenary meeting, 42 session, pp.125-127.
- [9] United Nations General Assembly (2000) A/54/2000, We the peoples: the Role of the United Nations in the twenty-first century. Report of the Secretary General, 54 session, pp.1-57.
- [10] United Nations General Assembly (2000) A/54/959 We the Peoples Millennium Forum Declaration and Agenda for Action: Strengthening the United Nations for the twenty-first century. United Nations reform measures and proposals: the Millennium Assembly of the United Nations. 54 session, pp.2-17.
- [11] United Nations General Assembly (2000) A/RES/55/2 Resolution adopted by the General Assembly. United Nations Millennium Declaration, 55 session, pp.1-9.
- [12] United Nations General Assembly (2004) A/59/565, A more secure world: our shared responsibility. Report of the High-level Panel on Threats, Challenges and Change, 59 session, pp.1-99.
- [13] United Nations General Assembly (2005) A/RES/60/1 Resolution adopted by the General Assembly on 16 September 2005. 2005 World Summit Outcome, 60 session, pp.1-38.
- [14] United Nations General Assembly (2005) A/RES/60/180 The Peacebuilding Commission. *Resolution adopted by the General Assembly on 20 December 2005*, 60 session, pp.1-5
- [15] United Nations General Assembly (2006) A/60/984 Arrangements for establishing the Peacebuilding Fund. *Integrated and coordinated implementation of and follow-up to the outcomes of the major United Nations conferences and summits in the economic, social and related fields. Follow-up to the outcome of the Millennium Summit* 60 session, pp.1-8
- [16] United Nations General Assembly (2010) A/64/868–S/2010/393 Review of the United Nations peacebuilding architecture. *Identical letters dated 19 July 2010 from the Permanent Representatives of Ireland, Mexico and South Africa to the United Nations addressed to the President of the General Assembly and the President of the Security Council. Integrated and coordinated implementation of and follow-up to the outcomes of the major United Nations conferences and summits in the economic, social and related fields Follow-up to the outcome of the Millennium Summit*. 64 session, pp.1-41.
- [17] United Nations General Assembly Economic and Social Council (1987) A/42/314 Concept of international economic security. *Report of the Secretary-General* 42 session pp.1-18.
- [18] United Nations Security Council (2005) S/RES/1645 Resolution 1645 (2005) Adopted by the Security Council at its 5335th meeting, on 20 December 2005, pp.1-5.
- [19] United Nations Security Council (2016) S/RES/2282 Resolution 2282 (2016) *Adopted by the Security Council at its 7680th meeting, on 27 April 2016*, pp. 1-8
- [20] Walter, A. (2016) Open economy politics and international security dynamics: Explaining

- international cooperation in financial crises, *European Journal of International Rrelations*, vol. 22, is.2, pp. 289-312.
- [21] Weiler, A.M., Hergesheimer, C., Brisbois, B., Wittman, H., Yassi, A. and Spiegel, J.M. (2015) Food sovereignty, food security and health equity: a meta-narrative mapping exercise. *Health Policy and Planning*, vol. 30, iss.8, pp. 1078-1092
- [22] Zanini, A. (2015) Social Security. A Political Paradigm for the Welfare State, *Filosofia Politica*, vol. 29, is.3, pp. 421-438
- [23] Павленко В.Б. Мифы “устойчивого развития”. “Глобальное потепление” или “ползучий” глобальный переворот? М.: ОГИ, 2011, гл.11, с. 580-668.
- [24] Уразгалиев В.Ш. Экономическая безопасность. М.: ЮРАЙТ, гл.1, с.13

## CONTROLLING AS A COMPETITIVENESS TOOL IN THE GLOBAL MARKET

Ladislav Vagner<sup>1,a,\*</sup>

<sup>1</sup>University of Žilina, The Faculty of Operation and Economics of Transport and Communications,  
Department of Economics, Univerzitná 1, 010 01 Žilina, Slovak republic

<sup>a</sup>ladislav.vagner @fpedas.uniza.sk

\*Corresponding author

**Abstract.** Globalization is the process of international integration arising from the interchange of world views, products, ideas and other aspects of culture. Globalization brings together with new opportunities also new threads. Companies have a possibility to offer their services to more potential customers. The companies already set up on domestic markets with their own know-how, may try to find a new markets, where its products could fulfil a gap in those markets. On the other hand, by opening of market boundaries also new competitors will join the trade and will attempt to gain their position on the market. Also stable companies, with the built up tradition in the country, can easily be out of business and turn bankrupt due to a globalization and arrival of new companies, whom they will not be able to compete with. It is important so companies would be constantly enhancing their internal systems of leading in this competitive scene. Only by optimization of own structures companies can compete with other companies on the global market. That is the reason why controlling is becoming an essential element of management in every modern enterprise in the last years. The aim is to achieve business goals using analyses, methods and processes for a creation of a unified and integrated system. The system detecting the root cause analyses and proposes measures as a solution for an achievement of planned objectives.

**Keywords:** controlling, competitiveness tool, global market.

**JEL Classification:** M10, M21

### 1. Introduction

Constantly growing complexity of the business environment exposed companies to a tough competition. Businesses had to focus on the effective planning, management and control. Right this impulse conditioned the rise of controlling, as a modern management tool of a business activities. The origin of Controlling is in the word control. (Dubcova, 2011) For the first time, the controller position appeared in American railway company Acheson. The function of controller initially consisted mainly of the book keeping and financial matters. The greater need for controlling occurred especially in the times of economic crisis, when the pressure for management reengineering raised. (Sedliacikova et al., 2012)

Current understanding of controlling is far more complex. It is considered as a specific concept of leading in the current enterprises. Modern controlling is based on comprehensive information and organizational management system. It concerns interconnection of planning, management and control processes that focus on compliance with the directives and standards. The aim of controlling is to streamline the planning, regulation and control of business activities. (Cohen, 2008)

## 2. Paper objectives and methodology

Controlling as a set of rules that helps company to achieve their objectives, prevents surprises and lights up red points on time when a threat appears, which requires appropriate management measures. (Hribar & Nichols, 2007) It integrates traditional accounting, business planning and marketing to this versatile management concept. As a "flight dispatcher" leads aircraft to safe landing, so does the controller with the aid of his instruments and run a business to the "profit zone". (Mukhopadhyay et al., 1995; Chodasova & Tekulova, 2012)

In terms of integration controlling is seen as integration management tool that supports decisions of corporate management. (Segars & Grover, 1999) The base of controlling is adequate and effective information system, replicating purposefully designed internal management accounting. (Laval, 2015) It encourages effective communication of organizational subsystems of the enterprise as a system. The core of its successful implementation is a change of mindset of all company employees, especially its management at all levels of its leadership. (Foltinova & Spicka, 2014)

One of the most important controlling task is reporting. (Tokarcikova & Ponisciakova, 2014) The task of reporting (coverage) is to create a comprehensive system of information and indicators which should evaluate not only the development of the company as a whole part, but also intra-organizational units, which are essential to business management point of view. (Dubcova & Foltinova, 2012)

It is important to define what means the information. Information is a coherent collection of data organized in a specific way that has the sense. (Bobakova, 2003) The information system is focused on the collection, processing, storage and transmission of various types of enterprises data. (Meznar, 2015)

During the creation of an information system this should be taken into account - each information system costs money and time. The principle is that any information which is not used is useless. (Hraskova & Bartosova, 2014) It is necessary to provide those information which are required by the acceptor, which are understandable and with which he will continue to work. (Tkac & Foltinova, 2014)

### 2.1 Segment reporting

At Alpha Company reporting works on the level of reporting by segment (segment reporting). It is built based on the management approach by which the Alpha understands itself as "one product company", which makes no distinction between the various product lines, because a range of products is offered to the customer as a one product a. Therefore the profit is also geographically segmented in order to provide reliable data and information for management decision making.

The Group is mainly active in four geographic regions: Germany, Spain, Italy and Portugal. Since the product selection, business processes, target groups and sales processes are very similar to other countries, these countries are included in the same group entitled "Other countries" (Foltinova & Dubcova, 2010).

Correspondent presented segments include all activities in the country. The allocation of external revenue is oriented to the location of the relevant markets. (Burgstahler & Dichey, 1997)

Segment reporting includes the following information: (Butler et al., 2007)

- external sales (within the segment),
- revenues from activities outside segment,
- total sales,
- cost of premises and personnel costs (the most important components of the companies' costs),
- other operating expenses and income,
- depreciation,
- interest income (the second most important component of company revenues by sales),
- interest expense,
- income tax,
- profit made in the segment,
- investments in the segment.

### **3. Data and results**

The following table lists the segment reporting for the years 2014 and 2015. With the data segment reporting it is possible to evaluate the performance of individual segments both in terms of revenues and in terms of profits. This information serves as an important resource for management decisions especially in terms of investments in individual segments.

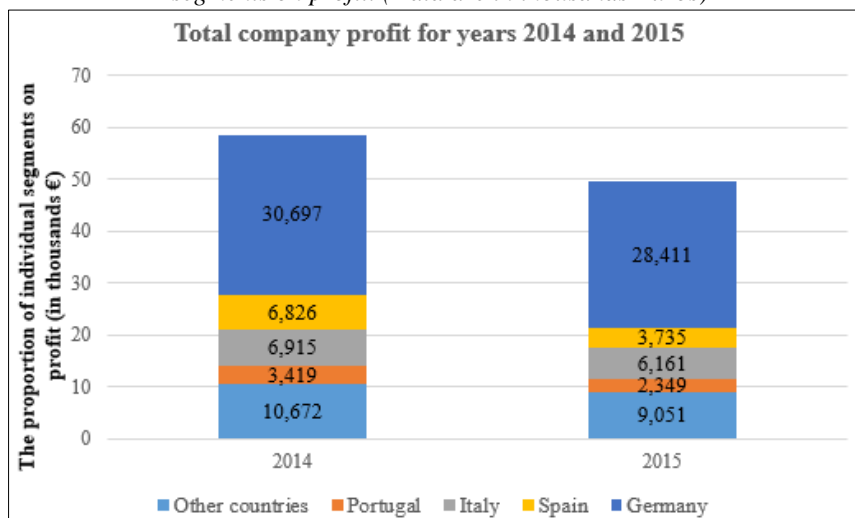
Figure 1 Segment reporting of company Alpha for years 2014 and 2015 (in thousands €)

Country	Year	Germany	Spain	Italy	Portugal	Other countries	Together	consolidation	In sum
Indicator									
external sales	2014	154,409	79,842	45,005	16,782	81,869	377,907	0	377,907
	2015	156,568	71,229	46,581	15,168	85,104	374,650	0	374,650
Sales outside the enterprise	2014	45,872	0	0	0	0	45,482	-45,872	0
	2015	43,430	0	0	0	0	43,430	-43,430	0
total sales	2014	200,281	79,842	45,005	16,782	81,869	423,779	-45,872	377,907
	2015	199,998	71,229	46,581	15,168	85,104	418,080	-43,430	374,650
accommodation costs and personnel costs	2014	-57,627	-43,870	-21,359	-6,957	-39,391	-169,204	0	-169,204
	2015	-57,953	-39,718	-22,128	-6,854	-42,663	-169,316	0	-169,316
Other income and expenses	2014	-93,832	-23,322	-10,955	-4,340	-23,714	-156,163	45,678	-110,485
	2015	-93,445	-23,652	-12,775	-4,418	-25,511	-159,801	43,499	-116,302
depreciation	2014	-4,195	-3,373	-2,095	-893	-4,574	-15,130	0	-15,130
	2015	-4,703	-3,316	-2,239	-903	-4,466	-15,627	0	-15,627
interest income	2014	1,587	609	218	204	414	3,032	-814	2,218
	2015	1,612	929	291	264	648	3,744	-1,165	2,579
interest expense	2014	-781	-166	-90	-42	-331	-1410	815	-595
	2015	-1,365	-176	-62	-32	-436	-2,071	1,158	-913
income tax	2014	-14,736	-2,894	-3,809	-1,335	-3,601	-26,375	0	-26,375
	2015	-15,733	-1,561	-3,507	-876	-3,625	-25,302	0	-25,302
segment profit	2014	30,697	6,826	6,915	3,419	10,672	58,529	-193	58,336
	2015	28,411	3,735	6,161	2,349	9,051	49,707	62	49,769
investment to segment	2014	8,007	998	1,819	189	4,416	15,429	-284	15,145
	2015	5,325	1,866	1,814	548	4,313	13,866	-118	13,748

Source: The annual report of the company Alpha in 2015

It is very important to know which segment provides the largest profit for the company, ergo which is most important. The following chart shows the data of the total company income and the proportion of individual segments in the total profit for 2014 and 2015

Figure 2 Total company profit for years 2014 and 2015 and the proportion of individual segments on profit. (Data are in thousands Euros)



Source: By author



The graph provides information only about the overall profits, which in 2015 decreased compared to 2014, but also about the share of individual segments on the profits. The graph shows that maximum gain is marked for German Segment:

- In 2014 it was 52.62% of the total profits of the company, considering in how many countries the company operates it is really an important part.
- In 2015 it was even more, by 57.09%.

German segment is therefore a key pillar of the company's existence. The second ranked country that most contributes to the profits of the company is Italy, and it was like this in both two years (in 2014 it was 11.85% and in 2015 the share of the Italian segment increased to 12.38%). Neighboring countries Spain and Portugal are two other independent countries which are regarded as important segments of enterprise. Their share in the reporting period was as follows:

- Spain: in 2014 the share of the total profit amounted to 11.7%, which was almost the same share as the Italian segment and in 2015 produced a profit in this segment decreased significantly to 7.5%
- Portugal: in 2014 the share of the total profit 5.86% in 2015 and 4.72% share.

Thus, we can conclude that the share of Germany and Italy in the total income in 2015 compared to 2014 and increased and the share of Spain and Portugal, on the contrary, decreased, while the decrease in the Spanish segment has been quite substantial. The company justifies the significant deterioration in the economic conditions in these countries.

Other countries where also Slovakia is classified, had following proportion of the total profits of the company in monitored years:

- 18,29 % in year 2014 and
- 18,19 % in year 2015.

There is no use of analyzing the share of individual countries composing the segment other countries considering the 4 major segments. (Ponisciakova, 2014) The only needed note is that that proportion of the segment other countries in both years had almost the same importance (a very slight decrease).

Segment reporting provides a vital insight into segments which are most important to the company and how are they developed, therefore it is a very important source of information and a basis for deciding on expansion and investments in individual segments. (Falk & Kosfeld, 2006)

#### **4. Conclusion**

As a consequence of company's management and its management work, nowadays enterprises achieve different economical results. Since today's market economy is characterized by unpredictable changes in the environment, management is extremely important here. The market situation requires a change in management approach. The need for change is affected mainly by the high competition in the sector and as companies try to win over the competition. A new direction in management, in order to increase business efficiency, is controlling. Controlling task is the realization of cross-cutting challenges for management in the company.

Controlling covers all relevant processes and activities in the company, which define the current situation of the company and affects its future.

## References

- [1] Bobakova, V, (2003) "Tasks of responsibility centres in controlling", *Ekonomicky casopis*, 2003, Volume: 51, Issue: 2; pp. 168-183
- [2] Butler, M; Kraft, A; Weiss, IS, (2007) " The effect of reporting frequency on the timeliness of earnings: *The cases of voluntary and mandatory interim reports* ", *journal of accounting & economics*, Volume: 43, Issue:2-3,pp. 181-217
- [3] Burgstahler, D., Dichev, I. (1997), "Earnings management to avoid earnings decreases and losses", *Journal of accounting and economics*, Vol. 24, pp. 99-126
- [4] Cohen, DA, (2008) „Does Information Risk Really Matter? An Analysis of the Determinants and Economic Consequences of Financial Reporting Quality“, *Asia-pacific journal of accounting & economics*, Volume: 15, Issue: 2, pp. 69-90
- [5] Chodasova, Z., Tekulova, Z. (2012). Managerial Accounting - a prerequisite for effective controlling company. *Ekonomicko-manazerske spektrum*, vol. 6, no. 1, pp. 56-62.
- [6] Dubcova, Gabriela (2011) "selected topics of project life cycle in term of controlling", Conference: International Conference on Business and Competitiveness of Companies Location: Bratislava, Slovakia Date: May 19, 2011, pp. 91-96
- [7] Dubcova, G.; Foltinova, A., (2012) "Inovative controlling methodology of corporate responsibility assessment", Conference: International Conference on Problems of the Corporate Sector Location: Bratislava, Slovakia Date: May 17, 2012, pp. 74-79
- [8] Eisenhardt, KM (1985), "Control – organizational and economic approaches", *Management science*, Vol. 31, pp. 134-149
- [9] Falk, A., Kosfeld, M. (2006) "The hidden costs of control", *American economic review*, Vol. 96, pp. 1611-1163
- [10] Foltinova, A.; Dubcova, G., (2010) "Applying of the selected methodology for cost analysis in the operative controlling", Conference: *International Conference on Business and Competitiveness of Companies* Location: Bratislava, Slovakia Date: May 20, 2010, pp. 39-49
- [11] Foltinova, A.; Spicka, J., (2014) "The use of controlling in agricultural enterprises and their competitiveness", *Agricultural economics-zemedelska ekonomika*, Vol. 60, Issue: 7, Published: 2014, pp. 314-322
- [12] Hraskova D.; Bartosova V.,(2014) "Managerial Reporting: A Flexible Tool for Managing Transport Company", In: *2nd International Conference on Social Sciences Research (SSR 2014), Advances in Social and Behavioral Sciences*, Vol. 5, Hong Kong, Singapore Management and Sports Science Institute, 2014, pp. 97–100
- [13] Hribar, P., Nichols, D.C., (2007), "The use of unsigned earnings quality measures in tests of earnings management", *Journal of accounting research*, Vol. 45, pp. 1017-1053
- [14] Laval, V, (2015) „Improving the value added of management reporting“, 26th *International-Business-Information-Management-Association Conference*, Madrid, Spain, Nov 11-12, 2015, pp. 95-109

- [15] Meznar, D, (2015) „Strategic information system as a tool for restructuring of companies facing global crisis situation“, *Proceedings of the 11th international conference on strategic management and its support by information systems*, Uherske Hradiste, Czech Republic, Date: May 21-22, 2015, pp. 76-82
- [16] Mukhopadhyay, T; Kekre, S; Kalathur, S, (1995) „Business value of information technology - a study of electronic data interchange“, Volume: 19, Issue: 2, pp. 137-156
- [17] Ponisciakova, O., (2014) „Controlling Reporting in Transport Companies“, In: 18th International Conference on Transport Means, *Transport Means - Proceedings of the International Conference*, Kaunas, Lithuania, 2014, pp. 206-210
- [18] Sedliacikova, M.; Satanova, A.; Foltinova, A., (2012) “Financial Controlling in Theory and Praxis of Small and Medium-size Enterprises”, *Ekonomicky casopis*, Volume: 60 Issue: 9, Published: 2012, pp. 949-966
- [19] Segars, AH; Grover, V, (1999) “Profiles of strategic information systems planning”, *Information systems research*, Volume: 10, Issue: 3, pp. 199-232
- [20] Tkac, K.; Foltinova, A., (2014) “Controlling policies in business”, Conference: International Conference on Current Problems of the Corporate Sector Location: Bratislava, Slovakia Date: May 15, 2014, pp. 496-501
- [21] Tokarcikova, E., Ponisciakova, O. (2014). The methods of reporting and evaluation of the results of corporate social responsibility. *Ekonomicko-manazerske spektrum*, Vol. 8, No 1, pp. 41-47.

# INFLUENCE OF THE GLOBAL ENVIRONMENT ON THE EMPLOYEE PARTICIPATION IN DECISION MAKING OF COMPANIES IN SELECTED COUNTRIES OF THE WORLD

Viera Valachová<sup>1,a,\*</sup>

<sup>1</sup>University of Zilina, The Faculty of Operation and Economics of Transport and Communications,  
Department of Economics, Univerzitná 1, 010 26 Zilina, Slovakia

<sup>a</sup> viera.valachova@fpedas.uniza.sk

\*Corresponding author

**Abstract:** In a constantly changing market environment which changes are caused by the development of the global environment, human resources represent the most important element for every company which is essential for their long-term success and competitiveness. Each company should therefore ensure a high level of employee education and awareness and create sufficient space to express their opinions on various aspects of company operation. Just the trends in globalization of the world economy allow the implementation of the various forms of employee participation in decision making of companies in various countries of the world. In this paper there are defined the global aspects of employee participation in decision making of company with a focus on its importance, forms, objectives, benefits and risks and subsequently it deals with comparison of company access in Slovakia and in selected countries of the world to the application of various forms of employee participation. This paper also deals with specifics of individual countries and their cultures which despite of the continued globalization are consequence of their mutual differences and with assumptions which may be a basis for their interconnection and unification on the world level. The paper based on books and publications by domestic and foreign authors, as well as on the results of the European survey from foundation Eurofound (ECS) named "The direct and indirect employee participation" where the foundation examined use and the practises of direct and indirect employee participation in selected European countries.

**Keywords:** employee participation, employees, decision making, globalization

**JEL Classification:** F60, M12, M50, O15

## 1. Introduction

Globalization affects all areas of life, whether we are talking about the social, cultural, economic, or political concept. The continuous development of global and economic conditions means a challenge for all companies to try to constantly evolve and adapt to new trends in management and relations at the company level. It is therefore necessary to implement new trends of globalization in the functioning of the enterprise on the level of labor relations. On the abilities and skills of employers and employees are given increased requirements based on the fact, especially in the area of innovation and their ability to respond to this development.

At the time of ever-deepening globalization employees of the company represent the source of significant competitive advantage and that is why every company is interested in ensuring

the development of abilities their employees, their continuous education and the creation of conditions for the free expression of their thoughts, ideas, suggestions, dissatisfaction and ideas relating to solving problems. In other words, support and strengthen employee participation in decision-making process of each company should be an essential part of its management, as one of its positive effects is increasing the performance of employees and the whole enterprise.

Important condition for ensuring a high level of participation and employee performance is an effective two-way communication and providing feedback by employers at all levels of company management and proactive oriented motivation of employees, and all of the above mentioned conditions can produce the desired effects just in case their achieving is not just focused on employees, but on employers and corporate managers as well. (Cascio, 2006). Continuous development of the interests and skills of employees and their alignment with the needs of businesses, requires the active approach from managers of enterprises to assessing employee skills and to exchange information on their key positions in the company and the subsequent planning their further development (Kollár, Rebeták, 2015).

## **2. The global aspects of employee participation in decision-making of company**

Since the 1970s, employee participation has been on the academic agenda with varying levels of intensity. One of the central themes in the academic debate has been the conceptualisation of participation, leading authors to conclude that almost everyone who uses the term participation thinks of something different (Markey, Townsend, 2013).

Employee participation can be defined differently, because there are many of opinions of various authors on the issue, and according to Armstrong (2005), participation is *"any process by which an individual or group of people decide what the other person or group of people will do."* Participation can be also seen as an increase of the employee involvement in decision-making of the company and as an employee influence in negotiation on matters relating to the organization and execution of work and working conditions (Gonzales, 2010).

In general, we can say that the employee participation is their awareness of the development and functioning of the company, their involvement in problem solving and co-participation in the adoption of corporate decisions, especially those that concern them. Participation also means bigger and more important role of the employees in company decision-making process and more opportunities for employees to influence management decision-making and to participate in increasing the company performance (Zhu et al., 2015). Their possibility to influence these decisions increases their interest in the overall situation in the company and they also have bigger responsibility and they identify themselves more with their company.

Access of the company focused on the high level of employee participation means that the company sees its employees as partners, respects their interests and of course their voice in issues that affect them marginally or directly. In other words, the company aims to create the climate, in which it is possible to ensure an acceptable level of employee participation in decision-making and management of the company. (Grublova, 2010)

### **2.1 The objectives, forms and risks of employee participations**

British Institute (Institute of Personnel and Development) in its Codex for the involvement and participation of employees stated that employee participation in every enterprise should achieve the following objectives:

- To achieve the commitment of all employees to the company and thus increase its efficiency and effectiveness and employee satisfaction with their work.
- Ensure employees the possibility to influence and adoption of such a decision, which may affect their interests.
- Introduce new working methods corresponding to new technologies that would stimulate the knowledge and skills of all employees and help increase productivity of the company.
- Ensure better adaptation of the company to changing conditions in the market and better meeting customer needs in order to maximize company and employee prospects for the future.

According to Armstrong (2007) we distinguish the following forms of employee participation:

**Two-way communication**, which is the communication from the managers to employees, in view of the "raise" and inform them so then they can accept any intention, respectively the aim of the company and also represents communication in the opposite direction, from employees to managers and the managers themselves.

**Solving problems bottom-up**, which aims to collect views and knowledge of employees, thereby ensuring more ideas and stimulate cooperation in solving company problems.

**Participation in the tasks**, which is the enhancement of the employee responsibilities of other tasks, therefore it is called "redesign jobs".

**Financial participation**, which represents employee remuneration in the form of employee shares or share of profits. (Jaackson & Kallaste, 2016).

**Indirect participation** when employees do not participate direct in decision-making, but their representatives. This form of participation is implemented through joint consultations between managers and employee representatives about their common interests.

**Direct participation**, when employees directly participate in decision-making and this form is currently more important than indirect (Gallie, Zhou, 2015) and according to Urban (2005) is subdivided into a **consultative**, when management respect the views of employees, but make the decisions itself and **delegative**, when employees receive the greater responsibility for the various tasks and directly assist in the decisions of the company.

In relation to the participation, there may also be some problems, which are more or less related with the amount of information that should be available to workers so that they could participate in decision-making. Managers should provide employees information on the strategies and goals of the company with accurate information about its operation and the like. In connection with the information there is also a risk that the information provided to employees may be disclosed and it is not in terms of the competitiveness of the company permitted. However, the problem may be also the fact that if the importance of employees in decision-making process is growing, there will be a reduction in professionalism of managers and the rate of adoption of the decisions will be delayed (Sekerák, 2012).

### 3. Comparison of various countries approaches to employee participation

Within the comparison of various countries approaches to the use of forms of employee participation first we will discuss the level of participation in Slovakia and subsequently we will compare it with the level of participation in selected countries.

## **Employee participation in Slovakia**

The current work environment in Slovak companies is still too bureaucratic and hierarchical and there is typical that managers do not create a sufficient space for the autonomy of employees in decision-making and in solving the work tasks, but they prefer such a management, where employees need a permission to all “from above” and it often means the loss of important opportunities, that could be used while the employees were waiting for permission to do some work task (Rolková, Farkašová, 2015).

As in all areas of life and theories there are exceptions, so it is in this case, because in Slovakia, there are companies that use more democratic way of managing employees, in which they create a sufficient space for the expression of opinions and ideas of employees on matters that affect them more or less. It should be noted, that it is very important that the managers should be able to properly say whether it is appropriate to use of participatory decision-making to resolve the problem, because the choice of the wrong style of management could have negative consequences.

The results of the analysis of the level of employee participation in decision-making of selected manufacturing company in Slovakia implemented in 2015 for the purposes of preparing diploma thesis shows that the company uses more of the above-mentioned forms of employee participation, through which the company get a lot of facilitating and innovative ideas by lower levels of management and workers.

The basis for the implementation of the employee participation in selected manufacturing company is a well-functioning Shop Floor Management (hereinafter referred to as SFM), which is the production management that was established and started to be used in Japan, and its essence is the management on site of production next to the Shop Floor boards. The most important and most effective aspect of SFM is the aspect that the heads of the team are on the site of production and are available whenever their staff need them and they support them (Hertle et al., 2015).

Forms of employee participation, the use of which is subject to SFM are:

- two-way communication (communication bottom-up and top-down),
- system for obtaining employee opinions through so-called Daily Walks,
- system of improvement ideas and suggestions through the PDCA system,
- Idea management IDM, respectively Idea Factory, which is used to statistic evaluation of the results of PDCA system.

We can say that these forms of employee participation are also used in most large manufacturing (mainly automotive) companies in Slovakia and they have a great success not only in term of increased efficiency and positive evaluation of the companies, which is reflected in the various awards (eg. Award for Best Employer of the Year), but also in term of employee satisfaction, because they are also financially rewarded for their suggestions and ideas for improvement.

In consideration of the fact that the production company, in which was carried out the analysis of the level of employee participation is a subsidiary of the German group, which primarily started using SFM and named forms of employee participation, we can say that just due to the development of globalization was this type of management implemented also in structures of operation of Slovak companies, whether due to development of new information technologies, international division of labor or the entry of foreign investors in the Slovak

market, who in addition to capital also bring new management approaches, employee participation in decision-making including.

### **Employee participation in selected countries of the world**

The results of our analysis and assessment of the level of employee participation in selected manufacturing company are confronted with results of the European survey by foundation Eurofound 2013 (ESC) named "The direct and indirect employee participation" where the foundation has examined use and the practises of direct and indirect employee participation in selected European countries.

ECS survey was based on the dataset that contained information about establishments with 10 employees or more in 32 European countries (the 28 EU Member States and four at the time candidate countries - Iceland, the former Yugoslav Republic of Macedonia, Montenegro and Turkey).<sup>16</sup> Ultimately, the ECS 2013 dataset contained information obtained from 30 113 management representatives and 9 094 employee representatives.

ECS considered for research purposes with division of direct participation in participation:

1. **Limited** – information is disseminated through regular meetings between employees and the immediate manager, and through newsletters, websites, and so on.
2. **Conventional** – regular meetings between employees and immediate managers, or regular staff meetings open to all employees.
3. **On-demand** – summary of the previous two forms and furthermore, when necessary, communication between employees and management takes place in ad hoc groups.
4. **Consultative** – Traditional, top-down communication (regular meetings between employees and immediate manager, and dissemination of information through media such as newsletters and websites), with a strong emphasis on bottom-up means of communication between employee and management (suggestion schemes and employee surveys).
5. **Extensive type I a II** – summary of all previous forms with the emphasis on the opinions and ideas of employees.

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<sup>16</sup> To ensure a representative sample of the establishments in these countries, a random sampling procedure was carried out.



Figure 1: The use of direct employee participation by country (%)



Source: Eurofound 2013

In Figure 1, we can see that among countries are large differences, at which limited direct employee participation is most prevalent in Italy and Portugal (in both countries, comprising 18% of all establishments). Conventional participation is most common in Bulgaria (34%), followed by Romania (29%), Italy (28%), Hungary (25%) and Croatia (25%). The third form of participation is largely used in Belgium (29%), Poland (27%) and France (25%). Consultative participation is used in Poland (10%), Latvia (9%) and Portugal (8%). The last form, that is also the highest level of participation, is most common in almost half – 12 – of the 28 Member States, at which eg. in Sweden (80%), in Finland (75%), Denmark (71%), in Austria (59%) and the Czech Republic (59%), in Slovenia (57%) and in Slovakia (55%).

The most significant level of participation is according to the survey results in the Scandinavian countries, to which certainly has a positive effect culture of these countries, because there is typically for companies in these countries simple, team-oriented hierarchical structure with fewer management levels, resulting in a simple and direct decision-making process. Employees are well informed of what is happening in the company, they are more involved in the affairs of the company and thus more motivated at work. However, it should be pointed out that the high level of participation in a company may not be automatically in connection only with democratically oriented enterprises, but also the company, that uses more autocratic management style may start distinguishing more intense between situations where it is appropriate to use the participatory decision-making and in this way gradually increase the overall level of employee participation in their company (Mizrahi, 2002).

After confronting our analysis in the Slovak companies and survey of ESC we can say that our results and opinions, which we expressed, can be considered real, in the fact that based on the ESC survey results is employee participation in the high level in sector of financial and other services, followed by industry.

Other results of the ESC survey can be summarized as follows:

- Direct and indirect employee participation is the dominant type of participation in all European companies and its used forms are often combined in companies.
- More developed practises of direct and indirect employee participations are more prevalent in larger companies with younger and better educated employees.
- The absence of indirect employee participation in a workplace does not mean that direct participation is also absent. In most companies, where employee representation is absent, employees themselves were at least informed about changes in companies.
- Companies practising more developed forms of direct employee participation more frequently report positive results in company performance and well-being in the workplace.
- Companies, in which the employee representation is provided with information, more frequently report positive results in company performance than the companies providing high-level of resources, but low levels of information.

#### 4. Conclusion

In this paper, we explained the issue of employee participation, which in our opinion represents a significant source of increasing employee performance and thus the prosperity of the whole company. The paper also shows that among the countries of the world there are some differences that may result from different cultures and habits, economic, political and legal system in the country (Shen, 2004). In other words, despite the ever-deepening globalization, there are certain differences between countries, that are natural and it is not very positive to try to eliminate them at all costs, because these differences may often represent the source of new innovative approaches to decision-making of company, but also to other areas of company operation.

#### References

- [1] Armstrong, M. (2005). *Řízení lidských zdrojů*. Praha, CZ: Grada Publishing.
- [2] Armstrong, M. (2007). *Řízení lidských zdrojů: Nejnovější trendy a postupy*. Praha, CZ: Grada Publishing.
- [3] Caraker, E., Jorgensen, H., Madsen, M., Baadsgaard, K. (2016). Representation without co-determination? Participation and co-determination for semi-professional shop stewards in the collective participation system in Denmark, *Economic and industrial democracy*. vol. 37. pp. 269-295.
- [4] Cascio, W.F. (2006). Global performance management systems. In: G.K. Stahl & I. Bjorkman (Eds.), *Handbook of Research in International Human Resource Management*. Northhampton, MA: Edward Elgar Publishing. pp. 176-196.
- [5] Eurofound (2015). Third European Company Survey – Direct and indirect employee participation. [Online]. Available: [http://www.eurofound.europa.eu/sites/default/files/ef\\_publication/field\\_ef\\_document/ef1545en\\_0.pdf](http://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1545en_0.pdf)
- [6] Gonzales, M. (2010). Workers' direct participation at the workplace and job quality in Europe, *Journal of European social policy*, vol. 20, pp. 160-168.

- [7] Grublova, E. (2010). Attitudes to risk and ability to take risky decisions. *Ekonomicko-manazerske spektrum*, vol. 4, no. 2, pp. 58-63.
- [8] Hertle, Ch., Siedelhofer, Ch., Metternich, J., Abele, E. (2015). The next generation shop floor management – how to continuously develop competencies in manufacturing environments. *Proceedings of The 23rd International Conference on Production Research*, Darmstadt, Germany.
- [9] Inanc, H., Zhou, Y., Gallie, D. et al. (2015). Direct Participation and Employee Learning at Work, *Work and occupations*, vol. 42, pp. 447 – 445.
- [10] Jaackson, K. and Kallaste, E. (2016). Who uses employee financial participation in an adverse environment? The case of Estonia, *Economic and industrial democracy*, vol. 37, pp. 449 – 467.
- [11] Jurburg, D., Tanco, M., Viles, E. et al. (2015). Employee participation: Key aspect in the success of Continuous Improvement Systems, *Memoria-investigaciones en ingenieria*. pp. 17 – 32.
- [12] Kollár, B. and Rebeťák, M. (2015). „Development of employees as a tool of increasing corporate performance.“ In: Globalizácia a jej sociálno-ekonomické dôsledky '15, zborník z medzinárodnej vedeckej konferencie Rajecké Teplice 7.-8. october. [Žilina: University of Žilina, 2015]. pp. 308 - 311.
- [13] Markey, R. and Townsend, K. (2013). Contemporary trends in employee involvement and participation introduction, *Journal of industrial relations*. vol. 55, pp. 475-487.
- [14] Mizrahi, S. (2002). Workers' Participation in Decision-Making Processes and Firm Stability, *British journal of industrial relations*, vol. 40, pp. 689-707.
- [15] Rolková, M. and Farkašová, V. (2015). The Features of Participative Management Style. *Proceedings of 2nd global conference on business, economics, management and tourism*, Prague, Czech Republic. pp. 1383 – 1387.
- [16] Sekerák, M. (2012). Zamestnanecká participácia ako inovatívny prístup v riadení podniku. In: *Podnikanie v konkurenčnom prostredí, zborník z medzinárodnej vedeckej konferencie*. [online]. Dostupné na: [http://www.academia.edu/11492875/Zamestnanecká\\_participácia\\_ako\\_inovatívny\\_prístup\\_v\\_riadení\\_podniku](http://www.academia.edu/11492875/Zamestnanecká_participácia_ako_inovatívny_prístup_v_riadení_podniku)
- [17] Shen, J. (2004). International performance appraisals: policies, practices and determinants in the case of Chinese multinational companies. *International Journal of Manpower*, vol. 25, pp.547–63.
- [18] Urban, J. (2005). *Personálna stratégia a politika: Participatívny štýl riadenia ako nástroj zvyšovania podnikovej výkonnosti*. Praha, CZ: RAABE.
- [19] Zhu, Y., Xie, Y., Warner, M. et al. (2015). Employee participation and the influence on job satisfaction of the 'new generation' of Chinese employees, *International journal of human resource management*, vol. 26, pp. 2395-2411.

## GLOBAL ASPECT OF RISKS OF CONSUMERS IN THE DIGITAL SINGLE MARKET

Katarína Valášková<sup>1,a,\*</sup>

<sup>1</sup> University of Žilina in Žilina, Faculty of Operation and Economics of Transport and  
Communications, Department of Economics, Univerzitná 1, 010 26 Žilina, Slovakia

<sup>a</sup>katarina.valaskova@fpedas.uniza.sk

\*Corresponding author

**Abstract.** Consumer behaviour and decision making significantly affect the success of the company and the national economy, especially in the time of globalization. The way people buy goods and services has changed dramatically over the years. Nowadays, thanks to globalization, internationalization and highly competitive environment, a wide range of products is available as well as valuable information and so consumers tighten their requirements and criteria on the quality of goods and services. The purchase process is influenced by international environment, various technological changes, development and innovation. The Internet has become a popular tool for customers to obtain information, entertain and communicate and it also allows to buy a variety of goods and services from domestic and foreign online stores. The number of consumers buying online has increased globally and the proportion of these consumers in the EU has increased by almost 2.5 times in 10 years. Although, consumers have to take various risk when buying globally which is the negative aspect of the digital market. The aim of this paper is to depict the development of the European digital economy in the context of globalization with main emphasis given to the Slovak consumer market. An analyses of consumers' decision making in the risky environment of online shopping is realized to determine the Slovak digital market in details.

**Keywords:** consumer, risk, digital market, single market, globalization.

**JEL Classification:** D12, D81, F62

### 1. Introduction

Consumer spending is an important element of economic policy of each country and it represents 57% of EU GDP. There is a positive relation between consumer conditions and the economic situation in different member states. Appropriate consumer policies impact both sides of the economy- the demand side and also the supply side. Greater consumer trust in the globalized digital dingle market is crucial to stimulate e-commerce with clear economic benefits for all parties involved.

Consumer conditions are strongly correlated with some key macro-economic indicators. While no clear cause-effect relation can be established, the relationship most likely works both ways: on the one hand, the assessment of consumer environment is influenced by the general economic and social conditions in the country and, on the other hand, consumers who feel protected, know their consumer rights and seek redress when needed can act as drivers of competition and innovation, which in turn boosts economic growth. Conversely, the quality of the consumer environment appears to be negatively correlated with poverty and income inequalities and is overall lower in countries where consumer conditions are more dispersed. Finally, there is a clear link between consumer conditions and the quality of governance in

different countries. This suggests that while consumer conditions will depend to a certain extent on the general economic conditions in the country, there is a lot that governments can do in terms of quality of rule-making and enforcement (Burden, 2016). Consumer conditions are influenced by a number of sociodemographic factors. Financial situation appears to have the highest positive impact, in particular as regards trust in organisations, confidence in online shopping and trust in product safety. Internet use also impacts positively on several consumer conditions indicators, with the strongest effect on confidence in online shopping. Trust in environmental claims, perception of redress mechanism and confidence in online shopping are all negatively correlated with age. At the same time, knowledge of consumer rights increases with age, except for the oldest age group. Gender has the greatest impact on confidence in online shopping, which is lower for females (Bilgihan, 2016).

The proportion of consumers in the EU buying goods or services over the Internet has increased by almost 2.5 times in 10 years — from 21% in 2004 to 50% in 2014 (Ishii & Markman, 2016). E-commerce uptake differs considerably across different socio-demographic groups (European Commission, 2015). It remains particularly low among older consumers (23% and 35% in the age groups 65-74 and 55-64, respectively), consumers with no or poor education (25%), those living in the lowest income quartile households (32%) and those who are retired or otherwise inactive (27%) and unemployed (35%).

Several researches have been done over the time in different countries and many authors have been interested in e-commerce and conditions, aspects and external and internal factors (Mavlanova et al., 2016) that force consumers to buy online as well as risks (Kumar et al., 2016) or fraudulent transactions (Zhao et al., 2016) consumers have to experience. There are various attributes that have to be considered and that influence the consumers' decisions (Grigera et al., 2016). One of them are brand pages in social networks and media which help to measure customer value (Shi et al., 2016). Other important features consumers consider are credit and cost efficiency in electronic commerce (Grueschow, 2016), commitment, satisfaction (Wang et al., 2016) and initial trust (Maadi et al., 2016) to websites, new-product development co-create with customers (Pee, 2016). Interaction features of social web sites and social networks play a crucial role in e-commerce as the purchase is doing in collaborative and participative way with individual customers (Baghdadi, 2016).

## **2. Online purchase journey – European study**

The recent survey of online consumers provides data on a typical online purchase journey. Online shoppers use a variety of methods to research their purchases, with online sources of information being most popular. Four in ten respondents who buy tangible goods online prefer sellers who also have a physical shop. The presence of a physical shop is more important for frequent online shoppers and those who engage in cross-border online purchases. In total, online shoppers in the EU report spending roughly 3.1 hours shopping for their latest purchase. Time spent on online purchases decreases with age and financial situation. Consumers in northern European countries spend the least time on their online purchases while consumers from certain EU-13 countries take the longest. The two most often quoted reasons for buying from a particular website relate to price being the lowest (45%) and having had earlier experience with the site (44%). Eight out of ten (80%) online shoppers used a laptop to make online purchases in the past year, followed by a desktop PC (73%), a smartphone (59%) and a tablet (52%). The most commonly used payment methods in online transactions are credit/charge card (52%), online payment systems, e.g. PayPal (47%), bank/credit transfer (29%), debit card (24%) and

cash on delivery (18%). While EU-15 respondents are more likely to use a credit/charge card or online payment systems, EU-13 respondents are more likely to use cash on delivery or bank/credit transfer. Of those consumers whose last online purchase was a tangible product, the vast majority (83%) had it delivered to their home or work address, 8% picked it up in person from a shop, 5% picked it up from a collecting point/safe box in a public location and 4% from the local post office (European Commission, 2015).

Consumers' propensity to engage in online transactions may be facilitated or hampered by a number of factors, including perceived benefits and risks of e-commerce, confidence in online transactions, their awareness of key consumer rights online and the reliability of online comparison tools. Convenience in terms of time, lower prices and greater choice are the main reasons for shopping online. Consumers feel considerably more confident buying online in their own country (61%) than in other EU countries (38%). However, among consumers who have made at least one cross-border online purchase, the confidence to buy from online sellers in other EU countries is more than double that of those who have never done so. Data protection, payment security and consumer rights are key concerns in domestic e-commerce. Concerns about cross-border e-commerce are linked to delivery, redress and consumer rights. Concerns regarding, in particular domestic, e-commerce are overall higher in EU-13 than in EU-15<sup>17</sup>.

Slightly less than a third (31%) of online consumers experienced at least one problem when making or trying to make an online purchase in the past 12 months. When comparing the origin of the latest problem with the origin of the latest purchase, cross-border purchases, both within and from outside the EU, account for a disproportionately high amount of problems. Concerns about delivery and product conformity are corroborated by actual consumer experience. Problems linked to the country of residence (e.g. not being able to access a foreign seller's website, foreign sellers refusing to sell abroad or charging higher prices than in their home country) are major barriers to cross-border e-commerce.

The complaints about cross-border e-commerce purchases received by European Consumer Centres confirm that the main problems experienced by consumers relate to delivery and conformity issues. Non-delivery problems linked to cancelling a contract and goods or services being defective or not in conformity with the order accounted for over a half of all complaints. Hence, the most frequently quoted problem (accounting for 17% of all problems) has to do with long delivery times. Concerns about conformity-related issues are also mirrored in the actual consumer experience, with poor product quality (15%), defective products (14%), delivery of wrong products and non-delivery (both 13%) among the top five problems. On the other hand, data misuse and credit card details being stolen (the first and third most frequently quoted concerns with domestic purchases) accounted for 4% and 3% of actual problems, respectively. While the incidence of these problems is relatively low, the magnitude of the damage that they can cause explains why they are of great concern to consumers.

Based on information on market penetration (the share of respondents who bought each of the product categories surveyed) and average spending per product category, the total value of the business-to-consumer segment of the Digital Single Market has been estimated at around € 230 billion (European Commission, 2015). It can be thus concluded that consumers prefer online shopping despite all the risks and barriers that can arise.

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<sup>17</sup> EU13 – newer member states (Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia), EU15- Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.

### 3. Online purchase journey – Slovak study

This section is focused on the analysis of Slovak consumer purchase decisions in terms of risk. The issue of consumers' risk is analysed on the basis of online shopping on the Internet, as it is a constantly growing trend. E-commerce provides a variety of risks and the research was aimed to determine those risks that consumers have to undertake when shopping online in the globalized digital market. The focus was also to recognize if there is any relation between negative and risky experience of consumers and their future online shopping as well as price efficiency of purchased goods, and so two hypotheses are set.

Hypothesis 1:

H0: There is no statistically significant dependence between the negative experience of consumers with online shopping and the volume of future realized online purchases.

H1: There is statistically significant dependence between the negative experience of consumers with online shopping and the volume of future realized online purchases.

Hypothesis 2:

H0: There is no statistically significant dependence between the negative experience of consumers with online shopping and the price efficiency of purchased goods.

H1: There is statistically significant dependence between the negative experience of consumers with online shopping and the price efficiency of purchased goods.

The main aim of the research is to identify and quantify types of risks when shopping online, partial aims are to analyse the negative experience and risks of consumers and recognize the relation between the chosen variables.

#### 3.1 Results of survey on e-commerce in Slovakia

The research was realized by the questionnaire which was given to 384 respondents in the period from January to March 2016. The sample of respondents was calculated under the following parameters: confidence level of 95%, confidence interval 5%. The number of population which was taken into account 3 117 143 citizens, consumers who buy online and are more than 15 years old (AIMmonitor, 2015).

Thanks to the survey we found that the majority of respondents have some experience with Internet shopping. Of the total number, up to 88% made purchases over the Internet in the past, while only 12% said that they do not have any experience. Further it was founded that women do the online shopping more (92% women) than men (9% less). Online shopping was realized by 98% of respondents in the age group 26-40 years and similar results were also in the age group 20-25 years (96%). The survey reveals that the tendency to shop via the Internet have the respondents with completed university education, while respondents with a lower level of completed education (primary and secondary education without GCSE) purchase online in a lesser extent. Similar results are depicted in the survey MasterIndex 2015 realized by MasterCard according to which typical Slovak online shoppers are people aged 30-39 years with secondary or university education, living in a larger city and with income of more than 1 000 EUR per month (MasterCard, 2015).

The results indicate that women, young people (20-25 years) and respondents with completed secondary education with GCSE do the online shopping with greater frequency, the lower frequency of shopping is typical of males and respondents in the age group 41-60 years. Compared to the average EU-28 the results are relatively similar. The research of Eurostat in 2015, focused on e-shopping, showed that most online purchases is done by young people (24-34 years) with frequency of each three months (Reinecke, 2015). Respondents also had the

possibility to mark those product categories that they buy most often and which they consider to be the less risky to purchase. According to the results those are clothing, services, mobile phones and accessories, fashion accessories, books, sports equipment.

Most respondents (47%) purchase on the sites with which they have previous experience. The second largest group of respondents is buying on sites that offer the best price of goods (43%). It follows that price is one of the main factors in consumers' decision making about purchasing goods on the Internet. But the price of goods is influenced by postage as it can significantly change the final price of the product and thus the customer's decision to buy the product. Therefore, consumers prefer free delivery or personal collection. Online shopping has a rising trend and is becoming more and more popular mainly due to the advantages it offers. Most respondents appreciate that shopping online saves time (73%), is very convenient (67%) and money saving (56%). Out of all respondents, 39% said they prefer transparent and fast search of goods and 36% wider range of goods. Approximately equal number of respondents likes the easy way to compare goods (35%), followed by the unlimited time of purchase and availability of goods.

But e-commerce is connected not only with advantages but there are also some risks and negatives consumers have to undertake on the globalized market. More than half of respondents consider distorted pictures of the goods to be a major disadvantage. Shopping online does not allow physical check of the quality of goods, and in some cases a description or photo may be slightly different, resulting in the delivery of inferior goods. A high proportion of respondents marks the risk of personal data misuse (39%). A third of respondents consider high postage and a risk of low-quality goods as major risks. Other problems, consumers experience, are inaccurate information (26%), required registration and pay in advance (24%), long time of delivery, the risk that the goods are not delivered and poor communication with suppliers. With the increasing trend of online shopping the danger of fraud or the leak of personal and payment information is increasing. These disadvantages and risks, as well as the others mentioned, may have a significant influence in determining whether consumers make their purchases via the Internet. We also analysed the types of negative experience respondents have as they can also be considered as potential risks of future online purchases. The most frequently mentioned were long delivery time (39%), distorted pictures (28%), low quality (26%), late delivery (18%) and the same percentage quotes that they do not have any negative experience. As we mentioned in the previous text, approximately 39% of respondents is afraid of personal data misuse, but fortunately only 1% of them have the experience. It can be said, that consumers have relatively high number of negative experience which can affect their future purchases. So we also analyse the reactions of consumers with negative experience when deciding about future purchases and we found out that only small percentage (2%) has negative attitude and they strictly refuse online shopping. More than a half look with favour on future online purchases but they have to be more careful, gain some extra information about product and seller, compare offers, communicate with seller and follow the reviews of previous customers. Out of all the respondents only 14% had no negative experiences and thus we can conclude that these respondents will have a positive relationship with online shopping. It is really interesting that a third of respondents with negative experience does not have any problems with another online purchase in the future. To sum up, even the negative experience does not deter consumers from their future purchases.



### 3.2 Results of hypotheses testing

Within the research we tested two hypotheses (Table 1). The null hypothesis (H0) is a statement that expresses the independence of variables. The alternative hypothesis (H1) is the logical opposite of the null hypothesis and it explains the existence of dependence between variables. Important is to determine the level of significance. This is the probability of errors which we accept if we reject the null hypothesis, which is in fact true (Rimarčík, 2007). Traditionally it is set at the level of 5% (or 1%). Subsequently, the statistical hypothesis is tested and on that basis it can be decided about its acceptance or rejection. We used the software program Microsoft Excel with its complement Contingency Table (v. 2010).xlam for the most relevant statistical tests used in the analysis of contingency tables. For the calculation of the test statistics and of probability we used Kendall correlation coefficient which is designed to measure the dependence between two ordinal variables. If one variable takes a different number of unique values than the other (contingency table  $m \times n$ ), we use the tau-c, which is also called Stuart's tau-c or Kendall-Stuart tau-c, otherwise we use Kendall-Stuart tau-B.

Table 1- Kendall correlation coefficients

Measures of ordinal association		
	Hypothesis 1	Hypothesis 2
Kendall's tau-b	-0.058076013	0.038223316
95% CI	-0.227162118 to 0.111010092	-0.10905663 to 0.185503262
two-sided P-value	0.500819237	0.610979702
Kendall's tau-c	-0.050447658	0.026400367
95% CI	-0.1973241 to 0.096428783	-0.075324053 to 0.128114788
two-sided P-value	0.500819237	0.610979702
Goodman-Kruskal's gamma	-0.095222619	0.069277108
95% CI	-0.372459659 to 0.18201442	-0.197657576 to 0.336211793
two-sided P-value	0.500819237	0.610979702

Discussing the first hypothesis, we follow the P-value of Kendall tau-c. The P-value is greater than the chosen significance level ( $0.5008 > 0.05$ ), so we accept the null hypothesis. Alternative hypothesis is therefore rejected, and we can claim that the negative experience of consumers with online shopping and future online purchases have no statistically significant dependence. These two attributes do not have any mutual interdependence. Consumers do not consider the negative experience to be something serious and they purchase online even at the cost of risk of repeated negative experience.

In the second hypothesis we follow the P-value of Kendall tau-b. The P-value is greater than the chosen significance level ( $0.611 < 0.05$ ), so we reject the alternative hypothesis and the null hypothesis is therefore accepted, and we can claim that the negative experience does not have any dependence with price affordability of purchased goods. However, consumers have negative experience without regard to the price and price efficiency of the product.

### 4. Conclusion

E-commerce offers European consumers lower prices and a wider choice of goods and services, while for businesses it is an opportunity to reach a broader group of consumers and increase sales. In the European survey it was explicitly recognised that low consumer confidence, which is caused by huge amount of negative experience and risks, in online transactions is an obstacle to completing the globalized digital single market. That is the reason why new harmonised requirements have been introduced by European and national authorities

to strengthen the level of consumer protection in online transactions and reduce risk in its various forms. These include a legislative proposal to modernise and simplify consumer rules for online and digital purchases to make it better equipped for the challenges of the globalized digital single market. The Commission is also developing a series of criteria to guide comparison tool operators on how to comply with the unfair commercial practices and provide transparent and reliable information to consumers.

To sum up, even the negative experience does not deter consumers from their future purchases. In addition, thanks to the research we are able to determine the main risks of online shopping in the globalized single market. Almost half of respondents (44%) deems the supply of low-quality goods to be the greatest risk. The relatively high number of respondents (39%) indicates that they are worried of non- delivery of the product, other disadvantages and risks consumers have to face are high postage, inaccurate information, distorted pictures of goods, long delivery time, complicated and not clearly arranged ordering, unclear search or pay in advance, misuse of personal data and delayed delivery of the goods. The main reasons why people do not buy online may be lower education levels, lack of experience and knowledge of online purchases, negative attitude to technology, insufficient courage or unwillingness to take risks.

We can conclude that despite the negative experience consumers have when shopping online in the globalized European single market they decide to undergo the risks and take advantages of online purchases and so we can expect a favourable development of e-commerce in the future.

## References

- [1] AIMmonitor (December 2015). Research on socio-demography of internet users in the Slovak Republic. [online]. 2015. [cit. 2016-07-12]. Available: [http://www.iabslovakia.sk/wpcontent/uploads/2015/03/2015\\_02\\_TOTAL.pdf](http://www.iabslovakia.sk/wpcontent/uploads/2015/03/2015_02_TOTAL.pdf)>2015
- [2] Baghdadi, Y. (2016) A framework for social commerce design, *Information Systems*, vol. 60, pp. 95- 113.
- [3] Bilgihan, A. (2016) Gen Y customer loyalty in online shopping: An integrated model of trust, user experience and branding, *Computers in Human Behavior*, vol. 61, pp. 103-113.
- [4] Burden, K. (2016) EU update, *Computer Law & Security Review*, vol. 32(4), pp. 650-654.
- [5] European Commission (2015). *Consumer Condition Scoreboard. Consumers at home in the single market*, Luxembourg: Publications Office of the European Union.
- [6] Grigera, J., Garrido, A., Ignacio Panach, J. (2016) Assessing refactorings for usability in e-commerce applications, *Empirical Software Engineering*, vol. 21(3), pp. 1224-1271.
- [7] Grueschow, R. M., Kemper, J., Brettel, M. (2016) How do different payment methods deliver cost and credit efficiency in electronic commerce?, *Electronic Commerce Research and Applications*, vol. 18, pp. 27-36.
- [8] Ishii, K., Markman, K. M. (2016) Online customer service and emotional labor: An exploratory study, *Computers in Human Behavior*, vol. 62, pp. 658-665.

- [9] Kumar, S., Tiffany, M., Vaidya, S. (2016) Supply chain analysis of e-tailing versus retailing operation– a case study, *Enterprise Information Systems*, vol. 10(6), pp. 639-665.
- [10] Maadi, M., Maadi, M., Javidnia, M. (2016) Identification of factors influencing building initial trust in e-commerce, *Iranian Journal of Management Studies*, vol. 9(3), pp. 483-503.
- [11] MasterCard (December 2015). The new world of retail. [online]. 2015. [cit. 2016-07-20]. Available:  
[http://newsroom.mastercard.com/wpcontent/uploads/2015/05/White\\_Paper\\_Innovalue\\_150506.pdf](http://newsroom.mastercard.com/wpcontent/uploads/2015/05/White_Paper_Innovalue_150506.pdf)
- [12] Mavlanova, T., Benbunan-Fich, R., Lang, G. (2016) The role of external and internal signals in e-commerce, *Decision Support Systems*, vol. 87, pp. 59-68.
- [13] Mentel, G. and Brożyna, J. (2015). Compatibility of market risk measures. *Journal of International Studies*, vol. 8, no 2, pp. 52-62.
- [14] Pee, L.G., (2016) Customer co-creation in B2C e-commerce: does it lead to better new product?, *Electronic Commerce Research*, vol. 16(2), pp. 217-243.
- [15] Reinecke, P. (2015). E-commerce statistics for individuals. [online]. 2015. [cit. 2016-07-16]. Available: [http://ec.europa.eu/eurostat/statisticsexplained/index.php/E-commerce\\_statistics\\_for\\_individuals](http://ec.europa.eu/eurostat/statisticsexplained/index.php/E-commerce_statistics_for_individuals)
- [16] Rimarčík, M. (2007). *Štatistika pre prax*, Bratislava: Vydavateľstvo Marián Rimarčík.
- [17] Shi, S., Chen, Y., Chow, W.S. (2016) Key values driving continued interaction on brand pages in social media: An examination across genders, *Computers in Human Behavior*, vol. 62, pp. 578-589.
- [18] Wang, W.T., Wang, Y.S., Liu, E.R., (2016) The stickiness intention of group-buying websites: The integration of the commitment-trust theory and e-commerce success model, *Information & Management*, vol. 53(5), pp. 625-642.
- [19] Zhao, J., Lau, R.Y.K., Zhang, W. (2016) Extracting and reasoning about implicit behavioural evidences for detecting fraudulent online transactions in e-commerce, *Decision Support Systems*, vol. 86, pp. 109-121.

## TOOLS OF INTENSIVE DEVELOPMENT OF RETAIL CHAINS ON THE BASIS OF INTERNATIONAL EXPERIENCE

Valeeva Julya<sup>1,a,\*</sup>

<sup>1</sup>Russian University of Cooperation Kazan Cooperation Institute (Branch), Kazan, Russian Federation

<sup>a</sup>valis2000@mail.ru

\*Corresponding author

**Abstract.** Evaluation of the intensive development of retail chains allows to determine the strategic direction of improving the services provided. In connection with this approach the formation of a scientific research management of the intensive development of retail chains is required. The developed method of assessing the level of intensive development of retail networks and services based on its management model allows to shape the strategic direction of their development. Identified types of retail network services: extensive development is manifested in the increasing number of shopping facilities (retail space and number of staff), intensive - to increase the effective use of indicators of retail trade network resources (logistics, labor, financial). Identified and analyzed the factors that promote and prevent certain types of retail chains. Adapted methods of assessing the level of intensive development of retail network services based on reasoned in the set of indicators. The model of management intensive development of retail network services based on an assessment of his level, and selecting an appropriate development strategy.

**Keywords:** retail chains, intensive development, technique

**JEL Classification:** L1, L81, M 300, M 310

### 1. Introduction

Being the economy industry which is the most closer to the final consumer, retail trade serves as the underlying instrument of regulation of the basic constituent elements of production process (amount and range of products) and allows to perform monitoring of consumer preferences, dynamics of living standards of the population, etc.

Now state policy in the sphere of retail trade of Russia is directed to a quality excellence of trade services by means of forming of the effective commodity distribution network corresponding to the innovative plan of development of economy including due to development of modern formats of trade which develop mainly within retail chain stores. The specific weight of retail chain stores in retail trade of Russia makes 33% while in other countries on average 60-70%.

In the world economic system retail chain stores gained mass distribution in the first half of the 20th century. By Paul Nistrom's assessment, at the initial stage of the expansion – in 1928 – they controlled 15% of retail turnover of the USA. Analyzing world success of retail networks, many authors, such as F. Russell, R. Layens, S. Flikinger, come to a conclusion that they represent mass system of distribution. Its "success is caused by the same, than success of mass production" – economy at a scale, by standardization and the data of all processes to simple, elementary forms. Mass production and distribution is an application of rational,

evidence-based methods to all elements of systems of the organization of business Valeeva, Yu S. and Sharafutdinova, N. S. (2015)

Research aim is studying of theoretical and methodical aspects of management of intensive activity of retail chain stores.

To achieve the aim it is necessary to investigate the following tasks:

- to study and specify theoretical bases of intensive activity of retail companies, having considered essence and types of innovations, value and components of intensive activity in relation to trade industry entity;
- to reveal features of implementation process of innovations in activities of retail chain stores;
- to analyse conceptual approaches to assessment of intensive activity of the entities including retail chain stores;
- to develop and approve technique of assessment of intensive activity of retail chain stores;
- to develop typology of implementation strategy of innovations in business activity of retail chain stores;
- to offer management model of intensive activity of retail chain stores.

Scientific novelty of results of the research is following:

- the indicators characterizing innovative activity of the trade service entities of retail trade from a line item of the theory of economic growth are proved. Unlike the existing approaches of innovation are considered as a factor of intensification and find reflection in a surplus of performance measures of work, capital productivity, revenue from square meter of the floor space, increase in profit and turnover of current assets. Integrated assessment of these indicators testifies to intensive activity of retail chain stores;
- the rating technique for assessment of intensive activity of retail chain stores which is based on set of indicators of intensive development is adapted
- the typology of implementation strategy of innovations in business activity of retail chain stores is offered: strategy of radical advancing (high level of intensive activity), strategy of preserving innovative line items (average level of intensive activity, strategy of intensive imitation (low level of intensive activity). The offered typology is based on the classical strategy of implementation of innovations corrected taking into account specifics of process of implementation of innovations in activities of retail chain stores;
- the control algorithm of intensive development provided by stages of strategy realisation of implementation of innovations to business activity of retail chain stores is offered.

## **2. Theoretical bases of research of intensive development of the retail trade service entities**

The research of the concept "intensive development" in works of Mensch G., Iannetti, L., Acciari, V. A. Antoci, S., Kinds, A., Schotte, L., Mondelaers, K., Polet, H., Kocas, C., Akkan, C., Nousiainen, L.L., Joutsen, S., Lunden, J., Hänninen, M.L., Fredriksson-Ahomaa, M showed that the essence of this definition most often comes down to the complex characteristic of innovative activities of the entity and is characterized by such indicators as intensity, efficiency, effectiveness Iannetti, L., Acciari, V. A. Antoci, S., Kocas, C. and Akkan, C., Perdikaki, O., Kostamis, D. and Swaminathan, J. M.

The complexity of classical definition's adaptation "intensive development" to the enterprises in the sphere of retail trade service is driven by specifics of their activities, which consists in the fact that trade enterprises do a distribution function in the process of bringing goods to the final consumer. Therefore, innovation activity of enterprises in trading industry is changing. Introduction of innovations is carried out with such marketing tools as research and benchmarking.

In this connection, it is inexpedient to consider the classical stages of industrial enterprises' innovative activity (emergence of ideas, development, R & D, production, realization) in relation to commercial enterprises.

The introduction of innovations into practice of enterprises in the sphere of retail trade service is realized according to the following stages: initiation of ideas, selection of ideas, adoption of solutions about introduction of a certain type of innovation and its development, introduction of innovations. Implementation of innovation leads to greater efficiency in the sphere of their application, cost saving or creating conditions for getting additional profit.

### **3. Indicators of intensive development**

Economic growth of trade enterprise may have an extensive and intensive character. Indicators of intensive development are indicators of quality use of commercial enterprise's resources. Innovations, as a factor of intensification, are reflected in the growth of labor productivity, capital productivity, revenue per square meter of retail space, increasing returning on costs and turnover of working capital, as a consequence, these indicators may indicate the rapid development of trading companies. Calculation of indicators is based on turnover data at constant prices, so obtained by changing physical volume of production and costs, excluding the impact of inflation.

This set of indicators characterizing innovation activity of trade enterprise is different from previously proposed subjects that take into account the specifics of trade enterprise, which lies in the fact that it performs a distribution function in merchandizing system. The activity of trade enterprise to innovate does not imply the presence of R & D stage, therefore assessment of intensive development of trade enterprise on the basis of classical approaches evaluating the intensive development of industrial enterprise becomes impossible, and reduced, in the end, to the assessment of the activity of innovation implementation process, which leads to economic growth.

### **4. Rating methodology, based on the indicators of intensive development**

Based on analyzed methodological approaches to evaluation of intensive development it was revealed that the calculation is advantageously carried out by comparing the obtained values with the indicators established baseline values. As these comparative values can be as indicators of previous periods, their average value corresponding to the performance of competitors, these statistical studies of the leading Russian and foreign companies. In our methodology of assessment the intensive development of retail chains comparison benchmark simulated acts of innovation-active sales network, in which all indicators characterizing innovation activity, are the best.

In general the rating algorithm of intensive development of retail outlets can be represented as a sequence of the following stages:

Stage 1. Substantiation and the choice of indicators, their calculation. On the basis of research indicators characterizing the economic growth of retail chains due to intensive factors, a system of economic indicators is formed for assessing intensive development of retail chain stores:

- the rate of growth of labor productivity due to intensive factors;
  - the rate of growth of capital productivity by intensive factors;
  - the growth rate of turnover of working capital due to the intensive factors;
  - returning on costs of growth rate due to intensive factors;
- changes in the rate of revenue per square meter due to the intensive factors.

Calculation of data indicators is performed due to the following formula (1):

$$\Delta\Pi_u = (1 - K_3) * \Delta\Pi, \quad (1)$$

where  $\Delta\Pi_u$  - the rate of changing the analyzed indicator by intensive factors (innovation);  $K_3$  - coefficient of extensive factors' influence in the growth of analyzed indicator, which is determined by experts and ranges  $0 \leq K_3 \leq 1$ ;  $\Delta\Pi$  – changing of indicator in the reporting period compared with the previous period.

Stage 2. Representation of indicators in the form of a matrix ( $a_{ij}$ ).

Stage 3. On each indicator there is the maximum value and it is brought in a column of conditional reference trade enterprise (max).

Stage 4. Initial indicators of a matrix ( $a_{ij}$ ) are standardized concerning the corresponding indicator of reference retail chain stores.

Stage 5. For each analyzed retail chain store value of its rating assessment.

Retail chain stores are ranged in decreasing order of the size of rating assessment. The highest rating has the entity with the smallest value R. Valeeva, Yu S. and Sharafutdinova, N. S. (2015)

In this case assessment intensive development acts as an initial stage of development process of innovative strategy of separate retail chain stores.

## 5. Analysis of intensive development of retail chain stores

This technique was approved on the example of retail chain stores of the Republic of Tatarstan. Results of rating assessment intensive development of retail chain stores of the Republic of Tatarstan are provided in table 2.

*Table 1: Results of rating assessment intensive development of LLC Bakhetle-1 retail chain stores of Bakhetle, JSC Edelveys group retail chain stores "Edelveys group", LLC Ak Bars Torg ("Pyaterochka" retail chain) in 2011 - 2015*

Retail chain/year	2011	2012	2013	2014	2015
«Bakhetle»	1,98	1,72	1,77	3,00	2,1
«Edelveys»	3,44	4,61	3,21	3,88	2,94
«Pyaterochka»	2,30	2,53	4,00	3,00	3,39

*Source: self-processed*

According to the technique of rating assessment and data of the table it is established that LLC Bakhettle-1 the retail chain stores of Bakhettle in 2010 were most innovatively – active as integrated assessment was mattered by the smallest value.

## 6. The typology of strategy of implementation of innovations in business activity of retail chain stores is offered

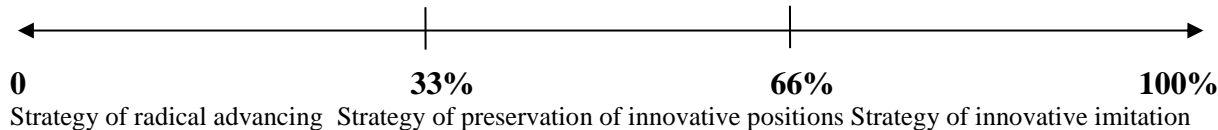
Strategic approach to implementation of innovations provides choice/change of strategy according to a measure value of intensive development of retail chain stores.

The typology of strategy of implementation of innovations in business activity of retail chain stores is offered:

- strategy of radical advancing (in structure of the implemented innovations external innovations prevail mainly). The essence of strategy is that actions of retail chain stores come down to aspiration of development of innovations of the first industry on federal, regional or municipal market.
- strategy of preserving innovative line items at structure of the implemented innovations there are both external and internal innovations. This strategy is peculiar to retail chain stores which occupy strong competitive position, but for certain reasons at some stages of the development test a strong and unexpected impact of competitors and have no opportunity to make necessary investments in innovations. It can't be successful in long-term aspect.
- strategy of innovative imitation comes down to what the retail chain stores borrow (duplicates) innovative implementations from outside. This strategy can be effective when the trade enterprise strongly lags behind competitors on the technological condition or masters a new format of trade.

For the purpose of strategic management by innovative activity of retail chain stores of RT intensive development was offered to enter conditional intervals of level, having accepted the maximum value of an integrated indicator of rating assessment for 100%. The scale of intervals of indicators intensive development is provided in the figure 1.

*Figure 1: Scale of intervals of indicators of intensive development*



*Source: self-proceessed*

According to the received intervals of retail chain stores of Bakhettle it is necessary to adhere to the strategy of preserving innovative line items, and to retail chain stores "Edelveys" and "Pyaterochka" of strategy of innovative imitation. As tactical actions within the specified strategy and on the basis of the calculated indicators of intensive development retail chain stores can recommend the certain types of an innovation provided in table 4.6. control algorithm of intensive development of retail trade organizations

The process of management of innovative activity of the retail trade stores is invariant algorithm, consisting of successive stages, the implementation of which is aimed at improving the trading network growth through the use of intensive factors (innovation). The algorithm of intensive development of retail chains control is shown in Figure 3.

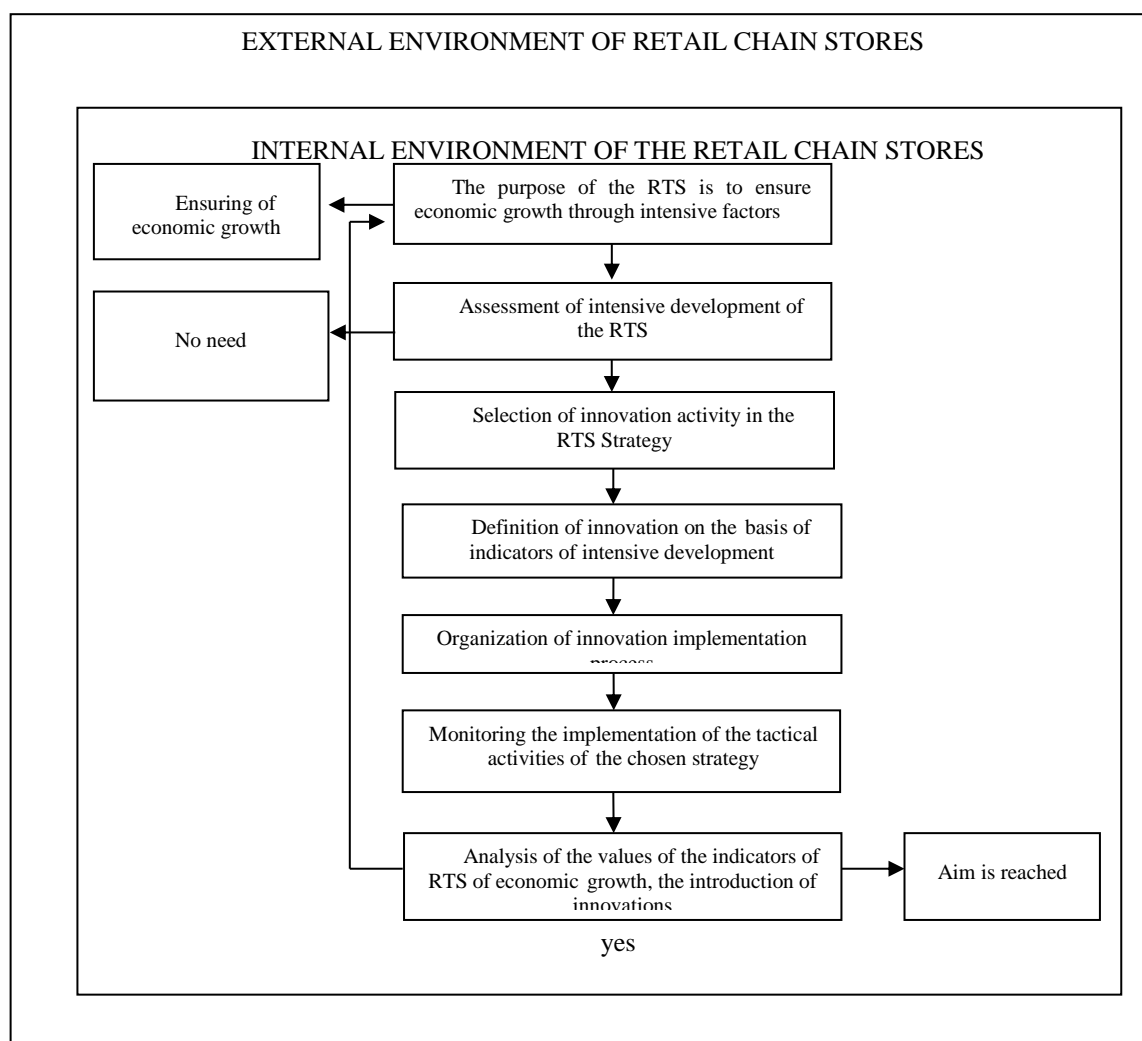


The subjects of control in a centralized structure of the retail trade stores control center are its management and direct management of individual stores trading network. The functions are implemented directly as part of the algorithm for each stage of management of innovative activity. Manage direction of the trade network activity involves the use of methods of organizational - economic nature.

The majority of retail chains have a centralized management system. A single control center delegates shopping function, the minimum required for participation in logistics operations traffics (ordering, inventory revaluation). Reduced costs and efficiency control device at a concentration in a single center evident and relevant. This model gives the effect if all the company's business processes are tightly regulated and standardized, while management is carried out in a continuous manner, including in relation to areas of innovation.

We describe the main areas of management of innovative activity of trading network "Bakhetle". The functional structure of the commercial network is represented by the following departments: Sales Department; Development Department; Finance Department; Procurement Department; own production; Personnel Department.

Figure 2: Control algorithm of intensive development of retail chain stores



Source: self-processed

Employees of the main control unit of the trade network on the basis of intensive development and evaluation within the framework of an appropriate strategy should be to develop guidelines for innovation heads of departments and directors of hypermarkets in the field. Directly in every department store and mid-level managers perform work on the ideas of innovation initiation among sales staff brainstorm, free association, inversion of control questions, so the search is conducted ideas innovation inside the trade network.

Implementation by the innovative activity provided to management model results in need of refining and even review of a number of managerial doctrines. Management of implementation of innovations in activities of retail chain stores is a special type of activity on purposeful coordination of actions of participants of process of a joint labor activity. Success of activities of retail chain stores is in many respects determined by effective management decisions within the designated strategy of increase of intensive development.

## 7. Conclusion.

1. Intensive development of retail chain stores based on indicators (signs) of intensive development to which according to the theory of economic growth it is reasonable to include a labor productivity, capital productivity, turnover of current assets, return of costs and revenue from square meter of the floor space as innovations as an intensification factor, find reflection in growth of the specified indicators is offered to carry out assessment.

2. For assessment of intensive development of retail chain stores the rating technique in a basis of which is put, set of indicators of intensive development is adapted. A benefit of a rating method is that base of counting are not subjective proposals of experts or judgment on dynamics of separate indicators, and the highest rates of intensive development received by one of retail chain stores. The offered technique is approved on the example of retail chain stores of RT.

3. On the basis of the classical strategy of implementation of innovations the typology of strategy of implementation of innovations in activities of retail chain stores which basis the variation of types of an innovation is developed. The choice of strategy of implementation of innovations in activities of retail chain stores is performed on the basis of an indicator of intensive development.

4. The control algorithm of innovative activity of retail chain stores provided by set of the subsequent stages of strategy of implementation of innovations is developed. Management of innovative activity of retail chain stores according to stages of the offered algorithm allows to promote due to increase intensive development to their economic growth.

## Referencec

- [1] Iannetti, L., Acciari, V. A. Antoci, S. *et al.* (2016). *Listeria monocytogenes* in ready-to-eat foods in Italy: Prevalence of contamination at retail and characterisation of strains from meat products and cheese, *Food Control*, 68, pp. 55-61.
- [2] Ionut Purica. (2015). Climate Change Events Induced Risk Assessment and Mapping as a Basis for an Insurance Policy *Procedia Economics and Finance*, 22, 495-501.
- [3] Kinds, A., Sys, K., Schotte, L., Mondelaers, K. and Polet, H. (2016) "VALDUVIS: An innovative approach to assess the sustainability of fishing activities, *Fisheries Research*, 182, pp. 158-171.

- [4] Kocas, C., Akkan, C. (2016). A system for pricing the sales distribution from blockbusters to the long tail, *Decision Support Systems*, 89, pp. 56-65.
- [5] Mensch G. (1975). *Das technologische Patt: Innovationen überwinden die Depression*, Frankfurt: Umschau verlag.
- [6] Nousiainen, L.-L., Joutsen, S., Lunden, J., Hänninen, M.-L. and Fredriksson-Ahomaa, M. (2016). Bacterial quality and safety of packaged fresh leafy vegetables at the retail level in Finland, *International Journal of Food Microbiology*.
- [7] Perdikaki, O., Kostamis, D., Swaminathan, J. M. (2016). Timing of service investments for retailers under competition and demand uncertainty, *European Journal of Operational Research*, 254, pp. 188-201.
- [8] Reyes, P. M., Li, S., Visich and John K. (2016). Determinants of RFID adoption stage and perceived benefits, *The European Journal of Operational Research (EJOR)*, 254(3), pp. 801-812.
- [9] Sekizaki, S., Nishizaki, I., Hayashida, T. (2016). Electricity retail market model with flexible price settings and elastic price-based demand responses by consumers in distribution network, *International Journal of Electrical Power & Energy Systems*, 81, pp. 371-386.
- [10] Schroeder, K. J., Hoffmann, A., Loy, J. P. (2015). The Distribution of Food Retail Prices and the Euro Changeover: Signpost Items versus Occasional Goods, *Agribusiness*, 32(1), pp. 93-112.
- [11] Sirong, L., Xiao, K., Tingting, N. (2016). Spline based survival model for credit risk modeling, *European Journal of Operational Research*, 253(3), pp. 869-879.
- [12] Valeeva, Yu S., Sharafutdinova, N. S. (2015) Innovative activity of retail companies as a factor of economic growth. *International Conference on Applied Economics (ICOAE). Kazan, Russia*, 24, pp. 710-715.
- [13] Valeeva, Yu., Burganova, L. (2015). Innovation as a factor to improve trade organization image. *3rd International Conference on Innovation Management and Corporate Sustainability (IMACS). Prague, Czech*, pp. 305-315.
- [14] Xiao, T., Shi, J. (2016). Pricing and supply priority in a dual-channel supply chain, *The European Journal of Operational Research (EJOR)*, 254(3), pp. 813-823.
- [15] Zaarour, N., Melachrinoudis, E., Solomon, M. M. (2016). Maximizing revenue of end of life items in retail stores,” *The European Journal of Operational Research (EJOR)*, 255(1), pp. 133-141.

## ADOPTION OF MODERN ICT IN REGIONAL PERSPECTIVE – SITUATION IN THE CZECH REPUBLIC

Jiří Vaněk<sup>1,a,\*</sup>, Vladimír Očenášek<sup>2,b</sup>, Michal Stočes<sup>3,c</sup> and Jan Masner<sup>4,d</sup>

<sup>1</sup>Czech University of Life Sciences Prague, Faculty of Economics and Management, Department of Information Technologies, Kamýcká 129, 165 21 Prague 6 – Suchdol, Czech Republic

<sup>2</sup>Czech University of Life Sciences Prague, Faculty of Economics and Management, Department of Information Technologies, Kamýcká 129, 165 21 Prague 6 – Suchdol, Czech Republic

<sup>3</sup>Czech University of Life Sciences Prague, Faculty of Economics and Management, Department of Information Technologies, Kamýcká 129, 165 21 Prague 6 – Suchdol, Czech Republic

<sup>4</sup>Czech University of Life Sciences Prague, Faculty of Economics and Management, Department of Information Technologies, Kamýcká 129, 165 21 Prague 6 – Suchdol, Czech Republic

<sup>a</sup>vanek@pef.czu.cz, <sup>b</sup>ocenasek@pef.czu.cz, <sup>c</sup>stoces@pef.czu.cz, <sup>d</sup>masner@pef.czu.cz

\*Corresponding author

**Abstract.** Globalization was in the eighties characterized by arrival of modern information and communication technologies (ICT) and the internet. It allowed, for instance, global trading in real time and had an impact at transport price reduction of cargo, people and money. New forms of exchange of information simplified expansion and corporate governance. In the domain of information politics of individual states, the European Union sets its goals with the help of so called eEurope initiatives. The last initiatives are named eEurope 2005 and i2010 and Digital Agenda for Europe 2020 which is one of the seven parts of The Europe 2020 strategy. Among them are: Innovation Union - to improve framework conditions and access to finance for research and innovation, Youth on the move - to enhance the performance of education systems and to reinforce the international attractiveness of Europe's higher education, A digital agenda for Europe - to speed up the roll-out of high-speed Internet and reap the benefits of a digital single market for households and firms. Department of Information Technologies conducts long-term extensive research of ICT equipment of full-time students and students of combined form (from 2011 onwards) of the Faculty of Economics and Management, Czech University of Life Sciences Prague (FEM CULS Prague). The level of ICT equipment in the Czech regions is rated based on results from surveys of regional consultation centers (Klatovy, Hradec Králové, Litoměřice, Jičín, Sezimovo Ústí) in confrontation with students from Central Bohemian region and Prague.

**Keywords:** Globalization, KOF index of globalization, Faculty of Economics and Management, Czech University of Life Sciences Prague (FEM CULS Prague), Internet connectivity, Mobile connectivity, Wi-Fi technology, expansion of LTE

**JEL Classification:** Q16

## 1. Introduction

Eastern bloc centrally planned economies and western market economies were brought closer together and in ICT globalization led to the need of utilization of resources and competencies across the globe to develop standard, customizable platforms and IT-enabled products. (Lee, Joshi, 2016). Globalization is associated with social changes and many of our theories and models were developed at a time when social structure, political ideology and economic underpinnings were dramatically different. (West, Heath, 2011). It is also closely related to solving economic and social inequality originated from different approach of people to technology, the so-called digital divide. Doong, Ho (2012) analyzed this phenomenon using data from 2000 to 2008 for 136 countries.

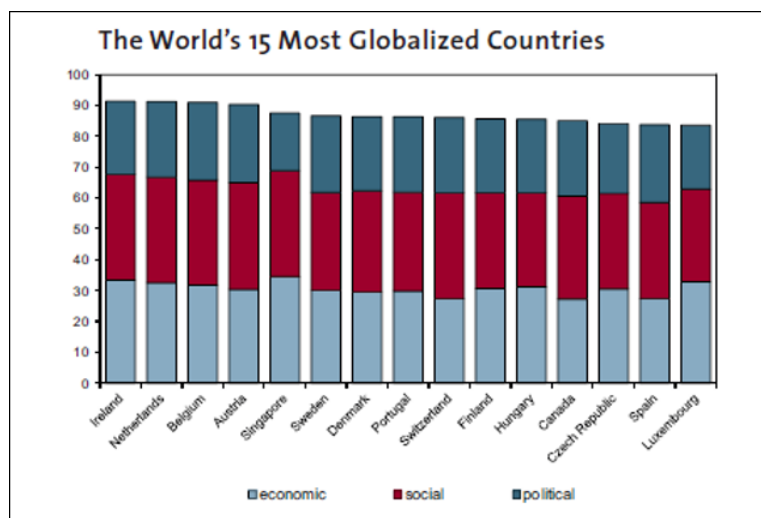
The correlation between growth rate of real GDP per capita and ICT use index (as measured by the number of internet users, fixed broadband internet subscribers and the number of mobile subscription per 100 inhabitants) in 159 countries was researched by Farhadi, Ismail, Fooladi (2012). Economic benefit of broadband infrastructure deployment planned by EU program Digital Agenda for Europe 2020 was documented by Grubber, Hatonen, Koutroumpis (2014). The same theme even with simple model of broadband infrastructure growth is followed up by Struzak (2010). Chinese technology politics for wireless broadband infrastructure was documented by Yu, Zhang, Gao (2012).

Another ICT matter associated with globalization is Cloud computing - providing services or programs from remote servers hosted on the Internet accessible from any place on the planet. Schniederjans a Hales (2016) came with finding that cloud computing helps businesses maintain the level of cooperation with the supply chain, but also the balance between economic and environmental performance. A survey concerned 247 companies. The effort to maintain market share with the use of social media in marketing communication strategies is addressed by Kale (2016). The upswing of the internet brings new challenges to the education domain. The EU strategy to minimize gaps between supply and demand on the labor market concerning people skilled in digital technologies is mapped by Titan, Burciu, Manea, Ardelean (2014).

The level of involvement in globalized world is tracked down for over a 30 years, for instance, with a so-called KOF index of globalization (Berggren, Nilsson, 2015), which is put together annually by Swedish Federal Technology Institute (ETH – Eidgenössische Technische Hochschule, 2015) in Zurich and includes three dimensions of globalization – economic, social and political. While measuring social globalization, among other parameters, the data relating to the ICT domain are evaluated – the data about information flow, number of internet and television users per 1000 citizens.

Since 1993, the KOF index is published also for the Czech Republic and according to the ETH publication from 2015, where data are processed by 2012, the Czech Republic is ranked 13<sup>th</sup> among countries with the highest rate of globalization, see figure n.1, Slovakia is ranked in 17<sup>th</sup> place. The first three positions are occupied by Ireland, the Netherlands and Belgium.

Figure 1: Globalization index by 2012 (publicized 2015)



Source: ETH – Eidgenössische Technische Hochschule, 2015

A Consulting firm Ernst & Young (2015) also puts together a ranking of countries according to the index of globalization. This index is set-up from a total of 5 sub-components, from the data relating to ICT, the number of broadband connections per 100 citizens and the number of Internet users per 100 citizens is evaluated. The Czech Republic is ranked in 18<sup>th</sup> position according to last released data from 2013 and Slovakia even in 12<sup>th</sup> position. The first three positions are occupied by Hong Kong, Singapore and Ireland.

In our contribution, we discuss some parameters relating to ICT problematics.

## 2. Results

Department of Information Technologies conducts long-term extensive research of ICT equipment of full-time students and students of combined form (from 2011 onwards) of the Faculty of Economics and Management, Czech University of Life Sciences Prague (FEM CULS Prague). Classical methods of data collection, validation and processing were used during data processing. As for general theoretical methods, we utilized analysis and synthesis of data. The data were then interpreted graphically with emphasis on selected indicators (regular cell phones versus smartphones, operation system, connectivity, a number of devices and type of Internet connection) which were chosen in consideration of government agenda Digitální Česko in context of The Europe 2020 strategy and the Digital Agenda for Europe 2020.

We present data relating to the evaluation index of globalization - ways to connect household respondents to the Internet and in relation to the size of their settlements.

Figure n. 2 shows decrease of xDSL connections on desktop for Czech citizens (Czech Statistical Office, 2016) and FEM CULS Prague students.

Figure 2: xDSL connections on desktop

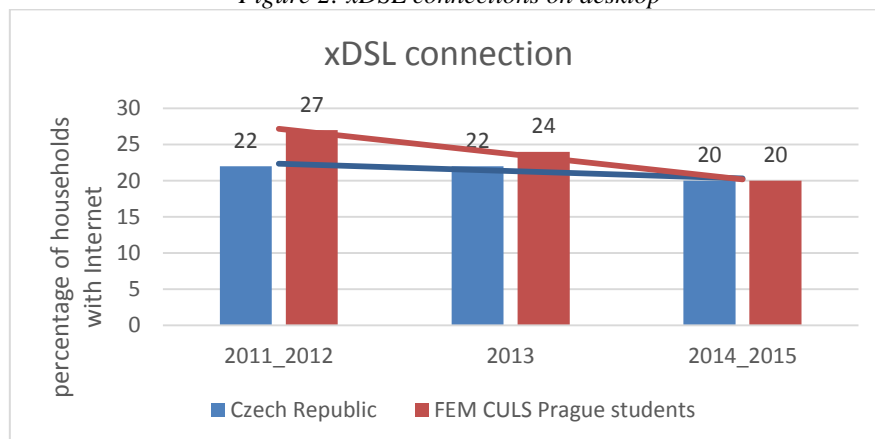


Figure n. 3 documents situation of xDSL connection in conjunction with size of respondents' residential area. The decrease is significant for all types of residential areas regardless of size.

Figure 3: xDSL connection by the size of residential area

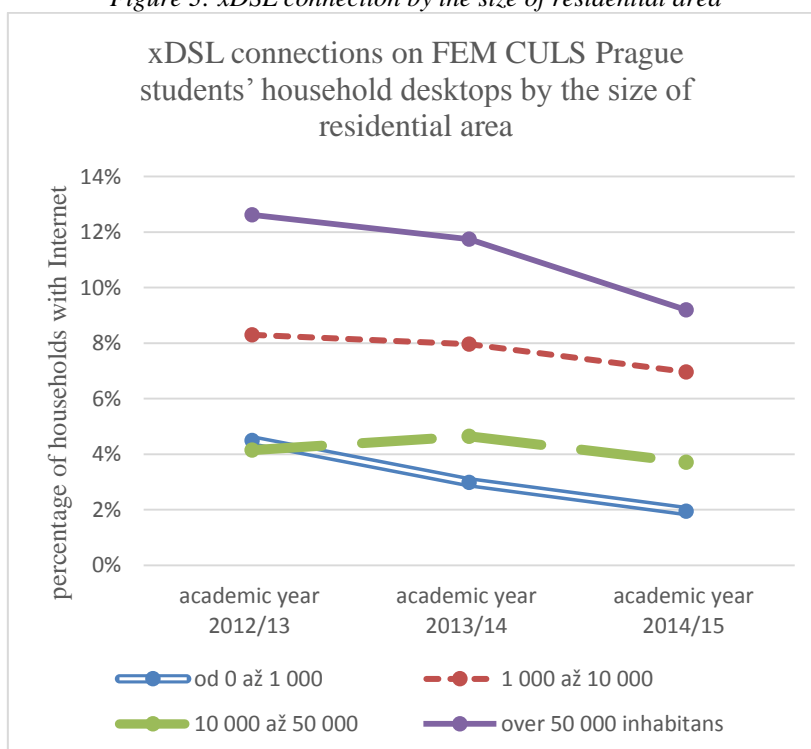


Figure n. 4 documents situation of Wireless connections. There is a stagnation or slight decrease among students and for the whole republic, records show increase in interest for this type of connection.

Figure n. 5 documents situation of Wireless connections for residential areas with population ranging from 1 000 to 10 000 and shows a slight increase of interest, but there is a stagnation or slight decrease for residential areas with any other range of population.

Figure n. 6 documents state of mobile connections for desktop, notebooks and tablets and shows dramatic increase of mobile connections for Czech residents as well as (FEM CULS Prague students). The increase for student is more than double between 2011 and 2015.

Figure 4: Wireless connection

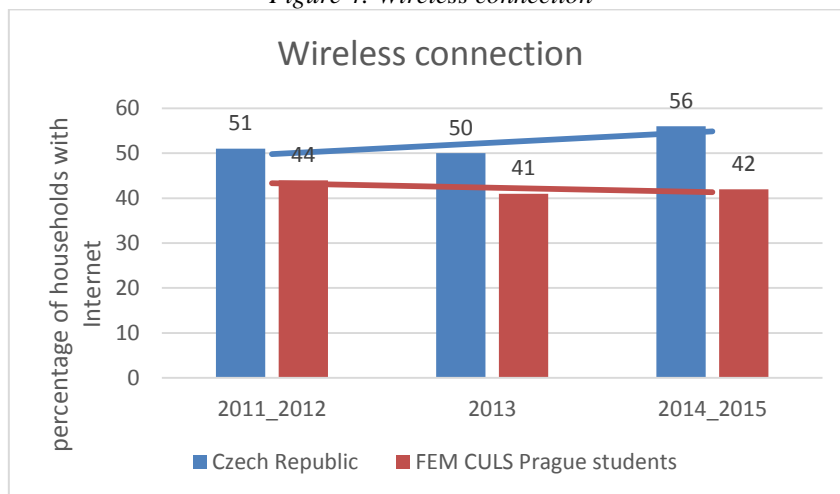


Figure 5: Wireless connection by the size of residential area

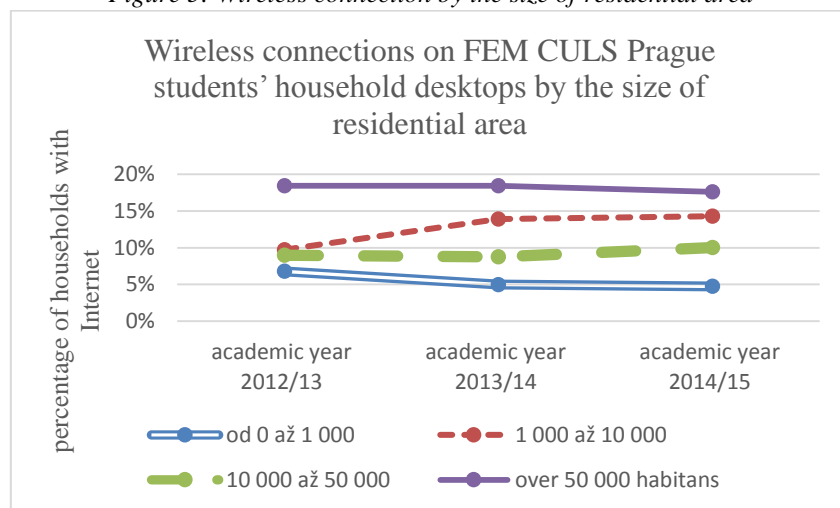
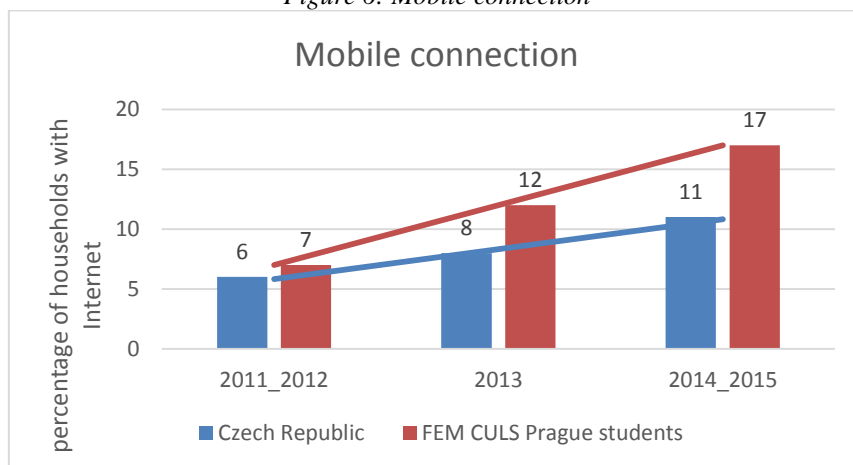


Figure 6: Mobile connection





### 3. Conclusions

From surveys conducted in a long-term by the Department of Information Technology is in the article illustrated the development of different types of internet connection in FEM CULS Prague students' households. For xDSL connections records about students shows significant decrease of desktops for all residential areas regardless of size. Records concerning WiFi connections shows increase in interest for whole republic and stagnation or slight decrease among students. Only in residential areas with population ranging from 1 000 to 10 000 is documented increase of interest for this type of connection. Dramatic increase of interest is documented for mobile connections, this holds for Czech citizens as well as FEM CULS Prague students. The increase for students is more than doubled between 2011 and 2015.

It monitored ownership of 4 types of devices – desktops, portable devices (notebook, laptop, netbook), tablets and cell phones. For each device we detected the type of processor, size and type of RAM, size of hard disk, type of mail client, office software, cell phone and operation system and cloud usage. In addition to information about internet connection, which are presented in the article, we also investigated for what purposes students use the Internet on their devices.

Surveys between 2011 and 2015 confirmed the following results:

- Dramatic upswing of mobile technologies as well as Android and Apple platforms.
- Limited quality and Internet connectivity (landline and mobile, alternation of Wi-Fi technology, slow expansion of LTE, uncertain situation regarding 3G).
- The so-called Post-PC era where tablets and 2 in 1 devices are becoming more important than PCs.

The findings set out in the article relates not only to the classical communication but applies completely even for the problematics of the Internet of things. Goals formulated by Digitální Česko (2013) state policy for the Internet access of households by 2020 can't be considered sufficient.

In May 2016, the government appointed government coordinator for the Digital Agenda, that simultaneously acquired role as Vice President of the Government Council for Information Society and Research, Development and Innovation Council. Under his leadership, the updated version of so-called Action plan for development of digital market (Akční plán pro rozvoj digitálního trhu) was prepared, in which the chapter DEVELOPEMENT OF INFRASTRUCTURE discourses completion of the National Plan for the development of next generation networks, with the deadline of September 2016.

The plan sets out a long-term strategic framework for the development of new generation networks. After initiation its results will be regularly submitted to public scrutiny at form of messages informing the government about actives towards the realization of the Plan. The material will be sent in November 2016 to the European Commission for consideration in order to meet the preconditions for receiving the subsidies of OP EIC (Operational Programme Enterprise and Innovations for Competitiveness).

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## References

- [1] Berggren, Niclas, Nilsson, Therese. (2015). Globalization and the transmission of social values: The case of tolerance. *Journal of comparative economics*. Volume: 43, Issue: 2, Pages: 371-389. ISSN 0147-5967.
- [2] Czech Statistical Office - *Informační společnost v číslech* –(2016). [online]. [cit. 10.9.2016]. Available: <https://www.czso.cz/csu/czso/informacni-spolecnost-v-cislech-2016>
- [3] Digitální Česko v. 2.0 – Cesta k digitální ekonomice. (2013). [online]. [cit. 10.9.2016]. Available: [https://www.vlada.cz/assets/media-centrum/aktualne/Digitalni-Cesko-v--2-0\\_120320.pdf](https://www.vlada.cz/assets/media-centrum/aktualne/Digitalni-Cesko-v--2-0_120320.pdf)
- [4] Doong, Shing H., Ho, Shu-Chun. (2012). The impact of ICT development on the global digital divide. *Electronic commerce research and applications*. \_Volume: 11, Issue: 5, Pages: 518-533. ISSN: 1567-4223
- [5] Eidgenössische Technische Hochschule. *KOF Index of Globalization* (2016). [online]. [cit. 5.9.2016]. Available: <http://globalization.kof.ethz.ch/>
- [6] Ernst & Young. Globalization Index Summary. In: *Redrawing the map: globalization and changing world of business*.(2012). [online]. [cit. 6.9.2016]. Available: <http://www.ey.com/GL/en/Issues/Driving-growth/Globalization---Looking-beyond-the-obvious---2012-Index/>
- [7] Farhadi, Maryam, Ismail, Rahmah, Fooladi, Masood. Information and Communication Technology Use and Economic Growth. (2012). *PLOS ONE*. Volume: 7, Issue: 11, Article Number: e48903. ISSN: 1932-6203.
- [8] Gruber, H., Hatonen, J., Koutroumpis, P. Broadband access in the EU: An assessment of future economic benefits.(2014) *Telecommunications policy*. Volume: 38, Issue: 11, Pages: 1046-1058. ISSN: 0308-5961.
- [9] Kale, Gozde Oymen. He use of instagram in brand communication. (2016). *Turkish online journal of design art and communication*. Volume: 6, Issue: 2, Pages: 119-127, ISSN: 2146-5193.
- [10] Lee, Kyootai, Joshi, Kailash. Importance of Globalization in the Information Technology Convergence Era. (2016). *Journal of global information technology management*. Volume: 19, Issue: 1, Pages: 1-5. ISSN: 1097-198X.
- [11] Schniederjans, Dara G., Hales, Douglas N. Cloud computing and its impact on economic and environmental performance: A transaction cost economics perspective. (2016). *Decision support systems*. Volume: 86, Pages: 73-82, ISSN: 0167-9236.
- [12] Struzak, Ryszard. Broadband internet in EU countries: limits to growth. (2010). *IEEE Communications Magazine* [online]. 48(4), 52-57 [cit. 2016-08-17]. ISSN 0163-6804.
- [13] Titan, Emilia, Burciu, Andreea, Manea, Daniela, Ardelean, Andreea. From traditional to digital: the labour market demands and education expectations in an EU context. (2014). *International conference on applied statistics (ICAS) 2013. Series: Procedia Economics and Finance*. Volume: 10, Pages: 269-274. ISSN: 2212-5671.

- [14] West, Deborah, Heath, David). Theoretical pathways to the future: Globalization, ICT and social work theory and practice. (2011). *JOURNAL OF SOCIAL WORK*. Volume: 11, Issue: 2, Pages: 209-221, Special Issue: SI, ISSN: 1468-0173
- [15] Yu, Jiang, Zhang, Yue, Gao, Ping. Examining China's technology policies for wireless broadband infrastructure. (2012). *Telecommunications policy*. Volume: 36, Issue: 10-11, Pages: 847-857, Special Issue: SI. ISSN: 0308-5961.

# EUROPEAN UNION PRIORITIES FOR THE CONCLUSION OF THE INTERNATIONAL TRANSATLANTIC TRADE AND INVESTMENT PARTNERSHIP AND ITS POSSIBLE IMPLICATIONS FOR THE EU

Radka Vanickova<sup>1,a,\*</sup>, Stanislav Bilek<sup>2,b,\*</sup>

<sup>1</sup>The Institute of Technology and Business, Department of Management, Okružní 317/10, 370 01  
České Budějovice, Czech Republic

<sup>2</sup>The Institute of Technology and Business, Department of Management, Okružní 317/10, 370 01  
České Budějovice, Czech Republic

<sup>a</sup>vanickovaradka@gmail.com, <sup>b</sup>mgr.bilekstanislav@seznam.cz

\*Corresponding author

**Abstract.** The aim of this paper is to identify the reasons for TTIP negotiations on the European Union side, clarify priorities by the European Union in the negotiations will be applied according to the above Directive and provide an overview of basic anticipated impacts of the closure of TTIP for the European Union. Possible risks are also on the probable introduction of the dispute settlement mechanism of the information system of data boxes (ISDS) between the investor and the state where the authors of this paper tend to a variant of legal proceedings before national courts with the option of judicial structures of the European Union. ISDS set mechanism is a normal part of trade agreements and remains a challenge for the negotiators from the ranks of the EU to act such conditions that the Member States, but investors were provided with sufficient guarantees of an independent and professional decisions in resolving their disputes. Probable barriers to effective use of opportunities that TTIP will mainly businessmen, but also for consumers the author sees the contribution of inadequate transport infrastructure of some EU member states and low competitiveness of some national economies. We must also reckon with the possibility of certain currency fluctuations, particularly in countries that are not part of the Euro zone.

**Keywords:** The European Union, Transatlantic Agreement, International trade and investment partnership, TTIP implications for the EU

**JEL Classification:** M 21, J 51, J 53

## 1. Introduction

In July 2013 were initiated negotiations between the European Union and the United States aimed at concluding a transatlantic trade and investment partnership called TTIP. It is an international treaty (agreement) on free trade. The EU is contracting party to many other free trade agreements with third countries, in some cases based on the customs union, e.g. with Turkey (Vaníčková, Zeman and Bílek, 2014). From the European Union, it is the fulfilment of one of the common trade policies, which belong to the exclusive jurisdiction pursuant to article 3 paragraph 1 point e) of the Treaty on the Functioning of the European Union. Under paragraph 2 of Article 3 of the Treaty on the Functioning of the European Union is valid, that the exclusive competence of the EU (further Union) is also the conclusion of an international agreement,

when its conclusion is provided by a legislative act of the Union or is necessary to the Union could to perform inner power provided that its conclusion may affect common rules or alter their force. The binding procedure for negotiating international agreements of this type is defined in article 218 of the Treaty on the functioning of the European Union. By Directive of European Council no. 11103/13 for negotiations on a comprehensive agreement on trade and investment under the name of the transatlantic partnership in trade and investment between the European Union and the United States (further Directive) the European Council has enabled authorization the European Commission to open negotiations, which in the present time continues to progress (Bílek, Zeman and Vaníčková, 2014). If agreement becomes part of the EU law, it would be binding for both the EU and individual Member States with the likely interference in the legal acts of secondary legislation (Newman & Back, 2016). It should be noted that the contract will be part of the WTO system, it cannot be inconsistent compared to binding principles of international trade, it must not impede the trade of other WTO Member States with the US or EU.

At the beginning it should be noted that the above-defined objectives of the TTIP should be pursued in three main areas, namely in market access, regulatory questions, non-tariff barriers and rules (Eckhardt and Elsig, 2015). All these areas must be discussed in conjunction the fulfilment of the fundamental objectives of the preparing international treaty (the agreement). Besides the elimination of customs duties (Alemanno, 2015) (except the goods or services of which have a sensitive nature for contractors), and the elimination or mitigation of regulatory non-tariff barriers to trade, it is also setting and harmonization of rules for mutual trade (compatibility of legislation in key areas). From the above it is clear that, subject of the TTIP adjustment will be solution relating to business possibility and settling on the territory of a contracting partner, the preconditions for the recognition of qualifications and expertise so called Recognition (So and Paun, 2014) or access to public procurement, but also the protection of investments and the related mechanism for rectify the disputes between the state and investor (Zeman, Vaníčková and Bílek, 2014). Regard to the current structure of mutual trade on one hand and respect for the basic rules of the EU it is suitable monitor the potential effects of the TTIP in key fields such as car industry (Pitschas, 2015), agriculture (Schulze and Tosun, 2016), chemical industry (Faure and Ward, 2015), engineering, information technology (Dalhuisen, 2015), intellectual property (Kelemen and Knieuel, 2015) or food industry. EU Council Directive no. 11103/13 provides an overview of important principles and rules, which cannot be affected by TTIP, e.g. environmental protection and consumer protection, but also protection of the workforce. In the publicly available literature was repeatedly declared regardless of the text of this Directive, the EU will not back down from some key regulatory rules such as the regulation of genetically modified organisms (GMOs) in agriculture (Schulze and Tosun, 2016).

The aim of this paper is to identify the reasons for the TTIP negotiations on the European Union side, clarify priorities which the European Union in the negotiations will be applied according to the above mentioned Directive and propose a basic overview of the anticipated impact of the closure of the TTIP for the European Union, including Member States.

## **1.1 Reasons for the closure of the TTIP**

The reasons which led the European Union to conclude a trade agreement with the United States can be divided into economic and uneconomic (Eliasson, 2015). The aim of the agreement is complete or at least greater liberalization of mutual trade against the current state through the complete elimination of tariffs or its reduction to a minimum especially in sectors

where so far it is applied and have an impact on mutual trade volume but also in the areas of non-tariff measures that can contribute to savings in mutual trade (Buananno, Cuglesan and Henderson, 2015). The importance of trade between the parties negotiated an agreement can be expressed in some statistics. Total trade between the EU and the US was in 2015, about 54, 6 trillion euro, where both contract partners together accounted for nearly half of world GDP, so it is appropriate to continue to create space for further development and growth of mutual trade, where the key figure is the reciprocal trade balance of both parties from 2004 to the present. Although there was a slight improvement, there is significant room for growth in exports of goods and services in relation to the United States, including improvements to EU trade balance.

As is evident from publications Czech Trade Promotion Agency "*Development of foreign trade of the Czech Republic for the first quarter of 2015*," The Czech Republic against the USA increased turnover in the first quarter of 2015 by CZK 5.0 billion to CZK 42.1 billion while growth in exports by CZK 4.2 billion to CZK 22.3 billion, respectively by 23.5 % and imports by CZK 0.8 billion to CZK 19.8 billion, i.e. 4.3 %. The negative trade balance year-on-year grew into a surplus of CZK 2.5 billion, which represents a year-on-year improvement of CZK 3.4 billion. In terms of industry and sector of products and services development is the key to mutual trade car industry, transportation equipment, and other industrial products (engineering participate on mutual trade between the EU and the US about one third) and fuels.

The trade agreement has also important from a geopolitical but also non-economic point of view with aim to contribute to strengthening ties between the contracting parties (Rajnoha, Slivková and Dobrovič, 2014). The authors emphasize an indispensable importance of the agreement in terms of harmonization of legal and others regulations in areas of mutual trade, easier and more accessible information about the functioning of the market for goods and services. In case of power engineering, the agreement may contribute to the diversification of energy sources and promote the strengthening of energy security of the EU and its lesser dependence on resources coming from Russia or the Middle East (Maroušek, et al., 2015). We cannot forget the expected positive effects on the labour market (Straková, et al., 2016). According to available analyses would increase of mutual trade after closing the TTIP could lead to the creation about one million new jobs (Teló and Ponjaert, 2013).

## **2. Priorities of the EU in negotiating of the TTIP**

At the European Union's priorities in the negotiations on the content of future trade agreement, authors of this paper present a brief content of EU Council Directive, including the available European statistics relating to the individual priorities of the EU in negotiating of the TTIP that are, in text below, mentioned. Authors of the contribution in this connection further work on some independent studies, e.g. „*Reducing Transatlantic Barriers to Trade and Investment, An Economic Assessment*“ independent impact study Centre for Economic Policy Research, March 2013, London; „*Transatlantic Trade and Investment Partnership (TTIP), Who benefits from a free trade deal?*“ (Gutersloh, 2013); „*The Transatlantic Trade and Investment Partnership, Big Opportunities for Small Business*“ (Atlantic Council, 2016); „*Impact study of concluding a Transatlantic agreement on trade and investment between the EU and the USA (the TTIP) on CZ and its economy I.*“, (Rezkova, A., et al., October 2015 and April 2016); „*Macroeconomic Potentials of Transatlantic Free Trade: A High Resolution Perspective for Europe and the World*“, (Felbermayr, Heid, Larch and Yalcin, 2014). EU priorities under the EU Directive can be divided into three basic categories (fields) that should the TTIP modify.

## 2.1 Market access

As is clear from article 10 of the Directive aim of the TTIP will be abolish customs duties relating to bilateral trade with the fact that the parties will seek to repeal a substantial parts of the duties on the date of come into force of the agreement, and subsequently early, phase cancellation of all tariffs except those who have most vulnerable nature. The maximum current value of duties is burden the trade in goods in sectors for which both partners have economic or strategic interest and importance (Rajnoha and Dobrovič, 2011). Although the average tariff rates are high (WTO presents a tariff rate of more than three percent in the US and more than five percent in the EU), the above mentioned analysis (study) in the contribution of the authors comment on the elimination or reduction of tariffs as a significant contribution in sectors with higher tariff rates (Píchová and Vaníčková, 2014). According to the Czech impact study, approximately half of the volume of exported agricultural products, are not subject to any duty in the US, meanwhile 28 % is burdened with a heavy duty in range from 10 % to 15 %. The biggest impact of the elimination of tariffs can be expected in the case of dairy and animal products. In the area of trade in services and right of establishment is under article 15 to 21 of Directive on opening market access, taking into account sensitive sectors, and establishing rules for the recognition of licence and qualification requirements for providing services in area of the business partner (Gordon and Ringe, 2015). The TTIP should facilitate the establishment of companies, subsidiary companies and affiliates, to guarantee national treatment regime and recognition of professional qualifications while maintaining a high level of public services, particularly public services of interest. Article 22 et seq. directive mentions portfolio investments, expropriation aspects, and proprietary aspects, highest degree of liberalization and protection standards. The Directive imposes promote European trade protection standards. The TTIP in this sense should not interfere with the rights of the European Union and the Member States to take measures based on legitimate public policy objectives, social, environmental, security and stability of the financial system, but also public health. Authors of the paper emphasize the issue of resolving disputes between the state and the investor, which is to protect the interests of the EU and Member States crucial. Directive insisting on the principles of transparency and independence of dispute resolution through arbitration or arbitration courts, it also emphasizes the fact that the TTIP provides safeguards for protection against unjustified or unreasonable demands of investors. It also recommends consider embedding of an appeal mechanism.

## 2.2 Regulatory issues and non-custom barriers

The Directive in articles 25, et seq. provides in negotiations to establish a mechanism to achievement high compatibility of regulations for goods and services, mutual recognition, harmonization and cooperation regulators of the TTIP contractors. From independent impact study, Centre for Economic Policy Research, shows that non-custom costs have in reciprocal trade similar impact as custom barriers such as tariffs of 10 %, and in certain sensitive sectors even up to 20 %. Regulatory issues seem to play a key role and the role for reciprocal trade opening, when the above-mentioned study could rise about 80 % of potential profits as a result of regulatory measures.

According to NTB index (index industry wise) (Atlantic Council, 2016) is by non-tariff barriers the most affected the airborne industry, mechanical engineering, cosmetics, biotechnology and chemicals. In these sectors can be expected positive impact of the TTIP for harmonization and reduction of existing regulatory measures. The Directive protects some of the main principles on which EU law is enshrined, when a negotiator undertakes to as a

consequence of rules agreed in the TTIP not made interventions to control the level of protection of health, labour, environment and safety in accordance with current European standards. Authors of the paper highlight the significant discrepancy between certain regulatory regulation of the EU and the USA, e.g. in the chemical industry. The European regulation REACH is based on the precautionary measure and compulsory registration of chemicals before entering the market is contradicts compared to Act TSCA (Toxic Substances Control Act) in the USA, which the risk associated with the introduction to the market, leaves manufacturers of chemical substances.

### 2.3 Rules

In this part of the article 28, et seq. the Directive defines areas (sectors), in which should the TTIP establish binding rules for both contractual partners, e.g. in the protection of intellectual property contribution authors mention controversial issue of software patents, on which so far forgets Czech law. The EU also presents its own interest in better protection of European geographical indications, rules of sustainable development (Directive explicitly insists on the implementation of core labour standards announced by the International Labour Organisation and the multilateral agreements in the field of environmental protection), the rules for protection of economic competition, sectoral trade agreements, trade with energy, provisions for small and medium enterprises without further specification, which the contribution authors consider, in this Directive, to be insufficient, liberalization of current payments and capital movements, with the exceptions of serious monetary or fiscal problems and exchange rates.

## 3. Conclusion

Authors of the paper conclude that estimate the real economic and non-economic impacts of the TTIP for the EU and its individual Member States is currently not entirely realistic, having regard to the facts, which has not yet been negotiated, respectively announced the content of each chapter upcoming trade agreement. It can only estimate the expected impacts of the degree of change that the TTIP will bring in individual monitored areas of modification.

Impact Study, Centre for Economic Policy Research, and estimate contribution to the EU between EUR 68 to 20 billion per year, of which export growth to the USA by 28 %, i.e. approx. EUR 187 billion. The study also estimates an increase in total exports by 6 %. In percentage terms the benefits should be for US exports higher with an increase of 37 % export to the EU, where the overall increase is of 8 %, when published effects are given by a combination of effects components of tariff (customs) and non-tariff (regulatory). In the case of non-tariff measures it is very difficult to estimate the actual impact, but the authors of this paper assume a positive impact on trade with third countries with regard to the fact that mutual trade will affect the sub-contracting relations of businesses (elimination of tariffs according to estimates from the European Commission will cause an increase in European GDP of 0, 1 %). If the synergistic effect of tariff and non-tariff components, are assumed to increase of GDP up to 0.5 %. The largest increase is expected in the auto industry 41 %, further in processing of iron and steel, in food and chemical industries. Study by the Centre for Economic Studies & Info Institute came to the conclusion that the TTIP will bring to the EU growth of GDP averaged by 3.9 % per year. The impact will be for individual EU Member States varies with regard to regional (local) conditions, competitiveness and national barriers to trade. The positive economic impact for the EU is also determined by analogy with other trade agreements, by which can statistically predict the actual impact. Favourable effect will be, according to authors opinion, represent a predict harmonization of "legal regulation and technical standards,



harmonizing of certification processes and recognition of qualifications. The impact on the labour market was above mentioned (growth of jobs and harmonization of MOP standards even for the US market), as well as the effects of higher energy security, including geopolitical. If we applicable principle of equality of treatment and opportunities regardless of sex in matters of employment, working conditions, education and ban of discrimination, as well as adjustments for special protection and safety at work of pregnant women and mothers, the legislative provisions contained in the EU directives has a very sophisticated legal system that contributor to increasing of social protection in the Member States. If we focus on measures reconciling work and family commitments so called strict sense with regard to flexible working arrangements and childcare services, but also a system of parental leave, we find that legal obligations are framed only on the basic level and the EU contribution is outside the scope of legal liability in policy documents, which reflect the strategic direction of the institution and measure proposals for improving the current situation of working parents MOP Recommendation no. 123/1965 on the employment of women with family responsibilities and 165/1981 on employees with family commitments and Council of Europe recommendation no. R (96) 5 on the harmonization of work and family life, or the Czech Republic has not yet ratified it. In this case, it is, in the international context, the unique MOP Convention no. 156/1981 on employees with family responsibilities and Art. 27 of revised the European social charter. Other documents that the Czech Republic ratified and were promulgated in the statute book and international treaties, do not mean from the current perspective essential contribution because their provisions on reconciling family and professional life are too general and too vague or their substantive content is developed in the directives of the European Union.

Authors of the paper point to greater coherence of the EU economy on transatlantic ties and draw attention to economic and political instability in the countries of Central and Eastern Europe, especially Russia. With regard to the protection of intellectual property rights, the protection of the labour market, private industrial and agricultural self-sufficiency warn of significant or strategic shift towards the Chinese economy and also highlight the possible risks of acceptance of the TTIP with respect to consumer protection, health protection and safety, environmental protection, but also the labour market. In some areas, especially in the greater harmonization of rules threatens negative impact on some sectors in the form of a decline in the industry, e.g. in the meat industry. The minimum increase is expected in the agricultural sector and fishery, although removal or elimination of customs and non-customs barriers can offer space for expansion of export potential of some EU states. Possible risks arise even from the probable introduction of the dispute settlement mechanism of the information system of data boxes (ISDS) between the investor and the state, where the authors of this paper tend to a variant of legal proceedings in national courts with the option of using judicial structures of the European Union. The set mechanism ISDS is a normal part of trade agreements and remains a challenge for the negotiators from the EU to negotiate a series of conditions so that countries, but even investors are given sufficient guarantee an independent and expert decision of their disputes. Probable barriers to effective use of opportunities that the TTIP will bring, mainly to businessmen, but also to consumers, the authors see in the contribution of inadequate transport infrastructure of some EU Member States, but also in the low competitiveness of some national economies. We must also reckon with the possibility of certain currency fluctuations, particularly in EU Member States outside the euro zone.

## References

- [1] Alemanno, A. (2015). The Regulatory Cooperation Chapter of the Transatlantic Trade and Investment Partnership: Institutional Structures and Democratic Consequences. *Journal of International Economic Law*. vol. 18, pp. 625-640.
- [2] Bilek, S., Zeman, R. and Vaníčková, R. (2014). Basic legal aspects of European integration. In Dušek, J., Lord, L. et al. 2014. *Reflecting the European integration process after 2004*. 1st ed. Czech Budejovice College of European and Regional Studies, 114 pp.
- [3] Buonanno, L., Cuglesan, N. and Henderson, K. (2015). The new and changing Transatlanticism: Politics and policy perspectives. *The New and Changing Transatlanticism: Politics and Policy Perspectives*. pp. 1-339.
- [4] Dalhuisen, J. H. (2015). Globalization and the Trans nationalization of commercial and financial law. *Rutgers Law Review*. vol. 67, pp. 19-59.
- [5] Eckhardt, J. and Elsig, M. (2015). Support for international trade law: The US and the EU compared. *International Journal of Constitutional Law*. vol. 13, pp. 966-986.
- [6] Eliasson, L. J. (2015). International standards: Past free trade agreements and the prospects in the transatlantic trade and investment partnership. *Baltic Journal of European Studies*. vol. 5, pp. 5-18.
- [7] Faure, M. and Ward, B. (2015). The transatlantic trade and investment partnership: Trojan horse or positive force for health? *European Respiratory Journal*. vol. 46, pp. 22-25.
- [8] Felbermayr, G., Heid, B., Larch, M. and Yalcin, E. (2014). Macroeconomic Potentials of Transatlantic Free Trade: A High Resolution Perspective for Europe and the World. Centre for Economic Studies & Info Institute, October 2014. Available: [http://www.cesifogroup.de/ifoHome/publications/workingpapers/CESifoWP/CESifoWPdetails?wp\\_id=19126564](http://www.cesifogroup.de/ifoHome/publications/workingpapers/CESifoWP/CESifoWPdetails?wp_id=19126564).
- [9] Gordon, J. N. and Ringe, W. G. (2015). Bank resolution in the European banking union: A transatlantic perspective on what it would take. *Columbia Law Review*. vol. 115, pp. 1297.
- [10] Kelemen, D. R. and Knievel, T. (2015). The United States, the European Union, and international environmental law: The domestic dimensions of green diplomacy. *International Journal of Constitutional Law*. vol. 13, pp. 945-965.
- [11] Maroušek, J., Hašková, S., Zeman, R., Váchal, J. and Vaníčková, R. (2015). Assessing the implications of EU subsidy policy on renewable energy in Czech Republic. *Clean Technologies and Environmental Policy*, New York: Springer, vol. 17, pp. 549- 554.
- [12] Newman, A. and Bach, D. (2016). The European Union as hardening agent: Soft law and the diffusion of global financial regulation. *Europe's Place in Global Financial Governance after the Crisis*. pp. 115-137.
- [13] Pitschas, C. (2015). Transatlantic trade and investment partnership agreement and the development of international standards. *Trade Policy between Law, Diplomacy and Scholarship: Liber Amicorum in Memoriam Horst G. Krenzler*. pp. 245-270.
- [14] Píchová, R. and Vaníčková, R. (2014). Development of VAT rates in the Czech Republic and their harmonisation in the European Union. *Journal of Management and Business: Research and Practice*, Prešov: University of Presov in Presov. vol. 6. pp. 22-34.

- [15] Rajnoha, R. Slivková, D. and Dobrovič, J. (2014). Globalization and transfer pricing on performances in multinationals in the Slovak Republic and in OECD countries - analytical studies and decision model for selecting the optimal method [Globalization and transfer pricing in multinational corporations in Slovakia and OECD Countries - analytical study and decision-making model on the choice of optimal transfer-pricing method]. *Economy magazine*. vol. 62, pp. 609-630.
- [16] Rajnoha, R. and Dobrovič, J. (2011). Simultaneous management of the economy and a knowledge of value added processes. *E + M. Economics and Management = Economics and Management*. vol. 14, pp. 53-69.
- [17] Reducing Transatlantic Barriers to Trade and Investment, An Economic Assessment (independent impact study Centre for Economic Policy Research), March 2013, London.
- [18] So, K. and Paun, C. (2014). Transatlantic ticket to work. *Nursing standard (Royal College of Nursing. Great Britain: 1987)*. vol. 28, pp. 64-65.
- [19] Straková, J. Vokoun, M., Váchal J., Stellner, F. and Vaničková, R. (2016). Human Resource Management. In Váchal et al. (2016). *South Bohemian Region in the global economy*. 1st ed. Prague: SETOUTBOOKS.CZ, pp. 179-191.
- [20] Rezková, A. Kruliš, K., Antal, J. et al. (2015). *Impact studies concluding an agreement on transatlantic trade and investment between the EU and the USA (TTIP) to the Czech Republic and its economy*. Prague: Amo.
- [21] Schulze, K. and Tosun, J. (2016). Rival regulatory regimes in international environmental politics: The case of biosafety. *Public Administration*. vol. 94, pp. 57-72.
- [22] Teló, M. and Ponjaert, F. (2013). The EU's foreign policy: What kind of power and diplomatic action? *The EU's Foreign Policy: What Kind of Power and Diplomatic Action?* pp. 1-248.
- [23] Vaničková, R., Zeman, R. and Bílek, S. (2014). Transatlantic Partnership and its Political-legal, Trade and Socioeconomic Impacts. *2nd International Conference on European Integration (ICEI)*. Ostrava: University of Ostrava, pp. 740-745.
- [24] Zeman, R., Vaničková, R. and Bílek, S. (2014). Role of the European Central Bank for euro adoption and procedures for the introduction of the euro by new entrants to the EU Member States. In Dušek, J., Lord, L. at all. (2014). *Reflection on the European integration process after 2004*. 1st ed. Czech Budejovice College of European and Regional Studies, pp. 71-74.

# GLOBALIZATION ASPECTS OF CREATING COOPERATION IN SPORT ENVIRONMENT WITH SUPPORT OF BIG DATA

Michal Varmus<sup>1,a,\*</sup>, Gabriel Koman<sup>2,b</sup>, Martin Holubčík<sup>3,c</sup>

<sup>1</sup>Department of Management Theories, Faculty of Management Science and Informatics, University of Žilina, Univerzitná 8215/1, 010 01, Žilina, Slovakia

<sup>2</sup>Department of Management Theories, Faculty of Management Science and Informatics, University of Žilina, Univerzitná 8215/1, 010 01, Žilina, Slovakia

<sup>3</sup>Department of Management Theories, Faculty of Management Science and Informatics, University of Žilina, Univerzitná 8215/1, 010 01, Žilina, Slovakia

<sup>a</sup>michal.varmus@fri.uniza.sk, <sup>b</sup>gabriel.koman@fri.uniza.sk, <sup>c</sup>martin.holubcik@fri.uniza.sk

\*Corresponding author

**Abstract.** Cooperation in the sport environment is one of the key factors of the success of a sports organization in the global market. This cooperation occurs most often between sports organizations and stakeholders, with the potential creation and sustainability stands on several factors that are often not sufficiently identifiable and measurable. Influence of the globalization aspects move forward developments of information and communication technology (Big Data) allows to process variety data from global environment and therefore there is a possibility of using them as decision support for the creation of cooperation. The important fact is that many sports organizations all round the world have a number of disparate data that could be analysed, evaluated and used as support for the establishment of cooperation from global point of view. The aim of this paper was to identify the important factors in terms of the use of data and information that are critical in the decision on cooperation between sports organizations and stakeholders in global scale. In the paper were used, analysed and compared data from worldwide level and as well as data from conducted research in Slovakia. In the end of the paper were defined the recommendations and proposals for further development of this issue at international level.

**Keywords:** Cooperation, Globalization, Sporting Organization, Stakeholders, Big Data

**JEL Classification:** Z20, M10, M15, M31

## 1. The current state of dealing with issue

The globalisation is intensifying interaction process within an international environment. Due to this phenomenon occurs huge and rapid increase of informational and communication technologies. These technologies affect the whole world. Globalisation creates new conditions for availability of these technologies. In this way, they generated a greater amount of data for organizations that are available in a global environment. Analyses and gaining new information at international level is current big advantage. Also these interconnected environment is characterized by sudden actions and reactions. These are linked to factors as need for the right information at the right time; data processing; use data for solve specific problems; or use data

to develop better strategies and tactics within framework of cooperation between sports organizations and stakeholders.

The cooperation is one of management approaches in context of interaction between sports organizations and stakeholders. Taking advantage of informational and communication technology (Big Data) can management of organizations making use of the number of disparate data through this technology. These data is also need for establishment of cooperation relationships, decision making in cooperation and networking with other business subjects in global scale.

## **2. Main theoretical approaches**

The globalization aspects move forward developments of information and communication technology (Big Data) allows to process variety data. This is a reason to raising a number of different kind of data, which could consist valuable information. Under cooperation is necessary to gain these information to support decision making, creating, and managing these relationships in front of cooperation between sports organizations and stakeholders in global scale.

### **2.1 Cooperation in current global environment**

The cooperation within current state of globalization level emerges as one of the starting strategic approaches in business that can not only create new conditions for formation of connection between different areas of business, but also affect current situation of global environment. Bengtsson & Kock (2014), state cooperation as paradoxical relationship between two or more players, regardless of whether is a horizontal or vertical relationships that they are involved in cooperation and competitive interactions, at the same time. In this issue is necessary to be noted that cooperation management provide efficient and effective relationship management in sense of cooperation between independent companies or individuals in order to increase their competitiveness. (Soviar et al., 2013)

Variety data from international environment within sports organizations and stakeholders has a possibility of using them as decision support for the creation of cooperation. This data do not affect only the beginning of cooperation but also the process. Like Doz (1996), pointed out that self-adjusting and adapting to business is independently developed from the initial defined goals and objectives. Author Luo (2002), later also confirms that cooperation is dependent on expeditious adaptation. Such a exchange and processing of information has an impact on building some confidence within that defined cooperation environment. The level of confidence affects reputation of potential partners, which could attract investors and cooperation partners. This statement is confirmed by Berger (2011), who provides reputation as an evaluation element of trust to partner.

Cooperation management can be seen as a tool to help manage a group of cooperation companies, but if managers want to learn to use this knowledge is need, according to Shapira (2013), be able to choose a suitable organization for cooperation in framework of cooperation. Information obtained through Big Data technology can help managers to realize this cooperation and selection process. Also, this technology enables into decision making and management of cooperation's incorporates also unstructured data outside of existing cooperation environment (the global matter of fact).

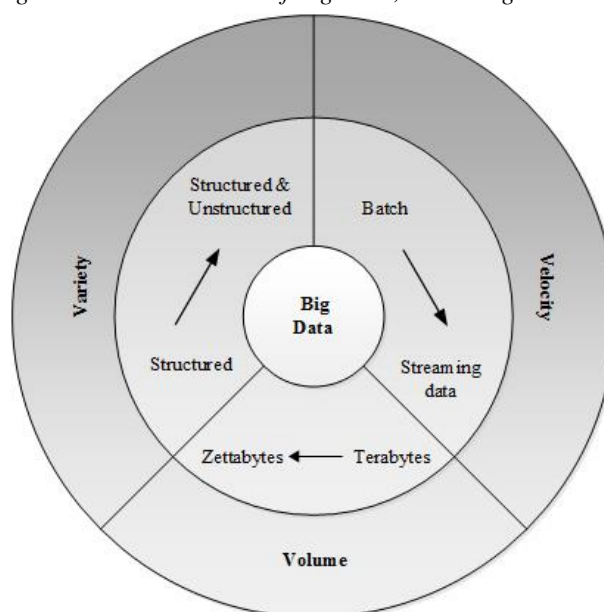
## 2.2 Characteristic of Big data

The Big Data refers to a number of heterogeneous data sets that may carry significant information value. But also it may be data that are not very large but it is a number of dynamically changing data sets for example: data from sensors or devices connected to a Internet of Things. Big Data solution generally describe three element: Volume, Velocity, and Variety. (White et al., 2016).

Volume represent amount of data that is constantly increasing and each day is generated 2.5 exabyte of data and also this number is increasing. (Wu & Wu, 2014). Velocity is speed to data access. Within advancement in information and communication technology is possible to use sets of data in real time or almost near real. (Kitchin, 2014). Variety is diversity of data. It is a large variety of different sources and types of data that are combined. (Viitanen & Kingston, 2013).

Similarly, through these three elements are describing technology of Big Data by IBM (Figure 1), while adding one more element that is Veracity. This element represents the possibility of obtaining, as a large number of diverse processing output distorted data is processed and the amount of data that contain noise or distortion, e.g. data from social networks (IBM, The Four V's of Big Data).

Figure 1. Characteristics of Big Data, according to the IBM



Source: Edited according to Zikopoulos, 2011

According to other literature sources Big Data processing large volumes of data that are too large for typical database systems, storage, management and analysis. In terms of size these data may be in tens of terabytes or even petabytes of data. (Angrave et al., 2016)

The data are generated every day by interacting between humans and applications or devices. Informational value of these data may be used in implementation of various activities, e.g.: in forecasting weather; detection of cheat; inefficiency; evaluation of health care and other. For processing these amount of data companies use various modern IT applications that for example can tracks inventory levels, customer's preferences, trends, etc. (Diaconita, 2015) Information is then applicable in decision making processes across whole levels of organization, for example in the form of an interactive graphical reports. (Kubina et al., 2015)

Technology of Big Data can be used in almost all areas and business sectors. Operate with instruments of Big Data in combination with organization's information system would bring to organizations various benefits as, e.g.: (Kubina et al., 2015): competitive advantage; cost savings; optimization of business processes; prediction of consumers buying behaviour; prediction of market trends; detection of cheat; better targeting of marketing campaigns; creating products with requirements of customers; increase of market share; analysis of diverse data in real time; flexible adaptation to changes in market; effective use of mobile data and connected things to Internet of things, etc.

Likewise in other areas of business (manufacturing, telecommunications, etc.) influence of modern technology also in sports industry. Trends in cloud computing, smart, supercomputing allow to obtain amount of information about sportsman all around the world. These data and technologies are also important for sporting organizations that can be create in these following cooperation links: (SAP Digital Sports Whitepaper, 2016)

- Athlete management and engagement.
- Scouting and player evaluation across a global talent pool.
- Health, fitness and injury prevention.
- Player training and development.
- Game execution and insights.

### **2.3 Cooperation in Sport environment**

Cooperation management is one important element in the competitive sports market. Author Soviar et al., (2013) assume creation of a common organization in competitive environment. In sport environment, a similar solution can occur, therefore connection of competitors in solving a common problem, but there are often creation of organization from actors that are not direct competitors.

Cooperation in sports environment can be understood in two dimensions, namely:

- Finding and creating relationships with partners and fans for the support of organization, team or event. (e.g.: sponsorship, loyalty programs for fans).
- Collaboration with stakeholders, organizations, partners in various development projects (e.g.: cooperation of schools, sports clubs and association within sport sector, but also cooperation competitive sports clubs in pursuit of a common goal of greater social value).

These cooperative links (dimensions) within sports environment produce amount of unstructured data, which can be through technology Big Data use in support decision making within sports environment (e.g.: sports organizations, sports clubs, partners).

### **3. Mapping cooperation in sport environment – Case study**

As a case study is possibility to include project of Slovak Tennis Association: "The tennis into schools". This project assumes cooperation of Slovak Tennis Association, the tennis clubs and primary schools. The main objective of project is the development of youth base for tennis.

The complexity of implementation developing sports programs is partly due to countless volume of stakeholders, their expectations and their resources needed to sustain sports programs. For example, the external agency often expects in return for its resources various evaluation reports. These reports point out changes in progression that seems out from core values of mediated by program (MacIntosh & Spence, 2012). In this aspect is very important

that each stakeholder should have a clear understanding of their own roles, values and obligations associated with the program, as well as other stakeholders (Guest, 2009; MacIntosh & Spence, 2012). In addition, there are many necessary critical resources, such as elements of human resources (e.g.: knowledge, skills) that may contribute to success or failure of programs, including (Schulenkorf et al., 2014; Vail, 2007):

- Communication between different stakeholders, as well as within local community.
- Degree of control in community.
- Hierarchy of social relationships.
- The presence of leaders for change.

As a consequence, these programs are greatly dependent on partnership and resources, both inside and outside of community (Levermore, 2011; Willis, 2000). Managers should understand the resources that are transferred from agencies to organization as well as their impact (Lindsey, 2008; Vail, 2007).

To participate in various programs organization must therefore satisfy the conditions and often also members. Between typical programs (projects) belong aforementioned project Slovak Tennis Association: “The tennis into schools”.

Partners (sponsors) of organizations require fulfilment of the conditions as mention in Table 1. The important factor, as specified in the programs, is size of organization tribe. Among essential conditions include the visibility of cooperation, both in usually external environment of organization or even within marketing communication sponsoring organization, event. Here is important to cooperate with media in visibility or organization of event to ensure the strongest impact of spreading the message. This cooperation has a key importance within the financial flow and therefore it is relationship between sport organization, partners and media.

Table 1: Stakeholder offers and requirements

	<b>Offers</b>	<b>Requirements</b>
<b>Partner - sponsor</b>	Finance Products Partnership Brand	Branding Public Relationship Improve reputation Increase awareness Flexibility of club Club success
<b>Sport organization</b>	Partnership Branding Events Job vacancy Counterpart (services)	Financial performance Non-financial performance Partnership

In recent years, The European sport sector recorded many changes that had hit the area of management, employment and technological progress. According to experts from Study of Sports Sector (2008) between key factors in development of European sports sector is characterized by increase in sport activities, globalization, new technologies and population aging. The importance of sports increased after the European governments began to invest more in this sector for its positive role. As the authors of study indicate that in 1998-2008 as a result of more active participation of population in sporting activities increased employment in sports sector by almost 60%.

According to a new study, authors Sultan and Collignon (2014) from AT Kearney, sports industry is expanding worldwide at a rate higher than GDP growth. Market of sporting events – including income from tickets, broadcasting rights and sponsorship create great opportunities for actors of this environment if there is correct understanding of key factors of business and



management models. Sport environment is a market, in which products are offered to customers are represented by sport, fitness, recreation-oriented or performance, and in addition it can be activities, products, peoples, places or thoughts (Pitts & Stotlar, 1996). According to Čáslavová (2009) is evident that products based on sports is huge amount and contribute to creation of GDP and in this point of view in USA it is considered as properly sectors of national economy.

In many countries, sports market is growing faster than GDP, and in some countries that are known for its great sports market, is this growth very high. This is particularly, UK, France, Brazil, USA and China. In comparison, revenues in sports for 2013 were in Europe, Middle East and Africa \$ 27.1 billion and in USA it was \$ 26 billion. (Sultan a Collignon, 2014)

#### 4. Conclusion

The current speed and flexibility of information and communication technology significantly influence decision making processes within organizations of all sectors in a multinational, global level. One of these industries who are addressed to this article is the sport sector, where constantly generated amount of disparate data are that information systems can capture and store. The problem arises at the stage where it is necessary to use these data for decision making of sports club, organizations and their stakeholders or their mutual cooperation and competitiveness. These diverse and largely unstructured data (videos, interview, data sports clubs, status of users, documents, images, fitness and sensory data, etc.) can be difficult (time and money) for the processing of existing systems. In this way, in decision making, communication and cooperation of sport organizations, clubs and other stakeholders on solving addressed problems are being lost information value – which could mean loss of competitive advantage. For elimination of this problem arose solution of Big Data, through which it can be mentioned generated data in sports industry effectively and efficiently capture, store and through technology and analytical tools evaluate in relative short time (milliseconds) and then respond to changing offers and requirements in this sector of business, which has worldwide coverage.

#### Acknowledgment

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#### References

- [1] Angrave, D., Charlwood, A., Kirkpatrick, I., Lawrence, M., Suart, M. (2016) "HR and analytics: why HR is set to fail the big data challenge," *Human Resource Management Journal*, vol. 26, p. 1-11
- [2] Bengtsson, M., Kock, S., (2014) Cooperation-Quo vadis? Past accomplishments and future challenges, *Industrial Marketing Management*, vol. 43, p. 180-188
- [3] Berger, U., (2011) Learning to cooperate via indirect reciprocity, *Games and economic behaviour*, vol. 72, p. 30-37. DOI: 10.1016/j.geb.2010.08.009
- [4] Čáslavová E., (2009) *Manažment a marketing sportu*, Olympia, a.s. Praha, ISBN 978-80-7376-150-9

- [5] Diaconita, V. (2015), "Processing unstructured documents and social media using Big Data techniques," *Economic Research-Ekonomska Istraživanja*, vol. 28, p. 981-993
- [6] Doz, Y.L., (1996) The evolution of cooperation in strategic alliances: Initial conditions or learning process?, *Strategic Management Journal*, vol. 17, p. 55-83
- [7] Guest, A. M., (2009) The diffusion of development-through-sport: Analysing the history and practice of the Olympic movement's grassroots outreach to Africa, *Sport in Society*, 12(10), 1336–1352
- [8] Kitchin, R., (2014) The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences. *SAGE Publications Ltd*.
- [9] Kubina, M., Koman, G., Kubinova, I. (2015) "Possibility of improving efficiency within business intelligence system in companies," *Procedia Economics and Finance*, vol. 26, p. 300-305
- [10] Levermore, R., (2011) Evaluating sport for development: Approaches and critical issues, *Progress in Development Studies*, 11(4), 339–353
- [11] Lindsey, I., (2008) Conceptualising sustainability in sports development, *Leisure Studies*, 27(3), 279–294
- [12] Luo, Y., (2002) Contract, Cooperation, And Performance in International Joint ventures, *Strategic Management Journal*, vol. 23, p. 903–919
- [13] MacIntosh, E., Spence, K., (2012) An exploration of stakeholder values, In search of common ground within an international sport and development initiative, *Sport Management Review*, 15(4), 404–415
- [14] Pitts, B.G., Stotlar, D.K., (1996) Fundamentals of Sport Marketing. Morgatown: Fitness Information Technology, ISBN 1-885693-02-8
- [15] SAP Digital Sports Whitepaper (03/16) SAP forum Slovakia, (26.-27. May 2016) Reimagine business for the digital economy, Šamorín
- [16] Schulenkorf, N., Sugden, J., Burdsey, D., (2014) Sport for development and peace as contested terrain: place, community, ownership, *International Journal of Sport Policy and Politics*, 6(3), 371–387
- [17] Shapira, R., (2013) Leaders' vulnerable involvement: Essential for trust, learning, effectiveness and innovation in inter-co-operatives, *Journal of Co-operative Organization and Management*, vol. 1, p. 15–26
- [18] Soviar, J., Lendel, V, Kocifaj, M., Čavošová, E., (2013), Cooperation management [Kooperačný manažment], Žilinská univerzita v Žiline. ISBN 978-80-554-0813-2
- [19] Sultan, N., Collignon, H., (2014) Winning in the Business of Sports, [Online]. Available: <https://www.atkearney.com/communications-media-technology/winning-in-the-business-of-sports/full-report>
- [20] Vail, S., (2007) Community development and sports participation, *Journal of Sport Management*, 21, 571–596
- [21] Viitanen, J., Kingston, R., (2013) Smart cities and green growth: Outsourcing democratic and environmental resilience to the Global technology sector. *Environ. Plann. A* 45

- [22] White, J., Stasis, A., Lindkvist, C. (2016) "Managing change in the delivery of complex projects: Configuration management, asset information and 'big data'," *International Journal of Project Management*, vol. 34, p. 339-351
- [23] Willis, O., (2000) Sport and development: The significance of math are youth sports association. *Canadian Journal of Development Studies/Revue canadienne d'études du développement*, 21(3), 825–849
- [24] Wu, X., Wu, GQ. (2014) Data mining with Big Data. *IEEE Trans. Knowl. Data Eng.* vol. 26, p. 97–107
- [25] Zikopoulos, P., Eaton, Ch., DeRoos, D., Deutsch, T., Lapis, G., (2011) *Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data*. McGraw Hill Professional. ISBN: 978-0-07-179053-6

## LOCAL COOPERATION BETWEEN NON- GOVERNMENTAL ORGANIZATIONS AND PUBLIC ADMINISTRATION AS A COUNTERPOINT TO GLOBALIZATION

Pavla Varvažovská<sup>1,a</sup>, Martina Jarkovská<sup>2,b,\*</sup>

<sup>1</sup> Department of Humanities, Czech University of Life Sciences Prague, Kamýcká 129, Prague 6,  
165 21, Czech Republic

<sup>2</sup> Department of Languages, Czech University of Life Sciences Prague, Kamýcká 129, Prague 6,  
165 21, Czech Republic

<sup>a</sup>varvazovska@pef.czu.cz, <sup>b</sup>jarkovska@pef.czu.cz

\*Corresponding author

**Abstract.** Non-profit sector represents a specific set of institutions that have a special status in society and an important mission in many spheres of life. The non-profit sector cannot replace the role and activities of the state in various spheres of society, but it can successfully and efficiently complement them and expand them. The principle of partnership allows citizens to be involved in local and regional communities in decision-making processes about development activities. Relations between NGOs and public administration are not always ideal. The state and non-profit organizations do want to participate in the improvement of mutual cooperation. The aim of the article is to contribute to the development of effective communication between NGOs and regional levels of the public administration and thus strengthen support for mutual cooperation between the two sectors and the realization of the principle of partnership. From a methodological point of view, to realize the given objectives a combination of several techniques of data collection and analysis was used, as required by the comprehensive approach to information flow regarding the non-profit sector, state and local administrations in order promote mutual cooperation and coordination of the partnership principle. The results are summarized and can say That non-governmental organizations have an interest in and cooperation with the local government and lobbyists of the local government have an interest in and cooperation with non-governmental organizations, as well.

**Keywords:** non-governmental organizations, local government, regional authority, cooperation, partnership

**JEL Classification:** Z13

### 1. Introduction

Non-profit sector represents a specific set of institutions that have a special status in society and an important mission in many spheres of life. Non-profit organizations have a firm place in the modern democratic societies. The non-profit sector cannot replace the role and activities of the state in various sectors of society, but it can successfully and efficiently complement and expand them. Active citizens can join non-profit organizations and comment on the current problems of society and defend common interests and requirements. Thus the citizens can participate in decision-making processes in their municipality, county and state. In this manner they participate in their own way on public affairs and assume some responsibility for what is happening in society.

The classification of nongovernmental organizations (NGOs) on the basis of their activities can be divided according to the global nature of their mission (Hummel 1996) to Public Benefit Organization producing a mixed public goods that will satisfy the needs of the public and Mutual Benefit Organization connected by a common goal and mutually supported by other group of citizens, both individuals and legal entities. The reform of public administration has resulted in the growing influence of non-governmental organizations, which becoming more efficient providers of public services than the state organizations. Salomon and Anheier (Hunčová, 2010) suggest that the existence of an effective partnership between NGOs and the state is one of the best indicators of the scope of activities of NGOs as active citizenship in that particular country. Basic institutionalized form of cooperation of NGOs with the government of the Czech Republic is the main task of GCNNO is to create conceptual and implementation materials that relate to the support of non-profit sector. It also coordinates cooperation between ministries and counties cooperating in promoting the non-profit sector. After the reform of the government, certain powers were transferred from ministries to the regions or municipalities with expanded competence. It is therefore necessary to develop cooperation within these bodies and the non-profit sector.

Relations between NGOs and public administration are not always ideal. However, the state and non-profit organisations wish to participate in the improvement of mutual cooperation. Their communication should be developed, because communication can be considered as a means of building a relationship and mutual cooperation. It is therefore very difficult to find a single communication path between the two sectors leading to successful cooperation.

## 2. Theoretical background

According to Potůček (2005: 55), the non-profit sector is made up of diverse institutions, which have the form of a voluntary association of citizens who share common values and are willing to cooperate on joint work. Their activities may be directed to meet the needs and interests of the members themselves or be guided by a desire to help others or to enforce any general (public) interest.

Regarding the definition of the non-profit sector from the perspective that is closer to the social sciences, Salamon (1999) states that the non-profit sector is a manifestation of civil society that actively participates in political power and public discussion of current social issues. This view defines the non-profit sector as a positive and organized, private, not-for-profit, self-governing and voluntary element of civil society.

According to Weisbrod (1975: 182), non-profit organisations complement the functions of the state and offer the alternative of the private. In a democratic society, non-governmental organizations fulfil important roles:

- reinforce awareness of civic responsibility and solidarity in addressing specific local and time-determined social problems of their fellow citizens;
- deepen the state social policy and ethical context of modern citizenship as an expression of belonging to the state and shared responsibility for public affairs;
- streamline social activities by increasing their targeting and reducing their costs (Rektořík, 2007: 39).

The legislation of the non-profit sector evolved gradually as the status of NGOs changed in the society. In the very beginning of the modern functioning of NGOs, the legislation of the

Czech Republic (CR) did not contain a specific form<sup>18</sup>. Müller (2005) states that the Government Council for Non-governmental Non-profit Organisations (GCNNO) had never addressed the theoretical definition but understands the concept of the non-profit sector as a transformation of the political system, since GCNNO focuses on activities of the non-profit sector, which are associated with activities that were not allowed to have any organisational structure under the previous regime<sup>19</sup>.

In some cases the non-profit sector has an important role while in other cases it is ignored. The conclusion of the study (Salamon, Toepler, 2015) presents a set of conditions that should be met in order for non-profit organisations and governments to find common ways to effectively deal with current social issues. Author Li, P (2014) sees it as necessary to examine the effectiveness and efficiency of interactions between government and non-profit organisations. In this regard the authors Montuori and Conti (1995) mention that although the partnership has only one form, it has several meanings. Similarly, the authors of the research (Boening, Schuchardt: 2015) show that non-profit organisations can have as their strategy objective cooperation with a profitable company that is socially responsible and cooperates with local authorities. On the contrary, the authors (Adamek, Stepankova and marshals: 2014) in their study focus on consumers' perception of social responsibility of business organisations and their cooperation with NGOs. Verschuer and De Corte (2015) recommend to non-profit organisations certain friendliness and the use of internal information contacts with politicians and participation in the umbrella organization of various groups or NGOs negotiating with representatives of state or local authorities. Fonadova, Hyánek (2015) highlight the importance of the role of financing public and non-profit sectors in cooperation between the two sectors. Sokolowski (2013) points out the complexity of the relationship between resources obtained from public sources and funds received from charitable donations to non-profit organisations, which may have an impact on the design and procurement of transaction costs.

The non-profit sector is not just an accessory for the public sector and the business sector, but NGOs are equal partners in the provision of public services, particularly in local communities (Svidronova: 2004) and will therefore interact with local governments.

Functioning and efficient mutual cooperation depends on both the public sector and non-profit sector. Willingness to listen, communicate and collaborate can result in benefits for whole society.

### 3. Objectives and methodology

This paper aims to contribute to the development of effective cooperation between NGOs and regional levels of government and thus strengthen the support for mutual cooperation between the two sectors and the realization of the principle of partnership. From a methodological point of view for the realization of the targets a combination of several techniques of data collection and data analysis was used, as it is required by a comprehensive approach to the flow of information related to the non-profit sector and public administration

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<sup>18</sup> That changed on January 1, 2014, with the new Civil Code coming into effect.

<sup>19</sup> On 10 June 1992 the Council for Foundations was established, which was subsequently transformed into GCNNO on March 30, 1998. GCNNO is a government advisory body, which plays the role e.g. in the design of materials for government decisions related to the support of NGOs, monitoring legislative and political measures, monitoring legislation, coordinating cooperation between central government authorities and counties regarding the support of NGOs, monitoring information on the status of NGOs within the EU and government awareness about the use of financial means and other (Boukal, 2013: 34–36).

in order to promote mutual cooperation and coordination of the partnership principle. A field survey was carried out using a quantitative and qualitative approach to sociological survey. 487 non-governmental organisations belonging to the Coalition of NGOs in Pardubice region (KONEP) were approached by a questionnaire. A total of 178 questionnaires were filled in, which is a 36.5% total return. The following theoretical hypothesis was determined: "Cooperation between NGOs and the regional government in the Pardubice region depends on the willingness of representatives of both organizations to participate together". Following this set theoretical hypothesis, eight assumptions were established that were subsequently confirmed or disapproved based on identified and evaluated data from the survey. 1. Heads of NGOs have university education. 2. More than half of the representatives of NGOs assess their current satisfaction with the cooperation between public and non-profit sector as very good. 3. Representatives of NGOs are interested in participation with the region, especially in the area of policy. 4. Representatives of NGOs are in regular contact with representatives of the regional government, at least once per month. 5. NGOs are informed by the region about the current programme policies (endowment programmes, legislative changes and others) towards NGOs in Pardubice Region. 6. Representatives of NGOs attend courses and seminars organized by region. 7. Representatives of NGOs see the biggest benefit in cooperation with the region in expanding knowledge and skills. 8. Representatives of NGOs find as a major obstacle of the cooperation with the region the superiority and insufficient knowledge of local government representatives in the field. The formulation of the set of working hypotheses was the next step in a quantitative survey. Three working hypotheses were set which were evaluated by simple statistical methods: 1. Ho: There is no correlation between the time covered by NGOs and satisfaction with the current state of cooperation. 2. Ho: There is no correlation between the number of employees of NGOs and satisfaction with the current state of cooperation. 3. Ho: There is no correlation between the time and scope of NGOs meeting meets the objectives and requirements of NGOs. To test the hypothesis the data were compiled into pivot tables. Since the file is larger than 40,  $\chi^2$  test of independence was used for the calculation of dependency. The starting point is the difference between actual and theoretical frequencies. There are two conditions for the use of  $\chi^2$  test of independence: the number of theoretical frequencies of less than 5 may not exceed 20%, and none of the theoretical frequencies shall be less than 1. If these conditions are not fulfilled, there must be a combination of weak groups.

The qualitative survey followed the data and conclusions derived from quantitative research and were conducted by interviews with representatives of NGOs and representatives of the region. Representatives of NGOs and representatives of the region were asked topics which were evaluated according to work with categories within rules of qualitative sociological survey: 1. In what area are you interested in mutual cooperation? 2. Do you think that the current cooperation is effective? 3. Are you currently satisfied with mutual cooperation? 4 What benefits and obstacles do you find in mutual cooperation?

#### **4. Results, their evaluation and discussion**

Based on the data obtained from the questionnaire, the set presumptions were evaluated that support the formulated theoretical hypothesis.

The first assumption that the leading NGO workers are university educated persons was confirmed as almost three quarters of respondents said that a senior executive of NGOs is a person who has completed undergraduate studies. This option was chosen by 126 respondents, or 70.79%.

The second determined premise sounded as follows: More than half of the representatives of NGOs assess their current satisfaction with the cooperation between the public and non-profit sector as very good. Although the option very good and good was chosen by an absolute majority of respondents, this assumption was not confirmed, as the option good was opted for by 24.72% respondents only.

Another set precondition that the representatives of NGOs are interested in participating with the region, especially in the area of subsidy policy was confirmed. For this question the respondents could choose one or more options, but the subsidy policy was opted for by 87.08%, i.e. 155 respondents.

Prerequisite: Representatives of NGOs are in regular contact with representatives of the regional government, at least once per month, was not confirmed. This assumption had response options as follows: every day, more than once a week, once a week, once in two weeks and once a month. Overall these responses were opted for by 28.76% respondents only. The most frequently chosen option was a variant of irregular communication that was selected by 24.18% respondents.

The fifth assumption concerned the programme policy. Its precise definition has the following form: NGOs are informed about the current regional programme policies (endowment programmes, legislative changes and others) towards NGOs in the Pardubice region. 64.71% respondents said that they were informed by the representatives of the region, contrary option was selected by 20.92% respondents and 14.38% respondents selected the option "I do not know". This hypothesis was thus confirmed.

Assumption: Representatives of NGOs attend courses and seminars organized by the region, was confirmed on the basis of selected variants of the answer yes and mostly yes. The option yes was selected by 30.72% respondents and the option mostly yes by 32.68%. Altogether these two answers were selected by a total of 63.4% respondents.

The seventh assumption concerned benefits in cooperation with the region and its exact definition was as follows: Representatives of NGOs see the biggest benefit in cooperation with the region in expanding knowledge and skills. The respondents could choose from seven options and write down their choices. Most responses were received by the possibility of providing subsidies which was selected by 80.34% respondents. This was followed by the option increasing mutual trust which was selected by 28.65% respondents, and consequently the option expanding their knowledge and skills. This option was selected by 24.72% respondents. The results show that the hypothesis was not confirmed.

The last assumption that the representatives of NGOs find the superiority and insufficient knowledge of local government representatives in the issue a major obstacle to cooperation with the region delivered the same form of response that was described in the previous assumption. Respondents could choose from eleven options offered and they could also finish the answer in their own words. The ignorance of the regional representatives was selected by 20.22% respondents and the option of superiority by 10.67%. The most frequently selected common answer was no obstacles to cooperation. Based on these mentioned facts it can be determined that the hypothesis was not confirmed.

After performing  $\chi^2$  test of independence the calculated value was compared with the critical value as follows:  $\chi^2_{\alpha} (k-1) (m-1)$ . Letter k shows the number of permutations of the first character and the letter m a number of permutations of the other character. If  $\chi^2 > \chi^2_{\alpha} (k-1) (m-1)$ , the null hypothesis of independence can be rejected.



Based on the outcomes of the questionnaire survey the analysis of the dependency of qualitative characters was performed, which are arranged in a pivot table, since it is plural characters. The aim of the analysis was to determine whether it was set within dependency features. Strength dependence was determined by the correlation of the data analysis in Excel.

Ho: There was no correlation between the time covered by NGOs and satisfaction with the current state of cooperation.

To test the first set null hypothesis a contingency table was created where there was a gradual merging of columns and rows in order for the  $\chi^2$  test of independence to be performed. The value of  $\chi^2$  test was 9.239232791, which is less than the value of the test criterion (16.919). A null hypothesis cannot be dismissed, which means that there is a 95% probability that a statistically significant relationship was not confirmed.

Given that more than 20% of the theoretical frequencies were less than 5, it resulted in merged columns and rows. Subsequently, the data was entered into a new Pivot Table (1).

Table 1: Pivot Table 1 - the actual rate after the merger of columns and rows

Real frequencies	Satisfaction				
Period covered	Very good	Good	On average	Bad - no cooperation	$\Sigma$
0-10 years	9	9	7	7	32
11-15 years	11	8	4	3	26
16-20 years	6	6	9	6	27
21 and more	18	34	25	16	93
$\Sigma$	44	57	45	32	178

Source: Own processing

Table 2: Pivot Table 1 - dependence strength

9	9	7	7	X	X
11	8	4	3	X	X
6	6	9	6	X	X
18	34	25	16	X	X
X	X	X	X	X	X
X	X	X	X	X	X
CALCULATE		CLEAR			
Chisquare		9.239232790643			
Correlation		0.222136297225			
P-value		0.415			
Conclusion					
Little or no real evidences against the null hypothesis					

Source: Own processing

$$\chi^2 = 9,239232791$$

Dependence strength is not significant, thus confirming that the hypothesis was rejected. A similar procedure was used to assess the dependency of qualitative features for the second and third working hypothesis.

Ho: There was no correlation between the number of employees of NGOs and satisfaction with the current state of cooperation. From the data obtained from the questionnaire a contingency table was developed to test the second set hypothesis. In order to establish a correlation between test characters,  $\chi^2$  test was selected whose value was 12.32966311. This

value is less than the value of the test criterion (12,592), so again, this hypothesis cannot be rejected. Among the number of employees of NGOs and satisfaction with the status quo a statistically significant relationship was confirmed with a 95% probability. Even in the latter case the strength dependence is not significant and therefore the hypothesis is not rejected.

Ho: There was no correlation between the time and scope of NGOs functioning and meeting the objectives and requirements of NGOs.

While testing dependency for the third set null hypothesis the data from the questionnaire survey were entered again into a pivot table. The final value of the test was 0.278252874, which was less than the value of the test criterion (5991). So again, the null hypothesis is not rejected. It can be said with 95% confidence statistically significant dependency was not that confirmed. The results show that the strength dependence is not significant and the hypothesis is therefore reconfirmed.

Interpretations and conclusions were determined after the performed analysis of the quantitative survey and processing the information from the qualitative survey.

## 5. Conclusion

Within the issue a question arises how a given collaboration should be set in order for both sides to be efficient, profitable and virtually eliminating the problems mentioned above. There are many options in whose framework mutual cooperation can be optimal. Although the county has established the position of the methodologist, who is the main contact person for non-profit organizations in the region and is in charge of the non-profit sector agenda, as a major shortcoming seems to be that the fact that the methodologist is also in charge of other agendas and therefore cannot take care of the non-profit sector in its entirety. It should be noted that the Pardubice region is unique in establishment the position of the methodologist. In other regions such a post has not been created. Pardubice region also perceives the non-profit sector as an equal and important partner in providing services. However, if the cooperation is to be effective and fruitful, methodologist must devote all his full time work to this agenda. This would lead to even a greater cooperation frequency than ever before. The establishment of the position of a methodologist for full-time work is also related to the creation of other jobs at various departments of the Regional Authority in Pardubice. These workers should be in charge of cooperation with NGOs in other than in social sphere. As is clear from the survey, organizations that cooperate with the region are now in most cases from the social sphere. Other organizations also are interested in cooperation, but that is not offered in such a wide scope. The introduction of these jobs could help establish cooperation with several organizations, resolve several potential barriers to collaboration, encourage deeper mutual cooperation and set a greater consistency of mutual priorities. Another option which would contribute to optimal cooperation is the inclusion of NGOs in various committees, commissions and juries, where the chosen representatives of the NGOs are involved in various negotiations and discussions, which are connected with programmes, projects, tenders or other activities.

Despite the aforementioned facts it can be stated that representatives of NGOs and counties have a desire to collaborate together and are satisfied with the current state of cooperation. However, a summary of these proposals for more efficient, beneficial and optimal collaboration is the first step towards building the next phase of cooperation that would contribute to the greater satisfaction of the non-profit sector and the regional government. Setting certain rules of cooperation should be enshrined and articulated in the agreement that will be respected and fulfilled.

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## References

- [1] Adamek, P. et al (2014). Impact of Corporate Social Responsibility of Department Stores on Customer Perception. *Crafting Global Competitive Economies: 2020 Vision Strategic Planning & Smart Implementation*, vols I-IV pp.1688-1696.
- [2] Boenigk, S. and Schuchardt, V. (2015). Nonprofit Collaboration With Luxury Brands: Positive and Negative Effects for Cause-Related Marketing. *Nonprofit and voluntary sector quarterly*, vol.44 , no. 4, pp. 708-733
- [3] Boukal, P. et al (2013). *Fundraising pro neziskové organizace*. Praha: Grada Publishing.
- [4] Conti, I. and Montuori, A.(1995) The Meaning of Partnership.[Online]. 2016-05-12.Available:<http://www.partnershipway.org/learn-more/articles-by-riane-eisler/economics-business-organizational-development/Meaning%20of%20Partnership-Alfonso.pdf>
- [5] Fonadova, L. and Hyánek, V. (2015). Proceedings of the 19th International Conference: Current Trends in Public Sector Research. Book Series: Current Trends in Public Sector Research, pp.377-384.
- [6] Hummel, J. M.(1996). *Starting and Running a Nonprofit Organization*. Minnesota: University of Minnesota Press.
- [7] Hunčová, M. (2010). *Ekonomický rozměr občanské společnosti*. Praha: Wolters Kluwer ČR.
- [8] Li, P. (2014). Title: Research of Interaction Relationship between Government and Non-Profit Organizations. 2nd International Conference in Humanities, Social Sciences And Global Business Management (ISSGBM 2014), Book Series: Lecture Notes in Management vol.29, pp.227-231.
- [9] Müller, J (2005). *Neziskový sektor sledovaný Radou vlády pro nestátní neziskové organizace*. In Definice neziskového sektoru. Brno: Centrum pro výzkum neziskového sektoru, pp. 45-46.
- [10] Potůček, M.(2005). *Trh, stát a občanský sektor jako regulátory života společnosti*. In Potůček, Martin et al. Veřejná politika. Praha: SLON.
- [11] Řektořík, J. et al (2007). *Ekonomika a řízení odvětví veřejného sektoru*. Praha: Ekopress.
- [12] Salamon, L., Sokolowski, W. (1999). *Global civil society: dimensions of the nonprofit sector*. Baltimore, MD: Johns Hopkins Center for Civil Society Studies.
- [13] Salamon, L.M. and Toepler, S. (2015). Government-Nonprofit Cooperation: Anomaly or Necessity? *Voluntas*, vol.26, no.6, pp:2155-2177.
- [14] Samuel, O. et al. (2013). Corporate Volunteering Benefits and Challenges for Nonprofits. *Nonprofit Management & Leadership*, vol. 24, no. 2, pp.163-179.

- [15] Sokolowski, S.W.(2013). Effects of Government Support of Nonprofit Institutions on Aggregate. Private Philanthropy: Evidence from 40 Countries. *Voluntas*, vol.24, no.2, pp.359-381.
- [16] Svidronova, M (2014). The Role of Non-Profit Organizations in a Regional Development in a Context of Social Cohesion: The Case of Iceland. 17th International Colloquium on Regional Sciences, pp.567-573.
- [17] Verschuere, B. and De Corte, J (2015). Nonprofit Advocacy Under a Third-Party Government Regime: Cooperation or Conflict? *Voluntas*, vol. 26, no.1, pp. 222-241.
- [18] Weisbrod, B. A. (1975). *Toward a theory of the Voluntary Non-Profit Sector in a Three Sector Economy*. In E.S. Phelps (Ed.) *Altruism, Morality and Economic Theory*, New York: Russell Sage Foundation., pp.171- 195.

# EFFECTIVE TAX ADMINISTRATION AS A FACTOR AFFECTING THE COMPETITIVENESS OF SLOVAKIA AT THE GLOBAL LEVEL

Katarína Vavrová<sup>1,a\*</sup>, Miloš Bikár<sup>2,b</sup>

<sup>1</sup>University of Economics in Bratislava, Faculty of Business Management, Dolnozemska cesta 1,  
852 35, Bratislava, Slovak republic

<sup>2</sup>U of Economics in Bratislava, Faculty of Business Management, Dolnozemska cesta 1, 852 35,  
Bratislava, Slovak republic

<sup>a</sup>katarina.vavrov10@gmail.com, <sup>b</sup>emilos.bikar@gmail.com

\*Corresponding author

**Abstract.** Slovakia is taking measures to improve the business environment. Improving the business and the business environment will also affect the country's competitiveness. In order to further promote business start-ups. The strategy includes measures to create a simplified joint stock company, measures to enable enterprises to become operational more quickly, various temporary exemption from the obligation to pay for licenses and the opening up of National business center in early 2016. This has become for business support. At a later stage envisages the establishment of regional offices. However, the government meanwhile postponed the adoption of the "Small Business Act" as part of its strategy for SME development. In October 2015 was established Center better regulation, whose task is to monitor the business environment, including the administrative burden. At the same time our economy and its globalization characterized by increasingly new trends, not only in the economic environment, but also in the functioning of the administrative apparatus, such as tax, customs and trade licensing office. The essence of the research is to the Tax Administration in the Slovak Republic as an important part of government. The role of governance, legislative framework, stages and types of tax audits, institutional support to the tax administration in the Slovak Republic and in EU countries. Processes tax proceedings in the selected tax authorities in the context of globalization. The aim of this paper is a comparison of the business environment of the Slovak Republic with selected EU countries with regard to the efficiency of public administration.

**Keywords:** research, forecasting, trends, comparative, analysis.

**JEL Classification:** C51, H25.

## 1. Introduction

Slovensko prijíma opatrenia na zlepšenie podnikateľského prostredia. Vychádzajúc z Akčného plánu Európa 20 sa reformovala finančná správa. Finančná správa Slovenska sa skladá z orgánov a inštitúcií, ktoré zabezpečujú správu daní, cieľ a odvodov. V súvislosti s inštitútmi práva je potrebné poukázať na rozdielny charakter inštitútov práva, na rozkladanie celkov na jednotlivé časti (Majerová et al., 2015). Reforma daňovej a colnej správy, s výhľadom na zjednotenie výberu daní, cla a poisťných odvodov je realizovaná prostredníctvom programu UNITAS I., UNITAS II. Program UNITAS I. prinášal zmeny, ktoré

možno rozdeliť do dvoch oblastí. Prvou oblasťou je zlúčenie daňovej a colnej správy a vytvorenie nového systému riadenia a organizovania pomocou Finančnej správy Slovenskej republiky. Zlúčením Daňového a Colného riaditeľstva SR, vzniklo Finančné riaditeľstvo SR, ktoré prebralo všetky pôsobnosti týchto riaditeľstiev. V ich kompetencii je hlavne riadenie a kontrola finančných úradov. Viacerí autori poukazujú na vplyv daní a verejnej správy na rozvoj podnikania (Harumová, 2012), (Dobrovič et al., 2016) a (Kalusová, 2015). Dôsledkom zlúčenia úradov sa ich počet znížil na osem a sídlia vo vyšších územných celkoch. Obdobne sa znížil počet colných úradov na osem a je zriadený jeden Colný kriminálny úrad. V roku 2015 sa zlúčili daňové a colné úrady do nových úradov s názvom **finančné úrady**. Daňový úrad pre vybrané daňové subjekty sa zmenil na Finančný úrad pre vybrané subjekty, okrem tohto úradu vznikol aj Finančný kriminálny úrad, rozšírením pôsobnosti Colného kriminálneho úradu o daňové trestné činy. Druhá oblasť programu UNITAS I. predstavuje optimalizáciu konkrétnych procesov (napr. metodika, vnútorná správa, IT) a aj koncentráciu činností na regionálnej úrovni. Druhá fáza programu UNITAS zahŕňa proces zjednotenia výberu daní, cla a poistných odvodov (poistné na dôchodkové, nemocenské, úrazové, poistenie v nezamestnanosti, do rezervného fondu solidarity a garančného fondu, zdravotné poistenie) do jedného miesta výberu. Dôležité je zjednotenie vymeriavacích základov, čo sprehľadní a zjednoduší systém a umožní vytvorenie jedného daňovo – odvodového priznania. Vzhľadom na zjednotenie je nevyhnutné zaviesť jednotný identifikátor osôb a prepojiť jednotlivé informačné systémy. Zavedením týchto zmien vo výbere daní, cla a odvodov sa znížia náklady, zníži sa administratívna záťaž, nastane lepší prehľad o vývoji verejných financií, znížia sa daňové a colné úniky, zníži sa byrokracia a zvýši sa výkonnosť práce. Finančné úrady by mali motivovať daňovníkov (Alm, 2011). Aj zmeny takéhoto druhu znamenajú vyššiu efektívnosť daňovej správy. Ako uvádzajú (Sedliačiková et al., 2012), jednou z najdôležitejších realít je tiež globalizácia. Aj z dôvodu tejto skutočnosti je potrebné sa zamerať na jednotlivé daňové systémy vybraných štátov Európskej únie z hľadiska efektívnosti správy daní. S problematikou efektívnosti úzko súvisí aj dopad neštandardných nástrojov centrálnych bánk na vývoj verejných správ a preto je v centre záujmu viacerých vedeckých štúdií (Rogers et al., 2015) a (Neely, 2015) a výkon v oblasti riadenia kvality (Minárová et al., 2015). Efektívnosť správy možno hodnotiť aj v súvislosti makroekonomických veličín. Fundamentálnu závislosť makroekonomických veličín a časovú koreláciu medzi európskymi trhmi skúmala ďalšia štúdia (Connor and Suurlaht, 2013).

## 2. Koncepcia efektívnej daňovej správy

Krajiny Európskej únie sa pokúšajú zlepšiť ich spôsob spravovania. Z tohto dôvodu sa každoročne analyzujú daňové systémy jednotlivých krajín. Pre potrebu vopred spomenutej analýzy je nutné spracovať agregované údaje nielen daňových priznaní ale aj iné rôzne dostupné databázy. Zároveň je potrebné zachovať ochranu osobných údajov. Kvalitná analýza daňového systému vie poskytnúť východiskový bod pre hodnotenie kvality a konkurencieschopnosti verejnej správy. Len transparentná verejná správa zvýši konkurencieschopnosť krajiny. Správa daní sa riadi zákonom, platí procesné pravidlo. Daň sa vyberá v správny čas a v správnom množstve podľa právnych predpisov (Bieliková and Chlebíková, 2015). Daňové systémy čelia pestrému ekonomickému a politickému prostrediu a jurisdikcie sa líšia s ohľadom na ich politiky, legislatívne prostredie, správnu prax a kultúru (OECD, 2010). Sú výsledkom aplikácie daňovej teórie do daňovej praxe, aplikácie ekonomických vied v oblasti verejného sektora, dlhodobého vývoja trhovej ekonomiky, pozitívnych a negatívnych skúseností v daňovej praxi. Pre zistenie efektívnosti daňovej správy je nevyhnutné skúmanie daňových systémov

uplatňovaných vo svete. Cieľom je poznanie miery a úspešnosti uplatnenia daňových teórií v daňovej praxi. Netreba zabúdať ani na motiváciu daňovníkov (Braitwaite, 2003) a je tu možnosť zmeniť platenie daní na báze dobrovoľnosti. *Aby sme mohli daňové správy v jednotlivých krajinách EÚ porovnávať na základe ich efektívnosti, mali by sme poznať predpoklady modernej efektívnej správy daní.* Moderná správa daní podľa pokynov OECD by sa mala zamerať na najlepší pomer medzi kvalitou služieb a cenou cez zefektívňovanie procesov a spájanie výberu daní, cieľ a odvodov, mala by zvyšovať transparentnosť v oblasti výkonu s dôrazom na hodnotenie a monitorovanie cieľov, budovanie analytických jednotiek, prehľbovanie využívaných analytických metód a zvyšovanie ich zrozumiteľnosti pre verejnosť, hodnotiť výkonnosť zamestnancov a odmeňovanie aj podľa výkonu, elektronizácia a rozvíjanie procesov a produktov na pomoc daňovníkom smerom k samostatnému vybaveniu ich daňových náležitostí, zlepšovanie rozsahu a kvality online služieb smerom k elektronickým a pred vyplneným daňovým priznaniam, zjednodušenie platenia a administrácie daní daňovníkov. Napriek týmto poznatkom, existuje nerovnosť medzi jednotlivými správcami daní v krajinách V4. Krajiny V4 vykonávajú a spravujú rozdielny rozsah služieb a daní. Rozsah služieb značne závisí od miery decentralizácie krajiny. Vo všeobecnosti sa dá konštatovať, že podľa klasifikácie OECD zodpovedá inštitucionálne nastavenie správcov daní v krajinách V4 zjednotenej polo –autonómnej inštitúcii. Výnimkou je Poľsko, kde správu daní vykonáva viacero organizačných jednotiek ministerstva financií. **Prvým aspektom efektívnosti daňovej správy je kritérium realizovania spoločného výberu daní v tabuľke č.1.** Z tabuľky jednoznačne vyplýva rôznorodosť v správe daní. Zjednotenie výberu daní a odvodov v štátoch EÚ bolo odložené na dobu po roku 2017. Ako uvádza (Kelman, 2006) prioritu má vnútorná motivácia.

Table 1: Dane spravované tzv. národnou daňovou správou

FO daň z príjmu	Odvody	PO daň z príjmu	DPH	Spotrebné dane	Daň z nehnuteľ.	FO daň z príjmu
<b>Slovensko</b>	nie	áno	áno	áno	nie	áno
<b>Česko</b>	nie	áno	áno	nie	áno	áno
<b>Poľsko</b>	nie	áno	áno	nie	áno	áno
<b>Maďarsko</b>	áno	áno	áno	áno	nie	áno

Source: vlastné spracovanie na základe údajov z databázy OECD 2015

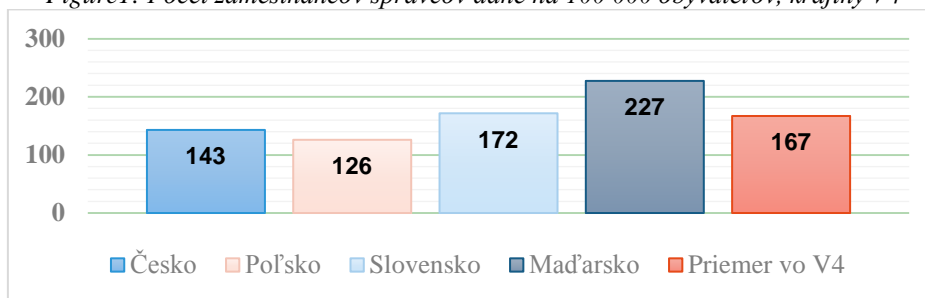
### 3. Výsledky

Štát prostredníctvom prerozdelenia príjmov môže zmierňovať existujúce finančné rozdiely v spoločnosti. K dispozícii má viacere nástroje, ako napríklad použitie transferov a daní. Vzhľadom na skutočnosť, že dane sú jedným z hlavných zdrojov príjmov na zabezpečenie funkcií štátu, môžeme jednoznačne konštatovať, že **v súčasnosti krajiny V4 vo veľkej miere prerozdeľujú trhové príjmy jednotlivcov.**

#### 3.1 Podmienky efektívnosti daňovej správy

Efektívnosť daňovej správy nie je možné merať prostredníctvom jedného komplexného ukazovateľa vzhľadom na nejednotnosť výberu daní (viď. tab.č.1). Jedným z relatívnych ukazovateľov efektívnosti daňových správ na národnej úrovni je **počet zamestnancov v správe daní prepočítaný na obyvateľa krajiny V4**, čo ilustruje graf č.1.

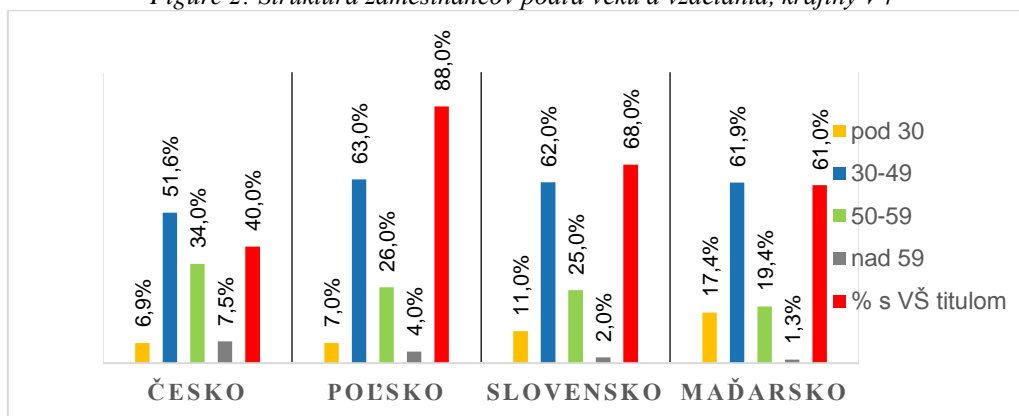
Figure 1: Počet zamestnancov správcov dane na 100 000 obyvateľov, krajiny V4



Source: vlastné spracovanie, údaje z databázy OECD za rok 2013

Spracovaním údajov sa konštatuje, že **počet zamestnancov na obyvateľa v krajinách V4 koreluje s rozsahom správy daní** v jednotlivých krajinách V4. Dôležitá je aj štruktúra zamestnancov podľa veku, čo zobrazuje graf č.2.

Figure 2: Štruktúra zamestnancov podľa veku a vzdelania, krajiny V4



Source: vlastné spracovanie, údaje z databázy OECD za rok 2013

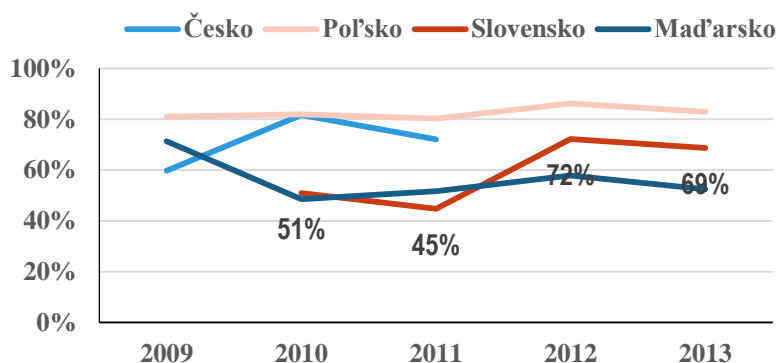
Údaje signalizujú, že najmladší kolektív zamestnancov pracuje na daňových úradoch v Maďarsku a najvyššiu mieru vysokoškolsky vzdelaných zamestnáva správca dane v Poľsku.

### 3.2 Význam administrácie daní pre efektívnosť daňovej správy

Administrácia daní je významným faktorom pre efektívnosť daňovej správy. Zvyšovanie efektívnosti znamená zaviesť nový jednotný informačný systém pre celý systém finančnej správy. Jednotný prepojený informačný systém eliminuje nepresné údaje v daňových priznaniach. Kvalitná a efektívna daňová správa je spojená aj s odmeňovaním pracovníkov podľa výkonu. Prehľad efektívnych výdavkov na IT a mzdy zamestnancov na celkových nákladoch u správcov dane v jednotlivých krajinách V4 poskytujú nasledujúce grafy.

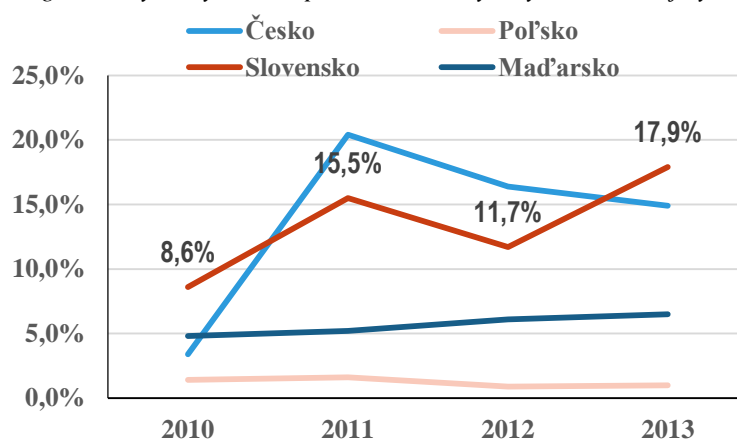


Figure 3: Výdavky na mzdy v pomere na administráciu, krajiny V4



Source: vlastné spracovanie, údaje z databázy OECD za rok 2013

Figure 4: Výdavky na IT v pomere k celkovým výdavkom, krajiny V4



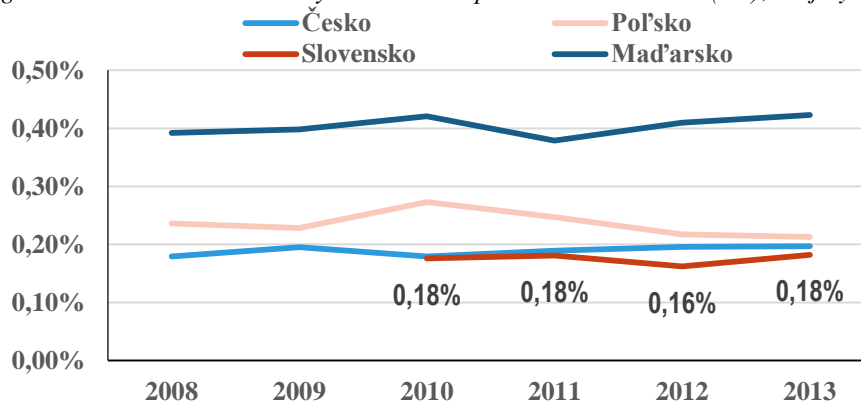
Source: vlastné spracovanie, údaje z databázy OECD za rok 2013

### 3.3 Hodnotenie efektívnosti daňovej správy pomocou dvoch indikátorov

Efektívnosť daňovej správy hodnotíme prostredníctvom dvoch základných indikátorov aj v medzinárodnom meradle. Údaje o štruktúre výdavkov bez doplňujúcich kvalitatívnych, relevantných informácií majú len malú vypovedaciu schopnosť (Buehn, 2012). Z tohto dôvodu sa pre hodnotenie efektívnosti využívajú dva základné indikátory.

### 3.3.1 Indikátor - podiel administratívnych nákladov správcu dane na HDP

Figure 5: Podiel administratívnych nákladov správcu dane na HDP (v%), krajiny V4



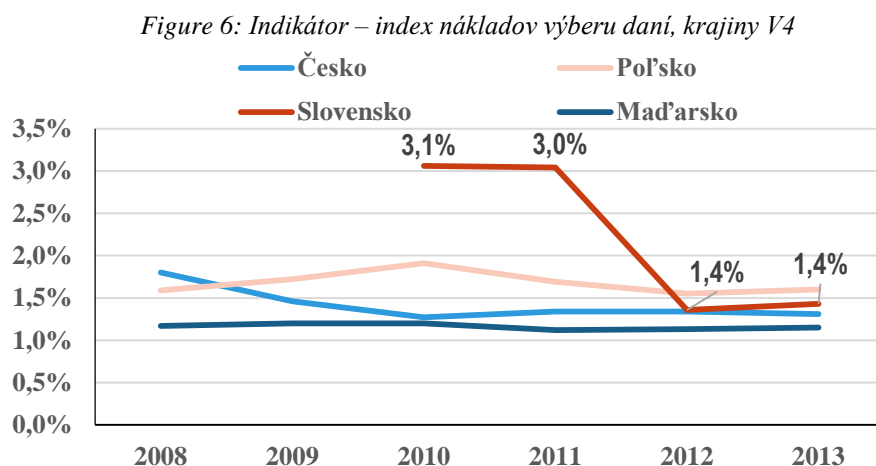
Source: vlastné spracovanie, údaje z databázy OECD za rok 2013

### 3.3.2 Indikátor – Index nákladov výberu daní

**Index nákladov výberu dane** je komplexnejším indikátorom hodnotenia efektívnosti daňovej správy vid'. graf 6. Vyjadruje **podiel administratívnych nákladov správcu dane na čistých výnosoch z výberu dane príslušným správcom**. Ide o komplexnejší ukazovateľ efektívnosti, hodnotí vývoj trendu v sledovaných krajinách. Klesanie nákladov výberu daní („cost of collection ratio“), lepšia úspešnosť vyberania daní znamená zvýšenie efektívnosti daňovej správy. Inými slovami rast efektívnosti. Prečo sa indikátor – index nákladov výberu daní nedá použiť na medzinárodné porovnanie v plnej miere? Daňový systém je živý organizmus, na ktorý neustále pôsobia faktory, ktoré nesúvisia s výkonnosťou daňovej správy a predsa skresľujú vypovedaciu schopnosť vopred spomenutého indikátora. Ide o nasledujúce faktory ako makroekonomické zmeny a elasticity daní, mimoriadne jednorazové kapitálové výdavky, zmeny v daňových sadzbách, zmeny v rozsahu vyberanej dane. Index nákladov výberu daní neberie do úvahy príjmy daňového systému. Neporovnáva rozdiel medzi aktuálne vybranými a potenciálnymi daňovými príjmami, čo by poukázalo na daňovú medzeru. Reporty OECD poukazujú na túto možnosť merania efektívnosti daňových správ.

## 4. Diskusia

Index nákladov výberu daní neberie do úvahy príjmy daňového systému. Prerozdelenie príjmov v krajinách V4 ovplyvňujú transfery a sociálne dávky. Vplyv príjmových daní na znižovanie nerovnosti príjmov je marginálny a v rámci krajín V4 je na Slovensku najnižší. Autori vedeckých statí neustále uvažujú o výške daňových sadzieb (Gangl et al., 2013). Zdôrazňujú zvýhodnenie začínajúcich podnikateľských subjektov tzv. start-upov. Problémom slovenského podnikateľského prostredia je dlhodobo nízka vymožitelnosť práva a veľké množstvo legislatívnych zmien (napr. v oblasti daní, odvodov, odpisovej politiky atď.), ktoré majú negatívny dopad na finančnú situáciu a výsledky transformačného procesu niektorých firiem. Aj z tohto dôvodu sú k dispozícii ďalšie indikátory, ktoré sa však neorientujú výlučne na hodnotenie efektívnosti daňovej správy, ale na problémy, ktoré sekundárne na ňu vplyvajú. Indikátor, ktorý verne odráža zmeny v jednotlivých druhoch príjmov a umožní osobitne identifikovať vplyv prerozdelenia transferov a daní Palma index. Princíp indexu je v tom, že čím vyššia je jeho hodnota, tým vyššia je nerovnosť najbohatších voči najchudobnejším v spoločnosti.



Source: vlastné spracovanie, údaje z databázy OECD za rok 2013

## 5. Conclusion

Zámerom nášho príspevku je vyjadriť spôsob hodnotenia efektívnosti daňovej správy a jej vplyv na konkurencieschopnosť Slovenska. Len efektívna daňová správa a priaznivé podnikateľské prostredie posunie Slovensko v rebríčku hodnotenia na lepšie miesto. Konštatujeme, že efektívnosť daňovej správy úzko súvisí s rebríčkami konkurencieschopnosti krajín na celom svete. Svetové ekonomické fórum (WEF) každoročne hodnotí jednotlivé krajiny z pohľadu ich konkurencieschopnosti. Správa s poradím štátov vzniká na základe vyplnenia dotazníka podnikateľmi. Ide o subjektívny empirický pohľad podnikateľských subjektov. Slovensko sa v hodnotení nachádza momentálne na 67 mieste.

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## References

- [1] Alm, J. and Torgler, B. (2011) “Do ethics matter? Tax compliance and morality,” *Journal of Business Ethics*, vol. 101, pp. 635-651.
- [2] Bielíková, A. and Chlebíková, D. (2015). Tax inspection of the Tax on Personal income in the Global Economy. *15<sup>th</sup> International Scientific Conference Globalization and Its Socio-Economic Consequences*. Rajecké Teplice, Slovakia, pp. 33-38.
- [3] Braithwaite, V. (2009) “The expression and management of motivational postures,” In vol. *Defiance in taxation and governance: Resisting and dismissing authority in a democracy* Cheltenham, UK: Edward Elgar, pp 60-100.
- [4] Buehn, A. and Schneider, F. (2012) “Shadow economies around the world: Novel insights, accepted knowledge, and new estimates,” *International Tax Public Finance*, vol.19, pp.139-171.
- [5] Connor, G. and Suurlaht, A. (2013) ”Dynamic Stock Market Covariances in the Eurozone,” *Journal of International Money and Finance*, vol. 37, pp. 353–370.

- [6] Gangl, K. and at al. (2015) "Taxpayers Motivations Relating to Tax Compliance: Evidence from Two Representative Samples of Austrian and Dutch Self-Employed Taxpayers," *Journal of Tax Administration*, vol.1, No.2, pp. 15-26.
- [7] Harumová, A. (2002) "Vplyv daní na rozvoj podnikateľskej sféry," *Ekonomický časopis*, vol. 2, pp. 277-292.
- [8] Kelman, C. H. (2006) "Interests, relationships, identities: Three central issues for individuals and groups in negotiating their social environment," *Annual Review of Psychology*, vol.57, pp. 1-26.
- [9] Dobrovič, J. and Korauš, A. and Dančišinová, L. (2016) "Sustainable economic development of Slovakia: Factors determining optimal tax collection," *Journal of Security and Sustainability Issues, International Entrepreneurial perspectives and Innovative Outcomes*, vol.5, pp. 533-544.
- [10] Majerová, J. and Klieštik, T. and Misanková, M. (2015). Analysis of Convergences and Divergences of Bankruptcy Law Institutes in the Slovak Republic and in the World. *5th International Conference on Applied Social Science (ICASS 2015)*. Limassol, Cyprus, pp. 34-44.
- [11] Minárová, M. and Malá, D. and Sedliačiková, M. (2015). Emotional Intelligence of Managers. *4<sup>th</sup> Conference on Business, Economics and Management (WCBEM)*. Ephesus, Turkey, pp. 1119-11123.
- [12] Sedliačiková, M. and Šatanová, A. and Foltínová, A. (2012) "Finančný controlling v teórii a praxi malých a stredných podnikov," *Ekonomický časopis / Journal of Economics*, vol. 60, No. 9, pp. 949-966.
- [13] Kalusová, L. (2015) "Skúmanie odvetvových diferencií medzi faktormi determinujúcimi finančnú štruktúru slovenských a českých podnikov," *Ekonomický časopis*, vol. 63, No. 10, pp. 1033-1052.
- [14] Neely, C. J. (2015) "The large-scale asset purchases had large international effects," *Journal of Banking and Finance*, vol. 52, pp. 101–111.
- [15] Rogers, J. H., Scotti, C. and Wright, J. H. (2014) "Evaluating asset-market effects of unconventional monetary policy: a cross-country comparison," *Economic Policy*, vol. 29, (80), pp. 749–799.

## SMART CITIES IN GLOBAL SOCIETIES: A CONCEPTUAL REVIEW WITH SPANISH CITIZENS

José Luis Vázquez-Burguete<sup>1,a</sup>, César Sahelices-Pinto<sup>1,b,\*</sup>, Ana Lanero-Carrizo<sup>1,c</sup>,  
Pablo Gutiérrez-Rodríguez<sup>1,d</sup>, and María Purificación García-Miguel<sup>2,e</sup>

<sup>1</sup>Faculty of Business and Economics, Campus de Vegazana, s/n, 24071 León – Spain

<sup>2</sup>Faculty of Law and Labour Sciences, Campus de Vegazana, s/n, 24071 León – Spain

<sup>a</sup>jose-luis.vazquez@unileon.es, <sup>b</sup>cesar.sahelices@unileon.es, <sup>c</sup>ana.lanero@unileon.es,

<sup>d</sup>pablo.gutierrez@unileon.es, <sup>e</sup>mpgarm@unileon.es

\*Corresponding author

**Abstract.** Rapid and intense urbanization as direct consequence of globalization is one of the main big issues that current civilisation unescapably has to face. Following this tone, whereas the concept of smart cities (SCs) has gained increasing popularity in the recent literature, the reality says that citizen knowledge on the opportunities of information and communication technologies (ICTs) to improve their experience in globalised public spaces is likely to be scarce. This research paper analyses Spanish citizens' knowledge and attitudes towards SCs and the dimensions that should be included in the concept to define their experience globally. With respect to this latter, the concept of SC gathers six key characteristics according to some authors: (1) governance, which comprises aspects of political participation, public services and its performance, (2) mobility, or those aspects related to local and international accessibility and availability, (3) environment, in terms of natural conditions, (4) economy, in reference to factors all around national and international markets, (5) people, that is, the level of qualification and education of citizens, and (6) living, or quality of life. Around this goal, aspects related to the potential use of interactive technologies to engage citizens in urban development strategies are also considered. The research findings provide valuable data, insights and recommendations for further actions to help those responsible people in the design and implementation of policies and actions worldwide. In particular, special attention is paid to the contributions of the study to the previous literature devoted to improve the use and attractiveness of ICTs in public spaces.

**Keywords:** smart cities, information and communication technologies (ICTs), citizens, perceptions, quality of life

**JEL Classification:** M31 , M38, M10

### 1. Introduction

The concept of 'smart cities' is wide, giving rise to definitions of different reach, from the most restrictive to the most extensive. All of them share the application of information and communication technologies (ICTs) as foundation and transversal facilitator of public services, sustainability and efficiency (Neirotti et al., 2014). Particularly, it is widely assumed that the SCs involve the extensive and intensive application of ICTs to several spheres of functioning in a city, including public services, water supply and consumption management, improvement of transport and mobility, citizen security and civil protection, creation of favorable

environment for business and economic activity, and transparency and citizen participation (Albino et al., 2015). Therefore, a SC city is a socially, environmentally and economically sustainable city that implements ICTs in order to supply an infrastructure that ensures sustainable development and greater efficiency in the use of available resources, together with more active citizen participation and, at the end, a significant increase of citizens' quality of life. In other words, ICTs results in better public services for citizens, better use of resources and less impact on the environment (European Commission, 2015).

In SCs, infrastructures are equipped with advanced technological solutions to facilitate citizens' interactions with urban elements, making their lives easier. In this context, citizens are not only engaged and informed in the relationship between their activities, their neighborhoods, and the wider urban ecosystems, but also are actively encouraged to see the city itself as something they can collectively tune, such that it is efficient, interactive, engaging, adaptive and flexible (Shepard and Simeti, 2013). At the same time, ICTs give city governments a way of involving citizens more directly in the direction and operation of their city, and by doing so, creates a platform through which the city can learn from their actions. In this sense, it is said that the number of smart initiatives launched by a municipality reflects the efforts made to improve the quality of life of the citizens (Neirotti et al., 2014).

Accordingly, it is understood that services provided to citizens by either local administrations or public-private consortia should be repackaged in a collaborative, sustainable and creative way, thus making the most of any opportunity and potential for socioeconomic development and quality-of-life improvement. Likewise, citizens are expected to participate in the management of the city and to become active users. However, we cannot assume that citizens have a proper knowledge and understanding of SCs-related concepts and variables and their consequences in daily and future living. Particularly, citizen knowledge on the opportunities of ICTs to improve their experience in public spaces is likely to be scarce.

This paper relates to the experience of citizens in ICTs applications and services of the city. Particularly, we analyze their knowledge and attitude towards the concept of SCs and the dimensions that should be included in it. Around this goal, next sections review the previous literature defining SCs and describe a multidimensional model to analyse citizen's perceptions. Next, an empirical study aimed to design and implement a questionnaire on a sample of urban citizens in Spain is described. The final section gathers some constructive discussion.

## **2. Defining 'smart cities'**

Despite the extensive discussion, no agreed definition on SCs exists. Furthermore, strategic planning for the development of SCs is still a largely unknown field (Angelidou, 2014; Albino et al., 2015). Although there is no consensus on the definition of the term and its attributes, there is wide agreement about the fact that SCs are characterized by a pervasive use of ICTs, which, in various urban domains, help cities make better use of their resources. In these terms, while some authors consider that a SC is a city that employs ICTs to improve the interactivity and efficiency of critical infrastructures and public services, other definitions refer to ICTs usage to enable the interaction between citizens and urban elements.

However, some authors point that ICT-based solutions can be considered as just one of the various approaches to urban planning and living that have the aim of improving the social, environmental and economic sustainability of a city (Neirotti et al., 2014). That is, smart initiatives do not only entail technology investments, but also changes in human capital and living practices and conditions. This is also in line with the assertion that SCs depend not only

on the endowment of hard infrastructure (physical capital), but also on the availability and quality of knowledge communication (intellectual capital) and social infrastructure (social capital) (Caragliu et al., 2011). Similarly, it has been affirmed that ICTs is not a sufficient condition for a city to become smart, and that citizen engagement and governance represent two key success factors along with other enablers (Scholl and AlAwadhi, 2016).

Beyond such a consideration, Table 1 displays some examples of definitions of SCs found in the previous literature. The various positions in the debate agree on the fact that a SC should be able to optimize the use and exploitation of both tangible (e.g., transport infrastructures, energy distribution networks, natural resources) and intangible assets (e.g., human capital, intellectual capital of companies, and organizational capital in public administration bodies) (Neirotti et al., 2014).

Similarly, some authors look at the SC as a meeting place where the public sector, private interest and citizens can come together to generate new value, to collaborate and innovate together, an idea that has also been referred to as the triple helix –private sector, government and university actors– or even quadruple helix, including citizens, the public or the user, depending on the formulation (Leydesdorff and Deakin, 2009; Walravens, 2015). From this view, SCs can only be successful if they act as local innovation platforms that bring together all involved stakeholders (Shepard and Simeti, 2013).

### **3. Dimensions of ‘smart cities’**

In the context of previous definitions, several authors have tried to identify the dimensions of SCs. In their *Ranking of European Medium-Sized Cities*, Giffinger et al. (2007) aimed at identifying strengths and weaknesses of urban spaces in a comparative way, based on a combination of local circumstances and activities carried out by politics, business and the inhabitants. According to the fields of activity defined in the previous literature, the authors identify six characteristics to describe a SC: smart economy, smart people, smart governance, smart mobility, smart environment, and smart living.

*Table 1: Some definitions of the Concept of SCs*

Authors	Definition
Giffinger et al. (2007)	A SC is a well performing city built on the ‘smart’ combination of endowments and activities of self-decisive, independent, and aware citizens.
Caragliu et al. (2011)	When investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance.
Lee et al. (2014)	A SC aims to resolve various urban problems (public service unavailability or shortages, traffic, over-development, pressure on land, environmental or sanitation shortcomings and other forms of inequality) through ICT-based technology connected up as an urban infrastructure. The ultimate goal is to revitalize some of the city's structural (environmental and social) imbalances through the efficient redirection of information. SCs are envisioned as creating a better, more sustainable city, in which people's quality of life is higher, their environment more livable and their economic prospects stronger.
European Commission (2015)	A place where the traditional networks and services are made more efficient with the use of digital and telecommunication technologies, for the benefit of its inhabitants and businesses.
Hayat (2016)	A SC is an innovative city that uses information and communication technologies (ICTs) coupled with intelligent sensors and other means to improve quality of life, efficiency of urban operation & services, and competitiveness.

*Source: Authors*

### 3.1 Smart Economy

Smart economy includes factors all around economic competitiveness and innovation, entrepreneurship, trademarks, productivity and flexibility of the labor market as well as the integration in the national and international markets (Giffinger et al., 2007).

From this view, it is crucial for a SC to create a beneficial environment to get economic outcomes as business and job creation, workforce development, and productive improvement in contexts of economic restriction (White, 2016). Related to this, several authors stress the importance of fostering entrepreneurial initiatives, innovative spirit and competitiveness as essential values for productivity improvement and economic growth (Caragliu et al., 2011; Neirotti et al., 2014). Similarly, this dimension related to investment in ICT services to develop new products and services and business models and the integration of international markets (Neirotti et al., 2014).

### 3.2 Smart People

Smart people is described by the level of qualification and education of the citizens, the quality of social interactions regarding integration and public life, and the openness towards the outer world (Giffinger et al., 2007).

According to some authors, SCs initiatives allow members of the city to participate in the governance and management of the city and become active users (Hayat, 2016; Niederer and Priester, 2016). From this view, citizens can collaborate with the city in several aspects, as providers of quality social interactions, providers/consumers of information and data, and generators of ideas and initiatives. Therefore, civic engagement and active participation represent key sources of city development (Paskaleva, 2011; Hayat, 2016).

Related to the previous idea, SCs aim to foster more informed, educated and participatory citizens by using ICT applications and services (Niederer and Priester, 2016). In this regard, development of citizens' e-skills and promotion of digital education to create more opportunities for students and teachers are considered key factors within this dimension (Neirotti et al., 2014; Klimovsky et al., 2016). Additionally, several authors stress the idea of



enhancing citizens' affinity to cities, lifelong learning and fostering social and ethnic plurality and open-mindedness (Belanche et al., 2016).

### **3.3 Smart Governance**

Smart governance comprises aspects of political participation, services for citizens and the functioning of the administration (Giffinger et al., 2007).

On one hand, smart governance refers to good management with open data, transparency and participatory decision-making democracy supported by ICTs (Neirotti et al., 2014; Hayat, 2016; Scholl and AlAwadhi, 2016). It is defined as an administration, which integrates information, communication and operational technologies, optimizes planning, management and operations across multiple domains, process areas and jurisdictions and generates sustainable public value.

On the other hand, some other factors related to the dimension of smart governance refer to effective public and social services for citizens, business and governmental institutions (G2C, G2B and G2G), and integration of public, private, civil and European Community organizations in an effective performance as an unique organism (European Parliament, 2014).

### **3.4 Smart Mobility**

Smart mobility refers to aspects of local and international accessibility and to the availability of ICTs and modern and sustainable transport systems (Giffinger et al., 2007).

Particularly, the previous literature on SCs recalls the relevance of local and international accessibility and put the emphasis on improving logistics flows by effectively integrating business needs with traffic conditions, geographical and environmental issues (Caragliu et al., 2011; Neirotti et al., 2014; Garau et al., 2016; Hayat, 2016). In this regard, the literature identifies several innovative ways to provide the transport of people in cities, such as vehicles based on environmental-friendly fuels and propulsion systems, and emphasis on walking and cycling (Neirotti et al., 2014). In addition, ICT infrastructures for traffic monitoring and control can be used to save time, energy consumption and costs, and to optimize logistics (Neirotti et al., 2014).

### **3.5 Smart Environment**

Smart environment is described by attractive natural conditions (climate, green space, etc.), pollution, resource management and environmental protection (Giffinger et al., 2007).

According to experts, smart environment is based on green technologies and “doing-more-with-less” principle. Core to the concept of a SC is the use of technology to protect the environment and better manage natural resources (pollution control, green renewable energies, etc.), with the ultimate goal of increasing sustainability (Caragliu et al., 2011; Neirotti et al., 2014). Of a particular interest is the protection of natural resources and the related infrastructure, such as waterways and sewers and green spaces such as parks (Hayat, 2016).

Similarly, some authors stress the usage of ICTs to enable measurement and information exchange about energy consumption in real time between providers and users, and the usage of incentives to increase resources reuse and recycling and reduce their waste (Giffinger et al., 2007; Caragliu et al., 2011; Giffinger, 2015).

### **3.6 Smart Living**

Smart living comprises various aspects of quality of life as culture, health, safety, housing, tourism, etc. (Giffinger et al., 2007).

In the area of culture, the literature insists on facilitating the diffusion of information related to cultural activities and motivating people to be involved in them. Examples of initiatives are cultural facilities, applications that provide insight into the waiting time to access a particular monument, city and museums guides available for smartphones, etc. (Neirotti et al., 2014).

ICTs can also be used to support disease prevention, diagnosis and treatment, assuring all citizens efficient facilities and services in the healthcare system. Telemonitoring and telecare are examples of this kind of initiatives. Other important aspect within this dimension is the protection of citizens' integrity and their goods, as well as optimization of emergency services based on big data collection through technology applications (Giffinger et al., 2007; Neirotti et al., 2014; Hayat, 2016; Rathore et al., 2016).

Related to the previous, improvement of technology accessibility and adaptation of sustainable building technologies to gain energy efficiency, security, accessibility and usability are core elements of smart living (European Parliament, 2014; Hayat, 2016).

#### **4. Objectives**

Once come to this point, and bearing in mind the relevant role citizens have in SCs' construction, one can wonder which their knowledge and attitudes are about this concept since a significant challenge for policy makers is how to achieve successful transformation towards SC with the support and involvement of citizens. Following this tone, the objectives of this research could be summarized as follows:

1. Determine the extent to which a sample of urban Spanish citizens is aware of the concept of 'SC'.
2. Assess the importance of those six dimensions mentioned above in the home cities of participants.

#### **5. Methodology**

In order to respond to the research objectives, a questionnaire was developed in two stages: (1) it was carried out a generation of a pool of items based on a literature review on definition and dimensions of the 'SC' concept, and (2) a group of experts selected those items which were more accurate and representative and discarded those which were not. Finally, the six dimensions were represented in the following manner: smart economy (6 items), smart people (5 items), smart governance (3 items), smart mobility (3 items), smart environment (3 items), and smart living (5 items).

After that, the survey, which took the form of a paper and pencil interview (PAPI), was administered to a sample of 408 young university urban citizens aged between 18 and 26 (63.2% women and 36.8% men) by applying convenience sampling during January and February of 2016 in the city of León (northwest Spain). Participants give their point of view about some basic questions: first, if they knew what a SC is (yes/no question), second, the importance given to each statement currently in their city (five-point Likert scale), and third, the importance that should be given to each statement in their city to improve their quality of life (five-point Likert scale).

Once data were collected and processed, it was conducted a univariate analysis with the first question and a Student T-test for a paired sample with the second and third questions using the software SPSS version 21.0.0.

## 6. Results

### 6.1 Knowledge of ‘SC’ concept

In reference to the first objective set above, this first part of the results addressed the level of knowledge residents showed regarding the concept of SC.

Table 2: Do you know what a SC is?

Gender	Yes	No	Total
Women	126 (33.34%)	111 (29.37%)	237 (62.70%)
Men	105 (27.77%)	36 (9.52%)	141 (37.30%)
Total	231 (61.11%)	147 (38.89%)	378

\*  $p < .00$  (Pearson chi-squared = 16.882)

Source: Authors

In particular, as illustrated in Table 2, about 61% of participants showed awareness of the concept ‘SC’. This proportion represents a majority of respondents but it remains far from the entire sample. Surprisingly, the percentage of women who did not know the concept was well above the men’s percentage (29.37% compared to 9.52%), which means that SC is a term more common among men than women.

### 6.2 Attitudes towards SCs’ dimensions

Likewise, the Student T-test was used to estimate if there were statistically significant differences between current and desired mean scores with respect to each one of the six dimensions of which the concept SC is composed, in this case, applied to the home city of participants.

Table 3: Current vs. desired importance in the home city

Dimension	Current	Desired	$t$	$n$
Smart economy	$\mu = 2.5323$	$\mu = 4.2043$	-33.947*	371
Smart people	$\mu = 2.7109$	$\mu = 4.1234$	-31.493*	383
Smart governance	$\mu = 2.4347$	$\mu = 3.9040$	-28.300*	374
Smart mobility	$\mu = 2.6408$	$\mu = 4.0982$	-33.820*	386
Smart environment	$\mu = 2.6094$	$\mu = 4.0156$	-30.118*	383
Smart living	$\mu = 2.7554$	$\mu = 4.1708$	-36.176*	389

\*  $p < .00$

Source: Authors

This statistical method disclosed, as can be noted in Table 3, significant mean differences between current and desired scores for all dimensions. Whereas current average values ranged from 2.43 to 2.75, desired average values varied from 3.90 to 4.20. Therefore, current values were lower than desired in all cases.

## 7. Discussion

It is beyond any doubt that nowadays cities have a significant impact on the development of a country. Additionally, with globalization and the resulting intense urbanization, cities have

adopted an even more substantive and relevant role. As direct consequence of these issues, cities, aimed at building a sustainable space, have to face great challenges and investment, such as renewable energy sources, efficient use of water and electricity, fast, reliable and affordable public transportation, resources to support green technology transfer, and others.

SC concept has much to do, then, with quality of life in cities and with those who reside in them. But however, whereas many governments around the globe have initiated SC projects in order to transform their urban framework, residents are largely absent from most of these programs, and/or uninvolved with (Thomas et al., 2016). The empirical approach of this paper is clear evidence thereof.

Despite the fact that more than 60% of respondents pointed to know what SC concept mean, the great majority of them associated it uniquely to ICTs (applications, infrastructures, monitoring, etc.). On the other hand, although a brief definition about SCs was included in the survey for those who did not be aware of the concept, none of them asked for further explanation. This fact leads us to the following consideration.

With respect to the comparison between current and desired levels in relation to the six 'smart dimensions', it was observed a clear and recurrent pattern according to which current levels are lower than desired ones for all cases. These results reflect, aside from an obvious absence of development in smartness, a high degree of social desirability (Thompson and Phua, 2005) as a result of misinformation and poor involvement.

These exploratory results, far from being conclusive, suggest that there is an overall lack of knowledge by citizens on what a SC project actually represents, and the real role they have to perform in it. This research aims not to give a harsh criticism but to call upon the authorities to pay attention to the active promotion of SCs projects by encouraging the participation of citizens.

Finally, it is necessary to point that this succinct study presents some limitations that open new lines of further research. The convenience sampling, the small age range, and the limited geographical scope are some of these aspects that, if controlled and expanded, would endow future studies with greater validity and generalizability of results.

## References

- [1] Albino, V., Berardi, U. and Dangelico, R. M. (2015). Smart cities: Definitions, dimensions, performance, and initiatives. *Journal of Urban Technology*, 22 (1), 3-21. doi: 10.1080/10630732.2014.942092
- [2] Angelidou, M. (2014). Smart city policies: A spatial approach. *Cities*, 41(1), 53-61. doi:10.1016/j.cities.2014.06.007
- [3] Belanche, D., Casaló, L. V. and Orús, C. (2016). City attachment and use of urban services: Benefits for smart cities. *Cities*, 50, 75-81. doi: 10.1016/j.cities.2015.08.016
- [4] Caragliu, A., Del Bo, C. and Nijkamp, P. (2011). Smart cities in Europe. *Journal of Urban Technology*, 18(2), 65-82.
- [5] European Commission (2015). *Digital Agenda for Europe. A Europe 2020 Initiative*. Brussels: European Commission.

- [6] European Parliament (2014). Mapping Smart Cities in the EU. Directorate-General for Internal Policies. Available: [http://www.europarl.europa.eu/RegData/etudes/etudes/join/2014/507480/IPOL-ITRE\\_ET\(2014\)507480\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/etudes/join/2014/507480/IPOL-ITRE_ET(2014)507480_EN.pdf). doi: 10.2861/3408
- [7] Garau, C., Masala, F., and Pinna F. (2016). Cagliari and smart urban mobility: Analysis and comparison. *Cities*, 56, 35–46. doi: 10.1016/j.cities.2016.02.012
- [8] Hayat, P. (2016). Smart cities: A global perspective. *India Quarterly: A Journal of International Affairs*, 72(2), 177-191. doi: 10.1177/0974928416637930
- [9] Giffinger, R. (2015). Smart City Concepts: Chances and Risks of Energy Efficient Urban Development. *Proceedings of the 4th International Conference on Smart Cities and Green ICT Systems*. Lisbon, Portugal, pp. 3-16.
- [10] Giffinger, R., Fertner, C., Kramar, H., Kalasek, R., Pichler-Milanovic, N. and Meijers, E. (2007). *Smart Cities: Ranking of European Medium-sized Cities*. Vienna: Centre of Regional Science.
- [11] Klimovsky, D., Pinteric, U. and Saparniene, D. (2016). Human limitations to introduction of smart cities: Comparative analysis from two cee cities. *Transylvanian Review of Administrative Sciences*, 47, 80-96.
- [12] Lee, J. H., Hancock, M. G. and Hu, M. C. (2014). Towards an effective framework for building smart cities: Lessons from Seoul and San Francisco. *Technological Forecasting & Social Change*, 89, 80-99. doi: 10.1016/j.techfore.2013.08.033
- [13] Leydesdorff, L. and Deakin M. (2009). The triple-helix model of smart cities: A neo-evolutionary perspective. *Journal of Urban Technology*, 18(2), 53-63. doi: 10.1080/10630732.2011.601111
- [14] Neirotti, P., De Marco, A., Cagliano, A. C., Mangano, G. and Scorrano, F. (2014). Current trends in smart city initiatives: Some stylised facts. *Cities*, 38, 25-36. doi: 10.1016/j.cities.2013.12.010
- [15] Niederer, S. and Priester, R. (2016). Smart citizens: Exploring the tools of the urban bottom-up movement. *Computer Supported Cooperative Work*, 25, 137–152. doi: 10.1007/s10606-016-9249-6
- [16] Paskaleva, K. A. (2011). The smart city: A nexus for open innovation? *Intelligent Buildings International Journal*, 3(3), 153-171.
- [17] Rathore, M. M., Ahmad, A., Paul, A. and Rho, S. (2016). Urban planning and building smart cities based on the internet of things using big data analytics. *Computer Networks*, 101, 63–80. doi: 10.1016/j.comnet.2015.12.023
- [18] Scholl, H. J. and AlAwadhi, S. (2016). Smart governance as key to multi-jurisdictional smart city initiatives: The case of the ecitygov alliance. *Social Science Information*, 55(2), 255-277. doi: 10.1177/0539018416629230
- [19] Shepard, M. and Simeti, A. (2013). What's so smart about the smart citizen? In D. Hemment and A. Townsend, A. (Eds.), *Smart Citizens*, vol. 4. Manchester: FutureEverything Publications, Manchester, 2013.
- [20] Thomas, V., Wang, D., Mullagh, L. and Dunn, N. (2016). Where's wally? In search of citizen perspectives on the smart city. *Sustainability*, 8(3), 226-239. doi: 10.3390/su8030207

- [21] Thompson, E. R. and Phua, F. T. T. (2005). Reliability among senior managers of the Marlowe–Crowne short-form social desirability scale. *Journal of Business and Psychology*, 19(4), 541-554. doi: 10.1007/s10869-005-4524-4
- [22] Walravens, N. (2015). Mobile city applications for Brussels citizens: Smart city trends, challenges and a reality check. *Telematics and Informatics*, 32(2), 282-299. doi: 10.1016/j.tele.2014.09.004
- [23] White, J. M. (2016). Anticipatory logics of the global smart city imaginary. *Urban Geography*, 37(4), 572-589. doi: 10.1080/02723638.2016.1139879

# TRANSFORMATION OF INSTITUTIONAL FACTORS IN THE DEVELOPMENT OF HIGH- TECH PRODUCTION IN THE CONTEXT OF GLOBALIZATION

Yulia Vertakova<sup>1,a,\*</sup>, Ekaterina Kharlamova<sup>2,b</sup>

<sup>1</sup>305040, 94, 50 let Oktyabrya st., Kursk, Russia

<sup>2</sup>305040, 94, 50 let Oktyabrya st., Kursk, Russia

<sup>a</sup>vertakova7@yandex.ru, <sup>b</sup>klevtsovam@mail.ru

\*Corresponding author

**Abstract.** The article in the context of globalization comes the deepening of the international division of labour. The result is a specialization of countries and regions in the production of certain types of products. The benefits of the countries from globalization are unequal. Those who specialize in the production of high-tech products, receive greater benefits. This is due to the effect of the rarity of such products, monopolization of its production. Therefore, to improve national competitiveness, it is necessary to stimulate the development of high-tech industrial production. This requires institutional changes.

The analysis revealed problems in the development of institutional conditions for high-tech production in Russia. It is shown that this is a national competitive weakness, [note: "weakness" in the sense of the SWOT growing in the conditions of globalization. Identified priority areas for the development of high-tech production in Russia. The directions of transformation of institutional factors in the development of high-tech production taking into account globalization processes.

**Keywords:** high-tech industry, impact of globalization, institutional conditions of activities

**JEL Classification:** F55, O25, O32, O43

## 1. Introduction

The importance of the process reproduction of high-tech products is due to the following reasons. First, high-tech products allows firms in different industries to more effectively develop domestic and international markets. Second, the efficiency of high-tech products is due, as a rule, a relatively large share of value added in the structure of revenue of the manufacturer in view of the comparative saving of human labor in its production, a higher level of automation of the production process, the use of material and energy - efficient technologies (Ménard, 2004), (McCormik, 1999), (Gates, 1999), (Zavalishin, 2012), (Silakov, & Silakova, 2014), (Fedotova et al., 2015), (Kotliarov, 2015), (Makadok & Coff, 2009), Schmitz & Nadvi, 1999). Thirdly, efficient production and placing on the market of high-tech products provide provides enterprises a more substantial opportunity for financing investment, social programs, etc.

## 2. Materials and Methods

Theoretical basis of research is the theory of the state structural and industrial policy, theory of reproduction, the innovation theory, institutional and neo-institutional paradigm of economic science. The main method of research used institutional analysis. Account of the empirical data on the development and the system of state regulation of high-tech industry in the Russian Federation.

Regulatory framework article presented by laws and other civil-legal acts related to the institutional providing of structural transformations in hi-tech industrial sector. The empirical base of the research, based on data from official statistical agencies, research of domestic and foreign scientists, materials of the Internet and the press.

In this article, we have developed proposals to improve the institutional conditions for the development of high-tech industry. These proposals take into account international experience, analyzes the statistics and their changes during the crisis period. The proposed adapted model to the Russian reality.

## 3. Results and Discussion

In different countries are created different systems the institutional conditions for the production of high-tech products, significantly different from each other. The table below systematized the features of the basic country models of the functioning of institutions supporting manufacturers of high-tech products

*Table 1: The basic models of the functioning of institutions supporting manufacturers of high-tech products*

The name of the model of functioning of institutions supporting high-tech products	The basic institutions to support producers of high-tech products	Main related institutions	The comparative stability of the model to the crisis of 2008 – 2010.
1.American-English model	The Institute of indirect, mostly tax incentives for innovative companies. Expressed Federal support model	Institute of involving innovative personnel in the economy	Unstable
2.The German-Austrian model	A synthesis of Federal and regional support mechanisms. Institute of special state and private foundations. Institute of technological modernization of single-industry towns. Institute for innovative education	Institute the use of savings for the purpose of innovative modernization of production	Relatively stable
3.Japanese model	Institute of customs-tariff protection, Institute of promoting the production and technological chains, producers of high-tech products	Institute of lifetime employment, the Institute for public-private partnerships, Institute for innovative education	Sustainable
4.The South Asian model	Institute of industrial cluster, Institute of special funds to support innovative initiatives	The Institute for public-private partnership, Institute of special corporations (chaebol)	Sustainable
5.Latin American model	The institute of direct co-financing of innovative projects	The Institute of direct co-financing of innovative projects	Unstable

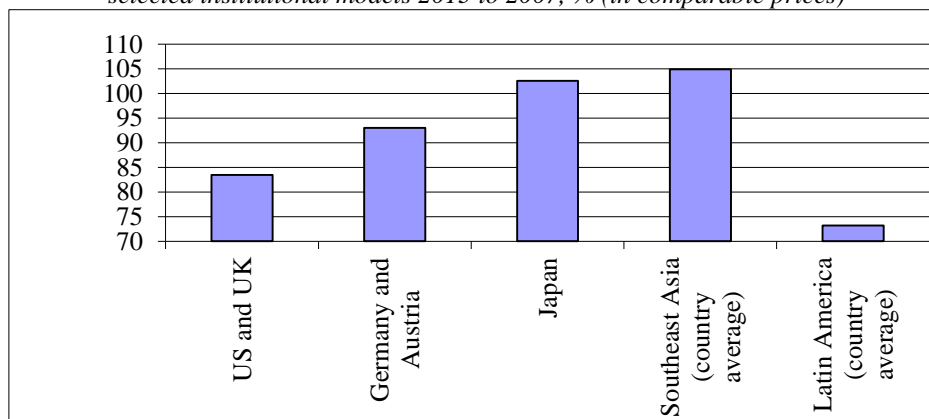
*Source: systematized by the author*

To characterize the degree of sustainability of a country of the functioning of institutions supporting manufacturers of high-tech products we use data of official international statistics



that demonstrate the rate of change of production of such products in the post-crisis 2013 compared with pre-crisis 2007 (Fig. 1).

Figure 1: The rate of change of production volumes of high-tech products in the world regions corresponding to selected institutional models 2013 to 2007, % (in comparable prices)



Source: Russia in figures, (2015) "The short statistical collection", Rosstat, Moscow, 359 P.

In principle, the fact that the model of institutional conditions typical of Latin America, proved to be unstable to adverse macroeconomic conditions the crisis of 2008 – 2010 and was quite natural. This model is characterized by fragmented, inadequate system support of the enterprises-innovators, implemented as a rule, as a residual. In addition, the States of Latin America is traditionally high level of corruption, which also impedes the formation of an effective institutional conditions for the production of high-tech products (Plotnikov & Volkova, 2015), (Plotnikov & Volkova, 2014).

However, the main reasons that American-English model of institutional conditions of production of high-tech products proved to be unstable to the crisis, in our opinion, are:

- priority of indirect methods of stimulation of producers of high-tech products (particularly tax benefits) in the economic downturn, cannot form a motivational basis for innovative behavior;
- the multiplicity of institutions responsible for the implementation of programs of support of the enterprises-innovators on the level of the US Federal government, which increases the risk of departmental inconsistencies in the implementation of selected innovative programs;
- the lack of financial possibilities of regions of the United States in supporting manufacturers of high-tech products do not allow for active development of small innovative companies, which is difficult to access Federal funding;
- aggressive US foreign policy reduces the probability of successful establishment of the international institutional economic conditions for joint production of high-tech products (the "sanctions policy", etc.).

In our opinion, for the Russian Federation the most preferred would be the model of the institutional conditions for the production of high-tech products, synthesizing elements of the German-Austrian, Japanese and South Asian models:

- a. the use of formal and informal institutions in the allocation of funds for financial support to producers of high technology products and monitoring their use (German-Austrian model);
- b. the opportunities of the regions to form their own institutional conditions of production of high-tech products (the German-Austrian model);

- c. institutional environment, including tax plan for accelerated development of small innovative enterprises in institutions of higher education in various fields (German-Austrian model);
- d. active customs-tariff protection of domestic producers of high-tech products (the Japanese model);
- e. policies to promote the sustainable development of cooperative and integration relations between the producers of high-tech products of related industries (the Japanese model);
- f. the formation of a wide range of relations of public-private partnerships in the production of high-tech products with transparent institutional framework of interaction (game rules) of the state and private companies.

Overall, one of the main obstacles to the intensification of the production process of high-tech products in the domestic economy is the shortage of sources of funding that could be mobilized for this purpose, namely:

- strategic investors, in particular industrial enterprises, especially in terms of financial and economic depression, insufficient financial resources to independently implement large-scale investment and innovative projects of hi-tech production;
- commercial banks of the Russian Federation in the vast majority of cases not interested in the co-financing of initiatives in the field of production of high-tech products for the reasons described above, the high financial risks of such kind of financial and credit operations, and the availability of other options for receiving fast profit, particularly through speculative operations in the currency market;
- the funding of projects solely by the state (through state extra-budgetary investment and innovation funds and state corporations, innovation-oriented) is possible, but, as noted earlier, is fraught with significant corruption risks;
- full funding of projects of hi-tech production at the expense of private venture capital funds and specialized investment companies, as is often the case in the United States, Western Europe, Southeast Asia and other foreign countries with a market economy, it is practically impossible in Russia due to extreme not developed of institute of private venture investment.

One of the key problems of development of institutions for the reproduction of high-tech products in the domestic economy is underdeveloped external institutions co-financing projects of development and implementation of such products.

For the formation of the proposed operation of the Institute with mixed financing of hi-tech production requires the following major institutional changes:

1. The creation of certain tax preferences, for example in terms of tax benefits on profits for the initiators of innovative projects of hi-tech production. In certain budgetary problems in Russia, likely due to the not entirely satisfactory situation in world energy prices in 2015 – 2016, and also the influence of sanctions and lack of efficiency of functioning of national economy as a whole, such benefits at the initial stage, you can at least provide producers the highest priority of high-tech products (e.g., products in the field of nanotechnology, electronics industry etc. industries – according to a special list, which must be approved by the Government of the Russian Federation on the basis of the technological development trends of the domestic and global economy).

2. The standard of special reserve requirement of commercial banks for crediting of innovation projects. Currently, the Central Bank of the Russian Federation establishes a

commercial Bank, a number of statutory requirements, such in particular as the capital adequacy ratio, liquidity ratios, etc., which are designed to streamline banking operations. In our view, it is useful to define some minimum standard of lending by commercial banks for innovative projects in the real sector of the economy, for example the percentage of funds attracted by the Bank products in the sphere of nanotechnologies, electronics industry and other industries – according to a special list, which must be approved by the Government of the Russian Federation on the basis of the technological development trends of the domestic and global economy).

Such a standard should be high, within a few percent, so as not to increase the overall level of Bank risk, which in any case, in the process of crediting of projects of hi-tech production will increase due to the risky nature of the project group as such. Failure is this kind of standard, respectively, should be the basis for the application of penalties in respect of the relevant Bank by bodies of the banking regulation and supervision. In our view, as additional measures, the commercial banks of the Russian Federation should substantially restrict operations on the currency market and securities market (as is the case in particular in the United States and several other foreign countries) (Vertakova et al., 2014), (Vertakova & Plotnikov, 2016). This can strengthen the incentives of commercial banks to lend to investment projects in the real sector of the economy, including those associated with the production of high-tech products (Vertakova et al., 2015).

In the proposed variant of the functioning of mixed financing of hi-tech production appropriate the project for the production of such products create in the form of a separate legal entity such as limited liability companies or open joint stock companies. This will improve the controllability of the project will increase the control over the process of its realization and distribution of potential profits (Vertakova & Trusova, 2014).

In addition, it is proposed to apply additional preferences to all participants of mixed financing of the project production of high-tech products, increasing their incentives to this kind of financing, such as:

- for the initiator of the project – tax exemptions;
- to state extra-budgetary Fund or a public Corporation (investment representatives of the state in this process) – the ability, subject to successful implementation of the project, within a strictly defined period (e.g. first few years of its operation) to purchase shares of the state at the expense of own funds (profit and amortization) – this may be appropriate in the case of the budget deficit and the state's lack of financial resources to implement social and other similar programs;
- for the Bank - the opportunity again for a certain period of time to transform itself from a creditor of the owner of the property project of hi-tech production (and already, therefore, not firmly established percent of the loan, and dividends from the net profit of the project) – this kind of operation may be attractive for the Bank in case of sudden unplanned increase in the efficiency and cost of the project.

These additional preferences, should increase the interest of the economic operators in the implementation of projects of production of high-tech products on the basis of mixed financing.

In addition, for large projects, production of high-tech products should be provided and institutional conditions for the implementation of the IPO. Currently in Russia on the MICEX – RTS there is a special segment designed for small innovative companies, which can be done this kind of operation. A commercial Bank may get additional benefits from implementation of the function of the underwriter of placement of securities of this project.

In general, the institute of mixed funding the development and production of high-tech products will increase the intensity of these processes by increasing the possibility of raising substantial financial resources from different sources, improve control and reduce transaction costs of hi-tech production, as well as the system of additional preferences for investors in innovation. Suggested areas of improvement formal development institutions of hi-tech production in the Russian economy are:

- establishment of mixed-finance projects of hi-tech production;
- improvement of the Institute of state corporations of development of innovative activities in terms of increasing the level of transparency of their activities;
- the establishment of the Institute of indirect incentives for the production of high-tech products in Russia through the provision of tax benefits in the amount of annual economic impact for producers of high-tech products.

In addition to formal institutions, enhancing high-tech products manufacturing enterprises of different sectors of the economy involves informal institutions. Informal institutions include norms of business practice, is not fixed directly to the official laws, traditions, customs, in varying degrees, affect the production process of high-tech products, the interaction of the participants of this process, protection of the rights of high-tech products, etc. (Debelak, 2006), (Granin, 2014), (Thick, 2007).

Informal institutions are formed mainly in the framework of self-regulatory organizations. In the Russian Federation the experience of the functioning of self-regulatory organizations and their impact on economic processes is not significant. However, the transfer of the functions of state regulation SRO is a trend in the late XX – XXI century for many countries with developed market economies.

So, in the Russian Federation 2009 – 2010 self-regulatory organizations was, in particular, substantial rights in the construction sector – in fact, they were delegated some functions of state regulation of the construction market. One of the consequences of such institutional changes has been a reduction in economic and financial “pyramids” in the construction industry, mechanisms of deception holders on the housing market etc. of Course, this informal interaction of organizations within the SRO is not able to fully replace state regulation mechanisms, but in certain situations, especially in conditions of high level of corruption in many spheres of public administration, it is more effective (Long & Zhang, 2011).

In Russia there is no association focused on a preferred high-tech products, We propose the formation in Russia of such an institution as a self-regulating organization of producers of high-tech products.

The main functions of this kind of Association, ensuring the implementation of the informal institution to support manufacturers of high-tech products, can be:

1. Coordination of the informal “rules of the game” in the market of production and sales of high-tech products. To this kind of “rules of the game” (the informal norms of business practice in the sphere of high technologies) can be classified as preventing industrial espionage, to prevent price collusion and other forms of discrimination in the markets of high-tech products, etc.

2. Legal lobbying of interests of participants of the market of high-tech products in the organs of state power and administration at various levels. Legal lobbying is a targeted, legitimate activities to defend the interests of market participants high-tech products, to influence the change of the formal institutions of state regulation in their favor.

3. Technology exchange (technology transfer) and economically relevant information between the participants of the Association of producers of high-tech products. The association should provide opportunities to intensify the process of technology transfer between the parties on a mutually advantageous basis, the implementation of certain contractual relationships. In addition, many, particularly small and medium-sized organization relating to the production of high-tech products often do not have access to certain significant economic data about the trends and scenarios of development of high technologies, of the risks of investing in innovation, etc. Association can provide new possibilities for this kind of technological and economic information, for example through the organization of conferences, round tables and other informal 'sites' implementation of the communication between the Association's members and sharing their information.

4. The establishment of a private innovation infrastructure. The association may develop its own innovation infrastructure by funding the formation and development of technoparks, business incubators and other platforms for implementation of “start-UPS” of small innovative companies, banks, innovative ideas, etc.

5. The implementation of joint projects production of high-tech products between the members of the Association, including the cross-sector nature.

As noted earlier, the vast majority of existing in the Russian Federation, industry associations have a sectoral focus. Accordingly, communication between producers of high-tech products belonging to different sectors of the economy. Meanwhile, many projects are producing innovations in products require coordination with enterprises of related industries, in particular forming with this enterprise production process chain.

Thus, in the framework of the association of producers of high-tech products increases the possibility of formation of stable relations between producers of related industries and the creation of joint projects production of high-tech products.

6. The influence of the Association on the banking sector and investment companies in terms of increasing their incentives to Finance and the financing of projects of hi-tech production. In particular, the association as an independent legal entity can interact with financial associations, such as Association of Russian banks or associations of insurers, to improve financing conditions manufacturers of high-tech products. In addition, the Association may act as guarantor on a number of priority innovation projects.

7. Resistance to unfair management in the sphere of high technologies. It should be noted that the scope of investments in the development and production of high-tech products involves a relatively high risk of abuse by not good faith management enterprises. Accordingly, for managerial staff, involved in the field of investing in high-tech products and promote the market, requires special instrumentation and control.

In particular, in the United States have the practice of creating so-called “black lists” unfair management, dismissed from the companies as a result of different types of abuse. However, as noted, D. Debelak (Debelak, 2006) is not always a sufficient evidential base to prosecute such unscrupulous managers, and even if guilty of judicial decisions, there is considerable risk that after a certain period they can find the company of a similar profile and to cause the same damage to its development.

As a result, in many industry associations of the United States was formed to informally Institute the “black list” of unfair managers. The Manager, who was in such a list (on the basis of evidence provided by his previous employer), has virtually no chances to find a similar

position in another organization. This kind of practice of creating “black lists” unfair managers could be implemented in the Russian Federation, including in the framework of the establishment of the Association of producers of high-tech products. The very existence of this kind of “blacklist” it will discourage the management of organizations engaged in the production of high-tech products, to official abuses.

Thus, the formation of an informal institution for promoting high-tech products in the form of the Association inter-branch character with a wide range of functions will improve the economic efficiency of development of this group of economic actors in the following areas:

- a. creating sustainable informal “rules of the game” in the market of high-tech products, which increases the possibility of forming a mutually advantageous Pareto-optimal equilibrium between its participants;
- b. lower transaction costs in terms of business security and monitoring of management members of the association;
- c. reduction of transaction costs in terms of access to economically and technologically relevant information;
- d. increase opportunities for legal lobbying influence on formal institutions towards profitable for most producers of high-tech products;
- e. the increased probability of implementation of joint projects of creation and market promotion of high-tech products.

Almost any company producing high-tech products, use the possibilities the Internet at least in the following directions:

- search in the global network economy significant information;
- the creation and development of own Internet site, which is usually, advertising and informational purposes;
- the use of the Internet for communication with various counterparties via electronic mail and tools on the same website.

However, with the rapid development of the Internet, the formation of different systems of financial-economic relations in a virtual environment, use only the above directions for companies producing high-tech products, in our opinion, not enough.

In fact, at the present time the Internet emerged and is rapidly developing a number of fairly stable informal institutions, enabling the improvement of economic activities high-tech companies in various fields. In General, the ability of the Internet to the formation of a new system of institutions pointed out by Bill Gates in his book. (Gates, 1999). The Internet has the following main socio-economic institutions, which can be used including in the activities of firms producing high-tech products:

- financial institutions of Internet, Internet banking, virtual investment companies, online payments using mechanisms such as Webmoney, etc.);
- institute of virtual (remote) employment;
- institute of Internet communications, in which we use the platform of economic cooperation as a specialized Internet forums, social networks etc.;
- the institute is an online outsourcing, providing the firm an opportunity to entrust the management of a number of economic processes to specialized companies, including significantly geographically remote.

Of course, the company producing high-tech products, cannot fully virtualizes – requires a local physical venue for the production process. However, completely virtual, existing only in an electronic medium, may be companies that are manufacturing different types

In general, institutions of Internet is able to provide the companies producing high-tech products, the following additional features:

- a. The mobilization of additional financial and investment resources necessary for the development and mass production of high-tech products, through the institution's Internet banking system (virtual banks operating exclusively on the Internet (not having the material – physical basis) and specializing, as a rule, lending an innovative, potentially highly profitable projects with high risk);
- b. Output on virtual stock markets (large companies producing high-tech products) with shares or bonds;
- c. Use of the Internet factoring. Factoring is a purchase of the company receivables to the life of the loan at a discount. Factoring operations are carried out either by specialized virtual companies that specialize in debt management or units of virtual banks.

Institute of remote (virtual employment) provides an opportunity for recruitment and employment of staff geographically remote from firms producing high-tech products (including living in other States). Such categories of staff can be:

- design engineers of high-tech products;
- experts in the field of information and communication technologies;
- experts in the field of marketing and promotion of high-tech products in the national and international markets;
- consultants in various fields, etc.

The advantage of virtual Institute of employment for companies is not only in the presence of a wide range of applicants for a particular position, but also the possibility of savings on payroll due to different purchasing power of different currencies and standards of living of professionals in the same specialties in different countries. For example, modern large American and European companies are actively attracted to the virtual conditions of employment of specialists in the field of programming and engineering to India and China because of the possibility to save on the wage level, which is for employees of the States is quite acceptable, but not preferred to actual professionals from the United States or Western Europe.

In addition, the benefits of using a virtual Institute of employment for firms producing high-tech products, is the savings on the allocation of the workplace for the appropriate “remote” employees. For the latter, this kind of employment is preferred because of the possibility of planning free graphics employment.

In today's Internet is actively developing the outsourcing Institute the various activities. Outsourcing is the process of transfer of a number of activities of the company specialized firms, including geographically remote. Internet functions outsourcing in this case is particularly relevant for small and medium-sized companies involved in the production and sales of high-tech products.

Informal Institute Internet outsourcing includes the following main directions, which can be used mainly for relatively small companies with innovative profile:

- a) professional accounting and reporting;
- b) the creation of communications and information technology company that produces high-tech products.

- c) participation in the design of the samples of high-tech products and their validation (for example, through remote technology parks);
- d) services to promote high-tech products to industrial markets;
- e) services for the selection, evaluation, training of personnel etc.

The benefits of e-outsourcing to firms producing high-tech products lies in the fact that the firm can concentrate all his attention actually on key economic processes – the development, improvement, testing and manufacture new products with improved technical and technological characteristics and consumer properties. Other areas of activity on mutually advantageous conditions, can realize a third party organization.

Finally, a special institute of professional Internet communication provides the opportunity for companies producing high-tech products through a special online forums and professional social networks enable the prompt exchange of knowledge and technology. The institute enhances the ability of high-tech companies to develop their intellectual potential, which is of fundamental importance in the development and production of high-tech products.

In addition, in a virtual environment increases the possibility of establishing direct communications between manufacturers of high-tech products and end users. Thereby reducing the impact on the sales process of high-tech products informal Institute for market intermediaries, the impact of which is often economically inefficient for manufacturers and for consumers. In particular, who studied the sales process is a high-tech domestic products, like binoculars, concluded that as a result of direct sales via the Internet (also associated with a number of additional expenditures on Internet advertising, etc.) the final price for consumers by eliminating the chain of marketing intermediaries is reduced on average by 10-15%, which is quite significant..

Also note that the informal institutions of the Internet, and generate additional risks for manufacturers of high-tech products, the main ones are:

- reducing the possibility of remote control over companies engaged in services outsourcing and remote staff;
- increased risk of leakage of technologically and commercially significant information resulting from the use of the Institute Internet outsourcing;
- the increase in the probability of the unfair performance of the virtual companies of the obligations and the complexity of litigation with them (despite the availability on the Internet of special mechanisms and procedures check the business reputation of virtual companies);
- the complexity of tracking changes in functioning of virtual economic institutions, which occur significantly more intense in comparison with changes in the development of formal institutions.

However, in our opinion, the main advantages of the use of informal institutions to the Internet for firms producing high-tech products are:

- reduction of transaction costs in the access and processing of specialized technological and economic information;
- the reduction of operational and transaction costs of managing non-core activities of firms;
- increase mobilization of financial resources for new types of financial markets;
- the possibility of growth of labor productivity in the use of the Institute of remote employment.



## 4. Conclusion

Revealed the basic model of the functioning of institutions supporting manufacturers of high-tech products and analyzes the degree of stability of the country in the post-crisis model of 2013 compared to pre-crisis 2007, the Most stable was the Japanese and South Asian model. Formed the most preferred model of institutional conditions of production of high-tech products to Russia, synthesizing elements of the German-Austrian, Japanese and South Asian models. The possibilities of the development of informal institutional conditions, such as the building industry Association of manufacturers of high-tech products. The directions of integration of an enterprise in dynamically developing institutions of the Internet. The advantages of integration were highlighted from the point of view of intensification of the process of reproduction of high-tech products and improve its efficiency, such as reducing transaction and operating costs of the company, increasing the possibilities of mobilizing financial resources for the production of high-tech products, benefit from the use of the Institute "remote employment".

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## References

- [1] Debelak, D., (2006). *Business Models Made Easy*. Entrepreneur Press, 361.
- [2] Fedotova N. N., He C, Lapin N (2015) Modernization and globalization *Civilization and modernization*, 1, pp.45-49
- [3] Gates, B., (1999). *Business @ the speed of thought*. Gardners Books, 400.
- [4] Granin, Yu. (2014) Globalization and national forms of global strategies *Herald of the Russian academy of sciences*: 2 (84), pp. 135-141
- [5] Kotliarov, I., (2015) The Outsourcing-based model of organization of oil and gas industry in Russia: problems and ways of solving. *Voprosy ekonomiki* 9, pp. 45-64.
- [6] Levin D. Z. and Cross R. (2004). The Strength of Weak Ties You Can Trust: The Mediating Role of Trust in Effective Knowledge Transfer. *Management Science* 50, pp. 1477-1490.
- [7] Long, C. and Zhang, Xiabo (2011). Cluster-based industrialization in China: Financing and performance. *Journal of International Economics* 84 (1), pp. 112-123.
- [8] Makadok, R. and Coff, R. (2009). Both market and hierarchy: An incentive-system theory of hybrid governance forms. *Academy of Management Review*, 34, pp. 297-319.
- [9] McCormik, D. (1999). African enterprise clusters and industrialization: Theory and reality. *World development* 27 (9), pp. 1531-1551.
- [10] Ménard, C. (2004). The Economics of Hybrid Organizations. *Journal of Institutional and Theoretical Economics*. vol. 160, pp. 345-376.

- [11] Plotnikov, V. and Volkova, A. (2014) Service Economy and the Specifics of its Development in Russia. *Emerging markets queries in finance and business (EMQ 2013)*, vol 1, 16, pp. 18-23
- [12] Plotnikov, V. And Volkova, A. (2015) The influence of government policy on the services sector, *International Multidisciplinary Scientific Conferences on Social Science & Arts. (SGEM 2015) Conference on Political Sciences Law, Finance Economics & Tourism. Conference Proceeding* vol. III. №1 Bulgaria, pp. 875-882
- [13] Romanenko, V., Nikitina, G. and Korets, V. (2010). *The basics of using the Internet in foreign economic activity*. MESEP, 160.
- [14] Russia in figures, (2015). *The short statistical collection*. Rosstat, Moscow, 543.
- [15] Schmitz, H. and Nadvi, K. (1999). *Clustering and industrialization: Introduction*. World Development, 27(9), pp. 1503–1514.
- [16] Silakov, A. V. and Silakova, V. V. (2014). Technology compliance management in chemical fibre manufacture. *Fibre chemistry* 46 (2), pp. 136-142.
- [17] Termeer Catherine J. A. M, Soma Katrine and Opdam Paul F. M (2016) Informational governance - A systematic literature review of governance for sustainability in the *Information Age Environmental science & policy*: 1, T. 56: 89-99
- [18] Thick P. A. (2007). *Workshop on lobbyism in Russia*. Albina publisher, 384.
- [19] Vertakova, Y., Klevtsov, S. and Klevtsova, M. (2015) Technology of Fixed Assets Assessment in Investigating the Stability of the Industrial Complex of the Region, *26th International Business Information Management Association Conference*: Madrid, Spain, pp. 3230-3236
- [20] Vertakova, Y. and Plotnikov, V. (2016). Innovative and industrial development: specifics of interrelation. *Economic Annals-XXI* 156 (1-2), pp. 37-40.
- [21] Vertakova, Y., Polozhentseva, Y. and Klevtsova, M. (2014) The Development of Regional Cluster-Oriented Policy: Russian and Foreign Practice, *International Multidisciplinary Scientific Conferences on Social Science & Arts. (SGEM 2014) Conference on Political Sciences Law, Finance Economics & Tourism. Conference Proceeding* Vol. 1. Bulgaria, pp. 399-406,
- [22] Vertakova, Y., Polozhentseva, Y. and Klevtsova, M. (2015) Investment mechanism of stimulation of cluster initiatives in the region *International Multidisciplinary Scientific Conferences on Social Science & Arts. (SGEM 2015) Conference on Political Sciences Law, Finance Economics & Tourism. Conference Proceeding* Vol. III. №1 Bulgaria, pp. 771-778
- [23] Vertakova, Yu. and Trusova, N. (2014) Marketing functions to ensure better investment attractiveness of a territory. *Marketing identity: explosion of innovations*: 1, pp. 267-27
- [24] Zavalishin, V. A., (2012). Financing of innovations: problems and prospects. *Theory and practice of investments*, 5, 14-19.

## SANCTIONS AND ECONOMIC POLICY IN THE CONDITIONS OF GLOBALIZATION

Yulia Vertakova<sup>1,a,\*</sup>, Yulia Polozhentseva<sup>2,b</sup>, and Maria Klevtsova<sup>3,c</sup>

<sup>1</sup>305040, 94, 50 let Oktyabrya st., Kursk, Russia

<sup>2</sup>305040, 94, 50 let Oktyabrya st., Kursk, Russia

<sup>3</sup>305040, 94, 50 let Oktyabrya st., Kursk, Russia

<sup>a</sup>vertakova7@yandex.ru, <sup>b</sup>polojenceva84@mail.ru, <sup>c</sup>klevtsovam@mail.ru

**Abstract.** The research aims to studying directions and consequences of the sanction and counter-sanctions interaction of foreign and Russian economies. The paper characterizes a system of economic sanctions against Russia in 2014-2015. The authors study directions, forms and consequences of this impact worldwide. The paper gives an analysis of the rating leading world countries on an index of globalization, which shows that the Russian economy is only entering globalization processes. Methodological basis of the study is methods of system analysis, comparisons and analogies, logical-semantic modeling. The authors assess consequences of the sanctions considering a comparative analysis of the world's leading countries in export and import of goods. The main directions of the Western impact on the Russian economy are systematized, as well as consequences of the import substitution for the European countries are assessed. It is shown that the economic constraints arising under the sanctions against Russia, may serve as a serious impetus for the development of domestic companies and changing foreign goods for Russian. The obtained results find out tools of the economic policy that are more practical. They are focused on the development of the Internal Market and import substitution in the period of introducing sanctions. Thus, it is possible to say that in the context of the world economy globalization, any sanction restrictions are destructive in nature with a strong "boomerang effect", as they are reflected in countries which initiate sanctions.

**Keywords:** economic policy, sanctions; counter-sanctions; import substitution

**JEL Classification:** O11, O43, F51

### 1. Introduction

The development of the global economic system in different periods was characterized by introducing sanctions against various world powers. Therefore, introducing sanctions is the natural measure to restrict the economies of the developed and developing countries.

The mechanism of economic sanctions began spreading 20-30 years ago. Firstly, it is due to the way of politicization economy. Secondly, it is a significant means of influencing the structure of international economic relations overall. The use of that mechanism resulted in disputes over of its efficiency, especially in terms of economic interdependence of all countries.

Studying a modern system of international economic relations, the authors have noticed a widespread use of economic sanctions against a particular country.

Evolution of economic sanctions as a foreign policy tool makes consider the most representative cases of the restrictive measures. The authors applied comparative, retrospective

and expert analysis as well as examined the background and chronology of the considered sanctions in order to assess their impact on the economy. A scenario approach to improve the Russian economic policy was used in the research.

The analysis of theoretical approaches of the formation and development of the mechanism showed that the main researches in this area belong to different organizations and institutions, such as The Peterson Institute for International Economics (USA). The scientists Gary Clyde Hufbauer, Nicholas R. Lard, Jeffrey J. Schott, Kimberly Ann Elliott, Barbara Oegg (Hufbauer, et al., 2009), Matthias Neuenkirch (Neuenkirch, 2016), Florian Neumeier, Manuel Oechslin (Oechslin, 2010) and Randall E. Newnham (Newnham, 2008) are also interested in the mechanism, Bremzen A. (Bremzen et al., 2015), Gottemoeller R (Gottemoeller, 2007), Miguel E., Shanker S. (Miguel & Shanker, 2011), Ostrovnaya M., Podkolzina E. (Ostrovnaya & Podkolzina, 2015), Severinov K. (Severinov, 2014), Trofimova O. (Trofimova, 2015).

## 2. Results

It is quite common nowadays when one country imposes economic and political sanctions against another. It is necessary to understand the purpose and consequences of the economic sanctions in order to identify those new techniques and methods, which were used by the state during globalization of the world economy, that is, in the first and second decade of the XXI century.

Sanctions are the tools of economic management expressed in the form of strict regulations. The term "economic sanctions" means a combination of commercial and financial activities, which are prohibited but implemented by one subject of the world politics and international economic relations against another one. The purpose of the sanctions is to make the latter change its economic and political policies (Plotnikov et al., 2015). Sanctions, aimed at limiting international financial transactions and migration of people from one country to another, are the most common. However, such sanctions against major countries have acquired consequences with negative effects, which we observe nowadays (Vertakova et al., 2014).

Economic sanctions introduce measures for coercive actions against the violators of the economic and financial activity. Public authorities, financial and tax authorities, as well as banks carry out these measures, which include prohibition or restriction of activities, penalties, loss of loans, closure accounts in banks. Sanctions may be caused by several reasons and have different aims (Plotnikov & Volkova, 2014), (Plotnikov & Volkova, 2015). These are mainly political instruments to influence partner's decision or help to solve some political problems. In practice, the country that initiates these sanctions against the other one aggregates the mentioned facts and tries to worsen economic situation in the opponent country. This leads to the fact that the political and economic activity of the country under sanctions is destabilized and, therefore, becomes largely dependent on the country-initiator policy (Vertakova et al., 2015, A), (Vertakova et al., 2015, B).

First, several governments (collective economic sanctions) officially announce and adopt legally the economic sanctions against citizens and other entities of the economy (corporations, companies, banks, financial institutions, etc.). These sanctions may be imposed only against certain individuals and certain companies. In addition, sanctions are imposed separately depending on the forms of international economic relations the state is involved, i.e. sanctions relate to export and import operations, services, labor migration, movement of capital and financial flows. So the countries within the sanctions, use a method of "freezing" of accounts and assets of individuals and companies that are on the "sanction list".

Currently, there are many types of restrictive measures in the sanctions during the embargo, prohibition, restriction, control of economic processes, etc. (Table 1).

Table 1: Overview of the forms used economic sanctions as an instrument of foreign policy

Consequences of sanctions	The total content and examples of restrictions	A country under sanctions
Embargo	embargo on arms and related materiel	Afghanistan
	embargo on arms	China
	embargo on telecommunications monitoring and interception equipment - embargo on equipment which might be used for internal repression embargo on arms and related materiel - embargo on nearly all dual-use goods and technology - embargo on certain goods and technology which could contribute to enrichment-related, reprocessing or heavy water-related activities, or to the development of nuclear weapon delivery systems or to the pursuit of activities related to other topics about which the IAEA has expressed concerns embargo on key equipment and technology for the oil and natural gas industries embargo on graphite - embargo on certain raw and semi-finished metals embargo on key naval equipment and shipbuilding technology embargo on certain software for integrating industrial processes	Iran
	embargo on arms and related materiel - embargo on dual-use goods and technology, if intended for military use or for a military end-user	Russian Federation
	embargo on certain goods which might be used for the manufacture and maintenance of products which could be used for internal repression embargo on key equipment and technology for the oil and natural gas industries embargo on equipment used in the construction of new power plants for electricity production	Syria
Ban	ban on provision of certain services	Afghanistan
	- ban on exports of equipment for internal repression - ban on provision of certain services	Belarus
	ban on provision of certain services (to the oil and natural gas industries) - ban on certain investment (in the oil and natural gas industries) - ban on certain Iranian investment (nuclear industry) - ban on new commitments for grants, financial assistance and concessional loans to the Government of Iran ban on provision of certain services (to the petrochemical industry) - ban on certain investment (in the petrochemical industry) ban on trade in diamonds with the Government of Iran - ban on provision of new Iranian banknotes and coins - ban on provision of specialised financial messaging services to those subjected to the freezing of funds and economic resources ban on provision of certain related services (related to natural gas) ban on provision of certain related services (related to key naval equipment and shipbuilding technology) ban on provision of certain related services - ban on Member States' commitments for financial support for trade with Iran	Iran
	ban on imports of arms and related materiel - (arms and related materiel related) ban on provision of certain services (dual-use goods and technology related) ban on provision of certain services ban on the supply of dual-use goods and technology to certain persons, entities and bodies	Russian Federation

Freezing	freezing of funds and economic resources	Afghanistan
	freezing of funds and economic resources	Belarus
Restrictions	restrictions on admission of certain persons	Afghanistan
	restrictions on establishment of branches and subsidiaries of and cooperation with Iranian banks	Iran
	- restrictions on provision of insurance and re-insurance	
	- restrictions on issuance of and trade in certain bonds	
	- restrictions on access to EU airports for certain cargo flights	
	restrictions on admission of listed natural persons	
Prohibition	- restrictions on trade in cultural goods	Iraq
	restrictions on establishment of branches and subsidiaries of and cooperation with DPRK banks	Korea
	- restrictions on issuance of and trade in certain bonds	
	restrictions on access to EU airports for certain flights	
	restrictions on issuance of and trade in certain 'bonds, equity or similar financial instruments' (i.e. securities and money-markets instruments)	Russian Federation
Inspection of	prohibition of procurement from Iran of arms and related material, nearly all dual-use goods and technology and certain other goods and technology	Iran
	prohibition of procurement from Libya of arms and related materiel and of equipment which might be used for internal repression	Libya
	prohibition of procurement from Russia of arms and related materiel	Russian Federation
Control	inspection of and prior information requirement on certain cargoes	Eritrea
	inspection of and prior information requirement on cargoes to and from Iran	Iran
	- inspection of and specific restrictions on certain vessels in order to stop illegal exports of crude oil from Libya	Libya
Vigilance requirement	controls on export of certain other sensitive goods and technology	Iran
	- control on provision of certain services	
	- control on certain investment	
Monitoring	(deep water, Arctic and shale oil related) controls on export of certain equipment/items for the oil industry	Russian Federation
	- controls on provision of certain related services	
Vigilance requirement	vigilance requirement when doing business with Libyan entities	Libya
	vigilance requirement for EU Member States as regards certain goods related to military activities and the provision of certain services	Somalia
Monitoring	monitoring of activities of EU branches and subsidiaries of credit and financial institutions domiciled in Iran	Iran

Source: <http://www.bscn.nl/sanctions-consulting/sanctions-list-countries>

In our opinion, imposing economic sanctions should not be a means to control processes in the global economy.

The economic damage caused by these sanctions against the target country is mostly decreasing these days. First, it was promoted by globalization of the international trade, which significantly diversified export-import flows. The growing interdependence leads to the fact that the sanctions do not achieve the objectives. Moreover, they can damage economy of the country-initiator.

The period of the 1990s is called a decade of the United Nations economic sanctions because the mechanism was used more than ever in that period. International economic sanctions were imposed by the Security Council against Iraq, Libya, Somalia, the UNITA forces in Angola, Rwanda, Sierra Leone, the former Yugoslavia, including Kosovo, Haiti, Afghanistan (al-Qaeda / Taliban), Eritrea, Ethiopia, Liberia and Congo. At the beginning of XXI America imposed sanctions against 75 countries, which accounted up to 52% of humanity. The longest period was against Cuba and North Korea. Another example of the long period of American economic

sanctions (since 1979 to present) is Iran. Although conducting mutual negotiations and changing a set of sanctions against the Iranian economy from time to time, the burden of the economic sanctions has not been withdrawn yet. Thus, with respect to the Republic of Cuba and Iran we can rather talk about a protracted economic war than about economic sanctions.

The USA and Russia relations can be a striking example of imposing sanctions with a high degree of intensity, threatening the whole economy of the country. Restrictive measures against Russia were introduced in 2014 and affected the interests of separate sectors of the economy, particularly the oil industry. They also affected Russian citizens' assets and diplomatic relations with some individuals and organizations.

America imposed several types of sanctions against Russia, such as financial, trade and diplomatic. The economic sanctions (trade and finance) are prohibitive economic measures in order to force Russia change its policy. The trade sanctions were imposed on imports from Russia and for export to Russia; the financial sanctions cancelled or a delayed issuing of loans or grants.

Western sanctions include almost a full spectrum of instruments for economic, political and informational pressure on Russia from its leading management level to the society in general. The main directions of the Western pressure are as follows:

- suspension of military cooperation and minimizing of joint projects, including space ones;
- prohibition of high tech product exports, including military and dual-use goods into Russia;
- threat of assets confiscation from natural and legal Russians who are under jurisdiction of the EU countries;
- decrease in Russian ability to invest (the US authorities are forcing their business partners to sale assets and withdraw the capital which are in Russia. Therefore, the "flight of capital" has exceeded \$100 billion. Western credit and bank institutions are refusing to investment in Russian projects);
- difficulty in international payments and reduction of Russia's sovereign credit rating; restriction of Russian bank activity; non-admission refinancing of new and existing loans;
- suspension of joint economic projects with Western corporations; reduction of foreign trade activity;
- introduction of a "black list", which includes some of the Russian citizens and organizations, which have been banned from entering the EU and other countries as well as they have been denied visas. Some legal Russian entities are prohibited to have;
- abolition of cultural projects, government visits, information prohibitions, active anti-Russian propaganda, and so on.

The analysis of the sanctions has revealed the fact that the main sectors of business relations with Russia under destabilization are a military-industrial complex, IT-business, banking and tourism.

The Western countries believe that imposing of economic sanctions against Russia should lead to some economic recession, lowering of living standards, growing social discontent and political protests in Russia. There is no doubt that these sanctions affect the economic and social development of the country. Many experts point out that they will be main factors affecting the growth of the Russian economy during the next three years. The Central Bank of the Russian

Federation developed a draft of the Guidelines monetary and credit policy for 2016-2018. According to this draft, the estimated annual growth rate lies in the range from 0 to 0.6%. It does not prove the IMF forecast that the world economy during this period will grow an average annual rate up to 3.6%. The United Nations report on the economic situation in the world and the prospects of its development [] also refers to the sanctions as the three major factors that lead to a reduction of the CIS GDP growth in 2015-2016 (in addition to the armed conflict in the east of the Ukraine and the fall in oil prices).

The authors suppose that the sanctions against Russia should not be considered as a restriction in the development, but as an opportunity to improve the economic model. They do not only change the main Russian directions of the economic policy but, on the contrary, give an additional impulse to the development of its internal market and production. Thus, they increase stability of the economic system, implementation of the import substitution strategy.

Imposing restricting it is important to understand that the world economy is affected by globalization, i.e. interconnection and interdependence between all countries is very high. A feature of modern market economy is a change of the territorial status, defined by affection of various globalization processes. Globalization is characterized by increasing flows of goods, services, capital, information and labor across national borders, which leads to the interpenetration of both individual markets and the economies of different countries as a whole. The globalization index shows the degree of closeness of these ties, which is assessed according to 24 particular indicators (sub-indices) and considers three aspects of cooperation between the countries: economic, social and political (see Table 2).

Table 2: A fragment of the world rating on the index of globalization

Rating	Country	Index of globalization
48	Russia	67.78
Leaders of globalization		
1	Belgium	92.30
2	Ireland	91.79
3	Netherlands	91.33
4	Austria	89.48
5	Singapore	88.89
6	Denmark	88.12
7	Sweden	87.63
8	Portugal	87.07
9	Hungary	86.85
10	Switzerland	86.28
G7-countries		
12	Great Britain	85.39
13	Canada	85.38
18	France	83.86
22	Germany	81.08
23	Italy	81.01
34	USA	74.76
56	Japan	63.73

Source: KOF Swiss Economic Institute, <http://globalization.kof.ethz.ch>.

The Index Globalization level is calculated as the sum of these components with the weighting factors of 36%, 39% and 25%, respectively.

An analysis of the globalization index has shown that the Russian economy is at a level lower than the average, i.e. at the stage of inclusion into globalization processes. In this regard, external economic sanctions are not significant. The consequences of the sanctions imposed



have a two-way nature of the impact. The foreign countries, which imposed sanctions against Russia, on the contrary, have quite a high level of globalization. The majority of countries believe that these sanctions give an opposite effect, the effect of "boomerang". Many experts suggest that the introduction of «severe» sanctions against Russia will hit the world economy as a whole.

### 3. Conclusion

According to most Russian politicians and population, sanctions and counter-sanctions, cannot lead to anything positive development for countries. At the same time, because of the food embargo, in August 2014 firstly, Russia found new suppliers that are outside of Europe and North America. It guarantees their loyalty and independence, and diversifies the risks of foreign trade. Secondly, for the first time in many years, the government has embarked on a policy of protectionism subsidizing and encouraging domestic manufacturers. Thirdly, Russia has started to take seriously import substitution. In this situation, the Russian government is developing a new economic strategy focused on the implementation of the strategy of import substitution, stimulating domestic demand and consumption.

Thus, it is possible to say that in the context of the world economy globalization, any sanction restrictions are destructive in nature with a strong "boomerang effect", as they are reflected in countries which initiate sanctions. A logical continuation of these measures becomes inevitable reduction of the level of competitiveness of national production. This provision gets particular relevance, as the competitiveness of the national economic system in the conditions of globalization becomes the backbone element of both internal and external state policy in the implementation of the country of their fundamental economic interests.

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### References

- [1] Bremzen A., Khokhlova E., Suvorov A. (2015) Bad news: an experimental study on the informational effects of rewards, *Review of economics and statistics*, vol. 1, 97, pp. 55-70
- [2] Gary Clyde Hufbauer, Jeffrey J. Schott, Kimberly Ann Elliott, Barbara Oegg (2009) *Economic Sanctions Reconsidered* June, 3d ed, 248 pp.
- [3] Gottemoeller R. (2007) The evolution of sanctions in practice and theory, *Survival*, № 4, T. 49, pp. 99-100
- [4] Matthias Neuenkirch (2016) The Impact of US Sanctions on Poverty, *Journal of Development Economics* vol. 121, pp.110-119
- [5] Miguel E., Shanker S. (2011) Re-examining Economic Shocks and Civil Conflict, *American Economic Journal: Applied Economics*, forthcoming

- [6] Oechslin, M. (2010) Government Revenues and Economic Growth in Weakly Institutionalised States, *Economic Journal*, 120(June), pp. 631-650.
- [7] Ostrovnaya M., Podkolzina E. (2015) Antitrust enforcement in public procurement: the case of Russia, *Journal of Competition Law & Economics*, vol. 2, 11, pp. 331-352
- [8] Plotnikov V., Trusova N., Klimenko P. (2015) Program budgeting as a mechanism to achieve social and economic development of the region, *International Multidisciplinary Scientific Conferences on Social Science & Arts. (SGEM 2015) Conference on Political Sciences Law, Finance Economics & Tourism. Conference Proceeding* vol. III. №1 Bulgaria, pp. 851-858
- [9] Plotnikov V., Volkova A. (2014) Service Economy and the Specifics of its Development in Russia, *Emerging markets queries in finance and business (EMQ 2013)*, vol 1, 16, pp. 18-23
- [10] Plotnikov V., Volkova A. (2015) The influence of government policy on the services sector, *International Multidisciplinary Scientific Conferences on Social Science & Arts. (SGEM 2015) Conference on Political Sciences Law, Finance Economics & Tourism. Conference Proceeding* vol. III. №1 Bulgaria, pp. 875-882
- [11] Randall E. Newnham (2008) Deutsche Mark Diplomacy: Positive Economic Sanctions in German-Russian Relations, Jul 7
- [12] Severinov K. (2014) US sanctions put research at risk, *Nature*, vol 7497, 508, pp. 458-458
- [13] Trofimova O. (2015) Russian-Israeli economic cooperation under economic sanctions, *Herald of the russian academy of sciences*, vol. 5, 85, pp. 459-465
- [14] Vertakova Y., Klevtsov S., Klevtsova M. (2015) Technology of Fixed Assets Assessment in Investigating the Stability of the Industrial Complex of the Region, *26th International Business Information Management Association Conference*: Madrid, Spain, pp. 3230-3236
- [15] Vertakova Y., Polozhentseva Y., Klevtsova M. (2014) The Development of Regional Cluster-Oriented Policy: Russian and Foreign Practice, *International Multidisciplinary Scientific Conferences on Social Science & Arts. (SGEM 2014) Conference on Political Sciences Law, Finance Economics & Tourism. Conference Proceeding* Vol. 1. Bulgaria, pp. 399-406,
- [16] Vertakova Y., Polozhentseva Y., Klevtsova M. (2015) Investment mechanism of stimulation of cluster initiatives in the region *International Multidisciplinary Scientific Conferences on Social Science & Arts. (SGEM 2015) Conference on Political Sciences Law, Finance Economics & Tourism. Conference Proceeding* Vol. III. №1 Bulgaria, pp. 771-778

# GLOBALIZATION OF EDUCATION AND UNIVERSITY SOCIAL RESPONSIBILITY

Velga Vevere

<sup>1</sup>Lomonosova 1/5, Rīga, LV-1019, Latvia

<sup>a</sup>velga.vevere@gmail.com

\*Corresponding author

**Abstract.** The role of the university in the society has been the topic of interest for philosophers, sociologists, education and management researchers in the 21st century. Institutions of higher education face multiple challenges in the contemporary world, such as massification of education, knowledge society, innovation, market forces, development of technologies, and globalization. The latter factor involves the student exchange (ERASMUS and other international programs), the growing number of full-time international students, the joint study programs, the need for training of the academic and administrative staff. All these issues are included into the concept of the university social responsibility. There has been quite extensive research in the field, paying attention to different aspects it, such as university reputation, sustainability, communication, social performance, etc., still there is not so much research regarding the university social responsibility within the context of globalization of education. The aim of the present study is to determine if the factor of globalization of education is a part of the social responsibility agenda in the Latvian higher education institution. In order to do this, we conducted in-depth interviews and semi-structured interviews with the international students. The results obtained would help the Latvian universities to develop their social responsibility programs, taking into account the interests of international students.

**Keywords:** globalization, internationalization of education, cross-border education, university social responsibility, social responsibility agenda

**JEL Classification:** I23

## 1. Introduction

Institutions of higher education face multiple challenges in the contemporary world, such as massification of education, knowledge society, innovation, market forces, development of technologies, and globalization. The latter factor involves the student exchange (ERASMUS and other international programs), the growing number of full-time international students, the joint study programs, the need for training of the academic and administrative staff. However, many international students face challenges as they study outside of their home countries. They face social, cultural and academic obstacles, possible psychological isolation. Therefore, the important questions are: (1) What are international students' academic, social, cultural struggles? (2) What support is needed to overcome these struggles? (3) How to ensure students' adaptation in the host university? In our opinion, the implementation of the university social responsibility can answer most of these needs. There has been quite extensive research in the field, paying attention to different aspects it, such as university reputation, sustainability, communication, social performance, etc., still there is not so much research regarding the university social responsibility within the context of globalization of education. The aim of the present study is to determine if the factor of globalization of education is a part of the social responsibility agenda in the higher education establishment – the largest private business school

in Latvia. To accomplish this task we employed qualitative research methods – in-depth interviews, as well as – semi-structured interviews with a number of international students. The comparison afterward made it possible to determine the problematic areas and to suggest the university ways of adaptation and acculturation of international students.

## 2. Literature review

Today there are many challenges modern universities face related to globalization, immigration, economic recessions, fluctuation of number of students, shrinking support from the government, commercialization of higher education establishments, etc. The aforementioned processes bring along the phenomenon of internationalization of higher education and cross-border mobility of students and teaching staff. The cross-border higher education has become an important mode of globalizing higher education as it involves providers, programs, course materials, teachers or students moving beyond national boundaries. Cross-border education, in the context of globalization, has become a market-driven activity involving numerous providers (sellers, i. e., higher education institutions) and beneficiaries (buyers, i. e., students and visiting teaching staff). One of the most important components of the cross-border education is students' movement away from their home countries and adaptation in the host country and host university. (Varghese, 2008) The latter aspect is of a special interest in the context of our current research, since students' mobility entails a growing social, cultural, and academic role on the part of the hosting university. J. Knight speaks of national and institutional level rationales of internationalization/globalization of higher education: international profile and reputation (this drive relates to the quest for international name recognition, in an attempt to attract the brightest scholars and students, as well as a substantial number of high profile research and training projects); quality enhancement (internationalization is proving to be a useful tool for institutions to benchmark and gain innovative solutions to ongoing management, academic and research related challenges); student and staff development; alternative revenue generation (the emergence of new commercial corporate providers who are primarily in business to generate income on a for-profit basis); networks and strategic alliances (development of networks); research and knowledge production. Academic programs focused on teaching include student exchange programs, foreign language study, internationalized curricula, area or thematic studies, work/study abroad, international students, teaching/learning process, joint degree programs, double degree programs, cross-cultural training, faculty and staff mobility, visiting lecturers and scholars, and establishing links between academic programs and other strategies. (Knight, 2007) The largest and the most intensely competitive segment of the transnational higher education market is international student mobility. (Gürüz, 2008) Student mobility may be for shorter (a few weeks) or longer period (half year or full year) depending on a range of factors including cost, student support, and synchronicity and similarity of the program or subjects within the program at each institution. During a typical student exchange of this type, students are enrolled in studies at the host institution and study alongside their discipline peers. This creates a number of questions: What do students take away from their experience overseas? How educational is that? Is the overseas experience transformative or simply a matter of translocating the student? What practices or processes used in mobility program help to make the experience more than just 'educational tourism'? What indeed is the 'take home' learning for students who participate in student mobility programs? (Richardson & Munday, 2013) At the same time, we should speak about the value of embracing international students for host universities. International students bring their home experiences, learning traditions, divergent

ways of thinking and reasoning, culture diversity and their ethnic traditions. International students also represent a large economic and international relations investment to host universities through their expenditures on tutoring and living expenses. (Wu et. al., 2015) Structural differences between national systems are always possible barriers to international cooperation and mobility because there is a risk that a cooperation partner could interpret the difference as an indication that the partner institution, staff or students are not ready to engage in fruitful cooperation on the equal terms. (Teichler, 2004) According to H. Wu and others, students have to deal with the people, society, school, psychological status, and behavioural changes in order to adapt to the new environment. The challenges, in general, can be divided in three categories: academic, social and cultural ones. In the academic setting language appears to be one of the greatest issues among international students in terms of their social adjustment in the unknown and strange environment, but, more significantly, in relation to fulfilling the academic tasks (following professors' lectures, taking notes, working in groups, writing essays and research papers). The social barrier is represented by communication patterns and difficulties in their social life (it can be as simple as eating habits, punctuality, etc.). International students may also experience discrimination and prejudice – negative attitudes, the lack of intercultural communication causes. (Wu et. al., 2015) Helping to overcome these barriers, in our opinion, should be a part of the university social responsibility agenda. The concept of university social responsibility is rather new; most of the universities try to incorporate it into their strategies and plans of development. Reiser defines the concept as a policy of ethical quality of the performance of the university community (students, faculty and administrative employees) via the responsible management of the educational, cognitive, labour and environmental impacts produced by the university, in an interactive dialogue with society to promote a sustainable human development. (Reiser, 2008) Researchers have summarized the desired outcomes of USR, such as, (1) community of learners and scholars who value the pursuit of new knowledge in a society of learning and are valued members and leaders of society, and global citizens effective in diverse setting; (2) graduates who have well-balanced knowledge and wisdom, and good character; intelligent, think rationally, behave morally and ethically; possess life and leadership skills; conscious of public and common good; practice good governance and are socially responsible, able to compete in an international job market, socially responsible global leader. (Knowledge Societies: Universities and their Social Responsibilities, 2011) There are a number of theories related to the concept of the University Social Responsibility, each of them disclosing a different angle of the phenomenon, for instance, curriculum and ethical aspects (Karima et.al, 2006; Muijen, 2004; Mehta, 2011); university online reputation (Nejati et.al, 2011). Still, in the context of the present study we rely mainly on the stakeholders theory, since the international students have become the significant group of stakeholders. (Aamir et.al., 2014). In order to determine, whether university is aware of academic, social and cultural challenges international students face during their studies in Latvia (**RQ 1**) and whether they have been regarded as significant stakeholders in the context of the university social responsibility (**RQ 2**) we conducted the empirical research – interviews with students and university representatives. University Turība is the largest private business university in Latvia, in the study year of 2015/2016 there were 4198 students in total, among them 587 international students (111 ERASMUS students and 476 full-time students).

### 3. Methodology

*Research design.* Qualitative methods were adopted for the current research because the purpose of this study was to understand in depth the issue of the role university plays in international students' academic, social and cultural adaptation. Therefore, we conducted students' survey with open-ended questions and in-depth interviews with students, and then – in-depth interviews with university representatives. *Participants.* Thirty three were identified as international students who were studying in the undergraduate programs (full-time students with 2-3 year previous experience in Turiba University). Using convenience sampling, representativeness was limited in this study. Participants were from such countries as Georgia, Uzbekistan, Azerbaijan, the Ukraine, Belarus, India, Egypt, Russia, and Turkey. Then we conducted in-depth interviews with the Vice-Rector for Study Development and International Cooperation of the university, the head of International cooperation department of the Student Council, and the university professor teaching courses on Corporate Social Responsibility. *Data collection and analysis.* Students were handed out questionnaires with open-ended questions, they were asked to fill out them anonymously. The questionnaire consisted of 4 groups of questions: the first group contained inquiry about the academic barriers students face while studying abroad (interaction with professors, language barrier); the second group of questions pertained the social barrier (communication patterns, isolation from the local students); the third group of questions dealt with culture barrier (reaction to prejudices and discrimination); and the fourth group of questions were devoted to the adjustment strategies (use of school resources, campus activities, involvement in students' organizations). In-depth interviews were conducted in the offices of the respected interviewees, interviews were recorded and transcribed. They were asked questions about their vision of academic, social, cultural and adjustment problems of international students and possible solutions of them. Data analysis was primarily inductive. Conclusions were made based on comparison of the students' opinion and of the university representatives' vision of the problems.

### 4. Findings and Discussion

The findings demonstrated that international students face a number of issues while studying abroad. Although the students for the sake of anonymity were not asked to state their country of origin, their answers demonstrated differences of opinion that could be explained by their country of origin.

*Academic barrier.* First students were asked a question regarding their interaction with professors. Although answers were different, there were recurring common themes that can be divided in three groups. (1) Not paying full attention to the student during the conversation, i.e., talking to other professors in meantime. Let us mention such comment: "It is really irritably when you speak with professor in English and after this professor discusses your situation with another colleague in Latvian." The problem here lies in the fact that students feel uneasy because they have a feeling of being talked about behind their backs and not being able to follow the conversation. Another example is related to the lack of time professors devote to each particular student during consultations, thus students feel that they cannot get all necessary information and guidance. "I do not have problems with interaction with professors, except times when I come to consultation, when there is a lot of people and professor don't have time for me and he/she is quite nervous". This can create some tension, especially for international students, since being strangers, at least in the beginning; in the academic environment, they need more guidance regarding requirements. (2) Culture differences resulting in

misunderstandings, i.e., professors sometimes do not understand that students have different academic background depending of their upbringing and education system in their respective countries. “Misunderstanding between students and professors happen sometimes. According to my mind, it happens because students cannot explain themselves in a way professors expect them to do.” This can be explained, at least partly, by professors’ lack of knowledge and experience in intercultural communication. (3) Communication with professors, although in general regarded as satisfactory, can be problematic when the medium of communication is e-mail. “The only barrier I faced was lack of communication, professors do not usually respond to e-mails”. The answers to the question about the language barrier in learning are quite uniform – there are no particular problems, everything depends on language proficiency, and since the students have been studying exclusively in English for a several years already they feel confident. The only problem admitted was that some professors can’t communicate in English well enough. This appears to be a serious problem the university has to pay attention to, especially if it regards international students as significant stakeholders.

*Social barrier.* International students can face communication difficulties that arise from differences in communication and behavioural patterns both in academic and social contexts. Most of the respondents did not admit existence of any particular problem, except for some minor conflicts in dormitory arising from differences in culture background. The isolation from the local student community appears to be a real issue, at least for some respondents. We encountered such comments as “Local – Latvian students seem to isolate themselves from the rest of the foreign students, the separation can be seen clearly even from the 1<sup>st</sup> study year”; “”Internationals stick together, because Latvians are not interested in us”; “I have some local friends, but as a lot of students prefer Latvian speaking friends I spend most of my time with internationals”. This is an indicator that the university is largely missing the opportunity to enrich their social and cultural life.

*Culture barrier.* The important aspect of the life in foreign country is possible discrimination cases and encountering national and/or cultural prejudices. Sometimes there also is a feeling that their voice is not being heard, and that locals are being treated advantageously. Let us consider a few characteristic statements. “Most of teachers I can say are nationalists. They don’t like people from the Soviet Union, especially those who speak Russian”. “I felt something like prejudices from my teammates and sometimes from the coach, while I was here in basketball team”. “Latvians have more benefits as they are Latvians. I have personal examples when in difficult situations Latvians were higher valued and got benefits”. Although these observations are not prevailing (most of comments are positive or neutral), it is a serious signal to be heard by the university, a problem that should be recognized and treated on time, if the university really strives to be the international higher education establishment.

*Adjustment strategies.* Students were asked to answer three questions. The first question was about the use of school resources (the library, the business incubator, school facilities). Respondents’ answers were mostly about the library – that information is mostly in Latvian, that books are in many cases outdated, that students are given a limited number of copies to be printed out free of charge during the whole study year. It is quite telling that none of the students even mentions the business incubator activities; this means that they are aimed at the local students exclusively; therefore, it is a missed opportunity to engage the international students. The second question concerned their involvement in campus activities. Quite telling is the fact that many students either did not answer this question at all or referred just to a few events organized by the Student Council. So we can conclude that there is a sense of exclusion, national students groups tend to interact within their environment. The third (and the last question) was

about students' being informed and being involved in students' organizations. The answer varied from "Not informed" to "I don't participate in students' organizations" and to "Organizes some interesting events, especially pre-session events and winter ball". Perhaps the reason can be found in one of the answers: "Only from 2015 participation in the Student Council became possible for internationals; at present they have also international department there". We may conclude that the international students' involvement in student organizations of the university is only in the starting phase but the tendency is positive. To determine if the university representatives are aware of difficulties and problems the international students face we conducted three in-depth interviews. The scope of the interviews differed slightly according to the interviewee's personal position and responsibilities in relation to the international students. The first interview was conducted with the Vice-Rector for Study Development and International Cooperation of the University (interviewee # 1); the second interview was with the university professor, who teaches the course on Corporate Social Responsibility (interviewee # 2); the third one was with the head of International cooperation department of the Student Council (interviewee # 3). The results of the interviews are summarized in the Table 1.

*Table 1: Problems international students face and possible solutions of them*

Interviewees	Problems	Possible solutions
Interviewee #1	There are considerable differences in the international students' academic performance; mostly they depend on the region of origin. When coming to Latvia, they have to be more self-organized (the university curriculum presupposes a lot of independent study work), so sometimes they might fail for this reason alone. Sometimes international students admit also the localism and lack of international experience of the university professors.	The university responsibility would be, first, to work with every international student and, second, to prepare the teaching staff for working within the international environment. In order to accomplish the latter task, the school organizes integration and culture training seminars for teaching staff and for those who are involved with international students on daily basis.
Interviewee # 2	There are no significant differences between local and international students in the study process – materials and requirements are identical. At the same time, there are culture differences that influence student-student and student-professor communication process.  Lack of sufficient information in English, this is a serious obstacle to adaptation process.	The role of extra-curriculum activities as international student motivators. The university has implemented the "buddy" system, i.e., each international student is being assigned a local friend. There are Latvian language courses, but still students need some additional motivation to learn the language of small nation. Information should be supplied on 50/50 basis
Interviewee # 3	International students do not have serious problems in adapting to the university academic requirements, except the use of the university internal communication web.  Till now all meetings take place in Latvian, save for a few presentations.	This is the task the Student Council can help with. Additionally, the Student Council can act as mediator in the case of conflicts (related or not related to the curriculum). The Student Council is open to all students, everyone speaks English, so there are no communication problems. The International cooperation department of the student council consists of 14 local students and 7 international students. Such structure ensures the information flow and involvement of all students. It would be necessary to switch to bilingual communication.

*Source: Author's compilation*



Comparing students' survey and in-depth interview results, answers to the research questions are the following:

**RQ 1.** The university, in general, is aware of academic, social and cultural challenges international students face, although the university representatives exhibit certain lack of information about students' perception regarding adaptation issues.

**RQ 2.** International students are being regarded as significant stakeholders, although the approach to issues is not the strategic one, rather problems are being solved on the day-to-day basis.

## 5. Conclusion

The empirical research of the adjustment issues of the international students and awareness of them on the part of the largest private business university in Latvia showed that:

1. Students admit that during their studies in the host university they face some academic problems interacting with professors, the main reasons being the lack of the language proficiency by teaching staff, as well as the lack of cross-cultural training. The International office of the university is well aware of the problem and offer inter-culture training seminars for the professors and administrative staff.
2. At the same time, according to the international office, the significant role is played by the previous learning experiences and education systems in native countries; they have to be introduced into the new learning environment.
3. According to the Student Council representative, there are many activities that involve international students; however, students' responses are not so optimistic, since they feel some degree of isolation from the local students. Still it is impossible to generalize this conclusion, because there are different student engagement policies within different faculties.
4. This research proved that it is necessary to do more extensive survey of the situation (at present there is disagreement in opinions regarding many issues) that would include all international students (full-time students, as well as exchange students).

## References

- [1] Aamir, A., Rehman, S. U., Rasheed, M. F. (2014). Influence of Social Responsibility on University Reputation. Case Study of King Saud University (KSU) Saudi Arabia. *International Journal of Academic Research*, vol. 6, pp. 108-114.
- [2] Gürüz, K. (2008). *Higher Education and International Student Mobility in the Global Knowledge Economy*. Albany: State University of New York Press.
- [3] Karima, R., Oshyma, Y., Yamamoto, K. (2006). Identification of Subjects for Social Responsibility Education at Universities and the Present Activity at the University of Tokyo. *Environmental Science*, vol.13, pp. 327-337.
- [4] Knight, J. (2007). Internationalization: Concepts, Complexities and Challenges Jane Knight. *International Handbook of Higher Education*, Dordrecht, The Netherlands: Springer, pp. 207-228.
- [5] *Knowledge Societies: Universities and their Social Responsibilities*. (2011). Singapore: Asia-Europe Foundation

- [6] Mehta, S. R. (2011). Corporate Social Responsibility (CSR) and Universities: Towards an Integrative Approach. *International Journal of Social Science and Humanity*, vol.1, pp. 300-304.
- [7] Muijen, H. S. C. A. (2004). Corporate Social Responsibility Starts at University. *Journal of Business Ethics*, vol. 53, pp. 235-246.
- [8] Nejati, M., Shafaei, A., Salamzadeh, Y., Daraei, M. (2011). Corporate Social Responsibility and universities: A Study of Top 10 World Universities' Websites. *Africal Journal of Business Management*, vol. 5, pp. 440-447.
- [9] Reiser (2008). University Social Responsibility definition. [Online]. Available: [http://www.usralliance.org/resources/Aurilla\\_Presentation\\_Session6.pdf](http://www.usralliance.org/resources/Aurilla_Presentation_Session6.pdf).
- [10] Richardson, R., Munday, J. (2013). International Student Mobility Programs and Effects on Student Teachers' Perceptions and Beliefs about Education and Their Role as Future Educators. *Universal Journal of Educational Research*, vol. 1, pp. 240-246.
- [11] Teichler, U. (2004). The Changing Debate on Internationalization of Higher Education. *Higher Education*, vol. 48, pp. 5-26.
- [12] Varghese, N. V. (2008). *Globalization of higher Education and Cross-Border Student Mobility*. Paris: IIEP.
- [13] Wu, H., Garza, E., Guzman, N. (2015) International Student's Challenge and Adjustment to College. *Education Research International*. [Online]. Available: <https://www.hindawi.com/journals/edri/2015/202753/>

## EUROPEAN INSURANCE MARKET IN THE CONTEXT OF GLOBALISATION

Florina Oana Virlanuta<sup>1a</sup>, Daniela Ludmila Manea<sup>2,b</sup>

<sup>1</sup>Dunarea de Jos University of Galati, Domneasca Street no 47, Romania

<sup>2</sup>Dunarea de Jos University of Galati, Domneasca Street no 47, Romania

<sup>a</sup>florina.virlanuta@ugal.ro, <sup>b</sup>daniela.manea@ugal.ro,

\*Corresponding author

**Abstract.** Globalization can be defined as very dynamic process of increasing interdependence of national states, as a result of the expansion and deepening of transnational ties in varied spheres of economic, political, social and cultural domain. Essential is that with the development of the economic system, with its increasing complexity, the uncertainties are multiplying and, therefore, becomes more vulnerable. Development of the economic and social activities, diversification of new objects of insurance, intensifying the effects of known risks and the emergence of new risks, led to the creation and development of the insurance market. This paper wants to highlight the effects of globalization on the development of the insurance market at European level and the link between economic impact of natural disasters and insurance and reinsurance market. The analyze was focused on some important indicators such insurance density and penetration, number of insurance companies, total European gross written premiums, total benefits and claims paid, number of natural disasters and the economic impact. To achieve the objectives of this paper, was consulted scientific literature regarding insurance, globalization and financial crisis contagion and were accessed international databases. The conclusions were based on the analysis of quantitative and qualitative indicators, used for the determination of the development and trends in the European insurance market.

**Keywords:** globalization, insurance market, risk, economic effects.

**JEL Classification:** F36, F65, G22

### 1. Globalization and financial crisis contagion

For a long time, international companies are operating in a global economy, thus making it difficult to identify the beginnings of financial globalization, which support economic globalization. Globalization is not a contemporary phenomenon. (Mihai & Mihai, 2009) After World War II, the international monetary and financial system whose coordinates were established at Bretton Woods was a consistent set of rules and techniques accepted by states, which establish US hegemony.

From 1945 and until the end of the decade 60, the planet lived as a response to disorder in the 30s under a "managed financial system" fixed parities around dollar convertible into gold, financial markets and limited access divided, dominated by banks.

During the 70s decade capital flows have reached new dimensions. At the root causes of this change are numerous: more breaks in the international monetary and financial system, financial innovation, a move generalized liberalization and globalization of the economy. (Muntean, Nistor, & Nistor, 2014)

Opening markets corresponds to the abolition of frontiers between markets that were separate; it is open to the outside of domestic markets but at the same time, within their suppression boundaries between compartments existing: money market, capital market, exchange market, futures markets. (Zeca E., 2016)

Computerization and telecommunications merged world financial markets into a single global system in which an individual person, a terminal can be always aware of price fluctuations in major markets and can execute shifts almost instantly in any of them or even all. Studies on contagion of financial crises in the context of globalization shows that all channels of transmission of this effect are equally important. But there are some views that the channels would be dominant role. (Nistor, Virlanuta, & Muntean, 2011)

According to specialists main transmission channels of contagion effect are: the development of international trade of goods and services (opening the country to international markets), the transfer of capital through financial markets (credits of international, foreign direct investment, foreign portfolio investments), markets monetary integration belonging to certain groups, addition fundamental variables (financial and non-financial) between economies. (Ying, Chang, & Lee, 2014) Contagion effect is used most often to describe the reaction of financial variables (such as exchange rates, interest rates, stock quotes, stock exchange) events happened in another country. Contagion is interpreted as the phenomenon by which the evolution of these variables is correlated across countries or internationally variables evolving in the same direction. (Nistor, Nistor, & Muntean, 2011)

As we know in the literature there are several forms of contagion of financial crises (Paun, 2010):

- Contagion effect of "monsoon" is given the existence of a global imbalance that affects a large number of countries.
- Contagion effect of "spillover" is given the existence of a crisis in a particular country then propagated to a large number of countries.
- Contagion effect of "residual" refers to changes in the economic situation of different countries that exceed expectations and market operators that are visible in the residual value of the models tested correlations between different economies.
- Volatility spillover effect: a kind of contagion is manifested mainly in the capital markets and is considering increasing spread volatility (associated investment risk is rising) market capital other capital markets.

The effects of the current crisis are very easy to identify: these crises lead to a reduction in consumption amid the panic created around the gloomy news about the evolution of macroeconomic indicators (inflation expected, interest rates, exchange rates, unemployment); amid falling domestic consumption appears a fairly sharp increase in unemployment. (Campos, Jareno, & Tolentino, 2016)

Another effect if the crisis is one system with regional or global dimension, is the decrease in exports amid falling demand in foreign markets affected by this crisis. Periods of crisis generates a series of feelings among individual investors, the fear, panic, and fear to hysteria in some cases. (Tokarcicova, Ponisciakovab, & Bartosovab, 2016) Risk aversion is increasing and will take a long time until the American market will regain the confidence of those investors. A direct effect of this growing aversion to risk is the change the impact on the investment behavior of financial portfolio structure.

## 2. Insurance density and penetration at the European level

There were around 3 810 insurance companies operating in Europe in 2015, down just 1.1% on the previous year but hiding more significant reductions of 9% in the Netherlands, 6.5% in Italy and 3.6% in Spain.

This total refers to the number of domestic companies and includes branches of non EU/European Economic Area (EEA) country companies. European companies can offer cross-border services either through freedom of establishment or freedom of services. In 2015, 540 branches of EU/EEA companies were operating in the EU and around 7 400 licensed insurance operations were overseen by national supervisory authorities, on the basis of freedom of services.

The UK was the market with the highest number of companies in 2014 (559), stable compared to 2013. Second highest was Germany with 548 companies, followed by Sweden and France with 327 and 313 respectively.

In 2015, the number of employees in the European insurance sector decreased by 1.5% to 995 000. At national level, the most significant increases in employment were in Denmark (10.9%) and Luxembourg (19.0%), while the biggest reductions were in Romania (-24.0%), Cyprus (-17.9%), Greece (-6.3%) and the UK (-3.7%). (Insurance in Europe, Annual Report 2015-2016)

*Tabel 1. Top 10 insurance groups by gross written premiums – 2015 (millions E)*

No	Insurance group	Country	Gross written premiums
1.	Axa	France	82267
2.	Allianz	Germany	73883
3.	Generali	Italy	70430
4.	Zurich	Switzerland	47262
5.	Prudential	UK	44602
6.	CNP	France	30589
7.	Aviva	UK	30173
8.	Credit Agricole	France	29377
9.	Talanx	Germany	28994
10.	Mapfre	Spain	22401

*Source Gestion des risques, 2016*

Total benefits and claims paid to costumers by European insurers decreased by 1,7% in 2014 to 950 bn euro, after two years of slight growth. Looking more broadly at the last decade, benefits and claims paid grew substantially : up 43% between 2005 and 2015. The largest European economies, in terms of size and population (UK, France, Germany and Italy) accounted for 69% of benefits and claims paid in 2015. (Insurance in Europe, Annual Report 2015-2016)

In 2015, the average per capita spent on insurance in Europe increased 60 E on the previous year. In total, 1964 E per capita was spent on insurance, 1200 E on life insurance, 206 E on health insurance, and 564 E on non-life insurance.

Table 2. Density (at constant exchange rates) – 2013-2015

	2013	2014	2015
<b>Life</b>	<b>1084</b>	<b>1141</b>	<b>1200</b>
<b>Health</b>	<b>196</b>	<b>202</b>	<b>206</b>
<b>Non-life:</b>	<b>564</b>	<b>567</b>	<b>564</b>
motor	222	220	220
property	150	151	153
general liability	59	54	54
accident	57	58	59
<b>Total</b>	<b>1839</b>	<b>1904</b>	<b>1964</b>

Source: Insurance in Europe, Annual Report 2015-2016, 2016

Penetration Insurance penetration is a commonly recognized indicator of insurance activity, expressed by gross written premiums as a percentage of GDP. Average insurance penetration in Europe decreased slightly from 7.53% in 2014 to 7.47% in 2015. Non- life insurance penetration decreased from 2.24% to 2.14% over the same period, while life insurance penetration increased slightly from 4.52% to 4.58%. As the chart below shows, insurance penetration and density can differ significantly between countries. (Insurance in Europe, Annual Report 2015-2016, 2016)

Table 3. Penetration (at constant exchange rates) – 2013-2015 (%)

	2013	2014	2015
<b>Life</b>	<b>4.29</b>	<b>4.52</b>	<b>4.58</b>
<b>Health</b>	<b>0.79</b>	<b>0.80</b>	<b>0.81</b>
<b>Non-life:</b>	<b>2.23</b>	<b>2.24</b>	<b>2.14</b>
motor	0.88	0.87	0.83
property	0.59	0.59	0.58
general liability	0.23	0.21	0.20
accident	0.23	0.23	0.23
<b>Total</b>	<b>7.28</b>	<b>7.53</b>	<b>7.47</b>

Source: Insurance in Europe, Annual Report 2015-2016, 2016

Total gross written premiums amounted to €1 167bn in Europe in 2014, growing 3.4% over 2013. Overall, premiums grew 19% between 2005 and 2014. Globally, after a year of stagnation in 2013, premiums grew 4.0% in 2014, reaching \$4 780bn (€3 936bn). The highest growth rate was in Oceania (11.8%), Asia and Latin America grew 5.2% and 5.3% respectively, while North American markets increased by 2%. (SNL's Reinsurers Activity, 2016)

### 3. Natural disasters in Europe and the economic impact

In 2015, the European continent suffered natural and technical disasters which caused damage worth 13 billion \$, out of which a sum of 6 billion \$ was insured. The great majority of damage is attributed to heavy rainfall in the Western part of the continent.

Table 4 illustrates the extent of these natural disasters during the years 2010 – 2015 and their consequences. On the average, the number of natural disasters is between 30 and 40, and their occurrence in the total number of natural and technical disasters reached a percentage of 12.33% in 2013.

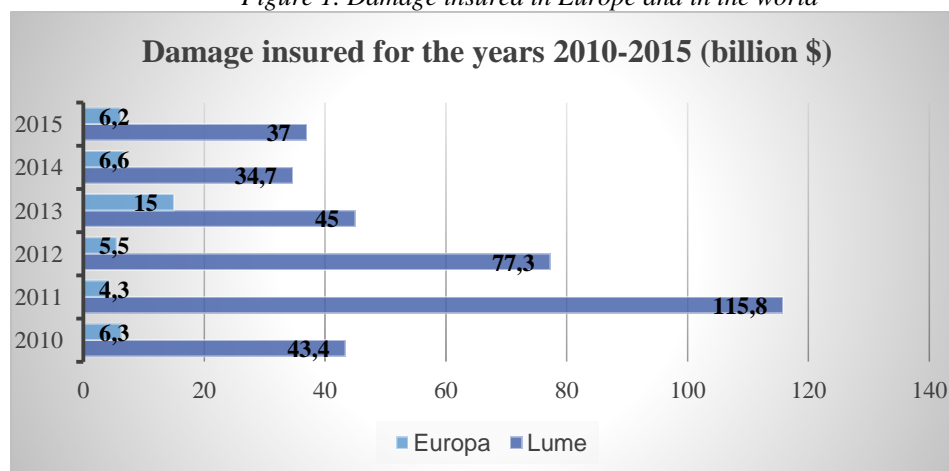
Table 4. European natural disasters and their consequences for 2010 – 2015

	2010	2011	2012	2013	2014	2015
<b>Insured damage (billion \$) (Id)</b>	6,3	4,3	5,5	15	6,6	6,2
<b>Total damage (billion \$) (Td)</b>	35,2	8,7	26,8	33	15,9	12,6
<b>(Id/Td)*100%</b>	17,89	49,42	20,52	45,45	41,50	49,20

Source: Natural loss events worldwide 2015. Geographical overview., 2016

The biggest percentage in total insured damage was recorded in 2013. It was then that the worst floods that had ever occurred in Europe took place, being the second most expensive event after the floods from Thailand in 2011. They affected Germany, the Czech Republic, Hungary and Poland. The total estimated loss was of 16 billion \$. The insured damage for this event amounted to 4 billion \$. This value can be partly explained by the considerable increase in the subscription rate regarding house insurance after 2002. For example, if in Germany only 19% of the houses were insured in 2002, in 2012 the number of insured houses reached 32%.

Figure 1. Damage insured in Europe and in the world



Source: Natural loss events worldwide 2015. Geographical overview., 2016

We notice that the smallest percentage of the insured European damage was registered in 2011 because of the disasters that took place in that year in Asia, when out of the total damage of 260.1 billion \$, the earthquake from Japan amounted to 210 billion \$, thus the insured damage imputable to Asia amounting to 49.2 billion \$, that is 42.5%. At the same time, the year 2011 represented for Europe the year when the biggest number of the damage caused by natural and technical disasters was covered from insurance and reinsurance, with a percentage of 49.42%. The same situation is specific to the year 2015, 2014 and 2013. (S&P's overview of international reinsurance market in 2015, 2016)

When comparing the level of the insured damage worldwide with that from Europe, we notice that this continent frequently resorts to protection against the economic damage caused by disasters by means of insurance and reinsurance. This feature is most probably the consequence of the fact that the practice of insurance and reinsurance is quite old on this continent. (Zaremba, 2015)

## 4. Conclusions

If the insurers and reinsurers who take disaster risks have succeeded in covering damage so far, in the future they will either strengthen their position or will be subjected to mergers. In the last two decades, the reinsurers' long-term risk management strategies started to focus more and more on climate changes. Like economic damage, the damage caused by weather events has greatly evolved lately. Nevertheless, the difference between economic damage and the insured damage remains an important one, and natural disasters continue to considerably affect public budgets, people and uninsured companies. Risk transfer aims at protecting the population against catastrophic events and at increasing the decision makers' interest in investing in economic development. By expanding the capacity of insurance and reinsurance, this industry can take part in the development of numerous present and future trade opportunities, becoming an important tool for the consolidation of local and national economies and of humanity as a whole.

## References

- [1] Campos, N., Jareno, F., & Tolentino, M. (2016). Interest Rate Risk Analysis with Multifactor Model. *Romanian Journal of Economic Forecasting*, 14-22.
- [2] Gestion des risques. (2016). *L'Argus de l'Assurance*. [www.argusdelassurance.com](http://www.argusdelassurance.com).
- [3] Insurance in Europe, *Annual Report 2015-2016*. (2016, July 23). Preluat de pe <http://www.insuranceeurope.eu/annual-report-2016-2016>
- [4] Mihai, O., & Mihai, C. (2009). Prospective approach in financial statements analysis. *Proceedings of the 4th international conference on business excellence (ICBE)* (pg. 293-298). Brasov: Infomarket Publishing House.
- [5] Muntean, M.-C., Nistor, R., & Nistor, C. (2014). The great potential of ITC industry in fighting the current Romanian financial and economic crisis. *Competitive Economies: 2020 Vision Strategic Planning & Smart Implementation* (pg. 491-503). USA: IBIMA Publishing.
- [6] Natural loss events worldwide 2015. *Geographical overview*. (2016, July 15). Preluat de pe <https://www.munichre.com>
- [7] Nistor, C., Virlanuta, F.-O., & Muntean, M.-C. (2011). Credit Insurance - an Important Fact in Banking Risk Management. *Innovation and Knowledge Management: a Global Competitive Advantage* (pg. 1316-1320). Malaysia: IBIMA Publishing.
- [8] Nistor, R., Nistor, C., & Muntean, M.-C. (2011). The Competitiveness of the Insurance Market in Central and Eastern Europe. *Creating Global Competitive Economies* (pg. 2190-2196). Milan: Ibima Publishing.
- [9] Paun, C. (2010). *Finante internationale*. Bucuresti: Universitatea Romano-Americana.
- [10] S&P's overview of international reinsurance market in 2015. (2016, April 4). Preluat de pe <http://www.forinsurer.com>
- [11] SNL's Reinsurers Activity. (2016, May 8). Preluat de pe <http://www.insurancejournal.com>
- [12] Tokarcicova, E., Ponisciakovab, O., & Bartosovab, V. (2016). Assessment of the credibility of key business clients. *Procedia Economics and Finance*, 612-619.



- [13] Ying, Y.-H., Chang, K., & Lee, C. (2014). The Impact of Globalization on Economic Growth. *Romanian Journal of Economic Forecasting*, 25-34.
- [14] Zaremba, A. (2015). Low Risk Anomaly in the CEE Stok Market. *Romanian Journal of Economic Forecasting*, 81-102.
- [15] Zeca, D. (2016). Pivot Tables - Toolkit: the Constraints to the Business Development in the Former Socialist EU Countries from the Central and Eastern Eorope between 2008-20016. *Risk in the Contemporary Economy*, (pg. 88-96). Galati.

## COOPERATION MANAGEMENT - SOFTWARE SUPPORT SOLUTION

Josef Vodák<sup>1,a \*</sup>, Jakub Soviar<sup>1,b</sup>, Milan Kubina<sup>1,c</sup>

<sup>1</sup>Faculty of Management Science and Informatics, University of Žilina, Slovakia

<sup>a</sup>josef.vodak@fri.uniza.sk, <sup>b</sup>jakub.soviar@fri.uniza.sk, <sup>c</sup>milan.kubina@fri.uniza.sk

\*Corresponding author

**Abstract.** In the global competitive environment cooperation between entities became one of the most important sources of success and sometimes even survival. In order to ensure fruitful cooperation, partners need to accumulate and efficiently use significant amount of data. Merely having the data is not sufficient – partners need to actively work with the data in a suitable way in order to fully support their cooperative efforts. This paper focuses on a proposal of an appropriate supporting software solution for world class cooperation management. Cooperation management represents an intensive collaboration of independent organizations for reaching common goals. Software collaboration solutions make it possible to perform and manage this cooperation in a more effective way. This paper involves defining the topic of world class cooperation management as well as a summary of the main results of our research in this area. Based on our knowledge about the main needs related to cooperation management we seek software tools that could make these processes more effective. In the paper we used, analysed and compared data from various international sources as well as the data from the collaboration research that we conducted previously in Slovakia. After exploring the software tools, we assess their main strengths and weaknesses.

**Keywords:** cooperation, knowledge, collaboration software, management.

**JEL Classification:** M15, P13, L86

### 1. Introduction

We consider cooperation management to be an “effective and efficient management of relationships in a cooperation between separate and relatively independent organizations or individuals, with the goal of improving their competitiveness” (Vodák, Soviar, Lendel, 2014). We have been actively scientifically exploring this topic since 2008. We focus our research both on quantitate as well as qualitative issues. Considering this paper’s topic, we searched our research database for data and facts about collaboration support software solutions. We organized this paper into three parts. First we present a brief overview of the theoretical background of the topic. Second part represents a situation overview and the main findings related to the topic. Third part focuses on the strengths and weaknesses of the collaboration software solutions.

Our team studied collaborative software solutions in the following researches and surveys:

- 2015: Questionnaire survey among 138 companies in Slovakia; quantitative research
- 2014: Semi-structured interviews, observations and document content analysis in 7 medium and large companies in Slovakia; qualitative research
- 2012: Observations of students’ cooperation processes; observations, interviews, questionnaires (Soviar, Varmus, Kubina, 2015)

- Observation of research teams' collaboration software support in the Department of management theories (University of Žilina, Faculty of management science and informatics)

From the methodological point of view, in the process of preparation of this paper we used the following methods:

- Content analysis was applied to analyze the research results information about the use of software solutions
- Logical argumentation, induction and deduction were used for discussing the information and for providing recommendations

### **1.1 Theoretical framework**

As was mentioned above, cooperation management is a method to manage activities between independent organizations in a more efficient way. It is also a strategic approach for creating and maintaining a competitive advantage (Lendel, Soviar, Vodak, 2015). Cooperation management is widely used in several industrial fields as well as in R&D (e.g. companies and universities), entertainment, regional government and regional development (Porter, 1998), even in sport (Varmus, Kubina, Soviar, 2015), etc. Effective cooperation strategy could support company's development towards competitiveness, innovation and to the creation of knowledge and its effective management (Dyer, Singh, 1998). There are certain elements that are crucial for effective cooperation management, mainly: trust between the partners, common goals and vision, fair distribution of benefits (Das, Teng, 1998; Vodák, Soviar, Lendel, 2014; Lendel, Soviar, Vodak, 2015). Team is a small social group with strong focus on achieving its goals. Team efficiency is crucial for the whole organization, company, university etc. (Cohen, Bailey, 1997). This efficiency could be analyzed and managed. (Kucharcikova, Tokarcikova, Blaskova, 2015).

Cooperation and coordination between the companies has its reasons. Most frequently the desire to cooperate is motivated by the company's aim to improve economic performance, reduction of costs, rationalization, improved competitiveness, better market position compared to the competitors, reduction of risks in doing business. At present it is needed to integrate not only the Information and Communication Technologies (ICT) as such but also the whole ecosystem of the company, including interconnecting of the individual areas of business with the ICT and with other parts of company and its business doing. Through integrated application of ICT to managerial work it is possible to:

- Interconnect the information systems of customers and suppliers
- Enable smooth and continuous ordering system
- Interconnect databases of information and knowledge of the cooperating parties
- Create environment that supports quicker and more cost-efficient innovation of products and services to respond to the needs of the market

Integrated company ICT systems may help to substitute slower human labor in the areas like services, data analysis etc. Use of modern ICT systems also entails improved coordination of company processes, what is currently a necessity in the environment of ever growing globalization and internationalization of the world economy.

In every cooperation there are costs associated with internal and external coordination of company activities. ICT system may be able to reduce costs of internal coordination e.g. by applying CAD/CAM, CIM or JIT systems, what creates further benefits for the company such as improved flexibility of manufacturing and improved speed of adapting to changes. In the

case of external coordination, associated costs are connected to realization of market transactions such as marketing, contracts, deliveries, stock management, payments etc. Here ICT system may be able to speed up the necessary communication and to make it more cost-efficient. ICT system may also enable access, use, comparison and quick analysis of a large amount of data related to marketing, to support and make more efficient trading and cooperation, and finally to improve strategic management of a company. (Škorecová, 2016)

On learning capability during implementation of alliance partners should pay more attention to achieve successful cooperative relationships. It is important to say that very few studies have examined strategic alliances in the software industry. (Taylor, 2005) It contributes to a deeper analysis of software support of cooperation management through cooperation relations. For such software system should be accommodate work practices from the use as well as development, and cooperation within development team and between users and developers (Unphon et al., 2009). The most important point is development by cooperation activity that heavily relies on the quality and effectiveness of the communication channels established with team work and with end-user (Bandinelli et al., 1996).

A Software Engineering Environment (SEE) must satisfy a number of, difficult requirements (Estublier, 1996): (1) maintaining numerous complex artifacts; (2) supporting the day-to-day work of engineers ; (3) supporting cooperation among team members. COO-flow is a process technology that is based on two complementing contributions: anticipation that allows succeeding activities to cooperate, and COO-transactions that allows parallel activities to cooperate. (Grigori et al., 2004)

The management, especially cooperation management some of interaction results of central feature for supporting cooperation inherent to software support.

## **2. Overview of main findings – case study**

First we will focus on the results from observing student teams. We observed team cooperation during a university course of marketing (Faculty of management science and informatics, University of Žilina). In the course the team work represents a crucial part of the curriculum and is necessary for achieving the main goals of the course and for receiving the final grade. Team work is thus essential for passing the course. The marketing course is obligatory for students of the management field of study and optional for students of other fields of study at the Faculty of management and informatics – informatics and computer engineering. Numbers of students who successfully finished the marketing course are as follows: 70 students in 2012; 65 students in 2013; 66 students in 2014; 59 students in 2015; 102 students in 2016 (according to the shift to new accreditation processes the students from first and second year in undergraduate level were attending the courses. In the next year 2017 there will be only first year students).

Rather surprisingly, every observed team used at least one form of on-line collaboration software:

- 70% Google Docs
- 20% Dropbox for sharing MS Word document and other data
- 10% other (MS OneDrive; Apple cloud; etc.)
- In 2014 and 2015 almost every team used Facebook for communication about the project

When we focused on the main reasons why is Google Docs so popular for collaboration on the projects we found out the following:

- Majority of students has an active Gmail account and they are very familiar also with the other products of Google. It is therefore very easy for them just to start creating common documents
- Design and functionalities of Google Docs allow students to work on their project documents simultaneously, i.e. multiple people working on one document at the same time. Students need to collaborate and also to divide a single task (e.g. analysis, discussion preparation, formal adjustments, etc.). Design and functions of Google Docs enable students to do virtually everything on-line: from literature review results, hyperlink comments to writing and commenting the final document
- Google Docs represent a shared workspace and students use this tool precisely for this reason. However, they finalize everything off-line, mainly in MS Word, because it provides better formatting options and outputs

When we look at the results of observing the collaboration software usage at the Department of management theories the situation is quite different. Majority of staff use just email for sending data or documents between each other. They also use Dropbox and Google Drive for storing unfinished work and processed data. The reason is that the division of labor is defined and very well structured. The department members use face to face contact to agree on further steps. Collaboration software is here rather secondary: storing of data and files, exchange of documents. Another consideration is that the staff is obliged to use the collaboration systems of the faculty and university for formal reasons: research registration, reporting, etc. These systems are based on MS SharePoint solutions and there are standalone systems as well.

Similar situation as was observed at the university was also observed within the private companies. The only difference is that the companies use mainly their own standalone systems, but in addition also Dropbox, Google Drive and standard emails. Main reason for using own corporate standalone systems is security. In contrast, Google Docs or Dropbox didn't provide 100% privacy of the processed material.

### **3. Strengths and weaknesses of basic collaboration software solutions**

Each of the collaboration software solutions mentioned above has some strengths as well as weaknesses. We provide here an overview based on ours researches and main conclusions.

#### **Google Docs**

- Strengths: a lot of functions; connection between single products (forms, writer...); quick and effective collaboration and file sharing
- Weaknesses: not 100% privacy; some specific functions are missing; formatting of the documents

#### **On-line storage and syncing (Dropbox, Google Drive...)**

- Strengths: quick and easy access; managing groups – invitations, sharing documents
- Weaknesses: not 100% privacy; security issues (e.g. Dropbox encountered password leaks...); useful mainly for file storing and sharing, no advanced cooperation functions

#### **MS SharePoint**

- Strengths: very complex; a lot of specific individual adjustments; variety of cooperation function; privacy (depending on version and setting)
- Weaknesses: complexity – need of tutorial for unexperienced users; some errors, bugs

#### Standalone solutions

- Strengths: developed for specific purpose, potentially more secure
- Weaknesses: depends on the solution, but mainly compatibility issues with other systems (outside the company)

## 4. Conclusions

Free software solutions are a great help for cooperative projects. Google, Dropbox and others provide solutions with high added value for on-line cooperation. For students or companies where data privacy is not a crucial aspect these solutions are relatively satisfactory. In cases where data privacy is a priority, there are standalone solutions or MS SharePoint-like software packages which may represent a much better choice. There are also free or open-source solutions, e.g. torrent based syncing software such as Torrent Sync Resilio, based on this solution it's possible to create very secure on-line collaboration workspace, give access only to those who were invited, encrypt single files, with the condition that there needs to be one computer or server always on-line for access to the up-to-date files. Considering standalone or MS SharePoint-like solutions, we see an important opportunity in testing and developing the solution according to the customer's needs (Presulli, 2016). We see a significant benefit in strengthening team work by using collaborative software solutions. They must fit the needs and regulations of the team and the organization. In nowadays globalized world on-line solutions offer a possibility to collaborate even on a worldwide level, to overcome distances and manage time more efficiently.

It is also necessary to agree with Bandinelli et al., (1996) that cooperation support is a topic of general interest and applies to all domains where computers can be exploited to support human-intensive activities. This has generated a variety of research initiatives and support technology that is usually denoted by the acronym Computer Supported Cooperative Work.

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## References

- [1] Cohen, S., Bailey, D. E. (1997) What makes teams work: Group effectiveness research from the shop floor to the executive suite, *Journal of Management*, vol. 23, iss. 3, pp. 239-290.
- [2] Das, T. K., Teng, B. S. (1998) Between trust and control: Developing confidence in partner cooperation in alliances, *Academy of Management Review*, vol. 23, iss. 3, pp. 491-512.
- [3] Dyer, J. H., Singh, H. (1998) The relational view: Cooperative strategy and sources of interorganizational competitive advantage, *Academy of Management Review*, vol. 23, iss. 4, pp. 660-679.
- [4] Kucharcikova, A., Tokarcikova, E., Blaskova, M. (2015) Human Capital Management - Aspect of The Human Capital Efficiency in University Education First Global Conference On Contemporary Issues in Education (Globe-Edu 2014), *Procedia - Social and Behavioral Sciences*, vol. 177, pp. 48-60.

- [5] Lendel, V., Soviar, J., Vodak, J. (2015) Creation of Corporate Cooperation Strategy, *Procedia Economics and Finance*, vol. 23, pp. 434-438.
- [6] Porter, E. M. (1998) Clusters and the New Economics of Competition, *Harward Business Review*, pp. 25-26.
- [7] Presulli, M. (2016) Studying Collaborative Approaches to Improving the Quality of Management Information in IT Projects, *International Journal of Information Technology Project Management*, vol. 7, iss. 4, pp. 1-20.
- [8] Škorecová, E. (2016) Informačné technológie ako faktor konkurencieschopnosti, Internetová stránka Slovenskej poľnohospodárskej knižnice pri SPU v Nitre. [Online]. Available: [http://www.slpk.sk/eldo/2005/011\\_05/sekcia4/skorecova.pdf](http://www.slpk.sk/eldo/2005/011_05/sekcia4/skorecova.pdf)
- [9] Soviar, J., Varmus, M., Kubina, M. (2015) Modern Approach to Teaching as University - Students Love the Real Problem, *Procedia Social and Behavioral Sciences*, vol. 205, pp. 401-406.
- [10] Varmus, M., Kubina, M., Soviar, J. (2015) Cooperation on Sport Market - Reasons and Ways How to Improve It, *Procedia Economics and Finance*, vol. 23, pp. 391-395.
- [11] Vodak, J., Soviar, J., Lendel, V. (2014) Cooperation management in Slovak enterprises, *Procedia Social and Behavioral Sciences*, vol. 109, pp. 1147-1151.
- [12] Taylor, A. (2005) An operations perspective on strategic alliance success factors - An exploratory study of alliance managers in the software industry, *International Journal of operations & production management*, vol. 25, iss. 5-6, pp. 469-490.
- [13] Unphon, H., Dittrich, Y., Hubaux, A. (2009) Taking Care of Cooperation when Evolving Socially Embedded Systems: The Plone Meeting Case, *Icse Workshop on Cooperative and human aspects of software engineering*, pp. 96-103.
- [14] Bandinelli, S., DiNitto, E., Fuggetta, A. (1996) Supporting cooperation in the SPADE-1 environment, *Ieee Transactions on Software Engineering*, vol. 22, iss. 12, pp. 841-865.
- [15] Grigori, D., Charoy, F., Godart, C. (2004) COO-flow: A process technology to support cooperative processes, *International Journal of Software engineering and Knowledge Engineering*, vol. 14, iss. 1, pp. 61-78.
- [16] Estublier, J. (1996) Wark space management in software engineering environments, *Software configuration management*, vol. 1167, pp. 127-128.

# DECOMPOSITION OF A MAIN OBJECTIVE OF AN INTERNATIONAL COMPANY SET WITH THE HELP OF ARTIFICIAL NEURAL NETWORKS INTO DAILY PLANS

Marek Vochozka<sup>1,a,\*</sup>

<sup>1</sup>Insitute of Technology and Business in České Budějovice, Okružní 10, České Budějovice, Czech  
Republic

<sup>a</sup>vochozka@mail.vstecb.cz

\*Corresponding author

**Abstract.** The main objectives of an international company are set according to their position in the lifecycle. At the very beginning of their existence it is surviving. Then we can identify getting power (growth of turnover, number of customers, profit, amount of asses and so on). The man objective of a company in the time of its maturity is growth of the shareholder value. It is very important so that the objective was measurable and could be managed by the company all the time. This contribution works with data of Auböck, s.r.o. The company is in the period of growth of its lifecycle. The main objective could be identified as surviving and the second one like getting power. How to measure surviving? The best way how to do it is setting a bankruptcy model and implement it into daily plans in the form of sing indicators or limits. The model was set on the basis of a sample of construction companies located in south Bohemia. Multi-layer perceptron neural networks were used for its creation. It means that we were interested if the company is able to survive potential financial crisis or not. After establishment of the model we decomposed it into single indicator for setting long-term and short-term objectives of the company. The got model can be used worldwide for any kind of company. Its users get a quick and clear information about statement of the company at any time. Furthermore, the management can more efficiently set the detailed objectives for the future development of the company. Thanks to it they will be able to reach the next phase of the company life (maturity).

**Keywords:** objectives, neural networks, prediction, bankruptcy, international company

**JEL Classification:** C15, G31, G39

## 1. Introduction

Every company needs a strategic management. Ivankova (2013) claims that strategic thinking means to take the long-term view and to see the big picture, including the organization and the competitive environment and how they fit together. Strategic management begins with an evaluation of the organization's mission, strategy and objectives (Guga, 2010).

Within the classical decision analysis-based value focused thinking framework an objective is defined as: a statement of something that one wants to strive toward (Neiger & Churilov, 2003, p. 73). Objectives are set depending on the life cycle of the company. According to Stefanović et al. (2015) technological, political, economic and environmental changes in the business world, as well as competitive pressures, force organizations to demand continuous improvement of objectives. Companies must set their targets carefully to fit into their overall



strategy (Sasu & Sasu, 2011). Pardee (2005, pp. 13) has been taught criteria for good objectives, such as: objectives must describe outcomes (not actions), or that objectives must be specific, measurable, achievable, realistic and time-based (SMART). Neiger & Churilov (2003, pp. 72) claim that the objectives are categorized generally into two types: fundamental objectives that are concerned with the ends that decision makers evaluate in a specific decision-making context and means objectives that are methods to achieve ends. Yet we still encounter irreconcilable differences about the form, as well as the content, of an objective. Identification of main objective depends on the company size as well as the type of activity and business sector into which the company belongs (Stefanović et al., 2015). Saha (2014) claims that companies need not have only profit-maximization, or alternatively welfare-maximization as their objective.

The main objectives of the company can be divided into financial terms to the financial and non-financial. Non-financial objectives can be: to maximize company's output, reach the maximum number of customers, service area, shorten lead times, or maximize quality (Brooks & Ondrich, 2007). Reducing total costs or maximizing return on investment can be classified among the financial objectives (Jarina & Bodorova, 2011). According to Elgazzar et al. (2012), the primary financial objective of the company is to maximise its profit. The question to ask is whether profit maximization is indeed compatible with shareholders' interests. The answer can be 'yes' or 'no', depending essentially on the economic environment in which that company acts (Markova & Lesnikova, 2015). Anyway, Wang & Qie (2008) analyze and discuss the financial objective of maximum enterprise value from the point of view of the following four aspects: endogenesis, positivism, measurability and easy operation. The conclusion is that this objective is superior to any other objectives. The same is presented by Wilimowska & Krzysztozek (2013). An increase in a company value, according to them, is the main objective of the company's activity that creates opportunities for long-term functioning and its development. This objective is the main objective of a company in the time of its maturity. In the period of growth the main objective is surviving and the second one getting power (Majercikova & Bartosova, 2012). But how to measure surviving? The best way is setting a bankruptcy model and implementing it into daily plans.

Value or bankruptcy models, often called prediction models, are tools which can help analyse financial situation of a company and provide a quick answer about financial health (Camska, 2012, pp. 353). According to Kubenka & Slavicek (2014) methods of model creation and their evaluation scales vary. But their structure is similar, and the final evaluation grade is growing together with the improving financial health. Mousavi et al. (2015) claim that bankruptcy models could be divided into two main categories: accounting-based models and market-based models. Accounting-based models have three sub-categories – discriminant analysis models, regression models for categorical variables and survival analysis models. Market-based models are mainly stochastic models. Many specialists have been trying to create a company's bankruptcy model using different methods. The aim is to achieve the best results. Now methods with nonlinear nonparametric properties– artificial neural networks are used (Delina & Packova, 2013).

Artificial Neural Networks (ANNs) are machine-learning techniques which integrate a series of features upholding their use in financial and economic applications. ANNs have gained popularity only recently, supported by the explosive expansion of computer usage and by those good results emphasized in a series of empirical studies (Badea, 2014, pp. 238-239). According to Feng & Zhang (2014) ANNs have advantages in terms of self-learning, self-organizing, and self-adapting. Although neural networks often outperform traditional statistical methods, they have some disadvantages. They are not good at explaining how they reach their decisions or

their performance can be hindered because of failings in the use of training data – using smaller data sets (Smith & Ragsdale, 2010).

The aim of this contribution is to determine and decompose the company's basic goal into the company's plans.

## 2. Methodology

We can classify the company's objectives according to many criteria. It may be the criterion importance, the time horizon of its fulfillment, its relation towards other objectives, etc. However, the company's life-cycle phase is indisputably a very important component to determining the company's main objective. Companies at their initial phase of existence or ones going through serious, e.g. financial problems, certainly want to survive. Companies at their maturity phase look for a state which is characterized by a gradual growth with minimal fluctuation – ideally trying to increase their value for shareholders.

Auböck s.r.o. will be our model company. It is a medium-sized South-bohemian building company. Building industry has been affected very seriously by the economical crisis. Thus it is logical that the management of Auböck company had to think over its survival, just as other companies in that field.

In the initial phase it is necessary to determine an indicator which will be able to identify the company's problems relatively reliably and possibly will help the company manage its activities so as to avoid a collapse.

Thus, a bankruptcy model will be set based on the data of all companies operating in the same market – i.e. building industry in the region of South Bohemia. It is the F Section classified as CZ- NACE (branch classification of economic activities). The data will be available for the periods of 2005 – 2014.

The data will be organised into a table – always according to the company name and the year, altogether it will consist of 1204 data rows containing the following information:

- company name,
- region,
- complete information of financial statements for the period of 2005 – 2014,
- non-financial indicators (e.g. employee numbers).

MS Excel will be used to prepare a data file. The total of every company's characteristics is 129. The DELL Statistica software in version no. 7 will be used to run the calculation. Consequently it will be processed through an intelligent task investigator.

We are looking for an artificial neural network which will be able to predict a possible financial distress of a given building company operating in the region of South Bohemia, and thus will be able to classify every company based on the entrance data into one of three groups:

- a creditworthy company,
- the company will go bankrupt in a current year,
- the company will go bankrupt in the future.

At first we will define the properties of individual company characteristics. The outcome variable will always respond to one above-defined group. The extent of the financial statements,

the structure of financial statements and the auditor's verdict will belong among the categorial variables. All other data will belong among continuous variables.

The data will be divided into three groups:

- Training: 70 %,
- Testing: 15 %,
- Validation: 15 %.

The seed for the random selection was stated at the value of 1000. Subsampling will be done randomly.

Consequently 10,000 random neural structures will be generated, out of which we will keep 5 most appropriate results.<sup>20</sup>. To determine the model we will use linear neural networks (Linear), probabilistic neural networks (PNN), radial basic neural networks (RBF), three-layer perceptron networks (TLP) and four-layer perceptron networks (FLP).

In case of radial basic neural network we will use 1 to 300 hidden neurons. The second layer of the three-layer perceptron network will contain 1 to 150 hidden neurons. The second and third layer of the four-layer perceptron network will always contain 1 to 150 hidden neurons.

The following neural structures will be determined as activation functions:

- Identity,
- Logistic Function,
- Hyperbolic Tangens,
- Exponential Function,
- Sinus.

Other setting will be default.

Consequently, sensitivity analysis will be carried out. Thus, we will determine individual input variables being important (and its rate) for the company's survival. The company will be able to manage its activity so that it would avoid bankruptcy.

### 3. Results and Discussion

Table 1 offers an outline of five preserved neural networks out of 10, 000 generated ones. They are a four-layer perceptron network, a Linear network, a radial basic function network and two probabilistic neural networks.

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<sup>20</sup> We will determine that through the smallest squares method.

*Table 1: Preserved Neural Networks*

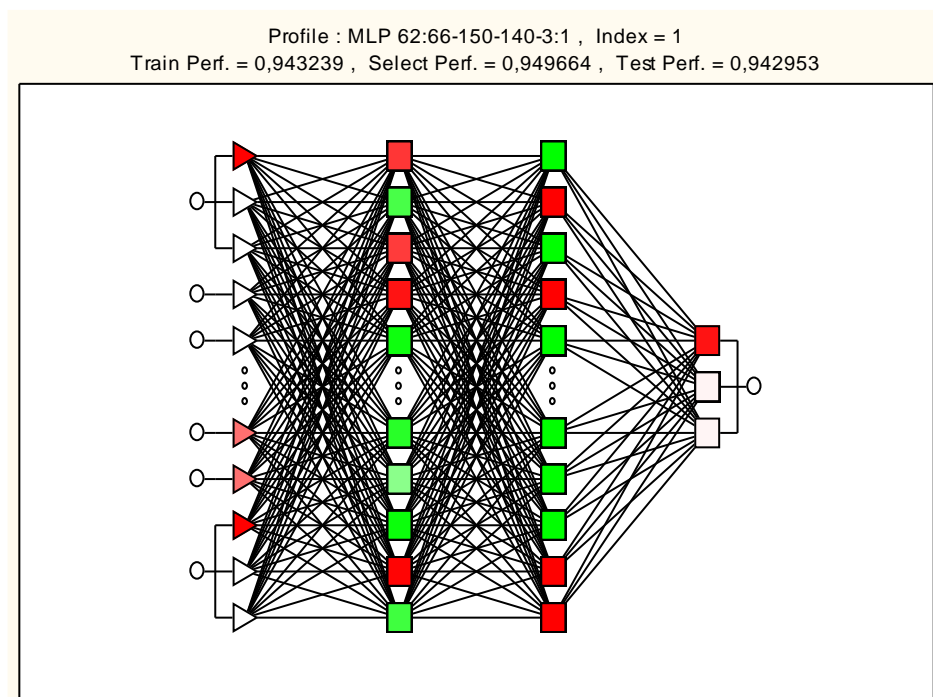
Index	Profile	Train Perf.	Select Perf.	Test Perf.	Train Error	Select Error	Test Error	Trainin g/ Membe rs	Input s	Hidden (1)	Hidden (2)
1	MLP 62:66-150-140-3:1	0,943239	0,949664	0,942953	0,684416	0,628528	1,056396	BP100, CG20, CG0b	62	150	140
2	Linear 5:5-3:1	0,953255	0,949664	0,969799	0,172212	0,176168	0,142257	PI	5	0	0
3	RBF 35:61-22-3:1	0,958264	0,953020	0,973154	0,162452	0,168975	0,131151	KM,K N,PI	35	22	0
4	PNN 69:94-599-3:1	0,959933	0,963087	0,973154	0,155980	0,148484	0,135105		69	599	0
5	PNN 72:97-599-3:1	0,961603	0,966443	0,973154	0,152851	0,145323	0,134999		72	599	0

*Source: Vochozka et al. (2015)*

Individual network types differ from each other significantly – not only in neuron numbers in each layer but especially by their construction, and thus by their performance that they offer in this case. The performance of all networks is relatively high-level. If we were to choose the best network according to its performance we would definitely choose one of the probabilistic networks. It is necessary to analyse carefully whether it is able to identify all of the three above-mentioned company groups, especially companies that go bankrupt or their bankruptcy is approaching. Creating a confusion matrix will help to do that.

The matrix proves that probabilistic neural networks are relatively reliably able to identify companies that are not in financial distress and are not even heading among those that are. In regard of the contribution objective this is not enough. It is necessary to analyze also other preserved neural networks. The first preserved network, i.e. MLP 62:66-150-140-3:1 four-layer perceptron network appears to be the best one (the one able to determine the company's position). The network scheme is given in Figure No. 1.

Figure 1: MLP 62:66-150-140-3:1 four-layer perceptron network Scheme



Source: Vochozka et al. (2015)

Consequently, sensitivity analysis in the best neural structure was carried out. The objective was to find out what indicators are most important for the company's future heading and success.

62 variables enter the calculation, out of which 4 are categorical variables, enter the calculation. Other variables are continuous. Sensitivity analysis was carried out on the basis of training set data. The relevance of individual variables were identified and consequently ordered from the most important towards the least important. Operating costs with the relevance of 1.22798 were identified as the most important item. We have classified the auditor's verdict, with the relevance of 0.63430 as the least important item. Due to the number of input variables we feature only 20 of the most important model inputs including their relevance in Table no. 2.

Table 2: 20 of the most important items of bankruptcy model determined by the MLP 62:66-150-140-3:1 neural structure

Item	X.Ratio.1	X.Rank.1
Operation Costs	1,22798	1,00000
Estimated Accounts Payable	1,17236	2,00000
Outputs	1,17218	3,00000
Other Capital	1,08686	4,00000
Other Operating Costs – thousands of CZK	1,07769	5,00000
Operating Activity Profit	1,05642	6,00000
Short-term bank interest	1,04873	7,00000
Output Consumption – thousands of CZK	1,04714	8,00000
Economic Result for ordinary activity before taxation	1,04007	9,00000
Wages and salaries	1,03733	10,00000
Financial Results of Economic Activity – thousands of CZK	1,02813	11,00000
Current Assets	1,02558	12,00000
Amortized cost of fixed assets and material – thousands of CZK	1,02507	13,00000
Basic capital – thousands of CZK	1,02255	14,00000
Bank interests and aid – thousands of CZK	1,02230	15,00000
Administrative and other Costs	1,01728	16,00000
Other financial costs	1,01229	17,00000
Personal Costs – thousands of CZK	1,01157	18,00000
Cost Interest – thousands of CZK	1,00649	19,00000
Increase / Decrease of profit / Loss in % realistically - %	1,00011	20,00000

Source: Own

At this point it is necessary to exclude duplicates following the use of partial financial statement items as well as the totals. Further, it is suitable to fit the expert viewpoint into the model and exclude nonsensical items, i.e. falsely positive, obviously having no influence on the company's future development. Further on, it would be suitable to exclude ratios, or divide them into partial ratios.

Amortized cost of sold fixed assets and the percentage of the increase or decrease of profit or loss realistically disappear from the first twenty items. Other items are well identifiable, clear and suggestible.

Nevertheless, the question is how to insert the indicators into the company's plans. We do not even know whether we are looking for minimal values or on the contrary, maximum values or values 'in between'. If we determine optimal values we will continue working with clear data (without nonsensical items and without duplicates) and we will carry out the sensitivity analysis. Thus, we will test the optimal relations between the individual input variables. Yes, there are relatively many input variables, and a manual setting would take a long time. Nevertheless, it is possible to extract the best network in the xml format and insert that into e.g. the Excel software by the Microsoft company and program the desired macro for testing. Of course, there are more sophisticated methods. We offer an elementary possibility to try and possibly apply the result in a small or a medium-sized company. The evaluator may end up with a number of suitable results which may be subsequently applied in practice.

## 4. Conclusion

The aim of this contribution was to determine and decompose the main objective of a company into the company's plans.

The aim of the contribution has been fulfilled. The partial results – generated neural networks – that had already been developed in the previous paper, were applied (Vochozka et al., 2015).

Sensitivity analysis was carried out and the key indicators of company's survival were identified. The result was reporting some mistakes – data duplicates and nonsensically declared positive points of some input information. Subsequently, a procedure through which mistakes were removed was suggested, and subsequently also the procedure of model application in practice was introduced (one that is suitable for small and medium-sized companies). The company, thanks to this model, obtained a tool for its goal-setting in a range of areas – supply management, cash management, fixed assets management, cost management, etc. Thus, it has a chance of surviving market problems, therefore also an economical crisis.

The model is useful generally for all building companies in the region of South Bohemia. The idea, the methodics is useful not only in the region of South Bohemia and building industry, but also in other branches in the whole world.

## References

- [1] Badea, L. M. (2014). Predicting Consumer Behavior with Artificial Neural Networks, *Procedia Economics and Finance*, 15, pp. 238-246.
- [2] Brooks, A. C. and Ondrich, J. I. (2007). Quality, service level, or empire: which is the objective of the nonprofit arts firm? *Journal of Cultural Economics*, 31(2), pp. 129-142.
- [3] Camska, D. (2012). National view of bankruptcy models. *Proceedings of the 6th International Days of Statistics and Economics*. Prague, Czech Republic, pp. 268-278.
- [4] Delina, R. and Packova, M. (2013). Prediction bankruptcy models validation in Slovak business environment, *E & M Economy and Management*, 16(3), pp. 101-112.
- [5] Elgazzar, S. H., Tipi, N. S., Hubbard, N. J. and Leach, D. Z. (2012). Linking supply chain processes' performance to a company's financial strategic objectives, *European Journal of Operational Research*, 223(1), pp. 276-289.
- [6] Feng, L. and Zhang, J. (2014). Application of artificial neural networks in tendency forecasting of economic growth, *Economic Modelling*, 40, pp. 76-80.
- [7] Gazdikova, J. and Sustekova, D. (2009). Selected statistical tools for financial analysis. *Ekonomicko-manazerske spektrum*, vol. 3, no. 2, pp. 8-11.
- [8] Guga, L. (2010). Environment factors to achieve strategic objectives in companies. *Proceedings on Cellular and Molecular Biology Biophysics and Bioengineering: Advances in Biology, Bioengineering and Environment*. Athens, Greece, pp. 136-141.
- [9] Ivankova, K. (2013). Relational approach to strategic management and its application, *Ekonomicko-manazerske spektrum*, 7(2), pp. 14-20.
- [10] Jarina, L. and Bodorova, Z. (2011). Company performance management, *Ekonomicko-manazerske spektrum*, 5(2), pp. 18-23.
- [11] Kubenka, M. and Slavicek, O. (2014). Detection of Cognition between Creditworthy Models and Bankruptcy Models. *Proceedings of the 7th International Scientific Conference on Managing and Modelling of Financial Risks*. Ostrava, Czech Republic, pp. 426-433.
- [12] Majercikova, V. and Bartosova, V. (2012). The methodology for determining the value of a company, *Ekonomicko-manazerske spektrum*, 6(1), pp. 94-99.

- [13] Markova, V. and Lesnikova, P. (2015). Strategic level of sustainable development of enterprises, *Ekonomicko-manazerske spektrum*, 9(1), pp. 9-15.
- [14] Mousavi, M. M., Ouenniche, J. and Xu, B. (2015). Performance evaluation of bankruptcy prediction models: An orientation-free super-efficiency DEA-based Framework, *International Review of Financial Analysis*, 42, pp. 64-75.
- [15] Neiger, D. and Churilov, L. (2003). Structuring business objectives: A business process modeling perspective. *Proceedings of the International Conference on Business Process Management*. Eindhoven, Netherlands, pp. 72-87.
- [16] Pardee, W. J. (2005). Writing useful technical/business objectives, *Research-Technology Management*, 48(1), pp. 13-17.
- [17] Saha, S. (2014). Firm's objective function and product and process R, *Economic Modelling*, 36, pp. 484-494.
- [18] Sasu, L. and Sasu, C. (2011). Integrated marketing communications between company objectives and client benefits. *Proceedings of the 7th International Conference on Management of Technological Changes*. Alexandroupolis, Greece, pp. 205-208.
- [19] Smith, G. E. and Ragsdale, C. T. (2010). A deterministic approach to small data set partitioning for neural networks [Online]. In K. D. Lawrence & R. K. Klimberg, *Advances in business and management forecasting* (7 ed., pp. 157-170). Bingley: Emerald.
- [20] Stefanović, M., Tadic, D., Arsovski, S., Pravdic, P., Abadić, N. and Stefanović, N. (2015). Determination of the effectiveness of the realization of enterprise business objectives and improvement strategies in an uncertain environment, *Expert Systems*, 32(4), pp. 494-506.
- [21] Vochozka, M., Rowland, Z., & Vrbka, J. (2015). Evaluation of credibility of civil construction companies in South bohemia. *Innovative Economic Symposium 2015*. České Budějovice, Czech Republic, pp. 145-161.
- [22] Wang, Z. and Qie, X. (2008). Analysis of Financial Management Objective of "Maximum Enterprise Value" from the Perspective of Fair Value Accounting. *Proceedings of the 5th International Conference on Innovation & Management, Vols I and II*. Maastricht, Netherlands, pp. 970-975.
- [23] Wilimowska, Z. and Krzysztozek, T. (2013). The Use of Artificial Neural Networks in Company Valuation Process. *Advanced Methods for Computational Collective Intelligence: Book Series: Studies in Computational Intelligence*. Ho Chi Min City, Vietnam, pp. 279-288.



## CRITERIA AND INDICATORS FOR ASSESSING THE SUSTAINABILITY OF SPATIAL DEVELOPMENT ON THE EXAMPLE OF THE LOCAL AGENDA 21

Jacqueline Vochozková<sup>1,a,\*</sup>, Zuzana Khendriche Trhlínová<sup>2,b,\*</sup>

<sup>1</sup>University of Economics, Prague, W. Churchill Sq. 1938/4, 130 67 Prague 3, Czech Republic

<sup>2</sup>University of Economics, Prague, W. Churchill Sq. 1938/4, 130 67 Prague 3, Czech Republic

<sup>a</sup>Jacqueline.v@seznam.cz, <sup>b</sup>trhlinova@email.cz

\*Corresponding author

**Abstract.** Globalization processes causes new economic and social development challenges, solution of these challenges needs complex scientific approaches. Interdisciplinary approaches to the global development problems solutions are actually the integral part of economic theories and paradigm. One of the concepts that has become worldwide accepted approach to the local and regional development promotion is the concept of sustainable development. One of the tools of the implementation of sustainable development principles is the methodology of the Local Agenda 21. Czech Republic has a growing number of municipalities and regions that work with Local Agenda 21, its implementation is supported financially and methodically by national institutions. Despite the growing interest from public administration bodies and the public to work with the Local Agenda 21 there haven't been defined or quantified yet impacts of the implementation of Local Agenda 21 in long-term (sustainable) development. Selected evaluation indicators are used by the UN, Ministry of Environment and other institutions, these indicators, however, are partial in nature and do not include all the characteristics and challenges of sustainable development and methods of local Agenda 21. The aim of the paper is to identify opportunities for expansion, respectively changes in the impact assessment method implementation of Local Agenda 21 on sustainable development. Paper presents actually used official indicators and indicators used by individual municipalities and regions. It also proposes some changes in assessing the work with Local Agenda.

**Keywords:** Local Agenda 21, sustainable development, evaluation, indicator

**JEL Classification:** H83

### 1. Introduction

The concept of sustainable development has become one of the major development paradigm commonly used by many scientific domains. The theory of sustainable development as the answer to the new economic, socio-demographic and environmental tendencies had also influenced practical public policies on national as well as on regional level, from the development point of view the sustainable development theory is implemented to the practical realisation of economic policy, regional policy and spatial development policy. (Pike et al., 2008). As the definitions and comprehensions of the term “sustainable development” vary between different scientists the real implementation of the concept meets a lot of problems and challenges. Sustainable development is often understood as the balance between so-called economic, social and environmental pillar (Maier, 2012), in last years extended by so-called

institutional pillar and innovation and research pillar (Louda & Jílková, 2012). Real practice of this concept in public policies depends on which pillar is preferred by the decision makers; environmentally orientated mayors or regional leaders promotes the environmentally friendly strategies, social services orientated mayors prefer social programs and investments etc. (Květoň et al., 2014). Evaluation of implementation of sustainable development is in this context quite complicated – which indicators or criteria should we use to evaluate the sustainable development promotion? Which data should we use to declare that the city, region or state develops itself sustainably?

Rating of the success of the sustainable development policy is important challenge for the global scientific community for a purpose to transfer the theoretical paradigm to the practical development policy and to estimate the potential future development potential and needs. Several theories, indicators and individual methods of the sustainable development have been developed since the end of last century by different types of organisations – non-governmental associations, international organisations like OECD, World Bank or United Nations and then also by individual states and their institutions. These different organisations demonstrated the need to define relevant indicators that could evaluate the individual pillars of sustainable development concept and the promotion of its individual elements (economic growth, social services, democracy, environmental issues etc.). Quite a lot of theories, models and indicators have been developed by different institutions, their comparison remains still difficult from the scientific as well as practical point of view.

There is still a need to realise the analysis of the sustainable development promotion on the systematic approach. Indicator choice should be adequate and relevant to the place, to the time and to the context in which we want to monitor the sustainable development. In global aspect the indicators are important to define united and standardised method of measuring (Soubotina, 2004). One of the models developed in between many different scales of sustainable development criteria is linked with the implementation of local Agenda 21 that is one of the methods of the sustainable development implementation. Indicators used in the context of local Agenda 21 implementation are specific between individual states but they are united on each national level for the regions, towns and other subjects implementing local Agenda 21. It opens a possibility to compare the promotion of the local or regional development between different municipalities and regions from the sustainable development point of view and to evaluate the pertinence of the indicators themselves. Paper describes the methodology of the local Agenda 21 sustainable development evaluation in comparison with generally used indicators by national and international organisations.

## **1.1 Objective and methodology**

The main objective of the article is to identify the main criteria used to evaluate sustainable development in the context of the local Agenda 21 implementation. Paper is based on the results of the secondary data analysis as well as on the primary data received in the terrain research. The authors realised in last two years a set of interviews with mayors and other local representatives in the communes and cities that implement local Agenda 21. The interviews were realised in municipalities that implement local Agenda 21 for a long period, are active and dynamic with the work of the local Agenda 21 methodology and that are evaluated with high scores. Totally we realised the interviews in ten “top” local Agenda 21 cities in various regions of the Czech Republic.

## **2. Approaches to the sustainable development concept evaluation**

As local Agenda 21 (further LA 21) is the methodology of sustainable development developed in the wider theoretic concept of sustainable development we consider important to present firstly the universe indicators used on international level and then specify local Agenda 21 indicators and their use in practical development policies in Czech Republic.

The concept of sustainable development was primary initiated by the environmentally orientated scientists who gave importance to the natural sources and natural capital of the world. Sustainable development is by them understood as a complex set of strategies that enable to meet the human social, material and spiritual needs by the use of the economic tools and technologies with the respect of the environmental limits (Rynda, 2000). These scientists represent so-called strong sustainability model where the concept of sustainable development is considered as the best tool of the environmental protection. The criteria and indicators used by these scientists are linked with the protection of the environment and natural sources. The environmental aspects of development influenced also economic science and its subdiscipline ecological economist (Šauer, 2008). Their concept of sustainable development is in Czech Republic quiet often represented by the environmentally orientated non-governmental organisations, some local leaders (but in minority) and also by spatial planning disciplines especially in the framework of the urban planning. Sustainable development is for the purposes of the spatial development strategies defined as an improvement of the standard of living in the framework of the capacity of the ecosystems while preserving biological values and biological diversity for actual and future generations. (Maier, 2012). Sustainable development concept is in these terms implemented to the Construction and Regulation Law (Zákon č. 183/2006 Sb., o územním plánování a stavebním řádu, stavební zákon).

On the other hand there are scientists that prefer the global point of view to the concept of sustainability. They represent so-called weak sustainability model that try to put into the balance all the elements of the sustainable model (economic, social, environmental). Between others the neoclassic environmental economics belongs to this group, e.g. David Pearce, Charles Kolstad, Nick Hanley (Slavíková & Vejchodská, 2012). Indicators used in the framework of this approach are more complex. They include economic data (public debt, economic status, salaries, and public finance indicators), social service offer, infrastructure etc. This attitude is generally used within the international development policies and strategies. The more complex set of indicators that integrate also the social, economic and political indexes respect European Union, World Bank, OECD and UN. These indicators are respected also by Czech government and they are officially declared in the national document “Strategic framework for the sustainable development of the Czech Republic”. This document presents the concrete indicators that are monitored for the sustainable development purposes. They are divided in five specific groups due to the sustainable development goals. Evaluation of the indicators are communicated with the international organisations (OECD, UN) and internationally compared.

Table 1: The indicators of sustainable development monitored by Czech government (choice)

Priority of development	Population, human and health	Economic and innovations	Territorial development	Landscape, ecosystems and biodiversity	Stable and secure society
Indicators	Death rate	GDP/population	The share of developed areas	Natural resources expenses	Index of corruption reflection
Indicators	Age index	Productivity	Public transport	Intensity of logging	Election participation
Indicators	Emissions, biomass production, aerosol	Unemployment rate	Culture expenses	Indicators of ecosystem change	Public sector debt
Indicators	life expectancy	Research and science expense	Balance of migration	Rate of ecological agriculture	Population living under the poverty limit
Indicators	Rate of employment of senior employee	Education structure	Number of users of public transport	Defoliation	The average length of judicial proceedings
Indicators	mining and quarrying	Energy intensity	Internet access	Index of the wild birds	Development aid
Indicators	Household dept	Material consumption	Tourism		Foreign investments

Source: Ministry of Environment, 2010, pp 80-84

Even the fact that we can discuss about the adequacy of some officially used indicators, the set of indicators presented in the table above shows more complex approach to the sustainable development processes evaluation in the context of “weak sustainability model”. Every general indicator is specified by more detailed indicators and it is monitored by national institutions and some independent organisations. As these indicators have become the national respected criteria to the sustainable development evaluation, they generate the base of the indicators uses within the local Agenda 21 methodology on local and regional level.

### 3. Local Agenda 21 in the framework of the sustainable development concept

As mentioned above the concept of sustainable development has become the official principle of development policies of many different organisations and institutions. United Nations (UN) is one of the important actors of the sustainable development concept promotion and it's the UN who supported the implementation of this concept to the practical public policies through local Agenda 21. The methodology of LA 21 was defined at the Conference UN about the environment and development (Earth Summit) in 1992. The document Agenda 21 was approved at this conference. Document Agenda 21 has chapter 28 that is called “Initiatives of local governments to the Agenda 21 support”; this chapter is actually known as the local Agenda 21. ((Brandt & Svendsen, 2013)

The main idea of the chapter Agenda 21 is that local and regional policy makers should be aware of the impacts of their politics and that they should create the sustainable development policies and strategies. One of the pillars of the LA 21 is the integration of the whole community to the discussion about the development needs and visions (partnership principle). Local Agenda 21 can be considered as a tool that helps to implement the sustainable development concept to the municipal and regional policy. (Dezelan et al., 2014)

Local Agenda 21 is represented by UN as a mean that can help implement the principles of the sustainable development to the local and regional development policies with the respect to the local needs and conditions. Methodology of local Agenda 21 enables the local political representatives to work with this concept with the regard to local specifics. Understanding of LA 21 concept and its practical use vary from one region to other, from one municipality to another one. Also the indicators used within local Agenda 21 to evaluate the sustainability of development vary from one state to another. (Barrutia et al., 2015). Czech indicators are formally defined by the Ministry of Environment of CR that monitors their compliance and declare it as an official tool of sustainable development<sup>21</sup>.

### **3.1 Evaluation of the implementation of the local Agenda 21 in Czech Republic**

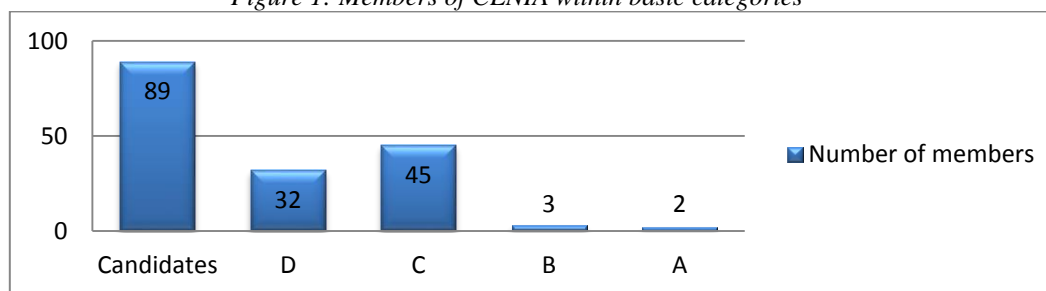
Czech Republic approved the document Agenda 21 in 1992 and declared to respect its recommendation. At the beginning there were some active municipalities whose representatives knew about this methodology and they tried to implement it with the aid of the international partners and experts. This implementation of the LA 21 methodology was very individual and varied from one community to another. The towns and communes that worked with this methodology weren't coordinated and there were no official criteria to evaluate their outputs from the work with the local Agenda 21 (official national policy and support didn't exist). Implementation of the LA 21 as a tool of sustainable development became a part of the official national policy after 2000 with the context of the integration processes of the Czech Republic to the European Union where the concept of sustainable development is an integral part of the communitarian development policies. The respect of the sustainable development concept was institutionally guaranteed by the creation of the Council of the government for the sustainable development and by the enlargement of the competences of the Ministry of Environment of the CR. Ministry of Environment funded new organisation called "CENIA" that had to promote the principles of LA 21 and to define the missing criteria of its evaluation. This was the first attempt to define the official criteria that could help also the municipalities to evaluate themselves and to promote their development activities.

CENIA (Czech information agency for the environment) created in 2006 the national database to which municipalities, regions and other subjects working with LA 21 could register (on the voluntary principle). CENIA established first national respected criteria to evaluate the work with local Agenda 21 and the sustainable development promotion. Creation of the official LA 21 evaluation methodology increased the prestige of this method and helped to disseminate this method to the new municipalities, regions and other subjects (e.g. voluntary municipal associations, local actions groups etc.). (Petrová & Kašpar, 2006). There are actually 172 municipalities and 44 other members (regions, non-governmental organisations) in this database. The number of members changes every year. Following graph demonstrates the number of subjects in different categories defined and followed by CENIA.

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<sup>21</sup> Besides the towns, communes and regions that work officially with the methodology of local Agenda 21 there are also many other towns and communes that respect the main ideas of sustainable development in their policies but they don't declare it officially – these municipalities are not regularly evaluated from the sustainability development promotion point of view in spite of the fact that they progress regularly.

Figure 1: Members of CENIA within basic categories



Source: Cenia, 2016, own adjustment

Individual categories define the level of sustainable development concept promotion in the municipal or regional public policies. There are five categories where the basic one “candidates” is the easiest one to obtain (that’s why there are the most subjects in this category) and the category “A” is the most difficult to receive.

To be a member of the category “candidates” the municipality should to “only” demonstrate the interest about the concept of sustainable development. They fill the registration form, they choose a person that should be a “contact person” between CENIA and municipality (or region). The official criteria demanded within this group don’t help to develop the activities and strategies for the sustainable development process, they have a very declarative character.

Category “D” is also called “Start”. It is considered as a base category to start the sustainable development concept realisation in the practise. The subjects have to implement basic organisational structure for the LA 21 implementation, in administrative way (“coordinator” who coordinates the sustainable development implementation between different departments) and political way (politician and commissions responsible for LA 21). Municipalities should include partners to the decision making process from private and non-governmental sector and they have to realise the discussions with the population (rounded tables, community planning methods, surveys etc.). From the sustainable development concept point of view this category tries to develop especially the institutional and social pillar.

Category “C” is called “Stabilization”. Municipalities have to define an official institution for the LA 21 regular implementation. They have to accept the official political document with the commitment to respect the obligations linked with the LA 21. They should develop the participative activities with different local partners, feedback included, LA 21 should be promoted partly by the municipal budget. The sustainable development concept is linked with institutional and social pillar with more emphasis to the development strategies continuity.

If the municipality wants to promote to the category “B” called “the system of management” it should have three audits to the local public policies realisation. Local Agenda 21 must be regularly supported by the financial means from own budget as well as from the extern sources. Beside the official criteria of CENIA the subjects must develop their own criteria to analyse the progress of the LA 21 implementation and to evaluate sustainable development.. The subjects in category “B” should share a good practice with other towns, communes and regions and they should implement the other methods of public sector management quality such as ISO, CAF and others. To accomplish all above mentioned criteria demands very systematic political and institutional approach to the LA 21 implementation in long-term period. There aren’t many subjects in this category; only two medium sized towns (Kopřivnice, Vsetín, about 25 thousand inhabitants) and one small commune (Křižánky, 350 inhabitants). Town Kopřivnice developed their own set of indicators of the sustainable development (especially the social and health

criteria). Town Vsetín is the only one in Czech Republic that uses the method BSC (balance score card) with 33 different indicators. Commune Křižánky adopted some specific indicators.

The “top” category “A” called also “long-term process” demands the implementation of the sustainable development concept to all public policies and local development activities. To become a member of category “A” demands to be at category “B” at last three years, to have an audit of sustainable development in the accord with the Alborg commitment. Development and living standards of population are regularly evaluated. There are only two medium sized towns in this category (Chrudim, Litoměřice, approximately 25 thousands inhabitants).

As it is showed in the graph 1 most of the subjects working with the methodology of LA 21 belong to the category “D” and “C”. Some of these subjects can already accomplish the criteria of higher category but they don’t want to move to another category, they prefer to rest in actual one. The main reason are the higher administrative and financial obligations linked with higher category. Representatives of communes and towns often declare that they already do a lot of activities linked with more strict criteria but they don’t need the official recognition, they do the activities for their own town and population. To be a member of more promoted categories like “B” demands also higher personal capacities and strong political support that is not always guaranteed. The division of subjects implementing local Agenda 21 shows us some basic data about the sustainable development concept realisation but these data should be relativized. We can estimate that there are more subjects complaining strict criteria of the local Agenda 21 but they don’t want to declare it from many different reasons.

### 3.2 Discussion

Analysis of the actually used criteria to evaluate the LA 21 implementation shows that the most important evaluation is linked with the institutional pillar, from the public management point of view and partnership development point of view. Criteria are mainly orientated to the organisation structure of the LA 21 implementation and the level of some strategic plan development. It doesn’t take into the consideration the harmony of the all sustainable development pillars achievement – in fact it doesn’t matter which activities are made from the economic point of view, or the social or environmental point of view, the most important is how the activities are guaranteed and hold.

The local representatives evaluated the actual criteria developed by CENIA in a positive way. They declare that these criteria helped them to start the work with LA 21, to promote themselves, to compare themselves with other communes and to find the way to improve. Some of the representatives declare that the criteria are very general and they don’t reflect the specifics of individual municipalities (the size, population structure, structure of the partners from private and non-governmental sector, geographic positions etc.). What is the most interesting and astounding is the fact that the criteria don’t work with economic, social and environmental issues. Their promotion is on the voluntary decision of local representatives. Municipalities often orientate themselves to the social services and health policy and other domains are not through the local Agenda 21 reflected (especially economic issues). Mayors and other local representatives’ don’t take notice about any correlation between LA 21 and economic development of their territory. In this sense we can doubt in which range the LA 21 methodology accomplishes the original idea of sustainable development concept.

## 4. Conclusion

Concept of sustainable development was developed in the framework of dynamic global changes as one of the responses to the new development challenges. This concept remains quite theoretic; its implementation to the public policies is promoted by many different strategies, between other by LA 21 methodology. This methodology is used in developed and also in developing countries. Implementation of LA 21 methodology is not uniform, its use and evaluation respect the national specifics and differences. In Czech Republic it became known as a methodology of partnership and the quality of public management promotion, some aspects of sustainable development are not in its official criteria reflected. We consider that there is a need to redefine the sense and purpose of LA 21 and to redefine the official criteria that should more take into the consideration all the aspects of sustainable development. This could motivate towns, communes and regions to develop initiatives in the framework of more complex sustainable development concept.

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## References

- [1] Barrutia, J. M., Echebarria, C., Paredes R. M., Hartmann, P., Apaolaza, V. (2015). From Rio to Rio+20: twenty years of participatory, long term oriented and monitored local planning? *Journal of Cleaner Production*, Vol.106, pp. 594-607.
- [2] Brandt, U. S., Svendsen, G. T. (2013). Is local participation always optimal for sustainable action? The costs of consensus-building in Local Agenda 21, *Journal of Environmental Management*, Vol. 129, pp. 266 – 273.
- [3] CENIA. (2016). *Archiv databáze*. [online]. Available: <http://ma21.cenia.cz/DatabázeMA21prohlížení/Archiv/tabid/1047/language/cs-CZ/Default.aspx>
- [4] Dezelan, T., Maksuti, A., Ursic, Matjaz. (2014). Capacity of Local Development Planning in Slovenia: Strengths and Weaknesses of Local Sustainable Development Strategies, *Lex localis - Journal of Local Self-Government*, Vol. 12, pp. 547 – 573.
- [5] Květoň, V., Louda, J., Slavík, J., Pělucha, M. (2014). Contribution of Local Agenda 21 to Practical Implementation of Sustainable Development: The Case of the Czech Republic . *European planning studies*, Vol. 22, pp. 515-536.
- [6] Louda, J. and Jílková, J. (2012). *Udržitelný rozvoj – ekonomický a politický pohled*, 1st ed. Alfa nakladatelství, Praha, CR. 111 p. ISBN 978-80-87197-59-2.
- [7] Maier, K. (2012). *Udržitelný rozvoj území*, 1st ed. Grada Publishing a.s., Praha, CR. 255 p. ISBN 978-80-247-4198-7.
- [8] Ministry of Environment. (2010). *Strategic framework for the sustainable development in Czech Republic*, 1<sup>st</sup> ed. Ministry of Environment, Praha, CR. 89 p.



- [9] Petrová, M., Kašpar J. (2006). *Místní Agenda 21, informace, postupy a kritéria*. Praha: Ministerstvo životního prostředí ČR. ISBN 80-7212-435-8.
- [10] Pike, A., Rodriguez-Pose, A., Tomaney, J. (2008). *Local and regional development*. Routledge, UK. 310 s. ISBN-13: 978-0415357173.
- [11] RYNDÁ, I. (2000). *Trvale udržitelný rozvoj a vzdělávání*. [online]. Available: <https://www.czp.cuni.cz/czp/index.php/cz/konference/85-2000--hledani-odpovedi-na-vyzvy-soucasneho-sveta/212-trvale-udrzitelny-rozvoj-a-vzdelavani>
- [12] Šauer, P. (2008). *Základy ekonomiky životního prostředí I*. 1st ed. Oeconomica, Praha, CR. 70 p. ISBN 978-80-245-1461-1.
- [13] Slavíková, L. and Vejchodská E. et al. (2012). *Ekonomie životního prostředí – teorie a politika*. 1st ed. Alfa nakladatelství, Praha, CR. ISBN 978-80-87197-45-5.
- [14] Soubbotina, P. T. (2004). *Beyond Economic Growth – An Introduction to Sustainable Development*. 2nd ed. The World Bank, Washington DC, US. 205 p.
- [15] Zákon č. 183/2006 Sb., o územním plánování a stavebním řádu, stavební zákon (Construction and Regulation Law).

## BAD DEBTS AS A GLOBAL PROBLEM IN BANKING SECTOR

Maria Vojtekova<sup>1,a,\*</sup>, Olga Blazekova<sup>2,b</sup>

<sup>1</sup>University of Zilina, The Faculty of Operation and Economics of Transport and Communications,  
Univerzitna 8215/1, 010 26 Zilina, Slovak Republic

<sup>2</sup>University of Zilina, The Faculty of Operation and Economics of Transport and Communications,  
Univerzitna 8215/1, 010 26 Zilina, Slovak Republic

<sup>a</sup>maria.vojtekova@fpedas.uniza.sk, <sup>b</sup>olga.blazekova@fpedas.uniza.sk

\*Corresponding author

**Abstract.** Economic crisis caused that the credit risk has become a global major issue in the last few decades. However the need for credit risk measurement is here since people started borrowing any goods they needed. The most common subject of debt is money and the lender is a bank. When the bank lends some amount of money to a debtor, the debtor is obliged to return the full amount plus some compensation for borrowing the money. There always exists a danger that the debtor will fail to fulfill this obligation and the lender will lose some of his money, so he should be aware of the risk. Therefore he needs to estimate the probability distribution of the credit loss for the entire portfolio of loans. Although the corporate credit risk literature contains of the corporate bonds credit risk change modelling, there is fewer analysis of the credit risk for portfolios of consumer loans. Using of a stochastic process based on a transition probability - Markov chain is one of the approaches to this problem. The aim of our paper is to divide portfolio of loans into groups (classes) according to the time delay in payment, to calculate the probability of a default for each group using the fundamental matrix of the Markov chain, and to appoint present value of future bad debts.

**Keywords:** transition matrix, fundamental matrix, bad debts

**JEL Classification:** C02, C51, E49

### 1. Introduction

Credit risk has become one of the most intensely studied topics in quantitative finance in the last decade. A large number of books and articles on the topic have been published in recent years. For example on the homepage maintained by Greg Gupton there are more than 1200 downloadable working papers related to credit risk. We mention some of the most useful. David Lando considers the two broad approaches to credit risk analysis: one based on classical option pricing models and the other one on a direct modeling of the default probability of issuers (Lando, 2004). We may find a helpful survey on the theory and application of transition matrices for credit risk management, including most of the main issues like estimation techniques, stability and comparison of rating transitions, VaR simulation, adjustment and forecasting migration matrices, corporate-yield curve dynamics, dependent migrations, and the modeling and pricing of credit derivatives in (Trueck & Rachev, 2009). (Jarow et al., 2008) present a simple model for evaluation of risky debt that explicitly incorporates a firm's credit rating as an indicator of the likelihood of default. (Lai & Wong, 2008) develop Bayes models for modeling probability of default and loss given default. (Ma & Cheng, 2009) build the forward-looking loan loss provision model on the foundation of Markov chain. A coupled

Markov Chain approach to model rating transitions and thereby default probabilities of companies is used in (Wozabal & Hochreiter, 2012). (Bruche & Gonzáles-Aguado, 2010) propose an econometric model in which a joint time-variation in default rates and recovery rate distributions are driven by an unobserved Markov chain. (Malik & Thomas, 2012) develop a Markov chain model based on behavioural scores for establishing the credit risk of portfolios of consumer loans. Approaches to the creation of an appropriate transition matrix are described in (Stefanescu et al., 2009). A model of Markov chain for an estimation of an allowance for doubtful account is used in (Cyert et al., 1962). Credit scoring as a control affecting to the dynamic system is studied, and different formalizations of “good” and “bad” consumers are proposed in connection with the Markov chain model, in (Timofeeva, 2015).

Banks divide the overall portfolio of loans into ranges that reflect similar risk characteristics. Statistical methods are used to determine impairment losses on a collective basis for homogeneous groups of loans that are not considered individually significant because an individual loan assessment is impracticable. When appropriate empirical information is available, a bank utilizes roll rate methodology. This methodology employs statistical analyses of historical data and experience of delinquency and default to estimate the amount of loans that will eventually be written off as a result of the events occurring before the balance sheet date, which bank is not able to identify on an individual loan basis and that can be reliably estimated. Under this methodology loans are grouped into ranges according to the number of days past due and statistical analysis is used to estimate the likelihood that loans in each range will progress through the various stages of delinquency, and ultimately prove irrecoverable (Vestník NBS, 2010). The estimated loss is the difference between the present value of expected future cash flows, discounted at the original effective interest rate of the portfolio and the carrying amount of the portfolio (Bäuerle & Rieder, 2011).

## 2. Distribution of loans portfolio

Calculation of provisions begins with an analysis of previous customer behavior. For the purpose of statistical processing bank distinguishes existing loans as those that are regular and loans according to the time delay in payment. Each loan may end up fully paid or by bad debt.

To obtain more accurate data, the bank classifies loans with defaults on instalments into groups (states) according to the time delay. The number of states may vary. In our model we will work with 7 states:

- 0 ..... the loan is completely repaid,
- 1 ..... the loan is uncollectible (more than 361 days past due),
- 2 ..... the loan is repaid regularly,
- 3 ..... 1 - 90 days past due,
- 4 ..... 91 - 180 days past due,
- 5 ..... 181 - 270 days past due,
- 6 ..... 271 - 360 days past due.

The states 0 and 1 are final states. All new loans start at the state 2. If the client is late with instalments, the loan gradually passes into the state 3, 4, 5, 6. In the case when the client will repay the missing instalment, the bank will reclassified the loan into a state with a lower number. Only the loan that was previously in the state 6 can move into the state 1 – uncollectible loan. For simplicity we will assume, that only the loan that was regularly repaid (state 2) is able to move into the state 0 – completely repaid. To express transition matrix it is necessary to choose a reference period. We will use 3-month time periods according to the definition of the

states 3, 4, 5, 6 so we will compare the current state of the portfolio with the state from 3 months ago. Clients, who meanwhile did not pay the instalment, shall be moved to the state with a higher number (3-6). Fair clients who for some reason have delayed instalment (state 3) will, with a high probability, repay the instalment and then they will return to the state 2. On the other hand, clients in the state 6, with a high probability, will not start paying instalments, so their loan will become uncollectible.

### 3. Mathematical model

In terms of mathematical notation the split of the loans portfolio is represented by a vector  $\vec{B}_T = (b_0, b_1, b_2, b_3, b_4, b_5, b_6)$ , where  $b_i$  denotes sum of principal amount outstanding for all loans in a state  $i$ . Vector  $\vec{B}_T$  is the actual status of loans portfolio.

Let  $M_{ij}$  denotes volume of loans, which were in the state  $i$  at the beginning of the observation period and transited to the state  $j$  at the end of the observation period. The observation period is currently set at 3 months. Let  $M = (M_{ij})$  represents the matrix of volumes  $M_{ij}$ ,  $i, j \in \{0, 1, 2, 3, 4, 5, 6\}$ . To obtain impartial (independent in time) volumes which are changing states we will not use only one matrix  $M$ , but our matrix  $M$  is a sum of matrices  $M^k$ , where  $k$  is a number of observation periods ( $k = 4$ ).

The aim of our calculation is to obtain likelihood that the current given state  $i$  will converge (in future, in 1, 2, 3, ... periods) to the so called defaulted state (state 1). Let  $p_{ij}$  denotes probability that one unit (1€) which is in the state  $i$  at the beginning of observation period will be in the state  $j$  at the end of the observation period and  $P = (p_{ij})$  represents a probability transition matrix. The matrix  $P$  has characteristics of stochastic matrix:

- a)  $p_{ij} \geq 0$ ,
- b)  $\sum_j p_{ij} = 1$ .

The stochastic matrix  $P$  and the vector  $\vec{B}_T$  define Markov chain with the states set  $\{0, 1, 2, 3, 4, 5, 6\}$  and the states 0, 1 are absorbing states. The matrix  $P$  is called probability transition matrix. Homogeneity of Markov chain is based on construction of the matrix  $M$  as a sum of the matrices  $M^k$ .

We suppose that the state 1 represents the default absorbing state, it means that  $p_{11} = 1$ ,  $p_{10} = p_{12} = p_{13} = p_{14} = p_{15} = p_{16} = 0$ . When the loan is completely repaid (absorbing state 0), that means  $p_{00} = 1$ ,  $p_{01} = p_{02} = p_{03} = p_{04} = p_{05} = p_{06} = 0$ .

We may notice some transition probabilities between states 2-6 are equal zero:  $p_{24} = p_{25} = p_{26} = p_{35} = p_{36} = p_{42} = p_{46} = p_{52} = p_{53} = p_{62} = p_{63} = p_{64} = 0$ , because the state of loan may change only to the nearby state in one observation period. Only the state 6 can change to the state 1, so  $p_{21} = p_{31} = p_{41} = p_{51} = 0$ . Only the state 2 can change to the state 0, so  $p_{30} = p_{40} = p_{50} = p_{60} = 0$ . Other transition probabilities  $p_{ij}$  can be calculated using elements from the matrix  $M = (M_{ij})$ :

$$p_{ij} = \frac{M_{ij}}{\sum_{j=0}^6 M_{ij}} \quad (1)$$

and we can create probability transition matrix  $P = (p_{ij})$ :

$$P = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ p_{20} & 0 & p_{22} & p_{23} & 0 & 0 & 0 \\ 0 & 0 & p_{32} & p_{33} & p_{34} & 0 & 0 \\ 0 & 0 & 0 & p_{43} & p_{44} & p_{45} & 0 \\ 0 & 0 & 0 & 0 & p_{54} & p_{55} & p_{56} \\ 0 & p_{61} & 0 & 0 & 0 & p_{65} & p_{66} \end{pmatrix} \quad (2)$$

Under assumption of homogeneity of Markov chain, the distribution of our current portfolio (represented by a vector  $\bar{B}_{T_0} = (b_0, b_1, b_2, b_3, b_4, b_5, b_6)$ , also called initial status) in the next observation period (represented by a vector  $\bar{B}_{T_1}$ ) can be calculated as follows:  $\bar{B}_{T_1} = \bar{B}_{T_0} \cdot P$ . Consequently, a prediction for two periods can be obtained by  $\bar{B}_{T_2} = \bar{B}_{T_1} \cdot P = \bar{B}_{T_0} \cdot P^2, \dots$

The matrix  $P$  consists of two first rows expressing transition probabilities of absorbing states 0, 1 and another four rows gradually transition probabilities of the states 2, 3, 4, 5, 6. Consequently, the matrix  $P$  can be divided into four sub-matrices (Stroock, 2005).

$$P = \left( \begin{array}{c|c} I & O \\ \hline R & Q \end{array} \right), \quad (3)$$

where  $I$  is the identity matrix of order 2 for the absorbing states;  $O$  is (2x5) zero matrix;  $Q$  is the square matrix of order 5 expressing the transition probability between the states 2 - 6;  $R$  is (5x2) matrix expressing the transition probability between the states 2, 3, 4, 5, 6 and the absorbing states 0, 1.

Summing up  $\sum_{k=0}^{\infty} Q^k$  gives:

$$I + Q + Q^2 + Q^3 + \dots + Q^k + \dots = (I - Q)^{-1}. \quad (4)$$

Matrix

$$F = (I - Q)^{-1} \quad (5)$$

is the fundamental matrix of Markov chain. Its elements  $f_{ij}$  indicate the average number of steps (observation periods), during which the chain is at the state  $j$  before entering to the absorbing state, if it came out from the state  $i$ .

The matrix

$$K = F \cdot R \quad (6)$$

is called the matrix of transition probabilities into absorbing states. In our case, this matrix gives the probabilities of repayment of loans in the first column  $R_1$  and the default probability of loans to the respective loan state in the second column  $R_2$ .

Let  $\vec{B} = (b_2, b_3, b_4, b_5, b_6)$  is the vector of volumes of loans in states 2-6, then the first coordinate of the vector  $\vec{B} \cdot K$  denotes the total volume of loans which will be repaid and its second coordinate denotes the total volume of loans which will be uncollectible (bad debts).

We are interested in the present value of future uncollectible loans, because it represents the provision for bad debts. Let  $u$  is an interest rate of loans committed during the observation period, then  $d = \frac{1}{1+u}$  is the discount factor and  $R_2$  is the second column of matrix  $R$ , so we can expect the volume of bad debts  $\vec{B} \cdot R_2$  in the first time period, the volume  $\vec{B} \cdot Q \cdot R_2$  in the second time period which present value is  $d \vec{B} \cdot Q \cdot R_2, \dots$ ; volume  $\vec{B} \cdot Q^k \cdot R_2$  in the  $(k+1)$  time period which present value is  $d^k \vec{B} \cdot Q^k \cdot R_2, \dots$ . Summing up these values we obtain the present value of bad debts (Nelson, 1995)

$$\vec{B} \cdot R_2 + d \vec{B} \cdot Q \cdot R_2 + \dots + d^k \vec{B} \cdot Q^k \cdot R_2 + \dots = \vec{B} \cdot F_d \cdot R_2, \quad (7)$$

where

$$F_d = I + dQ + \dots + d^k Q^k + \dots = (I - dQ)^{-1}. \quad (8)$$

The present value of the bad debts is a provision created in the current volume of all provided loans.

#### 4. Case study

Since we did not have the opportunity to get real data (at the NBS website only volumes of non-performing loans are available), so loans volumes in Table 1 are fictitious.

We created matrices  $M^1, M^2, M^3, M^4$  of loans volumes corresponding to four three-month periods which follow each other and  $M^4$  represents the last period. Only relevant volumes of loans  $M_{ij}^k$  which are necessary to calculate transition probabilities are included in Table 1.

$$M_{ij} = M_{ij}^1 + M_{ij}^2 + M_{ij}^3 + M_{ij}^4, \quad i, j \in \{0, 1, 2, 3, 4, 56\}. \quad (9)$$

The last column of Table 1 is corresponding to the total sum of volumes of loans tracked for four three-month periods.

Table 1: Volumes of loans changing their states

$i$	$j$	$M_{ij}^1$	$M_{ij}^2$	$M_{ij}^3$	$M_{ij}^4$	$M_{ij}$
2	0	83 035	76 145	82 152	80 886	322218
	2	1 141 427	1 168 420	1 185 976	1 169 871	4665694
	3	34 872	20 890	27 384	22 938	106084
sum						5093996
3	2	19 618	22 186	21 282	21 667	84753
	3	21 786	28 025	25 335	27 084	102230
	4	5 291	8 174	4 054	5 417	22936
sum						209919
4	3	1 727	1 747	1 449	1 501	6424
	4	8 410	7 279	8 373	6 685	30747
	5	3 083	5 532	6 280	5 457	20352
sum						57523
5	4	857	649	1 217	1 283	4006
	5	3 467	3 893	4 868	6 066	18294
	6	2 875	2 667	4 056	4 316	13914
sum						36214
6	5	659	716	406	597	2378
	6	2 240	1 023	923	1 394	5580
	1	2 964	3 376	2 362	2 987	11689
sum						19647

Source: own processing authors

According to (Eq. 1) we can calculate the transition probability  $p_{ij}$  and by (Eq. 2) we can assembly probability transition matrix  $P$

$$P = \left( \begin{array}{cc|ccccc} 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 0.067 & 0 & 0.921 & 0.012 & 0 & 0 & 0 \\ 0 & 0 & 0.413 & 0.381 & 0.206 & 0 & 0 \\ 0 & 0 & 0 & 0.082 & 0.512 & 0.406 & 0 \\ 0 & 0 & 0 & 0 & 0.120 & 0.255 & 0.3842 \\ 0 & 0.595 & 0 & 0 & 0 & 0.121 & 0.284 \end{array} \right).$$

According to (Eq. 5) we can calculate the fundamental matrix  $F$

$$F = \begin{pmatrix} 15.0103 & 0.6499 & 0.1897 & 0.1561 & 0.0838 \\ 12.6139 & 2.6278 & 0.7670 & 0.6313 & 0.3387 \\ 3.7625 & 0.7838 & 2.8992 & 2.3861 & 1.2804 \\ 0.9680 & 0.2017 & 0.7459 & 2.9402 & 1.5777 \\ 0.1636 & 0.0341 & 0.1261 & 0.4969 & 1.6633 \end{pmatrix}.$$

According to (Eq. 6) we can calculate the matrix  $K$

$$K = \begin{pmatrix} 0.9502 & 0.0498 \\ 0.7985 & 0.2015 \\ 0.2382 & 0.7618 \\ 0.0613 & 0.9387 \\ 0.0104 & 0.9896 \end{pmatrix},$$

It means, that the loan in the state 2 becomes uncollectible with probability 0.0498, the loan in the state 3 with probability 0.2015, the loan in the state 4 with probability 0.7618, the loan in the state 5 with probability 0.9387, and the loan in the state 6 with probability of 0.9896. Let vector  $\vec{B}$  represents volumes of loans (in monetary unit) included in states  $j \in \{2, 3, 4, 5, 6\}$  for the given date (at the end of the last period) for which we create provisions, so

$$B_{j-1} = \sum_{l=2}^6 M_{lj}^4.$$

In this case it is the vector  $\vec{B} = (1191538 \ 51523 \ 13385 \ 12120 \ 5710)$  and the vector  $\vec{B} \cdot K = (1177273 \ 97003)$ , so 97003(monetary unit) will be uncollectible. Assuming the interest rate  $u = 2\%$ , then the discount factor is  $d = 1/1.02$  and the present value of bad debts according (Eq. 7) is 71638(monetary unit).

## 5. Conclusion

Markov chains are of great importance in modeling of the behavior of a system, which is subject to miscellaneous influences, such as the time evolution of loan repayment. Credit risk is the risk that a borrower or counterparty fail to fulfill the obligations of the agreed terms, and it is important the probability of non-payments of the loan and the amount of the expected losses, which the bank will bear if the loans are not being paid by its recipient. Future development of the individual clients income is little predictable, and therefore an appropriate general mathematical model for the development of the financial situation with regards to possible losses is justified. The biggest problem seems to be the creation of the probability transition matrix, whereas in the considered model we have worked with constant Markov matrix, but this can vary significantly because of the impact of the global economic situation.

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## References

- [1] Bäuerle, N., & Rieder, U. (2011). *Markov decision processes with applications to finance*. Heidelberg: Springer.
- [2] Bruche, M., & González-Aguado, C. (2010). Recovery rates, default probabilities, and the credit cycle. *Journal of Banking & Finance*, 34(4), 754-764. doi:10.1016/j.jbankfin.2009.04.009
- [3] Cyert, R. M., Davison, H. J., Thompson, G. L. (1962). Estimation of the Allowance for Doubtful Accounts by Markov Chains. *Management Science*, Vol. 8, No. 3, pp. 287-303.
- [4] Jarrow, R. A., Lando, D., & Turnbull, S. M. (2008). A Markov Model for the Term Structure of Credit Risk Spreads. *Selected Works of Robert Jarrow Financial Derivatives Pricing*, 411-453. doi:10.1142/9789812819222\_0018
- [5] Lai, T. L., & Wong, S. P. (2008). Statistical models for the Basel II internal ratings-based approach to measuring credit risk of retail products. *Statistics and Its Interface*, 1(2), 229-241. doi:10.4310/sii.2008.v1.n2.a2
- [6] Lando, D. (2004). *Credit risk modeling: Theory and applications*. Princeton, NJ: Princeton University Press.
- [7] Ma, J., & Cheng, Y. (2009). Research on Risk Management of Bank Loan and Loss Provision Based on Markov Chain. *2009 International Conference on E-Business and Information System Security*. doi:10.1109/ebiss.2009.5138055
- [8] Malik, M., & Thomas, L. C. (2012). Transition matrix models of consumer credit ratings. *International Journal of Forecasting*, 28(1), 261-272. doi:10.1016/j.ijforecast.2011.01.007
- [9] Nelson, R. (1995). *Probability, stochastic processes, and queueing theory: The mathematics of computer performance modelling*. New York: Springer-Verlag.
- [10] Opatrenie Národnej banky Slovenska (August 2010). Vestník NBS č. 13/2010. [Online]. pp. 317-332. Available: [http://www.nbs.sk/\\_img/Documents/\\_Legislativa/\\_Vestnik/OPAT13-2010.pdf](http://www.nbs.sk/_img/Documents/_Legislativa/_Vestnik/OPAT13-2010.pdf)
- [11] Stefanescu, C., Tunaru, R., & Turnbull, S. (2009). The credit rating process and estimation of transition probabilities: A Bayesian approach. *Journal of Empirical Finance*, 16(2), 216-234. doi:10.1016/j.jempfin.2008.10.006
- [12] Stroock, D. W. (2005). *An introduction to Markov processes*. Berlin: Springer.
- [13] Štofková, Z., & Zuzčák, P. (2010). Príspevok k problematike hospodárskej krízy v Slovenskej republike. In Marvi, Žilinská univerzita v Žiline.
- [14] Timofeeva, G. (2015). Influence of credit scoring on the dynamics of Markov chain. doi:10.1063/1.4936688
- [15] Trueck, S., & Rachev, S. T. (2009). *Rating based modeling of credit risk: Theory and application of migration matrices*. London: Academic.
- [16] Wozabal, D., & Hochreiter, R. (2012). A coupled Markov chain approach to credit risk modeling. *Journal of Economic Dynamics and Control*, 36(3), 403-415. doi:10.1016/j.jedc.2011.09.011

# GLOBALIZATION AND INNOVATION: INNOVATION ACTIVITIES OF MULTINATIONALS IN THE CZECH REPUBLIC 1998-2010

Marek Vokoun<sup>1, a, \*</sup>

<sup>1</sup>Department of Management, Institute of Technology and Business in České Budějovice, Okružní  
517/10, 370 01, Czech Republic

<sup>a</sup>marek.vokoun@mail.vstecb.cz

\*Corresponding author

**Abstract.** This paper analyses location-specific endowments of the markets in the Czech Republic and the ownership-specific endowments of multinational enterprises (MNEs) in the Czech economy which is currently a market that is heavily influenced by MNE presence. The analysis aims at MNEs innovation activities between 1998 and 2010 in the Czech Republic. A panel of 6 Czech Community Innovation Survey waves is analysed. The results suggest that there are ownership-specific endowments like firm's size, market orientation and MNEs spent more on research and development (R&D) if they were pushed by the governmental support, or the need to upgrade production capacity, and pulled to innovate by the information and knowledge of their suppliers. The location-specific endowments of the markets played an important role. The probability to innovate depended negatively on the market concentration. We observed "U-shaped" relationship with the peak negative value in the middle of the Herfindahl index domain. The higher is the technological level of industry the higher is the MNE's probability to innovate. The MNEs were consistently stressing throughout the whole period the existence of variety of hampering factors of innovation apart from technology and existence of prior innovation.

**Keywords:** multinational, innovation, globalization, concentration, markets, small economy

**JEL Classification:** O33, F23, L20, F63

## 1. Introduction

This paper deals with multinational enterprise (MNE) subsidiaries in form of supply subsidiaries, research and development (R&D) labs or market research units. These units contribute to the competitiveness of the global network of a MNE. These networks are vital for small open economies and they are also continually reconfigured by MNEs in order to get best value from all units (Pearce 2009). The reconfiguration depends on many factors and current empirical literature is focused on detailed *location*-specific endowments of countries, specific endowments of markets, and the ownership-specific endowments of MNEs.

This paper contributes to this debate by analysing the Czech economy which is currently a market that is heavily influenced by MNE presence. The share and influence of multinational enterprises (MNEs) has been growing rapidly after the fall of communism in 1989 in the Czech Republic. The positive long-term relationship between real gross domestic product (GDP) and foreign direct investment (FDI) inflow is observed; however, in short term, a negative overall

effect of past values is also observed, which can be explained by many problematic and unsuccessful FDI (Vokoun, 2016; Cieslik, 2016).

## 1.1 Theoretical background

Dunning (1977) introduced an integrated approach to MNEs research agenda which is based on the *ownership*-specific endowments of enterprises. Current research agenda also points out that very few MNEs are truly companies which have global sales and operations and the strategies of MNEs are industry specific and that the theoretical MNE concepts have to employ transaction cost analysis (Rugman, 2005). The existence of the MNE as a firm is in detail discussed in Buckley & Casson (2009). The general theory behind MNEs is linked to the Coase (1937) theory of the firm which is based on internalization and microeconomic transaction cost analysis. This theory holds and is a good way to describe and understand the underpinnings of innovation activities of MNEs.

There are also theories of entrepreneurship and they deal with knowledge spill overs which allow agents in the market to identify and exploit market opportunities (Acs et al., 2009). These theories are built on the exploitation of a market opportunity, a market gap (Kirzner, 1997), which is a key factor for market entry of a firm regardless of its ownership. The market entry depends on the *location*-specific endowments of markets which are defined by certain institutions (f. e. Novák et al., 2015). The modern understanding of institutions is based on Aoki's (2012) and especially North's (1990) theoretic and historical game economical approach.

The two necessary rules of the game, the essential institutions, which encourages entrepreneurship, are private property and the rule of law (Boettke & Coyne, 2003; Manzano & Monaldi, 2009). However, the role of intellectual property rights (IPRs) as the essential part of the "rule of law" is seen rather as a complex issue (Scotchmer, 2004) than essential institution for entrepreneurship and innovation. The theories are based also on the evidence that MNEs are agents of prosperous change for host-country institutions and income level (Kwok & Tadesse, 2006). However, this prosperous change depends on MNEs' Corporate Social Responsibility programmes (Slabá, 2014).

Phene and Almeida (2008) showed that assimilated host country knowledge is critical to innovation activities of MNE subsidiaries and external knowledge does not lead to increased innovation. The analysis was focused on subsidiaries of US semiconductor firms that have patented with the US Patent Office between 1981 and 1992. When the MNE allocates R&D resources to the host country its innovative effort is tailored to satisfy local needs. This decision to decentralize R&D to the subsidiary can lead to the spill-overs of know-how to local competitors. Higher levels of R&D activities of local firms have negative impact on the subsidiary output level (Sanna-Randaccio & Veugelers, 2007).

Mayer-Foulkes and Nunnenkamp (2009) provided analysis of FDI and point out the fact that the sales of MNE subsidiaries are more likely to contribute to convergence and the measure of the FDI stocks do not sufficiently reflect activities of MNEs in a host country. Their main finding is about the fairly high country's income level thresholds before FDI promotes convergence., the making use of superior technologies and process of imitation is limited and FDI is not sufficient to strengthen the economic catching-up process in low-income or middle-income countries.

Also regions with high share of employed people with tertiary education are highly attractive for foreign investments (Crescenzi et al., 2014). The overall knowledge base of a region is the

factor of attractiveness to R&D foreign investment in the European Union over the period 1999-2006 (Siedschlag et al., 2013). Also the cooperation in the network of firms with a MNE presence is beneficial for the whole network and there are knowledge spill overs via domestic and foreign R&D collaboration in Sweden (Lööf, 2009).

We can see that *ownership*-specific endowments of enterprises are also widely studied. We have to take in account that the idea that MNEs possess superior knowledge and this knowledge is simply spilled-over to local firms is too simplistic. The intensity of knowledge flows depends on market characteristics. For example, local firms competing in the national market only can benefit from a MNE presence. On the other hand, firms competing in the global markets are less likely to benefit from a MNE presence (Crescenzi et al., 2015). The country of innovation activities of MNEs and the country (or countries) of commercialization of new products can be different. Also more intensive innovation efforts are not always higher in high-income countries which were proven for German-owned subsidiaries and their operations in Europe (Kampik & Dachs, 2011).

## 1.2 Hypotheses

Based on the critical literature review a set of hypotheses and research questions of innovation activities of MNE is introduced. The first part is oriented at location-specific endowments of markets: (1) the innovation activities of MNEs are in relationship with the market concentration in the Czech Republic. The second part is based on the ownership-specific endowments of enterprises and deals with research questions aimed at (3) importance of innovation pull and innovation push factors of MNEs.

## 2. Data and method

A set of 6 waves (2001, 2003, 2005, 2006, 2008, and 2010) of the Czech Community Innovation Surveys are analyzed. The firm level innovation data and financial statements is possible to join by using so called “pseudoICO”, It is a unique identification number generated by Czech Statistical Office (CZSO), which allows us to merge the questionnaires (“TI” and “P5-01”) together. This unique opportunity allows us to build a panel dataset using 6 CIS waves.

Financial variables were logarithmically transformed. Sales, assets, along with other financial data are in thousands of Czech Crowns. An expanded version (Andersson et al., 2012) of a Crepon, Duguet, and Mairesse (CDM) innovation model (Crépon et al., 1998) is used for testing innovation hypotheses. All dependent variables are measured as per one full-time employee form normalization purposes in the CDM model. Technology push, demand pull, and innovation factors dummy variables have a value of one at high and medium importance level. Hampering factors refer to barriers, which prevents a firm to innovate more. Demand pull factors refer to information sources. There are important innovation information sources inside the firm, and outside the firm (suppliers, competitors etc.). Technology push variables refer to a pressure of new technologies. Firms are motivated to introduce new product range, increase the quality of goods, and lower the costs, environmental impact, material and energy requirements.

Innovator firm is rather narrowly described as a firm which is identified as: Having non-zero R&D expenditures in the last three years and introduced a new to the market innovation. We are interested more in the technological innovations and a high level of novelty. Firms with abandoned innovation projects are added to the sample of innovator firms. To some extent we

control for selection bias here. We know that innovation projects aimed at the new to the market innovations are very risky. We assume that those firms are attempting to introduce new to the market innovation.

Table 1: Summary statistics of the MNEs data sample of 6 CIS waves

Variable	Obs.	Mean	Std. Dev.	Min	Max
Innovator	5645	0.45	0.50	0	1
Herfindahl index	7815	455.93	487.64	101	10000
Sales	7178	1.60E+06	6.95E+06	0	1.88E+08
Employees	7738	396.42	945.13	1	25486
R&D expenditures	5939	2.95E+04	2.15E+05	0	7.76E+06

Source: Czech Statistical Office questionnaires

In the MNEs data sample there are 45 % innovators (Table 1). The dataset has a limited number of observations of micro (56 firms with less than 10 employees) enterprises. This analysis thus describes rather the activities of small, medium and large enterprises than micro firms and sole-traders which are essential for dynamic markets and innovation analysis. The industry technology classification follows the Eurostat classification (Eurostat, 2016). There are 3 degrees of technological and knowledge intensity. First class is composed of high-tech manufacturing industries and high-tech knowledge intensive services. Second class consists of medium-tech manufacturing and knowledge intensive services. The third class is the rest. Firms in the branches of construction, energy sector, water distribution sector and mining are considered to be second class, medium –tech, firms.

Estimation strategy (Table 2) is similar to the one used by Andersson et al. (2012). It follows a process definition of innovation (the decision about innovation, the intensity of R&D expenditures, the innovation output, and the productivity stage). The innovation decision and the intensity of innovation are based on a Heckman procedure, which controls for selection bias using non-selection hazard variable (Mill's ratio) in the second equation (Andersson et al., 2012). It is a random effect Probit estimation and general linear panel regression with Mill's ratio in the second equation in the terms of panel estimation.

Table 2: The first step of the CDM model

1 <sup>st</sup> step	$r_{it}^* \begin{cases} 1 \text{ if } r_{it} = (X_{1it}\beta_1 + \varepsilon_{it_1}) > 0 \\ 0 \text{ otherwise } (r_{it} \leq 0) \end{cases}$
	$k_{it}^* = \ln(k_{it})   (r_{it} > 0) = X_{2it}\beta_2 + a_i + \varepsilon_{it_2} \text{ with } Df(k_{it}) = (0, \infty)$

Source: Andersson et al. (2012)

Where  $X_{nit}\beta_n$ 's (with  $n = 1$ , and 2) are vectors of explanatory variables and  $\varepsilon_{itn}$ 's (with  $n = 1$ , and 2) are random-error terms. The vector of parameters to be estimated is denoted  $\beta_n$  (with  $n = 1$ , and 2). The first equation ( $r_{it}^*$ ) accounts for selection into R&D activities. The  $r_{it}^*$  equals 1 if firm (i) is an innovator (see method) in the selected period (t). The second linear equation ( $k_{it}^*$ ) describes innovation input, which relates the log of internal and external R&D expenditures to the number of employees in a firm i, conditional of being an innovator, the  $a_i$  represents fixed effects component. The last steps of CDM model describing innovation output and labor productivity are not analyzed because it would exceed the scope of this paper. There are issues of appropriability conditions, and the estimation strategy depends on problematic Cobb-Douglas production function, and there are serious issues with estimating the scope and breadth of introduced innovation as innovation output (Andersson et al., 2012).

### 3. Results

Table 3: Factors of innovation intensity of MNEs in the Czech Republic 1998-2010

Innovation intensity	Decision to innovate	R&D Exp. per emp. (LN)
Number of employees (LN)	0.257*** (0.02)	-0.737*** (0.24)
Being part of a group	0.475*** (0.06)	0.487* (0.30)
Herfindahl index	-2.79e-04 *** (1.04e-04)	0.000 (0.00)
Herfindahl index - squared	2.89e-08** (1.47e-08)	-0.000 (0.00)
Tech. level: Medium	-0.276*** (0.10)	1.323** (0.63)
Tech. level: Low	-0.436*** (0.11)	0.051 (0.74)
Market orientation: National	0.324*** (0.12)	
Market orientation: Europe	0.446*** (0.12)	
Market orientation: World	0.678*** (0.13)	
Constant / $\ln(\sigma_u^2)$	-2.819*** / -0.461*** (0.23) / (0.17)	4.996*** (1.42)
Observations	4924	2340
R <sup>2</sup> within		11.73 %

Source: Czech Statistical Office questionnaires, robust standard errors, \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

The decision of MNEs to engage in innovation which will produce new-to-the-market innovation depended positively on firm size, being part of a group, technological level and market orientation. Multinationals have however lower probability to innovate in more concentrated markets. The relationship between Herfindal index and decision to innovate in the market (defined by 3-digit NACE code) is not linear and resembles the U-relationship. The lowest probability to innovate is in the middle of the Herfindal domain around 5000 points.

Table 4: Innovation hampering factors of MNEs in the Czech Republic 1998-2010

Hampering factor of innovation	Coefficient		S.E.
Finances	0.154	**	0.08
Innovation costs	0.401	***	0.06
Personnel	0.381	***	0.08
Technology	0.029		0.09
Information	0.212	**	0.09
Prior innovation	0.095		0.09
Innovation not required	-0.728	***	0.08

Source: Czech Statistical Office questionnaires, robust standard errors, \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Almost all the factors were statistically significant and the high importance of these factors positively related to the decision to innovate. If there are no need to innovate in the market the MNE's probability to innovate is lower. The hampering factor in the form of technological requirements was not statistically significant which is consistent with the theory which considers MNEs as firms endowed with to some extent superior technology and managerial

skills when compared to local competitors. The decision to innovate in comparison to year 2001 was lower in 2003 but then the probability was every year higher (time coefficients were not reported but they were included in regression as time dummies).

The number of innovation factors that attracts a MNE to the Czech Republic is very low (coefficients were not reported but they were included in regression). The only two factors which were in relationship with R&D expenditures per employee were information from suppliers and the need to upgrade the production capacity of the firm. The governmental support contributed to higher innovation intensity (coefficients were not reported but they were included in regression) the other sources did not contributed to higher R&D expenditures per employee in comparison to unsupported MNEs.

#### 4. Conclusion

There are location-specific endowments of the markets in the Czech Republic and the ownership-specific endowments of multinational enterprises (MNEs) in the Czech economy between 1998 and 2010. A panel of 6 Czech Community Innovation Survey waves is analysed and the results suggest that MNE's size and market orientation is a positive factor of innovation activities of MNE. Also, MNEs spent more on research and development (R&D) if they were pushed by the governmental support, or by the need to upgrade production capacity, and pulled to innovate by the information and knowledge of their suppliers. The location-specific endowments of the markets played an important role as well. The probability to innovate depended negatively on the market concentration and we observed the "U-shaped" relationship with the peak negative value in the middle of the Herfindahl index domain. The higher the technological level of industry is the higher is the MNE's probability to innovate. MNEs in the markets with low-tech products or less knowledge intensive services have lower probability to innovate. The MNEs were consistently stressing the existence of variety of hampering factors of innovation apart from technology and existence of prior innovation.

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#### References

- [1] Acs, Z. J., Braunerhjelm, P., Audretsch, D. B., & Carlsson, B. (2009). The knowledge spillover theory of entrepreneurship. *Small Business Economics*, vol. 32(1), pp. 15–30.
- [2] Andersson, M., Johansson, B., Karlsson, C., & Lööf, H. (2012). *Innovation and Growth: From R&D Strategies of Innovating Firms to Economy-wide Technological Change*. Oxford: Oxford University Press.
- [3] Boettke, P. J., & Coyne, C. J. (2003). Entrepreneurship and Development: Cause or Consequence? *Advances in Austrian Economics*, vol. 6, pp. 67–87.
- [4] Buckley, P. J., & Casson, M. C. (2009). The internalisation theory of the multinational enterprise: A review of the progress of a research agenda after 30 years. *Journal of International Business Studies*, vol. 40(9), pp. 1563–1580.
- [5] Cieřlik, A. (2014). Globalization and Human Development in Post-Transition Countries: Empirical Evidence from Panel Data. *Oeconomia Copernicana*, vol. 5, no. 3, pp. 7- 27.

- [6] Coase, R. H. (1937). The Nature of the Firm. *Economica*, vol. 4(16), pp. 386–405.
- [7] Crépon, B., Duguet, E., & Mairesse, J. (1998). Research, Innovation and Productivity: An Econometric Analysis at the Firm Level. *Economics of Innovation and New Technology*, vol. 7(2), pp. 115–158.
- [8] Crescenzi, R., Gagliardi, L., & Iammarino, S. (2015). Foreign multinationals and domestic innovation: Intra-industry effects and firm heterogeneity. *Research Policy*, vol. 44(3), pp. 596–609.
- [9] Crescenzi, R., Pietrobelli, C., & Rabellotti, R. (2014). Innovation drivers, value chains and the geography of multinational corporations in Europe. *Journal of Economic Geography*, vol. 14(6), pp. 1053–1086.
- [10] Dunning, J. H. (1977). *Trade, Location of Economic Activity and the MNE: A Search for an Eclectic Approach*. In B. Ohlin, P.-O. Hesselborn, & P. M. Wijkman (Eds.), *The International Allocation of Economic Activity* (pp. 395–418). London: Palgrave Macmillan UK.
- [11] Eurostat. (August 2016). Annex 2, High-tech industry and knowledge-intensive services. [Online]. Available: [http://ec.europa.eu/eurostat/cache/metadata/en/htec\\_esms.htm](http://ec.europa.eu/eurostat/cache/metadata/en/htec_esms.htm)
- [12] Kampik, F., & Dachs, B. (2011). The innovative performance of German multinationals abroad: evidence from the European community innovation survey. *Industrial and Corporate Change*, vol. 20(2), pp. 661–681.
- [13] Kirzner, I. M. (1997). Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach. *Journal of Economic Literature*, vol. 35(1), pp. 60–85.
- [14] Kwok, C. C. Y., & Tadesse, S. (2006). The MNC as an Agent of Change for Host-Country Institutions: FDI and Corruption. *Journal of International Business Studies*, vol. 37(6), pp. 767–785.
- [15] Lööf, H. (2008). Multinational enterprises and innovation: firm level evidence on spillover via R&D collaboration. *Journal of Evolutionary Economics*, vol. 19(1), pp. 19–41.
- [16] Manzano, O., & Monaldi, F. (2009). The Political Economy of Oil Production in Latin America. *Economía*, vol. 9(1), pp. 59–98.
- [17] Mayer-Foulkes, D., & Nunnenkamp, P. (2009). Do multinational enterprises contribute to convergence or divergence? A disaggregated analysis of US FDI. *Review of Development Economics*, vol. 13(2), pp. 304–318.
- [18] Novák, V., Vokoun, M., Stellner, F., & Vochozka, M. (2016). Institutional analysis of the contemporary regional labour market in the Czech Republic. *E+M Ekonomie a Management*, vol. 19(3), pp. 4–19.
- [19] North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge: Cambridge university press.
- [20] Pearce, R. (2009). Multinationals' Strategies and the Economic Development of Small Economies: A Tale of Two Transitions. *Management International Review*, vol. 49(1), pp. 81–94.



- [21] Phene, A., & Almeida, P. (2008). Innovation in multinational subsidiaries: The role of knowledge assimilation and subsidiary capabilities. *Journal of International Business Studies*, vol. 39(5), pp. 901–919.
- [22] Rugman, A. M. (2005). *The regional multinationals: MNEs and global strategic management*. Cambridge: Cambridge University Press.
- [23] Sanna-Randaccio, F., & Veugelers, R. (2007). Multinational knowledge spillovers with decentralised R&D: a game-theoretic approach. *Journal of International Business Studies*, vol. 38(1), pp. 47–63.
- [24] Scotchmer, S. (2004). *Innovation and Incentives*. London: MIT Press.
- [25] Slabá, M. (2014). Stakeholder power-interest matrix and stakeholder-responsibility matrix in corporate social responsibility. *Proceeding of 8th International Days of Statistics and Economics*. Prague, Czech Republic, pp. 1366–1374.
- [26] Vokoun, M. (2016). Innovation behaviour of firms in a small open economy: the case of the Czech manufacturing industry. *Empirica*, vol. 43(1), pp. 111–139.

## **CORRELATION BETWEEN BETTER PERSONNEL TRAINING AND INCREASED EFFICIENCY OF SERVICE COMPANY MANAGEMENT IN THE CONTEXT OF GLOBALIZATION**

Albina A. Volkova<sup>1, a</sup>, Vladimir A. Plotnikov<sup>2, b,\*</sup>

<sup>1</sup>Shpalernaya ulitsa 40, flat 7, 191123 Saint-Petersburg, Russia

<sup>2</sup>Ulitsa Sikeyrosa 12, flat 124, 194354 Saint-Petersburg, Russia

<sup>a</sup>albvolkova@yandex.ru, <sup>b</sup>plotnikov\_2000@mail.ru

\*Corresponding author

**Abstract.** For present-day companies adapting to various external changes and altering the internal environment accordingly is a matter of relevance. For service companies, forming and improving their internal environment is important for better marketability in the context of globalization (Albashiti et al, 2015). Nowadays the main engine driving the development of the market economy is competition that suggests rivalry with the aim to outscore the competitor. Leading positions can only be taken with a high competitive ability level. That stimulates market entities to seek new methods of increasing their marketability. A wholesome, transparent internal environment ultimately promotes financial growth and development of service companies. It is in the services sphere that all areas of social activity come together and form a unified functional system that serves the purpose of improving the quality of life and the overall standard of living. At the present stage of market development human resources are one of the least manageable internal factors a service company possesses and the only element capable of creating “goods” (Richnák, 2015; Daood, 2011; Putna, 2015). All other internal factors are inert resources that in their essence are incapable of creating anything until a person directs them at achieving the common goal, which is forming marketability (Avetisyan & Goloshchapova, 2012). Scientific approaches to the matter have evolved from seeing a person as part of the production mechanism to praising the human resource as the key one (Ambrozová et al., 2015; Kelperis, 2007; Svetozárovová & Coculová, 2015; Tomčíková, 2015). This study is dedicated to the correlation between better personnel training and the increased efficiency of service company management in the context of globalization.

**Keywords:** education, management, services sphere, globalization

**JEL Classification:** F6, L80, J24, O15, M12

### **1. Staff as the Key Element of Resource Potential of Services Sphere Companies**

Customers' satisfaction with the services they are provided is one of the main indicators for the characterization of the quality of services. It is the ultimate measure of the effectiveness of service enterprises (Plotnikov & Volkova, 2014; Volkova, 2014). In this regard, the purpose of competent personnel management is, firstly, to identify and use the personal and professional potential of employees and, secondly, to form an in-company system of cooperation in which

the staff turns into partners for the administration of the company in joint implementation of high-quality professional activity, i.e. providing high-quality services.

Difficulties related with the personnel management component of the resource potential of a services enterprise lie within the fact that personnel is often considered as an element isolated from the rest of the resource potential of the service organization. However, personnel resource characteristics have an impact on all elements of the resource potential of service companies and the underestimation of the impact results in a negative impact on organizational performance of the company as a whole. In addition, the processes of globalization contribute to the development of customers' ideas about the quality of services. As a result, the requirements for staff training levels get higher. Unskilled and unmotivated staff poses the main threat to the implementation of the territorial expansion strategy that is predominant in the services enterprises under the conditions of globalization. Organizational culture and motivation should be regarded as the most important service industry enterprise human resources management tools. Organizational culture is a powerful strategic tool that orients service divisions of the enterprise and its employees to achieve organizational goals, mobilizes the initiative of employees, ensures their loyalty, and facilitates in-house communication. Processes of management humanization demand a behavioural change in services organization personnel during the active self-regulation of its activities, which, in turn, is based on the development of new approaches to personnel labour behaviour management. This behaviour should be focused on the relevant aspects of the organizational culture and changes in the value orientations of service management. As a result of the development of elements of motivation and organizational culture of a service organization, the processes of self-regulation and self-motivation of staff should come to the fore, overriding other objectives.

The peculiarity of the services sphere is that for the staff who work in the person-to-person system it is necessary for the effective discharge of their duties to possess a certain list of both professional and personal qualities. It is a lack of qualified personnel that is one of the main factors hampering the effective development of the services industry businesses. Thus, according to the results of a sample survey of Russian service companies, conducted by Rosstat in the 2nd quarter of 2016 (Rosstat, 2016), among the internal factors hindering the development of business in the service sector, a lack of qualified personnel is on the 2nd place (18%, first place belongs to the lack of funds factor with 46%). The following seven priority areas of the development of system of personnel labour conduct management in a service organization: the emphasis on the personal potential of the employees, the creation of a differentiated system of motivation, training, adaptation of organizational culture, conflict resolution, communication development, ensuring democratic leadership style.

The analysis of the experience of services companies shows that the lack of activity of the services enterprise managers, lack of feedback to the staff may lead to the following negative factors:

- Loss of interest for work among the employees;
- The absence of an atmosphere of support and collaboration in a team;
- High staff turnover;
- Drop in the quality of services;
- The loss of customers;
- Drop in the competitiveness of service enterprises;
- Smaller profits or even bankruptcy.

Thus, the presence in a services enterprise of staff-related problems entails a number of others. The above problems become evident for managers when there is a malfunction or when the workers suddenly begin to leave the company. Such malfunctions, coupled with high staff turnover, are an external indicator of shortcomings in the internal service of the enterprise management system. They only become external when it becomes impossible to hide these problems from customers who are not satisfied with the service, and when leaving the company, the staff get a job with competitors.

There is another fact suggestive of the scale of the problem - in the economies of the developed countries, which set the trend in the global markets, the bulk of employment is the service sector. For example, in the European Union and the United States the share of services in the field of employment is 75-80% of the total working population. In the emerging economies the share of employment in the services sector is generally less than 50%. For example, in Kyrgyzstan the figure is 48%, while in Tajikistan in the service sector employs only 27% of the working population. In the Russian Federation 65% of the working population was employed in the service sector in 2014 (Rosstat, 2015).

Thus, the personnel problems the service sector, in fact, may be associated with the human problems of the economy as a whole. Moreover, with the development of globalization, these problems include a growing number of countries. And from a purely economic plane they go out into the social and political plane, which requires the state to exert more active efforts for their resolution (Vetrova et al., 2013). For example, in Kazakhstan in 2014, a program was adopted for the development of the service sector, intended to last until the year 2020. As a result of this program, it is expected that the share of services will increase to 60% of GDP, labour productivity will increase 1.5 times, 830 thousand new jobs will be created (currently the share of services in the economy is 53%). One of the important prerequisites for achieving these indicators is ensuring proper professional training for the service sector, the scale of which requires the indispensable participation of state educational institutions.

## **2. Necessity of Increasing the Level of Staff Qualification and Education in the Services Sector**

Staff development is a mutually conditioned process, which affects both the growth of labour efficiency and the quality of personnel resource of a services enterprise, which is manifested in the following:- Over the course of training the ability of staff to adapt to the changing external environment increases, giving the organization an increase in the value of its human resources;- The organization of training of workers gives the organization the opportunity to better address the challenges associated with innovative activities and to maintain the necessary level of competitiveness, which is manifested in the growth of the quality of customer service and increased employee efficiency, as well as cost reduction, etc.;- The growth of personnel qualification is accompanied by increasing levels of staff loyalty to the organization, which leads to a reduction in staff turnover;- Regular training makes it possible to maintain and communicate to the staff the main organizational values and priorities, as well as to promote new approaches and standards of conduct that are designed to support the development strategy of the service organization.

In addition, the following benefits are generated for the employees in the learning process:- The growth of career opportunities both within the organization and outside it;- Higher satisfaction with their work;- Self-growth;- The growth of skills and professionalism.

It can be said that the training of staff in modern conditions is an integral part of the processes of management and development of the services organization. That said, it should be mentioned that the experience of, for example, Russian companies shows that for a large number of companies, until recently, it was characteristic to pay a low level of attention to personnel training. This is due, primarily, to the fact that employee training is not perceived by the leaders of Russian companies as a significant resource increasing measure. But with the increased openness of the national economy (especially after joining the WTO), there is an understanding of the importance of human resource capacity to achieve the effectiveness of services organizations.

At the same time, the approach of the modern business education system lies in the fact that high-quality training for any organization is a factor that is directly related to the quality of its management system, and hence to the performance indicators of the service company and the level of its competitiveness in the market. The role of training becomes especially significant in terms of organizational change, when the old methods of work and management schemes are becoming less effective and efficient, and often even have a negative impact on the efficiency of the personnel. Simultaneously, training and acquisition of new knowledge, skills and abilities of the staff allows to achieve organizational goals in a shorter time, as the process of improving the professional skills of workers ensures the growth of skills available to the workers in their occupations (Kotliarov, 2013).

The importance of training is also supported by the fact that the staff who already have a certain level of knowledge and practical work performance skills, due to the above adopt a critical attitude towards the information obtained in the course of learning, trying to explore exactly what the employees need in the first place to be successful at the moment. The awareness of the management of services companies of the importance of the need for training is the basis for the subsequent establishment of an internal company training system. This will help to identify the training needs, namely to identify the major "gaps" between the existing and required competencies of staff to ensure efficient operation; to assess the current level of professional competence of employees; to outline the range of knowledge and skills, mastery of which is essential for the staff at this stage; to identify the causes that prevent the staff from doing their jobs efficiently; to determine the general direction of development of the personnel.

It is important to emphasize that, due to the desire of service companies for individualization of services, the current development trend of our time is the establishment of in-house staff training systems. State, municipal and private educational institutions can provide only general knowledge and skills. They are not able to form a unique expertise that the employees of specific service enterprises need. Although the system of training staff for service organizations must ensure a balance between internal and external training, internal training, under the conditions of globalization and increasing competitive pressure on businesses is becoming a higher priority.

*Table 1. Labour and social sphere indicators in Russia (by indicators recommended by the International Labour Organization), %*

Indicators	2001	2005	2010	2011	2012	2013	2014	2015
Young people between 15 and 24 y.o. who don't work or study, of the corresponding age group, including:	15.7	13.5	13.8	12.7	12.0	11.8	12.0	12.0
men	13.2	11.2	11.6	10.3	9.7	9.3	9.5	9.6
women	18.3	15.8	16.1	15.1	14.4	14.4	14.7	14.5
Child labour (share of those employed of the 5 to 17 age group), including:	5.2	4.3	2.4	2.5	2.5	2.4	2.0	2.1
boys	5.8	4.9	2.8	2.8	2.8	2.7	2.4	2.4
girls	4.5	3.6	2.0	2.1	2.2	2.1	1.6	1.8
Share of children employed in hazardous jobs of the 5 to 17 age group	2.6	1.4	0.2	0.3	0.4	0.5	0.4	0.5
Public spending on social policy, of GDP	2.5	9.3	13.3	10.9	11.6	12.3	11.3	13.0
Share of children who don't attend classes at school, including:	...	0.19	0.20	0.18	0.18	0.16	0.14	0.14
boys	...	0.24	0.24	0.22	0.22	0.19	0.18	0.16
girls	...	0.14	0.15	0.13	0.14	0.12	0.11	0.11

*Source: Compiled by the authors based on data retrieved from Rosstat.*

Here is the example of Rostelecom, a Russian company acting in the provision of telecommunication services. With the staff number at about 140 thousand people, only in 2014, more than 35 thousand employees took part in online training through the use of an internal training. In total, they studied more than 99,000 courses. In 2015, they developed more than 300 distance learning courses on products, business processes, customer service, and others.

Three levels of formation of professional competencies can be identified - knowledge (a set of empirical and scientific information representations of the outside world), skills (automatic learned behaviours in certain situations) and abilities (the ability to change the behaviour in different situations). We can also select a block of three competencies that are necessary for service personnel – personal-behavioural, professional and collective competencies (Ambrozová et al., 2015). Formation of the personal-behavioural competencies takes place on the stage of formation of the person, for the whole life and in the process of standard education. The set of personal skills expands in the process of work and communication with managers and customers of the services company. These competences are essential for providing quality services and achieving the personalization of services (Tkachenko et al., 2015). In many ways, these tasks are resolved at the level of the government and the society as a whole. Their resolution is based on the implementation of the policy of humanization.

The table shows the data for Russia, describing the progress made in solving the problems of forming an educated and socialized young generation, which over some time will form a contingent of employees, including service workers. These data clearly indicate the success of government efforts to address the problems of prospective personnel of Russian enterprises. Research and empirical evidence indicate the effectiveness of the institutions of formation and development of human potential in Russia (Vertakova et al., 2015).

The acquisition of professional competencies is carried out in the process of education and training. They may increase due to more information and knowledge (skill growth) and a longer list of job-related responsibilities as well as the individual development of professional skills and competencies (Vertakova et al., 2014).

The totality of all the qualities of the staff, the availability of all competencies (personal, behavioural, occupational and collective) eventually forms a general impression of the customer about a company in the service industry. The tireless work on the development of knowledge and skills is the foundation for individual improvement, leading to a collective improvement of the personnel of service businesses. The behaviour and skills of personnel in the sphere of services emerge as an important reserve to ensure the competitiveness of service enterprises in the conditions of globalization. The peculiarity of the services sphere is that for the staff who work in the person-to-person system it is necessary for the effective discharge of their duties to possess a certain list of both professional and personal qualities. It is important to understand that the actions and decisions that are taken by the human resources of a services sphere organization, have a direct impact on its business as a whole, therefore, the contribution of workers to the final result should be given utmost importance.

### 3. Conclusion

The processes of globalization are accompanied by the expansion of the services sector in the economy of both individual countries and the world at large. The increased competition that accompanies globalization imposes more stringent requirements on the quality of staff in service organizations. Today a behavioural change in services organization personnel during the active self-regulation of its activities is required, which, in turn, is based on the development of new approaches to personnel labour behaviour management. This behaviour should be focused on the relevant aspects of the organizational culture and changes in the value orientations of service management. As a result of the development of elements of motivation and organizational culture of a service organization, the processes of self-regulation and self-motivation of staff should come to the fore, overriding other objectives. And an important role in addressing these challenges belongs to the partnership between the state and business in the field of professional training of prospective service sphere personnel.

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### References

- [1] Albashiti, A. I., Malkawi, M. I., Khasawneh, M. A., and Murad U.M. (2015) A novel optimization algorithm to detect human emotions using artificial intelligence techniques. *Proceedings of the 25th International Business Information Management Association Conference "Innovation Vision 2020: From Regional Development Sustainability to Global Economic Growth"*. May 7-8, 2015, Amsterdam, Netherlands, pp. 1237-1256.
- [2] Ambrozová, E., Kolenák, J., Ullrich, D., and Pokorný, V. (2015) Corporate environment and the abilities required of professional managers. *Proceedings of the 25th International Business Information Management Association Conference "Innovation Vision 2020:*

- From Regional Development Sustainability to Global Economic Growth*". May 7-8, 2015, Amsterdam, Netherlands, pp. 753-769.
- [3] Avetisyan, V. P. and Goloshchapova, L. V. (2012) Forming a System of Indicators for Company's Economic Potential Use Regulation. *Samara State University Bulletin*, No 10, pp. 103-109.
  - [4] Daood, R. I. (2011) Professional Ethics as an Important Factor in Hotel Service Success. *Economy, Culture, Management*, No 18, pp. 33-39.
  - [5] Kelperis, G. (2007) Upgrading Qualification in Staff Management. *Staff Management*, No 7, pp. 88-89.
  - [6] Kotliarov, I. (2013) The Real Price of Intellectual Property: Evaluation of Franchisees' Benefits. *Acta Oeconomica*, No 1, vol. 63, pp. 43-60.
  - [7] Plotnikov, V. and Volkova, A. (2014) Service Economy and the Specifics of its Development in Russia. *Procedia Economics and Finance*. vol. 16, pp. 18-23.
  - [8] Putna, M. (2015) Successful Innovation Factors Corporate Environment and the Abilities Required of Professional Managers. *Proceedings of the 25th International Business Information Management Association Conference "Innovation Vision 2020: From Regional Development Sustainability to Global Economic Growth"*. May 7-8, 2015, Amsterdam, Netherlands, pp. 2217-2224.
  - [9] Richnák, P. (2015) Globalization and Its Impact on the Present Concepts in Company Management. *Globalization and its Socio-Economic Consequences, 15th International Scientific Conference Proceedings (Part II)*. 7-8 October 2015, Rajecké Teplice, Slovak Republic, pp. 608-616.
  - [10] Rosstat (2015) Paid Services for Population in Russia. Statistics digest, Moscow, p. 111.
  - [11] Svetozárovová N., Cocul'ová J. (2015) Analysis of Employees Performance Evaluation in the Stage of Globalization. *Globalization and its Socio-Economic Consequences, 15th International Scientific Conference Proceedings (Part II)*. 7-8 October 2015, Rajecké Teplice, Slovak Republic, pp. 731-736.
  - [12] Tkachenko E., Rogova E., Bodrunov S. (2015) Development of Corporate Knowledge Management under Conditions of Cyclic Dynamics. *Proceedings of the 16th European Conference on Knowledge Management ECKM 2015*. The University of Udine, Italy, 3-4 September 2015, pp. 765-773.
  - [13] Tomčíková L. (2015) Implications Arising from Processes of Globalization and their Impact on Human Resources Management. *Globalization and its Socio-Economic Consequences, 15th International Scientific Conference Proceedings (Part II)*. 7-8 October 2015, Rajecké Teplice, Slovak Republic, pp. 810-817.
  - [14] Vertakova Y., Polozhentseva Y., Plotnikov V., Isayev M. (2015) Directions of Human Potential Development in Russia. *Procedia Economics and Finance*. vol. 23, pp. 495-500.
  - [15] Vertakova Y., Simonenko E., Androsova I. (2014) Analysis of Innovative Capacity of Russian Players in The Market of Educational Services in The Context of World Economic Intercourse Globalization. *2nd Global Conference on Business, Economics and Management and Tourism (BEMTUR)*. Prague, pp. 104-110.



- [16] Vetrova, V. D., Dovlatyan, G. P., and Oboymova, N. T. (2013) The Appraisal of the Competitive Ability of the Services Sphere as a Tool for Improving Living Standards. URGU (NPI), Russia: Novocherkassk, p. 176.
- [17] Volkova, A. A. (2014) The Services Sphere: Theoretical Analysis. Saint-Petersburg State University of Economics Bulletin. No 4, pp. 11-16.

## METHODS AND MODELS OF MANAGEMENT APPLIED TO INCREASE SERVICE COMPANY MANAGEMENT EFFICIENCY IN THE CONTEXT OF GLOBALIZATION

Albina A. Volkova<sup>1, a</sup>, Vladimir A. Plotnikov<sup>2, b, \*</sup>

<sup>1</sup>Shpalernaya ulitsa 40, flat 7, 191123 Saint-Petersburg, Russia

<sup>2</sup>Ulitsa Sikeyrosa 12, flat 124, 194354 Saint-Petersburg, Russia

<sup>a</sup>albvolkova@yandex.ru, <sup>b</sup>plotnikov\_2000@mail.ru

\*Corresponding author

**Abstract.** Under the present day conditions of socioeconomic development, the services sphere is one of the most global sectors in the variety of market relations. The realization of the immense potential that lies in the branches of the services sector currently makes Russia's services sphere an important sector of the economy that is growing dynamically. It is safe to say that in the context of globalization, the services sphere is an important source of growth and life standard improvement (Berzákóvá, 2015; Rüttimann, 2014). In addition to this, the services sphere is instrumental in satisfying the material and cultural needs of the population (Volkova & Plotnikov, 2015). Personal self-fulfilment and self-actualization as attributes of high social value are achieved through the agency of the services sphere. Economically developed countries nowadays are marked by growing entrepreneurial and innovative activity mostly in the sector of small business thanks to the tendency for small scale service companies to develop sustainably (Madalina-Ioana, 2014; Perlmutter, 2014; Vernon, 1971). Therefore, managing the development of service companies necessitates the use of special methods that include efficiency and management quality assessment indicators (Richnák, 2015; Robinson, 2012; Tkachenko et al., 2015; Vertakova et al., 2014, A). Taking into account the fact that there is, as of now, no consistency in the methodology of services company management, and in view of the fragmentary nature of methods used for management efficiency assessment, which are also not adapted to the services sphere specifics, the subject of the study should be deemed relevant.

**Keywords:** methods, models, management, globalization, services sphere

**JEL Classification:** O21, M10, F6, L80

### 1. Management Specifics at Services Companies

The specific nature of services as an economic category is determined by the features of intangibility, storage inability, the variability of the quality, and continuity of production and consumption. This specific character determines the mode of operation of the enterprises working in the service sector and makes special demands on management tightened in the context of globalization.

An important feature of the industry that determines the specificity of managing service enterprises is the selection of performance indicators for their work. This efficiency is not limited to economic criteria. It manifests itself more widely, in the form of economic and social efficiency. With the development of the ideas of "green economy", environmental criteria are

being increasingly used to assess the effectiveness of the service sector. This change of criteria appears to be quite important.

The second important feature that defines the specifics of business management in the services sphere is that these companies are both producers and sellers of services. In this sector there are no intermediaries. Market interactions between the producer and the consumer of services are carried out directly. This places a requirement on the development of customer-oriented service enterprises management practices. This task is facilitated by globalization, which is carried out not only in economic but also in social and cultural fields (Pashkus et al., 2015; Vertakova et al., 2014, B). This leads to the unification of formalized procedures for the interaction of customers and service enterprises.

The third important feature is the institutionalization of global service business management standards. In particular, this fastening is carried out through standard methods of work in international standards, in particular, in accordance with the ISO 9001 standard (Quality Management Systems). The process of providing services includes:

- 1) provision of information about the services that are offered to the consumer;
- 2) acceptance of the order;
- 3) execution of the order;
- 4) the implementation of quality control of the execution of the order;
- 5) the order is granted to the consumer.

The fourth hallmark of service enterprise management worldwide has become the intensification of the use of advanced information and communication technologies.

Implementation of effective management of a service company, taking into account the globalization of the economy, the adoption and implementation of adequate management decisions all require the presence of a large amount of data. This leads to the complexity of management activities and the need for continuous monitoring and development. The result is the fifth feature of service business management, which is developing methods for strategic and project, including geographically distributed, control. Also, there is a growth of decentralization in the adoption and implementation of management decisions. The services sector tends towards network models for the organization of activities and management rather than hierarchical ones.

The sixth feature of this business management is to prioritize analytical rather than administrative functions in the management system. Effective management of service enterprises is carried out through continuous analysis of factors of the internal and external environment of the enterprise, which involves a comprehensive assessment of the aggregate relationships and resources available to the enterprise, requiring a powerful analytical apparatus. To address these analytical tasks, both in-house resources and those attracted on a market basis can be used. In the latter case we are talking about active involvement in the management of service enterprises of consulting organizations and academic institutions.

In modern conditions the growth of requirements for the control system of the enterprises of sphere of service is observed. More significant investment of time and resources is required to manage a variety of organizational activities. In the absence of evidence-based approaches to the implementation of management of the service sphere enterprises highly specialized solutions prevail that do not have the necessary potential for development. They increase the efficiency of work of the enterprises of sphere of service only in the short term. And in the long

term it leads to mistakes, motivates management to raise additional resources to support and implement inefficient management decisions.

Therefore, the actions of heads of service industries should not be reduced to a simple reaction to the changes taking place. There is a need for a regulator that achieves the required cost-effectiveness in the service sphere enterprise, taking into account the strategic and long-term factors. Ensuring effective management of the enterprises of the sphere of services adequately defines the ability of entities to keep their development stable. Management, functioning efficiently and effectively, having a high quality, allows for the development of enterprises through the implementation of the selected line of conduct in a competitive environment that is becoming an invariable characteristic with the development of globalization.

The processes of promotion and sale of services are provided mainly through the channels of communication with customers who, after receiving high quality services, will make repeated purchases of this same service and recommend this company within their environments. In this regard, managing service sector business processes requires special approaches in the selection and management of staff, with a view to staff who possess the necessary competence and are motivated to be customer-oriented (Ryabova, 2011).

The above features of management at the enterprises of the service sector, which are largely due to globalization, require models and management methods to be modified. It is especially relevant with a view to the growing importance of services in the global economy (Plotnikov & Volkova, 2014), which is supported by Table 1 below.

*Table 1: The Structure of Global GDP, %*

	Agriculture		Industry		Services	
	2000	2014	2000	2014	2000	2014
World	5	4	30	28	64	68
Low income	34	31	20	21	45	48
Lower middle income	22	16	32	31	46	52
Upper middle income	10	7	39	36	51	57
High income	2	1	28	25	70	74

*Source: The World Bank, URL: <http://wdi.worldbank.org/table/4.2#>*

## **2. Management Model Evolution in the Services Sphere in the Context of Globalization**

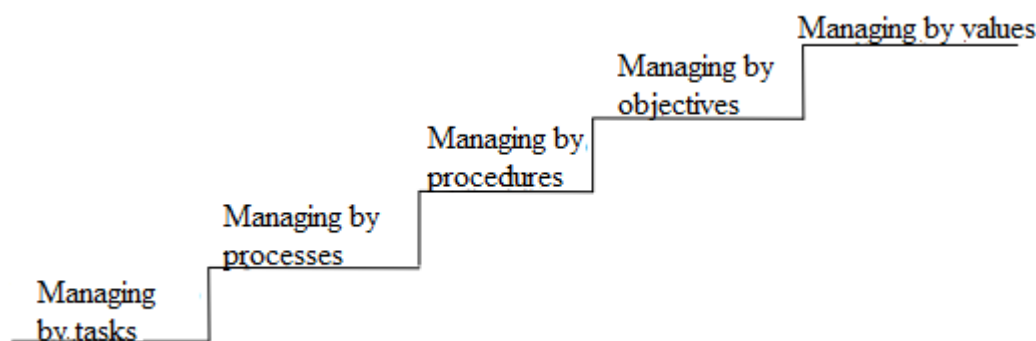
As indicated above, at the enterprises of the sphere of services indicators of the quality of a service are substantially determined not only by the development of professional staff competencies, but also communicative ones. Every employee belonging to sales staff acts simultaneously as an employee competent in all matters that must be addressed with clients. Enterprises often have a situation where the employee being referred to by a client, redirects them to another employee who is formally responsible for this area of business operations or directly to the head of the company, who may not even be in. In the service sector this traditional (functional) approach leads to inefficient management. It leads to an increase in the number of unhappy customers.

As a matter of fact, here the shared participation in solving the problem principle should be respected. It makes all employees responsible for the outcome of a case and means that any employee the customer turned to shares responsibility for the indicators of the final result

(Ryabova, 2011). The emergence of new requirements for service sector workers and for the alignment of work processes leads to the development of the customer-oriented approach to management.

The process of evolution of management models underwent significant changes in the late XX century. The models of management common until then, such as Managing by Tasks, Business Process Management (BPM), Systems & Procedures (S&P), Managing by Objectives (MBO), were supplemented by a new approach to management that is adequate for service companies – Managing by Values (MBV). For the first time the term values-driven management or managing by values was used Tom Peters and Robert Waterman, authors of the book "In Search of Excellence" (Khairullina & Chkalova, 2014). Thus, the evolution of management models can be represented on the following figure.

*Figure 1: Management Model Evolution*



Today, the managing by values system represents the pinnacle of the evolutionary development of management models. The greatest value is the quality of the service provided, with customer-oriented approach exercised in the kind of activity we are looking at. In the process of transferring the services to the customer, it becomes necessary to manage the incremental value.

The formation of services value system at the enterprises of the sphere of services on the basis of points of contact methodology should be considered as an approach to the management of service quality indicators in order to achieve socio-economic efficiency of the service enterprises. To implement this approach, it does not take much financial investment, but it gives the possibility to reduce risks and ensure the creation of high-quality services to enhance customer satisfaction.

Given the nature of service business management and factors shaping its effectiveness, there has been a clarification of the concept of social and economic effectiveness for the service industry, which is treated as income generating (having a positive impact on social welfare) activity, which is aimed at making a profit through managing service customer value and customer loyalty. The result of this transformation was the approach to the management of service value on the basis of the contact points. It is at these points that there is interaction between the client and the personnel of a service enterprise. The result of this interaction is a certain level of customer satisfaction, which determines the efficiency of the enterprise.

### **3. Indicators and Directions of Increasing Management Performance at Service Companies**

The successful development of service industries in the global competitive environment makes it necessary to develop techniques that allow assessing the effectiveness of their activities, taking into account the specifics of their functioning. For service companies there is a need for new methods and techniques that are not based on the assessment of sales and market share but on objectively different measurements of other categories, including social and environmental.

By the content and structure of administrative activity, targets of the services sphere enterprises can be divided into customer loyalty targets, economic targets, administrative targets, technological targets, service value management targets (Perlmutter, 2014). The result of setting goals is the transformation of the business policy of the service enterprise in particular and a clear action plan to achieve the goals, which includes:

- 1) the identification of key strategic vectors and actions, the implementation of which is necessary for the company to achieve its goals;
- 2) the development of specific and specific quantitative and qualitative indicators, planned to achieve in the service enterprise.

The objectives of achieving customer loyalty are based on the wish to work with customers who are loyal to the company and its services, the conquest of specific markets, growth of volumes of works by means of attracting new customers, achieving leadership in terms of customer focus.

The economic objectives of the company are sales profitability growth, strengthening the financial stability of a service company, enterprise profitability growth, etc.

The technological objectives are using scientific and technical progress to increase enterprise efficiency, improve the working conditions of staff and means of work. It is especially worth noting that there is a need for greater use of advanced information and communication technologies by the service enterprises, which are becoming an important competitive factor in the context of globalization.

The objectives of service value management include service quality management. This requires a combination of universal approaches characteristic of industry standards accepted de facto or de jure, as well as individual approaches to the interaction with target audiences. It should be noted that despite the expansion of the globalization process, which leads to growing uniformity of client requests, work in global service markets, especially in the premium and luxury segments, requires increasingly profound differentiation of activities of service companies. Its purpose is achieving the greatest customer satisfaction possible.

Administrative objectives include achieving a high level of control over the service company, increasing staff motivation, reducing staff turnover, achieving high-quality interaction between employees, weighty level of discipline, staff teamwork.

Depending on the scope of purposes of the services company, the following may be used as benchmarks (Hakcever et al., 2000):

- 1) customer loyalty;
- 2) financial resources;
- 3) material and labour resources;
- 4) quality of service;

5) the aggregate performance level of the managerial activities of the service company.

Effective management is characterized by achieving optimal results in its implementation. For effective management it is necessary to carry out its quantitative and qualitative evaluation, as well as regular studies for the timely identification of shortcomings, and implement corrective measures during each stage of management. Conducting assessment of the level of implementation of the management function allows determining its effectiveness. Assessing the level of implementation of management functions at the enterprises of the sphere of services consists of several stages.

The first stage of the assessment involves performing diagnostics of the state of management functions with the use of economic-mathematical modelling. This phase is characterized by carrying out construction and analysis of multivariate statistical models, which express the correlation dependence of economic performance of administrative functions in the service enterprises from internal and external conditions, as well as the determination of the contribution of different factors in the whole control system. Analysis of correlations makes it possible to determine the internal and external factors that have the biggest impact on the economic results of the criterion under examination, reveal the kind of connections between them, carry out the selection of the best type of communication, assess the closeness of the connection, that is to characterize the degree of their influence on the variation of the value of a productive indicator.

The next stage of assessing the level of implementation of management functions in an enterprise of the services sphere is to conduct corrective actions. Corrective actions at this stage are used to eliminate the mismatch between the control units at each stage and the actual state of affairs. The need for corrective action occurs when the actual performance and targets are different to a certain critical value. In these cases, according to the analysis of cause-effect relationships a list of corrective actions is generated that depends on the gaps and steps in which they were identified, with a view to their elimination. Also as part of this step, recalculation of adjusted indicators is carried out, which allows to determine the positive or negative effects of the corrective action and determine their numerical values.

The final step is to calculate the complex index of the level of implementation of managerial functions at service industry enterprises. The proposed approach makes it possible to comprehensively assess management functions based on establishing their level, which enables the management of the enterprises of the services sphere to establish the presence of significant deviations in management in a timely manner and allow the implementation of timely adjustment of administrative decisions.

#### **4. Conclusion**

In the context of globalization, building an effective system of management is becoming more and more important for achieving a high level of competitiveness. Globalization requires enterprises in the service management systems to flexibly combine the unified centralized management approach with the differentiated, decentralized approach. The effectiveness of management of service enterprises depends on the completeness of taking into account the inherent specificity of a local segment of the global services market (Harumová, 2015). Ensuring effective management guarantees the implementation of the selected line of conduct in a competitive environment. This initial position provides the basis for understanding management performance at the enterprises of the services sphere. An analysis of management

infrastructure and the list of implemented functions ensures a comprehensive assessment of the results of management in service enterprises.

At the enterprises of the sphere of services the principle of shared participation in solving the problem should be respected. It makes all employees responsible for the outcome of a case and means that any employee the customer turned to shares responsibility for the indicators of the final result. This again emphasizes the need for the development of decentralization and differentiation in service company management. For service companies there is nowadays a need for new methods and techniques that are not based on the assessment of sales and market share but on objectively different measurements of other categories.

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### References

- [1] Berzáková, V. (2015) Company Valuation and the Globalization Process. *Globalization and its Socio-Economic Consequences, 15th International Scientific Conference Proceedings (Part I)*, 7-8 October 2015, Rajecké Teplice, Slovak Republic, pp. 27-32.
- [2] Khairullina, D. R. & Chkalova, O. V. (2014) Socio-Economic Efficiency of Small-Scale Service Company Management. *Management of Economic Systems*, No 12, pp. 118-122.
- [3] Harumová, A. (2015) Multinationals as a Part of Globalisation. *Globalization and its Socio-Economic Consequences, 15th International Scientific Conference Proceedings (Part I)*, 7-8 October 2015, Rajecké Teplice, Slovak Republic, pp. 192-198.
- [4] Hakcever, C., Render, B., Russell, R. S. & Murdick, R. G. (2000) *Service Management and Operations*. Pearson, p. 751.
- [5] Madalina-Ioana, B. (2014) Global Economy-Actual Situation and Prospects of Economic Recovery. *Procedia Economics and Finance*, vol. 16, pp. 206-212.
- [6] Pashkus, V.Yu., Pashkus, N.A. and Pashkus, M.V. (2015) Building a Strong Cultural Brand of Saint-Petersburg in the Global Economy: Breakthrough Positioning and Approaches to the Assessment. *Globalization and its Socio-Economic Consequences, 15th International Scientific Conference Proceedings (Part II)*, 7-8 October 2015, Rajecké Teplice, Slovak Republic, pp. 559-571.
- [7] Perlmutter, H.V. (2014) The Tortuous Evolution of the Multinational Corporation. *Columbia Journal of World Business*, Jan., pp. 17-19.
- [8] Plotnikov, V. & Volkova, A. (2014) Service Economy and the Specifics of its Development in Russia. *Procedia Economics and Finance*, vol. 16, pp. 18-23.
- [9] Richnák, P. (2015) Globalization and Its Impact on the Present Concepts in Company Management. *Globalization and its Socio-Economic Consequences, 15th International Scientific Conference Proceedings (Part II)*, 7-8 October 2015, Rajecké Teplice, Slovak Republic, pp. 608-616.
- [10] Robinson, R. D. (2012) *International Management*. N.Y.



- [11] Rüttimann, B. G. (2014) Modeling Financial Type 2b Globalization and its Repercussion on the Real Economy. *Procedia Economics and Finance*, vol. 14, pp. 534-543.
- [12] Ryabova, E. V. (2011) Assessing the Level of Managerial Functions Implementation at Service Companies. *Issues of Modern Economy*, No 2, pp. 319-323.
- [13] Tkachenko, E., Rogova, E. & Bodrunov, S. (2015) Development of Corporate Knowledge Management under Conditions of Cyclic Dynamics. *Proceedings of the 16th European Conference on Knowledge Management ECKM 2015*, The University of Udine, Italy, 3-4 September 2015, pp. 765-773
- [14] Vernon, R. (1971) *Economic Sovereignty in Bay: The Multinational Spread of U.S. Enterprises*. Basic Books, N.Y.
- [15] Vertakova, Y. V., Polozhentseva, Y. S. & Kryzhanovskaya, O. A. (2014) Managing a Brand Portfolio Formation of Innovative Companies. *International Scientific Conference on Marketing Identity: Explosion of Innovations*, Slovak Acad Sci, Smolenice, Slovakia, pp. 253-266.
- [16] Vertakova, Y., Simonenko, E. & Androsova, I. (2014) Analysis of Innovative Capacity of Russian Players in The Market of Educational Services in The Context of World Economic Intercourse Globalization. *2nd Global Conference on Business, Economics and Management and Tourism (BEMTUR)*, Prague, pp. 104-110.
- [17] Volkova, A. & Plotnikov, V. (2015) Changes in Customers' Needs for Services. *2nd International multidisciplinary scientific conference of social sciences and arts – SGEM 2015. 26 August – 1 September 2015. Conference proceedings. Book 2: Political sciences, law, finance, economics and tourism. Volume III: Economics and tourism*. Albena, Bulgaria, pp. 83-90.

## GLOBAL PROBLEM OF DEMOGRAPHIC DYNAMICS IN THE IMPLEMENTATION PROCESS OF MEDICO-SOCIAL PROGRAMS: ISSUES OF BIRTH RATE

Yagudin R.<sup>1,a</sup>, Rybkina N.<sup>2,b</sup>, Fakhrutdinova E.<sup>3,c,\*</sup> and Valieva G.<sup>4,c</sup>

<sup>1</sup>State Autonomous healthcare institution "Republican clinical hospital of Ministry of health of the Republic of Tatarstan", Russian Federation, Kazan

<sup>2</sup>State Autonomous healthcare institution "Republican clinical hospital of Ministry of health of the Republic of Tatarstan", Russian Federation, Kazan

State Educational Government-Financed Institution of Additional Professional Education "Kazan State Medical Academy" of the Ministry of health of the Russian Federation"

<sup>3</sup>Federal State Educational Government-Financed Institution of Higher Professional Education "Kazan (Volga region) Federal University", Russian Federation, Kazan

<sup>4</sup>Federal State Educational Government-Financed Institution of Higher Professional Education "Kazan (Volga region) Federal University", Russian Federation, Kazan

<sup>a</sup>rh65@mail.ru, <sup>b</sup>2361646@mail.ru, <sup>c</sup>efahr@mail.ru, <sup>d</sup>2361646@mail.ru

\*Corresponding author

**Abstract.** The birth rate as one of the indicators of population reproduction is determined not only by biological but also socio-economic processes, living conditions and everyday life, in particular family traditions and other factors. For characteristics of the process of fertility total fertility rate, where total number of children born alive during the year appears for the phenomena and average population for the medium, are used. The last decade of the twentieth century and the first five years of the XXI century are characterized by a significant decrease in the birth rate of the population of Russia in total and most of its constituent territories. Since 2005, the government of the Russian Federation and the Ministry of health have signed a number of decrees and orders aimed at solving health, social and economic problems, among which the improvement of medical care for women during pregnancy, mothers and babies, and healthcare modernization, the introduction of modern medical technologies. The article presents the results of multivariate analysis of fertility of the population, health indicators of newborns and early neonatal mortality in the Republic of Tatarstan in 2005-2013. The positive dynamics of the majority of the studied parameters are established that confirms the effectiveness of the implementation of health and social government programs aimed at improving the reproduction of the population, preserving and promoting the health of newborns, a further reduction in neonatal mortality determining the level of infant and neonatal mortality.

**Keywords:** demography, mortality, population reproduction

**JEL Classification:** J11, J11

### 1. Introduction

One of the most serious problems in the health system and the social sphere is the birth rate of the population. Therefore, in our opinion, the main task is to implement a long-term state policy in the field of children's health, as well as the preservation and strengthening of health of children.

Components of this policy became the implementation of the priority national project "Health", which provided unprecedented measures to improve medical care for mothers and newborns, the appropriation of significant funds for the modernization of health care, decision making on the appropriation of not less than one-quarter of the budget of the health system to improve the health of children.

Having taken into account everything that was mentioned earlier we set a task to assess the dynamics of indicators of birth rate and neonatal morbidity in 2005-2013 which became a period of significant organizational and operational changes in the system of health protection of mother and child basing on the materials of one of the units of the Russian Federation - the Republic of Tatarstan.

In terms of improving the health of children, in our opinion, we need to implement a comprehensive assessment of the health status of children, including the study of quality of life. The basic tools for the study of quality of life (QOL) in modern medicine are questionnaires which compiled on the basis of psycho-metric methods. Since children can independently participate in the evaluation of their quality of life with only 5 years old, in the age group of children under 5 years survey of parents, doctors or other trusted individuals is the only way to evaluate the physical, emotional and social well-being of the child.

## **2. Research framework**

Dynamics of some indicators of fertility of the population and some indicators of health status of newborns in the Republic of Tatarstan in 2005-2013 were studied according to the materials of the territorial body of Federal service of state statistics in the Republic of Tatarstan and the state autonomous institution of public health "Republican medical information and analytical centre" using medico-statistical and analytical methods (Ziyatdinov et al., 2006). During analysis, we have studied the dynamics of the indicators of each year included in the studied time period, in some cases, careful attention was paid to the indicators 2005, 2010, 2013.

We have undertaken a study of QOL infants living in the Republic of Tatarstan. The object of our study were children under the age of 3 months, that is the minimum age for this study. Quality of life in children of this age were studied by the Russian version of the international questionnaire QUALIN, drawn up on the basis of psychometric methods and used for the evaluation in infants. The main aim of the work was to study the characteristics of quality of life of healthy children and children at risk (premature infants and children from social risk families) living in urban and rural areas.

## **3. Findings**

During the period under review in the Republic of Tatarstan significant positive results in the organization of medical care to pregnant women, new mothers, lying-in women and newborns in maternity institutions were achieved, the professional level of doctors (obstetrician-gynecologists, neonatologists, intensive care specialists) and paramedical workers increased. These positive changes in the health of mothers and children in the Republic of Tatarstan are expressed in the dynamics of the following key outcome indicators: total fertility rate rose from 9.8% in 2005 to 14.7% in 2013 (an increase of 50.0%), the proportion of easy deliveries increased from 29.0% to 37,2% (an increase of 28.3%), the infant mortality rate

declined from 8% to 7.0% (down 12.5 percent) and significantly below the average level in the Russian Federation (to 7.6%) and the Volga Federal district (of 7.2%).

The increase in the fertility index in the Republic of Tatarstan in 2013 compared with 2005, reflected in changes in the number of indicators of population reproduction (Fakhrutdinova, 2013).

First, total fertility rate increased, showing how many children one woman would give birth to during the entire reproductive period, while maintaining in every age fertility rates of that year, for which age-specific birthrates are calculated and reflecting parenthood status. Total fertility rate in the Republic of Tatarstan, extremely low in 2005, that was 1,263, and at the end of 2013 is 1,832 (an increase of 45.1 per cent).

The growth of the total fertility rate is set in both urban and rural areas, while urban areas increased by 37.3% and reached 1,725 in 2013, in rural areas the growth was 28.6 per cent, the 2013 index is 2,088. Total fertility rate in rural areas is higher than in urban areas in 2005 on 34.8%, in 2013 on 21.0% (Vafin et al., 2013).

Secondly, the main feature of the reproduction of the population of Russia in 90th years of the twentieth century was the increasing concentration of births in an increasingly young age - younger than 30 years (Ziyatdinov et al., 2006), the authors illustrate this tendency by data for the Republic of Tatarstan, where the cumulative fertility by age 30 was in 1991 76.6 percent, in 2000 76.8 per cent, a similar level of this indicator was retained in the first five years of the XXI century. Since 2005, the cumulative birth rate of women under the age of 30 years in the Republic of Tatarstan is constantly decreasing (2005 - 75.3%, 2010 - 67.9%, 2013 is 65.5%. Whereas the increase in cumulative fertility of women in older age groups aged 30-34 years is clearly observed, it has increased from 17.4% in 2005 to 22.7% in 2013, at the age of 35-39 years - from 5.9% to 10.4% (an increase by 1.8 times), at the age of 40-44 years - from 1.1% to 1.7% (an increase of 54.5%). In urban areas against the background of growth of the total number of live births, cumulative fertility at the age of 30 decreased from 75.3% to 64.2 percent, increased at the age of 30-39 from 23.3% to 34.0%. In rural areas a growth of cumulative birth at the age of 30 is from 75.9% to 70.3% and a reduction of aged 30 - 39 years from 23.0% to 27.6% (Vafin et al., 2013).

Thirdly, in parallel with the increase in the number of births and number of born newborns the birth order of children changed. In 2013 compared with 2005 share of the birth of the first child (the firstborn) declined on 21.3%, but significantly increased the proportion of births of second children (an increase of 25.5%) and third and subsequent children (an increase of 46.3 per cent) (Farraphov et al., 2011). The rate of change of birth order on various urban and rural areas is different, where urban area changes are more denoted.

In the Republic of Tatarstan in the period from 2005 to 2013, the number of live births increased by 52.7% (36967 to 56458), while in urban areas the growth was 57.3%, in the countryside was 38.3% (Vafin et al., 2013).

The main indicators of infant health at the population level are the indicators of physical development of births (live births according to body weight), morbidity and mortality.

Body weight at birth and structure of born children according to body weight are the most important and accurate indicators of the quality of health of a nascent generation, the relevance of which increases significantly due to the transition of Russia since 2012 to who criteria of live and stillbirths.

According to the analysis the proportion of children with physiological body weight ("3000 - 3499 g" and "3500 - 3999") is quite stable with a gradual increase until 2013 at 2.7%. The proportion of infants with low body weight at birth (weighing less than 2500 g) decreased in 2010 in comparison with 2005 by 7.5% and increased in 2013 compared with 2010 by 0.8%, while the proportion of newborns with extremely low body weight rose in 2010 on 13.0%, the most significant growth is noted in 2013 compared with 2010 (an increase of 53.8 percent). The proportion of children "edge" weight category (2500-2999 g) shows a clear tendency to a gradual decrease, while the proportion of large babies (4000 g or more) increased from 2005 to 2010 by 1.3%, then decreased in 2013 in comparison with 2010 by 17.7%. (Healthcare in the Republic of Tatarstan: a Statistical Volume, 2013)

The incidence of newborns in maternity hospitals (departments) in the Republic of Tatarstan for 2005-2013 decreased by 31.5% to 446,7 % in 2013. In 2010 compared with 2005, the incidence decreased by 21.4%, in 2013 compared with 2010 decreased by 12.9%. Reduced neonatal morbidity was achieved both among those born full-term (33.7%), and among those born preterm (11.5%), due to the prevailing decline in the incidence of full-term correlation in the incidence of preterm and full-term morbidity increased from 3.31 in 2005 to 4.42 in 2013.

We carried out a comparative territorial analysis of the incidence of new-borns, having considered the incidence separately for urban districts and socio-economic regions of the Republic.

The maximum reduction in the incidence of newborns in 2013 compared with 2005 was stated in Naberezhnye Chelny (2.2 times) and Kazan (1.6%). Among regions, the highest incidence of newborns in both 2005 and in 2013, was registered in South-Eastern region, the second rank place occupies the North-Eastern region. In both regions, the incidence of newborns is significantly higher than in Kazan and Naberezhnye Chelny at a sufficiently low rate of reduction (the South-Eastern region is 14.7%, the North-Eastern region is 14.8%) (Grigulevich, 2012).

The lowest incidence newborns was stated in the Kama and Privoljskiy regions, in the dynamics of the period in both regions there was the decrease in 2010 compared with 2005 and the growth in 2013 compared with 2010.

Neonatal morbidity in urban and rural areas declined: in urban area by 28.5%, in rural areas by 12.6%. In 2010-2013 there were not significant differences in these indicators.

In conclusion, we present data on mortality in early neonatal period (0-6 days). The change in the index of early neonatal mortality had distinct biphasic nature: the decline in 2005-2010 and growth in 2010-2013.

In the Republic of Tatarstan early neonatal mortality decreased by 2010 by 30.0% and increased to 2013 on 57.9%, reaching the figure of 2005. In urban areas, early neonatal mortality decreased by 1.6 times, then increased by 55.6%. In rural areas the figure decreased by 1.7 times, to 2013 increased by 85.7%.

The proportion of early neonatal mortality in the structure of infant mortality in the whole country and for urban and rural areas in 2005-2013 underwent biphasic changes. Also the proportion of early neonatal mortality in neonatal mortality changed. In the whole Republic there is a tendency to decline from 69,8% in 2005 up to 66.7% in 2013, i.e. on average every 2 deaths of 3 in the neonatal period occur in the early neonatal period. In urban and rural areas biphasic indicator is noted, which decreasing in 2005-2010 (Farraphov, 2011), reached in 2013 in the urban area 68.3% in rural areas 65.0%. The results of the analysis of neonatal mortality

rate and comparison of it with infant and neonatal mortality further confirm the importance of increased attention to health care and improve its quality for kids first days of life.

The survey relating to children's health and the quality of, contains 33 questions and 6 possible answers to the following scales: «social behavior», «ability to be alone», «family environment», «psychological development and physical health». The number of points can range from 0 to 5 (point system), higher rate reflects a better quality of life (Albitsky, V.Y., 2011).

In healthy infants (control group) by the responses of parents installed high levels of QOL. The lowest aspect rated by parents is «ability to be alone» ( $4,37 \pm 0,47$ ).

Exploring QOL depending on the place of residence (urban - rural), it was found that in the absence of significant differences in total score ( $4,64 \pm 0,18$  vs.  $4,66 \pm 0,24$ ,  $p > 0.05$ ), the parents of the urban and the rural children have different opinions. Thus, urban parents above estimate their children's quality of life on the scale of «social behavior» ( $4,77 \pm 0,19$  vs.  $4,62 \pm 0,22$  in rural,  $p < 0.01$ ), while the urban – on the scale of «ability to be alone» (respectively,  $4,61 \pm 0,38$  and  $4,18 \pm 0,46$  at the city,  $p < 0.001$ ). These aspects of quality of life as «family environment» and «psychological development and physical health», the parents of healthy children evaluated equally, regardless of their place of residence.

Gender differences are not established in healthy children.

In the group of children who were born prematurely (in gestation to 37 weeks), there is the following trend: of all the parameters that characterize the quality of life, parents appreciate «social behavior» ( $3,55 \pm 0,56$ ), as well as «psychological development and physical health» ( $3,57 \pm 0,63$ ) more lower, because premature babies are lagging behind in their development of healthy peers, as well as have variations in health status.

Table 1: Indicators of QOL of healthy infants from the responses of parents (in points)

Aspects of QOL	Indicators of QOL		
	Total in group	Urban	Rural settlement
1.Total score	$3,74 \pm 0,49$	$3,58 \pm 0,38^{**}$	$4,02 \pm 0,55^{**}$
2.Social behavior	$3,55 \pm 0,56$	$3,35 \pm 0,4^{**}$	$3,91 \pm 0,62^{**}$
3.Ability to be alone	$4,03 \pm 0,55$	$3,92 \pm 0,46^{**}$	$4,22 \pm 0,64^{**}$
4.Family environment	$4,46 \pm 0,42$	$4,48 \pm 0,39$	$4,42 \pm 0,48$
5.Psychological development and physical health	$3,57 \pm 0,63$	$3,38 \pm 0,53^{**}$	$3,91 \pm 0,65^{**}$

Source: Albitsky, V.Y., 2011

Between responses of parents of premature children living in urban and rural areas we noticed more differences than of healthy children. The parents of rural children who were born prematurely, are more optimistic, their responses significantly higher than responses of urban parents, except for the parameter «family environment».

One of the objectives of our study was to investigate the characteristics of quality of life of children from social risk families (single-parent families, parents who abuse alcohol, etc.). The social risk families, parents appreciate «family environment» lower, that other aspects, despite the fact that about half of the children of this subgroup are serious violations in health.

Table 2: Indicators of QOL of infants which born preterm from the responses of parents (in points)

Aspects of QOL	Indicators of QOL		
	Total in group	Urban	Rural settlement
1.Total score	3,73±0,5	3,69±0,46	3,79±0,55
2.Social behavior	3,77±0,59	3,75±0,6	3,79±0,6
3.Ability to be alone	3,75±0,5	3,68±0,44*	3,87±0,57*
4.Family environment	3,65±0,61	3,64±0,66	3,67±0,52
5.Psychological development and physical health	3,71 ±0,69	3,66±0,66	3,79±0,75

Source: Albitsky, V.Y., 2011

When comparing responses of parents of urban and rural children, we found that there are significant differences only on the scale of «ability to be alone», which rural parents assess higher than urban parents ( $3,87 \pm 0,57$  vs.  $3,68 \pm 0,44$ ,  $P < 0,05$ ).

Also as in the other subgroups, there aren't gender differences.

We have compared indicators of QOL of children in studied subgroups by responses of parents. When compared to healthy children and infants born prematurely, it was found that QOL of healthy children higher than in children who were born preterm.

The greatest differences were found for total score ( $4,65 \pm 0,18$  in healthy and  $3,74 \pm 0,49$  in preterm,  $p < 0,001$ ), on the scale of «social behavior» ( $4,7 \pm 0,21$  and  $3,55 \pm 0,56$ , respectively,  $p < 0,001$ ), and on the scale of «psychological development and physical health» ( $4,7 \pm 0,24$  and  $3,57 \pm 0,63$ ,  $p < 0,001$ ). Less clear, but significant differences were observed in aspects of «ability to be alone» (respectively,  $4,37 \pm 0,47$  and  $4,03 \pm 0,55$ ,  $P < 0,01$ ) and «family environment» ( $4,67 \pm 0,36$  and  $4,46 \pm 0,42$ ,  $p < 0,01$ ).

The differences were very pronounced for total score ( $4,65 \pm 0,18$  and  $3,73 \pm 0,5$ ,  $p < 0,001$ ), on the aspects of «social behavior» ( $4,7 \pm 0,21$  vs.  $3,77 \pm 0,59$ ,  $p < 0,001$ ), «family environment» ( $4,67 \pm 0,36$  vs.  $3,65 \pm 0,61$ ,  $p < 0,001$ ) and «psychological development and physical health» ( $4,7 \pm 0,24$  vs.  $3,71 \pm 0,69$ ,  $p < 0,001$ ). On a scale of «ability to be alone», the differences of healthy children were less significant than of children from social risk families ( $4,37 \pm 0,47$  v.s.  $3,75 \pm 0,5$ ,  $p < 0,01$ ). (Albitsky, V.Y., 2011)

According to the degree of decline in quality of life, children from social risk families were compared with premature babies, but most differ for the worse from healthy on aspects of «family environment», which is understandable, given the dysfunctional social conditions of life of the child.

Studying the quality of life of healthy children in the estimates of pediatricians (control group), we established that the medical opinion is similar to parents: doctors praised as the overall score, as well as on all aspects of QOL. Of all QOL parameters of doctors, observing healthy children as well as parents, appreciated «ability to be alone» lower than other indicators.

Depending on the residence features assess of QOL of children opinions of doctors and parents were different. For example, significant differences were established on the general quality of life score ( $4,66 \pm 0,14$  at the city doctors against  $4,79 \pm 0,16$  for rural,  $p < 0,01$ ), on the scale of «ability to be alone» ( $4,21 \pm 0,5$  vs.  $4,66 \pm 0,31$ , respectively,  $p < 0,001$ ) and «psychological development and physical health» (respectively,  $4,71 \pm 0,18$  vs.  $4,83 \pm 0,19$ ,  $p < 0,01$ ). At the same time for all listed parameters rural doctors evaluated QOL of children higher than urban doctors. (Albitsky, V.Y., 2011)

Doctors of children which born preterm, assessed the QOL of this children lower than other in the control group. Such aspects of QOL as «social behavior» and «psychological development and physical health» suffer to a greater extent.

By studying the characteristics of QOL premature babies depending on the place of residence, it was found that significant differences exist only on the scale of «family environment», which the urban doctors evaluated higher than rural ( $3,77 \pm 0,47$  vs.  $3,37 \pm 0,81$  respectively,  $p < 0.001$ ). For other parameters, including the total score, the differences have been identified.

According to parents, quality of life of urban and rural preterm infants differ in all respects, except for the scale «family environment», while according to doctors - does not differ on any parameter other than «family environment».

#### 4. Conclusion and future study

Thus, the analysis of indicators of birth rate and neonatal morbidity in the Republic of Tatarstan indicates the effectiveness of the implementation of medical and social programmes in the interests of health protection of mother and child.

A growth of fertility was stated. The total fertility rate grew by 45.1%, this figure increased among urban and rural population. In this case the total fertility rate is higher in rural areas than in urban areas, however, draws attention to the decline of the growth rate (i.e. slow) indicator in the village. (Rybakovsky, 2014).

Evidence of implementation of the health and social programs in the development of maternity and childhood was the change of the parenthood status with increase in the proportion of births of second children, third and subsequent children.

As a positive evidence of purposeful organizational and practical measures for health protection of mother and child should be recognized the reduction of neonatal morbidity and the rate of early neonatal mortality. The rate of early neonatal mortality continues to be important in the structure of infant mortality, largely determining the degree of manifestation of their positive dynamics.

The materials determine the need for further improvement and /or upgrading of existing approaches to implementing technologies that define healthy motherhood, growth, fertility and healthy childhood.

Summing the results of the study of the quality of life of infants (3 months), you can draw the following conclusions:

a) the opinion of the parents:

- Quality of life of healthy children was higher than of children born preterm, and children from families at social risk;
- Quality of life of boys and young girls does not differ in any of the subgroups;
- Children which born prematurely have low QOL parameters that reflect the health and development, and the children from social risk families - reflecting social aspects;
- When comparing the quality of life of children living in urban and rural areas, the greatest differences (in almost all scales) are obtained in a subgroup of infants born preterm. At the same time, rural parents assess their children's quality of life higher than urban parents.



b) According to pediatricians:

- Quality of life of healthy children was higher than of children born preterm, and children from families at social risk;
- Quality of life of boys and young girls does not differ in any of the subgroups;
- Children which born prematurely have lower QOL parameters that reflect the health and development, and the children from social risk families - suffer parameters reflecting the social aspects;
- Comparison of quality of life of children living in urban and rural areas, has revealed, according to doctors, the greatest difference is in the subgroup of healthy children, and according to parents, the greatest difference is in the subgroup of premature babies. At the same time, rural doctors, as well as parents, assess QOL of children above urban.

This study allows us to talk about the usefulness of methods for determining the quality of life in a comprehensive assessment of the health of infants in the daily work of children's clinics.

## References

- [1] Albitsky, V.Y. (2011). *Social pediatrics as an area of scientific knowledge, the sphere of practical action and the subject of teaching*, Union of pediatricians of Russia: Moskow, pp. 80-89.
- [2] Benhamou, D., Ducloy-Bouthors, A.S. (2004) Anaesthesia and obstetrics: the role of the French 1998 laws in childbirth safety, *Annales francaises d' anesthesia et de reanimation*, vol. 1, pp. 63-68.
- [3] Birmingham, P. (2013) Natality and finitude, *Research in phenomenology*, vol. 1, pp. 141-148.
- [4] Bodrug-Lungu, V., Kostina-Ritchey, E. (2014) Demographic trends and the healthcare system in Moldova: reforms and challenges, *Book Series: Contemporary Perspectives in Family Research*, vol. 8, pp. 105-130.
- [5] Comings, D.E. (2000) Age at first childbirth: A major selective factor for psychiatric genes in the twentieth century, *Genetic influences on human fertility and sexuality: theoretical and empirical contributions from the biological and behavioral sciences*, pp. 271-287.
- [6] Ezech, A.C., Bongaarts, J., Mberu, B. (2012) Global population trends and policy options, *Lancet*, vol. 9837, pp. 142-148.
- [7] Fakhrutdinova, E. (2013) Human capital in the Republic of Tatarstan: the dynamics of development, *Problems of Economics and Law*, vol. 66, pp. 121-124.
- [8] Fakhrutdinova, E., Safina, L., Shigapova, D., Yagudin, R. (2013) Legislative provision of the quality of working life in Russia, *World Applied Sciences Journal*, vol. 27, pp. 92-96.
- [9] Fakhrutdinova, E., Yagudin, R. (2011) The quality of life of the population and demographic situation: the dialectic interaction, *Economic Science*, vol. 85, pp. 88-93.
- [10] Farraphov, A.Z., Sherputovskiy, V.G., Molokovich N.I. (2011) *Statistics of population health and health care (on materials of the Republic of Tatarstan for the years 2006-2010)*: Kazan, pp.268.

- [11] Filonenko, V.I., Magranov, A. S., Ponedelkov, A.V. (2015) Demographic policies in Russia as seen by population and experts in Rostov region, *Sociological Studies*, vol. 9, pp. 74.
- [12] Grigulevich, N.I. (2012) Population Decline in the Central Region of Russian Federation (1990-2010), *Collegium antropologicum*, vol. 4, pp. 1101-1108.
- [13] Healthcare in the Republic of Tatarstan: a Statistical Volume (2013). Territorial body of Federal state service in the Republic of Tatarstan. [Online] pp. 221. Available: <http://minzdrav.tatarstan.ru/rus/informatsiya-i-statistika.htm>
- [14] Martinez-Bakker, M., Bakker, K.M., King, A.A., Rohani, P. (2014) Human birth seasonality: latitudinal gradient and interplay with childhood disease dynamics, *Proceedings of the Royal society b-biological sciences*, vol. 281, pp. 1-8.
- [15] Rybakovsky, L.L. (2014) Russia's demographic future in extrapolation and normative so-ordinates, *Sociological Studies*, vol. 12, pp. 21.
- [16] Rybakovsky, O. L., Tayunova, O. A. (2014) Birth rate of the population in early 21st century Russia, *Sociological Studies*, vol. 9, pp. 19-24.
- [17] Vafin, A.J., Sherputovskiy, V.G., Shishmareva, E.I. (2014) *Statistics of population health and health care (on materials of the Republic of Tatarstan for the years 2009-2013)*: Kazan, pp. 268.
- [18] Ziyatdinov, K.S., Gilmanov, A.A., Sherputovskiy, V.G. (2006) *Statistics of population health and health care (on materials of the Republic of Tatarstan for the years 2001-2005)*: Kazan, pp. 276.

# THE IMPACT OF HEALTH CAPITAL ON RESULTS OF CORRELATION ANALYSIS WHICH CONSTITUTE HUMAN DEVELOPMENT IN THE REGIONS OF THE RUSSIAN FEDERATION

Yagudin R.Kh.<sup>1,a</sup>, Yurkov D.V.<sup>2,b</sup>, Yakunina R.P.<sup>3,c\*</sup>, N.I. Vishnjakov<sup>d</sup>

<sup>1</sup> Republican Clinical Hospital of the Ministry of Health of the Republic of Tatarstan,  
420064, Republic of Tatarstan, Kazan, Orenburg tract, 138

<sup>2</sup> Northern (Arctic) Federal University named after M.V. Lomonosov, Arkhangelsk, Russia

<sup>3</sup> Kazan Federal University, Kazan, 420008, Russia

<sup>4</sup> Pavlov First Saint Petersburg State Medical University, Saint-Petersburg, 197022, Russia

<sup>c</sup> regina92homa@mail.ru

\*Corresponding author

**Abstract.** In this article we consider the role of health capital is in human development. Listed key strategic position in the formation and preservation of health equity, which are used in assessing human development. In our research we will stop on the following indexes which, in our opinion, reflect the level of human development. For achievement of the objects set in work as the most optimal variant creation of regression model where as a dependent variable HDI is used, and as factors – GRP and components of the human capital in the form of index indicators is. As well as the concept of human development in the regions of the Russian Federation on the basis of the index calculated by experts of the United Nations Development Programme (UNDP), together with a group of independent international experts. The model is developed by us for identification of the essential factors influencing the level of human potential and degree of their interrelation. For attempt of forecasting of results of innovative development of regions of the Russian Federation at the set expected values of other sizes. They are used along with the analytical development, statistics, national institutions and international organizations.

**Keywords:** human development, health, health equity, index of life expectancy, human capital, investment in health

**JEL Classification:** A, I, J

## 1. Introduction

The capital of health is an integral part of the human capital. Investments into the capital of health are expressed in preservation of working capacity due to reduction of incidence and increase in the productive period of life. Health level depends largely on quality of services of health care which accompanies the human since the birth to his retirement age. Investments into health provide normal turnover of labor in production. Decrease in health, incidence, disability are expressed in disability. Certainly, the fewer diseases, the higher the level of health of the population of the country and return from capital investments in healthcare. (Yagudin, 2015).

In assessing the human development the main strategic positions in a formation and preservation of health capital are (Fakhrutdinova, 2014):

- establishment of an adequate health system of reproduction of new generations , material and social support for young families;
- inclusion vital and labor potential of the population in economic processes with development the health insurance system and the copper-to-preventive help;
- development of ideology and implementation of programs of a healthy lifestyle according to modern conditions of social, economic and information development of society;
- development and implementation of programs for rehabilitation (restoration) of health through system of the medical and sanatorium organizations;
- improvement the system of preparation of medical shots taking into account prospects of a demand of medical technologies and the corresponding development of organizational and functional structure of healthcare;
- realization of hi-tech medical care on the basis of modern knowledge of medicobiological processes of a human body;
- medico-social examination of plans and projects, including on strategic development of territories, to implementation of social and economic programs, introduction of new production technologies.

## 2. Methodology

In our research we will stop on the following indexes which, in our opinion, reflect the level of human development, namely: education index, index of innovations, index of information and communication technologies, life expectancy index, and also GRP per capita (United Nations Development Programme, 2014).

When calculating the general economic and social indicators including indicators of annual growth of GRP and value of the index of human development (HDI) of the region are considered. In our purposes for the offer of model according to the human capital the complex of parameters in the form of the indexes defining education level, level of innovative development of the country, level of information and communication technologies of the country (ICT), and life expectancy was chosen.

For achievement of the objects set in work as the most optimal variant creation of regression model where as a dependent variable HDI is used, and as factors – GRP and components of the human capital in the form of index indicators is.

Proceeding from the submitted table, the Republic of Tatarstan is one of the most developed regions on an index of human development after Moscow, St. Petersburg, the Tyumen, Sakhalin, Belgorod regions. Further using the qualitative model constructed by us, we will reveal its efficiency among regions and we will define their rating assessment (Malaev, 2014).

## 3. Data

Data of the Russian office of PROON on human development in the form of the indexes given in table 1 were taken as a basis of calculation of regression model. For the analysis indicators on 10 territorial subjects of the Russian Federation with the highest an index of human development were used.

Table 1: The index of human development in the Russian Federation regions in 2013

Region	HDI	GRP per capita, mln.rubles.
Moscow	0,931	10577810.2
Saint-Petersburg	0,887	2291992.9
Tyumen region	0,887	4618711.0
Sakhalin region	0,871	641602.9
Belgorod region	0,866	546151.5
Republic of Tatarstan	0,864	1436932.6
Krasnoyarsk region	0,854	1192648.5
Republic of Komi	0,853	480763.7
Tomsk region	0,852	374171.6
Republic of Saha	0,844	540411.7

Source: United Nations Development Programme. Human Development Index and its Components.

We were already mentioned in work both a dependent variable, and factors which influence on a variable will be investigated. The initial stage of creation of model should be considered definition of extent of influence of each factor on a variable by finding of the corresponding coefficients of correlation. At the same time using the following formula of correlation ( $r$ ) (Mikhaylov, 2014):

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} (1)$$

It is worth mentioning that at insufficiently high coefficient of correlation inclusion in model of the corresponding factor is represented inexpedient as will only allow worsening the general quality of model by decrease in its explaining ability.

To estimate interrelation of all factors and as they influence an index of human development of territorial subjects of the Russian Federation, we will take some of components above the given indexes. The index of education is replaceable on the level of literacy and a share of pupils; an index of innovations on the organizations which are carrying out researches and developments and also number of the personnel which are carrying out researches and developments; instead of the ICT index we will take the organizations using personal computers and global information network (Yakunina, 2015). The table of coefficients of correlation of a dependent variable in pairs with each factor is given below.

Table 2: The coefficients of correlation factors and the dependent variable

	coefficient of correlation
HDI	1
GRP	0,9304
Literacy Rate	0,8854
The proportion of pupils	0,6472
Life expectancy	0,7128
Organizations engaged in research and development	0,8848
The number of employees engaged in research and development	0,8836
Organizations used personal computers	0,5204
Organizations used global information networks	0,6444

Source: United Nations Development Programme. Human Development Index and its Components.

## 4. Empirical results

As it is possible to notice from the table of paired coefficients of correlation of factors stated above from a dependent variable, not all factors could be included in model. In the table it is visible that the direct and positive, and received coefficients of correlation indicate interdependence between factors strong extent of communication between HDI and GRP (0,9304), between HDI and level of literacy (0,8854), between HDI and life expectancy (0,7128), between HDI and the number of the organizations which are carrying out researches and developments (0,8848), and coefficient between HDI and number of personnel which is carrying out developments it is equal to 0,8836. On average extent of communication between HDI and a share of pupils (0,6472), between HDI and the organizations, using personal computers (0,5204), and the correlation coefficient between HDI and the number of the organizations using global information network is equal to 0,6444.

From the table of paired coefficients of correlation of factors stated above from a dependent variable it is possible to notice that not all factors could be included in model in view of average absolute value of the mentioned coefficient. In particular, the factors designated in work, have not high coefficient of correlation from a dependent variable that allows claiming about inexpediency of their inclusion in model as factors. As the reason of so low interrelation of these factors with a dependent variable it is possible to point low extent of orientation of society, organization or the specific person to new external information, and big orientation to already current situation, both in economy, and in society in general (Yagudin, 2015).

Also it is worth mentioning separately a problem of existence in multicollinearity model. The multicollinearity negatively affects results which will be received by means of model. The negative side of a multicollinearity consists in distortion of standard mistakes at coefficients that negatively affects the general quality of model and does not allow to claim with high degree of reliability about the importance of this or that factor (Ki-Hong Choi, 2015).

Having excluded factors, inexpedient for inclusion in model according to regions, on the basis of the received coefficients of correlation we will remove the regression equation on factors, influencing:

$$Y = 0,93x_1 + 0,885x_2 + 0,713x_4 + 0,885x_5 + 0,884x_6$$

Where  $x_1$  – GRP per capita, million rubles;  
 $x_2$  – the level of literacy of the population, %;  
 $x_4$  – life expectancy;  
 $x_5$  – the organizations which are carrying out researches and developments;  
 $x_6$  – the number of the personnel occupied with researches and developments.

From the constructed model it is possible to notice that each indicator included in it is significant, that is can be included in the total equation describing dependence of volume of an index of human development on various factors on regions of the Russian Federation. Further, using the received regression equation, we will carry out an inspection of the general quality of model (importance assessment) in general by means of Fischer's (F-statistics) statistics, using a formula (Fisher's statistics, 2012):

$$F = \frac{R^2}{1-R^2} * \frac{n-k-1}{k} \quad (2)$$

The value of determination coefficient in model is  $R^2 = 0,9735923$ , that speaks about excellent descriptive ability of model. High value of F-statistics equal 29,494176 allows to tell

that the model is significant in general as it is more F-statistics F-critical (6,26), so, it can be used for further studying of interrelations between variables and to trust results which were received with using the model.

## 5. Conclusion

As a result of the calculations, the received model is significant, but it is worth approaching carefully this process to keep economic sense in the regression model received after such operations. Therefore the most optimal variant is to leave in model factors which are the integral components of HDI – the level of literacy of the population, an index of innovations which in this case is understood as the organizations which are carrying out researches and developments, the number of the personnel occupied with researches and developments, life expectancy of the population, and also GRP per capita. At the same time to exclude such factors as the ICT index (the organization using the global information networks and the organizations using personal computers) and a share of pupils at the age of 7-24 years because these indicators have no high coefficient of correlation from a dependent variable that allows to claim about inexpediency of their inclusion in model as factors.

Thus, it is possible to draw a conclusion that the model offered by us are qualitative and significant. The model is developed by us for identification of the essential factors influencing the level of human potential and degree of their interrelation. For attempt of forecasting of results of innovative development of regions of the Russian Federation at the set expected values of other sizes. Nevertheless, new approaches to development of education and sciences are necessary for Russia, to improvement of health to pay special attention to improvement of regional policy, a role of civil society and business in transition to sustainable development.

## References

- [1] Alsever, J. (2015) Human capital take it easy. That's an order! *Fortune*, vol. 8, pp. 46.
- [2] Carvalho, A., Nepal, R., Jamasb, T. (2015) Economic reforms and human development: evidence from transition economies. *Applied Economics*. [Online]. Available: <http://dx.doi.org/10.1080/00036846.2015.1100251>
- [3] Fakhrutdinova, E., Karasik, E., Kolesnikova, J., Yagudin, R. (2014) Study of problems of population's poverty of Russia, *Mediterranean Journal of Social Sciences*, vol. 5, pp. 139-144.
- [4] Federal State Statistics Service. [Online]. Available: [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/en/main/](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/en/main/)
- [5] Fisher's statistics (2012). [Online]. Available: <http://www.kebc.papk.su/index.files/statistik/lectio12.htm>
- [6] Inwood, K., Maxwell-Stewart, H. (2015) Introduction: health, human capital, and early economic development in Australia and New Zealand, *Australian economic history review*, vol. 2, pp. 105-111.
- [7] Ki-Hong Choi, Sungwhee Shin. (2015) Population aging, economic growth, and the social transmission of human capital: An analysis with an overlapping generation's model, *Economic Modelling*, vol. 50, pp. 138-147.

- [8] Malaev, V.V., Nizamutdinov, I.K. (2014) Inequality and economic growth in the Russian economy, *Mediterranean Journal of Social Sciences*, vol. 5, pp. 346-350.
- [9] Mikhaylov, F., Kolesnikova, J., Salyakhov E. (2014) Current tendencies of the development of service of human resources management, *Procedia - Social and Behavioral Sciences*, 2014, vol. 15, pp. 330–335.
- [10] United Nations Development Programme. Education index. [Online]. Available: <http://hdr.undp.org/en/content/education-index>.
- [11] United Nations Development Programme. Human Development Index and its Components. [Online]. Available: <http://hdr.undp.org/en/content/table-1-human-development-index-and-its-components>.
- [12] Yakunina, R.P., Bychkov G.A. (2015) Correlation analysis of the components of the human development index across countries, *Procedia Economics and Finance*, vol. 24, pp. 766–771.
- [13] Yagudin, R., Fakhrutdinova, E., Kolesnikova, J., Pshenichnyi, S. (2014) Ecology as Factor of Quality of Life of the Population. *Procedia Economics and Finance 2014*, vol. 15, pp. 1587–1593.
- [14] Yagudin, R., Rybkina, N., Fakhrutdinova, E., Valieva, G. (2015) Demographic dynamics in the implementation process of medico-social programs: issues of birth rate, *Procedia Economics and Finance 2015*, vol. 24, pp. 760–765.
- [15] Zax, O. (2016) Human capital and the probability of divorce, *Bulletin of economic research*, vol. 67, pp. 111-134
- [16] Zivin, J.G., Neidell, M. (2013) Environment, health, and human capital, *Journal of economic literature*, vol. 3, pp. 689-730.



## ANALYSIS OF THE CONTEMPORARY TRENDS IN THE DEVELOPMENT OF CHINESE FDI<sub>s</sub> IN CEE16 COUNTRIES

Stanislav Zábajník<sup>1,a,\*</sup>

<sup>1</sup>University of Economics in Bratislava, Faculty of Commerce, Department of International Trade,  
Dolnozemska cesta 1, 852 35 Bratislava, Slovak Republic

<sup>a</sup>stanislav.zabajnik@euba.sk

\*Corresponding author

**Abstract.** Despite some recent disturbing on the Chinese market, the increasing influence of Chinese investment has been seriously determining the value chains' structure in international business. Several consequent initiatives have been realized by Chinese government to support expansion of Chinese companies (SOEs or private companies) in the overseas territories. Recently, Chinese government is more focused on emerging markets from Europe (CEE 16 countries), especially through "One Belt, One Road" initiative with tremendous support to domestic institutions/companies as well as partner countries. Major purpose of this article is to analyse the territorial and sector structure of Chinese foreign direct investment (FDIs) outflows in the area and characteristics of predominant trends in development of those investment after 2000. Major findings of the article are devoted to strategy, the current trends of Chinese investment in CEE region in order to acquire the know-how of the European companies and market access. Within conclusion, special attention is paid to a knowledge transfer among the regions and its consequence to the high-tech level of Chinese exports.

**Keywords:** FDI outflows, Chinese FDI<sub>s</sub>, CEE region, Chinese M&As

**JEL Classification:** F23, F19

### 1. Introduction

Since 2000, the position of Chinese economy in the world business environment has dramatically changed. At the beginning of that period, China was the 6<sup>th</sup> largest economy in the world with the export volume of 249.2 bill. USD, foreign exchange reserves in the volume of 165.6 bill. USD and FDI inflows of 1 419 bill. USD (in 2003 only 701.3 bill. USD). Despite several pessimistic economic outlooks and "manipulated" GDP data, within fifteen years, China had become the second largest economy in the world, according to the GDP measured through purchase power parity even the largest one. As for 2015, the official numbers related to the foreign trade quantified the Chinese exports as high as 2 275 bill. USD and exchange reserves reaching 3 300 bill. USD and FDI inflows of 2 040 bill. USD. Besides domestic consumption, export competitiveness as well as geopolitical status changes, Chinese companies had been considerably more active in the international business. In 2015, there were 103 Chinese TNCs in the Fortune Global 500 companies in the world, 4 of them were among 20 the biggest non-financial corporations in the world.

According to the UNCTAD data, PRC became the largest developing country recipient in 1993. In 2003, they were already the 3<sup>rd</sup> biggest recipient in the world. Concerning the Chinese FDI outflows, the value of Chinese companies' investment in the world was 916 mil. USD and

127 560 mil. USD in 2000 and 2015, respectively. Especially the latter mentioned dramatic increase is considered to be one of the crucial challenges on the map of the international business for the last two decades.

The main objective of the article is to investigate the trends, territorial and sectoral structure of Chinese FDI outflows to Europe, especially to the CEE-16 countries and to determine the key trends in this regard.<sup>22</sup> Author uses analysis and statistical methods for the purpose and the data are based on the records of Rhodium Group (2016) and T. Hanemann (2015).

## 2. Chinese FDI outflows

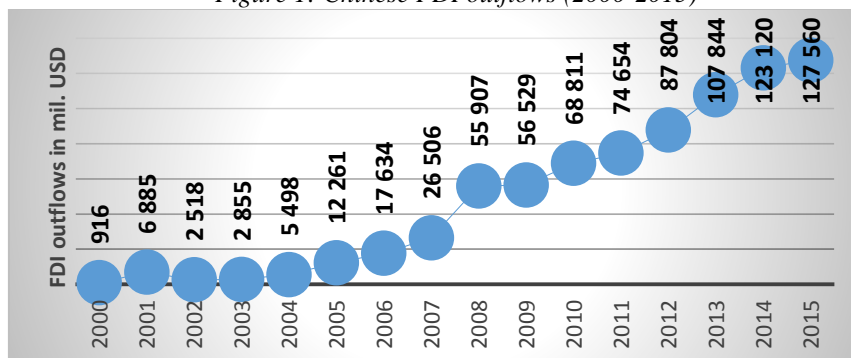
### 2.1 Theoretical framework

Several authors conducted a research related to the expansion of Chinese multinational corporations in global economy. Besides the obvious expansion as a matter of fact, the studies are frequently renowned for different results and frequently contradictory conclusions (D. K. Das, 2014). As proposed by more authors and research centres, the major concern of the most well-known researches and analysis is based on the official, yet unreliable data published by the Ministry of Commerce (MOFCOM). With regard to the validity of FDI statistics, researchers have pointed out that FDI may not be a good indicator for describing the activities of transnational enterprises (Beugelsdijk 2010, T. Hanemann, 2014). In China, FDI statistics are compiled from two different government agencies. The State Administration of Foreign Exchange (SAFE), China's foreign exchange regulator under the People's Bank of China (PBOC) are responsible for collecting and publishing FDI data used for China's balance of payments and international investment position statistics (T. Hanemann, 2014). According to UNCTAD data, the development of Chinese FDI outflows was as following:

From the historical point of view, Chinese outward FDIs went through several phases. Among several economic researchers (e. g. X. Yang et al., 2009 and Zhang et al., 2014), chronology of Chinese investment abroad is divided into three stages:

1978-1990	Preliminary international business activities
1991-2000	Large SCEs granted FDI outflows permit, increasing international IPO and M&As
2001-present	Entry to WTO. Internationalization further accelerated.

Figure 1: Chinese FDI outflows (2000-2015)



Source: data from UNCTAD (2016)

<sup>22</sup> CEE-16 includes Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Montenegro, Poland, Romania, Serbia, the Slovak Republic and Slovenia.

Although the process of catching-up, in case of domestic companies investing abroad, is natural, there are some specifics of Chinese FDI outflows from the territorial, sectoral point of view as well as the length of convergence to the companies seated in OECD countries. Generally, major research findings (X. Liu, 2005) consider following fundamentals to be the most responsible (positive linear relation) for the outward investment from China: growing GDP p. c., investment in human capital, exports and inward FDIs (direct effect) and institutions, location, networks (indirect effect).

Mainly until 2000, Chinese MNCs and firms focused on mining investment in the developing countries. The resource-rich advanced economies such as Australia and Canada, were also recipients of Chinese OFDI and took the second most important place. A clear surge in the outflows of Chinese FDIs had been seen from 2008 onwards, targeting at high technology firms in innovation intensive areas in the advanced economies (Das, 2014). Therefore, between 2003 and 2009 most of the Chinese investment (63%) headed to Hong Kong, Macao and South Korea (Baláž et al., 2014A and Baláž, P. et al., 2014B) and then, in the form of re-investment to the final destination of the investment recipients. The key change in development was triggered by global financial crisis. During the downturn, Chinese companies purchased several assets on the foreign markets with a discount. Unsurprisingly, especially advanced technology assets were the target of the acquisitions.

General theory provides three basic explanations why companies invest abroad: resource-based view, industrial organization economics and institutional framework (Ch. Wang et al., 2012A), hence the answer in case of Chinese companies is a bit more complex due to the size of the economy as well as much shorter trajectory Chinese companies have gone through. Presence of advanced economies among target markets declares several differences among China and other developing and emerging countries in the model of FDI outflows. Besides western territories as a host country, the companies differ from those from poorer countries by financial advantages, investment to psychically and geographically distant countries and joint-venture form of investment has been frequent during more periods (P. Buckley et al., 2016). Pattern of Chinese FDI after 2000 has changed mainly due to dynamics of the motives standing behind the capital expansion abroad. Till 2000, main drivers of investment abroad were based on a need to expand the sales of domestic corporation on foreign markets, acquiring industrial raw materials and resources (mainly energy carriers) and acquiring much-needed technological assets and managerial know-how that they lacked (Das, 2014 and Cheng et al., 2000). It was closely connected with the fact that China had become a “factory of the world” through attracting many western and Japanese companies to produce here what boosted domestic energy demand.<sup>23</sup> Later, motivation to invest on foreign markets has changed; according to C. Wang (2012B) there are two reasons:

1. acquiring strategic assets like brand assets and marketing networks in addition to technology assets
2. accomplishing global and regional diversification of MNCs and businesses. As the Chinese business enterprises grew in terms of production, they also made FDI outflows for organic international expansion as a natural process of economic growth

The second factor, explaining more intensive capital flows after 2000, is an adoption of the do “going global” strategy from 2003 as a political instrument to support domestic businesses

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<sup>23</sup> Specific feature of the transactions represented long-term contracts supplying Chinese energy demand. Another specific was the character of the locations – mostly politically high-risk countries, like Sudan, Mali, Lao PDR and similar countries not accepted like suitable locations for FDI by advanced economies.

to penetrate foreign markets as a part of the Tenth Five-Year Plan (2001-2005). This support scheme launched by Chinese government provided several incentives in selected industries. In this regard, a specific role, mainly in the first phases, was covered by the state owned enterprises and the role of the Chinese government. Between 2003 and 2009, 129 Chinese SOEs accounted for 80% of the FDI outflows and stocks (Das, 2014), mainly dominating higher value transactions. Unsurprisingly, the companies were supported through fiscal sources of the PRC as well as procedure support from the government.

An important change has influenced mainly the European and North American market after 2003. Till then, Chinese private companies were prohibited to invest abroad massively without the government permission. Motivation of the private companies was different comparing to former exclusive investors – SOEs. According to some authors (Das, 2014), Chinese private companies had preferred investment abroad due to sharp competition and mainly underdeveloped institutional framework in China. Paradoxically, the major reason of this internalization of Chinese private companies was a huge volume of FDI inflows streamed to PRC (Voss et al., 2010). Due to this situation, private Chinese companies firstly invested in industries such as telecommunications, textiles, footwear and automotive sector, but also wholesale and retail trade (Ramasamy et al., 2012). According to Hanemann and Gao (2014), private companies accounted for 59% of total FDI outflows in 2011 and 2012. Current target industries represent commercial services, banking and insurance, wholesale and retail trade. Even more important turnover, concerning private companies' investment, occurred in 2013 when Chinese government decided not to regulate and intervene in the decision-making of the investors declaring that "markets should play a decisive role in the allocation of productive resources in future" (Das, 2014).

These acquisitions have been positively influencing innovation ability of global and Chinese companies themselves (Ramasamy et al., 2012). This assumption was proved by companies such as Gily, Haier, Lenovo, Sany, etc. within their efforts to acquire strategic assets like higher technology, brand, marketing network and managerial know-how. According to other authors (Boateng et al., 2008), major motivations of Chinese companies during pre-crisis covered international expansion/diversification (39% of the transactions), market share/power increase (27%), acquiring strategic assets in the form of technology and know-how (27%) and an ability to overcome trade barriers (7%).

## **2.2 Chinese FDI outflows' - location preferences and position of CEE-16**

The level of Chinese FDI outflows in the world has rocketed after 2000. Overall volume of transactions (excluding Hong Kong) for 2015 was as high as 128 bill. USD (UNCTAD, 2016). Several authors researched location preferences of the Chinese TNCs' globally. Major findings characterise following fundamentals as crucial when assessing potential attractiveness for the FDI inflows (I. Kolstad, 2012):

- a) Host country absolute GDP
- b) Institutional framework (rule of law)
- c) Natural resources endowment

Authors' findings confirm causality between those 3 factors and the volume of Chinese FDI outflows, although diversified. This has been a major factor determining rather lower capital inflows to CEE from China. In case of advanced economies, statistical significant relationship was proved between the volume of FDI inflows and the size of economy. In case of poorer countries, the results of this paper show that the institutions and natural resources have an interactive effect on Chinese outward foreign direct investment. The worse the institutional

environment of a host country is, the more Chinese FDI is attracted by the country's natural resources (Kolstad, 2012 and Blomkvist et al., 2016).

Based on other theoretical findings of Hanemann and Rosen (2012), decision-makers of the Chinese companies are no longer dominated by concern regarding securing natural resources or rapid industrialization. Contemporary dominant factors, in case of advanced economies cover safe, stable and large consumer markets. Generally, FDI data confirm that the EU has become more favoured destination of Chinese FDI outflows than the USA. In the initial stages, the OFDI to the EU came from large SOEs that were seeking resources, markets, and advanced technological and managerial know-how. An overwhelmingly large part—more than two thirds—of investing entities in Europe were privately held or non-state publicly traded firms. However, three quarters of the M&As in the large-scale capital-intensive sectors originated from the state sector.

Number of Chinese M&As in the whole EU28 has sharply increased (Brienen et al., 2010) and Chinese investment is increasing particularly rapidly in Europe, which is indeed becoming one of the favorite destinations for China's Outward FDI (Meunier et al., 2014). During the post-crisis period it started at 2 bill. € in 2008 and peaked at 14 bill. € in 2014. The level of investment was slowed down in 2013 only. Most of the transactions (totally 1 047 projects) was realized through green-field investment (726) and acquisitions (321) (Hanemann and Houtari, 2015). As for the territorial structure of Chinese FDIs in EU, major part of the investment after 2000 headed to UK, Germany and France. After 2012, two major trends can be observed. Firstly, Chinese companies invested more intensively in the PIIGS countries as a consequence of the privatization diverting the debt problems of the economies. Secondly, China has been investing more in the CEE countries as well, mainly in manufacturing, agriculture and infrastructure. The share in this region has increased up to 8% of the investment in the EU. As for the sector structure, the major part of the investment came into energy – 28%, automotive – 13%, agriculture and food – 12% and real estate - 11% (Rhodium Group, 2015).

As for the territorial structure of Chinese FDIs in the EU and specifically CEE-16, the highest volume of greenfield and M&As transactions in the period 2000-2015 was attracted into the United Kingdom (15 164 mil. €), Italy (11 186 mil. €), France (9 485 mil. €) and Germany (7 905 mil. €), what fully corresponds with the theoretical proposals (Hanemann and Houtari, 2015). Position of the CEE-16 countries had been very weak. For the same period, the volume of Chinese investment was as following: Albania (N. A.)<sup>24</sup>, Bosnia and Herzegovina (N. A.)<sup>25</sup>, Bulgaria (222 mil. €), Croatia (4 mil. €), the Czech Republic (207 mil. €), Estonia (23 mil. €), Hungary (1 975 mil. €), Latvia (3 mil. €), Lithuania (32 mil. €), Macedonia (N. A.), Montenegro (N. A.), Poland (462 mil. €), Romania (733 mil. €), Serbia (N. A.), the Slovak Republic (40 mil. €) and Slovenia (8 mil. €) (Hanemann and Houtari, 2015).

In CEE-16, realized were 14 transactions of over 100 mil. USD:

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<sup>24</sup> In June, 2016, Albanian authorities accepted a deal with China State Construction in the value of 200 mil. €.

<sup>25</sup> In May, 2016, Elektroprivreda Bosnia and Herzegovina and China's Gezhouba Group signed an agreement for the construction of part of a lignite power plant in the total value of over 700 mil. €.

Figure 2: Major Chinese transactions in CEE-16 (2005-2016)

Year	Month	Investor	Quantity in Millions	Share Size	Transaction Party	Sector	Subsector	Country
2009	November	Great Wall Motor	\$ 120		Litex Motors	Transport	Autos	Bulgaria
2010	February	Wanhua Industrial	\$ 190		BorsodChem	Chemicals		Hungary
2011	February	Wanhua Industrial	\$ 1 660	58%	BorsodChem	Chemicals		Hungary
2011	October	Wanhua Industrial	\$ 260			Chemicals		Hungary
2012	February	Guangxi Liugong Machinery	\$ 100	100%	Huta Stalowa Wola	Transport	Autos	Poland
2012	May	Huawei	\$ 1 500			Technology	Telecom	Hungary
2012	July	China Power Investment	\$ 740	51%	Kompania Weglowa	Energy	Coal	Poland
2014	September	Ex-Im Bank	\$ 200	50%	GEO Renewables	Energy	Alternative	Poland
2014	September	Sinomach	\$ 1 200			Energy		Serbia
2015	May	CEFC	\$ 100	5%	J&T Finance	Finance	Investment	Czech Republic
2015	September	CEFC	\$ 100	5%	J&T Finance	Finance	Investment	Czech Republic
2015	December	CEFC	\$ 510	51%	KasMunayGaz unit	Energy		Romania
2016	March	CEFC	\$ 1 020	40%	J&T Finance	Finance	Investment	Czech Republic
2016	June	Everbright	\$ 140		Novago	Utilities		Poland

Source: data from Rhodium Group (2016)

Economists see several reasons of 16 CEE countries and their ability to attract special attention of the Chinese government as well as private companies from PRC in the future. Firstly, China is investing due to their favourable ratio between the labour costs and its quality, its geographical location and political proximity to Western Europe and also relatively high growing economies (R. Turcsányi, 2014). Nevertheless, economic profitability as a potential explanation of the expansion in the territory is mixed together with further goals of Chinese investment. Although, Hungary has been considered as a case study for the Chinese investment in CEE countries, it was oversized by the investment relations towards more EU-friendly Poland since Chinese government wants to cooperate firstly with the countries able to determine decision-making process within EU and not with the “EU rebels”.

As can be seen also from the table above, the volume of Chinese investment in the region has considerably increased, mainly in Hungary and the Czech Republic. In 2015, the trend of strategic assets oriented investment was approved in case of the biggest Slovak electricity generator, Slovenské elektrárne. The last player, prepared to make a bid, was Chinese National Nuclear Power (CNNC) trying to acquire 66% stake in the company from Enel. Finally, the acquisition was realised by EPH, an energy holding from CEE. First time in 2014, recorded FDI inflows from China into EU28 in the financial transactions were higher in case of private companies comparing to those with government's stake. This trend is expected also in the CEE 16 region.

Recently, relations among 16 CEE countries and China mainly through 16+1 initiative have substantially strengthened, often raising eyebrows of EU colleagues, who have been not invited to participate (R. Turcsányi, 2014). Among many projects, it was declared by the establishment

of a 100 bill. USD special credit line to CEE countries for projects aimed especially at the development of infrastructure, high-tech industry and the green economy, increased cooperation, such as the establishment of a China-CEE Secretariat, support for research projects, scholarships, cultural exchanges, promotion of tourism, private investment and others.

Potentially, One Road One Belt initiative provides a unique opportunity for mutual trade and investment between the regions. The Silks Road Economic Belt connecting CEE to China and Western Asia has expanded in several ways<sup>26</sup>. According to some studies (P. Leung., 2015), perspective for higher investment will be affected by Chinese acquisition of Piraeus since this maritime route to CEE countries saves around 10 days than alternative ports such as Rotterdam, Antwerp or Hamburg (van der Putten, 2014). Several projects within railway infrastructure to improve connectivity have been realized in Hungary and Serbia. Chinese companies are going out to enhance their competitiveness through acquiring brand, management know-how and technology.

### 3. Conclusion

There is a lack of relevant and reliable sources of Chinese FDI outflows to EU28 and particularly to CEE16 region. Nevertheless, there is an obvious interest of the Chinese government as well as Chinese private companies to intensively develop mutual trade and investment. Crucial changes and trends of the Chinese investment strategy to diversify the capital flows in the world directly boosted a volume of Chinese FDI inflows to EU28 as well as CEE16.

Nevertheless, volume of the capital invested by Chinese in the western parts of the EU is markedly higher than the flows into the less developed parts of the old continent. Within the territory, there were only 14 transactions in the volume higher than 100 mil. USD between 2005 and 2015. Among CEE16 countries, the highest and the most important acquisitions as well as green-field investment were realized in Hungary, Poland and the Czech Republic between 2000 and 2015. Though, trend in the region is positive, declared also by several failed acquisitions and aborted due-diligence processes. The Chinese bids have become more frequent after 2010 due to more attractive premiums, especially in PIIGS countries determined by debt problems.

Major changes in the Chinese strategy lies in the fact that still higher volume of the investment is market-oriented, with an emphasis to the brands, distribution channels and technological assets acquiring. The second key innovative feature of the Chinese acquisition is that they are more driven by the private companies, instead of SOEs dominating before the crisis. Hence, there is no obvious trend declaring dominant position of strategic or financial investment, both have been steadily increasing. After 2000, Chinese companies have been mainly focused on energy, automotive and transport equipment, agriculture and food and real estate market. Recently, private companies have been more targeted entertainment and hospitality sector as well as consumer products and services and healthcare and biotechnology.

Important signal triggering Chinese capital flows into CEE16 was established by One Belt One Road initiative. From this viewpoint, China aims to develop relationships with some or all

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<sup>26</sup> For instance, the first China – Europe railway crossing Kazakhstan, Russia, Belarus and Poland. In the following years, various lines connecting different cities within CEE region have been launched afterwards, e. g. Wuhan to Pardubice, Czech Republic in 2012; Chengdu to Lodz, Poland in 2013. Railway connections has been stimulating also mutual trade since shipment takes around 12-21 days competing maritime transport (30-45 days needed).

of the CEE countries to such an extent that the importance of their relationship with China will overshadow the respective countries' relationship with the EU. According to some authors, this could even endanger European values and norms.

Despite natural interest of the CEE16 countries to attract foreign investment, several deals with Chinese companies have been realized in sensitive industries, such as nuclear energy and steel, where the EU has valid concerns about the economic, security, and policy-level implications, have gone through, which could not have happened without Brussels' approval. There is a strong interest for China to further collaborate in trade, investment, finance, tourism, education, agriculture and people to people exchange with Eastern European countries. As for further perspective, in an OBOR symposium hosted in Hungary on 4<sup>th</sup> May 2015, the Chinese representation for CEE region described the CEE a bridge connecting Asia, Europe, the Mediterranean, and the Baltics, making it a gateway to Europe with huge development potential. Nevertheless, special attention has to be devoted to the brands, know-how and strategic meaning of the acquisition in the CEE16 countries.

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### References

- [1] Baláž, P., (2014A). *Globalization of the World Economy and the Impact of China's Expansion on the Competitiveness of EU*. Conference: 2nd International Conference on European Integration (ICEI) Ostrava, Czech Republic, pp. 14-25.
- [2] Baláž, P., (2014B). *China's Economy Transformation and the Role of FDI*. Ekonomický časopis. Volume: 62. Issue: 9, pp. 903-925.
- [3] Beugelsdijk, S. et al., (2010). *Why and how FDI stocks are a biased measure of MNE affiliate activity*. Journal of International Business Studies. Volume 41, Issue 9, pp. 1444–1459.
- [4] Blomkvist, K. and Drogendijk, R., (2016). *Chinese outward foreign direct investments in Europe*. European journal of international management. Volume: 10, Issue: 3, pp. 343-358.
- [5] Brienens, M. et al., (2010). *The Geography of Chinese and Indian Greenfield Investments in Europe*. Eurasina geography and economics. Volume: 51 Issue: 2, pp. 254-273.
- [6] Buckley, Peter J. and Clegg, L. Jeremy and Cross, Adam R.; et al., (2007). *The determinants of Chinese outward foreign direct investment*. Journal of international business studies. Volume: 38 Issue: 4, pp. 499-518.
- [7] Buckley, Peter J. and Cross, Adam R. and Tan, Hui; et al., (2008). *Historic and Emergent Trends in Chinese Outward Direct Investment*. Management international review. Volume: 48 Issue: 6, pp. 715-747.
- [8] Cheng, L. K. and Kwan, Y. K., (2000). *What are the determinants of the location of foreign direct investment? The Chinese experience*. Journal of international economics. Volume: 51. Issue: 2, pp. 379-400



- [9] Das, D. K., (2014). *China's Outbound Foreign Direct Investment: Sources of Growth and Transformation*. RCCPB Working Paper No. 35, Bloomington (Indiana), 37 p.
- [10] Hanemann, T. and Huotari, M., (2015). *Chinese FDI in Europe and Germany. Preparing for a New Era of Chinese Capital*. Mercator Institute for China Studies and Rhodium Group. 56 p.
- [11] Hanemann, T. and Rosen D. H., (2012). *China invests in Europe: patterns, impacts and policy implications*. China International Capital Corporation, Brunswick Group. Rhodium Group, pp. 1-8
- [12] Hanemann, T., (2014). *Chinese direct investment in the EU and the US: a comparative view*. Asia Europe journal. Volume: 12. Issue: 1-2, pp. 127-142.
- [13] Kolstad, I. et al., (2012). *What determines Chinese outward FDI?* Journal of world business. Volume: 47. Issue: 1, pp. 26-34.
- [14] Leung, P., (2015). *Chinese investment in Europe – the case of Piraeus Port*”, European Union, European Union Academic Programme Hong Kong.
- [15] Liu, X. H. and Buck, T. and Shu, C., (2005). *Chinese economic development, the next stage: outward FDI?* International Business Review. Volume: 14 Issue: 1, pp. 97-116
- [16] Meunier, S. and Burgoon, B. and Jacoby, W., (2014). *The politics of hosting Chinese investment in Europe-an introduction*. Asia Europe journal. Volume: 12. Issue: 1-2, pp. 109
- [17] Ramasamy, B. and Yeung, M. and Laforet, S., (2012). *China's outward foreign direct investment: Location choice and firm ownership*. Journal of world business. Volume: 47. Issue: 1, pp. 17-25
- [18] Rhodium Group, (2016). *China Investment Monitor* (2000 to Q2 2016). Database available: <http://rhg.com/interactive/china-investment-monitor>.
- [19] Turcsányi, R., (2014). *Central and Eastern Europe's courtship with China: Trojan horse within the EU?* European Institute for Asian Studies. EU-Asia at a Glance, pp. 1-6.
- [20] UNCTAD, (2016). *World Investment Report 2016. Investor Nationality: Policy Challenges*. Available online: [http://unctad.org/en/PublicationsLibrary/wir2016\\_en.pdf](http://unctad.org/en/PublicationsLibrary/wir2016_en.pdf). Geneva. 232 p.
- [21] Van der Putten, F.-P. (2014). *Chinese Investment in the Port of Piraeus, Greece: The Relevance for the EU and the Netherlands*, Clingendael, p. 19
- [22] Wang, Ch. et al., (2012A). *Exploring the role of government involvement in outward FDI from emerging economies*. Journal of international business studies. Volume: 43. Issue: 7. pp. 655-676
- [23] Wang, Ch. et al., (2012B). *What drives outward FDI of Chinese firms? Testing the explanatory power of three theoretical frameworks*. International Business Review. Volume: 21 Issue: 3 , pp.425-438
- [24] Yang, X. et al., (2009). *A comparative analysis of the internationalization of Chinese and Japanese firms*. Asia Pacific journal of management. . Volume: 26. Issue: 1, pp. 141-162
- [25] Zhang, H. and Van Den Bulcke, D., (2014). *China's direct investment in the European Union: a new regulatory challenge?* Asia Europe Journal. Volume: 12 Issue: 1-2 Pages: 159-177

# INTERNATIONALIZATION AND STANDARDIZATION OF MARKETING MIX FOR NEEDS OF A RANDOM FOREIGN MARKET ENTRY

Silvia Zadnanova<sup>1,a,\*</sup>,

<sup>1</sup>University of Zilina, The Faculty of Operation and Economics of Transport and Communications,  
Department of Economics, Univerzitna 1, 010 26 Zilina, Slovak Republic

<sup>a</sup>silvia.zadnanova@fpedas.uniza.sk

\*Corresponding author

**Abstract.** Nowadays, the economic and legal conditions allow managers to negotiate worldwide easier and even the home companies which are operating in a particular country are under pressure from other global companies. In order to facilitate business in foreign countries, there are various agreements and institutions which eliminate effects of trading barriers. World trade is progressing well thanks to the technology that enables simpler communication too. Before entering into foreign market the companies are supposed to determine marketing strategy based on international marketing research, which is essential for finding out further information about internal and external environmental factors. Despite the continuing process of globalization, it is not possible to remove certain specifics that individual cultures still preserved. According to this fact, management has to make a decision about strategy of unification or differentiation. To create successful marketing strategy for foreign market, managers must dispose actual information about global environment and competition. At the beginning the paper focuses on globalization and its influence on trade. Then it is tackling by motives which lead to the initiation of activities at the international or global level and the determining the international marketing mix as well as choosing between product modification and standardized product. There is a survey, which deals about standardization and adaptation issues and model examples of the international companies and their approach to foreign markets. The main objective of this paper is to describe the impact of different cultures on determining international marketing strategy.

**Keywords:** adaptation and standardization, globalization, foreign trade, marketing strategy, culture

**JEL Classification:** M10, M16, M31

## 1. Introduction

The issue of the globalization has intensified since 1980. In a worldwide scale it means homogenization. With globalization, national differences seem to be small, but still exist. As the enterprises start to implement their products into foreign markets, it is important to decide on international strategy. Whether the enterprise should apply standardized marketing mix, respectively single marketing strategy, or to adapt marketing mix and strategy customize unique dimensions of each local market (Vrontis, Thrassou, 2007).

## 2. Globalization and its impact on world market

There are many definitions through which we could characterize the concept of globalization. It is broadening and deepening of international flows of trade, finance, and information in a single, integrated global market (Doyle and Stern, 2006). Some supporters argue that it is a process of growing international connection in all areas of social life. Furthermore, it can be also described as a transformation of the world into a global village (Doyle, Stern, 2006).

At present, international cooperation is considered as a one of the most effective ways of dealing with cross-border problems. Such cooperation has to be continuously developed and encouraged and in order to facilitate communication and trade with foreign countries, there are various institutions e.g. The European Union, the United Nations Organisation, the Transnational Company, the International Monetary Fund, the World Bank, the World Trade Organization and others. (Kramolis & Kopeckova, 2013)

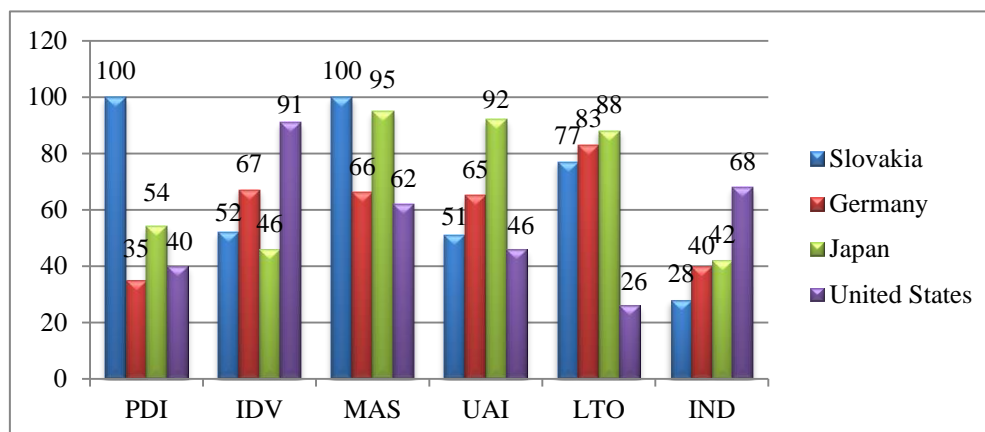
There are important challenges that firms face, if they that want to enter into an international market. Brady in his publication has mentioned a number of reasons, such as: Build market share, increase profits, increase the firm's size, keep foreign sellers from gaining a competitive advantage, maintain the firm image, keep up with competitors, reduce overhead, protect the firm's profit-making opportunities and capabilities, become more international in scope... (Brady, 2011).

Despite of continuing process of globalization, various practices in different countries for many years led to different unwritten rules, and that is why the knowledge of the cultural specifics is essential for creating global marketing strategy.

**Culture** has always been a collective phenomenon, or has always been partially shared by people who live or have lived in the same social environment in which they adopted it. Culture includes the unwritten rules of social influence. It is a collective programming of the mind which distinguishes members of one group or category of people from another "(Hofstede, 2006). Professor Geert Hofstede is a Dutch sociologist and now he is mainly focused on the study and analysis of the relationship between different national cultures and the culture within organizations. Based on this research he defined the dimensions of national culture. These are the dimensions: Power Distance, Individualism, Masculinity, Uncertainty Avoidance, Long-Term Orientation, and Indulgence. The research results of national cultures have proved to be useful for understanding the organizational and corporate culture.

In international trade, it is interesting how people behave with a different culture. We tend to think that "all people are the same," but they are not. Therefore making strategic decisions should take account of these differences (Hofstede, 2006). Graph 1 shows a comparison of randomly selected countries, where we can form ideas of the diversity of these countries.

Graph 1: Hofstede's cultural dimensions scores for randomly selected countries



Source: own elaboration according to geert-hofstede.com, 2013

The survey is based on national culture, which, according to Hofstede consists of 6 dimensions. These dimensions represent independent preferences of one country over another. The values of individual dimensions and nations are based on Hofstede's survey. The scale runs from 0 to 100 and if any score is over 50 the culture scores high on the scale. If score is under 50 the culture scores relatively low.

*Power Distance Index (PDI)* explains the level of the weaker members of society willing to accept and expect that power is distributed unequally. People in companies which have a large degree of power distance (Slovakia, Japan) accept the hierarchy in which each member has its place and which does not need further justification. In companies with a low degree of power interval (Germany, United States), people are trying to distribute power equally and reverse the reasoning in the case of inequality of power.

*Individualism vs. collectivism (IDV)*: The higher score of this dimension represents individualism, which can be characterized as a preference open connected social framework where the individuals are expected that they will take care of themselves and of their family (Germany, United States). The opposite is collectivism (Japan, Slovakia), who prefers a fixed linked framework in a society in which individuals can expect their relatives or members of a group will take care of them in exchange for unconditional loyalty.

*Masculinity vs. Femininity (MAS)*: Masculinity in society represents a preference for heroism, achieving triumphs, assertiveness and material rewards for success (Slovakia, Japan). It is the opposite of femininity, which prefers cooperation, modesty, care for the weak and the quality of life. Society as a complex is more oriented towards consensus.

*Uncertainty Avoidance Index (UAI)*: Nations showing a strong degree of uncertainty avoidance are managing and maintaining strict codes that are demonstrated in their beliefs and behaviors, and are intolerant of unorthodox behavior and thoughts (Japan, Germany). Countries with a lower rate uncertainty avoidance prefer an open stance where the practice is more than principles.

*Long Term Orientation versus Normative Short Term Orientation (LTO)*: Companies whose score reaches low values in this dimension (United States), prefer to maintain traditions and norms, while any changes are received with scepticism. Cultures of the companies, whose score is high, are interested in pragmatic approach: They prefer thrift and efforts in the field of modern education as a way to prepare for the future.

*Indulgence versus Restraint (IND)*: Indulgence is a society (United States), which allows relative satisfaction of basic and natural human needs related to enjoying life and entertainment. Restraint means restraining the satisfaction from the needs and it is regulated with strict social norms in society.

### 3. Adaptation versus Standardization of marketing mix

**Adaptation** such an approach emphasizes the need for customization in spite of growing globalization tendencies. Prior to entering the foreign market, it is necessary to consider all environmental factors, any restrictions, language, employment, education, different laws, culture, society and others. According to the researchers, the most difficult to measure are cultural differences deep-rooted in the history, values, attitudes, customs, economy and legal system (Czinkota, Ronkainen, 2006). The approach is focused on the changing of marketing mix and strategies to meet the needs of the market. Standardization is criticized by supporters of the adaptation approach for their simplification of reality and effort to reduce costs this way. Adapting to consumers in foreign markets should ensure long-term profitability due to higher revenues from future periods (Solberg, 2000). Factors supporting the adaptation: different conditions, loyalty marketing concepts, governmental and regulatory influences, different consumer behavior, local competition (Czinkota, Ronkashen, 2006).

**Standardization** is considered by its proponents as a compliance culture within very similar characteristics (Kustin, 2004). Regardless of where customers come from, the demand is the same. They also claim that this approach is further facilitated by global market segments, growing international communication channels and the Internet (Szymanski, Bharadway, Varadajan, 1993). The authors believe that trade barriers are reducing and therefore the creation of a single strategy for the global market and standardized elements of the marketing mix can bring several advantages: first, it is significant economies of scale in operations, distribution and brand presence abroad and also reducing complexity and better management and coordination (Theodosiow, Leonidow, 2003). Factors supporting standardization: economies of scale, savings in marketing, savings in R&D of product development, global competition, "shrinking" world market (Czinkota, Ronkashen, 2006).

In recent years, there is a certain coexistence between the two approaches which appeared and that is why international companies should make a decision on degree in which the marketing mix will be adapted or standardized (Schmid, Kotulla, 2011). In fact, the product is considered as an element which is in contrast to the price, place and propagation the most difficult to adapt (Nguyen, 2011).

**Adaptation/standardization of product**: Bearing in mind decision on the international product policy, it should be considered whether it is possible to realize a product in foreign markets without changes, or whether it is necessary to adapt it to the needs of different nations. The level of the adaptation depends on subsequent factors: product and its basic characteristics, needs that the product satisfies, regulations and standards in the country of export, foreign market, its size and purchasing power of the population, social and cultural differences, buying and consumer's habits, size of corporate and its economic opportunities, adaptation costs (Machková, 2015).

Table 2: International Marketing Mix: Product

	<i>Adaptation</i>	<i>Standardization</i>
<b>Product</b>	<ul style="list-style-type: none"> <li>- Government regulation</li> <li>- Product standards</li> <li>- Cultural differences</li> <li>- User's habits</li> </ul>	<ul style="list-style-type: none"> <li>- User's habits</li> <li>- Cultural differences</li> </ul>

Source: (Adapted from Nguyen, 2011)

**Adaptation/standardization of price:** International pricing strategy is influenced by several external and internal factors. The main external factors can be the business climate, trade factors, exchange rate stability, legibility and strength of competition, demand and consumer behavior (Machková, 2015).

Table 3: International Marketing Mix: Price

	<i>Adaptation</i>	<i>Standardization</i>
<b>Price</b>	<ul style="list-style-type: none"> <li>- Profits and sales volume can increase due to different markets</li> <li>- Lack of control because of market differentiated pricing</li> <li>- Bad image of multi-national firms</li> </ul>	<ul style="list-style-type: none"> <li>- Low-risk strategy as a fixed return is guaranteed</li> <li>- Good image of multi-national firms</li> <li>- No effort is made to maximize either profits or sales volume because they set the same price for all market</li> <li>- Used when selling highly specialized manufacturing plant</li> </ul>

Source: (Adapted from Nguyen, 2011)

**Adaptation/standardization of distribution (place):** Currently the offer of goods and services on the world market exceeds demand, and in the condition of intense competition, suppliers as well as distributors must adapt their strategy to the major development trends. This is particularly the process of internationalization, concentration, diversification and market dominance, furthermore also about networking inter-firm collaboration, or the development and use of modern information technology (Machková, 2015). Global supply chain management with the growth of the process of globalization has become an important issue for many enterprises. Nowadays the global supply chain management includes the world-wide interest of the company. It is not just national or local interest and that is why it is so important to consider environmental factors that could influence the decision (Ceniga, Šukalová, 2015).

Table 4: International Marketing Mix: Place

	<i>Adaptation</i>	<i>Standardization</i>
<b>Place</b>	<ul style="list-style-type: none"> <li>- The nature of market</li> <li>- Customer characteristics</li> <li>- Nature of product</li> <li>- Culture</li> <li>- Law legislation</li> </ul>	

Source: (Adapted from Nguyen, 2011)

**Adaptation/standardization of marketing communication (promotion):** Communication is the most visible, and also the most cultural specified instrument of international marketing mix. The main objective of international communication policy is to create the desired policy of the enterprise, its products and brands. Cultural environment has an impact on the preparation and the implementation of international cultural policy. Communication strategy is largely affected by preferences, values, habits, feelings, motives, prejudices of consumers, their way of thinking, mentality, temperament, morality and relationship to foreign products and enterprises (Machková, H., 2015).

Table 5: International Marketing Mix: Promotion

	<b>Adaptation</b>	<b>Standardization</b>
<b>Promotion</b>	<ul style="list-style-type: none"> <li>- Customer satisfaction</li> <li>- Cultural differences</li> <li>- Other environmental factors such as political and legal constraints</li> </ul>	<ul style="list-style-type: none"> <li>- Improving efficiency and saving costs</li> <li>- Increasing firm's image</li> <li>- Increasing customer's trust, loyalty</li> <li>- Trend of globalization</li> </ul>

Source: (Adapted from Nguyen, 2011)

#### 4. Examples of giant corporate failures because of lacking adaptation

Walmart is a mega-corporation whose sales are consistently ranked first or second in the United States and in the world. The company faced many challenges while entering the foreign market such as Germany. Its formula based on low prices, inventory control a large collection of merchandise was not successful because of different habits. The main problem is attributed to the promotion of its values around the world and insufficient analysis of the local German market. The result was a loss of several million dollars and Walmart's Germany exit (Landler, Barbara, 2006).

Other example is the Swedish furniture company IKEA, whose output is 90% of total production in all countries the same. The company decided to enter the Japanese market in 1970, despite its unpreparedness and lack of experience. The main reason why the company failed was low quality customer service and products which did not fit into small apartments that are for Japan, especially Tokyo typical. Company after 16 years exited the market. Later in 2006, after exhaustive market research they came back with adapted offer of goods and services. The company has successfully operated at this market since then (Wit, Meyer, 2010).

#### 5. Conclusion

Corporates before entering a foreign market have to consider many strategic decisions. Decisions concerning standardization or adaptation of the marketing mix as well. Before this action it is necessary to accomplish rigorous research because of the connection between culture and the choice of marketing strategy. There are some activities for which global economies of scale could be achieved and for which international coordination is essential. However, this does not include all activities. Empowering national managers to be susceptible to specific local conditions will remain an important step to achieve international success. In fact it is not possible that all the products would be compatible with all markets around the world.

#### References

- [1] Alashban, A. A., Hayes, L. A., Zinkhan, GM., Balazs, AL. (2002). International brand-name standardization/adaptation: Antecedents and consequences. *Journal of International Marketing*, vol. 10, pp. 22-48.
- [2] Brady, D. L. (2011). *Essentials of International Marketing*, New York, USA: Routledge Taylor & Francis Group.
- [3] Ceniga, P. & Sukalova, V. (2015). The relations and the impact of globalization on logistics. *15th International Scientific Conference on Globalization and its Socio-Economic Consequences*, Rajecké Teplice, SK, pp. 78-86.

- [4] Czinkota, M. & Ronkainen, I. (2006). *International Marketing*. Mason, USA: Thomson Learning Academic Resource Center.
- [5] Doyle, P & Stern, P. (2006). *Marketing Management and Strategy*. New Jersey, USA: Prentice Hall.
- [6] Hofstede, G. (2013). National Culture. [Online] [cit. 2016-08-20]. Available: <https://geert-hofstede.com/national-culture.html>.
- [7] Hofstede, G. (2006). *Kultury a organizace: Software mysli*, Praha, CZ: LINDE nakladatelství s.r.o.
- [8] Kramoliš J. and Kopečková M. (2013). Product Placement: A Smart Marketing Tool Shifting a Company to the Next Competitive Level. *Journal of Competitiveness*, vol. 5, no. 4, pp. 98-114.
- [9] Kraus, S., Meier, F., Eggers, F., Bouncken, R. and Schuessler, F. (2016). Standardisation vs adaptation: a conjoint experiment on the influence of psychic, cultural and geographical distance on international marketing mix decisions. *European Journal of International Management*, vol. 10, pp. 127-156.
- [10] Kustin, R. A. (2004). Marketing mix standardization: a cross cultural study of four countries. *International Business Review*, vol. 13, pp. 637–649.
- [11] Landler, M., & Barbaro, M. (2006). Wal-Mart Finds That Its Formula Doesn't Fit Every Culture. *World Business*. [Online] [cit. 2016-08-20]. Available: [http://www.nytimes.com/2006/08/02/business/worldbusiness/02walmart.html?pagewanted=all&\\_r=5&](http://www.nytimes.com/2006/08/02/business/worldbusiness/02walmart.html?pagewanted=all&_r=5&).
- [12] Machková, H. (2015). *Medzinárodní marketing*. Praha, CZ: Grada Publishing.
- [13] Nguyen, LTD. (2011). *Marketing Mix Across Cultures: Standardization or Adaptation*. Lahti, Finland: Lahti University of Applied Sciences.
- [14] Pires, DA., Rocha, TV., Borini, FM. and Rossetto, DE. (2015). International marketing in multinational company subsidiaries in emerging markets: A multidimensional approach. *24th Annual Conference of the Consortium-for-International-Marketing-Research*, Vienna Univ Econ & Business, Vienna, Austria vol. 26, pp. 157-177.
- [15] Schmid, S. and Kotulla, T. (2011). 50 years of research on international standardization and adaptation-From a systematic literature analysis to a theoretical framework. *International Business Review*, vol. 20, pp. 491-501.
- [16] Solberg, C. A. (2002). The perennial issue of adaptation or standardization of international marketing communication: Organizational contingencies and performance. *Journal of International Marketing*, vol. 10, pp. 1-21.
- [17] Solberg, C. A. (2000). Educator insight: Standardization or adaptation of the international marketing mix: The role of the local subsidiary/representative. *Journal of International Marketing*, vol. 8, pp. 78-98.
- [18] Szymanski, D. M., Bharadway, S. G., Varadajan, P. R. (1993). Standardization versus adaptation of internal marketing strategy: An imperical-investigation. *Journal of Marketing*, vol. 57, pp. 1-17.



- [19] Theodosiou, M. and Leonidou, L. (2003). Standardization versus adaptation of international marketing strategy: an integrative assessment of the empirical research, *International Business Review*, vol. 12, pp. 141-171.
- [20] Vrontis, D. and Thrassou, A. (2007). Adaptation vs standardisation in international marketing – the country-of-origin effect. *Journal of Innovative Marketing*, vol. 3 No. 4, pp. 7-21.
- [21] Wit, B. & Meyer, R. (2010). *Strategy Synthesis: Resolving Strategy Paradoxes to Create Competitive Advantage*, Hampshire, UK: Cengage Learning EMEA.

# IMPACT OF GLOBALISATION ON SLOVAK BUSINESSES IN MARKETING PROMOTION OF ECO-INNOVATIONS

Anna Zauskova<sup>1,a,\*</sup>, Lukas Grib<sup>2,b</sup>

<sup>1</sup> Faculty of Mass Media Communication, University of Ss. Cyril and Methodius, Nam. Jozefa Herdu  
2, Trnava 917 01, Slovak Republic

<sup>2</sup> Faculty of Mass Media Communication, University of Ss. Cyril and Methodius, Nam. Jozefa Herdu  
2, Trnava 917 01, Slovak Republic

<sup>a</sup>anna.zauskova@gmail.com, <sup>b</sup>grib.lukas@gmail.com

\*Corresponding author

**Abstract:** Globalisation brings about various social, worldwide and global problems with the emphasis placed on ecological issues. Globalisation results in environmental pollution, a lack of food and drinking water for the majority of growing population. Natural capacities and resources have almost been exhausted. Eco-innovative solutions are mostly seen as beneficial for institutions, businesses or the society itself. We mainly refer to those solutions which improve production processes, reduce environmental impact and promote the activities of corporate social responsibility while educating the public. In order for the eco-innovation process to generate a positive outcome, it has to be backed up by a huge marketing campaign. Marketing communication of eco-innovations is highly specific with regards to its segment, target audience and its main goal. In each stage, the ongoing eco-innovative process should be supported by an appropriate marketing communication strategy in order to ensure its success. The next step to be successfully implemented is so-called diffusion, i.e. placement of a particular eco-innovation onto the market. The conception of use of marketing communication should be based on traditional marketing tools with regards to eco-innovations while some of the tools are more important than the others. Nowadays, traditional tools of marketing communication need to be endorsed by use of the tools of digital marketing or other tools of modern marketing communication. The paper presents the results of the research analysing the current state of using marketing communication with the emphasis on digital marketing, creation, realisation and commercialisation of eco-innovation processes of Slovak small and middle-sized enterprises.

**Keywords:** globalisation, eco-innovation, environment, marketing communication, digital marketing

**JEL Classification:** F60, M14, M31, O30

## 1. Introduction

The term of global environment or globalisation was firstly mentioned only recently – in 1985 an American economic Theodor Levitt used it to describe development of the world economy in a previous decade. Generally speaking, globalisation can be explained as something worldwide or spread worldwide. Helmut Lang (2007) provides an expert wording of this notion in his book *Management, trend and theories*: „*It can be referred to as a process of worldwide setting of goals or as economy puts it as worldwide unification of markets. Globalisation is*

*present in various areas, e.g. economy, politics, laws, etc.* “ Globalisation has helped to interlink economies and create global competitive environment.

Innovations have become a core part of every businesses. If a business wants to be able to keep up with its competitors, it has to focus on innovations. In other words, to be in permanent touch with inventions, have a sophisticated innovative and communication policy respecting new global trends. Innovations are a key to success. On the other hand, businesses tend to be exposed to considerable pressure as competition has toughened due to globalisation and development of information technologies (Trommsdorf & Steinhoff, 2009). Innovations reflect economic power and security within a particular country. Besides energetic and food security, the ability to innovative is becoming an important geopolitical parameter – we could even notice a tendency of developing countries to increase their innovation abilities. It is obvious that the position of the Slovak Republic as a country offering cheap labour force is not sustainable in a long-term. (Musova, 2012)

Therefore it is crucial to search for an effective strategy to enhance and maintain competitiveness of Slovak businesses throughout the whole business sector. In order to avoid further negative impact of global economic crisis every EU member state has to find new possibilities and opportunities to keep sustainable development within the European Community. To face new challenges businesses have decided to take into account not only economic but also ecological aspects of their business activities in order to reach so-called green growth (Jacinto & Sákal, 2009). Green growth represents an integral part of economic growth focused mainly on preservation of natural resources and environmental protection for future generations. The topic of creation and protection of the environment ranks first among all the social issues – we still have to fight air pollution, waste disposal or high noise levels. The public is interested in creating ecological balance and renewing harmony between a man and nature (Zaušková et al., 2013).

## **2. Impact of globalisation on eco-innovations**

Environmental protection represents care for the whole group of natural resources. The environment influences existence of living creatures on the Earth. A man is powerful enough to influence positively the quality of environment as well as to destroy the life in its every form. Continuous devastation of the environment forces us to think about near future. The worldwide population is losing its touch with nature and a primary sector, which forces us to rethink the values of our culture and avoid deepening the global economic crisis (Bartošíková, 2012). We consumers are able to influence the whole retail chain. Only few understand how real it might be (Kollárová, 2016). Consumers are those who can get producers to change their attitude and prove environmental protection comes first even if detrimental for the environment.

In today's globalised economy eco-innovations pave the way for further growth of both businesses and the society itself. Especially the innovations reducing negative impact of industrial or human activities are of high importance. The period of enormous exploitation of natural resources is over, here comes the age when not only a human but also businesses have to manage their activities in a sustainable and an environmentally-friendly way. Eco-innovations need to be implemented not only in the industry but in every sphere of a human activity. Overexploitation is becoming a global issue resulting in overconsumption, environmental pollution, carbon trace or waste management of products at the end of their life cycle. On a global scale eco-innovations will have to be implemented into day-to-day activities of businesses and the society itself. Eco-innovative solutions generate only positive changes.

They can improve companies' production processes, reduce environmental impact or communicate social responsibility and thus increase awareness. All these steps represent a positive challenge for businesses in different fields of industry, e.g. higher effectivity of resource exploitation, higher sales figures, a better company image or an unbeatable competitive advantage. The effort of businesses and marketing managers is to help consumers understand the concept of eco-innovations and environmental protection.

### **3. Marketing promotion of eco-innovations**

An effectively selected marketing strategy is a key to successful eco-innovations. Every business can use a large scale of marketing tools while their timing and right selection should be a part of innovative plans and projects. The conception of use of marketing communication should be based upon traditional marketing tools whereas some tools are more suitable than the others. Traditional marketing communication tools need to be combined with tools of modern marketing communication. Marketing communication of eco-innovations should also include the goals of environmental marketing or the elements of sustainable marketing (Bednárík & Szkuráková, 2014).

For an eco-innovation to be successful, it is not sufficient to launch a new product on the market as a result of an eco-innovative process, give it an appropriate price and make it available to a customer. A key to success is communication with a customer. The way a business approaches its customers is essential as they should make sure a piece of information targets a particular customer segment and does not disappear in the information spectrum. This requires flexible thinking, constant search and inventions (Kender, 2005). Successful communication between a sender and a recipient occurs when a recipient receives an accurate and concise message and behaves in accordance with sender's expectations and beliefs (Miklenčičová, 2015). Businesses can enhance consumers' trust and enthusiasm for environmentally-friendly products by way of comprehensible and clear communication on what it means to be „eco“. A message has to go through all the phases of a communication process and its basis has to be mentioned through all communication channels (Rybanský & Máliková, 2015). A communication campaign meeting all the above mentioned criteria can be deemed effective and practical. It is important to build up customers' trust that eco products bring about tangible advantages to the environment while being practical and profitable in comparison with a previously used product which did not bear such environmentally-friendly features. A marketing communication strategy for eco-innovations relates to the overall environmental orientation and communication of a business.

Eco-innovations are essential and therefore businesses should dedicate their efforts, resources and energy to creating inventions and implementing an eco-innovative process endorsed by a massive marketing campaign. There is an occasion to shape a customer's opinion by effective marketing communication tools and by way of constant education to influence ecological awareness as well as buying behaviour in favour of environmentally-friendly products.

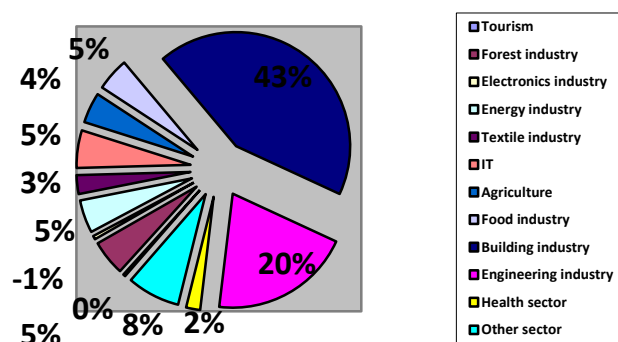
It is trendy to use on-line communication channels and new approaches to information through various digital technologies which complement traditional marketing communication tools (Zaušková et al., 2015). Due to globalisation, development of information technologies, changes to customers' wants and needs and many other factors, new ways of communication have been discovered. It has been indispensable to find more modern communication tools which would bring about competitive advantage to businesses (Mendelová & Zaušková, 2015).

The current analysis assumes that businesses consider inventions and their implementation to be important. However, they do not sufficiently use all the marketing communication tools when promoting eco-innovations.

#### 4. The analysis of a current state of marketing activities in promoting of eco-innovations in small and medium-sized enterprises in Slovakia

In the framework of the first phase of VEGA Project 1/0640/15: „*Phygital Concept and Its Use in Sustainable Integrated Environmental Management of Businesses*“ we carried out a survey from February to April 2016. Our aim was to assess a current state of use of marketing communication in the fields of creation, implementation and commercialisation of eco-innovations within small and medium-sized enterprises in Slovakia. In total 1,200 on-line questionnaires were distributed. The survey focused on those businesses which already implemented eco-innovations in the last of three years. We were trying to discover which business environment is the most favourable one for eco-innovations (see the Figure 1).

Figure 1: Scope of business of respondents



Source: our own resources, 2016

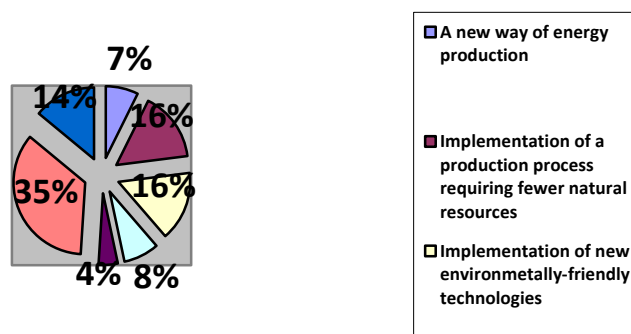
The Figure 1 indicates that the majority of businesses questioned (43.00 %) having implemented eco-innovations operate in the field of building industry. This percentage shows that the building industry bears high potential as most of the buildings in Slovakia had not been constructed in a sustainable and an environmental way. Traditional building methods reflect on high energy consumption and uneconomical construction systems in building. A modern global trend respecting EU policies and goals promotes the idea of efficiency and sustainability. Slovak businesses understand the educational role they play and adapt their business activities accordingly.

Nowdays eco-innovations are becoming a global trend. Businesses take into consideration the need for their implementation, they are trying to put in practice more ecological activities or promote environmental friendliness or corporate social behaviour. On a theoretical level, there are various definitions of an eco-innovation which are rather similar but vary considerably by their wording. 87.00 % of the businesses questioned are aware of the term of an eco-innovation as stated in the questionnaire or had encountered in before. We can assume that eco-innovations represent a global trend the majority of businesses are eager to implement.

Particular businesses were able to state a specific type of an eco-innovation they implemented (see the Figure 2). The Figure 2 indicates that most of the businesses have been using new environmentally-friendly building materials (35.00 %), which shows their interest in eco-innovations within the building sector. The same percentage (15.67 %) appears in the

businesses which either implemented an environmentally-friendly manufacturing process or used new environmentally-friendly technologies. Apart from implementation of generally-known eco-innovations, businesses were also using eco-innovations on their own. The survey found out that in most cases, businesses recycle waste, use LED lighting in their premises, use ecological packaging or implement an e-archive system.

Figure 2: Implementation of the selected types of eco-innovations



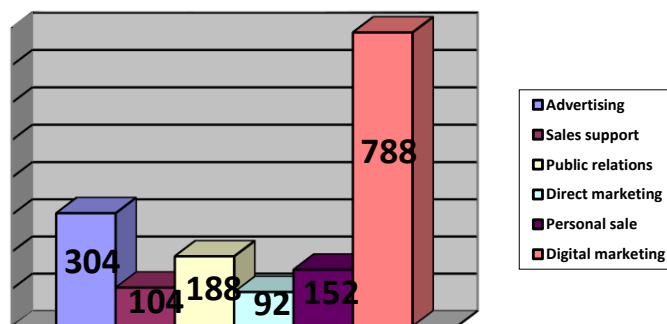
Source: our own rources, 2016

It may seem that only eco-innovations related to environmental friendliness, energy savings or air pollution top the chart, but the fact is that even an ordinary activity such as effective waste recycling can bring about considerable benefits in terms of reducing the number of landfill sites.

Sensible and effective focus on innovations is not possible without further implementation of marketing activities and business functions. It is evident that innovations and marketing communications are two important areas that have to be in harmony with each other. The majority of respondents even understand importance of marketing communication tools in promotion of eco-innovations. Up to 79.00 % businesses are using marketing communication to promote eco-innovations. The remaining 21.00 %, however, do not see marketing communication as important and therefore do not implement it. In their opinion, they implement eco-innovations within a company highly qualified staff or they are simply not willing to invest financial resources or outsource marketing services.

By way of marketing activities and effective marketing communication businesses are able to reach synergy between eco-innovations and direct appeal to customers who are willing to purchase an eco-innovation more than an ordinary product. The Figure 3 shows use of specific marketing communication tools when promoting eco-innovations. The businesses we questioned could choose from a set of answers.

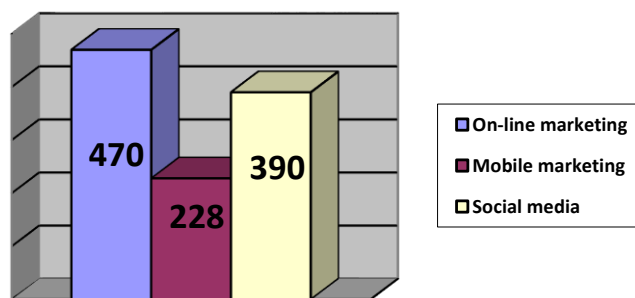
Figure 3: Use of marketing communication tools in promotion of eco-innovations



Source: our own resources, 2016

The Figure 3 indicates that the majority of businesses use technique of digital marketing to promote eco-innovations. Digital marketing might offer the broadest spectrum of new approaches in marketing communication. The world of digital media is changing at high pace. Its constantly developing technologies and the way people use them influence not only the manner in which people get informed but also the way they communicate. The Figure 4 shows the techniques of digital marketing used by the companies implementing digital marketing in promotion of eco-innovations.

Figure 4: Use of digital marketing techniques in promotion of eco-innovations

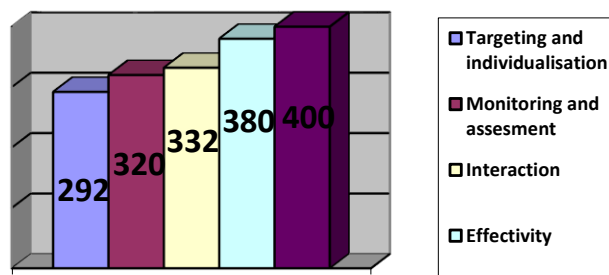


Source: our own resources, 2016

More and more businesses are aware of the role on-line communication and innovative elements are playing in marketing promotion and differentiation. However, they have to understand that in order to create a viable and successful strategy and allocate resources herefor, it is necessary to see and assess effectivity of their businesses are implementing or are planning to implement communication support for eco-innovations by way of techniques of digital marketing. 12.66 % of businesses, however, are reluctant to do so.

The respondents stated they were aware of digital marketing potential while mentioning availability, effectivity, interaction, monitoring and assesment, targeting and individualisation as the main pluses (see the Figure 5).

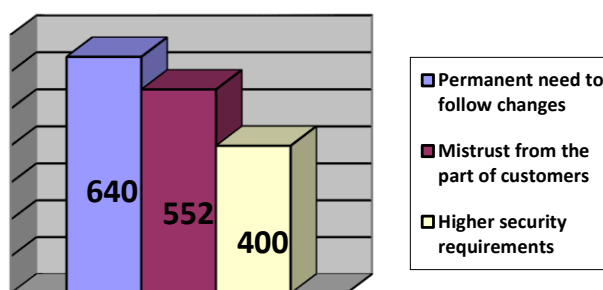
Figure 5: Advantages of digital marketing



Source: our own resources, 2016

Those businesses which are not using or are not planning to implement digital marketing to promote eco-innovations stated several reasons herefor (see the Figure 6).

Figure 6: Disadvantages of digital marketing



Source: our own resources, 2016

Thanks to the survey we managed to find out important facts which help us solve another scientific challenge.

## 5. Conclusion

If sensibly used, eco-innovations tend to lower negative impact of human activities. First there is a change – a change of thinking of a man, products or nature. Businesses have a unique opportunity to promote ecological alternative to their products. There is a huge gap on the market not only in the field of production, but also in marketing or marketing communication. Businesses are facing a challenge to gain trust or enhance ecological awareness and help to change the attitude of their customers. There is a key idea behind – a call for a positive changes. A need for a positive change in ourselves, our environment and our nature. There is a question, however, if we, people, are still able to feel and listen to our inner voice and finally decide for the right thing to do.

## Acknowledgment

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## References

- [1] Bartošíková, T., 2012, Possibilities of Renewal and Conversion of Unused Industrial Areas. *Sustainable Development of Regions and Businesses through Innovative and Green Technologies*. Trnava, Slovak Republic, pp. 256-260.
- [2] Bednárík, J. and Szkuráková, L., 2014, Green Marketing as Opportunity for Innovation. *Marketing Identity: Explosion of Innovations*. Trnava, Slovak Republic, pp. 494-511.
- [3] Jacinto, D. and Sákal, P., 2009. *Marketing Tools of Creation of Business's Environmental Policy*. SP Synergia, Slovak Republic: Trnava.
- [4] Kender, S., 2005. Marketing Communication and Communication Mix. *Transfer of Innovations*, vol. 7, №. 8, pp. 78-80.
- [5] Kollárová, D., 2016. Consumer Behaviour of Slovaks During the Holidays Accepted by Society. *European Journal of Science and Theology*, vol. 12, №. 4, pp. 165-172.
- [6] Lang, H., 2007. *Management, Trends and Theories*. C. H. Beck, Czech Republic: Praha.
- [7] Mendelová, D. and Zaušková, A., 2015. Innovation in the Slovak Advertising Environment. *Communication Today*, vol. 6, №. 1, pp. 39-56.
- [8] Miklenčíčová, R., 2015, Internet Purchasing. *Globalization and Its Socio-Economic Consequences*. Žilina, Slovak Republic, pp. 427-432.
- [9] Musova, Z. (2012). Environmental aspects of social marketing. *Ekonomicko-manazerske spektrum*, vol. 6, no. 2, pp. 57-65.
- [10] Rybanský, R. and Málíková, I., 2015, Perception of the Value by Customers. *Globalization and Its Socio-Economic Consequences*. Žilina, Slovak Republic, pp. 627-634.
- [11] Trommsdorf, V. and Steinhoff, F., 2009. *Marketing of Innovations*. C. H. Beck, Czech Republic: Praha.
- [12] Zaušková, A. et al., 2013, Environmental Protection and Sustainable Development in the Slovak Republic. *European Journal of Science and Theology*, vol. 9, №. 6, pp. 153-160.
- [13] Zaušková, A. et al., 2015, Use of Digital Marketing in the Eco-Innovation Processes of a Businesses. *Globalization and Its Socio-Economic Consequences*. Žilina, Slovak Republic, pp. 871-878.
- [14] Zaušková, A. and Loučanová, E., 2008. *Innovation Management*. University in Zvolen, Slovak Republic: Zvolen.

# GLOBALIZATION REMODELS THE WAY WE LIVE, RELATE TO ONE ANOTHER, WORK AND DO BUSINESS

Ecaterina Daniela Zeca<sup>1,a,\*</sup>

<sup>1</sup>University “Dunarea de Jos” of Galati, Romania

<sup>a</sup>Daniela.Zeca@ugal.ro

\*Corresponding author

**Abstract.** Globalization has been reshaping the socio-economic face of the most countries of the world. A flash out on 15 factors, seen by business executives of any economy as the most sensitive for doing business, should help us, but much more decision makers and forward thinking leaders to redesign their plans about: Policy instability, Tax rates, Tax regulations, Inefficient government bureaucracy, Inadequate supply of infrastructure, Inadequately educated workforce, Corruption, Access to financing, Poor work ethic in national labor force, Inflation, Restrictive labor regulations, Foreign currency regulations, Poor public health, Government instability/coups, Crime and theft. Factors seen by business executives as the most problematic for doing business reveals problems, in their dynamics from 2009 and ending with 2015. Dates should substantiate relevant business studies about what to do and what not to do in the future, in Central and South East Europe, so to be competitive in business.

**Keywords:** globalization, former socialist countries, five most problematic and rank, modern nomadic becoming ubiquitous

**JEL Classification:** Y 10

## 1. Globalization, wellbeing, and democracy should go shoulder to shoulder

Globalization, wellbeing, and democracy should go shoulder to shoulder, without any guerrilla warfare, psychological warfare or urban warfare. It should be pure business with no colonialist designs.

Since countries share economic goals, corporations and governments are trying to sort out such problems as ecological, employability, financial and goods markets, for each of them (Collins, 2015).

Globalization is scientific, cultural, commercial and economical intermingling and was never merely a trend (Collins, 2015). Globalization is in the same time cause and effect of what the peoples are living today, now when humankind seems to stand on the brink of the Fourth Industrial Revolution.

The transformations are and will be unlike anything what happens before. We do not know how, what we call “globalization”, will unfold, but already we feel and live that the way we relate to one another, peoples and entities will alter. The response to globalization must be integrated, involving all: academia, public and private stakeholders, and forward thinking politicians.

## 2. Challenges and Impact to Business and Governments

The technologies across all industries that underpin globalization, rapid scattered across the globe due to communication platforms, are reshaping businesses.

In recent years, a global shift in service delivery has occurred through the relocation, or offshoring, of ICT-enabled service employment to countries in the Global South.(Kleibert, 2016)

The changes have been occurring since the last century, but not with such a velocity, breadth and depth which have heralded the transformation of the whole system of production, trade, and way entities relate each other, now in the XXI<sup>th</sup> century.

What is happen is the fusion of technologies which is blurring the borders between digital, biological, physical and chemical fields. The digital revolution has been well connecting scholars, providers, consumers, so the velocity of propagation of innovations and disruptions was great.

More of 30 percent of global population uses platform to connect, share ideas, e-marketing, sales, distribution and do business. So, on the supply channels have been introducing global digital technologies and platforms, such B2B, Salesforce, that create swift ways of resolving demands. (Schwab, 2016)

What happen? Thanks to access those above, “can oust well established incumbents faster than ever by improving the quality, speed and price at which value is delivered.” (Schwab, 2016)

So, demands and consumer preferences are remodelled and force businessman to continue reshaping the way they deliver services and products.

Business platforms delivers new services, all over the world, such as travels, hire accommodation, parking, payments, rendered to use by smart portable devices, convene to people, assets and data thus creating entirely new ways to consume and do business.

It is important to emphasize “...decision-making power is particularly concentrated in certain companies that manage global digital platforms and governments that have the power to enable or block the development, commercialization or adoption of emerging technologies.” (Davis, 2015)

In the figure below are pointed out, as truths measurable or only aspiration goals, influences of globalization in the way of doing business, resulting from empirical analyse based on questionnaires and studies of economic reports: Collaborative innovation, Sharing technology, Companies movement from country to country, Transnational companies installation of plants in other countries, Companies relentlessly and continuously innovate due to increasing competition, Lowering barriers for businesses to create wealth, makes companies adaptable to rapid change to be more competitive Create new kind of jobs, and lowers prices for consumers in competition with economy such as China.

One of the hallmarks of globalised, dematerialized markets is their tendency to grant outsized rewards to “stars” – products, individuals or firms who through luck or special talent gain early and widespread attention – at the expense of those less lucky or not quite as good. (Davis, 2015)

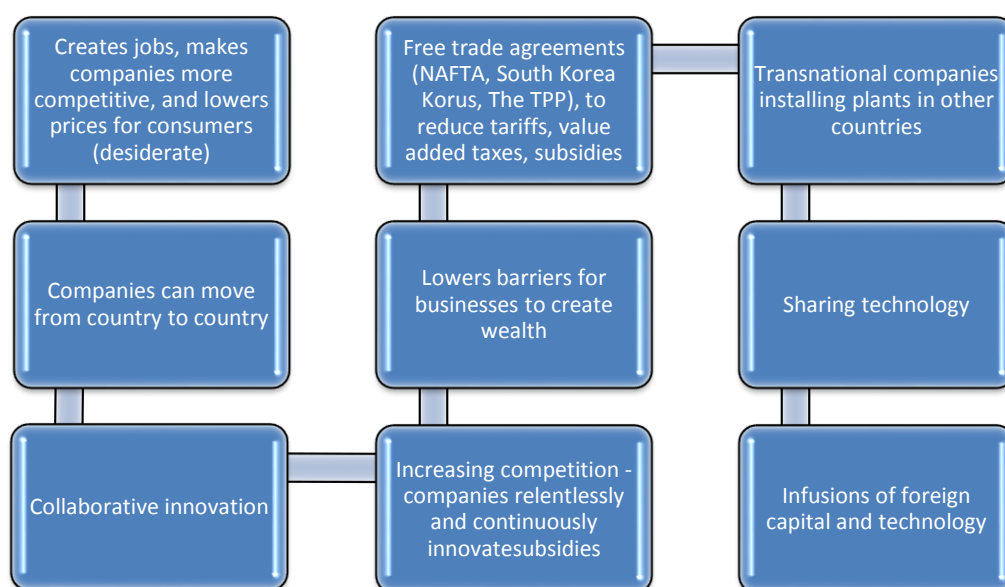
Meanwhile the existence of global platforms to enable such distribution by lowering transaction costs also suggests huge gains for those who own the platforms and related infrastructure, creating new concerns for exacerbated inequality within countries. Through

infusions of foreign capital and technology, to develop economically and by spreading prosperity, Free Trade Agreements NAFTA, South Korea Korus, The TPP), are supposed to reduce barriers such as tariffs, value added taxes, subsidies, and other barriers between nations. The problem is that the big G20 countries added more than 1,200 restrictive export and import measures since 2008. Still are barriers to free trade. (Collins, 2015)

Financial globalization can lead to a variety of outcomes: (i) domestic capital flight and ambiguous effects on net capital flows, investment, and growth; (ii) capital inflows and higher investment and growth; or (iii) volatile capital flows and unstable domestic financial markets. (Broner&Ventura, 2016)

On the other hand it is very important to mention here the role of International Monetary Fund and World Bank, as these institutions have catalyzed interaction between local assets and global finance capital.

Figure 1: Globalization. The main effect on business



## 2.1 Governments Competition and Redistribution of Power

Globalization, new technologies or simultaneously have lead to a new way of interaction between the governments of the world, between the government and the own population.

Governments not stay trapped in a traditional way of thinking. They reinvent themselves, and have been decentralizing the power, based on new e-technics.

Disruptive changes taking place in the world and in many country, determine and produce changes in the way of communication, makeing decisions, controlling population which means a pervasive surveillance. It is not only about how and if taxes are paid.

Governments have been subjecting their structures to be clear and transparent, and have been increasing them to engage with citizens.

On the realm of regulation, to cope all technological, environmetal, digital transformations, and the presion of the great transnational corporation and financial trusts, governments have been understanding what it is what they are regulating.

By adopting smart governance, regulatory agencies and governments keep closely with business and civil society.

Education. In the perspective that over 50% of the workers will change residence at less than 5 years apart, and coordinators and their bosses with an even greater frequency- with these figures we will need to think again formal and nonformal education. (Zeca&Zeca, 2010)

But globalization doesn't mean only taxes, health, education, business and travels.

If I should point out here, globalization means also export of conflicts, often having economical fundamentals related to natural resources and supremacy, mainly due to commercial channels and markets.

Globalization is about terrorism, too. Modern conflicts involving governments, combining traditional techniques with nonstate actors, have been "uncomfortably blurry" people wellness and fashioning the line between violence and nonviolence.

But, at the same time, biological and cyber war become easy to happen and this vulnerability produces disruption. The ability of governments to find the key of mutual understanding without affecting sustainability of this globalised world, means forwarding thinking of those that understand that the myth of the Phoenix is not axiomatic and, one day, fire and warfare, people discontent might close all and the show would not go on nor rich nor poor, neither weak nor strong for.

### **3. Workers, Intellectuals are all the Modern Nomadic, Becoming Ubiquitous**

Globalization has been changing both "what we do" and "who we are", a huge shift in what means work, education, communication, skills and how should people learn to cope with life long changes so rapid and comprehensive and to move to and fro for better and safety conditions.

Our ethical boundaries are being redefining. The close relationship with smart devices diminishes some of our human capacities such as empathy. (Schwab, 2016)

Connection with devices makes people ubiquitous, being anywhere in the world and engaged with us in looking for, trips, good prices, games, movies and jobs and less engaged with us in meaningful conversation with the man nearby.

Globalization shifted employment substantially. On E-labour platforms enterprises, companies, organizations and employees can tailor their interactions to their needs. (Zeca, 2016)

E-labour platforms are both about tools for a battle to find a good job and tools to retain the empowered worker. It is about performers, when they understand their own value.

Maybe not yet, but I foresee that, high skilled more than assets will be the sensitive production factor.

Job market has been already high dividing into "low-skill/low-pay", versus "high-skill/high-pay".

Globalization has been building and developing skills linked to science, technology and design so that Terra was equipped with workers able to work alongside ever-smarter devices, "thus being *augmented* rather than *replaced* by technology." (Davis, 2015)

Joseph E. Stieglitz, Professor, Columbia University said in a report on WEF that “...among the big winners were the global 1%, the world’s plutocrats, but also the middle class in newly emerging economies. Among the big losers – those who gained little or nothing – were those at the bottom and the middle and working classes in the advanced countries. Globalization is not the only reason, but it is one of the reasons...free trade equalizes the wages of unskilled workers around the world. Trade in goods is a substitute for the movement of people. Importing goods from China – goods that require a lot of unskilled workers to produce – reduces the demand for unskilled workers in Europe and the US.” (Stieglitz, 2016)

Nomads makes easier for companies to hire and easier for peoples to hunt the job,

” ...the labour market is more flexible and *flexicurity*-based labour market is a key defence against the full effects of globalization and open borders.” (Lidegaard, 2014)

Figure 2: People in globalization race. The main effect



Based on empirical studies and research of economic publications, I have centralised, in above Figure 2, several prints of globalization and how it have changed people, their way to live, to work, to relate each others: Family worship about the crash because nomadic workforce, Diseases are being spread by travellers, Culture of fear for low and middle class workers who have little leverage, People can move from country to country to market their skills, Developed countries outsource both manufacturing blue collar and white collar jobs, Speedy travel, Easy communications and quick dissemination, Mobility and Internationalization of education, Easy cultural interchanging and interlinings.

Part of all of these items seems to be irreversible, but another one should be improved. It is only about good ideas and making these happen.

#### 4. Globalization has been reshaping the socio-economic face of the former socialist countries.

Globalization has been reshaping the socio-economic face of the former socialist countries.

Here it is an empirical analysis, based on observation of reality, survives and study reports presented in the highest economic forum, World Economic Forum, but not only.

If we take as reference the standard living of the former socialist states, before being part of the globalization process, as subject of a critical thinking, it should be analyzed the transformations with good (Figure 3) and bad aspects (Figure 4).

"Transnational mobility of capital, organization worldwide production thanks to the digital communication and transportation increasingly more efficient and autonomy financial centers to national laws" (Percebois, 2001), all have been producing effects on the people, economy, finance, industry, agriculture, culture, health of the former socialist countries.

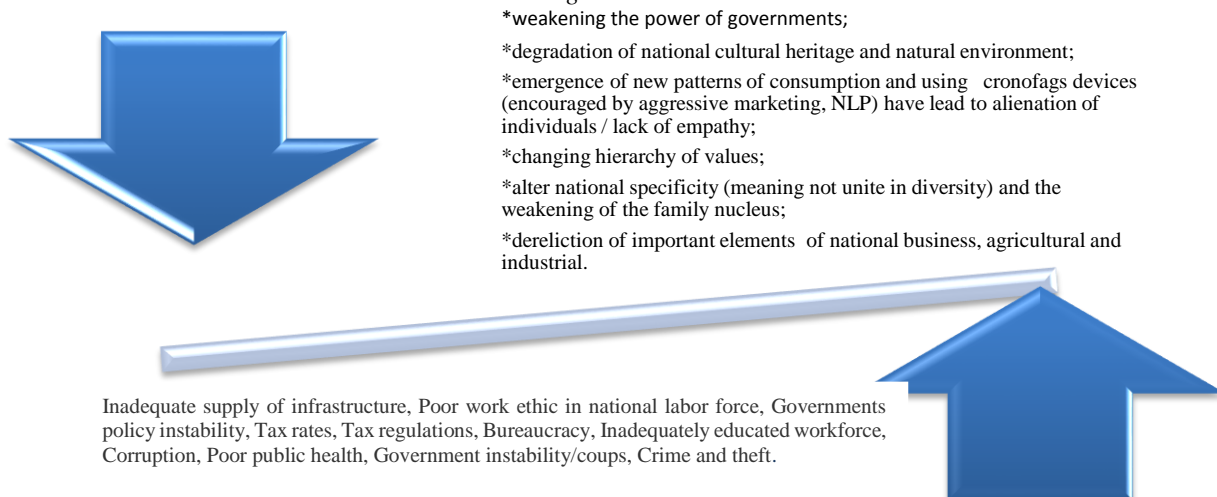
*Figure 3 Positive influences of globalization on former socialist countries*



- Globalization has meant the weakening of the national state as independent actors need space for independent movement.
- Globalization has meant the migration of labor workforce from rural to urban and skilled labor and high skilled to another than the national labor markets.
- Foreign finance capital have been installed and set rules for all, and so national governments have being vulnerable.

A flash out on above factors, seen by business executives of any economy as the most sensitive for doing business, should help decision makers and forward thinking leaders to redesign their plans about how globalization should be a tool, a good one, for their nations.

*Figure 4 Negative influences of globalization on former socialist countries and sensitive factors for doing business*

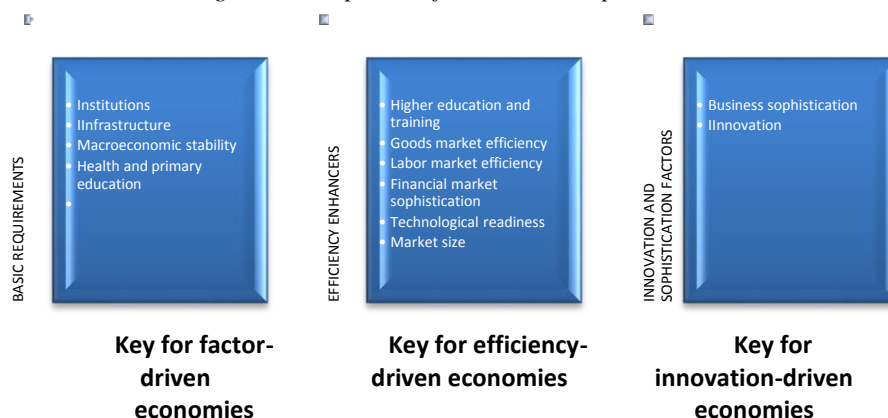


Without subjectivism, ranking by figures<sup>27</sup>, the most important issues that affected in 2015 the business environment and are undoubtedly the result both of socio-economic transformations and globalization were: *Inefficient government bureaucracy* for, Bulgaria, Croatia, Czech Rep, Estonia, Hungary, Lithuania, Latvia, Poland, Romania, Slovak Rep, Slovenia; *Access to financing* for Bulgaria, Hungary, Latvia, Romania, Slovenia; *Tax regulations* for Czech Rep, Latvia, Poland, Slovak Rep and Slovenia. *Policy instability* for Croatia, Czech Rep, Hungary; *Inadequately educated workforce* for Estonia; *Inadequate supply of infrastructure* for Romania; *Corruption* for Bulgaria and Croatia; *Restrictive labor regulations* for Lithuania, Poland, Slovak Rep; *Poor work ethic in national labor force* for Estonia and Hungary. The UE globalization and the creation and consolidation of an internal market for XXI,...,modernization and equilibrium need clear rules, stable in such way the consumers and producers become solvable. (Zeca, 2008). Compare the globalization scenarii prove that they improve the global social welfare relative to autarky and that a cooperative choice by countries of a globalization scenario would lead to GM. ( Lasram et al., 2016)

## 5. Conclusion

As an ideal formula of making world to move on, globalization means development and wellbeing. Development of regions and countries is founded on twelve pillars (Figure 5),

Figure 5: The pillars of economic competitiveness



Source: Zeca D. E., 2016

but how they are shapping, in our globalised world, as profile, waist and foundation depend by economical and political decisions, all integrated in a sustainable global strategy.

Governments should have been understanding what it is what they are regulating, so to be for wellbeing, and democracy in a global world. Anyway, transformations are and will be unlike anything that humankind has lived before.

## References

- [1] Broner,F. and Ventura, J. (2016). Rethinking the Effects of Financial Globalization, *Quarterly Journal of Economics*, vol. 131 Issue: 3 pp. 1497-1542.

<sup>27</sup> Dates are drawn and swieled from studies presented by The Global Competitiveness Report, 2009-2015, and which are based on the results of W E F's Executive Opinion Survey. Dates was then tabulated and weighted according to the ranking assigned by respondents. Respondents selected the five most problematic and rank from 1, for the most problematic, to 5



- [2] Collins, M. (2015). The Pros and Cons of Globalization. [Online]. Available: <http://www.forbes.com/sites/mikecollins/2015/05/06/the-pros-and-cons-of-globalization/>
- [3] Hauge, T. (2016). Academic capitalism in the age of globalization, *Higher Education Research & Development*, vol. 35 Issue: 4 pp. 865-867.
- [4] Davis N, (2015). 5-ways-of-understanding-the-fourth-industrial-revolution. Forum. [Online]. Available: <https://www.weforum.org/>
- [5] Kaufman and Bruce E., (2016). Globalization and convergence-divergence of HRM across nations: New measures, explanatory theory, and non-standard predictions from bringing in economics, *Human Resource Management Review*, vol. 26 Issue 4, pp. 338-351.
- [6] Kleibert, J. (2016). Pervasive but Neglected: Conceptualising Services and Global Production Networks, *Geography Compass*, vol. 10 Issue: 8 pp. 333-345.
- [7] Lasram, Hejer Hili, A. and Lahmandi-Ayed, R. and Lasram, H (2016). Differentiation, labor market and globalization, *Journal of International Trade & Economic Development*, vol. 25, Issue 6, pp. 809-833.
- [8] Lidegaard, B. (2015). Countrymen. [Online]. Available: <https://www.bookdepository.com/Countrymen-Bo-Lidegaard/9781782391487>
- [9] Percebois, J. (2001). La mondialisation des activites energetiques: Quels enjeux? *Liaison Énergie-Francophonie*, vol. 50), Issue 15.
- [10] Schwab, K. (2016). The Global Competitiveness Report 2014-2015. [Online]. pp 395-399. Available: <http://reports.weforum.org/global-competitiveness-report-2014-2015/>
- [11] Schwab, K. (2016). The Fourth Industrial Revolution: What it means and how to respond. [Online]. Available: <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond>
- [12] Shree, R. (2016). Capitalism in the Age of Globalization: The Management of Contemporary Society, *Political Studies Review*, vol. 14 Issue: 3 pp. 411-411.
- [13] Stiglitz, J. E. (2016). Globalization and its New Discontents. [Online]. Available: <https://www.project-syndicate.org/commentary/globalization-new-discontents-by-joseph-e--stiglitz-2016-08>
- [14] Vijayakumar, G (2016). Servants of Globalization: Migration and Domestic , *Work and Occupations*, vol. 43, Issue: 3, pp. 361-363.
- [15] Zeca, E. D. (2016). Pivot Tables - Toolkit: The Constraints to the Business Development in the Former Socialist EU Countries from the Central and Eastern Europe between (2008-2016). [Online]. pp29. Available: <https://ideas.repec.org/a/ddj/fserec/y2016p19-24.html> pp.19
- [16] Zeca, E.D. (2008). Globalization, Retail, Wholesale Trade and E-Commerce. *Proceedings of International Conference Integrative Relations between the European Union Institutions and the Member States*. Bucharest, Romania, pp 235-240.
- [17] Zeca, E. D. (2016). E-Labor Platforms Streamlining The Process Right Person For Right Job. *Proceedings of International Conference New Trends in Sustainable Business and Consumption* (pp. 360). Constantz, Germany, pp 360-367.

- [18] Zeca, E. D. and Zeca V. (2010). The Information Economy Formal Training, Adapted To The Nomadic Ubiquity of Informations *Proceedings of International Conference of Advanced Distributed Learning In Education And Training Transformation*. Bucharest, Romania, pp 267-274.

# THEORETICAL BACKGROUND FOR THE GLOBALIZATION OF RETAIL GRAVITATION

Tomáš R. Zeithamer<sup>1,a,\*</sup>

<sup>1</sup>University of Economics in Prague, Faculty of Informatics and Statistics, Department of  
Mathematics, Ekonomická 957, 148 00 Prague, Czech Republic

<sup>a</sup>zeithamer.tomas@gmail.com

\*Corresponding author

**Abstract.** The consistent and systematic application of the methods of theoretical physics in economics results in a modification of the analytical structure of economics. This was and continues to be one of the reasons we began to research the mutual interaction of the analytical structures of theoretical physics and economics. In this paper we implemented the basic theoretical construction of three-dimensional vector theory of retail gravitation on a geoid through the definition of the scalar potential in an inertial system of coordinates. This means that we describe the course of economic processes in space and time with respect to the cosmic space near Earth (i.e. in Space Economics) under the assumption that non-satiation axiom is general economic axiom which is associated with the genetic essence of life existing in any part of the Universe. A vector field of retail gravitation intensity is defined as one representable in the form of the negative gradient of a scalar field. The components of retail gravitation intensity are supposed to be continuously differentiable and the domain in which the vector field is considered is simply connected. A major empirical finding of the nationwide three-year study of retail dynamics is that retail business is attracted from smaller cities and towns to larger cities according to a law with an analytical structure nearly identical to that of Newton's law of gravitation. This empirical finding is derived directly by methods of theoretical physics from the Newton's law of gravitation.

**Keywords:** consilience, geoid, human genome, neuroeconomics, space economics

**JEL Classification:** A12, B41, D12, D41, D87

## 1. Introduction

The strategic position of physics and especially that of theoretical physics in economics was affirmed by the results of research conducted by the Lausanne School of Economics and the Cambridge School of Economics (Zeithamer 2012, A), (Zeithamer 2012, B). Representatives of both schools used one of the basic quantitative requirements for determining natural relations in research conducted in any scientific field, namely the requirement that the ratio of input and output signal to noise be greater, ideally much greater than one ((Roehner, 2002), (Roehner, 2007), (Štroner & Pospíšil, 2011)). In the latter twentieth and early twenty-first centuries it is also possible to find authors in the Czech School of Economics whose work examined applications of theoretical physics in areas of basic economic research. This group of authors includes, for example, prof. František Drožen (Drožen, 2008), prof. Pavel Hrubý and Ing. Jaromír Kálal (Hrubý & Kálal, 1974).

A classic current example requiring such noise reduction is the detection of gravitational waves, the existence of which was predicted by prof. A. Einstein e.g. in his work from 1916 (Einstein, 1916). Outside the solar system, the theory predicts a number of sources of gravitational waves, which could be detected in the event they reached Earth. The first direct detection of gravitational waves and the first observation of a binary black hole merger were registered on September 14, 2015 at 09:50:45 UTC (Abbott et al., 2016). For the Sun, a typical class G main-spectrum star, it has been possible to theoretically determine such mechanisms which could be responsible for reliably detectable levels of gravitational radiation (Weinberg, 1972), (Papini and Valluri, 1976), (Křivský and Zeithamer, 1982), (Karmakar and Borah, 2013).

Efforts similar to the detection of gravitational waves can be seen in numerous other multidisciplinary scientific fields, such as: Physics of the Earth's Magnetosphere (Vörös, 1990), Helioclimatology (Pérez – Peraza and Libin, 2012), as well as the physical research of economic or neuroeconomic systems.

Finding causal mechanisms which explain observed socio-physical phenomena on a gravitational, electromagnetic or nuclear level is a very difficult, long and costly task. The same applies to the behavior of experts in commodity price theory, thoroughly based on the knowledge of basic physical force interactions.

The consistent and systematic application of the methods of theoretical physics in economics results in a modification of the analytical structure of economics. This was and continues to be one of the reasons we began to look at the mutual interaction of the analytical structures of physics and economics. To enable such analysis, work has begun on a principle of correspondence between economic variables and the physical variables used in one of the most highly developed disciplines of classical physics, classical non-relativistic mechanics (references (Zeithamer, 2014, A), (Zeithamer, 2014, B) and (Zeithamer, 2014, C)).

## 2. Materials and methods

The application of methods of classical non-relativistic mechanics in microeconomics presented in this work aims to derive a single motion equation for price which describes non-chaotic as well as chaotic fluctuations of price on a market with nearly perfect competition which is defined in references (Zeithamer, 2014, B) and (Zeithamer, 2014, C).

One of the many phenomena which may be used to characterize the United States in the late nineteenth and early twentieth centuries is the rapid change which occurred in retail trade relations in various parts of the country. The common feature of these changes was the flow of retail business from small towns to large cities. However, no general analytical laws were known to describe the rise and distribution of this flow of retail business in space and time. It was also one of the main reasons why in the autumn of 1927 William John Reilly began empirical study of the retail relationships which existed between various cities and towns in a trial locality in the state Texas. Seven cities were included in this preliminary study, i.e. Fort Worth, Dallas, Houston, Austin, San Antonio, El Paso and Waco (Reilly, 1929). Retail data in these cities was gathered, making it possible to describe and analyze in an empirical way the effect on the retail of each city under various circumstances. A major finding of the preliminary study of retail dynamics was the empirical result that retail trade is attracted from smaller cities and towns to larger cities according to a law with an analytical structure nearly identical to that of Newton's law of gravitation (Reilly, 1929).

The empirical results of the preliminary study were so persuasive that before it was finished, the study area was expanded from just Texas to the entire country for a three-year period. The nationwide study was carried out from 1927 – 1930 and gradually included 132 cities and towns in 23 states (see references (Reilly, 1929) and (Reilly, 1931)) and it confirmed in empirical way the analytical relation obtained in the preliminary study.

### 3. Results and Discussion

Physics is presented with the question of whether it is possible to derive Reilly's law of retail gravitation from Newton's law of gravitation. In this paper we will attempt to provide an answer to this question. Basic studies in this regard were carried out in references (Zeithamer, 2015) and (Zeithamer, 2016).

Let  $A$  be a city on the geoid with population  $P_a$ . Because retail flows are realized in three dimensional space and time, we define the potential of retail gravitation of city  $A$  by the relation

$$\varphi(x, y, z) = \varphi(D_a) = \alpha(A, E_A, t) \frac{N_a}{D_a}, \quad (1)$$

where  $D_a$  is the distance of the observation place from city  $A$ , i.e.  $D_a = \sqrt{x^2 + y^2 + z^2}$ ;  $\vec{D}_a = (x, y, z) = x\vec{i} + y\vec{j} + z\vec{k}$  is the position vector of the observation place of retail trade amount attracted in the direction to mass point  $A$  (i.e. to city  $A$ );  $\vec{i}$ ,  $\vec{j}$  and  $\vec{k}$  are orthogonal unit vectors. Proportionality constant  $\alpha(A, E_A, t)$  is expressed in units  $[\alpha] = cu. m^2 pers^{-2}$ , where  $A$  is mass point with coordinates  $x_A(t)$ ,  $y_A(t)$  and  $z_A(t)$ , i.e. mass point  $A = [x_A(t), y_A(t), z_A(t)]$ ;  $E_A$  – is the economic facility of the city  $A$ ;  $N_a$  – is the number of long-term economically active adult inhabitants in city  $A$  at time  $t$ . Vector field  $\vec{K}_a$  of the intensity of retail gravitation is determined by the negative gradient of potential of retail gravitation  $\varphi$ , i.e.  $\vec{K}_a = \left( -\frac{\partial \varphi}{\partial x}(D_a), -\frac{\partial \varphi}{\partial y}(D_a), -\frac{\partial \varphi}{\partial z}(D_a) \right)$ . This means that the magnitude  $K_a$  of the vector of intensity of retail gravitation follows from the last relation, i.e.  $K_a = |\vec{K}_a| = \alpha(A, E_A, t) \frac{N_a}{D_a^2}$

Let there be two separate self-governing cities  $A$  and  $B$  represented on the geoid by mass points at time  $t$ . The gravitational mass  $M_A$  of city  $A$  is equal to the sum gravitational masses

of individual members of the city's population  $P_a$ , i.e.  $M_A = \sum_{i=1}^P m_i = \frac{\sum_{i=1}^P m_i}{P_a} P_a = \bar{m}_A P_a$ ,

where  $\bar{m}_A$  is the average gravitational mass of a single inhabitant of city  $A$  at time  $t$ . Similarly, the gravitational mass  $M_B$  of city  $B$  is equal to the sum gravitational masses of individual

members of the city's population  $P_b$ , i.e.  $M_B = \sum_{i=1}^B m_i = \frac{\sum_{i=1}^B m_i}{P_b} P_b = \bar{m}_B P_b$ , where  $\bar{m}_B$  is the

average gravitational mass of a single inhabitant of city  $B$  at time  $t$ . The relationships expressing the gravitational masses  $M_A$  and  $M_B$  of cities  $A$  and  $B$  are then substituted into

Newton's law of gravitation. Following this step Newton's law of gravitation then takes the form

$$\vec{F}_g = \kappa \frac{\bar{m}_A \bar{m}_B}{D_{(a,b)}^2} \frac{\vec{D}_{(a,b)}}{D_{(a,b)}}, \quad (2)$$

where unit vector  $\vec{n}_{(a,b)} = \frac{\vec{D}_{(a,b)}}{D_{(a,b)}}$  is directed from city  $A$  to city  $B$ , while  $\vec{n}_{(a,b)} = -\vec{n}_{(b,a)}$ ,

$|\vec{n}_{(a,b)}| = |-\vec{n}_{(b,a)}| = 1$  and  $D_{(a,b)}$  is the distance between cities  $A$  and  $B$ . From this last expression of Newton's law of gravitation we obtain the relationship for the magnitude of gravitational force between cities  $A$  and  $B$

$$\frac{F_g}{\kappa \bar{m}_A \bar{m}_B} = \frac{P_a P_b}{D_{(a,b)}^2}, \quad (3)$$

which is the theoretical foundation of the law of retail gravitation. The average gravitational masses  $\bar{m}_A$  and  $\bar{m}_B$  in relation (1) can be calculated e.g. from the reference (Walpole et al., 2012).

Under the assumption  $\bar{m}_A = \bar{m}_B = \bar{m}$ , let us assume that long-term economically active adult inhabitants of big cities  $A$  and  $B$  have a dominant influence on external retail trade attracted to big cities  $A$  and  $B$  on the geoid. The number of long-term economically active adult inhabitants in cities  $A$  and  $B$  at time  $t$  are marked as  $N_a$  and  $N_b$ . Newton's laws of gravitation for individual pairs of populations  $(P_a, N_b)$  and  $(P_b, N_a)$  of cities  $A$  and  $B$  then have the form

$$\vec{F}_{g,(a,b)} = \kappa \bar{m}^2 \frac{P_a N_b}{D_{(a,b)}^2} \frac{\vec{D}_{(a,b)}}{D_{(a,b)}}, \quad (4)$$

for gravitational attraction of city  $A$  to city  $B$ ;

$$\vec{F}_{g,(b,a)} = \kappa \bar{m}^2 \frac{P_b N_a}{D_{(b,a)}^2} \frac{\vec{D}_{(b,a)}}{D_{(b,a)}}, \quad (5)$$

for gravitational attraction of city  $B$  to city  $A$ ;

where  $\frac{\vec{D}_{(b,a)}}{D_{(b,a)}} = -\frac{\vec{D}_{(a,b)}}{D_{(a,b)}}$ ,  $\vec{D}_{(b,a)} = -\vec{D}_{(a,b)}$ ,  $|\vec{D}_{(b,a)}| = |-\vec{D}_{(a,b)}| = D_{(a,b)} = D_{(b,a)}$ .

The retail trade attracted for individual pairs of cities  $(A, B)$  and  $(B, A)$  is then expressed in analytical form by the following relations

$$B_{(a,b)} = \alpha(A(t), B(t), E_B(t), t) \cdot \frac{P_a N_b}{D_{(a,b)}^2}, \quad (6)$$

$$B_{(b,a)} = \alpha(B(t), A(t), E_A(t), t) \cdot \frac{P_b N_a}{D_{(a,b)}^2}. \quad (7)$$

Constants of proportionality in relations (6), (7) depend on six space positional coordinates of ordered pairs of cities  $(A, B)$  and  $(B, A)$ ,  $t$  is time of observation and  $E_A(t), E_B(t)$  are economic facilities of individual large cities for the attraction of retail trade (economic facilities will be analyzed in a separate article).

Let there be given three cities  $A$ ,  $B$  and  $T$  on the geoid in simply connected set. These cities are represented by mass points  $A$ ,  $B$  and  $T$  with gravitational masses  $M_A$ ,  $M_B$  and  $M_T$  designated by populations  $P_a$ ,  $P_b$ ,  $P_t$  of the cities at time  $t$ . At the same time  $t$  the position coordinates of individual cities on the geoid are as follows: for city  $A$ , mass point  $A$  has positional coordinates  $x_A(t)$ ,  $y_A(t)$  and  $z_A(t)$ , i.e. mass point  $A = [x_A(t), y_A(t), z_A(t)]$ ; for city  $B$ , mass point  $B$  has positional coordinates  $x_B(t)$ ,  $y_B(t)$  and  $z_B(t)$ , i.e. mass point  $B = [x_B(t), y_B(t), z_B(t)]$ ; for intermediate small town  $T$  mass point  $T$  has positional coordinates  $x_T(t)$ ,  $y_T(t)$  and  $z_T(t)$ , i.e. mass point  $T = [x_T(t), y_T(t), z_T(t)]$ . Small town  $T$  is situated on the shortest highway linking large cities  $A$  and  $B$ , i. e. small town  $T$  is intermediate between large cities  $A$  and  $B$ .

Large cities  $A$  and  $B$  attract retail trade from small town  $T$  and intermediate small town  $T$  attracts retail trade from large cities  $A$  and  $B$ . In the 1930s the retail trade attracted to intermediate small towns  $T$  was minor in comparison with the amount of retail trade attracted to large cities. This was also one of the reasons why W. J. Reilly did not consider the attraction of retail trade from large cities to small towns in his empirical nationwide study. At the present time, the attraction of retail trade from large cities to intermediate small towns  $T$  is considered a common and economically significant phenomenon. For this reason the attraction of retail trade from large cities to intermediate small towns is taken into account as well as the attraction of retail trade from intermediate small towns to large cities is incorporated.

The retail trade attracted for individual pairs of cities  $(T, A)$ ,  $(T, B)$ ,  $(A, T)$ ,  $(B, T)$ ,  $(A, B)$  and  $(B, A)$  is then expressed in analytical form by the following relations

$$B_{(t,a)} = \alpha(T(t), A(t), E_A(t), t) \cdot \frac{P_t N_a}{D_{(t,a)}^2}, \quad (8)$$

$$B_{(t,b)} = \alpha(T(t), B(t), E_B(t), t) \cdot \frac{P_t N_b}{D_{(t,b)}^2}, \quad (9)$$

$$B_{(a,t)} = \alpha(A(t), T(t), E_T(t), t) \cdot \frac{P_a N_t}{D_{(t,a)}^2}, \quad (10)$$

$$B_{(b,t)} = \alpha(B(t), T(t), E_T(t), t) \cdot \frac{P_b N_t}{D_{(t,b)}^2}, \quad (11)$$

$$B_{(a,b)} = \alpha(A(t), B(t), E_B(t), t) \cdot \frac{P_a N_b}{D_{(a,b)}^2}, \quad (12)$$

$$B_{(b,a)} = \alpha(B(t), A(t), E_A(t), t) \cdot \frac{P_b N_a}{D_{(a,b)}^2}. \quad (13)$$

Constants of proportionality in relations (8), (9), (10), (11), (12), (13) depend on six space positional coordinates of ordered pairs of cities  $(T, A)$ ,  $(T, B)$ ,  $(A, T)$ ,  $(B, T)$ ,  $(A, B)$  and  $(B, A)$ , time  $t$  of observation and economic facilities  $E_A(t)$ ,  $E_B(t)$ ,  $E_T(t)$  of individual large cities and small towns for the attraction of retail trade.

Let  $A$  and  $B$  be two cities on the geoid with large populations, which we mark  $P_a$  and  $P_b$ . Let us assume there also exists intermediate town  $T$  with population  $P_t$ , which is much smaller than the populations of cities  $A$  and  $B$ , i.e.  $P_t \ll P_a$  and  $P_t \ll P_b$ . Cities  $A$ ,  $B$  and  $T$  are represented on the geoid by mass points  $A$ ,  $B$  and  $T$  at time  $t$ . The distances of cities  $A$  and  $B$  from town  $T$  are marked as  $D_{(t,a)}$  and  $D_{(t,b)}$ . The law of retail gravitation for pairs of cities  $(T, A)$  and  $(T, B)$  is then expressed in analytical form by relations (24) and (25), i.e.

$$B_{(t,a)} = \alpha(T, A, E_A, t) \cdot \frac{P_t N_a}{D_{(t,a)}^2}, \quad (14)$$

$$B_{(t,b)} = \alpha(T, B, E_B, t) \cdot \frac{P_t N_b}{D_{(t,b)}^2}, \quad (15)$$

where  $B_{(t,a)}$  is the business which city  $A$  draws from any given intermediate town  $T$  and  $B_{(t,b)}$  is the business which city  $B$  draws from that intermediate town  $T$ . In equation (14),  $\alpha(T, A, E_A, t)$  is the constant of proportionality for populations  $P_t$  and  $N_a$  of cities  $T$  and  $A$ . In equation (15),  $\alpha(T, B, E_B, t)$  is the constant of proportionality for populations  $P_t$  and  $N_b$  of cities  $T$  and  $B$ . We further assume that in equations (14) and (15) there is a universal constant of proportionality, i.e.  $\alpha(T, A, E_A, t) = \alpha(T, B, E_B, t) = \alpha$ . Assuming the universality of proportionality constants and  $N_a = P_a$ ,  $N_b = P_b$ , we derive empirical Reilly's law of retail gravitation directly from the definition of retail gravitation potential.

Now let us define an equilibrium point for retail gravitation through the vector intensity  $\vec{K}$  of retail trade gravitation. Let  $A$  and  $B$  be two cities with large populations, which we mark  $P_a$  and  $P_b$ . In the equilibrium point or in a sufficiently small neighborhood of the equilibrium point between cities  $A$  and  $B$ , the vector equality holds  $\vec{K}_a = -\vec{K}_b$  at any equilibrium point.

A simple formulation of the law of retail gravitation on the geoid is as follows: Let us assume that on the geoid there are two large cities  $A$  and  $B$  and intermediate small town  $T$  which lies in the sufficiently small neighborhood of the equilibrium point. The two large cities ( $A$  and  $B$ ) attract two amounts of retail trade from intermediate small town  $T$ . These amounts are directly proportional to the product of the population of long-term economically active adult inhabitants of the attracting large city ( $A$  or  $B$ ) with the population of intermediate small town  $T$  and inversely proportional to the squares of distances from intermediate town  $T$  to the particular large city ( $A$  or  $B$ ) attracting retail trade from intermediate town  $T$ .

## 4. Conclusion

This work derives the basic construction of three-dimensional vector theory of retail gravitation on a geoid. This means that we describe the course of economic processes in space and time with respect to the cosmic space near Earth (i.e. in Space Economics). The final form



of the retail gravitation law will to a certain degree be reflected in the methodological foundations used to teach economics itself. Analysis of the relationship of the vector theory of retail gravitation to other retail trade theories will be the subject of a separate article.

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### References

- [1] Abbott, B. P. et al. (2016) Observation of Gravitational Waves from a Binary Hole Merger, *Phys. Rev. Lett.*, vol. 116, pp. 061102-1 - 061102-16.
- [2] Drožen, F. (2008). Modelling of price dynamics and appreciation, *Ekonomický časopis (Journal of Economics)*, vol. 56, pp. 1033 – 1044.
- [3] Einstein, A. (1916) Näherungsweise Integration der Feldgleichungen der Gravitation, *Sitzungsber. K. Preuss. Akad. Wiss.* vol. 1, pp. 688 - 696.
- [4] Hrubý, P. and Kálal, J. (1974). *Metody ekonomického času (Methods of Economic Time)*, Prague, 1st ed. Prague, Czech Republic: Institute of the Czechoslovak Committee for Scientific Management.
- [5] Karmakar, P. K. and Borah B. (2013) Nonlinear Self – Gravitational Solar Plasma Fluctuations with Electron Inertia, *Contributions to Plasma Physics*, vol. 53, pp. 516-539.
- [6] Křivský, L. and Zeithamer, T. (1982) On the Possibility of Generating Gravitational Radiation by the Sun, *Astrophysics and Space Science*, vol. 85, pp. 309-313.
- [7] Newton, I. (1960). *Philosophiae naturalis principia mathematica (Mathematical Principles of Natural Philosophy)*, 4<sup>th</sup> printing. Los Angeles, CA: University of California Press and London, UK: Cambridge University Press.
- [8] Papini, G. and Valluri, S. R. (1976) Photoproduction of Gravitational Radiation by Some Astrophysical Objects., *Canadian Journal of Physics*, vol. 54, pp. 76-79.
- [9] Pérez – Peraza, J. A., and Libin, I. Y. (2012). *Highlights in Helioclimatology: Cosmophysical Influences on Climate and Hurricanes*, 1st ed. Amsterdam: Elsevier.
- [10] Štroner, M. and Pospíšil, J. (2011) Systematic Geometrical Errors of Scanning Spherical Surfaces, *Survey Review*, vol. 43, pp. 731-742.
- [11] Reilly, W. J. (1929) Methods for the Study of Retail Relationships, *University of Texas Bulletin*, No 2944, Nov.
- [12] Reilly, W. J. (1931) *The Law of Retail Gravitation*, 1st ed. New York, Knickerbocker Press, USA.
- [13] Roehner, B. M. (2002) *Patterns of Speculation: A Study in Observational Econophysics*, 1st ed., Cambridge, UK, Cambridge University Press.

- [14] Roehner, B. M. (2007) *Driving Forces in Physical, Biological and Socio-economic Phenomena: A Network Science Investigation of Social Bonds and Interactions*, 1st ed., Cambridge, UK, Cambridge University Press.
- [15] Vörös, Z. (1990). Synergetic Approach to Substorm Phenomenon. *Magnetospheric Substorms*. Hakone, Japan, pp. 461 – 467.
- [16] Walpole, S. C., Prieto-Merino, D., Edwards, P., Cleland, J., Stevens, G. and Roberts, I. (2012) The weight of nations: an estimation of adult human biomass. *BMC Public Health*, vol. 12, pp. 439 - 445.
- [17] Weinberg, S. (1972) *Gravitation and Cosmology: Principles and Applications of the General Theory of Relativity*, 1st ed. New York, Wiley, USA.
- [18] Zeithamer, T. (1989). Structural Stability of the Earth's Magnetosphere. *Geo-Cosmic Relations: the Earth and Its Macro-Environment*. Wageningen, PUDOC, Netherlands, pp. 321 – 326.
- [19] Zeithamer, T. R. (2012 A). Economic Phenomena from the Viewpoint of the Mechanics of Materials. *3rd International Conference on New Horizons in Education (INTE 2012)*, Prague, Czech Republic, *Procedia Social and Behavioral Sciences*, vol. 55, pp. 547 – 553.
- [20] Zeithamer, T. R. (2012 B). Analytical Theory of Monotone Commodity State Development with Inflexion. *3rd International Conference on New Horizons in Education (INTE 2012)*, Prague, Czech Republic, *Procedia Social and Behavioral Sciences*, vol. 55, pp. 445 – 450.
- [21] Zeithamer, T. R. (2014 A). Methodology of Theoretical Physics in Economics: Examining Price Jerk. *International Educational Technology Conference (IETC, 3–5 September, 2014)*, Chicago, IL, USA, *Procedia Social and Behavioral Sciences*, vol. 176, pp. 933 – 939.
- [22] Zeithamer, T. R. (2014 B) The Correspondence Principle in Theoretical Regional Economics. *Proceedings of the 6<sup>th</sup> Annual International Scientific Conference: Region in the Development of Society, October 23rd, 2014*, Brno, Czech Republic, pp. 1016 – 1023.
- [23] Zeithamer, T. R. (2014 C) Methodology of Theoretical Physics in Economics: Examining Price Jounce and Price Crackle. *The 8<sup>th</sup> International Scientific Conference INPROFORUM 2014, Proceedings*. České Budějovice, Czech Republic, pp. 143 – 148.
- [24] Zeithamer, T. R. (2015) Methodology of Theoretical Physics in Economics: Vector Theory of Retail Gravitation Law. *The 9<sup>th</sup> International Scientific Conference INPROFORUM 2015, Proceedings*. České Budějovice, Czech Republic, pp. 199 - 203.
- [25] Zeithamer, T. R. (2016) Methodology of Theoretical Physics in Economics: Intensity Vector of Retail Gravitation. *Proceedings of the 15<sup>th</sup> Conference on Applied Mathematics 2016 (Aplimat 2016)*, Bratislava, Slovak Republic, pp. 1147 - 1153.

## MAKING GLOBAL GOALS LOCAL BUSINESS IN V4 COUNTRIES: V4 ENTREPRENEURS AND THE UN GLOBAL COMPACT

Štěpánka Zemanová<sup>1,a\*</sup>, Radka Druláková<sup>2,b,</sup>

<sup>1,2</sup> Jan Masaryk Centre for International Studies, Faculty of International Relations, University of  
Economics, Prague, nam. W. Churchilla 4, 130 67, Prague 3, Czech Republic

<sup>a</sup>zemanova@vse.cz, <sup>b</sup>radka.drulakova@vse.cz

\*Corresponding author

**Abstract.** In 2000, the UN Global Compact was adopted as a voluntary initiative, encouraging businesses all over the world to adhere to ten principles of social responsibility and sustainability. Since then, its ten principles covering human rights, labour, environment and anti-corruption have helped entrepreneurs in more than 170 countries to advance broader societal goals, implement responsible practices and develop innovative solutions to address the current challenges of globalization. With its 12,000+ participants, it is now the world's largest corporate sustainability initiative. Still, despite the remarkable progress achieved by the UN Global Compact so far, its membership is very unevenly distributed among regions. Regarding participation in the initiative, the Visegrad Group countries (V4) can be considered laggards since they are connected to the initiative through foreign multinational corporations rather than companies established on their territory. Moreover, little attention has been paid to it both by practitioners and scholars in these countries. To fill in the gap in the current state of knowledge, the paper focuses on the participants in the UN Global Compact that originate from the V4. Drawing on their regular Communications on progress, it analyzes their activities related to the UN Global Compact normative framework and proper implementation of its ten principles. Also, it examines the role of the local UN Global Compact networks in V4 countries regarding raising awareness, encouraging local companies to join and supporting them to meet the UN Global Compact standards.

**Keywords:** UN Global Compact, Visegrad countries, corporate social responsibility, ethics, sustainability

**JEL Classification:** F42, F61, M14

### 1. Introduction

In the last two decades, we have witnessed a rapid growth in the importance of the business sector for achieving international goals such as human rights and environmental protection, economic and social development, and eradication of poverty. At the same time, the effort has intensified on the part of the United Nations (UN) to promote sustainable and inclusive globalisation to mobilise businesses and corporations in discussion and cooperation and to create relevant formal frameworks for their engagement. As a consequence, several voluntary engagement schemes have appeared within the UN system. The United Nations Global Compact (Global Compact from now on), launched in 2000, has become the most prominent of these schemes. Due to the impressive number of its participants, it is now considered the flagship of the UN–business interface. For its innovative multi-stakeholder approach, it is even considered to be a new form of global governance, sometimes called inclusive multilateralism.

It is also believed to be one of the most important pillars when implementing the UN Post-2015 agenda and the Sustainable Development Goals (SDGs) (Fortin & Jolly, 2015; Ayuso et al., 2016; Coulmont & Berthelot, 2015).

However, despite impressive dynamics, activities, and outputs of the Global Compact, several criticisms have appeared. They point especially to the lack of intergovernmental legitimacy, the absence of oversight by the UN General Assembly and the blue-wash phenomenon.<sup>28</sup> Also, they focus on the gap between the “say” and “do” steps in internal policies of subscribing companies, weak accountability mechanisms, the ongoing exclusion of several groups of stakeholders from the benefits of private funding, the tendency of some governments to reduce their activity and to rely on the private sector as a major deliverer of sustainable development, as well as slow progress on the integration of sustainability to business operations overall (Fortlin & Joly, 2015; Pingeot, 2015; UN Global Compact, 2016, B). Last but not least, the problem of inconsistent participation has been discussed, but there is little empirical evidence. Research on the real impacts of the Global Compact on the spread of the Corporate Social Responsibility (CSR) is also almost non-existent (cf. Fortin & Joly 2015; Shoji, 2015). This paper attempts to fill in the gap with an analysis of participation in the UN Global Compact in V4 countries. Its aim is to show that the initiative has been of limited importance in the V4 region and, thus, its future contribution to the implementation of the Post-2015 Agenda and SDGs in this part of Europe seems rather uncertain.

To fulfil the aim the paper proceeds as follows. In the beginning, we present the Global Compact initiative and the conditions of participation, as there is still little awareness of it in the V4 region. Then we move on to the analysis of participation patterns in V4 countries with the use of the data from the Global Compact database. Finally, we discuss the existing and possible future contribution of local networks to raising awareness and mobilising business and non-business sectors to accept, promote and respect key Global Compact principles. Due to the limited extent of the paper, we focus solely on the Global Compact itself and do not take into consideration other related initiatives such as Caring for Climate, Business for Peace, etc.

## **2. The Global Compact and its participants**

The Global Compact emerged at the eve of the new millennium as a joint response of the UN and prominent business leaders to the call of the former Secretary-General of the UN, Kofi Annan, to underpin world markets with a set of values (human rights, labour standards, and environmental standards). From the very beginning, it had the character of a voluntary CSR initiative that covers a wide range of human-rights, social, environmental and governance issues. It has ten principles in the core that refer to human rights, labour, environment and anti-corruption<sup>29</sup>, and are grounded in widely accepted international documents, especially the Universal Declaration of Human Rights, the Fundamental Principles on Rights at Work, the Rio Declaration on Environment, etc. Moreover, the participants are encouraged to support the implementation of UN initiatives, especially the Millennium Development goals in 2000–2015 and the Post–2015 Agenda now (Greenberg, 2015; Voegtlin & Pless, 2014; Helgason 2016).

As for the membership, the Global Compact is open to all types of companies except those with less than ten employees (micro-companies), who are expected to participate in its local

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<sup>28</sup> I.e., participation to acquire public legitimacy without any real intention to adhere to the ten principles of the UN Global Compact.

<sup>29</sup> For the full list of the ten principles see UN Global Compact 2016d.

networks. It also engages many types of non-business subjects: global and local non-governmental organisations (NGOs), public sector, cities, academia, etc. The participating companies accept these principles in a Letter of Commitment signed by their most senior officer. After that, they provide annual reports – Communications on Progress (COPs) – where they self-evaluate the implementations of the ten principles in their internal processes and business operations.<sup>30</sup> At the same time, COPs are used to maintain active membership. To classify as an active member a company has to produce a COP within two years of joining and within one year of the previous COP. If there is a delay in submitting, the company is first classified as “non-communicating”, and then expelled (delisted) from the list of participants after one year.<sup>31</sup>

For participating companies, the Global Compact offers an opportunity to shape their CSR approaches with the use of its unique toolbox. Although social learning has always played a prominent role when implementing the ten principles of the Compact, transformative partnerships, breakthrough innovation and new platforms of sharing data, experience, and information on challenges, approaches and impacts have been developed. Moreover, the Global Compact has published more than 250 guidance resources so far, which help companies to respond to various social, environmental and governance challenges. They include, for instance, the UN Global Compact Management Model, Guide on How to Develop a Human Rights Policy, A Guide for Anti-Corruption Risk Assessment, The Guide for Responsible Corporate Engagement in Climate Policy, etc. (UN Global Compact, 2016, A: 76–77).

To date, there are more than 8,900 companies with 64 million employees and 4,000 non-business signatories from 165 countries. Also, local networks in 80 countries have been established and others are emerging. The signatories have submitted more than 40,000 public reports so far (cf. UN Global Compact, 2016, A; 2016, B).

At first sight, it might seem that the Global Compact has spread worldwide. To some extent, this might happen through operations of several global and transnational companies (TNCs), such as Deloitte, Novartis or Unilever. However, most TNCs opt for the policy of subscribing to the Global Compact at the level of the mother branch but not the daughters.<sup>32</sup> Mother companies declare to disseminate information on Global Compact to their daughters via their CSR programmes but the application of the principles and approaches developed within the Global Compact is much more fluid than in cases of full participation of the daughters in the Global Compact itself or its local networks.

On the whole, the Global Compact is much more popular in Western Europe and America than in other regions. It also applies to local networks that cover Europe, North and South America but have been rare in Africa, and Central America and in some parts of the Middle East and South-East Asia. To give an illustrational example, entrepreneurs and non-businesses from Germany, France, Spain and the United Kingdom account for 2584 of 9592 (27 %) current active participants, whereas only 203 (0.02 %) headquarter in China and 200 (0.02 %) in India (UN Global Compact, 2016, C).

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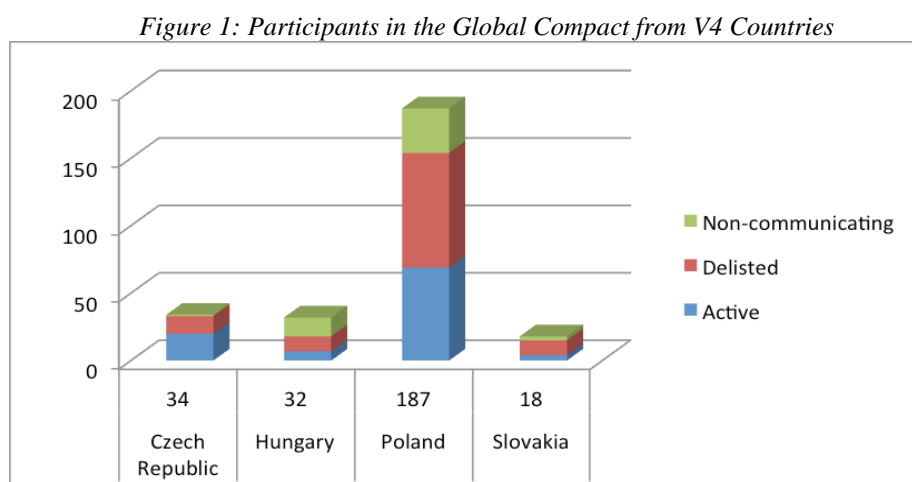
<sup>30</sup> Unlike companies, the non-business participants submit their Communications on Engagement (COEs) every second year.

<sup>31</sup> There are five usual reasons for non-communicating (and delisting) at the company level: free-riding, lack of understanding, change in leadership, lack of resources and liquidation/bankruptcy (cf. UN Global Compact, 2007: 52).

<sup>32</sup> For example, this is the case of IKEA, NIKE or Statoil.

### 3. The Global Compact in V4 countries

The V4 countries are another striking example of the imbalance. Although all of them are active members of the UN, the Global Compact has been almost neglected by their foreign policy officials so far. For example, the Ministry of Foreign Affairs of the Czech Republic has been publishing Annual Reports on the Czech Foreign Policy since 1998. The reports usually include a chapter on multilateral diplomacy and the UN as its core. However, the establishment of the UN Global Compact was not announced in the 2000 issue. Neither was it mentioned in any of its subsequent volumes. Other Czech public sector organizations have also ignored the Global Compact totally – none of them has subscribed to the ten principles yet.<sup>33</sup>



Source: Authors, with the use of data from the United Nations Global Compact, 2016, C.

In a closer look at participation in the Global Compact by V4 countries, we come to a similar conclusion. As is obvious from Figure 1, the total numbers of participants from V4 countries are low, with the only exception of Poland, where 187 subjects have joined so far. The picture is even more pessimistic when taking into account active participants only. There are 69 in Poland, 20 in the Czech Republic, 4 in Slovakia and 7 in Hungary at present.<sup>34</sup> This sharply contrasts with the involvement of entrepreneurs and non-businesses from Western European countries of comparable size<sup>35</sup>, but corresponds with the fact that little attention has been paid in V4 countries to issues of sustainable business and CSR until recently (cf. Line & Braun, 2007; Kašparová & Kunz, 2013; Chebeň et al., 2015).

The differences between V4 countries cannot be ascribed solely to the different size of their economies (although it might play some role). There is also a substantial difference between

<sup>33</sup> The picture in other V4 countries seems very similar, as there is no active public service organization on the list of active participants of the UN Global Compact at the moment. Two Hungarian organizations (Capital Public Employment Service Non-Profit Company and the Equal Opportunity Office of the Municipality of Budapest, Honorary Consular Corps Accredited to Hungary) are currently in the category of non-communicating, and the only Polish one (Dolna Odra Power Plant Complex) was delisted. In addition, there are three non-communicating cities in V4 – Budapest, Wrocław and Płock).

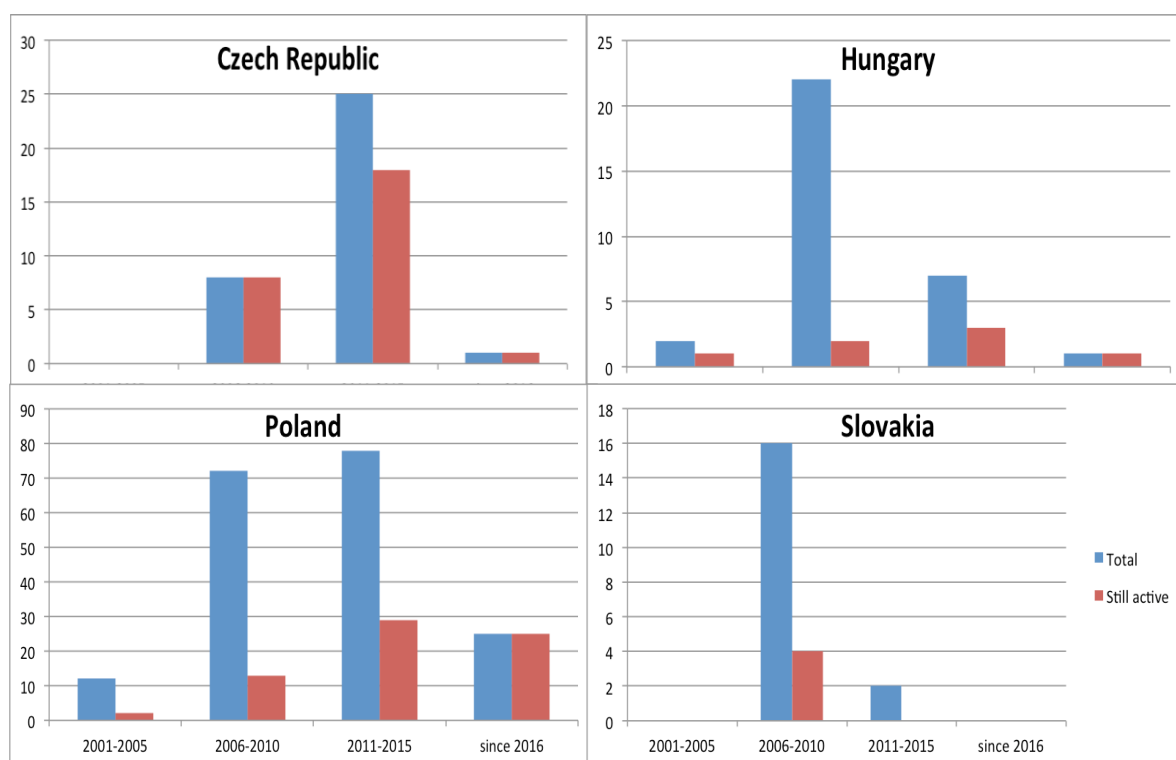
<sup>34</sup> The figure reflects the situation as of 15th September 2016.

<sup>35</sup> According to the UN Global Compact Database, there are 1091 active participants from Spain, 867 from France, 352 from Germany and 274 from the United Kingdom, to give examples comparable with Poland; and 95 from Norway, 87 from Finland, 64 from Austria, 37 from Bulgaria and 30 from Romania, to provide comparisons with other V4 countries.

Poland on the one hand and the other V4 countries on the other in terms of the lengths of participation.

The first subject from Poland (Solidny Partner Company) subscribed to Global Compact principles as early as 2001. During the first half of the 2000s, 11 others followed.<sup>36</sup> In the second half of the 2000s, interest in the Global Compact increased substantially and remained constant even between 2011-2015 if judged by the number of new entrants (blue columns in Figure 2). However, there were obviously high numbers of non-communicating and delisted subjects in both periods, which means that for most of them active participation in the Global Compact was only transitional.

Figure 2: New commitments to the Principles of the Global Compact from V4 Countries, 2000–2016<sup>37</sup>



Source: Authors, with the use of data from the United Nations Global Compact, 2016, C.

Unlike Poland, the first companies from Hungary joined only in 2005 (Adecco Szemelyzeti Kozvetito Kft.), and from the Czech Republic (J.M.KARA, s.r.o.) and Slovakia (Microsoft Slovakia, s.r.o.) in 2008. According to Figure 2, interest in the Global Compact in Hungary and Slovakia culminated during that period, whereas it seems to show an upward trend in the Czech Republic. However, there is currently only one company (Josef Skrkon – Techplast a.s.) among 20 active participants from the Czech Republic whose membership has lasted longer than two years.<sup>38</sup> The other ones joined later than in September 2014, which means that their COPs are not due yet. As for the 13 delisted participants from the Czech Republic, they include only

<sup>36</sup> However, as is obvious from Figure 2, only two subjects (including Solidny Partner Company) have managed to remain active until today.

<sup>37</sup> The reader should be aware of different scales on the y axis.

<sup>38</sup> The Association of Social Responsibility (A-CSR) is the only other case of participation longer than two years, but it fits into the category of non-business.

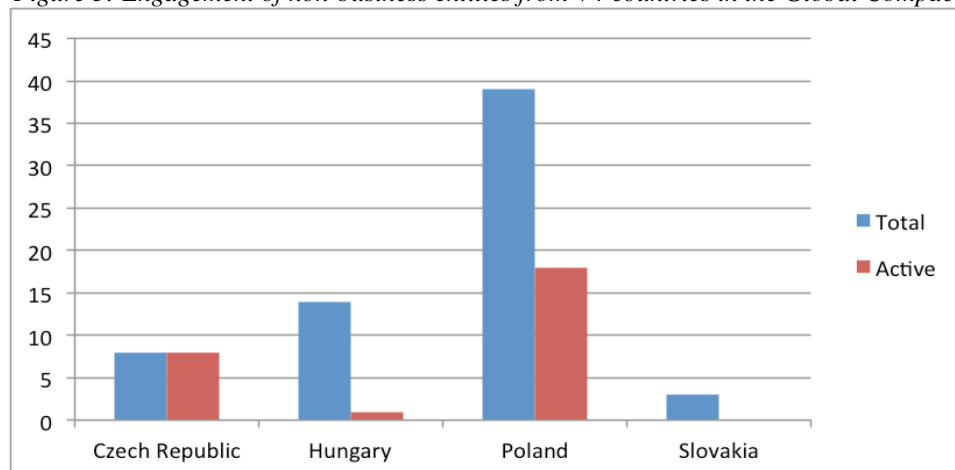
businesses. For nine of them, there is no COP or other relevant document recorded in the UN Global Compact database, while the other four reported at least once.

Consequently, the participation of entrepreneurial subjects from V4 in the Global Compact covers only the sector of 'industrial goods & services' more intensively. In all the others less than 20 companies from the region committed to Global Compact principles (United Nations Global Compact, 2016, C). The uneven distribution reflects, to some extent, the tendency of several sectors to prefer other international CSR and sustainability initiatives, such as the Global Reporting Initiative.

#### 4. Local networks in V4 countries

According to the analysis of engagement made by Bernhagen et al. (2013) in 145 countries, business participation correlates with that of countervailing groups (non-businesses) and the presence/absence of local networks. This conclusion is relevant for V4 countries.

*Figure 3: Engagement of non-business entities from V4 countries in the Global Compact*



*Source: Authors, with the use of data from the United Nations Global Compact 2016c.*

Poland was the only V4 country to participate in the Global Compact from the very beginning, and its local network emerged as soon as in 2001. To date, it has 58 members. In the Czech Republic, the local network was launched only in April 2015, but it has been experiencing a rapid boom and comprises of 27 members now. This corresponds with constant (or slightly increasing) numbers of Polish subscribers to the programme as well as the growing number of new entrants from the Czech Republic in recent years. In contrast, the Slovak and Hungarian networks have not reached the status of a formal network so far and are recorded in the Global Compact database only as emerging, which might be one of the reasons of decline of both newcomers and active participants since 2011.

The picture is quite similar when focusing on non-business engagement. Even in this case, Poland shows a considerable advance (cf. Figure 3). The activity in the Czech Republic has only just started (which explains the high ratio of active subjects), whereas it is nearly zero at the moment in the cases of Hungary and Slovakia.



## 5. Conclusion

The current state and patterns of adherence to the Global Compact in V4 countries are insufficient to make the business sector from the region contribute when searching for and implementing necessary solutions to complex global problems. Unless there is a substantial change in the near future, global goals cannot turn to local business in V4 countries and the Global Compact cannot help as a tool for implementation of the global Post-2015 agenda and the SDGs either.

To change this pessimistic outlook, the activity of all stakeholders (the UN, the governments, companies themselves and non-business entities) should increase substantially as fast as possible. Poland seems to have good starting conditions in this regard, as it is the most advanced among the V4 as for commitment to Global Compact principles. However, it lags significantly behind more advanced European countries and will have to scale-up its efforts. Also, the prospects of the Czech Republic have slightly improved recently as a new local network has emerged and has been performing rather proactively, but its actual impacts on Czech entrepreneurs will be of critical importance. As for Hungary and Slovakia, the relevant institutional and social background for the implementation of the Global Compact still has to be created.

## Acknowledgment

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## References

- [1] Ayuso, S., Roca, M., Arevalo, J. A., and Aravind, D. (2016). What Determines Principle-Based Standards Implementation? Reporting on Global Compact Adoption in Spanish Firms. *Journal of Business Ethics*, vol. 133, no. 3, 553-565.
- [2] Bernhagen, P., Mitchell, N. J., and Thissen-Smits, M. (2013). Corporate citizens and the UN Global Compact: explaining cross-national variations in turnout. *Business and Politics*, vol. 15, no. 1, pp. 63-85.
- [3] Coulmont, M. and Berthelot, S. (2015). The financial benefits of a firm's affiliation with the UN Global Compact. *Business Ethics: A European Review*, vol. 24, no. 2, pp. 144-157.
- [4] Fortin, C. and Jolly, R. (2015). The United Nations and Business: Towards New Modes of Global Governance? *IDS Bulletin*, vol. 46, no. 3, pp. 45-58.
- [5] Greenberg, D. N. (2015). Globally Responsible Leadership: Managing According to the UN Global Compact. *Academy of Management Learning & Education*, vol. 14, no. 2, pp. 297-299.
- [6] Helgason, K. S. (2016). The 2030 Agenda for Sustainable Development: Recharging Multilateral Cooperation for the Post-2015 Era. *Global Policy*, vol. 7, no. 3, pp. 431-440.
- [7] Chebeň, J., Lančarič, D., Savov, R., Tóth, M. and Tluchoř, J. (2015). Towards Sustainable Marketing: Strategy in Slovak Companies. *Amfiteatru Economic*, vol. 17, no. 40, pp. 855-871.

- [8] Kašparová, K., and Kunz, V. (2013): *Moderní přístupy ke společenské odpovědnosti firem a CSR reportování*. Praha: Grada.
- [9] Line, M. and Braun, R. (2007): Baseline study on CSR – Practices in the New EU Member States and Candidate Countries. New York: United Nations Development Program and Public Policy and Management Institute [Online] Available: [http://www.acceleratingcsr.eu/uploads/docs/BASELINE\\_STUDY\\_ON.pdf](http://www.acceleratingcsr.eu/uploads/docs/BASELINE_STUDY_ON.pdf).
- [10] Pinget, L. (2015). In Whose Interest? The UN's Strategic Rapprochement with Business in the Sustainable Development Agenda. *Globalizations*, vol. 13, no. 2, pp. 188-202.
- [11] Shoji, M. (2015). Global Accountability of Transnational Corporations. The UN Global Compact as a Global Norm. *Journal of East Asia and International Law*, vol. 8, no. 1, pp. 29-45.
- [12] United Nations Global Compact (2016, A): A global movement of sustainable companies and stakeholders working to create the world we want. [Online]. Available: <https://www.unglobalcompact.org>.
- [13] United Nations Global Compact (2016, B): Making global goals local business. A new era of responsible business. [Online]. Available: <https://www.unglobalcompact.org/library/4321>.
- [14] United Nations Global Compact (2016, C): Participants database. [Online]. Available: <https://www.unglobalcompact.org/what-is-gc/participants>.
- [15] United Nations Global Compact 2007: Annual Review. 2007 Leaders Summit. [Online]. Available: [https://www.unglobalcompact.org/docs/news\\_events/8.1/GCAAnnualReview2007.pdf](https://www.unglobalcompact.org/docs/news_events/8.1/GCAAnnualReview2007.pdf).
- [16] Voegtlin, C. and Pless, N. M. (2014). Global governance: CSR and the role of the UN Global Compact. *Journal of Business Ethics*, 122(2), 179-191.

## INDEPENDENT REGULATORY INSTITUTIONS IN THE GLOBAL ECONOMY

Daniela Zemanovičová<sup>1,a,\*</sup>, Livia Vašáková<sup>2,b,\*</sup>

<sup>1</sup>Comenius University in Bratislava, Faculty of Management, Odbojárov 10, 820 05 Bratislava, Slovak Republic

<sup>2</sup>European Commission, Representation in Bratislava, Palisady 29, 81106 Bratislava, Slovak Republic

<sup>a</sup>daniela.zemanovicova@fm.uniba.sk, <sup>b</sup>Livia.Vasakova@ec.europa.eu

\*Corresponding author

**Abstract:** Effective regulation and regulators are crucial in the global market economy setting. The article is dedicated to the issue of independent regulators and requirements for their efficient functioning. We explain several dimensions of the term independence such as functional and political independence, de jure and de facto independence. De jure and de facto independence are not necessarily identical, because a country may have a formal legislative framework effectively set but this does not necessarily translate into the real decision-making of the regulator. Based on the knowledge gathered from research work in this field and our own research, we try to identify relevant parameters of the de political and functional independence of the Slovak competition authority. Afterwards, these parameters are compared with a similar regulatory institution abroad (UK). On the basis of the analysis and comparison we indicate possibilities for improvements. We propose to introduce an open selection procedure for the post of the Chairman and Vice-Chairman of the Anti-Monopoly Office and to cancel the possibility to renew the mandate. We propose amending the monocratic first-instance decision-making system to a collective system. In the second-instance proceedings decisions are taken by the Council, but it is necessary to change the method of board members selection. Next, we propose launching of a notification system of management and decision-makers meetings with politicians, businessmen in particular if those are in proceedings before the Office. In addition to the issue of independence, it is important to pay attention also to the accountability of the regulator.

**Keywords:** regulation, independence, independent regulatory institutions.

**JEL Classification:** K20, K21, K23.

### 1. Introduction

V globálnej ekonomike je nastavenie efektívnej regulácie relevantné, pričom dochádza k rozširovaniu nezávislých regulátorov (Gilardi at al., 2006). V posledných rokoch sa v Európe model samostatných regulátorov stal preferovaným spôsobom regulácie v mnohých oblastiach (Christensen & Laegreid, 2006). Nezávislé regulačné inštitúcie vznikajú, aby sa posilnila stability a dôveryhodnosť regulácie (Guildi, 2015). Viaceré štúdie sa v ostatnom období venovali otázke ako investičné rozhodnutia firiem závisia od toho, ako elity vnímajú kvalitu národných regulačných systémov, ďalšie štúdie boli zamerané na to, ako je možné pomôcť podporiť kredibilný záväzok, ktorý chráni trhovú mechanizmus (Bertelli & Whitford, 2009).

Cieľom príspevku je zmapovať teoretické názory na reguláciu a nezávislé regulačné inštitúcie, vymedziť kľúčové parametre nezávislosti a na príklade Protimonopolného úradu SR

(ďalej aj PMÚ, úrad) posúdiť nezávislosť inštitúcie. Na základe komparácie so súťažnou inštitúciou vo Veľkej Británii naznačiť v akých parametroch by bolo potrebné posilniť nezávislosť súťažnej autority a v závere formulovať odporúčania. Vychádzame z relevantnej literatúry, informácií vyžiadaných z PMÚ SR, konzultácií s expertmi, analýzy profesionálnych životopisov a vlastných skúsenosti.<sup>39</sup>

## 2. Teoretický rámec

Teoretický základ pre nezávislé inštitúcie môžeme nájsť v teórii verejnej voľby a princípál-agent modeloch. Teória verejnej voľby (*Public Choice Theorie*) skúma zákonitosti, mechanizmy, problémy politického rozhodovania a analogicky k ekonomickému trhu analyzuje trh politicky a motivácie jeho aktérov. Politici a celý verejný sektor sa správajú podobne ako subjekty na trhu. Snažia sa maximalizovať svoju užitočnosť a preferujú krátkodobé a voličsky atraktívne riešenia, pred dlhodobými, ktoré však majú pozitívny vplyv na verejné blaho. Teória verejnej voľby je základom aj pre teóriu kredibilného záväzku. Podľa nej sa politici riadia svojim vlastným záujmom a majú tendenciu preferovať krátkodobé riešenia pred dlhodobými, ktoré sú vo verejnom záujme. Táto teória pozitívne vníma regulátorov, ktorých považuje za viac dôveryhodných ako politikov.

Model princípála a agenta (Gilardi & Braun, 2002) analyzuje vzťahy medzi subjektmi (verejnými alebo súkromnými), z ktorých jeden (princípál) deleguje právomoci na iný subjekt (agenta). Agent sa následne stáva tým, kto koná v mene princípála. Tento model sa v literatúre používa ako základ pre teoretické objasnenie dôvodov vzniku nezávislých regulačných orgánov. V tomto prípade je princípálom vláda, resp. zákonodarca a agentom je nezávislý regulačný orgán. Princípál sa rozhoduje pre inštitucionálnu podobu a rozsah nezávislosti, ktorú udelí agentovi. Kvalitatívne vyššia forma vzťahu dvoch subjektov predstavuje model splnomocniteľa (*trustor*) a splnomocnenca (*trustee*). Za vysoký stupeň nezávislosti sa považuje stav, kedy splnomocniteľ neodvolateľne presunie svoje politické vlastnícke práva (*political property rights*), právomoc vykonávať verejnú moc, na inú inštitúciu (Majone, 2001). Princíp spojenca hovorí, že princípál je viac náchylný poskytnúť vysokú voľnosť agentovi, ak majú spoločné preferencie (Ennsner-Jedenastik, 2016).

Ďalší prístup sa snaží identifikovať faktory, ktoré majú vplyv na vytváranie, fungovanie a výkonnosť regulátorov. Venuje sa viac historickému, politickému a administratívne kontextu (napr. Pollit & Bouckaert, 2004; March & Olsen, 1989). Nová inštitucionálna ekonómia sa zameriava najmä na otázku ako sa organizačné formy môžu rozširovať (Powell & DiMaggio, 1991). Ďalší autori sa pokúšajú vysvetliť dôvody, prečo nezávislé agentúry vznikajú a určiť ich základné charakteristiky. Talbot (2004) identifikoval tri základné charakteristiky – i) štrukturálne oddelenie a vytvorenie špecializovanej inštitúcie (*single-purpose*), ii) na výkon zameraný manažment (*performance management*) a určenie výkonnostných cieľov, iii) deregulácia dosahovaná cez delegovanie personálnej a finančnej kontroly. Vlády sú náchylnejšie delegovať právomoci na nezávislých regulátorov ak potrebujú zvýšiť dôveryhodnosť ich regulačných záväzkov a ak sa snažia zviazať ruky svojim nástupcom (Gilardi, 2008). Predmetom výskumu je aj otázka, za akých podmienok sú agentúry výkonné a ako by mali byť riadené a kontrolované. Dôvodmi na ustanovenie nezávislých regulátorov

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<sup>39</sup> Autorka v rokoch 2004 – 2012 pôsobila ako podpredsedníčka PMÚ SR.

sú najmä odbornosť, kredibilný záväzok<sup>40</sup>, presunutie viny,<sup>41</sup> flexibilita, stabilita<sup>42</sup>, účinnosť a efektívnosť (Pollit et al., 2004). Výsledkom je, že nezávislé regulačné orgány vedú k lepším výkonom, čo sa odráža na lepších výkonoch trhov (Gilardi & Braun, 2002).

Najčastejšie sa uvádza príklad potreby nezávislosti centrálnych bank. Ale aj regulácia cien elektrickej energie vyžaduje nezávislosť, pretože politická motivácia môže viesť krátkodobo k poklesu cien, ale dlhodobo môže mať za následok nedostatok investícií do infraštruktúry. Pokiaľ ide o ochranu hospodárskej súťaže, odporúčania relevantných medzinárodných inštitúcií (Svetovej banky, Medzinárodného menového fondu, OECD, UCTAD, WTO) odporúčajú nezávislé postavenie súťažných inštitúcií. Navyše v ostatnom období sa súťažné authority venujú viac odborným témam, napríklad ekonomickým analýzam, kvantifikácii poškodenia spotrebiteľa (White, 2014). Nezávislosť, vrátane de facto nezávislosti patrí medzi kľúčové prvky kvalitnej súťažnej politiky (Voigt, 2009).

### 3. Nezávislosť a jej aspekty

Pojem nezávislosť môžeme vnímať z rôznych pohľadov. Môže znamenať organizačné osamostatnenie sa, neprepojenosť medzi jednotlivými subjektmi, nedostatok ovplyvňovania alebo riadenia jedného subjektu iným subjektom. Nezávislosť súdnictva sa dá napríklad posúdiť cez rozsah diskrečnej právomoci, ktorú majú sudcovia vo vzťahu k predstaviteľom vlády (Feld & Voigt, 2003). Nezávislosť súťažných autorít znamená aj to, že sa rozhodnutia prijímajú aj vtedy, ak nie sú v záujme exekutívy (Voigt, 2009). Nezávislosť je chápaná ako rozvinutie konceptu de facto nezávislosti, ktorá sa prejavuje v každodennej práci regulačných agentúr (Maggetti, 2007). Prirodzene v parlamentnej demokracii nemôžu byť inštitúcie úplne nezávislé, napríklad aj preto, že vládna väčšina môže zmeniť ich status zmenou legislatívy. Regulačné úrady nezávislé na politickej moci čelia kritike, ktorá namieta najmä „demokratický deficit“ a možnosť ovládnutia regulátora regulovanými subjektmi.

Nezávislosť inštitúcie má viaceré dimenzie, napr. inštitucionálnu a intelektuálnu, de jure a de facto nezávislosť. V rámci inštitucionálnej nezávislosti považujeme za dôležité vymedzenie nezávislosti voči podnikateľom, voči politikom a z hľadiska financií (Zemanovičová, 2013). Funkčná nezávislosť (neutralita, nestrannosť, prijímanie rozhodnutí nezávisle na záujmoch zúčastnených strán) má zabezpečiť všetkým podnikateľom rovnaké postavenie vo vzťahu k verejnej moci. Politická nezávislosť predpokladá odovzdanie určitých právomocí do pôsobnosti nevolených odborníkov, ak odbornosť je dôležitejším kritériom pre fungovanie regulátora. Dôvodom pre nezávislé postavenie regulátora je najmä oddelenie jeho výkonu od politického cyklu.

Nezávislosť de jure znamená, že zákonný rámec ustanovil poistky nezávislosti. Ale formálna nezávislosť nie je ani nevyhnutnou ani postačujúcou podmienkou pre de facto nezávislosť regulátora na politikoch a regulovaných odvetviach (Gilardi & Maggetti, 2011). Pojem nezávislosť de facto charakterizuje skutočnú nezávislosť agentúr (Maggetti, (2007). Formálna nezávislosť je kľúčová premenná pri vysvetlení procesu delegovania, de facto nezávislosť je dôležitá pri vysvetlení dôsledkov delegovania na účinnosť regulačnej governance a transformáciu politik (Gilardi, 2011). Na skutočnú nezávislosť má vplyv viacero faktorov, ktoré

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<sup>40</sup> Regulačné authority sú izolované od politického vplyvu a volebných záväzkov, majú dlhší časový horizont ako politici, a tým môžu zvyšovať dôveryhodnosť záväzkov.

<sup>41</sup> Regulačné orgány umožňujú politikom vyhnúť sa obvineniu, napr. ak regulátor prijíma nepopulárne opatrenia.

<sup>42</sup> Nezávislý regulátor poskytuje stabilné a predvídateľné regulačné prostredie.

sú veľmi ťažko merateľné, alebo dokonca nie sú priamo merateľné vôbec. De facto nezávislosť je pozitívne ovplyvnená existenciou „*veto players*“, zapojením inštitúcie do medzinárodných sietí a vekom inštitúcie (Maggetti, 2007). Preto je podľa nášho názoru dôležité, venovať pozornosť výberu lídrov inštitúcie.

#### 4. Návrh parametrov na meranie de iure a de facto nezávislosti

V tabuľkách 1 a 2 uvádzame návrh parametrov, ktorý by sa podľa nášho názoru mali využívať na posudzovanie nezávislosti súťažnej inštitúcie. Vychádzame z relevantnej literatúry a vlastných návrhov.

Table 1: Politická nezávislosť súťažnej inštitúcie de iure a de facto

Nezávislosť de iure	Nezávislosť de facto
<b>Postavenie inštitúcie.</b> Nezávislosť inštitúcie je vyššia, ak nie je súčasťou priamej hierarchie štátnej správy.	Na rozhodnutia a chod inštitúcie nemá vplyv vláda, politické strany.
<b>Postup pri výbere a menovaní predsedu.</b> Vyššia nezávislosť, ak sa výber uskutoční cez transparentné výberové konanie a uskutoční sa verejné vypočutie. Nízka nezávislosť ak je to dohoda politických strán.	Majú politici priamy/nepriamy vplyv na výber predsedu? Existujú pochybnosti o nezávislosti predsedu/podpredsedu úradu?
Ako je definovaný <b>líder inštitúcie</b> ? Sú stanovené požiadavky na odbornosť, prax v oblasti súťaže, integritu?	Odbornosť, skúsenosti v oblasti súťaže pred nástupom do funkcie. Sú zverejňované?
Možnosť <b>odvolania predsedu</b> . Vyššia nezávislosť ak sú dôvody jasne uvedené v zákone.	Ako ukončili svoje funkčné obdobie predsedovia/podpredsedovia úradu? Uplynutím funkčného obdobia, odvolaním, rozhodnutím o ukončení mandate?
<b>Dĺžka mandátu.</b> Vyššia nezávislosť ak presahuje volebné obdobie bez možnosti opakovaného zvolenia.	Reálna dĺžka mandátu zodpovedá zákonom stanoveným lehotám?
<b>Kolektívny/monokratický spôsob rozhodovania.</b> Vyššia nezávislosť ak je kolektívny spôsob rozhodovania.	Kvalifikovanosť a integrita decíznych pracovníkov (predseda, podpredseda, členovia Rady úradu).
<b>Postup pri výbere, návrhu a menovaní členov Rady úradu?</b> Vhodné je otvorené výberové konanie.	Môžu mať politické strany vplyv na výber? Nezávislosť posilňuje otvorený konkurz, zverejnenie kritérií, na základe ktorých sú predsedom navrhovaní kandidáti.
Sú stanovené <b>požiadavky na člena Rady úradu</b> ? Vyžadujú sa skúsenosti s hospodárskou súťažou, reguláciou? Členmi Rady by mali byť odborníci so skúsenosťami v oblasti súťaže, regulácie, ekonomickými analýzami.	Odbornosť, skúsenosť a integrita členov Rady úradu. Boli pochybnosti o odbornosti, integrite členov Rady?
<b>Preskúmanie rozhodnutí.</b> Riešenie odvolaní bez vplyvu politikov je dôležité pre zabezpečenie nezávislosti.	Odbornosť pracovníkov, ktorí preskúmajú rozhodnutia. Spôsob ich menovania.
Existuje systém <b>ohlasovania stretnutí vedenia úradu</b> , decíznych pracovníkov s politikmi? Ak áno posilňuje to transparentnosť a nezávislosť.	Ako sa realizuje, kontroluje?
<b>Spôsob financovania.</b> Čitateľne stanovené pravidlá financovania a viacdrojové financovanie posilňujú nezávislosť regulátora.	Stabilita rozpočtu počas dlhšieho obdobia, ak nedochádza k významným zmenám naznačuje to vyšší stupeň nezávislosti.

Source: Autorky

Table 2: Funkčná nezávislosť súťažnej inštitúcie de jure a de facto

Funkčná nezávislosť de jure	Funkčná nezávislosť de facto
Existujú <b>post zamestnanecké obmedzenia</b> (predsedu/podpredsedu, riaditeľov odborov)?	Koľko pracovníkov prešlo do súkromného sektora, resp. do spoločnosti, ktoré boli v konaní? Napr. na web stránke úradu by mohli byť životopisy podľa vzoru a tie by musel úrad aktualizovať ešte 5 rokov po skončení funkcie.
Existuje u <b>členov rady potenciálny konflikt záujmov</b> , ako je riešený?	Napr. môžu informácie využiť v advokátskej praxi, v podnikaní?
Existuje systém <b>ohlasovania stretnutí</b> vedenia úradu, decíznych pracovníkov <b>s podnikateľmi</b> , najmä ak sú v konaní?	Ako systém ohlasovania reálne funguje? Kto ho kontroluje?
<b>Kto rozhoduje na 1.stupni</b> o začatí /nezačatí šetrenia, jeho ukončení, začatí správneho konania, o jeho ukončení?	Ako reálne rozhodovací systém funguje? Zverejňujú sa informácie?
Má súťažná inštitúcia <b>Etický kódex</b> ?	Obsahuje relevantné oblasti? Kto vykonáva kontrolu dodržiavania?
Aktívne <b>zapojenie do medzinárodných sietí</b> napr. International Competition Network, European Competition Network, OECD.	Počet aktívnych vystúpení, publikovanie odborných článkov.

Source: Autorky

Uvedené parametre je možné využiť aj pre hodnotenie nezávislosti ďalších ekonomických regulátorov. Po definovaní parametrov politickej a funkčnej nezávislosti sme porovnali parametre nezávislosti Competition and Market Authority (CMA) vo Veľkej Británii a Protimonopolného úradu v SR. CMA patrí medzi špičkové, rešpektované súťažné inštitúcie. Rozhodovací proces je nastavený tak, aby zabezpečil robustné, transparentné a rýchle rozhodovanie (Currie et al., 2014). PMÚ SR síce patrí medzi mladšie súťažné authority, ale má už viac ako 25 ročnú skúsenosť s aplikáciou súťažných pravidiel. Na základe výsledkov komparácie sa pokúsime navrhnúť relevantné opatrenia na posilnenie nezávislosti.

## 5. Conclusion

Jednou z kľúčových podmienok dobrej regulácie je nezávislosť regulačnej inštitúcie. De iure a de facto nezávislosť sa nemusia zhodovať, pretože krajiny môžu mať formálne nastavený legislatívny rámec, ktorý predpokladá nezávislosť, ale reálne sa to v rozhodovaní regulátora nemusí prejavovať. Nezávislosť de facto je relevantná. Ak je oslabená môže podkopávať samotnú myšlienku vytvárania nezávislých regulačných inštitúcií, pretože predpokladané zlepšenia, vyplývajúce z nezávislého statusu sa neprejavujú. V kontexte Slovenska považujeme za kľúčové zaoberať sa reálnym výkonom regulátorov, pretože právny rámec je porovnateľný s vyspelými krajinami, ale problém vidíme skôr v aplikácii. Vytvorenie de jure nezávislosti vytvára isté inštitucionálne prekážky pre politizáciu regulátorov, ale môže viac motivovať obsadzovať líderske pozície regulátora osobami, ktoré nebudú vzdorovať vplyvom politikov a podnikateľov. Na príklade PMÚ SR možno konštatovať, že de jure nezávislosť je iba nutnou, ale nie postačujúcou podmienkou. Dokonca štúdie ukazujú (Ennsner-Jedenastik, 2016), že vyššia formálna nezávislosť zosilňuje snahu politikov dosadzovať na líderske pozície svojich stúpencov. Takýto trend možno vidieť aj v SR. Po zavedení formálnych obmedzení v roku 2001 sa pri menovaní predsedu v roku 2011 a 2016 obnovili politické nominácie.

Vo Veľkej Británii sa proces menovania do funkcie predsedu CMA riadi kódexom správania, ktorý vydáva Komisár pre dohľad nad menovaním do verejných funkcií. Súčasným predsedom CMA je D. Currie - britský profesor ekonómie, odborník na reguláciu a hospodársku súťaž. Koncepciu úradu načrtol na verejnej prednáške na Law Society. Funkčné obdobie

predsedu je päť rokov bez možnosti opätovného znovuzvolenia. Spôsob výberu predsedu PMÚ SR by sa nemal konať za zatvorenými dverami, na základe dohody politických strán, ale na základe otvoreného konkurzu, za účasti odborníkov aj z externého prostredia a verejnej prezentácie vízie. Dôraz je potrebné klásť na odbornosť. Navrhujeme zrušiť možnosť vykonávať funkciu predsedu dve funkčné obdobia, ale skôr predĺžiť funkčné obdobie.

Vo Veľkej Británii prvostupňové rozhodnutia prijíma Rada CMA, kolektívny orgán zložený z dvanástich členov. Členovia sú menovaní na základe ich vedomostí a skúseností. Iné aktivity členov nemajú vzbudzovať ani zdanie podozrenia zo zaujatosti. Rada je tvorená zo svetovo uznávaných odborníkov v oblasti hospodárskej súťaže alebo regulácie. Navrhujeme v SR zmeniť monokratický spôsob prvostupňového rozhodovania za kolektívny. Druhostupňové rozhodnutia vydáva v SR síce kolektívny orgán - Rada úradu, ale spôsob výberu členov navrhujeme zmeniť. Mal by prebiehať otvorený konkurz, členovia rady by mali byť odborníci v oblasti hospodárskej súťaže, regulácie, ekonomických analýz. Preskúmať potenciálny konflikt záujmov u členov rady ešte pred uvedením do funkcie, aktualizovať ho a zverejniť.

Na posilnenie funkčnej a politickej nezávislosti navrhujeme zaviesť systém oznamovanie stretnutí vedenia úradu a decíznych pracovníkov s politikmi, podnikateľmi, najmä ak sú v konaní na úrade. Často sa v súvislosti s nezávislosťou inštitúcií diskutuje otázka ich legitimacy, že nepodliehajú priamo systému demokratickej voľby a politickej zodpovednosti. Preto je potrebné vyvažovať nezávislosť mechanizmami zodpovednosti (*accountability*). Zodpovednostné mechanizmy môžeme vnímať ako vzťahy medzi nositeľom práv (principal) a agentom, zodpovedným za napĺňanie alebo zabezpečovanie tohto práva. Je ťažko si predstaviť, že poskytnutie významnej zodpovednosti na inštitúcie, aplikujúce zákon, je bez akýchkoľvek prostriedkov pre volených predstaviteľov požadovať, aby regulátor skladal účty (Kovacic, 2014). Dosiahnutie *accountability* je možné napr. procesnými pravidlami, poskytovaním informácií, dôveryhodnosťou, predvídateľnosťou a transparentnosťou, kvalitným preskúmaním rozhodnutí nezávislých regulátorov a hodnotením ex post výkonnosti.

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## References

- [1] Christensen, T., & Laegreid, P. (2006). *Autonomy and Regulation. Coping with Agencies in the Modern State*. Cheltenham: Edward Elgar Publishing.
- [2] Gilardi et al., F. (2006). *Regulation in the Age of Globalization: The Diffusion of Regulatory Agencies across Europe and Latin America*. In Privatization and Market Developments in Public Policy Ideas. England: Edward Elgar Publishing.
- [3] Gilardi, F. (2008). *Delegation in the Regulatory State: Independent Regulatory Agencies in Western Europe*. Cheltenham, UK: Edward Elgar Publishing.
- [4] Gilardi, F. (2011). *The Independence of Regulatory Authorities*. In Handbook on the Politics of Regulation. Cheltenham: Edward Elgar Publishing.
- [5] Gilardi, F., & Maggetti, M. (2011). *The Independence of Regulatory Authorities*. In Handbook on the Politics of Regulation. Cheltenham: Edward Elgar Publishing.



- [6] March, J. G., & Olsen, J. P. (1989). *Rediscovering Institutions*. New York: The Free Press.
- [7] Pollit, C. (2004). *Agencies: How Governments Do Things Through Semi-Autonomous Organizations*. London: Palgrave.
- [8] Pollit, C., & Bouckaert, G. (2004). *Public Management Reform. A Comparative Analysis* (2nd ed.). Oxford: Oxford University Press.
- [9] Powell, W., & DiMaggio, P. (1991). *The New Institutions in Organizational Analysis*. Chicago: University of Chicago Press.
- [10] Talbot, C. (2004). *The Agency Idea: Sometimes Old, sometimes New, sometimes Borrowed, sometimes Untrue*. In Pollit and Talbot (eds.): *Unbudded Government*. London: Routledge.
- [11] Bertelli, A. M., & Witford, A. B. (2009, July). Perceiving Credible Commitments: How Independent Regulators Shape Elite perceptions Of Regulatory Quality. *British Journal of Political Science*, 39, 517-537.
- [12] Currie at al., D. (2014). Institutional Design and Decision-Making in the Competition and Market Authority. *Competition Policy International*, 10(1), 11-23.
- [13] Ennsner-Jedenastik, L. (2016). The Politicization of Regulatory Agencies: Between Partisan Influence and Formal Independence. *Journal of Public Administration Research and Theory*, 507-518.
- [14] Feld, L. P., & Voight, S. (2003). Economic Growth and Judicial Independence. *European Journal of Political Economy*, 497-527.
- [15] Gilardi, F., & Braun, D. (2002). Delegation with Respect to Principal-agent Theory. *Politische Vierteljahresschrift*, 43(1), 147-161.
- [16] Guidi, M. (2015). The Impact of Independence on Regulatory Outcomes: The case of EU Competition policy. *JCMS-Journal of Common Market Studies*, 53(6), 1195-1213.
- [17] Kovacic, W. E. (2014). Politics and Partisanship in the US federal antitrust enforcement. *Antitrust Law Journal*, 79(2), 687-711.
- [18] Maggetti, M. (2007). De facto Independence after Delegation: A fuzzy-set Analysis. *Regulation & Governance*, 271-294.
- [19] Majone, G. (2001). Two Logics of Delegation. Agency and Fiduciary Relations in EU Governance. *European Union Politics*, 2(1), 103-121.
- [20] Voigt, S. (2009). The Effects of Competition Policy on Development – Cross-Country Evidence Using Four New Indicators. *Journal of Development Studies*, 45(8), 1225-1248.
- [21] White, L. J. (2014). Introduction: Antitrust and regulatory update. *Review of Industrial Organization*, 45(4), 323-324.
- [22] Zemanovičová, D. (2013). Inštitucionálny rámec pre efektívnu aplikáciu súťažných pravidiel. *Ochrana hospodárskej súťaže - Právny rámec pre ekonomiku, ekonomický rámec pre právo* [elektronický zdroj]. Bratislava: Univerzita Komenského v Bratislave, 8-11.

## MEGATRENDS OF GLOBAL TRANSPORTATION SYSTEMS DEVELOPMENT: THE RUSSIAN SEGMENT

Natalia A. Zhuravleva<sup>1,a,\*</sup>, Alexander U. Panichev<sup>2,b,\*</sup>

<sup>1</sup>Emperor Alexander I St.Petersburg State Transport University, Department of Transport  
Economics, Moskovsky pr. 9, Saint Petersburg, 190031, Russia

<sup>2</sup>Emperor Alexander I St.Petersburg State Transport University, Department of Transport  
Economics, Moskovsky pr. 9, Saint Petersburg, 190031, Russia

<sup>a</sup>zhuravleva\_na@mail.ru, <sup>b</sup>panichev\_a\_y@mail.ru

\*Corresponding author

**Abstract.** This article is devoted to analysis of the forecast models of the future status of rail transportation systems, including those of the Russian economy segment, in the newly-generated world economic order. Research of the major megatrends that would determine the future of Global Transportation Systems, has been proposed. The effect of changes in the product supply chain: transition from the "idea-production-sale-delivery" scheme to the "sketch (digitalization)-instant order-delivery" scheme on development of the Global Transportation Systems is being investigated. The forecast for change in the balance of the regional and national economies, and its impact on the displacement of the supplies gravity, has been considered. Influence of the innovative technologies on production and consumption of energy, which changes the efficiency of the distribution systems including transportation systems, is under analysis. Model image of the prospective consumer of transportation service and his requirements to the transportation systems: magnetic levitation in freight traffic and high-speed passenger transportation, have been generated. At the same time, the parameters of changes in the age structure of consumers and imbalance of the labor force along with the increasing urbanization have been taken into account. The priority of the long-term investment projects in railway infrastructure with guaranteed repayment of investments. Assessment of the multiplier of direct investment demand, also taking into account the agglomeration effects of investment in the Russian railway infrastructure, which allows to consider it as the basic element for admission to the Global Transportation System, and possibility of creating the new world pole of social wealth in Russia has been forecasted has been carried out.

**Keywords:** Megatrends determining the future of transportation systems; rail transportation, speed and convergence of transportation system.

**JEL Classification:** F 02, R40, L92

### 1. Introduction

Numerous researches in the sphere of transport economy situation and development require full-scale approach to understanding of the future society as a consumer of the transport services (Adom et al., 2016). It is essential to determine the course of development of the transport infrastructure from the point of both transport means and segments of transportation: cargo services and passenger traffic. Current economic situation that is determined as a recession, gives a chance to total reformation of future economic affairs. It is evident that the mankind will have

to address the challenges of the civilization (environment, food supplies, portable water, alternative sources of energy, poverty) and pass to new technologic production pattern based on genetic engineering, information, nano- and other green and blue technologies. It is related to finding new sources of world economic development. And this is not a remote future already.

The world economic map will change significantly. First of all it is related to European economy (for Russia it is one of West - East transport corridor borders). Its current burden with the euro-zone and euro preservation problems, deprives it of the leading role in “new technology wave”, as a result the European economy will be able to become only the fifth one in the XXI century after USA, China, Japan, South Korea.

Besides the future of post-crisis economy situation will change its structure considerably (including home economic balances that is quite important) by destroying artificial assistance of the world economy from G20 Central Bank side and their Governments. The market will regain its function of the world process regulation, in USA, Great Britain, and OECD countries as well. Sooner or later excessive consumption trend will vanish against the background of trade and budget deficit, thus creating new sources of economic growth (Shavshukov & Zhuravleva, 2015).

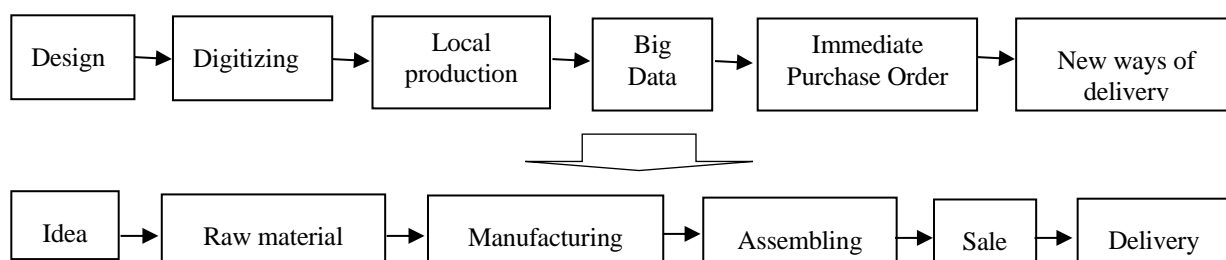
Analysis and modeling of these conditions is of high priority since global transportation systems shall satisfy the totally modified demands, their new geography and the transportation services in general, while the speed and distance efficiency will become the key elements.

## 2. Analysis of the main trends that determine the future of the transport systems

First of all, the Global Transport System (GTS) shall be considered as a system of the infrastructural elements of different transport means, transport and logistic organizations and state control regulations, international agreements that ensure efficient cargo and passenger traffic aimed to safety and competitive improvement and economic growth. The future of GTS is related to megatrends of the world development, since it is a basic element of the infrastructural development, and a generator of innovations that form grounds of the prospective economic values.

This Research paper includes megatrends of the civilization development formalized by the World Bank. The basic and characteristic megatrend is the technological progress general modification. Its influence to the future development is estimated as 79%. The technological progress in its turn will influence the supply chain, particularly it will bring to shifting from the traditional scheme to a new scheme:

*Figure 1: Forecast of the supply chain modification*



Source: own processing

The second thing is that changes in distribution of the work economy forces can become a megatrend itself. Its influence is estimated as 59% from the sum total of all other factors that influence the future. As a result, increase of the sales turnover between Europe and Asia is expected. It will have a positive influence to transport and logistic sector, particularly:

1. Formation of local high-speed transport systems in developing countries;
2. Change of supply geography;
3. Traffic flows shifting from western ports to the East and from south ones to the North.

It is expected that by 2050 the gross domestic products (GDP) of G7 countries (China, India, Brazil, Russia, Indonesia, Mexico, Turkey) will exceed GDP of E7 countries (USA, Japan, Germany, Great Britain, France, Italy, Canada) twice. Besides purchasing power parity GDP will change: from \$33.5 tn for G7 and from \$35.4 tn for E7 in 2013 to \$69.3 tn and \$138.2 tn in 2050 accordingly.

Demographic transition will have a considerable influence by changing the geography and structure of the passenger traffic. Such influence is estimated as 53% in the general structure of the civilization modifications. The population of the World can increase to 9.5 bn persons in 2050.

The main changes are already evident – it is the age pattern of the consumers and producers related to ageing of the population and misbalance of labor forces distribution. While in 2000 - 2014 the life period increased from 47 to 69 years, in 2050 (world average age) will increase to 76 years.

Urban extension will grow significantly and it is almost a worldwide trend. According to the forecast by 2050 over 90% of the population will be connected to megalopolises. It will reprioritize passenger traffic towards development of urban transport infrastructure: high population density in the cities will influence the cargo and passenger traffic and the speed will become the main criteria of the transport, both for between-city and in-city transportation.

Cease of the recourses limitation, mainly hydrocarbon ones, development of the alternative and eco energy resources under changing climate conditions is also a very important megatrend. Its influence to the changing economy is over 50%. This mega trend will change not only the production practice and energy consumption but also efficiency of distributive networks including the transport ones. Key suppliers of the raw materials for the countries with new technological mode will be (*%from the world supply*):

**USA** – beryllium (90%), borates (30%);

**Brazil** – niobium (92%);

**Turkey** – borates (38%)

**South Africa** – chrome (43%), platinum-group metals (61%);

**Kazakhstan** – chrome (20%);

**Russia** – platinum-group metals (27%);

**China** – antimony (87%), fluorspar (56%), gallium (69%), germanium (59%), indium (58%), magnesite (69%), magnesium (86%), native graphite (69%), phosphorites (38%), heavy rare-earth elements (99%), light rare-earth elements (87%), metal silicon (56%), wolframium (85%). (Heym, A., 2015)

We can systematize this reasoning as follows:

*Table 1. Consequences of the mega trends influence to global transport system (GTS)*

Mega trends Consequences of their influence to GTS	Change of the supply chains	Increase of the turnover between Europe and Asia	Change of age composition of the consumers and workers	Resources limitation and alternative fuels	Urban extension
Change of sale-purchase model	Growth of new product creation points	Local transport systems entry to the international corridors	Ageing of population and misbalance of labor forces	New carriage technologies, particularly based on magnetic levitation	High population density in the cities and demand for reducing the time required for traveling between them
Flexible models of gravity transportation	Change of travel routing	Change of supply geography	Change of preferences in consumption and work conditions	Multimodal transportation	Creating international high-speed passenger services
Changes in standards of accumulation	Local manufacturi ng	Traffic flows shifting from west and south ports to the East and North	Satisfaction of basic needs	Change of demand behavior for resources	Space restriction and growth of mobility
Change of capital-output ratio	Immediate purchase order	Country output indices movement	Digital thinking	Decrease of resource intensity and material consumption	Development of the services

*Source: own processing*

Influence of the specified megatrends to development of the global transport systems in 2030 is estimated as \$ 11.3 tn investments, \$ 5 tn among which shall be directed to rail infrastructure.

Structurally these megatrends are reflected in two main documents. ‘White Paper Transport–2050’ that includes Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system and ‘The Silk Road Economic Belt and the 21st Century Maritime Silk Road’. While the Russian Federation territory is included into the both documents as one of the basic ones.

### **3. Russian Segment of railroad transportation in global transport system**

Russian railroads occupy the third place in the world in terms of the cargo turnover and the electrified track mileage. Since railroad transportation reflects all changes in the world economy, country and region economy, the analysis of changes in the cargo turnover and freight traffic allows to reveal the changes and trends before they become evident in the other sectors of the economy. Currently the following changes become evident in Russia:

- Changes of the structure and behavior in trade, non-trade, and quasi-non-trade sectors of the economy (construction materials, metallurgy industry, machine construction for

infrastructure, power supply, transportation, logistics, telecommunications, engineering; construction of residential buildings, offices, infrastructural facilities; consumer and business services);

- Increased requirements to the population mobility (travel time reducing);
- Change of the transported cargo types and their volume (mainly use of containers);
- Increased trends for development of the product markets and transportation speed required to satisfy their demands (tendency for improvement of competitiveness for marginal income);
- Systems and technologies ensuring transportation using alternative fuels (for example magnetic levitation, space traffic etc.).

Russian economy characterized by a lasting recession during absence of long-term economic policy has a transport strategy that is capable of ensuring its economic security during the next 20 years, provided that its financial problems are solved. It has the required travel speed, transport infrastructure development patterns that comply with trends of the economy of Russia itself and Russia as the corridor between the West and the East. Nevertheless, it shall be noted that this Strategy does not account for most megatrends of the world economy development.

For example, Russian effective territory is about 30%, while 70% of the territory has status of the Far North areas and areas similar to them with severe climate. The zone with relatively favorable for residence conditions makes up only 1/10 of the country territory. In terms of the territory efficiency (the territories located less than 200 meters above the sea level with average temperature above 2°C) Russia occupies only the fifth place in the world.

Besides while effective competitive proposals are missing as well as the Government comprehensive solutions the share of the passenger railroad transport in the total population mobility along the territory of Russia during the last 25 years reduced from 30% to 10%. Mainly it is related to sharp increase in the share of private car fleet into short distance and middle distance trips and growth of air trips for middle and long distances, they replace suburban rail transport in metropolitan areas and reduce the number of trips taken by long-line trains. The main reason is that it does not comply with requirements of the modern life to travel speed and accessibility limitations. Growing price is a very important reason for rail services being reduced as well: old transportation systems generate high working expenditure, and the fares (tariffs) hold within inflation rates exclude investment factor for their development.

Today only 10% of the country territory are favorable for migration. However, it will change due to new technologies of power generation and consumption that can expand the effective territory boundaries. Moreover, these territories shall become acceptable for business and population and shall ensure required level of speed and mobility. It will greatly change the vector of the traffic gravity model and technical, technological and organizational level of Russian transport system.

For meeting the required level of competitiveness Russian segment in the global transport system shall be ensured by the speed of magnetic levitation (sound velocity) in freight traffic. Today this technology is the only one for Russia that can become breakthrough, since within Russian environment with its high costs of traditional railroad infrastructure of wheel-rail system, it will be impossible otherwise to meet with the world megatrends. Up-to-date researches of Russian scientists, particularly in St. Petersburg Railway University, for creating magnetic levitation transport systems and the traffic plan developed based on this technology, the first one in the world, from St. Petersburg port to Moscow dry port, let us hope that Russia will enter the freight railroad services. Even more, during development of West – East transit corridor nowadays, the project of

building North America - Russia – China corridor is discussed a lot. The Project under development for including Russian segment into the global transport system of the land Silk Road is built considering the megatrends of the world development. It is related to: 10–15 new industries and construction of prospective settlements emerged to the environment; integration of detached infrastructural facilities into united multi-service infrastructure; possibility for bringing fast industrial and technological development to Russian territory; long-term investment priorities with guaranteed recoverability will create a new world pole for social wealth generating.

As for the decision of the Russian Government regarding the passenger transportation, there is only one choice – high-speed and express roads. There are only two basic ways for further public mobility expansion depending on the Government decisions.

Option 1. Western Europe model. Stabilization of the railroad share in passenger traffic in case of the Government long-term comprehensive solutions based on social order model development of high-speed traffic infrastructure. It is commonly believed, that the passenger railroad services are competitive for short-time trips up to 90 minutes for mega-regions, since there are limitations to the road infrastructure for entering / exiting the agglomerates, and rail infrastructure enables the required passenger turnover. As for high-speed trips the main strategy here is to develop high-speed and express traffic as an alternative option for air and bus services, it will allow to increase the market share and to preserve the passenger turnover that is reduced for long-distance trips.

Option 2. USA model. Rapid reduce of the passenger railroad transportation due to their decreased competitiveness compared to air and bus services, and sharp reduce of the state contracts for construction. An international experience shows that in case of similar prices the passenger will choose the type of transport based on time consumption.

In Russia one shall consider an evident advantage of railroads in the rapid trip segment (below 1000 km) due to development of high speed and express traffic. An international experience proves that up to 50% of the market share can be taken by trains for trips that last up to 4 hours.

Please find below the main parameters of development of the high-speed and express traffic in Russia determined by the above Strategy:

- Development and implementing of over 20 high-speed and express traffic projects in 34 regions of the Russian Federation 4.3 thousand kilometers long and 7.0 thousand kilometers long accordingly;
- Construction of 52 routes and of over 100 stations of high-speed and express traffic in the settlements with population of over 100 million persons. Or 70% of the population in Russia;
- Manufacturing of 360 high-speed passenger trains.

High speeds will let passenger services cease to be unprofitable ones and will ensure the cost-efficiency within 29% for the carrier and within 20% for the owner of the infrastructural facility.

Innovations in Railway Engineering Industry shall be accounted for during simulation of the megatrends influence to economy and life of the society for the Russian segment of the global transport system.

Table 2: Parameters of innovative cars that meet the GTS development tendencies

Megatrend	Requirements to infrastructure	Innovations
Formation of megalopolises and suburbs joining them	Increase of carrying power and capacity	Car equipping: more accommodation for standing, doors location, double-deck train cars, long train cars
Demographic modernization (variety of life styles, mobility, profitability)	Reduced time of the trips Reduced intervals between the trains, additional routes and new services Short periods of embarkation and debarkation Speed increase	Drive design + low energy demand + high drawbar horsepower + low starting traction effort + high rate of acceleration

Source: prepared using the materials of international Conference 'Transport Services Market' in Moscow, November 2015

In Russia the rail transport systems have always generated economic growth. This statement is quite true considering the megatrends of the world economy development as well as global transport systems. According to estimates of IMF, increase of the State Investments to infrastructure for a GDP item will ensure additional gain in production equaling 0.4% during the same year and 1.5% during the next 4 years for developed countries. For developing countries, it will gain 0.25% during the same year and 0.5% during the next 4 years.

Within the frames of this research paper we have carried out assessment of a multiplier for direct investment demand from investments to railroad infrastructure, to a multiplier that includes agglomerative effects, they amounted to: 1.4 and 3.77 items accordingly, if at the same time researches of the Centre of Strategical Developments are accounted for one can trace the following additional effects:

- Scale effect. Growth of population in agglomerations twice due to increase of transport links will bring to increase in labor efficiency for 3.4%. Industrial production doubling will increase growth of performance gain for 4.5%.
- Density effect. Doubling of tertiary employment (for a square kilometer) due to complex development of territories adjacent to high-speed and express traffic stations, it will bring to performance gain for 5%.
- Diversion effect. Growth of index of diversification of economy structure due to new sub-centers entering the agglomerates that brings to increase of companies created and growth of production in hi-tech industries.

Megatrends of the society development in their turn are related to risks that shall be mitigated and controlled by development of new transport systems as well:

1. Rail transport being the most environmentally friendly mean of transportation compared to vehicles and airlines is included into the system of global warming control system.
2. Reduced power demand in hi-tech railway systems and transition to alternative power sources (magnetic levitation) contribute to volatility of fuel costs.
3. Relieved overload and less land use compared to vehicles as well as growth of railroad mileage efficiency have a positive influence on urbanization.
4. Being an affordable and comfortable way of traveling for all age-grades the rail transport fits the megatrend of the consumers and employers ageing.



## 4. Discussion

Transport Systems historiography is very rich and large. Rail transport has more than 150 years of history and is the key sector of national and global economies infrastructure. Investigations have some directions: analysis of national transport systems; impact of the rail on economic development of region and national economy; transport as indicator of the cycle of reproductive performance; assessment of efficiency of the rail companies; rail in logistic chains and systems; high-speed passenger railway.

For aims of the article mark out some principle directions of investigations. In 40-th of XX century there were laying the methodology background of transport economic implication. W. and C. Isard (cases of USA, Brazil and Chicago) identified regularity of impact of transport technology on geography localization and structure of national economy, effect of private investments, trade channels, commercial centers, outlet to the sea and state aid (Isard, 1942), (Isard & Isard, 1945).

*Impact of Rail on the socio-economic region development.* Investigations of Artic territories from 1890 have an important significant for North America and Europe (Donaldson & Hornabeck, 2016). The economic analysis of commuter trains in property values and prices are actual too (Bohman & Dibbson, 2016). Social aspects of rail impact are more interesting now (Adda, 2016).

*Comprehensive instruments of rail transport evaluation.* A railways effect examines none separately, but in the framework of single transport system and logistic schemes. For the countries of dance rail net (EU) there is an approach of returns on the base of Trans logistic Variable cost (VC) function (Naniel & Pels, 2010). Transport Complex considers as system, where the structure elements are different mode of transport and ports. The system is evaluated by DEA models of scale, where calculate Constant Return of Scale and Variable Return of scale (Gil-Ropero et al., 2010).

*High-speed passenger railway (HSR).* From 60-th HSR made a revolution in transport systems in 119 countries. Time becomes an economic category. HSR produces different heterogenic positive effects, e.g. on international trade (Gil-Pareja et al., 2010).

Thus, detailed approach to understanding of the future society as a consumer of the transportation services from the point of view of regional peculiarities and general development trends has been studied in the last research papers of European and Asian scientists (Adom et al., 2016), (Tang et al., 2016), (Ji et al., 2015), (Zerak, 2014), (Pelaez et al, 2012). Challenges of the global transport system development and its influence to business activity and agglomerates development are analyzed in several research papers of East Europe scientists (Botlik et al, 2015), (Pellešová et al, 2015), (Šoltés & Štofko, 2015), (Arbues et al, 2015), (Ceniga & Šukalová, 2015). Assessment of the risks of society development, megatrends influence (currency, price demand elasticity, technological) were studied in the following papers (Shavhukov, 2015), (Alam et al., 2013), (Rich & Nielsen, 2015), (Manzo, 2015) it allows us to consider the global transport system problems within the framework of related scientific fields.

*Comprehensive trends in transport systems throw a prism of globalization and new technologies.* Technological and economic forecast of transport systems are the subject of discussion of International organization and forums. It is quite enough to point out some of them.

22nd Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP22), UNFCCC Official Side Event Charting Pathways to Decarbonize

Transport. November 2016. Aims – decarbonize the transport sector until 2050. In the framework of International Transport Forum (ITF) will discuss the road map of important questions: Introducing Competition European Rail Sector: Insights for a Holistic Regulatory Assessment (Oct.2016), Introducing Competition in the European Rail Sector, HSP Competition (Investment, Pricing, Taxation, Rail), Global Freight Volumes Indicate increasing Dependency on Asia-Led Growth (Freight, logistics, Maritime, Rail, Road, Traffic volume, Usage, Demand); Global Freight (Efficiency in Railway Operations and Infrastructure management).

## 5. Conclusions

In conclusion, it shall be noted that any transport system is effective only in case it meets the public needs. Change of the world economic structure, primarily as related to considerable modification of the value chain and reformation of the production resource base will change the GTS fundamentally. The main provisions of the GTS modification shall be analyzed against the background of transition to a new energy source – magnetic levitation for cargo services. This technology allows to receive an instant result – speed increase and distance efficiency. For the passenger services - it is transition to high-speed and express traffic, that brings mobility of the population to a completely new level. It is proved that the demand for investments into infrastructure, mainly to railroads, creates effect of scale, density and diversification of the economic structure, which complies with the megatrends of the long-term society development in future. Russia as one of the main GTS segments shall evaluate the risks and possibilities of the prospective megatrends.

## References

- [1] Adom, P. K., Amakye, K., Barnor, C., Quartey, G. and Bekoe, W. (2016) Shift in demand elasticities, road energy forecast and the persistence profile of shocks. *Economic Modelling*, vol.55, pp. 189-206.
- [2] Shavshukov, V. M. and Zhuravleva, N. A. (2015) Crises Of The Global Finance: Politics Of Monetary Authorities (1994-2014). *Asian Social Science*, vol. 11, pp. 376-386.
- [3] Isard, W. (1942) Transport Development and building cycles. *Quarterly Journal of Economics*, vol.57, pp. 90-112.
- [4] Isard, C. and Isard, W. (1945) Economic Implications of Aircraft. *Quarterly Journal of Economics*, vol.59, pp. 145-169.
- [5] Donaldson, D. and Hornabeck, R. (2016) Railroads and American economic Growth: A “market access” approach. *Quarterly Journal of Economics*, vol.131, pp. 799-858.
- [6] Bohman, H. and Dibbison, D. (2016) The Impact of regional commuter trains in property values: price segments and income. *Journal of Transport Geography*, vol.56, pp.102-109.
- [7] Adda, J. (2016) Economic activity and the spread of viral diseases: evidence from high frequency data. *Quarterly Journal of Economics*, vol.131, pp. 891-941.
- [8] Naniel, V. A. and Pels, E. (2010) Returns to Density in Operations of the Netherlands Railways. *International Journal of Transport Economics*, vol. 47, pp. 169-193.

- [9] Gil-Ropero, A., Cerban, M. and Turias, I. (2010) Analysis of the global and Technical Efficiencies of major Spanish Container ports. *International Journal of Transport Economics*, vol. 42, issue 3, pp. 243-263.
- [10] Gil-Pareja, S., Llorca-Vivero, R., Paniagua, J. (2010) Does High-Speed Passenger Railway Increase Foreign Trade? An Empirical Analysis. *International Journal of Transport Economics*, vol. 42, issue 3, pp. 357-376.
- [11] Tang, J. J., Zhou, L. S., Zhao, Y. and Shao, J. J. (2016) Passenger Flow Trend Analysis and Forecasting for Large High-Speed Railway Stations During Holidays: A Case Study for Beijing West Railway Station. *Proceedings Of The 2015 International Conference On Electrical And Information Technologies For Rail Transportation: Transportation/ Lecture Notes in Electrical Engineering.*, vol. 378, pp. 399-407.
- [12] Ji, S. W., Wang, H. T. and Yao, Y. B. (2015) Study on Railway Container Station Efficiency Analysis. *Proceedings of the 2015 International Conference on Intelligent Systems Research and Mechatronics Engineering*. Zhengzhou, Peoples R China, pp. 1054-1058.
- [13] Zerak, L. (2014) Financing of Railway Corridor Infrastructure in Transit Countries, Road and Rail Infrastructure III. *Proceedings of 3rd International Conference on Road and Rail Infrastructure(CETRA)*. Split, Croatia, pp. 119-125.
- [14] Pelaez, A. L., Sanchez-Cabezudo, S. S. and Kyriakou, D. (2012) Railway transport liberalization in the European Union: Freight, labor and health toward the year 2020 in Spain. *Technological Forecasting and Social Change*, vol. 79, pp. 1388-1398.
- [15] Botlík, J., Botlíková, M., Zedková, A. and Kostková, M. (2015) Transport Infrastructure and Business Activities – Globalisation Consequences of Opening of the Moravian-Silesian Region. *Proceedings of 15<sup>th</sup> International Scientific Conference Globalization and Its Socio-Economic Consequences*. Rajecké Teplice, Slovak Republic, pp. 45-58.
- [16] Pellešová, P., Botlík, J., Botlíková, M. and Kostková, M. (2015) The Influence of Expressways on the Availability of Industrial Zones, Regional Analysis in the Globalized Europe. *Proceedings of 15<sup>th</sup> International Scientific Conference Globalization and Its Socio-Economic Consequences*. Rajecké Teplice, Slovak Republic, pp. 572-581.
- [17] Šoltés, V. and Štofko, S. (2015) The Impact of Population Movement on Security in the Age of Globalization. *Proceedings of 15<sup>th</sup> International Scientific Conference Globalization and Its Socio-Economic Consequences*. Rajecké Teplice, Slovak Republic, pp. 773-779.
- [18] Arbues, P., Banos, J. F. and Mayor, M. (2015) The spatial productivity of transportation infrastructure. *Transportation Research Part A-Policy and Practice*, vol. 75, pp. 166-177.
- [19] Ceniga, P. and Šukalová, V. (2015) The Relations and the Impact of Globalization on Logistics. *Proceedings of 15<sup>th</sup> International Scientific Conference Globalization and Its Socio-Economic Consequences*. Rajecké Teplice, Slovak Republic, pp. 78-87.
- [20] Shavhukov, V. M. (2015) Brics` Currencies in Global Forex. *Proceedings of 15<sup>th</sup> International Scientific Conference Globalization and Its Socio-Economic Consequences*. Rajecké Teplice, Slovak Republic, pp. 670 – 680.

- [21] Alam, J. B., Wadud, Z. and Polak, J. W. (2013) Energy demand and economic consequences of transport policy. *International Journal of Environmental Science and Technology*, vol. 10, pp. 1075-1082.
- [22] Rich, J and Nielsen, O. (2015) System convergence in transport models: algorithms efficiency and output uncertainty. *European Journal of Transport and Infrastructure Research*, vol. 15, pp. 317-340.
- [23] Manzo, S., Nielsen, O. A. and Prato, C.G. (2015) How uncertainty in socio-economic variables affects large-scale transport model forecasts. *European Journal of Transport and Infrastructure Research*, vol. 15, pp. 304-316.