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CONTENTS

TECHNICAL EFFICIENCY OF SANATORIUMS IN SLOVAK REPUBLIC

Roman LACKO – Zuzana HAJDUOVÁ

Abstract

Technical efficiency is one of the indicators for measuring and assessing performance of services businesses. It is often used in hospitals and healthcare facilities. It is often forgotten to evaluate the efficiencies of other health care facilities, which are not less important than common hospitals. Such facilities can include various types of nursing homes - sanatoriums. For this study we have obtained data for five Slovak sanatorium. Increased level of inefficiency occurs only in one sanatorium. Although some nursing homes in selected years were also inefficient, their rate of inefficiency was very low. For sanatoriums is typical low number of doctors, because there are healed not acute patients but the long-term patients, so we have considered this input for this study as the fixed input.

Keywords:
sanatoriums, DEA, efficiency, input model, Slovak Republic

Introduction

Measuring and evaluating technical efficiency of healthcare facilities is used in the world widely. It is common to evaluate the efficiency of hospitals, but there are also other types of healthcare facilities that could be evaluated. One of these types of healthcare facilities are sanatoriums. It is special type of health care facility that is specialized to take care for patients, who need the long term health care. In Slovak Republic, also, the specialized centers for long term patients do receive resources, especially financial resources from different types of sources. Some types of care are financed from public sources, such as public health insurance, some sources come directly from the patients, or their relatives as it is mentioned by Ozcan (2008). There are a lot of studies, which use DEA as the method for measuring and evaluating the hospital efficiency. It is common used in EU countries as can be seen in Hofmarcher et al. (2002), Matranga et al. (2013), Häkkinen (2002), Staat (2006), Lacko et al. (2014). There are a lot of studies that take DEA as a mainly used method in other countries of world. Weng et al. (2009) has used the Window analysis and the Malmquist DEA in Iowa hospitals, monitoring the period of 5 years and the total number of 65 hospitals. Karadayi and Karsak (2014) had measured technical efficiency in state hospitals in Istanbul. Jehu-Appiah et al. (2014) researched the efficiency in Ghana medical centres using double DEA approach. Harrison and Lambiase (2007) evaluated almost 150 teaching hospitals in the USA between 1998 and 2001. The average value of efficiency was around 0.7. The amount of efficient faculty hospitals was 11 per cent in 1998 and already 16 per cent in 2001. Ferrier and Trivitt (2013) used the double bootstrap DEA approach to measure the technical efficiency of more than 1000 hospitals in the USA. Their study

explains the influence of various quality indicators and individual models for the evaluation of technical efficiency on the actual values of technical efficiency. Du et al. (2014) evaluated using additive DEA model the hospitals in Pennsylvania (USA). It monitored 119 hospitals with 31 being additively efficient. As input they used the number of beds, the number of doctors, number of nurses and overall costs. Output was the overall profit, the number of treated cases and percentual survival rate of a patient. So called survival rate had appeared as a quantitative output value which is a unique model in combining quantitative and qualitative outputs. Matranga et al. (2013) researched Italian hospitals. Input variables were the number of released patients, number of released patients after undergoing surgery and case-mix index. The output consisted of the number of medical staff and nurses, the number of administrative workers and other personnel and the number of beds. Their analysis, employing two-level bootstrap DEA, was divided according to the different regions in Italy. In the first step they set technical efficiency. To define the efficiency variance according to the hospital type the t-test was used and for determining the statistical importance of this variance depending on the region ANOVA was employed. In the second step the efficiency values were regressed in regard to the amount of organisational and contextual characteristics uninfluenced by the hospital management. These characteristics described the differences in demographics and public health costs according to the region. Finally TOBIT regression was used where the explanatory values were the treatment length and the "case-mix entropy". It proved the importance of the environment and the management skills are influential in efficiency estimates of hospitals.

Methods

In this study, we will use the input oriented CCR DEA model to measure the efficiency of selected sanatoriums in Slovak Republic. The input CCR DEA model has the following mathematical expression.

To get the result we need n optimisations. Let DMU_j be identified as DMUo for each assessment where o is between 1, 2, ..., n. Then the optimal problem solution of weights for individual inputs and outputs is gained by partial modelling with the following calculation with variables u and v:

$$\max_{u,v} \theta = \frac{u_1 y_{1o} + u_2 y_{2o} + \cdots + u_s y_{so}}{v_1 x_{1o} + v_2 x_{2o} + \cdots + v_m x_{mo}} \tag{1}$$

$$\text{such that } \frac{u_1 y_{1j} + \cdots + u_s y_{sj}}{v_1 x_{1j} + \cdots + v_m x_{mj}} \leq 1 \quad j = 1,2,\ldots,n$$

$$v_1, v_2, \ldots, v_m \geq 0$$

$$u_1, u_2, \ldots, u_s \geq 0.$$

model based on linear programming

$$\max_{\mu,v} \theta = \mu_1 y_{1o} + \cdots + \mu_s y_{1s} \tag{2}$$

$$\text{such that } v_1 x_{1o} + \cdots + v_m x_{mo} = 1$$

$$\mu_1 y_{1j} + \cdots + \mu_s y_{sj} \leq v_1 x_{1j} + \cdots + v_m x_{mj} \ (j = 1, 2, \ldots, n)$$

$$v_{1,} v_{2,} \ldots, v_m \geq 0$$

$$\mu_{1,} \mu_{2,} \ldots, \mu_s \geq 0$$

where the optimal solution is $v = v = v^*, u = \mu = \mu^*$ a $\theta = \theta^*$ DMUj is then CCR - efficient if optimal $\theta^* = 1$ and there exists at least one optimal (u*, v*) fulfilling the condition u*, v* > 0. In other case is DMUj CCR − inefficient (Banker et al., 1984).

Additionally it is important to deal with so-called slacks which can be characterised as surplus of inputs s^- and shortage of outputs s^+. The definition follows:

$$s^- = \theta x_o - X\lambda \tag{3}$$

$$s^+ = Y\lambda - y_o,$$

where $s^-, s^+ \geq 0$, for any permissible solution (θ, λ) (Banker et al., 1984).

Model of linear programming then assumed this form:

$$\max_{\lambda, s^-, s^+} \omega = es^- + e s^+ \tag{4}$$

$$\text{while } s^- = \theta^* x_o - X\lambda$$

$$s^+ = Y\lambda - y_o$$

$$\lambda, s^-, s^+ \geq 0,$$

where $e = (1, \ldots, 1)$ so that $es^- = \sum_{i=1}^m s_i^-, es^+ = \sum_{r=1}^s s_r^+$ (Banker et al., 1984).

Linear model (4) can be substituted by an expression with a variable weight of slacks as follows:

$$\omega = \omega_x s^- + \omega_y s^+, \tag{5}$$

where ω_x, ω_y are positive vectors. Optimal solution $(\lambda^*, s^{-*}, s^{+*})$ is the one with the maximal slack. If is $s^{-*}, s^{+*} = 0$, then this solution is called the zero slack. When optimal solution $(\theta^*, \lambda^*, s^{-*}, s^{+*})$ of linear models (4) and (5) fulfils the condition $\theta^* = 1$ and the condition of zero slack then DMU$_o$ is called CCR – efficient, otherwise DMU$_o$ is CCR – inefficient. These two conditions are specified as radial (technical) efficiency. It is also labelled as technical efficiency because value $\theta^* < 1$ means that all inputs can he reduced simultaneously without the change of proportions. Definition of Pareto-Koopmans efficiency states that DMU is fully efficient only when if it is not

possible to adjust any inputs or outputs without worsening some other input/output (Banker et al., 1984).

Data

We used the data obtained from the National center of medical information. For purposes of our study we used data of 5 sanatoriums. National center of medical information did not agree with sanatoriums to be identified and we are no to allow to publicize their input/output values. We have computed results using 5 input variables and 2 output variables.

According to foreign and home studies we chose these input variables: Number of doctors (average number of doctors within 1 year), number of nurses (average number of nurses within 1 year), number of other staff (the same as before), costs per bed (total costs divided by number of beds), number of beds (average number of beds within 1 year). As output variables we selected Number of hospitalizations (number of hospitalizations within 1 year) number of regular patients (number of outpatients within 1 year). Because the number of doctors in such type of health care facilities is very low and it is legislatively regulated will we concern this input as fixed one.

Results

After the collection of the data we computed the values of technical efficiencies for selected sanatoriums within the period 2007-2012. Values of CCR input efficiencies are in the table 1.

Table 1 CCR input efficiency

DMU	Year					
	2007	2008	2009	2010	2011	2012
A	1	1	0.892936	0.867563	0.813493	0.799426
B	1	1	1	1	1	0.984845
C	1	1	1	0.968645	0.959733	1
D	0.978895	1	0.963116	0.997653	1	0.987513
E	1	1	1	0.961838	1	0.989251

Source: own research

As can be seen in previous table, some sanatoriums was not efficient for the selected time period. Sanatorium B was inefficient just in last year observed. The lowest values of efficiencies are in sanatorium A. There is value of efficiency only 0.8 and it is decreasing in the selected time period from value 1. It can be said, that sanatoriums B, C, D, E are efficient, or they were near to the

border of efficiency. In year 2008, all the sanatoriums were efficient. We can say, that there is decrease in efficiencies in last three years according to the first three years.

Conclusion

According to the section with results we can say, that the worst sanatorium according to CCR input model is sanatorium A. Level of inefficiencies in other sanatoriums is not that much significant. It would be very interesting to make such a research with sanatoriums in CEE countries. According to this research it can be said that 4 from 5 evaluated sanatoriums are on the same level of technical efficiency. If we compare them with the foreign sanatoriums, the level of technical efficiency could worsen or not. Only limitation is the availability of the data from CEE countries. We used CCR input model, because outputs is hard to influent in terms of Slovak health care environment.

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APPLICATION OF PREDICTIVE MODELS IN SELECTED COMPANIES

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Abstract
Financial health and forecast of financial stability is a topic which is widely discussed not only in the academic field but also among people who run their own business. Current business environment is not so favorable and many companies are not stable enough to be able to survive in such a big competitive environment. There is number of different ways which could help companies to evaluate and forecast their future stability and potential risks which could lead to the bankruptcy. This paper focuses on such models and by their application evaluates stability and financial situation of three selected companies.

Keywords:
prediction models, Ohlson O-score, balance analysis

Introduction

The need for predictive financial analysis plays an important role in today's business practice. By examination of the dependencies between different variables it was discovered that there are indicators which can give the first signs of problems. Currently, there are ways by which we can evaluate the situation of the company and based on that forecast its health into the future. The advantage of this forecast is the early identification of problems of the company that can be removed in advance. The aim of this paper is application of predictive models with the aim to assess the financial health of subjects, and on the result basis forecast their future state. This article deals with the application of selected models for the three-specific businesses. We reviewed it by the application of Ohlson o-score and balance analysis by Rudolf Doucha, which ranks among the creditworthy models.

1. Application of Ohlson O-score

In the article we evaluate selected companies by Ohlson O-score. It belongs to the group of bankruptcy models where value of 0.5 is the one that divides the financial forecast- Values higher than 0.5 indicates a bankrupt while values lower than 0.5 refers to the favorable financial situation of company.

Table 1 Results of O-score for selected companies

Ohlson model					
	2010	2011	2012	2013	2014
Alfa	-0,5901	-2,0644	-2,3519	-2,5434	-2,2697
Beta	0,990	0,637	0,108	1,423	-0,116
Gama	1,415	2,580	-1,223	0,362	-0,021
O-score					
	2010	2011	2012	2013	2014
O-Score Alfa	0,36	0,11	0,09	0,07	0,09
O-Score Beta	0,73	0,65	0,53	0,81	0,47
O-score Gama	0,80	0,93	0,23	0,59	0,49

Source: own processing

The development of selected companies in the measured period can be summarized in the following graph:
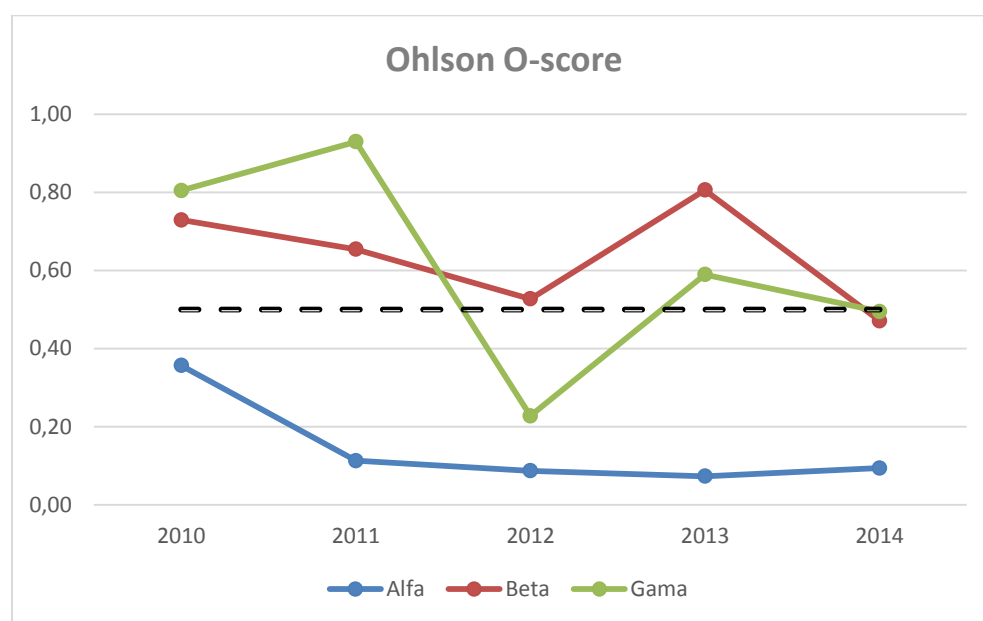
Figure 1 Graphical representation of o-score for selected companies
Source: own processing

As we can see, Alfa is far from imaginary boundaries of 0.5 and is in the range from 0.3 to 0.09, which is a positive sign. O-score indicates a positive situation in the enterprise with the absence of possible risks in the near future. The most significant factor that contributed to the results was positive situation in the country (as the GDP index has an upward trend), as well as low levels of foreign capital.

In case of Beta we can see fluctuating o-score in monitored period. This was reflected mainly in the change of external resources, which from 2011 to 2012 decreased by 864,755 EUR, but then a year later, we see an increase in external resources and reduction of profit, which shifts the curve again to risk area.

In case of Gama we can see non-proportional distribution of o-score over the period. From the beginning of the period, the company is in the risk zone, then in 2012 we can see as the curve decreases in risk-free zone in and afterwards is returned back to the risk zones. These fluctuations are mainly due to the gradual reduction of profit after tax (from year to year company continuously achieves lower profit or loss), which affects up to 3 variables in the construction of O-score and thus has the greatest impact on the outcome.

2. Application of balance analysis of Rudolf Doucha

In the following part we apply balance analysis I. and II.

2.1 Balance analysis I.

The second model that we use to evaluate financial situation of companies is balance analysis created by Rudolf Doucha. The dividing value between bankruptcy companies and healthy companies is so called gray area interval, which belongs to the interval from 0.5 to 1.0. If the company reaches value which is over 1.0, we can consider it as healthy company, if the value is below 0.5 than the financial stability of company is threatened.

Table 2 Results of balance analysis I

Balance analysis I.					
	2010	**2011**	**2012**	**2013**	**2014**
Alfa	0,9264	1,0881	1,3404	1,1451	1,06
Beta	0,5015	0,4587	0,695	0,0774	0,578
Gama	2,3824	2,2746	-0,7023	-1,5962	-7,636

Source: own processing

In the case of Alfa we can see that during the period it reaches values from 0.93 to 1.34. Except for 2010, the company can be evaluated as stable. The positive impact on results can be caused by stability indicator where the value is above 1.4. Subsequently, the positive results are also affected by the return on equity, which during the period has a growing character. Partial decline can be seen in 2012 and 2013, due to the company's liquidity, which fell by 0.4. This factor was influenced mainly by an increase in short-term liabilities.

There is a different situation in case of Beta. During the period it reaches values from 0.07 to 0.069. By the results, the company can be categorized to so called gray zone with the exception of 2013, when the company achieved only 0.07 index value, which leads it to the risk zones. Result of 2013 was mostly

influenced by negative economic results (profit and loss) of the company. Since the profitability indicator has the greatest weight in the calculation, this negative result affects the overall financial health of the company. Indicators of stability and liquidity during the period under review have a growing trend; indicators of activity and profitability have fluctuating character.
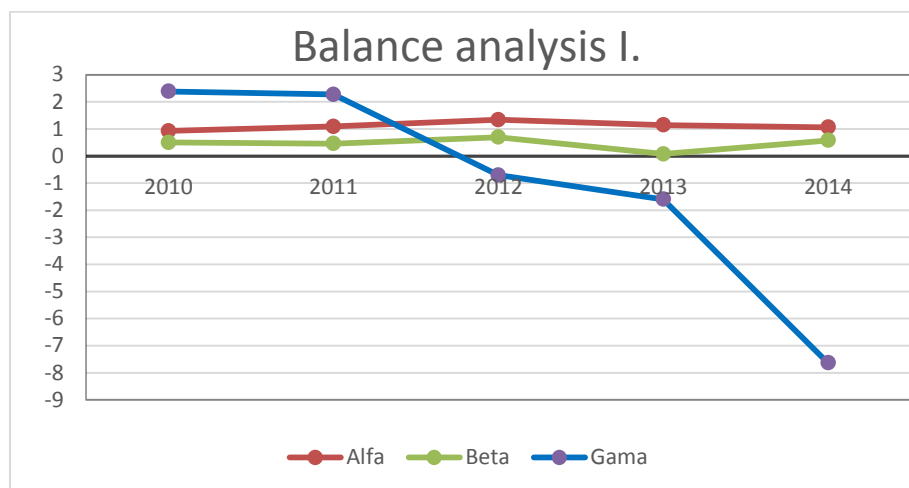
Figure 2 Balance analysis I
Source: own processing

The third analyzed company is Gama. The negative results can be seen as the development of the factor C gas decreasing character. This condition is caused mainly by the negative return on equity, which for the past three years was continuously falling. Also declining trend of stability effected final results. This is mainly due to the low value of equity and increasing assets.

The results of the analysis qualified companies as follows: Company Alfa was ranked as a financially stable company, which might not expect bankruptcy. Beta is a company with no identifiable prognosis, since it mostly ranks in the gray zone. However, the analysis pointed out that the company should focus on improving the return on equity. In case of Gama model shows that the situation is not favorable and is threatened with bankruptcy due to the unstable situation and the negative income.

2.2 Balance analysis II.

The results of balance analysis II together with the individual ratios is shown in the following table.

Table 3 Results of balance analysis II

Balance analysis II.					
BA II. ALFA	**2010**	**2011**	**2012**	**2013**	**2014**
Stability	2,004195	2,180942	3,421384	2,402178	2,87049
Liquidity	1,085763	1,408052	1,985946	1,255468	1,322658
Activity	1,166181	0,946856	0,967211	0,915057	0,992443
Profitability	0,489854	0,600704	0,881483	-0,35215	0,622561
	0,997241	**1,162039**	**1,680098**	**0,748377**	**1,261405**
BA II. BETA	**2010**	**2011**	**2012**	**2013**	**2014**
Stability	3,021509	5,910809	9,343915	5,766401	5,293998
Liquidity	1,261621	1,779755	2,521801	1,850879	1,50833
Activity	1,197503	1,109409	0,839558	0,854302	0,893204
Profitability	0,955286	0,878284	0,596449	1,124062	1,395192
	1,422	**2,0368**	**2,7164**	**2,118**	**2,041**
BA II. GAMA	**2010**	**2011**	**2012**	**2013**	**2014**
Stability	-4,66073	-6,56623	19,94929	6,682201	2,560537
Liquidity	0,104995	0,03773	2,429149	1,703886	1,336202
Activity	0	-0,14426	0,543918	0,774069	1,315706
Profitability	-0,11593	-23,906	-3,18329	-3,69858	-10,7722
	-0,79009	**-11,0546**	**2,853556**	**0,205093**	**-3,50664**

Source: own processing

In case of balance analysis II we use same intervals as in case of balance analysis II.

Alfa again achieved positive values above 1.0, which pointed out that his company is stable and should not experience bankruptcy. Company achieved positive values of all variables; the only issue that our analysis showed was a smaller decline between 2012 and 2013. The decline was affected by the decline in the indicators of stability and liquidity. These indicators decreased due to an increase in inventories of 1% and a decrease in financial accounts by 3%.

Beta reached values above 1.0 except in 2013 and therefore we categorize it in the category of stable businesses. This positive assessment was affected by stability indicator, which during the period reached values higher than 2.0. Positively impactful was also indicator of liquidity. The decline in 2011, as mentioned in the analysis I. was influenced by return on equity, which reached in 2011 a negative value due to the loss.
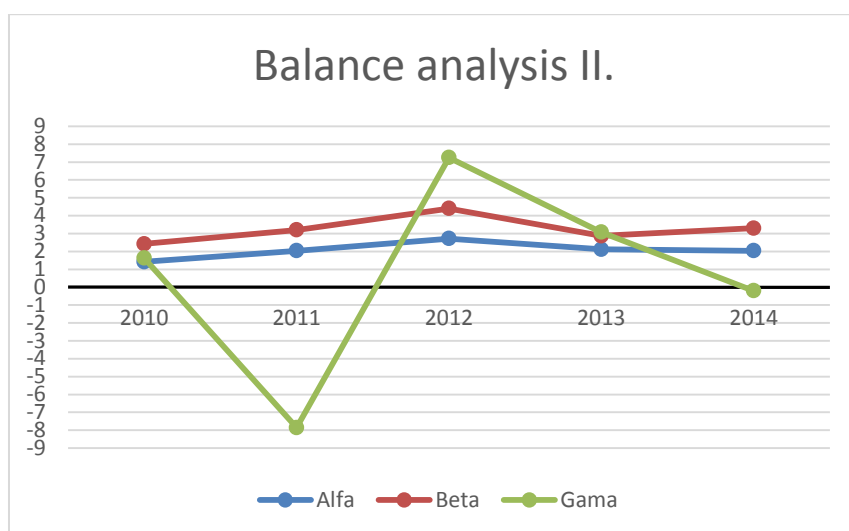
Figure 3 Balance analysis II
Source: own processing

Gama does not showed favorable results. The greatest weight in this model is given to profitability and in case of this company it was negative throughout the whole period. If we would not take into account the fact that the company has high proportion of long-term debt to total capital, we could evaluate that in terms of liquidity, activity and liquidity is comparable with the company Beta.

Summary of results of prediction models

The following tables summarize the results of applied predictive models and their interpretation for individual companies. Green color or the phrase "healthy" means that the company achieved positive results in the models, gray color or the phrase "indefinite" means that the company is located in a zone where prediction of the future is unclear and red or "bankruptcy" means that the model evaluates the company as insolvent.

Table 4 Overall Alfa evaluation

Alfa					
Model	**2010**	**2011**	**2012**	**2013**	**2014**
Ohlson	healthy	healthy	healthy	healthy	healthy
Balance analysis I.	indefinite	healthy	healthy	healthy	healthy
Balance analysis II.	healthy	healthy	healthy	healthy	healthy

Source: own processing

As can be seen in the table, Alfa is in most of the cases considered as healthy and financially stable company.

Table 5 Overall Beta evaluation

Beta					
Model	**2010**	**2011**	**2012**	**2013**	**2014**
Ohlson	bankruptcy	bankruptcy	bankruptcy	bankruptcy	healthy
Balance analysis I.	indefinite	bankruptcy	indefinite	bankruptcy	indefinite
Balance analysis II.	indefinite	healthy	healthy	indefinite	healthy

Source: own processing

In case of Beta, models pointed out some potential risks in the future. At the beginning of period, company was categorized as bankruptcy or indefinite but at the end of the period models shows that is can be evaluated as healthy.

Table 6 Overall Gama evaluation

Gama					
Model	**2010**	**2011**	**2012**	**2013**	**2014**
Ohlson	bankruptcy	bankruptcy	healthy	bankruptcy	bankruptcy
Balance analysis I.	healthy	healthy	bankruptcy	bankruptcy	bankruptcy
Balance analysis II.	bankruptcy	bankruptcy	bankruptcy	bankruptcy	bankruptcy

Source: own processing

Most of the models identified Gamma as bankruptcy company. These results highlighted the instability, debt and lack of financial sources which are mainly coming from the long-term external resources.

Conclusion

To know the status of your business should be priority for each company management. This gained importance in the current period, when the business environment is permanently changing, bankruptcy is something which is becoming more common in every industry we have and to survive with your own business is becoming more and more challenging. Currently, there are ways by which we can assess the state of the company and on the basis of health predict the future. The advantage of this forecast is in early identification of business issues that can be removed in a timely manner. The main aim of the paper is to evaluate the financial health and make forecast through predictive models of financial analysis. We reviewed it by applying the Ohlson o-score and balance analysis I. and II. These models are applied to the three selected companies, that we named Alfa, Beta and Gama.

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THE UNIVERSITY GRADUATES ON THE LABOUR MARKET

Monika BAČOVÁ

Abstract
The paper defines the position of universities in Slovakia, points to the development of the number of universities in Slovakia, to the development of the number of registered graduates of the ten greatest universities according to the registered number of graduates at the Office of Employment, Social Affairs and Family as registered unemployed, it characterizes the development of the number of unemployed graduates from different points of view.

Keywords:
university, university graduate, unemployed, job applicant

Introduction

Higher education offers university graduates a number of advantages. It is often stated that university graduates in developed countries are able to find a job more easily than graduates with lower education. That means that they are less endangered by unemployment. Their work is more qualified and they generally get a higher pay for it. In spite of this, in conditions of the Slovak Republic not all graduates find a job immediately after graduation. They have the option to apply at the Office of Employment, Social Affairs and Family and they expect the Office to help them find a job.

The aim of this paper is to highlight the development of universities in Slovakia as well as the situation of employment opportunities of their graduates in the labour market.

The paper defines the mission of universities in Slovakia, it characterizes the development of the number of universities in Slovakia, and it characterizes the registration of graduates at the Office of Employment, Social Affairs and Family, it points out the development of the number of registered graduates at the Office of Employment, Social Affairs and Family according to different aspects, as for example according to the stage of education, according to completed study specialisation, according to the time of registration.

1 Some aspects about unemployment

International Labour Organization (ILO) defines employment as a condition where the man was not working is not even one hour for wage or other remuneration during the past week, while during the last four weeks actively looking for work and is able to do the next two weeks to a suitable job to board. In general, a person is performing at least one hour per week of paid activities, or who are temporarily out of work (eg. Holiday), as a person employed. (Úrad vlády Slovenskej republiky, 2015)

The economists define three different kinds of unemployment: frictional, structural, and cyclical. Frictional unemployment is the unemployment which arises due to changes in employment, worker migration. In economy would always be some turnover as students search for jobs when graduate from school. This type of unemployment is often indicates as voluntarily unemployment. Structural unemployment is defines as unemployment when signifies a discrepancy (mismatch) between the supply of and the demand for workers. Cyclical unemployment is defines as unemployment when the overall demand for labor is low, or when employments falls as a result of an imbalance between aggregate supply and demand. (Lisý, J., 2011, Samuelson, P. A. – Nordhaus, W. D., 2005)

Erdem, E., Togcu, C. (2012) states: "research that explores the relation between higher education and unemployment is relatively rare". A brief overview of some of the research is presented in Table 1.

Table 1 The overview of research that exploreres/exists the relation between higher education and unemployment

Source	Country	Results
Schomburg (2000)	Germany	In general, the expansion of higher education was accompanied by a growing problem of graduate unemployment
Woodley and Brennan (2000)	United Kingdom	the rapid expansion of higher education coincided with the economic recession of the early 1990s, producing a rise in graduate unemployment and a decrease in permanent employment
Mora *et al*. (2000)	Spain	the negative face of the recent development in educational achievement of the young population is unemployment.
Moreau and Leathwood (2006)	Europe	they enhanced unemployment in most European countries and that this was not a temporary process.
Núñez and Livanos (2010)	EU15	higher education increases the employment opportunities and decreases unemployment across Europe.

Source: Author on the basis of Erdem, E. – Tugce, C. 2012

The table shows that between higher education and unemployment can be negative and positive relationship.

Recently the importance of the relationship between young people and unemployment and of the relation between graduate and unemployment has increased in Slovakia. There were developed several documents such as: Analysis of youth unemployment in Slovakia (Úrad vlády Slovenskej republiky, 2015), National employment strategy of the Slovak republic (Inštitút pre výskum práce a rodiny, 2014).

2 Universities in Slovakia

The mission of universities which are part of European University education and common European research according to § 1 paragraph 2 of Act No. 131/2002 of the Laws of the Higher Education to develop harmonic personality, knowledge, wisdom, goodness and creativity in man and to contribute to development of education, science, culture and health for the welfare of the whole society and this way to contribute to the development of the knowledge society.

In relation to the above mentioned basic mission of the universities in Slovakia, the long term plan in educational, research, developmental, artistic and other creative activity for the field of the universities until 2014 considered universities as important and exclusive places of education of experts at all stages of university education who are prepared for solving principal contemporary problems of the Slovak society, in the field of increasing the social and cultural level of the society, economic growth, improving the environment and in other fields at regional, national as well as international level. Therefore from the point of view of social practice, this long term plan specified also the requirement to create compliance between the structure of jobs in the economy and preparation of qualified labour force for the knowledge society sectorial priorities

3 Development of the number of universities in Slovakia

In Slovakia at present there are public universities, state universities, private universities and foreign universities. Since 2004 there have been twenty (20) public universities in Slovakia. Since 2007 there have been three (3) states universities in Slovakia.

The development of the number of universities in Slovakia in the years 2009 – 2014 is given in graph 1.

Since January 1st 2008 foreign universities from member states can gain the right from the Ministry of Education of the Slovak Republic to provide university education according to the legislation of the state of their seat. In 2007 three legislative procedures started for gaining such rights. Today four

universities have their seat in Czech the Republic and one university have it seat in Germany.

Development of the number of universities in Slovakia

	2009	2010	2011	2012	2013	2014
Foreign	3	4	4	4	4	5
Private	10	10	12	13	13	13
State	3	3	3	3	3	3
Public	20	20	20	20	20	20
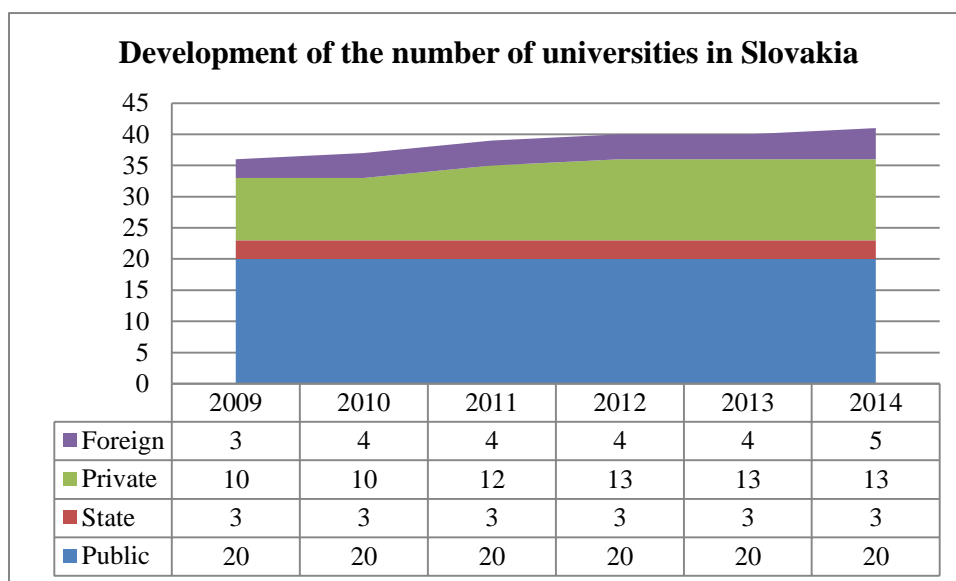
Graph 1 Development of the number of universities in Slovakia in the years 2009 – 2014
Source: Author on the basis of Annual Report on the state of university education in 2009 – 2014

4 Registration of graduates at the Office of Employment, Social Affairs and Family

The Office of Employment, Social Affairs and Family registers and statistically processes and provides information about the total number of job applicants – university graduates and young people. As university graduate job applicant is considered an unemployed citizen younger than 25 years of age who completed a consistent preparation for a job in full time study less than two years ago and did not gain his first regularly paid employment. The job applicant is defined as a citizen looking for a job who is registered among the unemployed at the Office of Employment, Social Affairs and Family after submitting a written application for employment mediation.

In the category of university graduates it distinguishes three stages of education:
- Higher vocational education (higher education completed by a bachelor degree),
- University education,
- Scientific education (qualification).

To register at the Office of Employment, Social Affairs and Family is voluntary. The graduate has no legal obligation to be registered as job applicant at the Office of Employment, Social Affairs and Family. The graduate who has no job and is not registered at the Office of Employment, Social Affairs and Family is considered to be voluntarily unemployed person and is obliged to pay health insurance.

The parent of the high school leaver can claim family allowances until the end of the school holidays i.e. until 31st August in the given year but only provided that the school leaver did not apply for a job at the Office of Employment, Social Affairs and Family.

A graduate who completed his study at a university by a state examination loses the character of dependent child and the following day after completing his study at the university by state examination. After completing the study at the university health insurance for the graduate is paid by the state only until the day of the state exam.

If the graduate decides to be registered among job applicants after his studies he has to submit personally a written application to be listed in the register of job applicants at the Office of Employment, Social Affairs and Family. If he applies to be registered within seven days after completing the study he will be listed in the register of the job applicants the following day after completing his study. If he applies to be registered after seven days from completing his studies he will be listed in the register of the job applicants from the day he personally submitted his application.

The graduate has no right to get unemployment benefits.

The graduate who was listed in the register of the job applicants at the Office of Employment, Social Affairs and Family has the following rights but also duties.

The Office of Employment, Social Affairs and Family provides the applicant free of charge:

- information about job vacancies and possibilities of looking for job vacancies,
- information and counselling services,
- specialist counselling services,
- tools of active measures on the labour market.

The basic obligation of a job applicant in compliance with the Law no. 5/2004 Collection of Act on Employment Services as amended is to show up at the Office of Employment, Social Affairs and Family once in a month and to submit evidence about active search for employment.

The way of active search for employment is chosen by the applicant himself from the following possible forms of documents:

- job applications,
- document about personal search for job with an employer,
- a certificate of the respective office about accepting of the application for the right to carry out and perform a job as self employed with the date of its acceptation,
- evidence of the initiation of the provision of personal assistance,
- evidence of the initiation of the provision of work assistance,
- application for job mediation to a legal or physical entity which performs paid job mediation, or

- application form employment submitted or sent to temporary employment agency.

5 Development of the number of the registered graduates at the Office of Employment, Social Affairs and Family

The Office of Employment, Social Affairs and Family keeps the register and regularly publishes the numbers of graduates according to the stage of education. In the Graph 2 is given the development of the number of the registered graduates according to the place of residence in 2014.
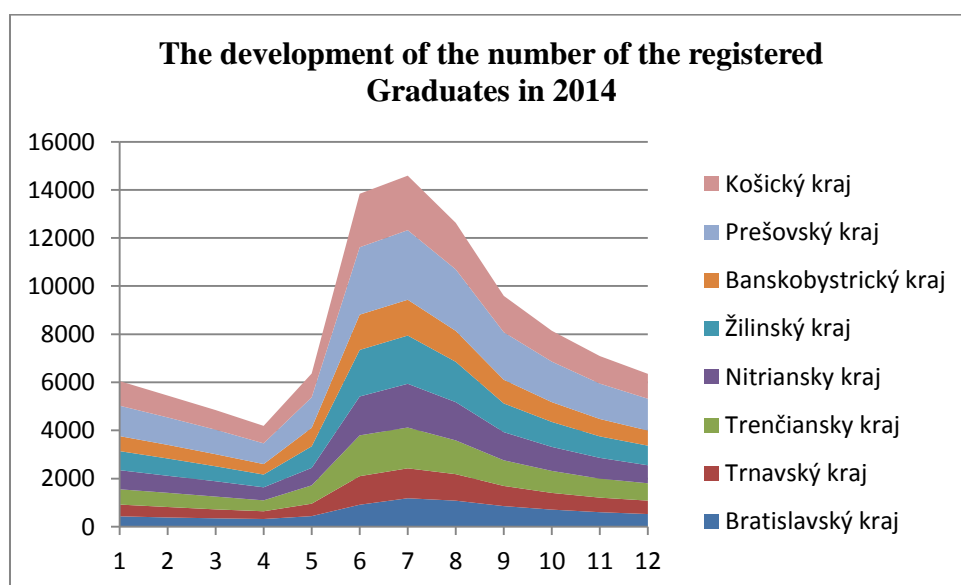
Graph 2 The development of the number of the registered university graduates according to the place of residence in 2014
Source: Author on the basis of data published on www.upsvar.sk

It follows from graph 2 that in the first four month of the year 2014 the number of registered graduates decreased. There was a growth in May, June, July. In the following five months the number of registered Graduates is decreasing.

The changes during the year are caused by natural factors. In May and June the university students finish their study. With the day of the state exam they stop being students and they register at the Office of Employment, Social Affairs and Family.

Graph 3 Development of the inflow of the job applicants (university graduates) in 2014
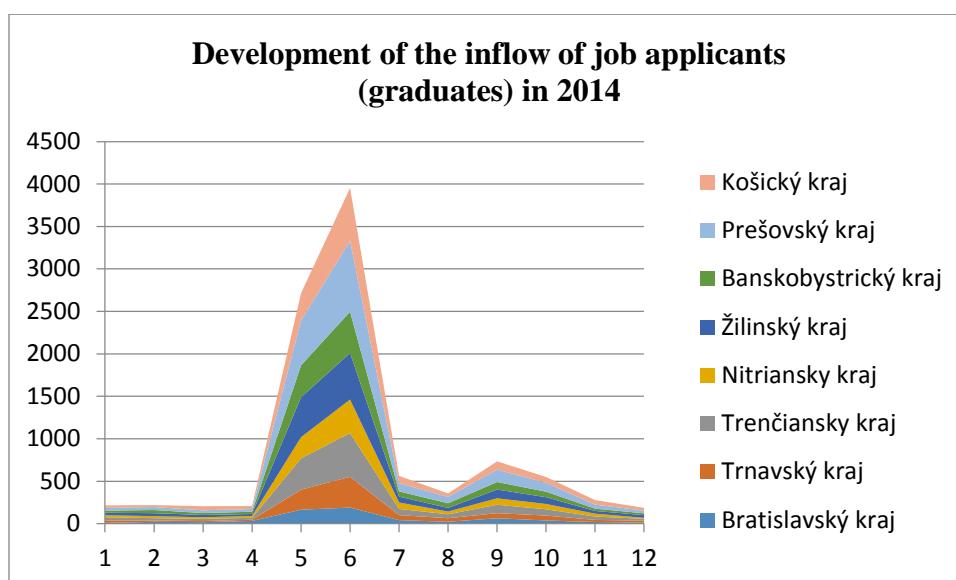Source: Author on the basis of data published on www.upsvar.sk
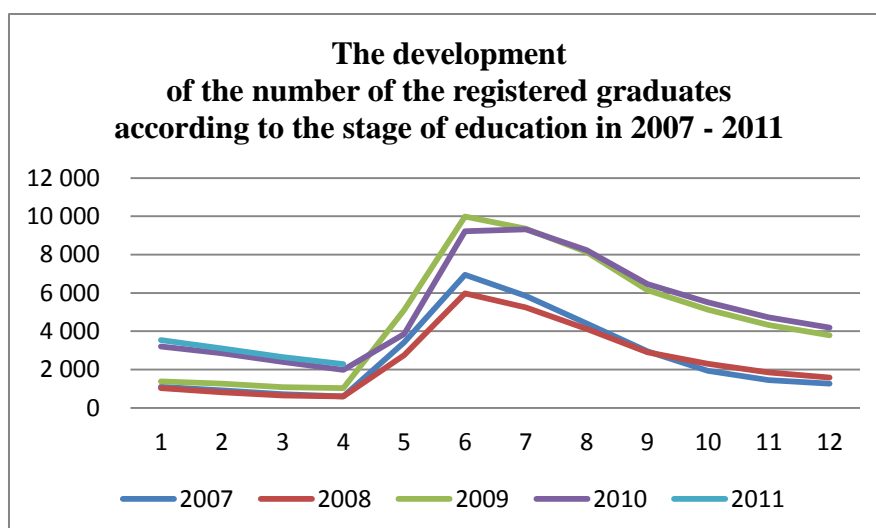
Graph 4
The development of the number of the registered graduates according to the stage of education in 2007 - 2011
Source: Author on the basis of data published on www.upsvar.sk

This phenomenon is explained in detail in the Graph 3. Since the beginning of 2014 the inflow of job applicants – university graduates did not change. In May and June when there are state exams and students are completing their studies, the inflow of these job applicants is growing sharply and in the following months it is decreasing and reaching lower values. In the end of August when there are state exams and students are completing their studies, the inflow of these job applicants is growing too.
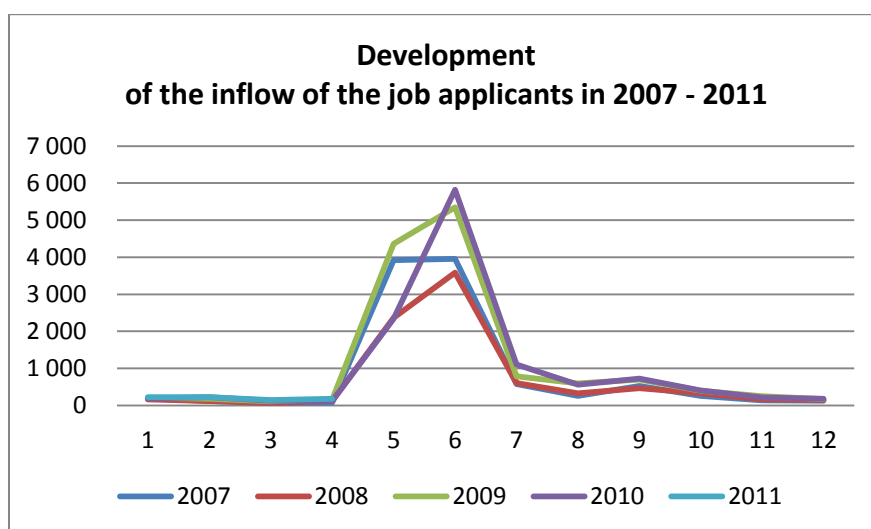
Graph 5
Development of the inflow of the job applicants in 2007 - 2011
Source: Author on the basis of data published on www.upsvar.sk

The situation in 2014 copies the development in the previous years. It means that in May and June the number of registered job applicants – graduates of universities rises sharply, and in July till December of the given year and January to April of the following year their number falls. (Graph 4, Graph 5).

Office of Employment, Social Affairs and Family monitors the job applicants – university graduates (as mentioned above) in three categories: graduates with a higher specialist education, graduates with a university education, and graduates with a scientific education.

In the category of the graduates with higher specialist education graduates are registered who reached higher education completed by a bachelor degree.

The development of the number of the registered graduates with university education is influenced by the development of the whole economy. The graduates apply for a job after passing the state examination. In the time of state exam there is a growth which is followed by a graduate decrease.

Data about the numbers of registered graduates of the ten greatest universities according to the registered number of graduates at the Office of Employment, Social Affairs and Family as registered unemployed of job applicants of graduates of universities in 2014 – 2015 in May, September and December given in the Table 1.

Table 2 The development of the number of job applicants – graduates of universities

UNIVERSITY	05/2014	09/2014	12/2014	05/2015	09/2015
01 - UNIVERZITA KOMENSKÉHO	338	893	493	384	917
04 - UNIVERZITA PAVLA JOZEFA ŠAFÁRIKA	326	486	312	255	451
05 - PREŠOVSKÁ UNIVERZITA	328	636	421	333	611
07 - KATOLÍCKA UNIVERZITA				285	
17 - UNIVERZITA KONŠTANTÍNA FILOZOFA	561	695	475	449	607
18 - UNIVERZITA MATEJA BELA	496	458	313	411	480
19 - TRNAVSKÁ UNIVERZITA	353			268	303
21 - SLOVENSKÁ TECHNICKÁ UNIVERZITA		513	311		454
24 - TECHNICKÁ UNIVERZITA KOŠICE	618	931	601	474	671
28 - ŽILINSKÁ UNIVERZITA	301	491	300		
31 - EKONOMICKÁ UNIVERZITA	321	528	367	225	391
41 - SLOVENSKÁ POĽNOHOSPODÁRSKA UNIVERZITA	379	604	418	342	612
OSTATNÉ	2346	3358	2341	1815	3114
SPOLU	6367	9593	6352	5241	8611

Source: Author on the basis of data published on www.upsvar.sk
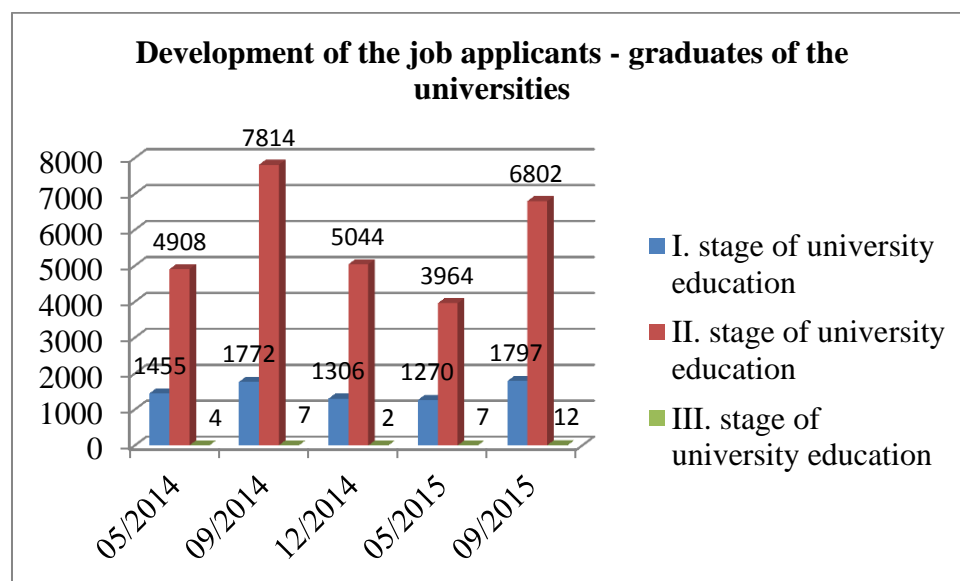
Graph 6 The development of the number of job applicants - graduates with university education in Slovakia
Source: Author on the basis of data published on www.upsvar.sk

Data about the numbers of job applicants of graduates of universities in 2014 – 2015 in May, September and December given in the Graph 6. In the table are given the numbers of job applicants – graduates with a higher specialist education (the first stage), graduates with a university education (the second stage), and graduates with a scientific education (the third stage).
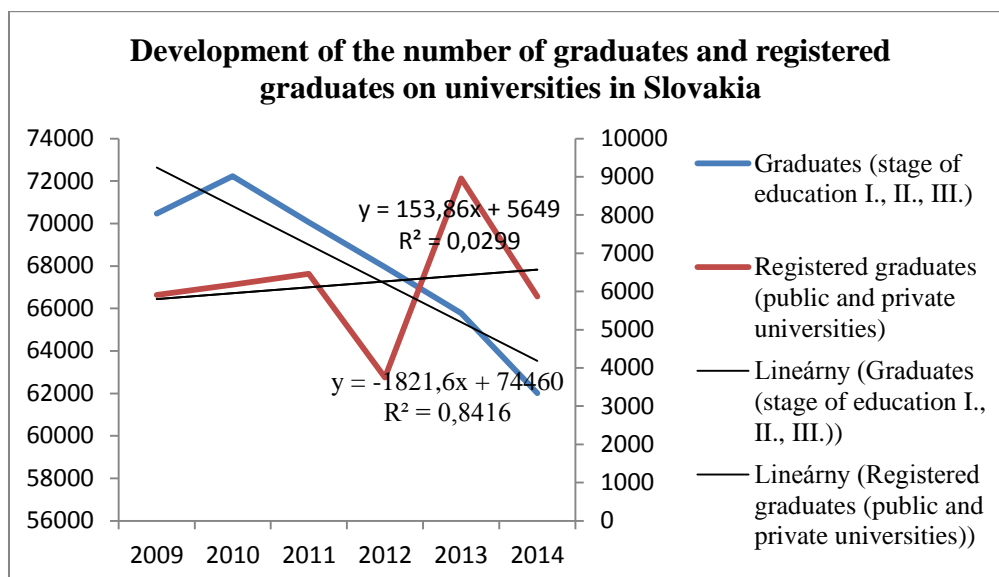
Graph 7 The development of the number of graduates with university education and registered graduates with university education in Slovakia
Source: Author on the basis of data published on www.minedu.sk
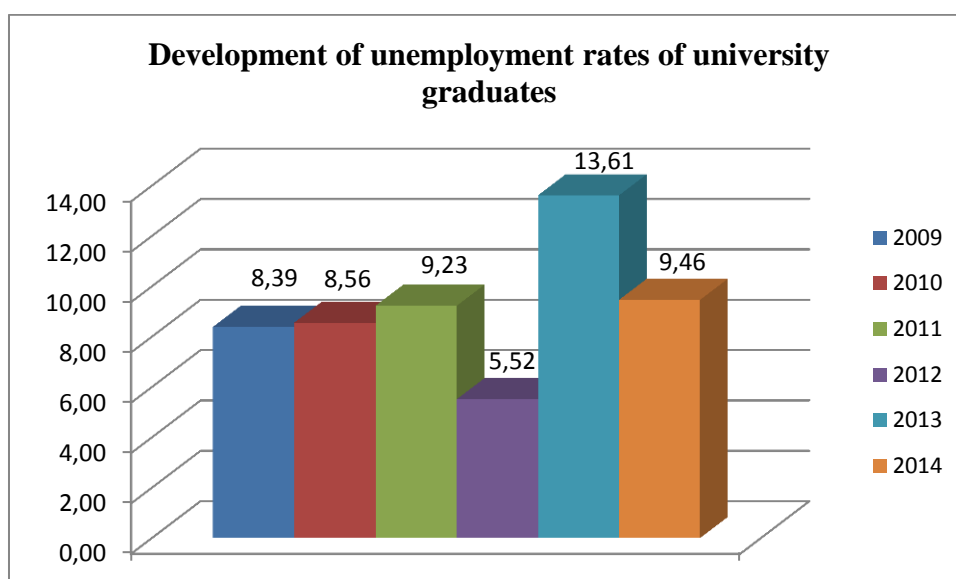
Graph 8 Development of unemployment rates of graduates with university education
Source: Author on the basis of data published on www.minedu.sk

The development of the number of graduates and the development of the number of registered graduates with university education in Slovakia explained the graph 7.

Graph 8 shows the development of unemployment rates of graduates with university education

6 Discussion

Office of Employment, Social Affairs and Family registers university graduates and regularly twice a year, in May, September and December it is published also on their website. These published data are difficult to evaluate with regard to the fact, that university students complete their university studies in different periods. Moreover after completing their studies they have the option to decide whether to apply for a mediation of a job immediately or they will look for a job themselves and only if they do not find anything, they will ask for mediation through the Office of Employment, Social Affairs and Family.

In spite of this fact we can say that if the university graduates cannot get employed in the labour market, they look for a job also through Office of Employment, Social Affairs and Family.

Conclusion

Universities in Slovakia are considered to be significant and exclusive places of education of specialists at all stages of university education. In spite of this many university graduates after completing their studies cannot find an appropriate job in the labour market, and therefore on the basis of a written application they ask the Office of Employment, Social Affairs and Family for mediation of a job. University graduates at the age up to 25 are a specific group of job applicants.

The problem of unemployment is getting especially painful when it concerns young people who after appropriate cultural, technical and professional training cannot find a job and they find with pain the thwart of their sincere will to work and take on responsibility for the economic and social development of the society.

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THE FINANCING OF THE STUDENTS' EDUCATION: UKRAINE AND POLAND EXPERIENCE

Myroslava KHUTORNA – Hanna CHEPELIUK

Abstract

This paper is devoted to the research of Poland and Ukraine experience of the students' education financing forms. This question is observed in the context of the effective system of the higher education development. Authors analyze and define positive and negative aspects of the current financing system of the education in Poland and Ukraine and grounded the motive forces for its improvement.

Keywords:

educational quality, students' financing, forms of the students' financing, subjects of the students' financing

Introduction

Education is one of the driving forces for the economic development. Education increases the efficiency of each worker, his ability to execute complicated tasks and his adaptability to the economic environment and production system demands progress. The forming of the human capital is of great importance because the more highly skilled labor force the more possibilities for the direct investments attraction to the technological sectors of economy can be done. It stands no reason that direct investments are the mechanism of the knowledge expansion, so education impacts positive economic effects. Optimal financing scheme of the students' education is one of the core elements for the development of the adequate system of the higher education, e.g. the transforming quantity to quality that is very meaningful for the developing and transition countries. The financing is an efficient mechanism for the rational structuring of the education system on the terms of the professional specialties in accordance with the state policy and real market demands.

The purpose of this paper is to analyze the mechanism of the financing of the students' education in Ukraine and Poland and to assess its efficiency for the successful education system providing.

1 The quality of the education: methodology and analytics

The quality of the education system is a complex category that is defined from a point of pedagogy; psychology; methodology etc. In general it has wide and narrow meaning. In accordance to the wide meaning the quality of the education is a well-balanced accordance of the educational process, its results and the system of education as a whole to the purpose, demands and social standards of the education (A. Novikov, 1999; A. Subetto, 2000).

According with the narrow meaning this category means the list of requirements to the personality, educational environment and educational system that are realized during person's education (O. Lokshyna, 2004).The most laconic definition is introduced by the World Bank: educational quality measured by what people know (Eric A. Hanushek, L. Wößmann, 2007).

This paper we base on the wide content definition that's why such criteria of the educational quality are picked out: legal framework, the level of the national pedagogical skills, the financing and the control of its proper use, the control of the educational activity and the quality of the professional training etc.

One of the main factors is the financing of the students' education that is the mechanism for the realization of some base features of the educational quality. We mean as follows: to encourage more people with high intelligence to the education; to stimulate an effective educational behavior; to stimulate universities' educational programs improvement in accordance with the market demands.

The education is the research object for many different institutions, e.g. the World Bank in the person of the International Bank for Reconstruction and Development researched the impact of the education on the individual earnings, on the distribution of income and on economic growth. World Economic Forum annually analyses the educational quality in the context of the countries' competitiveness assessment. We take into consideration its paper "The Global Competitiveness Report" and make the monitoring of the main indicators of the educational quality. The TOP-5 countries with the best quality of the education and the ranks of Ukraine and Poland are depicted in table 1. We also observe the indicators that are partly dependent on the educational quality, e.g. capacity for innovation, University-industry collaboration in R&D.

There is credible evidence that educational quality has a strong causal impact on capacity for innovation and as a result on economic growth. The most obvious it's for Switzerland and Finland. As to Ukraine and Poland they have very similar ranks and values on the majority of indicators. But at the same time we have determined some evident advantages and disadvantages of the Ukraine's and Poland's systems of education. As to Ukraine its math and science education, in the opinion of the World Bank, is of a good quality, but the quality of the management schools needs urgent intervention for improvement. At the same time not bad quality of the math and science education doesn't have a tight correlation with Ukraine's capacity for innovation.

Table 1 The indicators of the educational quality

	2011-2012 (rank* / value**)	2012-2013 (rank / value)	2013-2014 (rank / value)	2014-2015 (rank / value)
	The academic year			
Quality of the educational system				
Top - 5	Finland – 6,7	Finland – 6,8	Finland – 6,8	Finland – 6,7
	Belgium – 6,4	Belgium – 6,4	Belgium – 6,3	Belgium – 6,2
	Singapore – 6,1	Barbados – 6,1	Singapore – 6,0	Singapore – 6,0
	Switzerland – 5,9	Singapore – 6,1	Barbados – 6,0	Switzerland – 5,9
	Barbados – 5,8	Switzerland – 6,0	Switzerland – 6,0	Barbados – 5,9
Ukraine	52 / 4,2	44 / 4,4	37 / 4,7	40 / 4,7
Poland	47 / 4,4	54 / 4,2	58 / 4,2	53 / 4,3
Quality of math and science education				
Top - 5	Singapore – 6,4	Singapore– 6,3	Singapore – 6,3	Singapore – 6,3
	Belgium – 6,3	Finland – 6,2	Finland – 6,3	Finland – 6,3
	Finland – 6,3	Belgium – 6,2	Belgium – 6,0	Belgium – 6,0
	Switzerland – 5,8	Lebanon – 5,9	Lebanon – 5,8	Switzerland– 5,9
	Taiwan, China – 5,8	Switzerland – 5,8	Switzerland – 5,8	Lebanon – 5,7
Ukraine	36 / 4,6	34 / 4,6	28 / 4,8	30 / 4,8
Poland	52 / 4,3	59 / 4,1	69 / 4,1	50 / 4,4
Quality of management schools				
Top - 5	Belgium– 6,1	United Kingdom – 6,1	Switzerland – 6,1	Switzerland – 6,2
	United Kingdom – 6,0	Belgium – 6,0	Belgium – 6,0	Belgium – 6,0
	Switzerland – 6,0	Switzerland – 6,0	United Kingdom – 5,9	Spain – 5,9
	Canada – 5,8	Spain – 5,8	Spain – 5,8	Portugal – 5,9
	France – 5,7	Canada – 5,7	France – 5,8	United Kingdom – 5,8
Ukraine	116 / 3,4	117 / 3,4	115 / 3,6	88 / 3,9
Poland	78 / 4,0	85 / 4,0	89 / 4,0	84 / 4,0
Capacity for innovation				
Top - 5	Japan - 5,8	Japan – 5,9	Switzerland – 5,8	Switzerland – 5,9
	Switzerland – 5,8	Switzerland – 5,8	Finland – 5,7	United States – 5,9
	Germany – 5,7	Germany – 5,7	Germany – 5,6	Israel – 5,8
	Sweden – 5,7	Finland - 5,6	Israel – 5,6	Germany – 5,6
	Finland – 5,6	Sweden – 5,5	United States – 5,6	Finland – 5,6
Ukraine	42 / 3,4	58 / 3,3	100 / 3,2	82 / 3,6
Poland	49 / 3,3	54 / 3,3	62 / 3,6	67 / 3,8
University-industry collaboration in R&D				
Top - 5	Switzerland – 5,8	Switzerland – 5,9	Switzerland – 5,8	Finland - 6,0
	United Kingdom – 5,8	United Kingdom – 5,8	Finland – 5,8	United States – 5,8
	United States – 5,7	United States – 5,6	United States – 5,7	Switzerland – 5,8
	Finland – 5,6	Finland – 5,6	Singapore – 5,6	United Kingdom – 5,7
	Sweden – 5,5	Singapore – 5,6	United Kingdom – 5,6	Singapore – 5,6
Ukraine	70 / 3,6	69 / 3,6	77 / 3,4	74 / 3,5
Poland	65 / 3,6	67 / 3,6	72 / 3,5	73 / 3,5

* The total number of the ranked countries: 2011/2012 – 142; 2012/2013 – 144; 2013/2014 – 148; 2014/2015 – 144.

** [1 = poor; 7 = excellent – among the best in the world]

Source: Authors' own study; data: World Economic Forum, The Global Competitiveness Reporthttp://www.weforum.org/ (The Global Competitiveness Report, 2011-2012, 2012-2013, 2013-2014, 2014-2015).

2 The structure of the higher education system of Ukraine

Ukraine's higher educational system is represented by two types of the institutions. The first one – the institutions of the first and second cycle – are the universities, academies, institutes, conservatories. The second one – the institutions of the short cycle – are high schools. In 2013/2014 academic year the system of the Ukraine's higher education consisted of the 80% state institutions and 20% private. At the same time 30% of the institutions of the first

and second cycle are private (Table 2).It should be mentioned that the number of the higher educational institutions and the share of the private ones are too high compared with Europe. For example there are 423 higher educational institutions in Germany as against 803 institutions in Ukraine. Besides it the population of Germany is 80,8mln persons and there are 43 mln inhabitants in Ukraine. Among them there are 2,6 mln students in Germany and 2,1 mln students in Ukraine (Statistisches Bundesamt, 2015). The ratio of the students' number to the population number shows the higher level of the inhabitants' attraction to the higher education in Ukraine (4,8% in Ukraine in contrast with 3,2% in Germany). Comparing the level of the economic development of Germany and Ukraine becomes quite evident that it's just quantitative indicator that doesn't reflect the quality and effectiveness of the educational system. It additionally confirms that educational quality in developing and transition countries is much worse than educational quantity.

Table 2 Higher educational institutions of Ukraine during 1995-2014 academic years

Indicators	Academic years							
	1995/1996	2000/2001	2005/2006	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014
Number of the institutions of the first and second cycle (institutes), units	**255**	**315**	**345**	**350**	**349**	**345**	**334**	**325**
including:								
state institutes	191	223	232	242	243	238	231	229
in percentage, %	74,9	70,8	67,2	69,1	69,6	69,0	69,2	70,5
private institutes	64	92	113	108	106	107	103	96
in percentage, %	25,1	29,2	32,8	30,9	30,4	31,0	30,8	29,5
Number of the institutions of the short cycle (high schools), units	**782**	**664**	**606**	**511**	**505**	**501**	**489**	**478**
including:								
state high schools	735	593	517	432	423	423	415	407
in percentage, %	94,0	89,3	85,3	84,5	83,8	84,4	84,9	85,1
private high schools	47	71	89	79	82	78	74	71
in percentage, %	6,0	10,7	14,7	15,5	16,2	15,6	15,1	14,9
Number of the higher institutions, units	**1037**	**979**	**951**	**861**	**854**	**846**	**823**	**803**
including:								
state institutions	926	816	749	674	666	661	646	636
in percentage, %	89,3	83,4	78,8	78,3	78,0	78,1	78,5	79,2
private institutions	111	163	202	187	188	185	177	167
in percentage, %	10,7	16,6	21,2	21,7	22,0	21,9	21,5	20,8
Total number of students, thousands of persons	**1 540,5**	**1 930,9**	**2 709,2**	**2 599,4**	**2 491,3**	**2 311,6**	**2 170,1**	**2 052,7**

Source: Authors' own study; data: State Statistic Service of Ukraine, Statistic Bulletin of the State Statistic Service of Ukraine http://www.ukrstat.gov.ua/.

As it's shown in table 2 during last 19 years the number of the higher institutions decreases annually in Ukraine. At the same time the number of the institutes (institutions of the first and second cycle) increases constantly and there are 325 units for now. The share of the private institutes has been 30% since 2000/2001 academic year, but a big demand among the students is not observed: only 9% of students study at private institutions (table 3).

Table 3 Number of students of the higher institutions of Ukraine during 2010-2014 academic years

Indicators	Academic years			
	2010/2011	2011/2012	2012/2013	2013/2014
Students of the state institutions, persons	2 181 363	2 042 724	1 946 666	1 861 600
in percentage, %	87,6	88,4	89,7	90,7
Students of the private institutions, persons	309 925	268 833	223 475	191 078
in percentage, %	12,4	11,6	10,3	9,3

Source: Authors' own study; data: State Statistic Service of Ukraine, Statistic Bulletin of the State Statistic Service of Ukraine http://www.ukrstat.gov.ua/.

The institution that is responsible for the education quality in Ukraine is the Ministry of Education and Science of Ukraine. It drafts and controls whether the educational institutions follow the standards of the education. The higher education is managed by the Department of the Higher Education of the mentioned above Ministry.

3 The typology of the students' financing

The goal of the students' financing mechanism is to admit young people to higher education in spite of lack of financial potentialities. That is why the financing is a driving force for providing the equal access for education. Except this other aims of the financing are to support the talented students and to stimulate their effective academic behavior.

The students' financing can be done in such forms:
- the monetary form that anticipates the money transferring in favor of a students or their releasing from a payment. One type of such financing form is the grant that expects a direct money giving to a student or the diminution of the education fee;
- the natural form that anticipates the goods or services giving (e.g. free of charge accommodation or free fare).

In accordance to its content the financing divides into specific and nonspecific that depends on the restrictions to the spheres of its use. For example, a direct financing of the students' catering is a specific one.

Due to the subject of financing it can be individual and a family one. If an individual financing is given to a student, a family one is given to a family that is responsible for a student's keeping.

Due to the conditions of use financing divides on returnable and non-returnable; requiring payment of the annual interest or free of charge (0% interest).

The sources of the students' financing can be a state budget; funds of the private investors; funds of the financial intermediaries; financial aid from the special funds of development.)

4 The experience of Ukraine in students' financing organization

Only the pupils that pass the exams (Internal Independent Assessment) can become students and obtain the right for the financing aid in Ukraine. It should be said that this Internal Independent Assessment is organized by the state institution and is held as a testing on some disciplines that are chosen by each person individually depending on the institutes and specialties he/she is interested in.

So, just young people, who have a higher than minimal educational level, can enter institutes or high schools. Except this each institute sets its minimal threshold for the results of the student's Internal Independent Assessment that is the second level of the entrant's filtration.

The most essential form of the students' financing in Ukraine is the funds of the state budget. The information about the students that use a state financial aid is depicted in Table 4. As we can see their number has a decreasing trend and it's caused by the general tendency for the higher institutions closing down and natural reduction of the students' number. At the same time the share of the students that study at the expense of the state budget is increasing constantly.

Table 4 Number of students that use a state financial aid for the education obtaining in Ukraine during 2009-2014 academic years

Indicators	Academic years				
	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014
Students of the high schools, persons	209021	209 685	208 069	203 584	201 323
in percentage, %	19,9	20,0	20,7	20,6	20,7
Students of the institutes, persons	842158	836 167	795 751	785 975	769 249
in percentage, %	80,1	80,0	79,3	79,4	79,3
The total number of students (state financed), persons	1 051 179	1 045 852	1 003 820	989 559	970 572
in percentage to the total number of students, %	40,4	42,0	43,4	45,6	47,3

Source: Authors' own study; data: State Statistic Service of Ukraine, Statistic Bulletin of the State Statistic Service of Ukraine http://www.ukrstat.gov.ua/.

The state order for the education is an instrument of the state regulation of the economic and society needs satisfaction by well-qualified personnel and providing the constitutional rights for the citizens to get the education. It should be mentioned that nowadays in Ukraine there is the system of a state order but there is no system of the state financing of the higher education. The system that functions in Ukraine is characterized by such features:

1) the state funds refer to the institution, not to the concrete student;

2) each higher institution, before the entrance company begins, requests to the Ministry of Education and Science of Ukraine with its proposals for the number of students that they forecast to study at the expense of the state budget.

At present the system of the state financing of the Ukraine's education is under the reform. Until June 2014 no less than 51% of the general admitted students had a right for the state financing. The scope of the state financing in each institute from 2015/2016 academic year will depend on its last year scope and the educational level of the admitted students – their results of the Internal Independent Assessment. So, the institutes with more skilled students will be able to attract more state funds and as a result be more winning for the educational services users. The final target of the current reforms is to introduce a direct financing when the state funds will be placed to the student's account in a chosen university. From our point it will stimulate a strict competition among educational institutions, educational quality improvement and the destruction of any corruption in this sphere. At the same time it will be a serious threat to a small regional educational institutions existence not because of their quality but their recognition among a very limited stratum of society.

It should be said that a state financing is free of charge (0% interest rate) and non-returnable fund for its users. So, the student whose studies are financed by the budget funds has no commitments for their repayment, returning or obligations for the job placement in the state institutions, except military specialty.

Another form of the students' financing is a scholarship. If a student passes all exams successfully he/she gets a right for a scholarship which is paid by the state funds. Scholarship is available only for those students who study in state institutions and at the expense of the state budget. As for scholarship it's divided on the academic, named and social. The rates of the first two types depend on the academic results of the student and take into consideration the academic specialty, its complexity and priority for the state policy. The minimal scholarship and the subsistence minimum are depicted in Table 5. The social scholarship is an element of the social state policy for some sections of the population.

Table 5 The minimal students' scholarship during 2009-2015 in Ukraine

Indicators	Years						
	2009	2010	2011	2012	2013	2014	2015*
The minimal scholarship, USD	67,9	66,7	66,7	91,5	91,4	61,2	32,0
hryvnia	530	530	530	730	730	730	730
The subsistence minimum for unable-bodied person, USD	83,4	112,5	122,4	138,3	148,1	102,2	53,4
hryvnia	651	894	973	1104	1183	1218	1218
The ratio between the minimal scholarship and subsistence minimum, %	81,4	59,2	54,5	66,1	61,7	59,9	59,9

* for the 1st of September 2015
Source: Authors' own study; data: Law of Ukraine "On the State Budget of Ukraine" (for the according year), data: http://www.rada.gov.ua/ (The Act on the State Budget of Ukraine).

The information about the minimal scholarship and subsistence minimum is presented in hryvnias and dollars of USA (Table 5). The last one gives a real value of the students' financial aid. As we can see the ratio between the minimal scholarship and subsistence minimum is 60% and what is important – any of these social aids cannot cover all vital expenses for the able-bodied person per month. The academic scholarship doesn't account the students' financial condition but their academic results. The social and financial conditions of a student influence on the social scholarship.

Another form of the students' financing is a special-purpose concessional state loan. Its purpose is to finance the studying for obtaining the higher education. It's available only for the citizen of Ukraine up to 28 years old. This loan can be used only once for obtaining a diploma of junior specialist, bachelor or master. The loan conditions are as follows:

- its interest rate is 3%;
- its maturity is 15 years;
- the payment period begins on the 12th month after the student's graduation;
- the borrower has to pay 1/15 of the loan during 15 years annually.

Concerning the loan repayment there are additional conditions that make this financing more beneficial for young people. If a borrower has one child he/she becomes free of the interest payment; if he/she has two children then 50% of the debt is written off. Also if the borrower works in the state institution during 5 years after graduating the institute he is free of any loan obligations (The order of the special-purpose concessional state loan lending, 2003). Such financial instrument is rarely used in Ukraine. Upon average only 2-3 students of each institute are complied with their requests for getting this special-purpose concessional state loan. And just a part of them get a positive result. The main reason of it is a chronic state budget deficit. Another problem is inefficient mechanism for the debts repaying. In the case of the bad debt (the case when a borrower is not willing to pay), there is no agreed mechanism for the debt management, even the claimant for such process is undefined. It is not

determined whether it should be a state or a higher institution or a bank. This fact makes this financial instrument totally incapable.

Another form of the state students' financing concerns those who are self-financed or study by the private funds. If a person who pays for the education receiving is a taxpayer he/she gets a right for the tax remissions. As it was mentioned above more than a half of students finance their education by themselves (Fig.1).
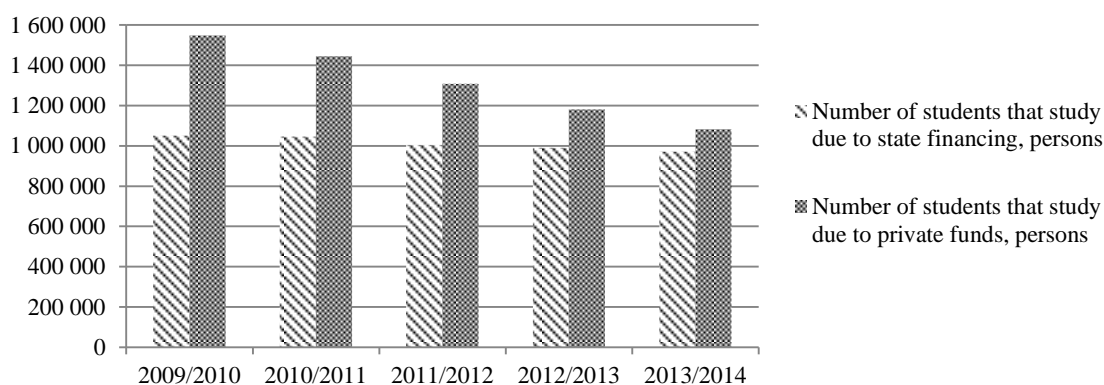

Figure 1 The dynamics of the students' number during2009-2014 in Ukraine depends on the educational financing forms
Source: Authors' own study; data: State Statistic Service of Ukraine, Statistic Bulletin of the State Statistic Service of Ukrainehttp://www.ukrstat.gov.ua/.

It results from the figure 1 that the number of students studied at the expense of the state financing is practically constant, but the "self-financed" students decrease annually that is caused by different factors demographic including.

Except a monetary form the state also provides a specific financing in natural form, e.g. discount of the fare during the academic semesters.

Another subject of the students' financing is a bank and such financial instrument as a loan that is absolutely unavailable for the Ukrainian students now. Banks of Ukraine don't have any specialized financial products for the students' financing – we mean any long-term loans with the payment period beginning after the student's graduation and his job placement. Of course, a person can get a loan, but it will be an ordinary consumer (personal) loan. An average interest rate of such type of loan is no less than 30%. As it's a personal loan its payment period begins immediately. So, it means that such financial instrument can be available to the student's parents not to the student himself.

It should be mentioned that the reasons for the absence of the special banking products for the education financing are: high level of bank's uncertainty in future student's job placement and his future solvency that depends directly on the salary. The ratio between the number of the unemployed young people and able-bodied persons since 2000 is 17%. It's caused by the quality of the national education, its correspondence to the employers'

requirements, the structural disproportions among quantity, quality and specialty of the graduated students and demands of the Ukraine's economy.

Conclusion

In order to identify the problems of the Ukrainian system of education financing it's reasonable to observe it under such criteria: the equal access to the education; the stimulation of the talented students; the possibility of the non-purpose funds use; the institutional aspect of the system functioning; the efficiency of the expenses; the success orientation (The German Consultive Committee in Economics of the Government of Ukraine, 2003).

Ukraine's system of the higher education aims at the young people with the average academic level and the will to get professional education. Among candidates that pass the first level of the selection there are also some persons with a particular rights and additional preferences for going through the entrance competition in the educational institution. As for the students with a law income if they enter higher institution they get a social scholarship obligatory. The source of these funds is a state budget of Ukraine.

So, the current system of the students' financing is oriented on the skilled students, only the best ones enter the institutes and have an access to the financial aid. The scholarship correlates with the student's academic results that make Ukrainian system success-oriented. But at the same time only students that are orphaned get a financial aid in 1,5 times more than the subsistence minimum. The aid of others is much less than the subsistence minimum. From one hand this differentiation provides a social justice. But the fact the academic and social scholarship yield to the subsistence minimum essentially, especially due to the 300% hryvnia's devaluation, it negatively influences on the equal access to the higher education. Firstly all these are caused by the inadequate Ukrainian economy and concerns not only students.

As it was mentioned above 50% of Ukraine's students study at the expenses of the state budget that is the funds of the taxpayers. That is why the core problem is their effective and proper use. The high level of the Ukrainian corruption is a well-known fact, but higher system of education in Ukraine is a good exception. Due to the 1st stage of the students selection (Internal Independent Assessment) only skilled persons have an access to the state financial aid. So, the possibility for the non-purpose use of the funds is really low in Ukraine and due to the current reforming can be destroyed totally.

Concerning the institutional aspect of the system functioning it's presented by two state institutions – the Ministry of Education and Science of Ukraine and Ukrainian Center of the Educational Quality Assessment. The last one is responsible for the skilled young persons' selection by holding the Internal Independent Assessment. So the infrastructure is not complicated with a clear distribution of duties that is a good feature of the researched system.

Another important aspect of the educational system effectiveness is the quality assessment of the higher educational institutions. The spending of the students' financing (state or private) for studying in institutes that do not correspond to any minimal quality requirements does take place in Ukraine. This is caused by the corruption in the central executive agency that licenses and accredits the higher educational institutions. So, on the one hand due to the Internal Independent Assessment Ukraine has minimized already the non-purpose use of the students' financing funds, but on the other hand because of the bad educational institutions existence it is still present in Ukrainian system. The only way to solve it is to initiate the functioning of the independent agency for the analysis and assessment of the higher educational institutions quality. Such agency will appear in Ukraine in September 2015 in a person of the National Agency for Higher Education Quality Assurance. We consider that the introducing of the efficient control on the educational institutions quality will allow to improve the quality of the students' educational results, their market competitiveness that will stimulate the implementation of the developed schemes of the students' financing.

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OCCURRENCE OF SUKUK ISSUES ON HIGH GRADE MARKETS

Robert VERNER

Abstract
This paper focuses on Sukuk as an equivalent of conventional debt instrument on capital markets. Contrary to standard bonds, principles of Sukuk are in compliance with sharia rules which prohibit interest-bearing transactions. Since there is an increasing significance of financial institutions from Islamic countries on global financial markets, Sukuk becomes an feasible alternative of raising funds also for Western banks and investment companies. In this paper we analyze recent issues that have been introduced by high grade institutions. As many non-Islamic entities are joining the Sukuk market, we expect this sector to grow rapidly and become on of the fastest segments in Islamic finance..

Keywords:
bond, issue, islamic finance, Sukuk

Introduction

Sukuk can be regarded as an equivalent of standard bond in the conventional financial markets environment, however, this instrument is in compliance with sharia rules which prohibit interest-bearing transactions. Research on Sukuk has increased substantially in last few years. Zulkhibri (2015) provided an overview of the literature from the perspectives of the underlying theory and nature, the operational issues, and the role of Sukuk in economic development. His article indicates that research on Sukuk has been rather qualitative than quantitative, with most of academic effort in the form of conference papers. Using the partial adjustment model, Mohamed et al. (2015) optimized a firm's target debt behavior. Their sample consiststed of 80 Sukuk issuers and 120 conventional bonds from 2000 to 2012. Obtained results provided support for trade-off theory based on a firm's optimizing behavior among issuers, however with different issuance motives for Sukuks and conventional bonds. Issuers of partnership-based Sukuk and convertible bonds followed the pecking order theory, in which partnership-based Sukuk is chosen based on facing a higher information asymmetry cost. Azmat et al. (2014) focused on specific Sukuk offers in Malaysia and argued that the issuers have various motivations when choosing between specific Sukuk and conventional bonds. Using an event study methodology on a sample of Malaysian listed companies, Godlewski et al. (2013) explored whether stock investors have different reactions to the announcements of Sukuk and standard bond issues. They showed that the stock investors are neutral to announcements of standard bond offerings, however, they react negatively to notification of Sukuk issues. On the other hand, Alam et al. (2013) claimed that the market reaction on the announcement of Sukuk issue was negative before and during 2007 global financial crisis. Market reaction was positive for conventional bonds before the crisis and negative during and after crisis. The volume of offering had a positive impact on the cumulative abnormal

return in case of conventional bond and negative impact in case of Sukuk. Miller et al. (2007) and Wilson (2008) claimed that Sukuks do not significantly differ from standard bonds, since they are usually structured along Western rules of securitization. On the other hand, Cakir and Raei (2007) stated that there exist disparities between the Sukuk and standard bonds primarily in terms of risk reduction.

Aloui et al. (2015) explored the relationship between the sharia stocks and Sukuk in the Gulf Cooperation Countries applying the bivariate two-state Markov switching regime EGARCH. Their outcomes supported the presence of two different regimes in both the conditional mean and the conditional variance of sharia stock and Sukuk returns. According to their results, the relationship between the sharia stocks and Sukuk markets are regime-dependent and the volatility of sharia stock market reacts asymmetrically to events in the Sukuk markets. Arundina et al. (2015) aimed at Sukuk rating forecasting using statistical as well as non-statistical methods, such as neural networks. Regarding the accuracy of classification, they concluded that neural network model had better results than multinomial logit and more successfully predicted Sukuk rating in the sample. Neural network classified training sample with 96.18% accuracy rate, while multinomial logit achieved 72% accuracy rate. However, both techniques indicated that stock price and Sukuk structure were important in determination of Sukuk rating. The objective of study presented by Abulgasem et al. (2015) was to explore whether or not corporate governance, financial ratios and Sukuk structure, had significant influences on Sukuk ratings. Their sample consisted of 25 publicly listed Malaysian firms during 2008 and 2012. Authors suggested that there exists positive relation between corporate governance and Sukuk rating. Sukuk ratings were positively related mainly to chairman duality and board size. There was also positive impact of profitability and issue size on the rating. On the other hand, ratings were negatively related to financial leverage.

Hamid et al. (2014) and Kamarudin et al. (2014) aimed their attention at Sukkuk defaults. They discovered that the highest number of defaults occurred in 2009. In addition, the majority of defaults was recorded in industrial products sector. Moreover, their findings indicated the positive relationship between board size and default of Sukuk.

Islamic finance and Sukuk

Islamic finance operates strictly according to Islamic law (sharia). Similar to standard financial systems, it features banks, capital markets, funds, investment or insurance companies. However, these entities operate on concept of balance, which should ensure that their motives and objectives are beneficial to society. Major principles of Islamic finance are (Jamaldeen, 2012):
- balance between material and spiritual needs,
- balance between needs of individual and needs of society,

- belief that Allah is the owner of all wealth,
- free market economy,
- prohibiting interest-based transactions,
- encouraging risk-sharing in economic transactions,
- avoiding gambling,
- avoiding investment in prohibited industries.

The Islamic capital market consists primarily mainly of bond market (Sukuk), equity and commodity market. Sukuk might be defined as a certificate of proportional and undivided ownership right in asset, pool of assets, or a business. Given assets must be involved in a particular investment activity that is in compliance with sharia rules. Sukuk is the equivalent of bonds in the conventional system. The major differences between the two can be summarized as follows (El Tiby, 2011):

- bond represents a certificate of debt owed by the issuer, while Sukuk is proportionate and undivided ownership right over the asset in which the funds are being invested,
- Sukuk can be offered only for specific purposes and invested into assets in compliance with sharia,
- proceeds from Sukuk are invested into real underlying assets, therefore, the income must be related to the purpose for which the funding is used,
- Sukuk investors have ownership claims on the specific assets or the underlying business, while bond investors are usually general creditors,
- sharia requires proceeds from Sukuk to be routed to productive purposes rather than speculative activities which ensures that it has real economic values,
- Sukuk cannot be traded in the secondary market (unless the ownership right comprises the majority of real assets and financial rights).

Sukuk with asset-backed structure involves the physical ownership rights in the underlying assets. In order to be a asset-backed structure, it needs to meet the requirements of external credit assessment organization. In this structure, the issuer purchases the assets and leases them on behalf of the investors, using the funds received from the issued Sukuk notes (El Tiby, 2011). In case of default, the Sukuk investors must have a right of recourse to the originator since the ownership over the asset might not practically result into an effective right of possession. This structure can be referred to as pay-through structure, because the yield from the asset is paid through the issuer to the Sukuk investors. On the other hand, in the pass-through asset-based Sukuk structure, a separate issuing entity purchases the assets from the originator, create pools and behave as the issuer of the Sukuk. In this case, originator has to provide recourse for the asset to the Sukuk investors. In case of default, the issuer ensures payoff by providing

sharia compliant credit enhancement. Among many different types of Sukuk we might recognize primarily:

- ijarah - certificate of ownership in leased asset,
- usufruct - certificate of ownership issued for specific purposes,
- salam - holders of these certificates are the owners of the goods and are entitled to the sale price of the certificate or the sale price of the salam goods,
- istisna - certificates value issued for the purpose of raising funds for manufacturing,
- murabaha - certificates issued for the purpose of financing the purchase of goods,
- musharaka - certificates based on participation contracts.

Global Sukuk issues

In 2013, global Sukuk issuance approached 117 bln. USD, while at the end of 3Q 2014, it already reached 100 bln. USD (Thomson Reuters Zawya, 2014). Malaysia has the largest Sukuk market in the world and has introduced many Sukuk innovations. Given growth of Sukuk in Malaysia has been supported by the transparency of regulatory treatment and strategic focus on developing a comprehensive Islamic financial system. Figure 1 presents outstanding amount and amount of Sukuk issues in 2013, while Figure 2 shows the breakdown of global Sukuk issues in 2013 by sector.
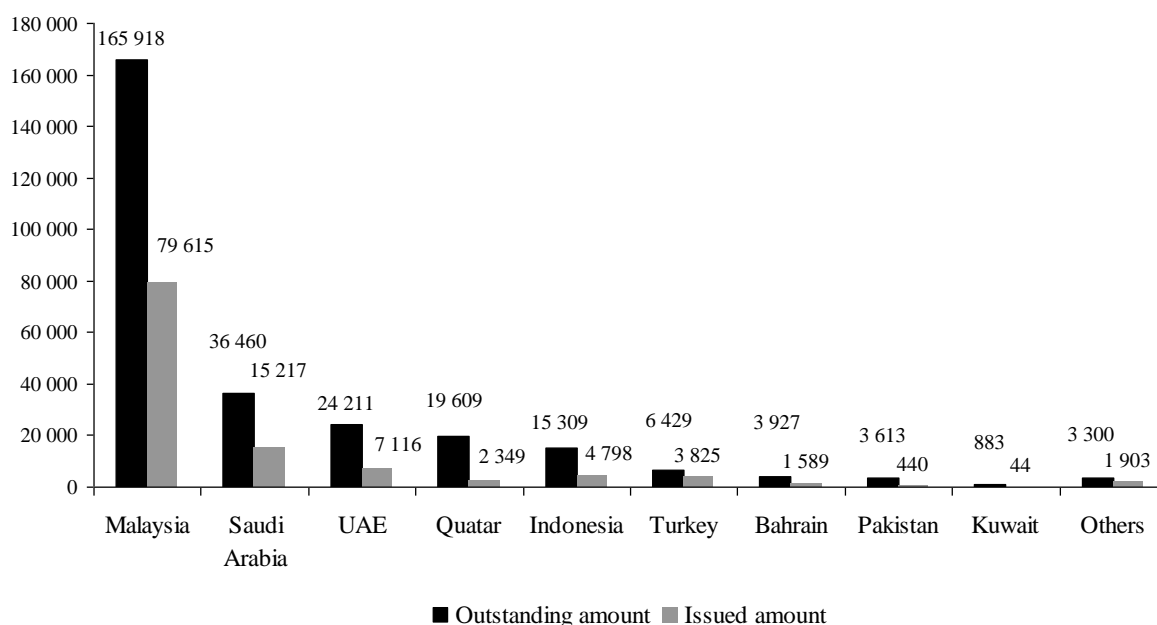

Figure 1 Outstanding amount and amount of Sukuk issues in 2013 (mil. USD)
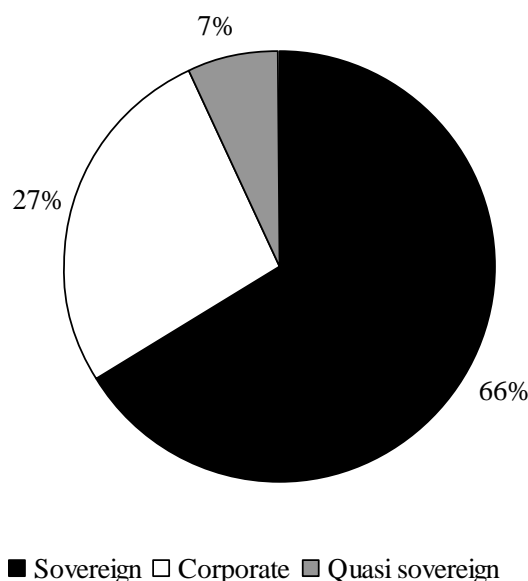Source (Thomson Reuters Zawya, 2014)

7%

27%

66%

■ Sovereign □ Corporate ■ Quasi sovereign

Figure 2 Sukuk issues in 2013 by sectors
Source (Thomson Reuters Zawya, 2014)

Sukuk issues in high grade markets

As we mentioned, the increasing phenomenon on financial markets are Sukuk issues by institutions outside the Islamic world. The large demand might be driven by two classes of investors - investors sensitive to sharia, or investors seeking for attractive yields and diversification of their fixed income portfolio.

In 2014, four high-grade entities participated in Sukuk primary markets. United Kingdom issued 200 mil. USD Sukuk with 5-year maturity. The issue was 10-times oversubscribed, i.e. order books were over 2 bln. USD. In September 2014 guaranteed Goldman Sachs 500 mil. USD Sukuk al-Wakala issued by JANY Sukuk Company Limited. Goldman Sachs guaranted JANY's obligation to pay the deferred payment price under the Murabaha Agreement. The Grand Duchy of Luxembourg issued 200mil. EUR 5-year Sukuk with spread set at mid-swap - 2 basis points. The issue was oversubscribed twice, i.e. order books were over 200 mil. EUR. The International Finance Facility for Immunisation, rated Aa1 by Moody's, AA by S&P and AA+ by Fitch, for which the World Bank acts as Treasury Manager, mandated in November 2014 Standard Chartered Bank as Global Coordinator for its 3-year Sukuk issue. Final books were over 700 mil. USD with spread set at 3M LIBOR + 15 basis points. Two high-grade issues took place in September 2015, namely 100 mil. USD 5-year Sukuk of International Finance Corporation and 200 mil. USD 3-year Sukuk of The International Finance Facility for Immunisation. Table 1 summarizes recent Sukuk offerings issued by high-grade entities. According to Thomson Reuters Zawya (2014), on average, the sukuk market grew 50% from 2002 to 2014. Based on recent pipeline announcements, we might expect additional increase of Sukuk issuance in 2016 as well.

Table 1 Recent Sukuk issues on high-grade markets

Date	Issuer	Currency	Volume (m)	Maturity	Spread/Yield	Moody	S&P	Fitch
17-9-15	IFFIm	USD	200	29-9-18	L+14	Aa1	AA	AA
9-9-15	IFC	USD	100	15-9-20	L-10	Aaa	AAA	
27-11-14	IFFIm	USD	500	4-12-17	L+15	Aa1		
30-9-14	LUXEMBOURG	EUR	200	7-10-19	MS-2	Aaa	AAA	
16-9-14	GOLDMAN SACHS	USD	500	23-9-19	MS+90		A	A-
25-6-14	UK	GBP	200	22-7-19	G flat	Aa1	AAA	AA+

The level of expertise and precious experiences of underwriter are crucial for successful issue.

If we look closer at the underwriters of given Sukuk deals, the majority of issues were led by large global banks, such as Standard Chartered, HSBC, or BNP Paribas. Only issue with leading underwriter from Islamic country was Sukuk of International Finance Facility for Immunisation led by Malaysia´s CIMB Bank. On the other hand, only 200 mil. EUR offering of Luxembourg did not involve any Islamic underwriter.

Table 2 Leading underwriters of recent Sukuk issues

Issuer	LEAD1	LEAD2	LEAD3	LEAD4
IFFIm	STANDARD CH.	NB OF ABU DHABI	EMIRATES NBD	MAYBANK
IFC	HSBC	STANDARD CH.	NB OF ABU DHABI	DUBAI ISLAMIC BANK
IFFIm	CIMB	STANDARD CH.	NB OF ABU DHABI	NCB CAPITAL
LUXEMBOURG	BNP PARIBAS	HSBC		
GOLDMAN SACHS	GOLDMAN SACHS	NB OF ABU DHABI	EMIRATES NBD	QINVEST
UK	HSBC	CIMB	STANDARD CH.	NB OF ABU DHABI

Conclusion

With the growing global expansion of Islamic banks and other financial institutions, sharia-compliant financial instruments have gained increasing importance on the global financial markets. Sukuk in particular has a significant role in providing long-term resources for development projects, government investments, institutional investors, and large corporations to expand their business. It provides the necessary liquidity and diversifies the risk in their portfolios. There are several differences between Sukuk and conventional bonds. Whereas Sukuk are instruments that represent a proportionate and undivided ownership right over the asset in which the funds are being invested, bonds are a certificate of debt owed by the issuer.

The further development of Sukuk transactions might be enhanced by the establishment of guides for investors as well as issuers in terms of sharia principles, which could help assure wider acceptance of sharia based decisions and ensure market confidence among investors. In order to achieve strong convergence in the global Sukuk markets, there is also need for the harmonization of standards and practices. Since Islamic financial institutions will have to cope with demanding market conditions, in following years we might expect subsequent growth of Sukuk issuance.

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THE GROWTH FORCES IN THE DEVELOPMENT OF INSURANCE SECTOR IN CEE COUNTRIES

Juraj TOBÁK – Petra TOBÁKOVÁ

Abstract

The role of insurance is an important factor for a development of economies. The most commonly used indicator to measure the development of the insurance market is Insurance Penetration. It is measured as a ratio of total premium income in insurance to gross domestic product of country. Level of insurance penetration of the emerging economies was at one third compared to average total premium income of OECD countries. It is also appropriate to measure the development of the insurance market by other indicators. In 2008 economists started to deal with the use of global average insurance penetration as a function of per capita income as a benchmark for determining the development of insurance. The aim of this publication is to assess the adequacy of the development of the insurance market to the needs of the economy. A subsequent aim is to focus on understanding the causes and barriers that exist in these economies. In this case we are talking about those barriers that must be removed in order to allow further development of the sector. We also focus on enhancers, which should be strengthened in order to intensify the development of insurance market.

Keywords:
insurance sector, insurance penetration, CEE countries, development of the insurance market

Introduction

One of the important factors for the development of economies is insurance. There is an effort from governments through their legislation, to support the insurance industry and also its development. An indicator of insurance penetration can measure the significance of insurance or insurance market. Insurance penetration is a ratio of total premium income to gross domestic product of countries, presented in a percentage. The level of this indicator in the emerging economies is at one third, compared with the same indicator in OECD countries. At the beginning of the millennium, in selected countries of Central and Eastern Europe, which are members of the OECD, was the insurance penetration at the level of developing countries. For this reason, it would be appropriate to measure the inherent development of the insurance market with the other instruments. It is also advisable to use indicators that consider the level of various economic developments of different countries. Authors Zheng, Liu and Deng (2008) in their publication recommended the use of global average insurance penetration as a function of income per capita as a benchmark for determining the development of insurance. Based on that we stated main aim of this paper, which is to assess the adequacy of the development of the insurance market to the needs of the economy. A subsequent aim is to focus on understanding the barriers that exist in these economies. We also focus on enhancers, which should be strengthened in order to intensify the development of insurance market.

1 The Role of Insurance in the Growth of the Economy

Many publications are dedicated to the importance of the financial sector in development of a country. There is consensus that the financial sector plays a significant role in development of both as a supply-leading mechanism as well as a demand-following instrument. The supply-leading instrument is the dominant for the development of insurance. Literature identified the main aspects of the insurance industry, which have an impact on this development. Wehrhahn (2010):

- Insurance by merging risks, lowers the overall cost of risk, reducing volatility,
- Households and enterprises have a mechanism to transfer risk at an efficient cost, and release both financial and human resources to focus on their core production activities,
- The long-term character of life and pension insurance promotes long-term internal savings, a key element in any economy to boost development,
- Insurance supports trade and other activities by incorporating risk-averse individuals and enterprises into the production chain,
- Government's fiscal budget is relieved from social security and retirement programs to the extent that these are covered by the insurance sector,
- Catastrophic insurance allows governments to reduce the fiscal impact, especially when international reinsurance is available to spread the risk outside the country.

For these reasons, insurance is considered as an important instrument to promote and support the development. Governments support the insurance sector through tax relief, education, and compulsory insurance programs and also through effective regulation. As described later, depending on the insurance penetration it is possible to follow a slower or faster development of this sector in these countries.

2 Insufficient level of insurance in selected CEE countries

As mentioned in the introduction, the insurance penetration in selected countries of Central and Eastern Europe, which are members of the OECD was at the beginning of millennium at the level of insurance penetration in emerging economies/developing countries. This level represented one third of the OECD average. A common procedure to measure the level of development of the insurance market in the country is to use an approach based on a comparison of the total premium income. This number reflects the overall performance of the sector, but says very little about the actual development of insurance sector in the country, because the factor of population is not included in this indicator.

But at first let's have look at the total premium income. The following table shows the development of total premium income in selected OECD countries.

Table 1 Development of the Total Premium Income in the selected CEE countries during period 2000-2013

| Country/Year | Total Premium in milion of USD (Total Business - Life & Non Life Insurance) | | | | | | | | | | | | | |
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Austria	12,16	12,08	13,61	16,80	19,40	19,97	21,27	23,76	26,28	n/a	n/a	n/a	n/a	25,07
Czech Republic	1,83	2,12	2,77	3,77	4,38	4,89	5,41	6,55	8,19	7,57	8,18	8,78	7,86	8,00
Estonia	n/a	n/a	n/a	n/a	n/a	n/a	0,13	n/a	n/a	0,34	0,57	0,56	0,62	0,77
Hungary	1,34	1,47	1,94	2,50	2,97	3,45	3,89	5,07	5,13	4,09	4,06	4,06	3,38	3,58
Poland	4,79	5,46	5,58	6,41	7,57	9,58	12,09	15,81	24,63	16,48	17,97	19,32	19,26	18,31
Slovak Republic	0,59	0,66	0,81	1,15	1,49	0,71	1,81	2,33	2,99	2,89	2,81	3,00	2,77	2,96

Source: OECD stat Metadata available on OECD homepage
http://stats.oecd.org/Index.aspx?DatasetCode=INSIND#

As we can see in the table above, in year 2000, the value of the total premium income is around 32% for Slovak Republic in comparison with Czech Republic, which has half of the population in comparison with Czech Republic. In 2013, this ratio increased slightly to 37%. Likewise, this disproportion can be seen when comparing the years 2000 and 2013 in the countries of Czech Republic and Poland, which have a population ratio of 1:4, the ratio of total premium income in 2000 was 38% and in 2013 already 44%. This indicator is quite confusing and inaccurate when using to compare the various countries in relation with other variables. This comparison explains mainly the size of the insurance sector in the country, but to compare countries with each other, it is better to choose a different indicator. The insurance density appears to be a proper indicator. The use of this indicator has its advantages if considering the population of the country. Insurance density is expressed as the ratio of the value of total premium income and number of inhabitants in the selected country. The following table shows the development of insurance density in selected OECD countries.

Table 2 Development of the Insurance Density in selected CEE countries during period 2000-2013

Country/Year	Insurance Density in USD (Total Business - Life & Non Life Insurance)													
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Austria	1 314	1 372	1 457	1 808	2 063	2 109	2 166	2 376	2 826	2 716	2 630	2 731	2 493	2 604
Czech Republic	178	207	270	367	426	475	524	631	780	715	766	823	734	747
Estonia	n/a	n/a	n/a	n/a	n/a	n/a	94	n/a	n/a	256	422	418	464	580
Hungary	131	144	190	246	292	341	385	502	509	406	403	405	337	358
Poland	124	141	144	165	195	247	313	410	640	427	466	501	495	475
Slovak Republic	110	123	150	n/a	278	n/a	335	431	552	530	515	550	508	541
OECD Average	2 057	1 980	2 063	2 363	2 589	2 752	2 840	3 267	3 417	3 283	3 095	3 337	3 200	3 147

Source: OECD stat Metadata available on OECD homepage
http://stats.oecd.org/Index.aspx?DatasetCode=INSIND#

The table above clearly shows the difference in the development of insurance industry in selected countries. While the insurance density, defined as the sum of total premium income per capita, better measures the development of the insurance industry, but ignores the economic development of the country. Therefore, more frequent indicator is the insurance penetration, i.e. the total premium income to GDP. This indicator also includes the rate of economic development in GDP, which better reflects the current status of the country. Therefore, the insurance penetration is the most commonly used instrument for comparing and evaluating the development of the insurance industry. For this reason, this paper is based on this indicator. In the table below, it can be seen the development in the selected CEE countries based on this indicator.

Table 3 Development of the Insurance Penetration in selected CEE countries during period 2000-2013

Country/Year	Insurance Penetration in % (Total Business - Life & Non Life Insurance)													
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Austria	5,50	5,72	5,65	5,78	5,71	5,66	5,53	5,28	5,71	5,90	5,86	5,51	5,32	5,31
Czech Republic	3,22	3,42	3,66	4,08	3,97	3,90	3,76	3,72	3,75	3,94	4,19	4,00	3,92	3,96
Estonia	n/a	n/a	n/a	n/a	n/a	n/a	0,79	n/a	n/a	1,80	2,94	1,86	2,76	3,16
Hungary	2,78	2,75	2,89	2,95	2,89	3,12	3,43	3,65	3,31	3,15	3,09	2,87	2,68	2,72
Poland	2,76	2,84	2,77	2,91	2,94	3,11	3,50	3,72	4,62	3,79	3,79	3,71	3,89	3,50
Slovak Republic	1,91	2,07	2,19	2,33	n/a	2,65	n/a	2,62	2,76	3,04	3,26	3,21	3,09	3,00
OECD Average	8,62	9,05	8,73	8,69	9,03	8,95	9,06	9,09	9,52	8,97	9,40	8,96	8,88	8,56

Source: OECD stat Metadata available on OECD homepage
http://stats.oecd.org/Index.aspx?DatasetCode=INSIND#

As we can see in the table above, the insurance penetration (in%) in Austria was in 2000 at about the same level as in 2011, resp. 2013. This means, that the growth of the insurance market is in line with economic growth measured in GDP. Regarding the comparison of the Slovak Republic and the Czech Republic, we can see that the insurance market grew faster in Slovakia than in the Czech Republic, from 2001 to 2011, resp. in 2013. It is wrong to conclude, without knowing how the GDP was developed in both countries. It is not appropriate to use insurance penetration when comparing the level of economic development between countries. This idea was expanded in publication of Zheng, Liu and Deng (2008). In their research, the reference ratio of indicator insurance penetration at a certain value of GDP per capita, (Figure BLID), is recommended as a useful instrument for benchmarking the development of the insurance sector.

The main idea of this method is to consider the different importance of insurance in the economy within the different stages of its development.

The demand elasticity of insurance has the equally S curve as it is for most goods and services. This topic is discussed, among other publications, by authors Enz "The S-Curve Relation Between Per-Capita Income and Insurance Penetration"(2000) and Zheng, Liu and Dickinson "The Chinese Insurance Market: Estimating its Long-Term Growth Size" (2008) who use GDP per capita as a compensation for consumers income. The growth in premiums paid to insurer in an economy is closely related to gross domestic product (GDP), with income elasticity generally greater than one. The final S-curve is shaped as a logarithmic function with three parameters:

Insurance penetration = Total premium income / GDP = 1/(C1+C2*C3^GDP per capita)   (1)

Regarding to the function above, C1, C2 and C3 are constants estimated by regression on a sample of 90 countries monitored in the years 1970-1998 in the publication of Enz (2000). Following the model of this publication, Zheng, Liu and Dickinson (2008) built its own model with using a sample of 95 countries monitored during the years 1980 - 2006. Both models were estimated separately for non-life and life insurance. The resulting curve of average global insurance penetration has the following shape.
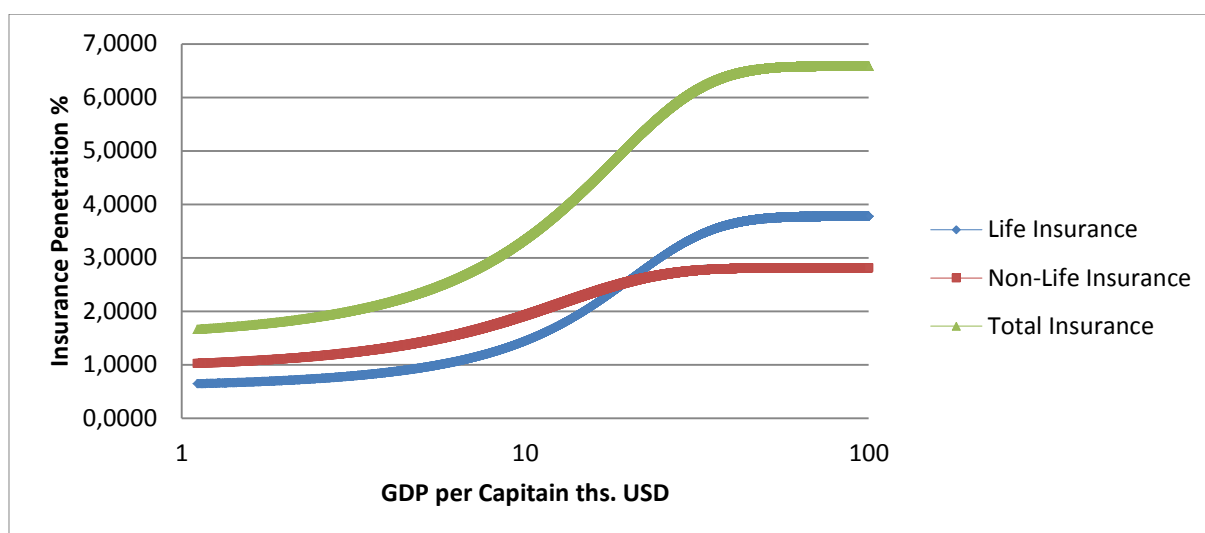
Figure 1 World Average Insurance Penetration
Source: Own processing according to Enz model „The S-Curve Relation between Per Capita Income and Insurance Penetration"(2000)

The final parameters of these two regression models from the above mentioned publications are listed in the following table.

Table 4 Parameters of regression models by authors ENZ a ZHENG, LIU a DICKINSON

	ENZ		ZHENG, LIU a DICKINSON	
	Life Insurance	Non-Life Insurance	Life Insurance	Non-Life Insurance
C1	26,5	35,6	24,37	35,45
C2	148,4	73,7	111,03	62,72
C3	0,8831	0,8612	0,8671	0,8276
Adjusted R2	22,4%	44,1%	53,56%	81,12%
Nr. Observations	1 561	1 574	2 052	2 071
Min. Insurance Pen.	0,6%	0,9%	-	-
Max. Insurance Pen.	3,8%	2,8%	-	-
Inflection Point	13 863	4 871	10 635	3 015
Max. Elasticity of Income	1,9	1,5	1,754	1,425
GDP per Capita at max. elasticity	15 000	9 900	12 438	7 531

Source: Own summary of parameters of regression models in publication Enz (2000), Zheng, Liu and Dickinson (2008)

When selecting the regression model, we decided to proceed with the model of authors Zheng, Liu and Dickinson due to higher adjusted regression coefficient at the level of 81.12%. Therefore, for the calculation of the BLID we use the parameters of the model.

By the evaluation of BLID evaluation (benchmark level of insurance development), thus the reference level of insurance development in a particular country, we follow the reality in the ratio form. This ratio is between the current level of insurance penetration in the country and corresponding world average

level of insurance penetration to GDP per capita of the evaluated country. Using BLID to measure the development of insurance eliminates the need for measuring the impact of the stage of economic development because it reflects the size of GDP per capita in the country. Therefore, a value of 100% will represent the development of insurance at the level of the world average GDP per capita. Higher ratios are associated with countries that have overcome the world average and logically countries with lower ratios than 100% are those lagging behind in the development of insurance. Due to the large impact of tax relief to development in life insurance, measurement BLID is the best to be applied to non-life insurance.

The following table shows a comparison of selected countries, their values of insurance penetration in 2013, the ratio as a percentage to the average value of insurance penetration in OECD countries and the ratio of the percentage to BLID indicator.

Table 5 Comparison of selected CEE countries by the Insurance Penetration, Average OECD Insurance Penetration and BLID in 2013

Country/Year	2013	Penetration as a percentage of OECD average penetration (%)	BLID (%)
Austria	3,25	124%	115%
Czech Republic	2,12	80%	76%
Estonia	2,24	85%	80%
Hungary	1,22	46%	44%
Poland	1,59	60%	57%
Slovak Republic	1,35	51%	48%

Source: Own processing of OECD stat Metadata and own calculations

The results presented in this table can be compared with data in the previous tables. When comparing Czech Republic and Slovak Republic, we can see a clear contrast between them. Whereas the difference between the variable BLID is 28%, the average level in the OECD is about 29%. When comparing the actual insurance penetration, where the Czech Republic reached the value of 2.12 and Slovak Republic only 1.35, the relative difference is about 36%.

The development of this indicator over time can be seen in the table below.

Table 6 Development of BLID in selected CEE countries in time

Country/Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Austria	109%	112%	119%	113%	108%	108%	107%	111%	116%	115%	114%	114%	115%
Czech Republic	84%	86%	93%	89%	87%	83%	79%	79%	82%	80%	75%	73%	76%
Estonia	0%	0%	0%	0%	0%	0%	0%	0%	66%	64%	41%	66%	80%
Hungary	65%	67%	69%	66%	66%	63%	61%	57%	57%	52%	47%	45%	44%
Poland	80%	77%	76%	74%	63%	59%	58%	59%	57%	58%	59%	58%	57%
Slovak Republic	52%	54%	0%	62%	0%	52%	51%	52%	57%	54%	52%	49%	48%

Source: Own processing of OECD stat Metadata and own calculations

In this table, it can be observed trends of insurance penetration compared to the indicator BLID. It can be also observed growing trend in Austria, Estonia, the descending trend in countries like Czech Republic, Hungary, Poland and in Slovak Republic. Despite the different trends of development, it is an obvious fact, that the countries of the former Eastern block lag and indicate stagnant development of the financial sector.

3 The growth forces in the development of the insurance sector

Author Wehrhahn (2010) identified in his publication growing force in the development of the insurance sector. The insurance growth can be attributed to three types of effects. The regular effect related to having higher GDP per capita to be spent in insurance but without increasing the insurance penetration, the deepening related to the economic growth according to the world average insurance penetration S curve (see Figure 1), and the institutional growth. The development of the insurance sector is a significantly correlated with the economic growth. Institutional growth is one of the factors that have an impact on the development. Erbas and Sayers (2006) in their publication showed that the correlation between Insurance Penetration and institutional quality is stronger than the correlation between Insurance Penetration and Total Premium Income. Institutional growth can be best measured by institutional quality indicators, which are measured by the World Bank. The World Bank Governance Indicators (WBGI) presented in ranks which represent percentile rank among all 215 observed countries are Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption.

Table 7 Comparison of correlations between insurance penetration, BLID, Total Premium Income (2002-2013) and WBGI (2002-2013)

Country	Voice and Accountability			Political Stability No Violence			Government Effectiveness			Regulatory Quality			Rule of Law			Control of Corruption		
	Penetration	BLID	Total Premium	Penetration	BLID	Total Premium	Penetration	BLID	Total Premium	Penetration	BLID	Total Premium	Penetration	BLID	Total Premium	Penetration	BLID	Total Premium
A.	0,11	0,05	-0,23	-0,24	-0,27	0,05	0,03	0,05	0,08	-0,86	-0,84	0,62	-0,67	-0,67	0,61	-0,34	-0,30	0,56
CR.	0,17	0,10	0,14	-0,81	-0,80	0,64	0,38	0,39	-0,42	0,13	0,10	0,16	-0,67	-0,71	0,78	0,86	0,87	-0,66
E	-0,48	0,54	0,64	0,60	-0,40	-0,40	-0,67	-0,13	-0,10	-0,01	0,47	0,37	0,16	0,51	0,55	0,47	0,32	0,42
H	0,92	0,95	-0,49	0,65	0,72	-0,71	0,86	0,90	-0,48	0,73	0,73	0,00	0,85	0,82	0,09	0,87	0,88	-0,26
P	0,64	0,45	-0,24	-0,39	-0,60	0,78	0,39	0,13	0,02	-0,17	-0,44	0,58	0,03	-0,24	0,47	-0,08	-0,30	0,50
SR.	0,10	-0,09	-0,37	-0,44	0,05	0,60	0,59	0,05	-0,07	0,33	-0,04	-0,22	0,46	0,25	0,63	0,54	-0,22	-0,09

Source: Processing of OECD stat Metadata, World Bank (WBGI) and own calculations

Author Wehrhahn identified that the insurance penetration correlates the best with the indicator Voice and Accountability. Many authors explained this effect with the deviation from the model value of S curve (GDP / Insurance penetration), which primarily shows growth linked to the growth of GDP. Wehrhahn observed the development of this indicator in 13 developing countries, in two periods, 2003-2008 and 2005-2008. For those periods he observed a strong positive correlation at level 0,56 and 0,60 between the institutional growth and value of insurance penetration.

In the table 7, we did not focus on the same measuring of correlation between institutional growth and institutional quality, how Wehrhahn did. We focused directly on measuring the correlation between insurance penetration and indicators of institutional quality, BLID and total premium income.

We have performed the analysis of correlations between Insurance Penetration, BLID and Total Premium income against Institutional Quality indicators. It was confirmed, that these correlations could not be considered as an appropriate predictor of development of insurance market in the form of Insurance Penetration indicator, in all cases.

Further, in a comprehensive assessment of dependency of Institutional Quality and Insurance penetration, we can declare that we cannot analyze all the selected countries at once. But they can be analyzed individually in the analysis by each country.

For Austria, we argue, that the Insurance Penetration indicator is strongly negatively correlated with the Regulatory Quality, Rule of Law indicators. This could mean that if the level of World Bank Governance Indicators will worse, people in the country are averse to the risk and therefore the insurance penetration is increasing. This is the possible explanation of the fact, how people react to the increase of the risk.

For Czech Republic, we can say that the Insurance Penetration indicator is strongly positively correlated with the indicator of Control of Corruption, also strongly but negatively correlated with Political Stability, Rule of Law indicators.

In the case of Estonia, we argue that the Insurance Penetration indicator is strongly positively correlated with Political Stability and Control of Corruption indicators. This means that in Estonia the insurance market development is reacting on political environment and related corruption.

In the case of Hungary, we argue, that Insurance Penetration ratio is strongly positively correlated with the Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption indicators. During analysis of Hungary we have reached the best results considering correlation. We can see that from all tested countries, for Hungary it is most suitable to use all institutional quality indicators as predictors of insurance market development.

In the case of Poland, we say that Insurance Penetration indicator is strongly positively correlated with the indicator of Voice and Accountability.

For Slovak Republic, we can say that we cannot see any significant strong positive or negative correlations. But there are present some positive correlations between insurance penetration and Government effectiveness, Control of Corruption.

Conclusion

When evaluating the development of Institutional Quality indicators and their correlations with Insurance Penetration, we discuss about strong positive or negative correlations, but this does not imply causation. The aim of this paper was to assess the adequacy of the development of the insurance market to the needs of the economy. A subsequent aim was to focus on understanding the barriers that exist in these economies with stagnant insurance industry. For our analysis we have used The World Bank Governance Indicators (WBGI), which are Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. Even the insurance density, defined as the sum of total premium income per capita, better measures the development of the insurance industry, it ignores the economic development of the country. Therefore, more frequent indicator is the insurance penetration, i.e. the total premium income to GDP. This indicator also includes the rate of economic development in GDP, which better reflects the current status of the country. Therefore, the insurance penetration is the most commonly used instrument for comparing and evaluating the development of the insurance industry.

Based on our analysis we can conclude that in case of some evaluated indicators we could monitor impact of attitude to risk. It can be seen as the increase of insurance penetration in those situations when the level of the monitored indicators in the country decreased (became worse). But of course it is necessary to state, that this is not a way how governments and countries should ensure increase in insurance penetration and it simply is causality. However, it is necessary to seek and analyze more correlations of Institutional Growth with indicators of Institutional Quality, as the above stated authors mentioned in this publication. Based on our analysis, we cannot confirm nor refute the findings, that author Wehrhahn published in his publication. Therefore, these arguments must be the subjects of further research.

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ANALYSIS OF SUPPLIERS IN AUTOMOTIVE INDUSTRY THROUGHTHE VALUE CRITERIA FOR MEASURING BUSINESS PERFORMANCE

Lenka ŠTOFOVÁ – Petra SZARYSZOVÁ

Abstract
Increasing pressure on the competitiveness of the enterprises in automotive industry in the context of globalization of the economy has forced them to express more realistic and assess the economic benefits and success of business activities. As the Quality Management System and associated activities of the enterprise can be considered as an investment in the long term not easy to quantified, this paper is focused on the economic area of Quality Management System focusing on performance analysis of automotive suppliers by using the specified value criteria according to open rating called Entrepreneurs Index. The aim of this paper is quantification and rating assignment of automotive suppliers, operating in Slovakia in terms of their overall success by the creation of economic value as the possibility to measure business performance.

Keywords:
analysis, suppliers, value criteria of measuring,business performance, entrepreneurs index, automotive industry

Introduction

The current market situation requires a new approach in almost all activities of the automotive industry, by reporting to stakeholders and investors through decisions on tax and legal structure of the enterprise, to simplify complex business structure that hinders competitiveness and stifles innovation. In response to the published November's industrial production value in 2015, surprised the industry in Slovakia with strong growth and again, especially the automobile industry (Koršňák, 2016).

The automotive industry in Slovakia in 2015 for the first time exceeded one million produced automobiles, which confirms the rapid growth of this industry. According to Statistical Office of the SR, the industrial production index in 2015 compared to 2014 increased by 11.9 %. In accordance the latest data was lower vehicle production in the first half of 2015 offset by production in the second half of 2015 of automotive manufacturers KIA and Peugeot. The seasonally adjusted industrial production in November 2015 increased month on month by 1.9 % (Fojtík, 2016).

The aim of this paper is to classify and quantify simultaneously analysed automotive suppliers operating in the SR in terms of their economic value added in terms of measuring their performance as an indicator, indirectly determining the level of implemented standardized Quality Management System.

1 Measuring the economic performance of the enterprise

Currently is in Slovakia utilizedand extendedthe success assessment of the enterprise (Entrepreneurs Index) by value creation. It is not just that the enterprise has created a certain amount of profit, but that was true that the return on equity invested by the owners is greater than the opportunity cost of capital. Measurement of economic revenues and costs often depend on the mediated financial costs and revenues, but these are incomplete to measure the actual economic profit and set up two issues (Cocca – Alberti, 2010):

1. The accounting adjustments distorting economic revenues.

2. Failure to costs on equity capital.

It is clear that traditional methods for assessing the financial position and business performance these two aspects of enterprise do not reflect because they come out standard outputs of accounting thus calculate with ordinary accounting indicators. Into the values of these indicators are reflected very frequently used accounting methods. Indicator EVA (Economic Value Added) is able to remove the discrepancies thus represents a possible way of real measurement of economic performance (Kislingerová, 2001).

Is it possible to quantify as the difference between the net operating result of the enterprise and the costs of capital used to generate this result (1).

$$\text{EVA} = \text{NOPAT} - \text{WACC} \cdot \text{C} \tag{1}$$

where:
$NOPAT = \text{EBIT} \cdot (1-\text{t})$
NOPAT – Net Operating Profit After Tax
EBIT –Earnings Before Interest and Tax
t – corporate tax rate

$$\text{WACC} = r_d \cdot (1-\text{t}) \cdot \frac{D}{C} + r_e \cdot \frac{E}{C}$$

WACC – Weighted Average Cost of Capital
r_d- cost of debt
r_e - cost of equity
E – market value of the firm's equity
D – market value of the firm's debt
C = E + D – total market value of the firm's financing (equity and debt)
E/C – percentage of financing that is equity
D/C – percentage of financing that is debt

EVA indicator represents the evaluation of all activities of the enterprise and its decisions on the basis of their contribution to value creation. EVA as an indicator of business performance is considered as a tool of business management, which focuses on creating and enhancing its market value. EVA criterion itself is primarily intended as an indicator of business performance, and therefore as economic whole from the position of its investors.

The reason why is becoming a popular method is based on its advantages before accounting profitability indicators and cash flows. Traditional indicators in practice have shown how not entirely satisfactory, their main deficiency is therefore in insufficient correlation with the development of the share price. "EVA exhibits a strong correlation to the development of share value" (Sharma – Kumar, 2010, pp. 32).

It follows that "in evaluating the company cannot all be reduced only to EVA at the moment, but it is also necessary to constantly predict its future development" (Brem – Kreusel – Neusser, 2008, pp. 18).

But there are some studies that refute this statement. Erasmus in his study analyses in detail the 582 companies for which examined the correlation of growth of economic value added with market value added. Correlation accounted for only 16 % and in the third was even negative. "EVA is a variable that is most accurate linked to the creation of shareholder value over time" (Erasmus, 2008).

Thereby this ratio will be higher the demands on the amount of EVA will be higher. That the enterprise will achieve a reasonable profit should be established boundaries of EVA, when the enterprise is on the edge of profitability. This applies to the value of EVA = 0. If the EVA is greater than zero company makes good use of its capitalavailable. If the EVA is less than zero, the company has serious problems in terms of equity and creation of EBIT and should solve it as soon as possible.

It is desirable that the indicator EVA acquired positive values. But increasing of economic value added we may not result in an increase of enterprise value. Unless we left these considerations in theoretical level and apart from empirical research thus may not lead to an increase in enterprise value, despite the fact that the EVA is positive. Lowering the enterprise value through increasing EVA occurs when (https://www.indexpodnikatela.sk/demo/index):

- increasing the economic value added has been achieved in the present at the expense of future over profits,
- is indeed increased, but only by the rising costs of capital,
- business performance may decline, but EVA is growing when the recovery of assets is insufficient (assets are amortized, in operation is less capital).

In certain circumstances it may occur despite increased economic value added to reduction of its market value. It has thus result in lower over profits in the future, the rising costs of capital and increasing the business risk. All this then causes a disadvantage in the context of overall business performance and another future development of the enterprise. But there occur only to short-term EVA increasing, as economic value added is calculated from the annual financial statements and therefore are not taken into account long-term effects of management decisions (e.g. improvements within an implemented Quality Management System) that bring economic benefits in future periods (Tangen, 2004).

EVA as an indicator of economy therefore has its advantages and disadvantages and weaknesses. When the business performance is assessed usually aim to maximize accounting profit, but this profit disregards the needs of investors whose goal is to increase their wealth. Therefore, the concept of EVA is oriented and focuses just on creating value by maximizing economic profit and thus the owners are better informed about the assessment of their investments. The greater is the value of the indicator EVA the company creates a higher value (Abdeen – Haight, 2002).

2 Rating quantification of automotive suppliers based on the indicator EVA

Pursuant to defined aim of the paper its authors focused on the quantification of the number of enterprises that are ranked according to the results of EI rating in the different stages A +++ to FX. In the category A ++ were included 16 suppliers (8.6 %) and total in categories A (A ++ - A) it was 42 out of 185 companies. In the other categories it was included in total 77.3 % of suppliers. In the category FX are contained within the sample a total of 35 analysed companies, representing 18.9 %. Results of the present study are shown graphically including frequencies of analysed automotive suppliers. Figure 1 shows the number of enterprises by size, which were based on the value of their EI included in the respective categories of the EI rating.

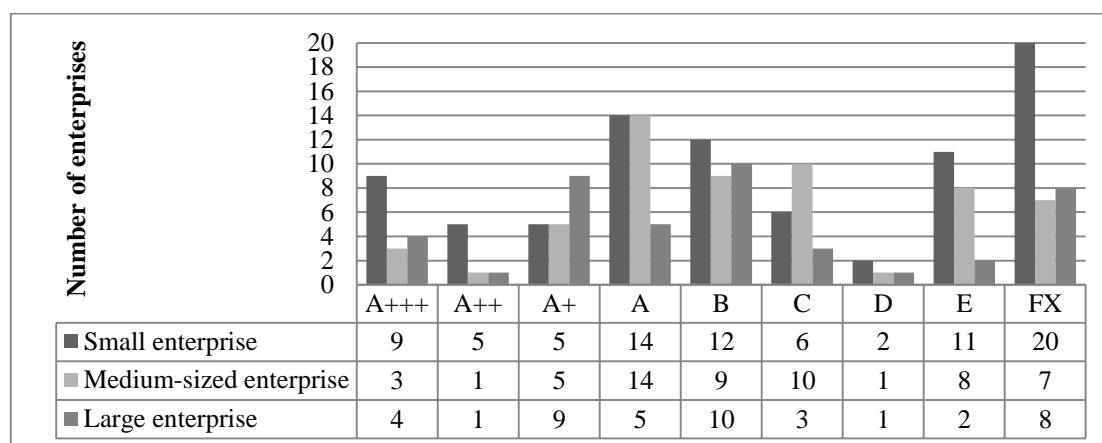| Number of enterprises	A+++	A++	A+	A	B	C	D	E	FX
■ Small enterprise	9	5	5	14	12	6	2	11	20
■ Medium-sized enterprise	3	1	5	14	9	10	1	8	7
■ Large enterprise	4	1	9	5	10	3	1	2	8

Figure 1 Rating quantification of automotive suppliers by size of enterprise
Source: Own processing.

As is apparent from the graphic representation, small suppliers, according to the EI found in greater number particularly in categories A (A +++ - A), but can be observed while the largest number among the other size categories of enterprises in the category FX. Given the fact affect several financial and non-financial indicators that enter into the rating assessment. The least enterprises are classified in category D, which is positive especially in terms of reported business success for medium-sized and large enterprises.

Consequently, it is necessary for the purposes of enterprise value assessment, which can be measured by EVA indicator, useful to focus on the values achieved within their respective size categories of suppliers, not excluding categorization inclusion according to EI (Figure 2).

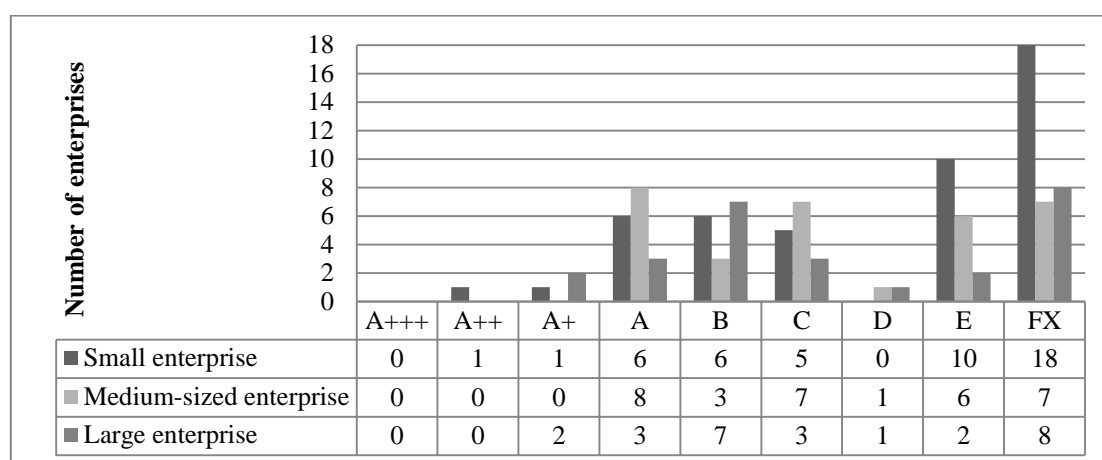|	A+++	A++	A+	A	B	C	D	E	FX
■ Small enterprise	0	1	1	6	6	5	0	10	18
■ Medium-sized enterprise	0	0	0	8	3	7	1	6	7
■ Large enterprise	0	0	2	3	7	3	1	2	8

Figure 2 Rating quantification of suppliers with a negative value of the indicator EVA by size of enterprise
Source: Own processing.

In the category of A ++ to A + within the analysed sample are only three enterprises of which the highest A ++ none of them. This shows that the value of EVA as part of the evaluation of the overall business success is highly influenced also the rating assessment of automotive suppliers. Negative value of EVA achieved within the sample 105 enterprises, including 47 small, 32 medium-sized and 26 large enterprises. The result is precisely the largest number of small businesses that have been evaluated on the basis of this performance indicator as FX and so as not conforming.

Analysis needs to consider the fact that the indicator EVA is an indicator of absolute and thus its height is influenced by the size of the enterprise. Therefore, relative indicators were used which eliminate the differences. Performance measurement is essential for managing the company in the long time period. It creates the basis for ensuring the implementation of the strategy direction. EVA comparability over time may be impaired by changes in the approach to the calculation of operating profit, assets and capital costs. Therefore, the calculations should also include explanations that would bias resulting from unequal detection of constituents of EVA could partially alleviate.

Conclusion

From realized analyses and knowledge is the obvious conclusion that the value of the company must increase the value of its economic value added, the present but also the future value of performance indicator EVA. To increase the EVA unnecessary to know the factors those influence its value. In the operating area, which is represented operating profit after tax, is precisely the aim of increasing its value. Regarding the financial area, represented by the WACC, there is an important reduction in the average costs of capital. Area of investment is determined by the value of capital, and thus, the lower the value of capital invested, the higher the value of EVA. In managing the business performance indicator EVA therefore provides important information relating to the financial areas that need to be improved.

Authors of the paper gave priority to the analysis of economic value added of the automotive industry in Slovakia, which can be inspiring and helpful in identifying the main areas of business risk occurrence and comparing companies in the automotive industry by entrepreneur classification index. Further research can be carried out analysis extended to the examination and the addition of non-financial instruments to economic value added, enabling the management of financial targets and focus as much on non-financial objectives of enterprises. Such tool may for example be four-dimensional method Balanced Scorecard. In this model has a central role EVA, which promotes fulfilment of the main business subject. This concept is able to link financial objectives with non-financial business objectives, which are indicators of future performance of the company in general as well as for the automotive industry.

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EVALUATION OF THESES AND FINAL STATE EXAMS BASED ON SELECTED CRITERIA

Roman LACKO – Zuzana HAJDUOVÁ – Pavol ANDREJOVSKÝ

Abstract
Educational institutions wishing to implement a quality management system must declare efforts to continuously improve processes. The main processes of such institutions include also the learning process.The contribution is divided into three parts, contains introductory information, status evaluation and assessment methodology, in part refers to the performance of the PHF. In this paper we translate his own view on the assessment, with some evidence of improved performance and PHF measured. In this paper I evaluate students' final papers.

Keywords:
quality indicators,evaluation, improving quality, criteria

Introduction

Measuring added value (measured added value education) has become a sought after quantitative evaluation tool of education institutions.[1][2] Added value expresses certain extent of knowledge student acquired during a certain period by active participation in the educative process of the respective institution. Quality of such education is recently a much discussed topic[3][4][5] Measuring added value lies in checking the student's (or a group of students, respectively) knowledge before and after the teaching process by an appropriate form of test with content adequately responding to matter taught[6]. Acquired results get compared and evaluated using a statistical model.

1 Criteria of evaluation

Within the state examinations for Bachelor studies have been developed questionnaires on the quality and level of state examinations of accounting for each participating student. At the thesis defense of Bachelor and Master Studies have been developed questionnaires on the quality and level of skills for each participating student. These questionnaires were developed by individual members of the state examination committee. The questionnaires were designed for students in Kosice as well as for students in Michalovce.

1.1   Criteria of evaluation for state exams - Accounting

For purposes of evaluating the quality of knowledge of accounting were selected these key criteria for assessing the level of state examination:
1. The ability to charge 1/2 set specific transaction.
2. Ability to prepare the financial statements.
3. Ability to calculate profit or loss.

4. Ability to adjust profit or loss to the tax base.

5. The ability to tax the result.

6. Appropriateness of the recognition of income tax.

7. The ability to correctly formulate answers to 1/2 of the defined theoretical questions.

For each criterion, the Commission had the option of assigning a score between 0-2 points, 2 points meant full fulfillment of the criteria by the students. Thus, each student can obtain maximum score 14. In this report, we evaluate success in fulfilling the various criteria, compare and evaluate each order of success criteria and evaluate indicator of the total marks. Overall, 173 students were evaluated.

1.2 Criteria for evaluation of final theses

For purposes of evaluating the quality of final works were selected these key criteria for assessing the level of final work:

1. Ability to clearly formulate the objectives and use relevant methods for meeting the objective.
2. Use of literary sources.
3. The depth and quality of selected research area.
4. Formulated proposals and measures based on the analytical part.
5. Benefits of thesis.
6. Ability to clearly and concisely present the identified problems in the present thesis and suggestions for a solution.
7. Ability to respond relevantly to the questions of state committee.
8. Ability to clarify the questions and comments of the members of the state committee.
9. Verbal communication.
10. Organization and conduct of the defense, the overall speech.

For each criterion, the Commission had the possibility of assigning a score between 0-2 points. Two points meant full fulfillment of the criteria by the students. Thus, each student can obtain maximum score 20. In this report, we evaluate success in fulfilling the various criteria, compare and evaluate each order of success criteria and evaluate indicator of the total. Overall, 338 students were evaluated. To measure statistical indicators was used software SAS Enterprise Guide 6.1.

2 Evaluation of overall success of state exams - Accounting

In this evaluation we will focus on the order of seven criteria monitored with respect to the average of points scored in the individual criteria. The following table shows the position of the individual criteria.

Table 7

Ranking of selected criteria		
Rank	Criterion no.	Average
1	3	1.878612717
2	4	1.739884393
3	5	1.49132948
4	6	1.479768786
5	2	1.329479769
6	1	1.294797688
7	7	0.768786127

Source: own processing.

Slightly above average was evaluated just criterion 7, which determined the level of knowledge on the state exam. In the coming years, therefore, education must focus precisely to improve theoretical knowledge of students. Students done the least trouble to calculate the profit or loss and then to adjust the tax base. It is gratifying that these very practical criteria essential to the practice are the least problematic for students, their level is approaching the complete fulfillment of all tested students.

For an overall assessment of points for each participating student for state examination of the accounting were used selected statistical indicators to evaluate the overall success. The maximum number of points that students could achieve was 14, the minimum 0. The output of statistical software is shown in the following figure.

Moments			
N	173	Sum Weights	173
Mean	9.98265896	Sum Observations	1727
Std Deviation	3.51983415	Variance	12.3892324
Skewness	-1.022157	Kurtosis	0.4338772
Uncorrected SS	19371	Corrected SS	2130.94798
Coeff Variation	35.2594851	Std Error Mean	0.26760803

Basic Statistical Measures			
Location		Variability	
Mean	9.98266	Std Deviation	3.51983
Median	11.00000	Variance	12.38923
Mode	11.00000	Range	14.00000
		Interquartile Range	5.00000

Note: The mode displayed is the smallest of 4 modes with a count of 24.

Modes	
Mode	Count
11	24
12	24
13	24
14	24

Basic Confidence Limits Assuming Normality			
Parameter	Estimate	95% Confidence Limits	
Mean	9.98266	9.45444	10.51088
Std Deviation	3.51983	3.18392	3.93561
Variance	12.38923	10.13735	15.48904

Fig. 1 Selected statistics
Source: own processing.

The average number of achieved points of individual students was 9.983, indicating a significant above the average compared to the expected mean value of 7. The standard deviation is 3.52, and the variance is 12.40. The coefficient of variation is at a level slightly exceeding the value of 35 indicating increased variability. There is Left-hand skewness of the set of statistics, and therefore most of the values is on the right side of the mean value. Taking into account the presence of random phenomena, average remains still considerably above the expected value of 7, the lower limit of the confidence interval is 9.454. Modes are 11, 12, 13, 14. The statistical set is therefore polymodal, the frequency of these points was consistently 24 Interquartile range is 5. To show relative - percentage rate of points achieved we constructed the following histogram.
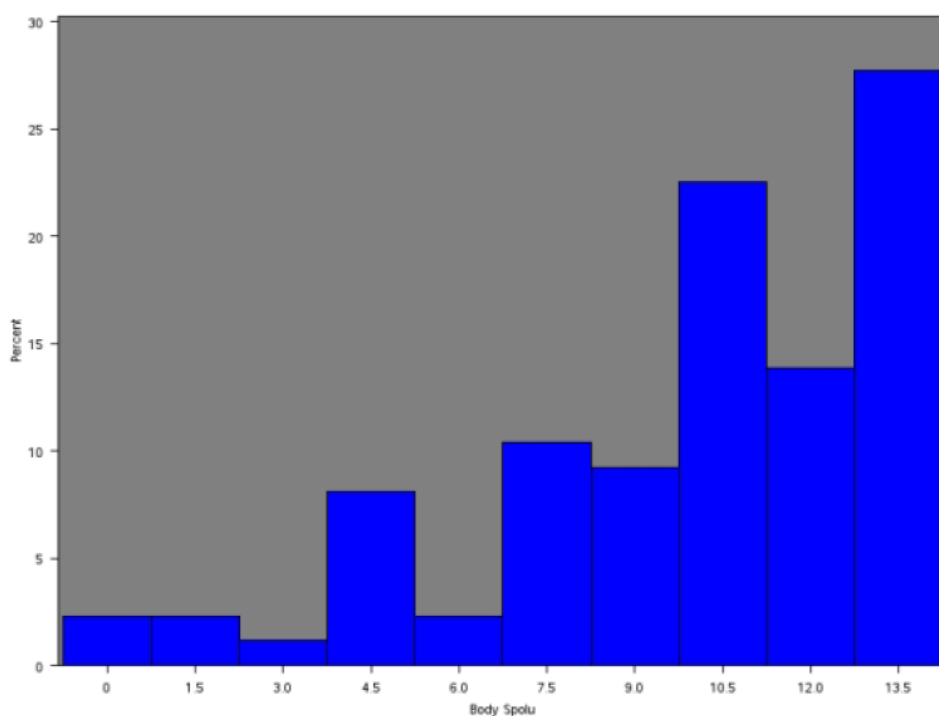
Fig. 2 Histogram of frequency distribution of points achieved in the state examination of accounting
Source: own processing

It can be argued that the number of points scored in a qualitative assessment of the state examination of accounting is significantly above the average. For the purposes of this evaluation, we have selected three intervals.

1. $\langle 0,5)$ – students under the average
2. $\langle 5,10)$ – average students
3. $\langle 10,14\rangle$ - students above the average

The following table shows the absolute frequencies of intervals.

Table 8 Frequency distribution of students according to the selected interval evaluation

$\langle 0,5)$	$\langle 5,10)$	$\langle 10,14\rangle$	Total	$20\rangle$
16	45	112	173	

Source: own processing

The table shows that a large majority of the work was assessed as above the average, number of above the average students is about 67 higher than the average students. The selected interval evaluation thus follows the results of statistical analysis.

3 Evaluation of overall success of theses and theses defense

In this evaluation, we will focus on the ranking of ten criteria monitored with respect to the average of points scored in the individual criteria. The following table shows the ranking of the individual criteria.

Table 9

Ranking of selected criteria		
Rank	Criterion no.	Average
1	9	1.257396
2	7	1.171598
3	6	1.159763
4	1	1.156805
5	2	1.12426
6	10	1.112426
7	8	1
8	3	0.997041
9	5	0.982249
10	4	0.97929

Source: own processing

Slightly under-valued criteria were criteria 3, 4 and 5. To improve these criteria in the future and, within such a learning process, there should be some changes in these processes. Areas of concern are the quality of treatment of the topic, the recommendations arising from each of thesis as well as the benefits of theses. It is possible that these shortcomings comes from the lack of practical knowledge in the topic of final thesis.

For an overall assessment of points for each final thesis were selected statistical indicators to evaluate the overall success of each of thesis on the amounts of individual criteria. The maximum number of points that students could achieve was 20, the minimum 0. The output of statistical software is shown in the following figure.

Moments			
N	338	Sum Weights	338
Mean	10.9349112	Sum Observations	3696
Std Deviation	4.39671041	Variance	19.3310625
Skewness	-0.2039052	Kurtosis	-0.2570315
Uncorrected SS	46930	Corrected SS	6514.56805
Coeff Variation	40.2080119	Std Error Mean	0.23914952

Basic Statistical Measures			
Location		Variability	
Mean	10.93491	Std Deviation	4.39671
Median	11.00000	Variance	19.33106
Mode	10.00000	Range	20.00000
		Interquartile Range	6.00000

Modes	
Mode	Count
10	39

Basic Confidence Limits Assuming Normality			
Parameter	Estimate	95% Confidence Limits	
Mean	10.93491	10.46450	11.40533
Std Deviation	4.39671	4.08836	4.75575
Variance	19.33106	16.71471	22.61717

Fig. 3 Selected statistics
Source: own processing

The average number of points achieved by individual students was 10.935, implying only slight above average compared to the expected value of 10. The standard deviation is 4.4 and the variance is 19.33. The coefficient of variation is at a level slightly exceeding the value of 40 indicating a relatively high variability. Set of statistics is skewed left-hand and therefore the greater part of value is on the right side from the mean. Taking into account the presence of random phenomena, remains still average slightly above the expected mean value, the lower limit of the confidence interval is 10,465. Mode is 10. Interquartile range is 6. To show relative - percentage rate of points achieved we constructed the following histogram.
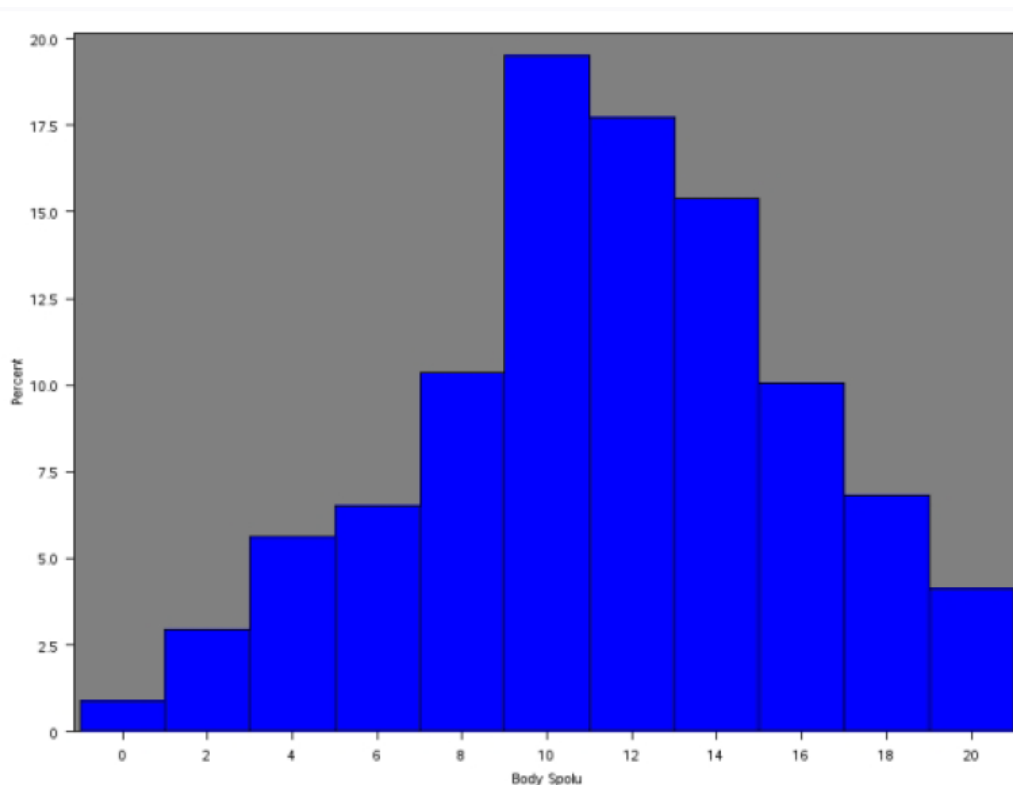
Fig. 4 Histogram of frequency distribution of points achieved in final theses
Source: own processing

For the purposes of this evaluation, we have selected three intervals.
1. $\langle 0,7)$ – under the average thesis and defense
2. $\langle 7,14)$ – average thesis and defense
3. $\langle 14,20\rangle$ - above the average thesis and defense

The following table shows the absolute frequencies of intervals.

Table 10 Frequency distribution of these according to the selected interval evaluation

$\langle 0,7)$	$\langle 7,14)$	$\langle 14,20\rangle$	Total
54	243	41	338

Source: own processing

The table shows that a large majority of theses has been are in the middle interval.

Conclusion

The report shows the need to improve certain processes in the field of theoretical knowledge of students. The status of the academic year 2014/2015 in selected areas has to be at least maintained. There is a deterioration in the quality of students' knowledge in past years, therefore, it will be a success if in the next reporting period will be the results better or at least similar. In general, students do not have a significant problem with the practical application of acquired knowledge in accounting, but lack of knowledge levels can lead to errors in business practice. It is therefore more than appropriate for teachers to recommend to introduce processes to achieve an increased level of theoretical knowledge and skills. We have to mention that there is need to improve the cooperation and communication between supervisors of theses and students, this is one of the "must improve" process according to field of theses.

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ANNUAL OPERATING COSTS OF DIGITAL PUBLIC SPACES

Matej HUDÁK

Abstract

Digital Public Spaces evolved trough last decades from providers of the infrastructure to complex institutions with various functions, among others community developers. In this article we discuss annual operating costs of Digital Public Spaces, while their sustainability remains onee of their key weakness.

Introduction

New, modern technology including information and communication technology (ICT) is influencing our everyday lives. With the development of ICT Digital Public Spaces also emerged. Digital Public Spaces (DPS), also called Telecentres, Public Internet Access Centres, Multimedia Centres, Infocenters, Community Technology Centres or Cybercefes, are considered „a potential instrument for addressing the asymmetric information problem and the digital divide, and therefore as development enablers". (Gopal, 2011) They are recognised as „knowledge-focused organizations that can be accessed by any one for a range of ICT services such as Internet access, computer, telephone, fax services as well as for a variety of e-social and e-government services. They also assist job creation and income generation through e-commerce and propagate micro-finance schemes that assist the rural poor". (Windsor, Royal, 2014)

Through their existence, DPS evolved from physical places that provide hardware and connectivity (e.g. Gopal, 2011; Rangaswamy, 2008; Masiero, 2011) to the community creators (Bailey and Ojelanki, 2009) and a way of reducing not only physical access barrier to users, thus bridging the social inequity in the form of the digital divide (Liyanagunawardena, 2013; Rupamanjari and Rohit, 2014; Oestmann, Dymond, 2001).

In today's information age countries "face enormous challenges in their effort to utilize their resources for socio-economic growth agendas, particularly for marginalized populations. Limitations range from infrastructural constraints to an individual's ability to convert access to ICTs into tangible benefits in light of other environmental constraints. In this context, shared forms of access such as telecentres, libraries and Internet cafés are important means of making ICTs broadly available. Along with other types of organizations, they fall into the category of eInclusion actors: initiatives that not only bring the technology closer (physically and financially) to people who would otherwise have limited or no access, but may also provide additional value by offering unique training

facilities, learning environments and additional services that have the potential to impact broader social and economic goals."(Garrido et al., 2012.)

„Telecentres in the 21st century may be able to improve standard of living, quality of life, and stability of knowledge for the rural population. The role of telecentres is widely increasing in developing political and management awareness, economic, socio-culture, technology, education and regulation awareness in rural communities. Telecentres in this context is a premise or a centre of information and communications technology for rural residents to obtain information and knowledge. The major role of telecentre is to bridge the digital divide and socio-economic gap between rural and urban population. Telecentre is also a centre of lifelong learning activities for the rural population to seek formal and informal knowledge." (Malek, 2014)

"On commercial viability, the literature indicates that public access venues generally struggle and often fail to achieve financial sustainability. The challenge of sustainability is seen by some as related to the balancing of the twin objectives of self-sustainability and social impact". „It is difficult to meet business needs and social development goals simultaneously. Several studies point out that financial success is associated with a variety of factors including good management, good locations, strong local demand, new service development, locally relevant services, external linkages and networking". (Rupamanjari and Rohit, 2014)

For the purpose of this paper we can define Digital Public Space as a "physical building, place, facility, where people can use all kinds of information and communication technologies and internet access, that is provided, for their social, cultural and economic development, where they can obtain information, training and help, and where they can form communities with similar interests" (Tkáč and Hudák, 2014) and we focus on their annual operating costs within their sustainability.

Methodology

The methodology of this paper is based on and extends the best practice collection of the INTERREG IVC 1038R4 Digital Cooperatives project. Project partners from 12 European Union countries collected and evaluated practices from the field of Digital Public Spaces in order to provide comprehensive analysis and create new policies for implementing new forms of DPS. Total of 59 practices were collected, from which 41 were fully described and further analysed in selected areas that included among others feasibility and sustainability to determine their unique features and characteristics. In our research we reduced the sample to 31 practices due to insufficient data needed for the analysis in several practice description. We analysed their annual operating costs and for that purpose we sorted the practices to Physical and Web-based (according to the main place of their scope; if the DPS was active on a physical location and also on the internet, it was counted as physical) and to

Traditional and Non-traditional (according to their concept; whether they meet only the traditional definition of DPS or the newer ones). Following tables describe the distribution of used sample.

Table 1 Distribution of the sample (Non-traditional DPS)

	Non-traditional		
	Physical	Web-based	Total
France	3	2	5
Greece	1	1	2
Hungary	2	1	3
Italy	1		1
Poland	2	2	4
Slovak Republic	1	3	4
Spain		1	1
Sweden		1	1
United Kingdom	1		1
Total	11	11	22

Source: Own processing

Table 2 Distribution of the sample (Traditional DPS)

	Traditional		
	Physical	Web-based	Total
France			
Greece	2		2
Hungary			
Italy	1		1
Poland	1		1
Slovak Republic			
Spain	3		3
Sweden			
United Kingdom	1	1	2
Total	8	1	9

Source: Own processing

Resluts

Firstly we analyzed annual operating cost of all Digital Public Spaces using cluster analysis. At average distance between clusters equal to 0,4 we can see 5 different clusters (Figure 1). First cluster (from left to the right on the x-axis on Figure 1) consisting of 23 practises, second consisting of 2 practises, third consisting of 4 practises and fourth and fifth consisting of one practise each. When we compare results of the cluster analysis with our classification of practises (Table 3), we can see that cluster of annual operating cost does not

depend on the place of their scope and concept; practises in clusters 2 to 5 are rather large, extent practises in EU-15 countries.

Table 3 Digital Public Spaces clusters

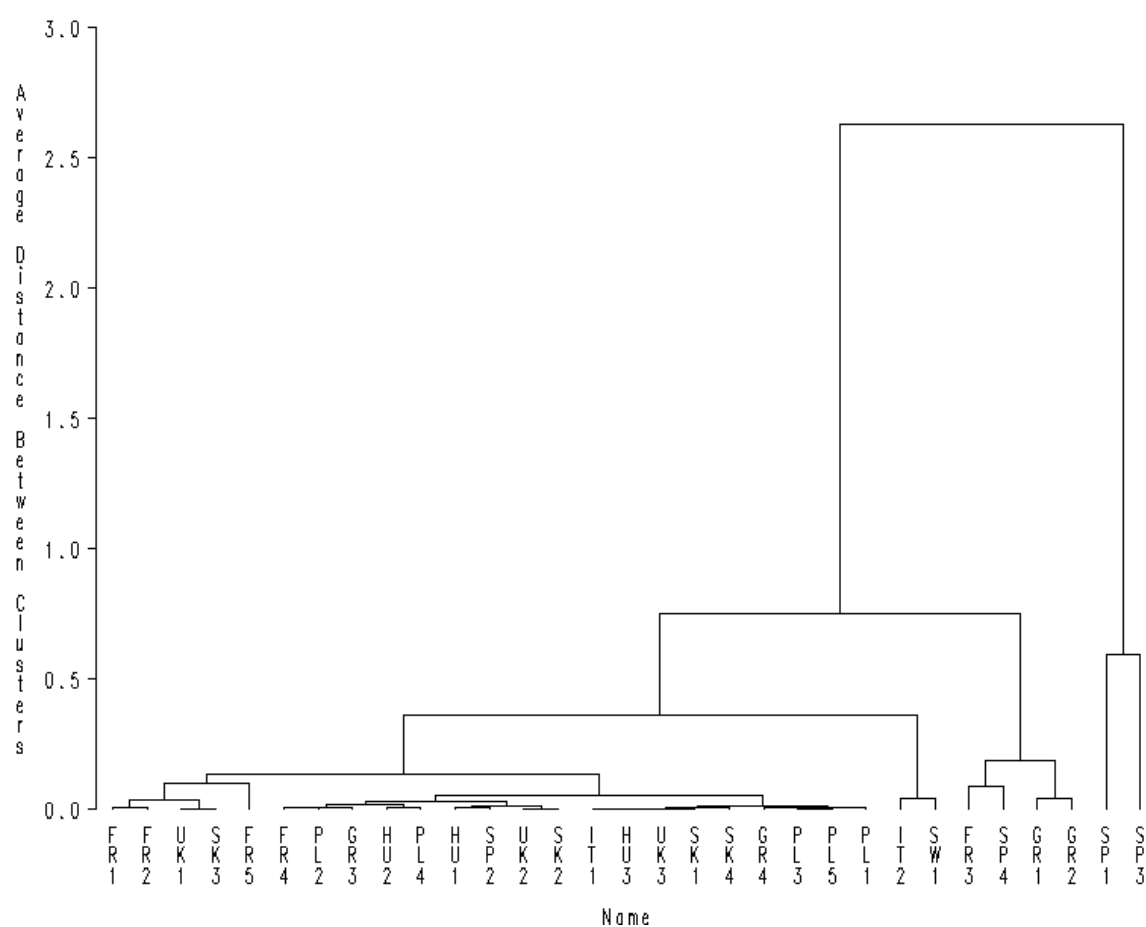|	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Sum
Ph-NT	8	1	2			11
Ph-Tr	5		1	1	1	8
Wb-NT	9	1	1			11
Wb-Tr	1					1
Sum	23	2	4	1	1	31

Source: Own processing

Figure 1 Digital Public Spaces clusters
Source: Own processing

Secondly we analysed average annual operating costs of mentioned groups of Digital Public Spaces. We conducted two sample t-test for equality of means among Physical and Web-based (Table 4) and among Traditional and Non-traditional (Table 5) DPSes. From both tests it is clear, that we cannot reject the null hypothesis at significance level 5 %, thus in both cases the DPS groups (Physical and Web-based; Traditional and Non-traditional) have same average annual operating costs.

Table 4 Two sample t-test for equality of means among Physical and Web-based Digital Public Spaces

T-Tests					
Variable	Method	Variances	DF	t Value	Pr > |t|
Funds	Pooled	Equal	29	1.33	0.1949
Funds	Satterthwaite	Unequal	21.2	1.64	0.1167

Equality of Variances				
Variable	Method	Num DF	Den DF	F Value	Pr > F
Funds	Folded F	18	11	16.77	<.0001

Source: Own processing

Table 5 Two sample t-test for equality of means among Traditional and Non-traditional Digital Public Spaces

T-Tests					
Variable	Method	Variances	DF	t Value	Pr > |t|
Funds	Pooled	Equal	29	-2.10	0.0449
Funds	Satterthwaite	Unequal	8.36	-1.38	0.2030

Equality of Variances				
Variable	Method	Num DF	Den DF	F Value	Pr > F
Funds	Folded F	8	21	18.51	<.0001

Source: Own processing

On Figures 2 and 3 we can see Box-plots of annual operating costs of Physical and Web-based and Traditional and Non-traditional DPSes. We can see that in average the annual operating costs of all groups are similar, but we can see differences in their variability among mentioned groups. These differences are arising from the scope and extent of their operations, and thus from their specific needs of individual budget lines.
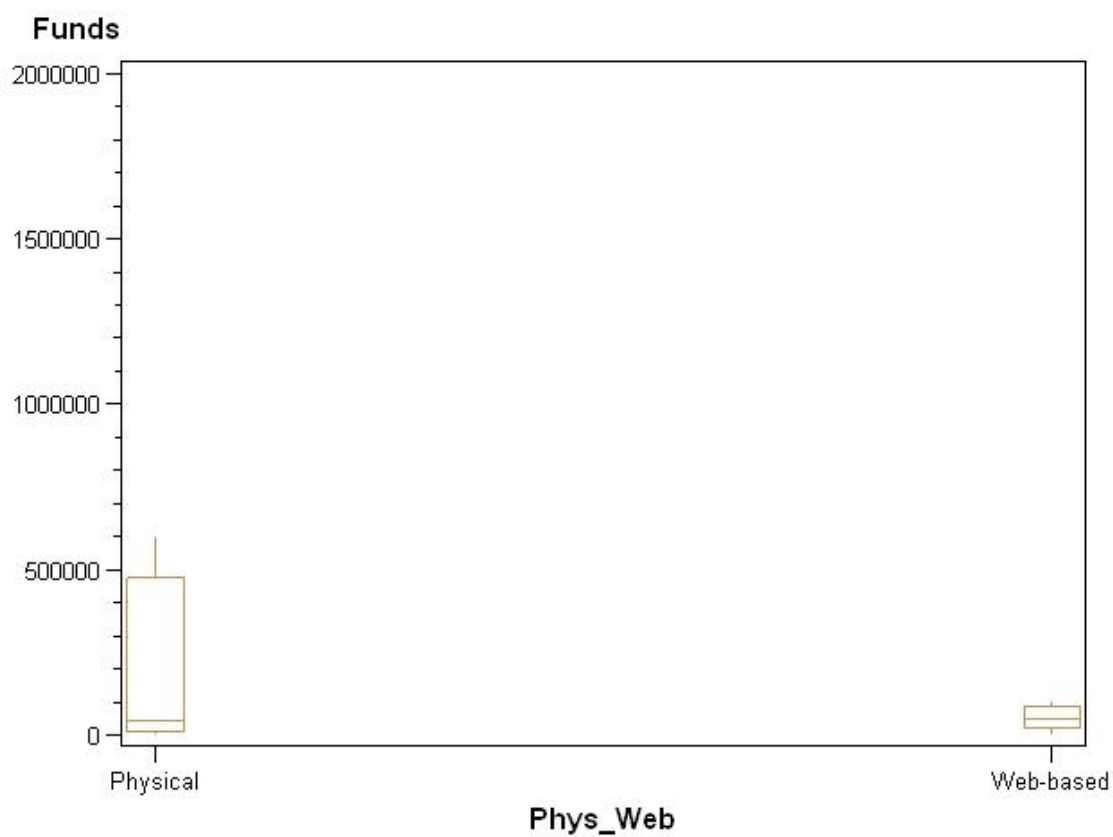
Figure 2 Box-plot of annual operating costs of Physical and Web-based and DPSes
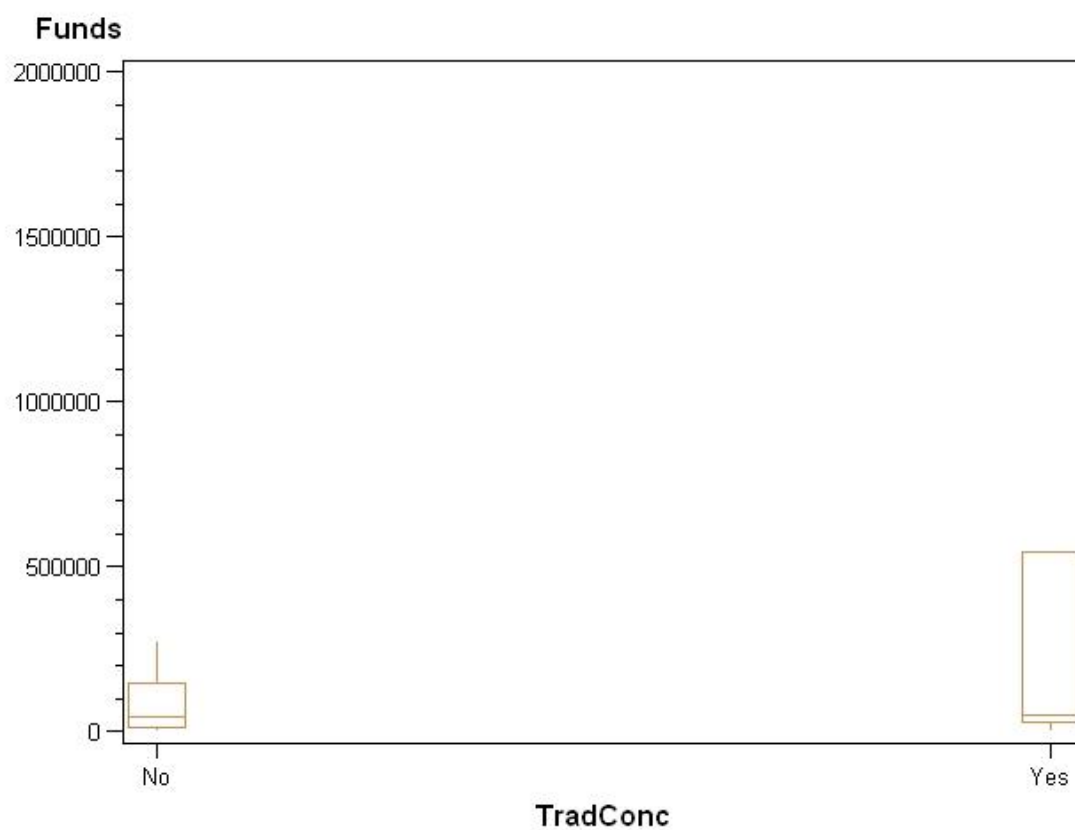Source: Own processing

Figure 3 Box-plot of annual operating costs of Traditional and Non-traditional DPSes
Source: Own processing

Conclusions

In this paper we analysed yearly annual operation cost of practices from the field of Digital Public Spaces. We sorted the practices to Physical and Web-based (according to the main place of their scope) and to Traditional and Non-traditional (according to their concept).

When comparing results of the cluster analysis with our classification of practises, we can see that annual operating cost depends rather on the extent of the practises and country of operation.

We saw differences among Traditional and Non-traditional DPSes, and also among Physical and Web-based. These differences are not in average annual operating cost, but are also arising from the scope and extent of their operations, and thus from their specific needs of individual budget lines. When looking at individual practises, we also have to take into account the impact of the country. We saw significantly higher annual operating costs in practises from EU 15 countries than in comparable practises from countries that accessed EU in 2014.

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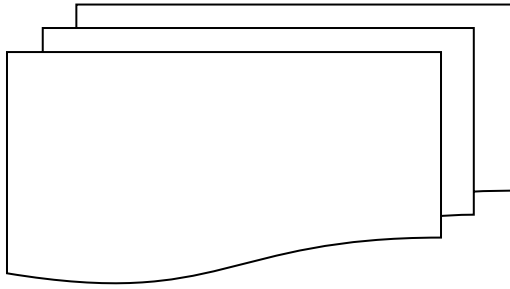Source: XYZ   (Times new roman, 12 pt)

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