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THE ROLE AND PRESENCE OF INTERGENERATIONAL SYNERGY IN MEDIUM AND LARGE SLOVENIAN COMPANIES

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Abstract: *Intergenerational synergy and thus the exchange of knowledge, is the key element in the implementation of various tasks, finding solutions, obtaining and exchanging important information. The main aim of the paper is to present intergenerational synergy and to determine the impact of intergenerational synergy on the work engagement of employees in large and medium-sized companies in Slovenia. In the empirical research 407 companies and 814 employees were included by random sampling. Research results revealed that employers on general pay attention to intergenerational synergy in companies in Slovenia, but there are still opportunities to raise awareness among employers about intergenerational synergy and their emphasis on intergenerational synergy for better performance of business operations, such as sales activities to customers of different age profiles, and similar. Results also suggest that intergenerational synergy in companies has a statistically significant positive impact on the work engagement of employees in large and medium-sized companies in Slovenia. In this context, an appropriate environment should be created to respect the diversity of the workforce.*

Keywords: *Intergenerational synergy, employees, work engagement*

JEL Classification J24 · C12

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1. INTRODUCTION

The nature of the workforce is rapidly changing. One remarkable shift is the steady increase of older employees in the workplace. Aging of the global workforce will be the dominant issue faced by business and organizations in the next two decades (Cheung and Wu, 2013). Due to demographic changes, managers will have to pay more attention to generational differences and to the creation of intergenerational synergies (Smola and Sutton, 2002). Companies that are aware of the importance of age diversity of their employees have a great advantage over others since they can best respond to faster and faster changes in the global environment. Age diverse employees bring to such company different opinions, knowledge, experiences, values and lifestyles. Age diverse employees, and thus the establishment of intergenerational synergy in company, contribute to greater productivity, innovation, creativity, motivation, satisfaction, work engagement, competitiveness and easier adaptation and acceptance of changes (see, e.g. Naegele and Walker, 2006; Hertel et al., 2013). Diversity in role expectations, working styles, and general values causes various needs for communication, coordination and conflict management. In the future, intergenerational teams will be the dominant characteristic of cooperation in organizations (Ellwart et al., 2013). Companies that know how to handle the age diversity of their employees are gaining competitive advantage and are far ahead of those organizations that are not aware of the importance of intergenerational teams and intergenerational cooperation between their employees (Agrawal, 2012).

An important task of the management is to increase concern for the work engagement of age-diverse employees. Employers must consider the factors that can influence the work engagement of employees. By promoting intergenerational synergy in the workplace, the work results of employees are improved, the level of their work performance is increased, the exchange of knowledge and experience is implemented, and work engagement of employees is strengthened. This contributes to the development, growth, performance, innovation, and competitiveness of a company (see, e.g. Albrecht et al., 2018; Sanyal et al., 2015). Schaufeli et al. (2002) defined work engagement as positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption. Bakker and Demerouti (2008) summarize that vigor is characterized by high levels of energy and mental resilience while working. Dedication refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, and challenge. Absorption is characterized by being fully concentrated and happily engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work. May et al. (2004) argued that engaged employees have high levels of energy and are enthusiastic about their work. Bakker and Demerouti (2008) assert that engaged employees often experience positive emotions, including happiness, joy, and enthusiasm; experience better health; create their own job and personal resources; and transfer their engagement to others.

The main aim of the paper is to present intergenerational synergy in companies in Slovenia and to determine the impact of intergenerational synergy on the work engagement of employees in large and medium-sized companies in Slovenia. This paper aims to verify the following hypothesis

- H1:** Intergenerational synergy has a statistically significant positive impact on the work engagement of employees in large and medium-sized companies in Slovenia.

2. METHODOLOGY

2.1. Data and Sample

We carried out an empirical study on intergenerational synergy in 1.000 randomly selected large- and medium-sized companies in Slovenia. The main survey involved 407 companies (the response rate was 40.7%) and 814 employees who responded to the questionnaire. In each large- and medium-sized company we selected up to 4 employees to participate in our research.

The questionnaire for intergenerational synergy was assessed by employers, because we wanted to find out if employers pay attention on intergenerational synergy in their companies. The questionnaire for work engagement was assessed by employees, because we wanted to find out if intergenerational synergy has a statistically significant positive impact on the work engagement of employees in companies in Slovenia.

The structure of employers that participated in the survey was as follows:

- Regarding the achieved education level of employers who participated in the research, 53.1% of the respondents finished high professional or university education, 23.3% of the respondents had a master's degree or doctorate, 20.4% of the respondents finished college, and the smallest percentage presents respondents who finished vocational training or high school (3.19%).
- According to the years of working experience of the respondents, 42.7% of employers with the length of service from 31 to 40 years were included in the research. In second place were respondents with a length of service from 21 to 30 years (40.8%). A low percentage of respondents had a length of service of more than 41 years (15.0%) and respondents with a length of service from 11 to 20 years (1.5%).
- The biggest share in the research sample represented large companies which employ over 250 employees (58.2%). Medium-sized companies comprised 41.8%.
- The most companies included in the survey (27.5%) were operating in the processing industry. This is followed by trade, maintenance, and repair of motor vehicles (19.0%); professional, scientific, and technical activities (14.5%); financial and insurance activities (11.8%); information and communication activities (5.6%); construction sector (3.7%); other diverse business activities (3.7%); real estate services (3.0%); health and social security (2.4%); catering (1.7%); supply of electricity, gas, and steam (1.7%); traffic and storage (1.5%); agriculture and hunting, forestry, and fishing (1.2%); water supply, sewage and waste management, and remediation activities (1.0%); mining (1.0%); and other activities (0.7%).

The structure of employees that participated in the survey was as follows:

- According to the years of working experience of the respondents, 27.4% of employees with the length of service from 21 to 30 years were included in the research. In second place were respondents with a length of service from 31 to 40 years (26.9%). In third place were respondents with a length of service from 11 to 20 years (25.9%). A low percentage of respondents had a length of service of more than 41 years (19.8%).

2.2. Research instrument

When designing the instrument for measuring the intergenerational synergy and work engagement of employees, we relied on the various theoretical principles and research of several authors. Using the listed statements, we completed the questionnaire regarding intergenerational

synergy by following the compilation of theoretical backgrounds of Naegele and Walker (2006) and Agrawal (2012). Statements for the work engagement were formed by Macey and Schneider (2008), Robertson and Cooper (2010). To determine the intergenerational synergy and work engagement in companies in Slovenia, the respondents indicated on a 5-point Likert-type scale their agreement to the listed statements, indicated as follows: 1-I completely disagree, 2-I do not agree, 3-I partially agree, 4-I agree, 5-I completely agree.

2.3. Statistical Analysis

There were three main focuses of our research. Firstly, we were analyzing the perceived intergenerational synergy and perceived work engagement, by analyzing several different dimensions of both multidimensional constructs, where the dimensions were measured by the degree of agreement with statements (measured variables) in the questionnaire that was developed. The non-parametric Wilcoxon signed-rank test for dependent samples was used to find out the significant differences between the individual dimensions.

Secondly, factor analysis was used to form constructs, by replacing a large number of measured variables with a smaller number of factors – new variables, that explain high share of variation of measured variables; namely, the perceived intergenerational synergy and perceived work engagement constructs were formed. We wanted to establish whether the use of factor analysis is reasonable on the basis of Kaiser-Meyer-Olkin's measure of sampling adequacy ($KMO \geq 0.5$) (Kaiser, 1974) and Bartlett's test of sphericity. Based on the results of factor analysis, we did not eliminate any variable, because communalities were higher than 0.40 (Costello and Osborne, 2005). We checked the reliability of the measurement of research within the scope of inner consistency with the Cronbach's alpha coefficient (Chronbach, 1951). Hertel et al. (2013) define the indicators of highly reliable constructs as highly connected and show that all of them measure the same latent construct. The authors state that the reliability of the measurement that has a coefficient of $\alpha \geq 0.80$ is marked as exemplary, as very good if the coefficient is in the interval $0.70 \leq \alpha < 0.80$, as moderate in the interval $0.60 \leq \alpha < 0.70$, and as barely acceptable if the coefficient α is smaller than 0.60.

Thirdly, factors obtained were used to perform a simple linear regression. We checked the quality of the obtained regression model with correlation coefficient, determination coefficient, F-test and t-test.

3. RESULTS

3.1. Results for intergenerational synergy, assessed by employers

Table 1 presents the results of descriptive statistics for sample of employers about the measured variables - items of the intergenerational synergy in large and medium-sized companies in Slovenia.

Descriptive statistic for answers about the intergenerational synergy in companies in Table 1 shows that on average employers agree with all statements (the mean value well above the average scale value, 3). The highest average agreement is achieved by the statements "Through intergenerational cooperation, we increase the innovation and creativity of our employees at work" ($M = 3.81$; $SD = 0.879$) and "Through intergenerational cooperation we exploit the benefits of age diversity of our employees" ($M = 3.81$; $SD = 0.891$). The highest dispersion of responses (standard deviation) is noted in the statement "Through intergenerational cooperation, we give emphasis on better understanding of different age profiles of customer and their needs." ($M = 3.75$; $SD = 0.953$)

Table 1:

Descriptive statistics for answers about the construct intergenerational synergy in companies

Statement	N	Median	Mean (M)	Std. Deviation (SD)
In the company we emphasize the intergenerational synergy.	407	4.00	3.74	0.894
Through intergenerational cooperation, we increase the innovation and creativity of our employees at work.	407	4.00	3.81	0.879
Through intergenerational cooperation we enable that employees make quicker solutions and decisions.	407	4.00	3.78	0.914
Through intergenerational cooperation, we allow the distribution of work tasks and with this we thereby reduce the workload of employees.	407	4.00	3.76	0.901
Through intergenerational cooperation, we give emphasis on better understanding of different age profiles of customer and their needs.	407	4.00	3.75	0.953
Through intergenerational cooperation we exploit the benefits of age diversity of our employees.	407	4.00	3.81	0.891
Valid N (list wise)	407			

Based on the non-parametric Wilcoxon signed-rank test for dependent samples, we wanted to find out the significant differences between the statements with the highest average agreement and other statements that describe the construct intergenerational synergy.

Table 2 shows the non-parametric Wilcoxon signed-rank test for dependent samples for statement “Through intergenerational cooperation, we increase the innovation and creativity of our employees at work” and other statements that describe the construct intergenerational synergy.

Table 2:

The non-parametric Wilcoxon signed-rank test for dependent samples for statement “Through intergenerational cooperation, we increase the innovation and creativity of our employees at work”

The median of differences between “Through intergenerational cooperation, we increase the innovation and creativity of our employees at work” and ...	Z	Significance (2-tailed)
„In the company we emphasize the intergenerational synergy“ equals 0.	-3,501	0.000
„Through intergenerational cooperation we enable that employees make quicker solutions and decisions“ equals 0.	-1,718	0.086
„Through intergenerational cooperation, we allow the distribution of work tasks and with this we thereby reduce the workload of employees“ equals 0.	-1,438	0.150
„Through intergenerational cooperation, we give emphasis on better understanding of different age profiles of customer and their needs“ equals 0.	-2,065	0.039
„Through intergenerational cooperation we exploit the benefits of age diversity of our employees“ equals 0.	0.000	1.000

Based on the results (Table 2), we found that there are statistically significant differences between the average agreement with the statement “Through intergenerational cooperation, we increase

the innovation and creativity of our employees at work” and two statements „In the company we emphasize the intergenerational synergy” and „Through intergenerational cooperation, we give emphasis on better understanding of different age profiles of customer and their needs” ($p < 0.05$). Other differences are not statistically significant ($p > 0.05$).

Results show, that employers assess that the intergenerational cooperation brings the most important benefits to enhancement of innovation and creativity at work, they also emphasized the benefits of age diversity to the same extent ($p > 0.05$), they also believe that the enhancement of intergenerational cooperation enables that employees make quicker solutions and decisions ($p > 0.05$), better distribution of work tasks and reduction of the workload of employees ($p > 0.05$). Therefore, we can conclude, that there are several benefits of the intergenerational cooperation that are reflected through more efficient performance of activities of the company. It seems that only the emphasis of intergenerational integration itself is not enough or not important for employers; it is important that it brings real added value to the companies in different areas.

3.2. Results for work engagement, assessed by employees

Table 3 presents the results of the descriptive statistics for agreement with statements – items regarding the work engagement of employees in large and medium-sized companies in Slovenia.

Table 3: Descriptive statistics for agreement with statements
– items regarding the work engagement of employees in companies

Statement	N	Median	Mean (M)	Std. Deviation(SD)
I do my work with passion.	814	4.00	3.62	1.028
I am engaged to the quality of my work.	814	4.00	4.18	0.792
I am engaged to achieve successful business results	814	4.00	4.15	0.847
I am aware of the importance of innovation for our company and I am helping to develop the company.	814	4.00	4.05	0.911
I trust in my colleagues and the manager	814	4.00	4.04	0.879
I feel that my work and job are important.	814	4.00	3.76	1.135
I am proud to be employed in this company.	814	4.00	3.86	1.022
I believe in the successful development and operation of our company.	814	4.00	4.04	0.858
Valid N (list wise)	814			

Descriptive statistic for answers about the work engagement of employees in Table 3 shows that on average employees agree with all statements (the mean value well above the average scale value, 3). The highest average agreement is achieved by the statement “I am engaged to the quality of my work” ($M = 4.18$; $SD = 0.792$), along with the lowest standard deviation. The highest dispersion of responses (standard deviation) is noted in the statement “I feel that my work and job are important.”

Table 4 shows the non-parametric Wilcoxon signed-rank test for dependent samples for the statement “I am engaged to the quality of my work” that was assessed the highest and other statements that describe the construct work engagement of employees.

Table 4: The non-parametric Wilcoxon signed-rank test for dependent samples for statement “I am engaged to the quality of my work”

The median of differences between “ I am engaged in the quality of my work ” and ...	Z	Significance (2-tailed)
“I do my work with passion“ equals 0.	-18,047	0.000
“I am engaged in the task of achieving successful business results“ equals 0.	-2,709	0.007
“I am aware of the importance of innovation for our company, and I am helping to develop the company. „ equals 0.	-6,465	0.000
“I trust in my colleagues and the manager „ equals 0.	-7,591	0.000
„I feel that my work and job are important” equals 0.	-12,679	0.000
“I am proud to be employed in this company“ equals 0.	-11,911	0.000
„I believe in the successful development and operation of our company“	-8,358	0.000

Based on the results (Table 4), we found that there are statistically significant differences between the statement “I am engaged in the quality of my work” and all other statements that describe the construct work engagement of employees ($p < 0.05$).

The results show that for employers the engagement at the workplace is the most strongly associated with the quality of their work, although other components are highly important, as well (high average agreement), although less ($p < 0.01$) than the quality of their achieved working results very high.

3.3. The results of factor analysis for the construct intergenerational synergy, assessed by employers, and construct work engagement, assessed by employees

Table 5 presents the results of factor analysis for the construct intergenerational synergy. In the questionnaire for employers, intergenerational synergy was measured with six items. The value of the Kaiser-Meyer-Olkin measure of sampling adequacy ($KMO = 0.811$) and the results of Bartlett’s test of sphericity (Approx. Chi-Square = 5607.985, $df = 15$, $p < 0.001$) suggested the use of factor analysis.

The values of all communalities in Table 5 for construct intergenerational synergy are higher than 0.90, therefore we have not eliminated any variable. The total variance explained is 95.05%. Table 5 also shows that all factor loadings are higher than 0.90.

The value of Cronbach’s alpha for the factor intergenerational synergy is 0.986; therefore, the reliability of the measurement scale is high.

In the questionnaire for employees, work engagement was measured with eight statements. The value of the Kaiser-Meyer-Olkin measure of sampling adequacy ($KMO = 0.935$) and the results of Bartlett’s test of sphericity (Approx. Chi-Square = 7426,973, $df = 28$, $p < 0.001$) suggest the use of factor analysis. Table 6 presents the results of factor analysis for the construct work engagement of employees.

Table 5: The results of factor analysis for the construct promoting intergenerational synergy

Statement	Communalities	Factor loadings
In the company we emphasize intergenerational synergy.	0.949	0.974
Through intergenerational cooperation, we increase the innovation and creativity of our employees at work.	0.972	0.986
Through intergenerational cooperation we enable employees to create quicker solutions and make faster decisions.	0.966	0.983
Through intergenerational cooperation, we allow the distribution of work tasks, and with this we thereby reduce the workload of employees.	0.928	0.963
Through intergenerational cooperation, we place emphasis on better understanding of different age profiles of customer and their needs.	0.913	0.955
Through intergenerational cooperation, we exploit the benefits of age diversity among our employees.	0.976	0.988
Kaiser-Meyer-Olkin measure:0.881		
Bartlett's test of sphericity	Approximate Chi-Square	5607.985
	df	15
	p	0.000
Cumulative percentage of explained variance: 95.048 %		

Table 6: The results of factor analysis for the construct work engagement of employees

Statement	Communalities	Factor loadings
I do my work with passion.	0.717	0.847
I am engaged in the quality of my work	0.856	0.925
I am engaged in the task of achieving successful business results.	0.823	0.907
I am aware of the importance of innovation for our company, and I am helping to develop the company.	0.781	0.884
I trust my colleagues and the manager.	0.845	0.919
I feel that my work and job are important.	0.702	0.838
I am proud to be employed with this company.	0.760	0.871
I believe in the successful development and operation of our company.	0.841	0.917
Kaiser-Meyer-Olkin measure:0.935		
Bartlett's test of sphericity	Approximate Chi-Square	7426.973
	df	28
	p	0.000
Cumulative percentage of explained variance: 79.062 %		

Table 6 shows that the values of all communalities for work engagement of employees are higher than 0.70, therefore we have not eliminated any variable. The total variance explained is 79.06 %. All factor loadings are higher than 0.80.

The value of the Cronbach's alpha for the factor work engagement of employees is 0.958; therefore, the reliability of the measurement is high.

3.4. The impact of intergenerational synergy on work engagement of employees in Slovenia

After saving the factor scores as new variables, we performed a regression analysis to verify the following hypothesis:

H1: Intergenerational synergy in companies has a statistically significant positive impact on the work engagement of employees in large and medium-sized companies in Slovenia.

In the continuation, we present the results of testing of the hypothesis. The value of correlation coefficient between the dependent variable (work engagement of employees; the average value of factor work engagement of 2 employees of a company was calculated) and independent variable (intergenerational synergy – assessed by employers) for hypothesis H1 is $r = 0.880$, which indicates that there is a strong positive relationship between the variables – this results reveals that higher the intergenerational cooperation, higher on average the work engagement of employees. The value of the determination coefficient is 0.774. The determination coefficient explains that 77.4% of the variance of the dependent variable (work engagement of employees) is explained with the variance of the independent variable (intergenerational synergy). We have established the statistical significance of the derived regression function with the F-test ($F = 1385.974$; $p < 0.001$). Table 7 shows the regression analysis results.

Table 7: Regression analysis results

Hypothesis	Dependent variable	Independent variable	Unstandardized coefficients		Standardized coefficients	t	Significance
			B	Standard error	Beta		
H1	Work engagement of employees	Intergenerational synergy	1.001	0.027	0.880	37.229	0.000

The results of the regression (Table 7) indicated that the regression coefficient of intergenerational synergy was 1.001 ($\beta = 0.880$) and was significantly different from 0 ($p < 0.001$). There is a statistically significant positive impact of the independent variable (intergenerational synergy) on the dependent variable (work engagement of employees). Based on the results we confirmed the hypothesis H1:

H1: Intergenerational synergy has a statistically significant positive impact on the work engagement of employees in large and medium-sized companies in Slovenia.

4. CONCLUSION

The objectives of our research were fully achieved. Firstly, we analyzed the attitudes of employers to intergenerational cooperation and concluded that intergenerational cooperation for employers is a way of achieving greater employee innovation and creativity, a way to achieve faster and more

effective co-operative decisions, and the possibility of more efficient distribution of work tasks a more even workload of employees. Employers see the importance of intergenerational cooperation, above all, in the more efficient implementation of business activities of the company. Secondly, we analyzed the work engagement of employees. Here, one single component was pointed out as more important from the employees' view point as other components, namely, the assessment that employees assess the engagement at their workplace especially through the quality of work they perform. Although other components of engagement are important, as well (above average agreements with statements), it seems that the commitment to achieving high-quality work results is the most important from the employees' view-point. Thirdly, we also confirmed the hypothesis that intergenerational synergy has a statistically significant positive impact on the work engagement of employees in large and medium-sized companies in Slovenia.

Our results have several implications. For companies, creating awareness of the differences and benefits of different generations and accepting and appreciating them, represent the first stage of optimizing age diversity. Age discrimination is detrimental to the success of all organizations, since it causes unnecessary waste of talents, skills, knowledge, and experience of age-diverse employees. A diverse organization breaks down stereotypes related to older employees, does not use age as a criterion for making any personnel decisions, creates a pleasant working environment, cares for employees' engagement, builds competitive advantages on the basis of intergenerational coexistence and motivated employees of all ages, and builds the reputation as an ethical employer (see, e.g. Jorgensen, 2005). Results are also important for higher education management teams, planning and organizing the curricula in management study programs, since our results point to an important aspect of human resource management studies, namely the development of a graduates' competences to be able to create and shaping the intergenerational ecosystems within companies. The results are also important for economic policy makers, who should take appropriate financial measures (for example, tax incentives for successful promotion and co-creation of intergenerational cooperation at workplace) or non-financial measures (incentives when applying for tenders for companies that are successful in creating efficient intergenerational ecosystem) to promote intergenerational cooperation.

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SLOVAKIA AND AUSTRIA – A COMPARISON OF AGRICULTURE AND FOOD SECTORS

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Abstract: *Input-output tables with input-output data represent a relatively simple but useful tool to analyze the structure of the economy or undergoing structural changes. These tables enable to quantify direct and indirect linkages within each economy, as well as to study demand or supply relationships between particular sectors. The aim of this paper is to present and compare the main characteristics of 2 selected sectors for Slovakia and Austria. The focus is on the agriculture and food sector and their characteristics using the input output data and analysis. We compared basic input and output multipliers in order to verify the similarities in the position and the development of these sectors in selected countries. Other objectives were analysis of sectors' backward and forward linkages, "measuring" of their strengths, the identification of key industries and concentration of their impacts. With accordance to our previous research and general trends, we expected a certain decline of importance over the analyzed period of 2000-2014.*

Keywords: *input-output analysis, multipliers, backward and forward linkages, agriculture sector, food sector, demand, supply, impact, Slovakia, Austria*

JEL Classification C67 · F62 · L66

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1. INTRODUCTION

Input-output tables (IOT) and analysis are based on the model presented by Leontief. This type of analysis is not new but still represents a rather useful way for assessing structural changes. It helps in studying sectoral interdependencies, existing linkages between sectors or their strength (Leontief, 1953).

This paper focuses on the agriculture and food sectors, sectors that were getting more attention mainly due to their general decreasing trend over previous decades. The aim of the analysis is to compare and evaluate the position and the development of these sectors in Slovakia (SK) and Austria (AT) over the period 2000-2014. The analysis was aimed on the strength of the sectors' demand and supply linkages, the importance of their positions in national economies (from the point of view of key sectors). In accordance with general trends and the previous research, it can be expected that sectors would have experienced fairly stable, but decreasing, trend over this period. Due to the limited extent, this paper presents only selected results. More detailed results can be provided upon request.

2. LITERATURE REVIEW

The economic importance of agricultural and food sectors declined over last decades. This trend can be observed in many European countries. It is even more pronounced in countries that shifted from centrally planned economy to market systems such as Central European, Baltic or Balkan countries. This transition process impacted various area of economic life of the countries, agriculture and food sectors included. On the other hand, "old" members of European Union (EU) were not subjected to such significant structural changes. These changes can be viewed as a part of the process that was necessary to assure a higher similarity of economic structures of "old" and "new" members. The EU accession meant that national agricultural policies needed to be revisited to assure their compliance with EU policies but it enabled countries to draw yearly financial resources (European Commission, 2018; Lauri, 2012; Némethová & Cíván, 2017).

When analyzing position or importance of any sector in economy, various basic indicators can be used: e.g. the sector's share on overall output, employment, value added (VA), imports or exports (Pokrivčák, 2003). IO analysis represents another approach for sector analysis. Thanks to it we can verify to what extent the positions and impacts of agriculture and food sector correspond to their shares on the economy. IO tables supply information about activities of all sectors within the whole production process in economy, from the points of view of producers of inputs and buyers of inputs (Dujava, Lábaj & Workie, 2011). This knowledge can be very useful when evaluating overall macroeconomic impacts of the changing demand in various sectors (D'Hernoncourt, Cordier & Hadley, 2011).

IOT models allow calculating various types of multipliers: output, input, import, employment, income or value added multipliers (Lábaj, 2017). They can be calculated either as simple or total multipliers, depending on whether the household consumption is a part of the model (Pissarenko, 2003). IO approach is also focused on the analyses of demand and supply (D, S) relationships between sectors, i.e. backward and forward linkages (BL and FL). The strength of these linkages points out to the most important sectors, either on the D or S side. Sectors that have strong both BL and FL are usually qualified as key sectors to the economy. What is more, IO analyses help to understand whether these impacts are evenly dispersed throughout the whole economy or they are rather concentrated on a smaller number of other industries.

One of the advantages of IO analyses is that the values of multipliers remain stable even for longer periods of time thanks to relatively stable structures of economies. As a result, even older values can be used for e.g. the assessment of the current situation or for predicting future impacts of changing demand (McLennan, 1995).

3. METHODOLOGY

We suppose that each economy can be divided in n sectors and there are various relationships linking these sectors. The structure of the economy can be in general described as follows (Miller & Blair, 2009):

$$\begin{aligned}
 X_1 &= Z_{11} + Z_{12} + \dots + Z_{1j} + \dots + Z_{1n} + Y_1 \\
 X_2 &= Z_{21} + Z_{22} + \dots + Z_{2j} + \dots + Z_{2n} + Y_2 \\
 X_i &= Z_{i1} + Z_{i2} + \dots + Z_{ij} + \dots + Z_{in} + Y_i \\
 &\dots \\
 X_n &= Z_{n1} + Z_{n2} + \dots + Z_{nj} + \dots + Z_{nn} + Y_n
 \end{aligned} \tag{1}$$

where X_i stands for total sector output for sector i , Y_i the final demand for this sector's production and Z_{ij} the intersectoral flows in this economy. The production of each sector can serve as the intermediate consumption (inputs for other productions) or can be used directly in other sectors (final consumption) (Duvajová, 2014; Habrman, 2013). When the flows of inputs from i to j are divided by total outputs X_i , we obtain technical coefficients that reflect the cost structure of each industry (Lábaj, 2014). The set of equations (1) can be rewritten to $X = AX + Y$ (2) and transformed to $X = (I - A)^{-1} Y$ (3). The matrix $(I - A)^{-1} = L$ (Leontief inverse matrix) helps to understand what are the total direct and indirect effects of any increase in the final demand for production in each sector. It is the base for the IO analysis.

When sector i increases its production, it generates additional demands for inputs from supplying sectors (D or BL). The higher production in i means higher volumes of products, i.e. inputs for other sectors and can stimulate their productions (S or FL) (Miller & Blair, 2009; Reis & Rua, 2009; Timmer, 2012). Logically, these linkages can vary from one sector or country to other. Normalized values of IO multipliers can be used as means for measuring the strength of BL and FL and for determining the importance of sectors. They also enable to verify whether sectors have more than average impact on the economic activity in other sectors (key sectors) (Reis & Rua, 2009; Trinh, Le Hoa & Giang, 2009; Wixted, Yamano & Webbe, 2006). The distribution of impacts on other industries can be studied with the help of variation coefficients (VK), a common measure of dispersion of effects on the whole economy. VK show for each industry whether its effects are evenly distributed (lower values of VK) or they are concentrated on small number of other industries (higher values of VK) (Reis & Rua, 2009; Timmer, 2012).

Nowadays, productions in various countries are interlinked and production processes are fragmented. That is why it is important to take into consideration the volume of imports that are generated by domestic production (volume of the imported inputs due to the increased domestic demand) as well as the volume of exports transported abroad.

4. RESULTS

With regards to the limited extent of the paper, only the evolution of Agriculture and Food production was analyzed (sectors noted A01 and C10-12 according to ISIC Rev.4) (United Nations, 2017). The choice of sectors is linked to the certain decline of their production even though they can still be considered as basic ones in each economy. We would like to verify the similarities in their evolution and to compare possible changes in their positions for 2000-2014. Data for analyses come from WIOD Database covering the period 2000-2014 (World Input Output Database, 2018).

As mentioned before, the importance or the position of any sector can be described by basic indicators, such as the sector's share on total output, employment, VA, exports or imports. When we compare the characteristics of SK and AT, out of the 56 sectors, there are only few sectors with average sector shares exceeding 5% of total values for the whole economy. It was confirmed for all of observed indicators, i.e. average production share on total country's production (SK-4 sectors, AT-3 sectors), average employment share on total employment (SK-6, AT-7), average export share on total exports (SK-5, AT-5), average import share on total imports (SK-6, AT-4) and average VA share on total VA (SK-5, AT-6). The most important producers were the sectors of motor vehicles manufacturing (SK) and construction (AT); the most important employers were the sectors of education (SK) and human health and social services (AT). As for the exporting and importing sectors, the highest average shares were observed in the manufacture of motor vehicles. The highest share of VA on total VA was created in construction (SK) and real estate (AT) sectors.

Table 1 shows selected average values for a01 and c1012. The average shares of a01 and c1012 were low, not exceeding 5% for the analyzed period. As for the overall trend, countries experienced declines in both production and employment shares vis-à-vis the overall values. The most significant declines (about 50%) appeared in SK c1012 (production) and a01 (employment).

Table 1: Shares of sector output on total economy's output, shares of sector employment on total economy's employment (Source: *own calculations, WIOD*)

	<i>Sector output on total output (%)</i>					<i>Sector employment on total employment (%)</i>				
<i>Country</i>	<i>2000</i>	<i>2008</i>	<i>2010</i>	<i>2014</i>	<i>Δ %</i>	<i>2000</i>	<i>2008</i>	<i>2010</i>	<i>2014</i>	<i>Δ %</i>
SK a01	3.75	2.51	1.96	2.47	-34.1	4.78	2.61	2.34	2.18	-54.4
AT a01	3.00	2.03	2.29	2.25	-25.0	3.31	1.82	2.20	2.01	-39.3
SK c1012	4.49	2.62	2.26	2.22	-50.7	3.51	2.54	2.42	2.14	-39.0
AT c1012	5.58	4.12	4.18	4.20	-24.7	4.13	3.25	2.36	2.89	-30.0

Table 2 compares the average values of sectors' exports and imports on total exports and imports. It can be seen that the values are lower for a01 exports with an increasing trend. The c1012 recorded a slight decrease in average shares for SK and an increase for AT. On the other hand, imports showed mainly decreasing trend, with the exception of AT c1012 (+12% over 2000-2014).

However, when compared to the average shares of exports and imports of other sectors, a01 and c1012 shares are rather low. E.g. in case of motor vehicles manufacturing, exports accounted on average for about 22% of exports and 19.5% of imports in SK. It was also the biggest exporter and importer in AT (10% for exports, 9% for imports).

Table 2: Shares of sector exports and imports on total country's exports and imports
(Source: *own calculations, WIOD*)

country	Sector export on total export (%)					Sector import on total import (%)				
	2000	2008	2010	2014	Δ %	2000	2008	2010	2014	Δ %
SK a01	0.92	1.54	1.53	1.55	+68.48	3.18	1.51	1.55	1.91	-39.94
AT a01	0.67	0.71	0.78	0.77	+14.92	1.29	1.10	1.12	1.10	-14.73
SK c1012	1.49	1.63	1.51	1.03	-30.87	3.59	2.11	1.96	1.90	-47.08
AT c1012	3.64	4.66	5.43	5.74	+57.69	3.32	3.35	3.34	3.71	+11.75

Table 3 shows average shares of VA on total VA. Here again, we can state that none of the 2 sectors exceeded 5% average share and were mostly below 3% share. What is more, shares of VA for a01 and C1012 decreased over the period. The highest decline appeared in SK c1012. As for the other sectors in SK and AT, the highest shares of VA were identically recorded in construction and real estate sectors.

Values for the crisis period in 3 tables show rather mixed crisis impacts. The average shares of production, employment, export, import and VA on the total values suggest in some cases a slight decline around 2000-2009 with a subsequent recovery after 2010 or a continuing decline in others.

Table 3: Shares of sector value added on total country's value added
(Source: *own calculations, WIOD*)

country	Sector value added on total value added (%)				
	2000	2008	2010	2014	Δ %
SK a01	3.58	3.20	2.07	3.31	-7.54
AT a01	1.40	1.11	1.02	0.98	-30.00
SK c1012	2.94	1.83	1.60	1.47	-50.00
AT c1012	2.08	1.81	1.95	1.87	-10.10

The next step consisted of the analysis using IO tables. Firstly, the intermediate production coefficients were calculated: technical coefficients (tk, for output), allocation coefficients (ak, for input) and import coefficients (ik, for import). They were used to calculate simple output, input and import multipliers (som, sim, simp). Lastly, the strength of demand and supply linkages (BL, FL) was verified.

Table 4 shows the min and max values, averages and medians of 3 multipliers. The results tell that higher average D impacts (som) appear in c1012. Each D increase of 1€ in c1012 should generate 1.93€ (SK) or 1.94€ (AT) of additional productions in supplying sectors. The highest S impact (sim av, AT a01) means that 1€ of agricultural production could generate 2.12€ of new production when looking forward. As for import multipliers (simp), their values are usually lower than som and sim. Here the average values range from 0.18 (SK a01) to 0.32 (AT c1012) meaning that for 1€ increase in D, new imports of about 0.21 (SK) or 0.26 (AT) € would be needed.

When compared, values of average and median can be used for a simple evaluation of the stability of multipliers. Closer values would mean a higher stability while more distant values would mean a higher fluctuation or presence of a trend. Table 4 shows that the values are mostly identical or very close to each other. Slightly higher differences can be observed in SK c1012 (som, sim).

Table 4: Output, input and import multipliers (Source: *own calculations, WIOD*)

<i>Country</i>	<i>Som min</i>	<i>Som max</i>	<i>Som av</i>	<i>Som med</i>	<i>Sim min</i>	<i>Sim max</i>	<i>Sim av</i>	<i>Sim med</i>	<i>Simp min</i>	<i>Simp max</i>	<i>Simp av</i>	<i>Simp med</i>
SK a01	1.40	1.90	1.62	1.61	1.47	2.11	1.68	1.62	0.18	0.31	0.24	0.23
AT a01	1.67	1.82	1.71	1.71	2.06	2.19	2.12	2.11	0.13	0.26	0.18	0.18
SKc1012	1.79	2.19	1.93	1.87	1.11	1.69	1.24	1.19	0.25	0.39	0.32	0.31
ATc1012	1.91	1.99	1.94	1.94	1.47	1.53	1.49	1.49	0.18	0.33	0.24	0.22

The next step was the analysis of som and sim (BL, FL) normalised values. Table 5 shows the average values of nBL and nFL for observed sector (left part) and for the whole economy (right part). Values of nBL and nFL higher than 1 indicate either backward or forward orientation of the sector (strong D or S linkage). If both linkages exceed 1, this sector is a key sector to the economy. From data in Table 5, a01 can be on average considered as key in AT while c1012 is only backward oriented. More detailed analysis confirms that SK a01 could have been qualified as key over 2000–2005.

Table 5: nBL and nFL, VK (Source: *own calculations, WIOD*)

<i>Country</i>	<i>nBL av</i>	<i>nBL VK%</i>	<i>nFL av</i>	<i>nFL VK%</i>	<i>Total econ</i>	<i>VK %</i>	<i>min (sector)</i>	<i>max (sector)</i>	<i>av</i>
SK a01	0.98	4.41	0.99	6.12	<i>SK</i>	<i>nBL</i>	1.33 (C23)	23.07 (R-S)	4.86
AT a01	1.06	1.71	1.24	2.03		<i>nFL</i>	1.75 (N)	28.65 (G46)	10.14
SK c1012	1.17	2.46	0.73	8.51	<i>AT</i>	<i>nBL</i>	0.80 (G47)	10.32 (C19)	2.55
AT c1012	1.20	1.01	0.88	1.05		<i>nFL</i>	0.74 (G47)	17.04 (A03)	3.84

Based on demand and supply relationships the extent of the sector's impact can be determined thanks to VK (more or less concentrated effects). Higher values indicate stronger concentration; lower values refer to lower concentration and evenly dispersed impacts across the economy.

When comparing all sectors in 2 countries, we can see some differences (Table 5, right side). Table shows sectors with the most and the least concentrated average impacts on both demand and supply side. From this point of view we cannot affirm that countries have similarly distributed concentrations of effects. As for the observed sectors, their values of VK are lower than the countries' average VK. The only exception is SK c1012 with VK for FL at the level of 8.51%. In general, we can conclude that on average, impacts on the demand side are more evenly distributed than on the supply side (VK for nBL > VK for nFL).

5. CONCLUSIONS

In the paper, the main characteristics of a01 and c1012 in SK and AT were presented and compared. Analyses compared the shares of sectors on the total output, employment, exports, imports and VA. With the exception of AT c1012, neither a01 nor c1012, exceeded 5% share in total values. While the shares of production, employment, imports and VA were decreasing, the export shares became more important.

Basic IO coefficients and multipliers in 2000-2014 were studied. The descending trend was fairly visible for som and sim but we observed increases in simp confirming the growing importance of foreign products on domestic markets. The stability of sectors was verified by comparison of average and median values. Higher differences were present only in c1012 confirming a possible trend (downward in SK, upward in AT).

The analysis enabled the verification of key industries. We expected that in accordance with weakening importance and sectors shares, they would not present key sectors characteristics what was also confirmed by calculations. The AT a01 was the exception (strong BL and FL). Lastly the distribution of impacts was verified via VK. VK were lower than average countries' VK, meaning that a01 and c1012 have their impacts much more evenly distributed than are SK or AT averages. The impacts on the demand side could be considered as more evenly distributed than on the supply side.

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INNOVATION PROCESS – TOWARDS ACHIEVING ORGANIZATIONAL AMBIDEXTERITY: RESEARCH RESULTS

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Abstract: *Innovation process is one of activities that have strategic importance for long term success of company due to possibility to develop and change key competencies, capabilities and competitive advantages. However one of crucial issues of managing organization is achieving balance between securing present revenue streams and ability of creating new value for customers. Therefore the main goal of this paper is to recognize the relation between different configurations of innovation process and achieved results of organization's ambidexterity level. These issues were subject of survey covering 400 medium and large size Polish entities and period of 2015-2017. Most important finding is that there is positive correlation between implementation level of innovation process and achieved ambidexterity level. This paper is addressed to researchers as well for practitioners of management, especially R+D managers, COO and CEO.*

Keywords: *Innovation process, ambidexterity, value capture, value creation, innovation*

JEL Classification O31 · O32 · L20 · M10

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1. INTRODUCTION

One of the important activities that bring positive results for the company in the long run is innovation, which allows developing new approaches to increase competitiveness and improve the company's performance. The new economy does not mean undermining and rejecting short term results as the basic criteria of enterprise's operation. Instead it points to a fundamental change in the manner in which these postulates are achieved. It is necessary to reorient to the capabilities that support a quick and flexible response to market impulses. In addition, it is postulated to adopt the concept of a business model that supports the creation of added value resulting from the adaptation of different values and focus on the development of intangible assets and the increase in return on investment (Davenport, Leibold, & Voelpel, 2005).

In this perspective, the functioning of an enterprise can be considered in the context of one of the key management paradoxes. On the one hand, there is a need to develop, implement innovations and adapt to the dynamically changing environment, whereas these activities are usually characterized by a long-term perspective and are burdened with a high level of risk (Karpacz, 2015). On the other hand, through self-organization of the system, enterprises aim at stabilization, which is induced by the need to achieve the effectiveness of the process of creating economic value. In this sense aim of the organization is to ensure survival in the short and medium term by maintaining current income streams (Baden-Fuller & Volberda, 1997).

The concept that assumes the balancing of those areas: exploration focusing on value creation and exploitation directed at value capture is ambidexterity. The term was first used by R. Duncan for organizations with dual structures that allow simultaneous implementation of activities with different time horizons and thus require the use of different managerial abilities (Duncan, 1976). J. March created the theoretical foundations for the ambidexterity of the organization pointed to the necessity of simultaneous use of two key activities: exploration and exploitation, stressing that achieving balance between these operations determines the well-being of the organizational system (March, 1991).

He considered exploration as a search for new development opportunities through the use of research, changes, experiments, discoveries as well as flexibility, innovation and risk taking (March, 1991). Exploration requires investments associated with searching for new solutions and testing them, while the return on developed and commercialized innovations is postponed.

On the other hand, exploitation is aimed at maintaining current efficiency, control, improvement, implementation and operationalization, increasing certainty and reducing diversity, and in a broader sense at generating profits in the short term (March, 1991). It is focused on maintaining a competitive advantage on the market in terms of existing products and technologies by reducing costs and achieving economies of scale (Zakrzewska-Bielawska, 2018).

Main goal of this paper is to recognize the relation between different configurations of innovation process and achieved results of organization's ambidexterity. To ensure this goal, an author's model of innovation process was proposed.

2. RESEARCH METHOD – CONCEPTUALIZATION AND OPERATIONALIZATION OF VARIABLES

The subjective scope of empirical research is 400 medium-sized and large enterprises operating in the territory of the Republic of Poland. The time range covers the years 2015-2017. A stratified random-controlled sampling was used in the studies, with the layers representing the size of the enterprise and the business section according to the division of REGON register (as at 31/12/2017) provided by the Central Statistical Office of Poland (<http://bip.stat.gov.pl/>).

Both key variables analyzed in this paper need to be conceptualized and operationalized. First of them is innovation process that is based on the following assumptions:

1. The innovation process is embedded in the company's strategy, and by cascading objectives, it includes further levels of the organization's functioning, i.e. the strategic, the regulatory and operational dimension. The proposed process enables implementation of both the open innovation and closed innovation model (Gassmann & Enkel, 2004; Lichtenthaler & Lichtenthaler, 2009).
2. The four stages of innovation process management are distinguished: 1) analysis and planning, referring to determining the scope and directions of organization development based on innovative activity, 2) implementation describing the introduction of activities in the organization and their implementation, 3) control including a comparison of the obtained results with planned goals and 4) improvement and standardization based on the construction of the feedback flow obtained from the control phase. Model of innovation process consists of 23 actions (see figure 1).
3. With respect to the regulatory level, the activities constituting the shaping of the innovation management system have been distinguished. The proposal indicates both elements directly resulting from the assumptions of open innovation as knowledge management, but also a number of other activities, such as the development of procedures and motivation system, shaping the organizational culture and styles of management, or competency management. The indicated areas to a large extent determine the ability of the organization to adapt to changes and create innovations. In addition, these elements interact with each other and are related to complex relationships, which is why they are presented in the figure in a single block without indicating specific relationships.
4. At the operational level, the innovation process has been supplemented with the portfolio management issues, including the need to measure the effectiveness of innovative projects. The course of individual innovation projects may consist of eight activities, however their configuration differs depending on the specificity of the implementation of a given project. For example, a resource development stage may not occur or the innovation can be created only by the organization, so without the co-creation stage and intended for sale on the new market, i.e. other variants are omitted. Therefore, no links were identified between these activities, grouping them into one block.
5. Another assumption under the presented concept is the continuous improvement of the innovation process, whose changes affect the reconfiguration of the business model. Improvement of the innovation process refers to two areas. First, the regulatory layer, and therefore the innovation management system. Secondly, it provides an information feed for the process, the choice of the direction of the organization's development and, subsequently, changes in the business model.
6. The last assumption is possibility of implementing each of process's actions with different level of intensity. The degree of intensity of the implementation of the innovation process includes three levels: lack of implementation was rated as 0, partial implementation - rated

as 1, and performance in a comprehensive manner - rated as 2. In particular, in the long-term perspective, a gradual decrease in the intensity of implementation of activities belonging to the analysis and planning stage for the increase of intensity of activities related to improvement of the innovation process will be observed. This cycle is repeated when changes occur in the business model of the organization, which result in the need to re-adapt the process of innovation.

Although the presented concept includes as many as twenty-three actions it can be still developed. However, assuming maintaining the applicability value, one should strive to ensure transparency and universality of the formulated concept, which limits the possibilities of model extension.

Second variable is ambidexterity of the organization, that is determined by four areas: company's goal, products, market and competitive advantage for both exploration and exploitation activities (see table 2). There are two questions regarding each individual ambidexterity measurements (Zakrzewska-Bielawska, 2018). Then, each of the measure was valued on the basis of the 1-7 scale. Next, the means for the measurements of exploration and exploitation were calculated. Finally level of ambidexterity is a sum of exploration and exploitation averages, which means that it can achieve values from 2 to 14.

Table 1. Operationalization of ambidexterity of organization. Source: *own preparation*.

<i>Operational construct</i>	<i>Measurement of the construct</i>	
Exploration activities	company's goal	The company's development was made from the perspective of long-term profits
		New market opportunities were used
	product	New products were created
		The range of products has been expanded
	market	Entry into new markets has been made
		New, unique utility values were offered to clients
Exploitation activities	company's goal	competitive advantage
		The company's competences have been developed
	product	A new competitive advantage was created
		Short-term profits have been hedged and generated
	market	Continuous improvement was carried out and efficiency gains were achieved
		The existing products have been improved
	competitive advantage	Production costs have been reduced
		Increased economies of scale in existing markets
	product	Satisfaction of existing customers in a systematic manner was investigated
		The existing competences have been improved
	market	The current competitive advantage was protected and maintained

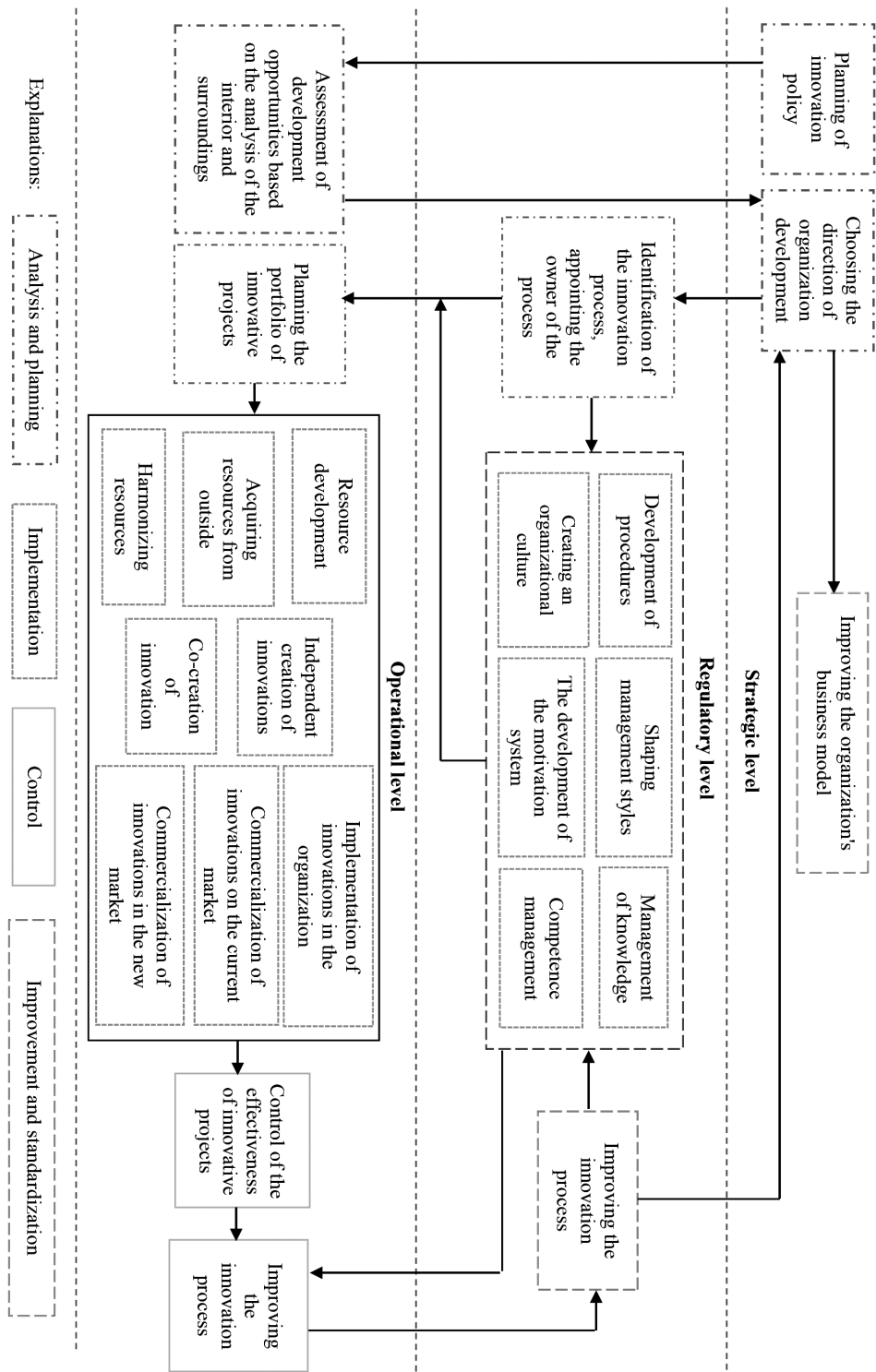


Figure 1. Innovation process model. Source: own preparation.

3. RESEARCH RESULTS

In the presented research group of enterprises the correlation coefficient between intensity of innovation process and level of organization's ambidexterity is 0,565, which can be interpreted as moderate/strong relation. This means that companies characterized by higher intensity of innovation process achieve higher level of ambidexterity.

The average level of exploration is 4.26, while exploitation is 4.51 within the scale from 1 to 7. Both results exceed the average and have relatively similar values. Overall ambidexterity level of researched enterprises was 8.76 (in scale from 2 to 14), which is moderate result. However it is based on two balanced and complementary areas of operation.

In the case of exploration, the most important measure is achieving the company's goals (4.57), with the market having the lowest score (3.76). Such a result can be interpreted as the occurrence of an inside-out approach in the conduct of exploration activities, appreciation of the planning approach and the importance of internal conditions in the development of medium and large size Polish enterprises.

In implementation of exploitation, a slightly different result is achieved. The most important measurement is to maintain the current competitive advantage (4.92) with the lowest result for the market (4.16). The dominant role of maintaining a competitive advantage can be interpreted as a strategy focused on securing current streams of income and at the same time boosting profit in a short period of time, which allows financing investments in innovation and ensuring ongoing operations.

The average intensity of implementation of innovation process for medium and large size Polish enterprises is 0.80 and is noticeably lower than the results obtained by enterprises characterized by a high level of exploration (1.16), exploitation (1.00) and ambidextrous (1.20) (see table 2).

Among the distinguished stages of the innovation process, the most emphasis is on analyzing and planning (1.15) and the smallest on improvement and standardization (0.96), while phases implementation and control achieve similar results, 1.02 and 1.03, respectively.

In relation to specific activities that make up the innovation process, the highest average level of intensity is characterized by the planning of innovation policy (1.25) and the lowest commercialization of innovation in the new market (0.37). It is worth emphasizing that especially in the case of activities related to the commercialization of innovations, both on current and new markets, enterprises that achieved high levels of ambidexterity were characterized by more than twice the level of intensity of implementation of these measures for all enterprises undertaking the innovation process.

The predominance of the intensity of implementation of exploration activities (1.16) in relation to exploitation activities (1.00) is the expected result in relation to the specificity of the innovation process. However, it is interesting to note that enterprises that have achieved a high level of ambidexterity are characterized by a much higher intensity of the innovation process (1.20) compared to enterprises focusing either on exploration activities or exploitation. This may mean that entities wishing to provide complementary support both in the area of value creation and the capture of values should strive to achieve a high level of intensity of the innovation process implementation.

Table 2. Intensity of innovation process activities according to ambidexterity level for medium and large Polish enterprises in 2015-2017, n=400.

Source: own preparation.

<i>Activities of the innovation process</i>	<i>Medium and large Polish enterprises n = 400</i>	<i>High level of exploration (5-7), n = 111</i>	<i>High level of exploitation (5-7), n = 132</i>	<i>High level of ambidexterity (11-14), n = 76</i>
Analysis and planning				
Planning of innovation policy	1,25	1,28	1,17	1,29
Assessment of development opportunities based on the analysis of the interior and surroundings	1,16	1,19	1,08	1,11
Choosing the direction of organization development	1,22	1,29	1,18	1,30
Identification of the innovation process, appointing the owner of the process	0,95	1,17	0,95	1,13
Implementation				
Competence management	0,85	1,33	1,20	1,42
Development of procedures	0,89	1,32	1,20	1,32
Shaping the styles of targeting	0,77	1,15	1,11	1,22
Management of knowledge	0,93	1,40	1,25	1,46
Creating an organizational culture	0,80	1,23	1,10	1,29
The development of the motivation system	0,77	1,26	1,14	1,32
Planning the portfolio of innovative projects	0,70	1,31	1,06	1,26
Resource development	0,62	0,98	0,86	1,24
Acquiring resources from outside	0,70	1,21	1,03	0,96
Harmonizing resources	0,61	1,00	0,89	1,07
Independent creation of innovations	0,67	1,19	1,02	1,25
Co-creation of innovation	0,57	1,03	0,89	1,01
Implementation of innovations in the organization	0,59	0,97	0,89	1,05
Commercialization of innovations on the current market	0,49	0,93	0,81	1,00
Commercialization of innovations in the new market	0,37	0,75	0,66	0,82
Control				
Control of the effectiveness of innovative projects	0,75	1,24	1,12	1,37
Control of the effectiveness of the innovation process	0,94	1,08	0,89	1,20
Improvement and standardization				
Improving the innovation process	0,88	1,10	0,48	1,21
Improving the organization's business model	1,03	1,20	1,08	1,22
Average	0,80	1,16	1,00	1,20

4. CONCLUSIONS

The main goal of this paper is to recognize the relation between different configurations of innovation process and achieved results of organization's ambidexterity. In order to verify those dependency an author's model of innovation process consisting of 23 activities was presented. The correlation coefficient between intensity of innovation process activities and organization's ambidexterity level is 0,565, which can be interpreted as moderate/strong relation. Based on presented research results following recommendations for researchers and managers were proposed.

It is recommended to strive for achieving internal coherence of the innovation process, which refers to two areas. Firstly, to align levels of intensity of implementation between particular stages of the process (analysis & planning, implementation, control, etc.). Secondly, the increase in coherence between the intensity of the innovation process, including closing the gap between operational and regulatory and strategic levels.

It is postulated to raise the average intensity of the innovation process, because it is related with increasing ambidexterity level. So, in order to achieve a high level of ambidexterity, it is necessary to concentrate on the implementation of: control of the effectiveness of innovative projects (the difference between all enterprises realizing the innovation process and enterprises that have reached high level of ambidexterity is 0.62), resource development (the gap is 0.62), independent creation of innovations (the difference is 0.58) and competence management (the gap is 0.57).

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ECONOMIC GROWTH V.S. ECONOMIC DEVELOPMENT – COMPLEMENTARY INDICATORS

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Abstract: *The paper deals with a topic relating to the economic growth, development and general welfare of a national economy, a wider region, or even the entire world, through indicators that differentiate growth from development. It is a complex subject that contains numerous aspects of the life of a community in a certain space, which, because of its complexity, cannot be limited exclusively to economic aspects, so because of that cannot be limited exclusively to economic or monetary indicators. Life in a community besides the economic includes also legal, sociological, philosophical, psychological and other aspects, from which it logically results that measuring the development and welfare is a complex process that can hardly be limited to one indicator. In that sense, the paper addresses issues relating to production, distribution, fairness and equality, employment, unemployment, poverty, productivity, economic stability, sustainable development, human development, a sense of well-being and happiness, etc., in the direction of the thesis for the use of complementary development indicators. The complexity of the process of harmonizing the numerous indicators is further complicated by the need to calculate the degree of their mutual correlation, especially if it concerns divergent indicators or indicators that are mutually exclusive or have a negative correlation.*

The issue of welfare has been the subject of economic science interest since its very beginnings, even from the time of the first ancient thinkers when it was not singled out as an independent science, through the utopians, to contemporary economic thought. The economic operation and the rational use of limited resources in order to meet unlimited human needs is the heart of the economy. The basic indicator used to measure economic growth is undoubtedly the GDP and GDP per capita. But one has to take into account the distinction between quantitative growth and qualitative development, whereby GDP is an indicator of growth. Development is a broader concept that covers growth, but also technological and any other kind of advancement of the social community. Development as a qualitative feature means the advancement of the qualitative

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characteristics of society and the well-being of individuals, and the well-being is not only the increase of GDP, but the subjective sense of the people in the community that they live better, a sense of improving the quality of life. Growth and development together make the progress of the community. In this sense the paper elaborates just a few indicators of growth and development that are used parallel, such as GDP, Human Development Index, and the World Happiness index, that do not exclude each other and whose interwoven use gives a fuller picture of growth and development although the ranking of countries around the world according to one of these indicators may be quite different with respect to the ranking according to the other indicator. This only confirms the thesis of the need for a more comprehensive analysis of the analyzed issues and suggestions for a more comprehensive indicator that would be a complementary set of several alternative and complementary ones that would eliminate the shortcomings of its constituent parts, thereby obtaining a relevant indicator of economic development and welfare, without any intention to propose a concrete solution.

Keywords: *economic growth, economic development, welfare, prosperity, GDP, Human Development Index, the World Happiness score*

JEL Classification E1 · O1 · O4

1. INTRODUCTION

The distinction between terms growth and development is not only semantic, but also have a deeper substantive meaning. The level of economic growth is measured by generally accepted indicators in the world, such as gross domestic product (GDP) and gross domestic product per capita. For the purposes of more precise quantification of growth, and in the direction of determining the development, this indicator is complemented by other economic and social indicators such as the degree of industrialization, the level of education, health and social protection, the length of life, mortality, infant mortality, and a range of other indicators. It is in this direction that specific reports on „human development” are developed within the United Nations (UN), i.e. for overall economic and social development of the community, and not only for the economic development of the country. In addition to economic, these reports also take into account other indicators that refer to health, social, cultural, educational and other aspects of life, up to environmental protection. Moreover, data show that some countries which are on the top of the list of countries according to gross domestic product are lower on the list of aggregate human development index (HDI), that is, according to social indicators or vice versa. The generally accepted principle that economic development is not an end in itself, but should be in the direction of overall human development, still encounters difficulties in its application. Besides these two indicators of growth or development, there are other alternative attempts for complementary indicators of well-being. In this sense is the indicator World happiness score, which is published annually in the *World Happiness Report* as an annual publication of the United Nations Sustainable Development Solutions Network (SDSN). It contains rankings of national happiness and analysis of the data from various perspectives. SDSN engages scientists, engineers, business and civil society leaders, and development practitioners for evidence based problem solving. It promotes solutions initiatives that demonstrate the potential of technical and business innovation to support sustainable development. Although this indicator is based on the UN General Assembly resolution 65/309 *Happiness: Towards a Holistic Definition of Development* adopted on 19 July 2011, it is clearly stated that The World Happiness Report was written by a group of independent experts acting in their personal capacities. Any views expressed in the report do not necessarily reflect the views of any organization, agency or program of the United Nations.

The intent of this paper is to determine the correlation between the most commonly used indicators for growth and development on the example of the 20 highest ranked countries in the world based on the latest published data (2018), and in the direction of setting up a future model for quantification of growth and development, which certainly exceeds the space of paper of this scope and kind.

2. ECONOMIC GROWTH V.S. ECONOMIC DEVELOPMENT – BASIC INDICATORS FOR GROWTH AND DEVELOPMENT

The basic indicator for production quantification in all countries in the world and according to which they are classified in reference to the development level is gross domestic product (GDP) and gross domestic product per capita (GDP per capita). GDP is considered the “world’s most powerful statistical indicator of national development and progress” (Lepenies, P. & Gaines, J., 2016). Gross Domestic Product (GDP) is a monetary measure of the market value of all the final goods and services produced in a period of time, often annually or quarterly. So, GDP is the total market value of all final goods and services produced in a country in a given year. The OECD defines GDP as “an aggregate measure of production equal to the sum of the gross values added of all resident and institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs)” (OECD, SNA 1.128 and 2.173-2.174). An

IMF publication states that “GDP measures the monetary value of final goods and services - that are bought by the final user - produced in a country in a given period of time (say a quarter or a year)” (Callen, 2017). Total GDP can also be broken down into the contribution of each industry or sector of the economy (Dawson, G., 2006, 205). In the literature there is also a distinction between gross domestic product (GDP) and gross national product (GNP), which actually have the same meaning, with the difference that GNP includes also the economic transactions with abroad, i.e. net exports. Thus, GNP represents the amount of the market value of all material goods and services in the final consumption that are produced, sold and spent in the country’s economy for one year, including the economic transactions with abroad, i.e. net exports (Mojsoski, V. & Karadjova, V., 2002, 359). Nominal GDP estimates are commonly used to determine the economic performance of a whole country or region, and to make international comparisons. The ratio of GDP to the total population of the region is the per capita GDP. But, nominal GDP per capita does not, however, reflect differences in the cost of living and the inflation rates of the countries; therefore using a basis of GDP per capita at purchasing power parity (PPP) is arguably more useful when comparing differences in living standards between nations. In Nominal method, market exchange rates are used for conversion. To make meaningful comparison, PPP is used to compare economies and incomes of people by adjusting differences in prices in different countries. But such exclusive expression of growth only through monetary indicators minimizes the impact of some other factors. Thus determined GDP with all the adjustments made (in terms of GDP per capita, PPP, etc.) although is a measure of production, however, methodologically cannot include certain parts of the total production that remain outside of it, for example GDP does not include non-market products and services (production for own needs, work at home, care for family and children, etc.), volunteer work, black economy, gray economy (can be included only through assessments), disasters and accidents increase GDP and this does not mean improving the well-being. In this sense, some other complementary indicators show the prosperity and general human progress.

The Human Development Index (HDI) was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The HDI can also be used to question national policy choices, asking how two countries with the same level of GNI per capita can end up with different human development outcomes. These contrasts can stimulate debate about government policy priorities. The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions (UNDP, Human Development Reports, 2018). It is a standard way of calculating human development in a country, a concept that according to UNDP should extend people’s preferences and give them greater opportunities for education, health care, income, employment, etc. The concept of HDI was developed in 1990 by Pakistani economist Mahbub ul Haq and a group of development economists including Paul Streeten, Frances Stewart, Gustav Ranis, Keith Griffin, Farhan C.M. Sudhir Anand, and Meghnad Desai. Nobel laureate Amartya Sen utilized Haq’s work in his own work on human capabilities (UNDP, *The Human Development concept*, 2010).

Since 1990, it has been used by the United Nations in its Annual Human Development Report. The HDI combines three factors:

- *Life expectancy at birth*, as an indicator of the health and longevity of the population;
- *Knowledge and education*, measured through literacy of adults (as 2/3 of the weight) and total enrollment in primary, secondary and tertiary education (as 1/3 of weight);
- *The standard of living*, expressed in terms of a natural logarithm of GDP per capita in USD.

The value of HDI can range from 0 to 1. Values below 0.5 are considered to represent a low level of development of the country. All countries with HDI below 0.5 are in Africa. Countries with HDI of 0.8 and more are considered to be developed. In this group are all developed countries of North America, Western Europe, East Asia, and some developing countries in Eastern Europe. Seven countries, including Macedonia, have crossed into this group in 2007. A fuller picture of a country’s level of human development requires analysis of other indicators and information presented in the statistical annex of the report.

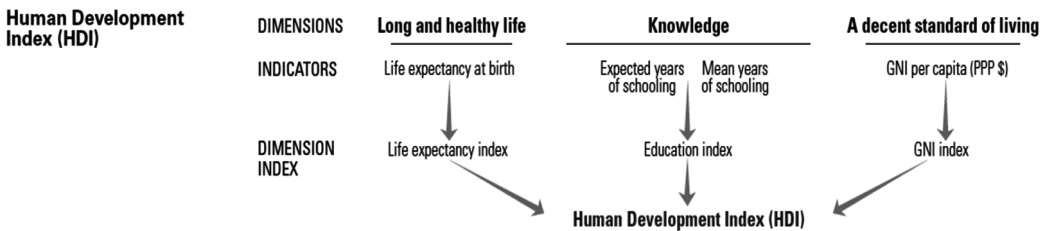


Figure 1: Key elements of the HDI (UNDP, *Human Development Reports*, 2018)

World happiness score is another indicator for development which is in use from 2012 when first World Happiness Report was released (April 1, 2012). In the reports, experts in fields including economics, psychology, survey analysis, and national statistics, describe how measurements of well-being can be used effectively to assess the progress of nations, and other topics. Each report is organized by chapters that delve deeper into issues relating to happiness, including mental illness, the objective benefits of happiness, the importance of ethics, policy implications, and links with the Organization for Economic Co-operation and Development’s (OECD) approach to measuring subjective well-being and other international and national efforts. Data is collected from people in over 150 countries (156 in 2018 Report). Each variable measured reveals a population-weighted average score on a scale running from 0 to 10 that is tracked over time and compared against other countries. These variables currently include: real GDP per capita, social support, healthy life expectancy, freedom to make life choices, generosity, and perceptions of corruption. However, this score is also subject to criticism regarding the three basic issues: Metrics, Methodology, and Philosophical concerns.

3. NEED FOR COMPLEMENTARY INDICATORS

The distinction between growth and development, as well as the existence and parallel use of several indicators that quantify one, or the other category, go in favor of the need to develop a more comprehensive indicator that would overcome the weaknesses of the already used ones.

Table No. 1 gives an overview only to the 10 first ranked countries in the world according to official reports for 2018. In conditions of limited space for the full list of countries being analyzed (according to GDP – 193; according to the HDI – 189; and according to HS - 156), this review of the 10 first - ranked shows vividly enough the diversity of the countries that occupy the first places according to the different indicator. In this regard, the following is an overview of the mutual correlation between the three indicators mentioned above, using the Pearson Correlation Coefficient. For greater reliability of the results, the analysis was made using a data sample for the 20 highest ranked countries.

Table 1: First 10 in 2018 according to the appropriate indicator

<i>GDP Nominal share – 2018*</i>	<i>Human development index - HDI rank 2018**</i>	<i>Happiness score 2018***</i>
United States	Norway	Finland
China	Switzerland	Norway
Japan	Australia	Denmark
Germany	Ireland	Iceland
United Kingdom	Germany	Switzerland
France	Iceland	Netherlands
India	Hong Kong, China (SAR)	Canada
Italy	Sweden	New Zealand
Brazil	Singapore	Sweden
Canada	Netherlands	Australia

* (List of Countries by GDP (Nominal), 2018)

** (UNDP, Latest Human Development Index (HDI) Ranking, 2018)

*** (World Happiness Report, 2018)

I Correlation Coefficient (HDI/Happiness score)

X Values - HDI – best 20 in 2018

Y Values - Happiness score 2018 – corresponding countries

<i>X Values</i>	<i>Y Values</i>
0.953	7.594
0.944	7.487
0.939	7.272
0.938	6.977
0.936	6.965
0.935	7.495
0.933	6.441
0.933	7.314
0.932	6.343
0.931	7.441
0.929	7.555
0.926	7.328
0.924	6.886
0.922	6.814
0.92	7.632
0.917	7.324
0.916	6.927
0.916	5.915
0.909	7.139
0.908	6.910

$X - M_x$	$Y - M_y$	$(X - M_x)^2$	$(Y - M_y)^2$	$(X - M_x)(Y - M_y)$
0.025	0.506	0.001	0.256	0.013
0.016	0.399	0.000	0.159	0.006
0.011	0.184	0.000	0.034	0.002
0.010	-0.111	0.000	0.012	-0.001
0.008	-0.123	0.000	0.015	-0.001
0.007	0.407	0.000	0.166	0.003
0.005	-0.647	0.000	0.419	-0.003
0.005	0.226	0.000	0.051	0.001
0.004	-0.745	0.000	0.555	-0.003
0.003	0.353	0.000	0.125	0.001
0.001	0.467	0.000	0.218	0.000
-0.002	0.240	0.000	0.058	0.000
-0.004	-0.202	0.000	0.041	0.001
-0.006	-0.274	0.000	0.075	0.002
-0.008	0.544	0.000	0.296	-0.004
-0.011	0.236	0.000	0.056	-0.003
-0.012	-0.161	0.000	0.026	0.002
-0.012	-1.173	0.000	1.376	0.014
-0.019	0.051	0.000	0.003	-0.001
-0.020	-0.178	0.000	0.032	0.004
Mx: 0.928	My: 7.088	Sum: 0.003	Sum: 3.971	Sum: 0.032

Result Details & Calculation	Key
<p><i>X Values</i> $\Sigma = 18.561$ Mean = 0.928 $\Sigma(X - M_x)^2 = SS_x = 0.003$</p> <p><i>Y Values</i> $\Sigma = 141.759$ Mean = 7.088 $\Sigma(Y - M_y)^2 = SS_y = 3.971$</p> <p><i>X and Y Combined</i> $N = 20$ $\Sigma(X - M_x)(Y - M_y) = 0.032$</p> <p><i>R Calculation</i> $r = \Sigma((X - M_x)(Y - M_y)) / \sqrt{(SS_x)(SS_y)}$</p> <p>$r = 0.032 / \sqrt{(0.003)(3.971)} = 0.3149$</p> <p><i>Meta Numerics (cross-check)</i> $r = 0.3149$</p>	<p><i>Key</i> X: X Values Y: Y Values M_x: Mean of X Values M_y: Mean of Y Values $X - M_x$ & $Y - M_y$: Deviation scores $(X - M_x)^2$ & $(Y - M_y)^2$: Deviation Squared $(X - M_x)(Y - M_y)$: Product of Deviation Scores</p>

The value of R is 0.3149.

Although technically this is a positive correlation, the relationship between the variables is weak (the nearer the value is to zero, the weaker the relationship).

The value of R^2 , the coefficient of determination, is 0.0992.

II Correlation Coefficient (HDI/GDP share)

X Values - HDI – best 20 in 2018

Y Values - GDP share 2018 (*List of Countries by GDP (Nominal)*, 2018) (Nominal (billions of \$) – corresponding countries (International Monetary Fund, *World Economic Outlook*, 2018))

<i>X Values</i>	<i>Y Values</i>
0.953	0.331
0.944	0.507
0.939	0.423
0.938	0.0333
0.936	0.848
0.935	1.08
0.933	2.06
0.933	0.252
0.932	0.687
0.931	1.71
0.929	0.427
0.926	0.546
0.924	0.0700
0.922	0.440
0.92	4.81
0.917	0.643
0.916	0.0828
0.916	23.3
0.909	3.36
0.908	0.471

$X - M_x$	$Y - M_y$	$(X - M_x)^2$	$(Y - M_y)^2$	$(X - M_x)(Y - M_y)$
0.025	-1.773	0.001	3.144	-0.044
0.016	-1.597	0.000	2.551	-0.025
0.011	-1.681	0.000	2.826	-0.018
0.010	-2.071	0.000	4.288	-0.021
0.008	-1.256	0.000	1.578	-0.010
0.007	-1.024	0.000	1.049	-0.007
0.005	-0.044	0.000	0.002	0.000
0.005	-1.852	0.000	3.430	-0.009
0.004	-1.417	0.000	2.008	-0.006
0.003	-0.394	0.000	0.155	-0.001
0.001	-1.677	0.000	2.813	-0.002
-0.002	-1.558	0.000	2.428	0.003
-0.004	-2.034	0.000	4.137	0.008
-0.006	-1.664	0.000	2.769	0.010
-0.008	2.706	0.000	7.322	-0.022
-0.011	-1.461	0.000	2.135	0.016
-0.012	-2.021	0.000	4.085	0.024
-0.012	21.196	0.000	449.268	-0.255
-0.019	1.256	0.000	1.577	-0.024
-0.020	-1.633	0.000	2.667	0.033
Mx: 0.928	My: 2.104	Sum: 0.003	Sum: 500.231	Sum: -0.350

Result Details & Calculation	Key
<i>X Values</i> $\Sigma = 18.561$ Mean = 0.928 $\Sigma(X - M_x)^2 = SS_x = 0.003$	<i>X</i> : X Values <i>Y</i> : Y Values M_x : Mean of X Values M_y : Mean of Y Values $X - M_x$ & $Y - M_y$: Deviation scores $(X - M_x)^2$ & $(Y - M_y)^2$: Deviation Squared $(X - M_x)(Y - M_y)$: Product of Deviation Scores
<i>Y Values</i> $\Sigma = 42.081$ Mean = 2.104 $\Sigma(Y - M_y)^2 = SS_y = 500.231$	
<i>X and Y Combined</i> $N = 20$ $\Sigma(X - M_x)(Y - M_y) = -0.35$	
<i>R Calculation</i> $r = \Sigma((X - M_x)(Y - M_y)) / \sqrt{((SS_x)(SS_y))}$ $r = -0.35 / \sqrt{((0.003)(500.231))} = -0.308$	
<i>Meta Numerics (cross-check)</i> $r = -0.308$	

The value of R is -0.308.

Although technically this is a negative correlation, the relationship between your variables is only weak (the nearer the value is to zero, the weaker the relationship).

The value of R^2 , the coefficient of determination, is 0.0949.

III Correlation Coefficient (Happiness score/GDP share)

X Values - Happiness score 2018 (country order according to HDI – best 20 in 2018)

Y Values - GDP share 2018 (*World Happiness Report*, 2018) (Nominal (billions of \$) – corresponding countries (*List of Countries by GDP (Nominal)*, 2018)

<i>X Values</i>	<i>Y Values</i>
7.594	0.331
7.487	0.507
7.272	0.423
6.977	0.0333
6.965	0.848
7.495	1.08
6.441	2.06
7.314	0.252
6.343	0.687
7.441	1.71
7.555	0.427
7.328	0.546
6.886	0.0700

6.814	0.440
7.632	4.81
7.324	0.643
6.927	0.0828
5.915	23.3
7.139	3.36
6.910	0.471

$X - M_x$	$Y - M_y$	$(X - M_x)^2$	$(Y - M_y)^2$	$(X - M_x)(Y - M_y)$
0.506	-1.773	0.256	3.144	-0.897
0.399	-1.597	0.159	2.551	-0.637
0.184	-1.681	0.034	2.826	-0.309
-0.111	-2.071	0.012	4.288	0.230
-0.123	-1.256	0.015	1.578	0.154
0.407	-1.024	0.166	1.049	-0.417
-0.647	-0.044	0.419	0.002	0.029
0.226	-1.852	0.051	3.430	-0.419
-0.745	-1.417	0.555	2.008	1.056
0.353	-0.394	0.125	0.155	-0.139
0.467	-1.677	0.218	2.813	-0.783
0.240	-1.558	0.058	2.428	-0.374
-0.202	-2.034	0.041	4.137	0.411
-0.274	-1.664	0.075	2.769	0.456
0.544	2.706	0.296	7.322	1.472
0.236	-1.461	0.056	2.135	-0.345
-0.161	-2.021	0.026	4.085	0.325
-1.173	21.196	1.376	449.268	-24.862
0.051	1.256	0.003	1.577	0.064
-0.178	-1.633	0.032	2.667	0.291
Mx: 7.088	My: 2.104	Sum: 3.971	Sum: 500.231	Sum: -24.695

Result Details & Calculation	Key
<p><i>X Values</i> $\Sigma = 141.759$ Mean = 7.088 $\Sigma(X - M_x)^2 = SS_x = 3.971$</p> <p><i>Y Values</i> $\Sigma = 42.081$ Mean = 2.104 $\Sigma(Y - M_y)^2 = SS_y = 500.231$</p> <p><i>X and Y Combined</i> $N = 20$ $\Sigma(X - M_x)(Y - M_y) = -24.695$</p> <p><i>R Calculation</i> $r = \Sigma((X - M_x)(Y - M_y)) / \sqrt{((SS_x)(SS_y))}$ $r = -24.695 / \sqrt{((3.971)(500.231))} = -0.5541$</p> <p><i>Meta Numerics (cross-check)</i> $r = -0.5541$</p>	<p>Key</p> <p>X: X Values Y: Y Values M_x: Mean of X Values M_y: Mean of Y Values $X - M_x$ & $Y - M_y$: Deviation scores $(X - M_x)^2$ & $(Y - M_y)^2$: Deviation Squared $(X - M_x)(Y - M_y)$: Product of Deviation Scores</p>

The value of R is -0.5541.

This is a moderate negative correlation, which means there is a tendency for high X variable scores to go with low Y variable scores (and vice versa).

The value of R^2 , the coefficient of determination, is 0.307.

4. CONCLUDING CONSIDERATIONS

The discrepancy between growth and development is evident as in living creatures, as well as in social phenomena. The growth and development of the economy is such a complex phenomenon, which in any case stems from the scope of only quantitative and monetary expression of production, that is, it comes out of the framework of observing man only as an economic being and requires a multidisciplinary approach. Such an analysis requires a lot of time and space, as well as an expert team from many areas, and this paper makes a limited analysis of the correlative relationships of the three basic indicators that measure growth and development in countries around the world. Limited in terms of a sample of only the top 20 countries, and limited in terms of applying only one indicator of correlation between the indicators which are analyzed. However, the results obtained show a weak positive correlation in the first relationship, and from a mild negative to moderate negative correlation in the other two relationships. This logically leads to the conclusion that economic growth does not always mean human development, prosperity and a sense of well-being or confirmation of the old truth that more money does not mean more happiness (at least not always). Possible errors in the used methodology are out of the scope of this paper, they are beyond the spatial opportunities of this paper. A more comprehensive analysis of this issue requires multidimensional analysis and involvement of many experts from different fields (economics, mathematics, statistics, psychology, sociology, etc.). But in any case, the proposed analysis imposes a need for further analysis of the negative correlations that appear.

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EFFECTS OF ECONOMIC POLICIES ON STABILITY OF COMPANIES AND EMPLOYEES

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Abstract: *The current study investigates domestic and international economic and financial developments, analyzes the ability of Romanian firms to adapt to the challenges of integration in the euro area and identifies the economic and financial performance of Romanian companies. The economy of the euro area has seen positive developments in the first half of 2017. Economic growth recorded a 0.7% gain in the second quarter of 2017, after 0.6% in the first quarter. Also the profitability of euro area banks has improved but the main problem in the euro area is the high level of public and private debt. Romania recorded one of the highest economic growth rates in the EU in the first nine months of 2017. However, the analysis of the main macroeconomic indicators reveals the build-up of tensions.*

Keywords: *economic stability, economic evolutions, financial developments, profitability indicators*

JEL Classification E44 · E51 · G28

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1. INTRODUCTION

The level of earnings and the degree of economic stability influence the well-being of a country. The way economic policies influence the stability of macroeconomic aggregates has been highlighted over the years by economists such as Sutherland et al., (2012); Ziemann, (2013); Sutherland and Hoeller, (2013). The main factor of growth was domestic consumption, a major role in stimulating it, among other things, fiscal and income policy measures over the past two years. The scientific research carried out through this article was based on the study, collection and interpretation of the statistical data from the reports issued by the National Trade Register Office, the National Bank of Romania and the Ministry of Public Finance.

2. INTERNATIONAL ECONOMIC AND FINANCIAL DEVELOPMENTS

Global macroeconomic conditions have improved compared to the year 2016. The International Monetary Fund has increased projections on the world economy growth rates from 3.6% for 2017 to 3.7% for 2018 (Figure 1).

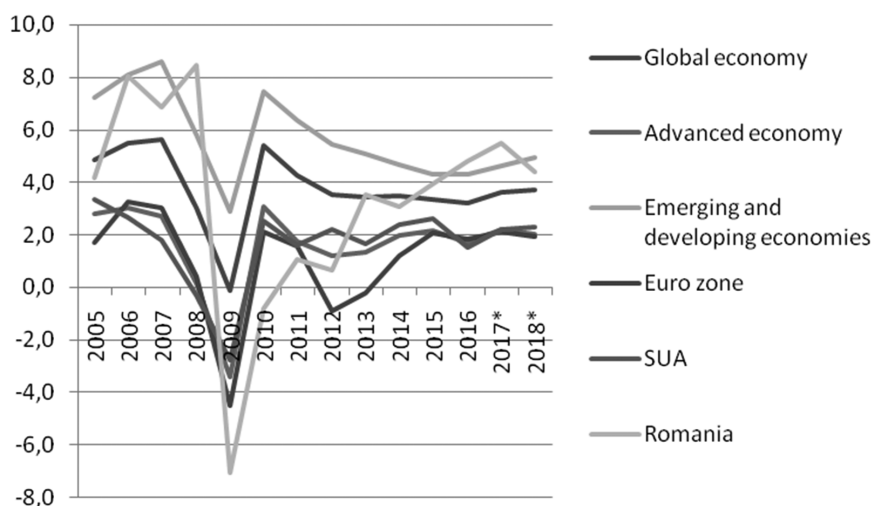


Figure 1. Global economic growth.

Source: *Global Financial Stability Report, October 2017, International Monetary Fund*

The forecasts for the euro area, Japan, as well as the emerging economies in Asia and Europe have been revised on the rise, while those for the US and the UK have been declining reviews. In reconfiguring the projections, an important factor was the revitalization of trade at global level. The World Trade Organization estimated for the year 2017 an increase in the volume of trade of goods with values between 1.8 and 3.6%, from 1.3%, estimated value for the year 2016.

However, the risks of enhancing the growth rate of the global economy and international trade remain important amid the uncertainty of policies (both commercial and monetary), the accumulation of structural imbalances in The level of emerging economies (particularly in China and Brazil) and the increase in geopolitical tensions, as well as the placement of fuel prices at lower levels over the last few years.

In the first part of the year 2017, the international financial markets recorded positive developments after the corrections recorded at the end of 2016, while volatility was on a reduction trend, with short periods of amplification. The positive developments supported by the stock indices of the main capital markets, as well as the beginning of the normalization process on the European sovereign bonds markets (Figure 2) were determined by the improvement of the indicators Macroeconomic reforms, the continuation of the quantitative relaxation programme by the ECB, as well as the optimistic expectations of investors on the perspectives of the world economy. A concern at financial stability is the risk of improper valuation of financial assets, given the continuation of the high-yield search phenomenon, under the conditions of maintaining the low interest level.

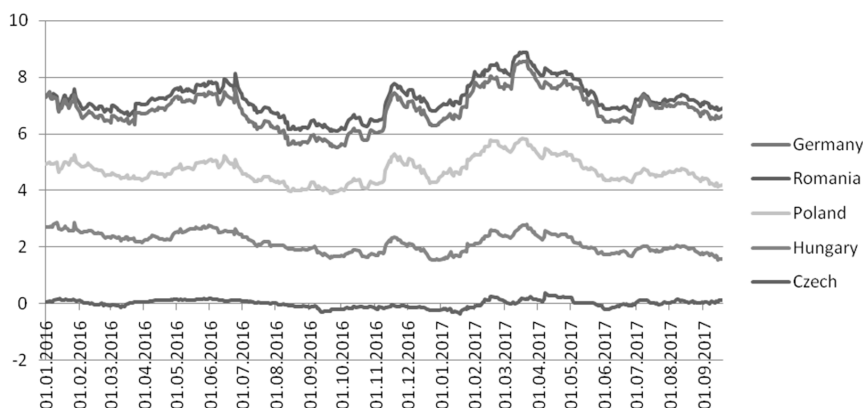


Figure 2. Yield of 5-year sovereign bonds for some European Union countries.

Source: *Raport asupra stabilitatii financiare 2/2017*, www.bnr.ro

As assessed by the International Monetary Fund of October 2017 (Global Financial Stability Report), the main systemic risks to the financial system at global level are:

- Market and liquidity risk, determined by the low level of interest rates and risk premiums, as well as the low level of volatility in international financial markets;
- Risks from emerging markets;
- Credit risk, in particular as a result of developments in the risk associated with population lending and-macroeconomic risk. The risk for emerging markets and the macroeconomic risk are evaluated in the fall against the estimated values in April 2017, amid the resumption of global economic growth.

The latest analyses of the European Central Bank and the European Systemic Risk Board at European Union level on the development of risks and vulnerabilities in relation to financial stability show a pronounced increase in risks, coming from:

- -Sudden adjustment of the risk premium on the international financial markets;
- -The balance sheet situation and the low profitability of financial institutions;
- -The uncertainty of the political framework and the challenges regarding the sustainability of the public and private sector debt, as well as-the liquidity and the contagion of the parallel banking sector.

An important systemic risk to financial stability in Romania, similar to that at European Union level, is the steep adjustment of the risk premium for emerging economies. The implementation of a mix of policies leading to the maintenance of macroeconomic balances is an important condi-

tion in order to limit the effects of contagion from international financial markets, under the conditions that materialize the risk of sudden change in investor confidence in emerging economies.

The economic situation in the euro area has improved, but important vulnerabilities on medium-term prospects persist.

In the first part of the year 2017, the euro area economy recorded positive developments. Economic growth recorded an advance of 0.7% in the second quarter of the year 2017, after the value of 0.6% of the first quarter.

The profitability of euro area banks has improved, but the prospects remain mixed.

The profitability of banks in Europe recorded a slight improvement in the first half of the year 2017. Thus, the average profitability of capital (ROE, return on equity) increased in the second quarter of the year 2017 with 3.7 percentage points compared to the last quarter of 2016, reaching 7%. Also, the average profitability of assets (ROA, return on assets) increased to 0.45% in the same period, from 0.21% to the end of 2016.

The prospects for the profitability of the European banking sector remain mixed. On the one hand, the still high volume of non-performing loans in some European states (figure 3) and a number of structural factors, such as the level of competition in certain segments of the credit market, contributes to maintaining operational revenue Low. On the other hand, the revival of the lending activity will support the process of normalization of profits. Loans to non-financial corporations in the euro area increased by an annual rate of 2.5% in September 2017, while loans to the population registered an advance of 2.7% during the same period.

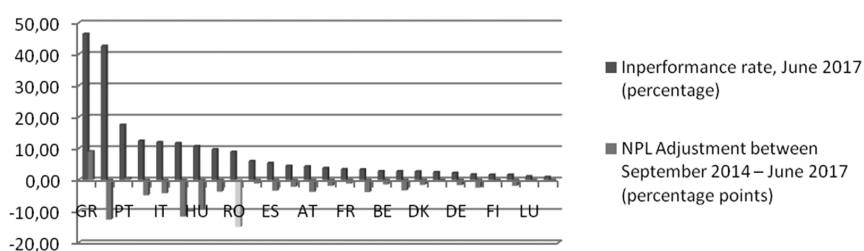


Figure 3. Non-performance rates in EU countries.

Source: *Raport asupra stabilitatii financiare 2/2017*, www.bnr.ro

Romania is among the countries with the highest level of profitability, along with other countries in the region such as the Czech Republic, Bulgaria, and Hungary (Figure 4).

Romanian banks with Italian capital, Greek or Cypriot, respectively, are characterized by a high degree of capitalization (have the total own funds rate of 15.2% for Italian capital banks, respectively 23% for those with Greek and Cypriot capital, September 2017) and an adequate level of coverage with provisions (48% for Greek and Cypriot capital institutions, respectively 69.4% for those with Italian capital).

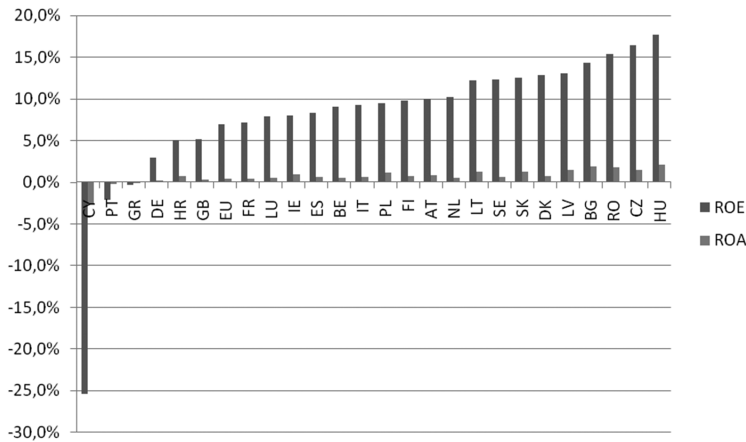


Figure 4. Profitability of banks in the European Union (June 2017).

Source: *Raport asupra stabilitatii financiare 2/2017*, www.bnr.ro

The main problem in the euro area is the high level of public and private debt.

The sustainability of the public debt continues to be an important issue in some States of the European Union. The high level of debt in these states (Figure 5), in the context of increasing inflationary pressures, will have the effect of increasing funding costs.

Developments continue to be heterogeneous at the level of countries although at the aggregate level there has been a slight improvement in fiscal position. This trend is expected to continue in the coming period as well. Thus, the level of public debt was estimated to adjust slightly from 85.1% of GDP in 2016 to 84.8% of GDP in December 2017 (EU average), respectively from 91.3% of GDP to 90.3% of GDP (euro area).

The budget deficit in the European Union decreased to 1.7% in 2016, with a deficit of 1.6% of GDP in the year 2017. In November 2017, two euro area states (France and Spain) are under the excessive deficit procedure, decreasing from nine states, of which seven in the euro area in the first part of the year 2016.

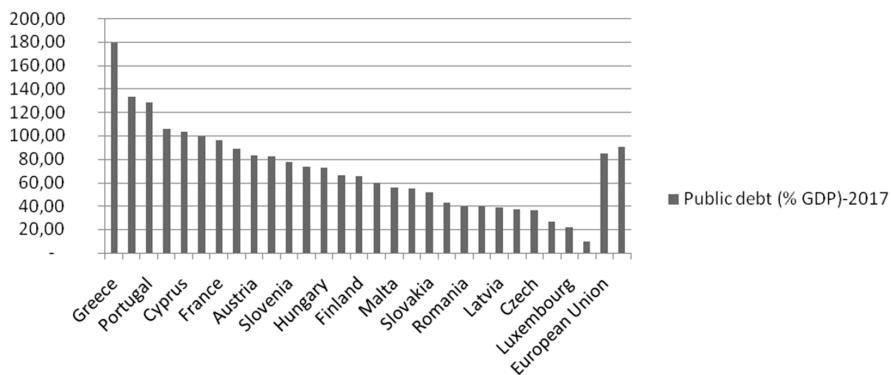


Figure 5. Public debt in the European Union, Source: *Eurostat*

The risks to the European financial system from the investment funds sector, insurance companies and pension funds require careful monitoring

The development of the investment funds sector can represent a risk zone for European financial stability, the resumption of its growth representing a concern at European level. Unlike this, the risks from the insurance sector are maintained at a low level, but the environment characterized by low yields is still an important concern for the EU insurance industry.

As regards the pension fund sector, the risk of a revaluation of the prices of fixed-income financial instruments, in the context of the start of the process of normalization of monetary policy at European level, may result in significant losses in Level of this sector.

3. INTERNAL MACROECONOMIC DEVELOPMENTS

Romania recorded one of the highest rates of economic growth in the European Union in the first nine months of the year 2017. The analysis of the main macroeconomic indicators reveals the accumulation of tensions, with possible significant negative consequences for future economic developments and, implicitly, on financial stability. The main growth factor was the internal consumption, a major role in stimulating it with, inter alia, fiscal policy and income policy measures over the past two years.

In the first semester of 2017, economic activity recorded an advance of 5.8%, with domestic consumption contributing 5.5 percentage points, while net exports had a negative contribution. Investments have had a marginal contribution to economic growth, as seen in the following chart:

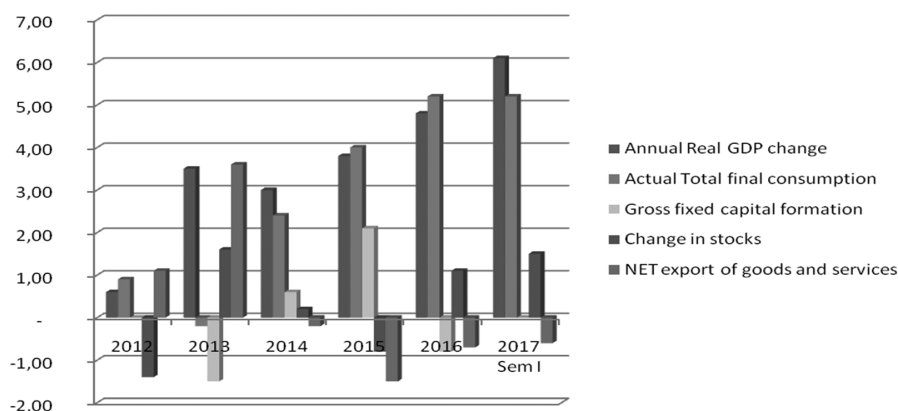


Figure 6. Explanatory factors of GDP dynamics.

Source: *National Institute of Statistics* <http://statistici.insse.ro/>

The acceleration of domestic demand had the effect of increasing imports, while the low level of investment limited the capacity of domestic production to refill excess domestic demand. The continuation of these developments and in the coming period will most likely lead to an increase in tensions on the main macroeconomic balances.

The continuation of the convergence process is conditional on recalibrating the policy mix so as to ensure that fundamental economic indicators are maintained at viable levels.

In order to achieve an optimum mix of policies for the Romanian economy, cooperation between institutions with role in the coordination of economic policies is essential. BNR cannot refill the lack of adequate policies in areas other than those in its area of competence, a different approach leading, among other things, to the inefficiencies of monetary policy. It is also necessary to intensify efforts to create a framework conducive to stimulating investment in the private environment and improving public investment in order to ensure sustainable economic growth.

Some of the possible measures in this regard are: increasing the level of coherence of policies and predictability of the legislative framework, reducing inequalities, and giving greater attention to basic public services with a major role in Enhancing long-term economic growth (education and health services).

At regional level continuing inequalities in the degree of economic development continue to persist, and in the absence of consistent structural reforms it is possible to witness even an increase. Firstly, the difference between the levels of development of the regions in Romania is large relative to the dispersion of regions in other Member States (Figure 7).

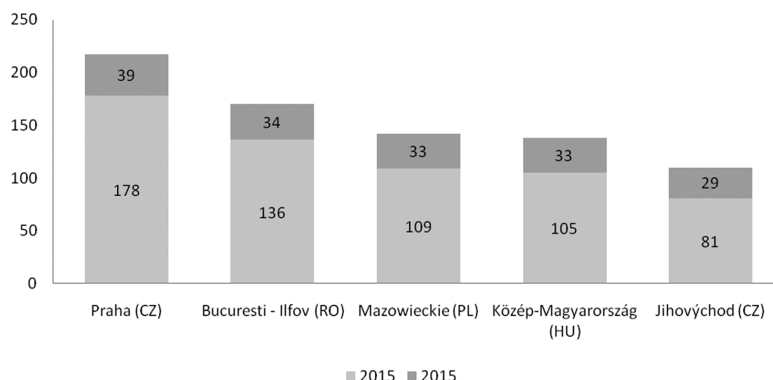


Figure 7. GDP/capita PPS at regional level in Central and Eastern European countries (2015).

Source: *Eurostat*

The region of Bucharest-Ilfov is among the top five regions in the area of central East European countries within GDP/capita, while the northeast region is among the poorest in the EU.

The growth rate is lower in regions with low levels of development, indicating an increase in time disparities. In the period 2007-2017, Bucharest has improved its GDP/capita ratio by 30 percentage points to the European Union average, while the Northeast region has only increased by 7 percentage points.

Investments are concentrated in the Bucharest-Ilfov region, with the other regions registering significantly lower values.

In all regions, with the exception of the Bucharest-Ilfov area, the share of the population with a low level of education (primary and secondary education) is important (on average 24% of the region's population, compared with 13% in Bucharest-Ilfov, data for the year 2016).

The level of unemployment varies significantly from one region to another: The highest rate is recorded in the Southwest Oltenia region (9.9% in 2016) and the lowest in the Northeast region

(3% in the same period). However, the low unemployment rate in the north-east region can also be influenced by the high number of people working in agriculture and the lack of job offer under the conditions of an important emigration of the population in this region.

4. THE CAPACITY OF ROMANIAN COMPANIES TO ADAPT TO THE CHALLENGES OF INTEGRATION IN THE EURO AREA

In all economic processes, economic operators who meet certain specific roles in their initiation and maintenance, in their supply or inaccuracy, are involved. Whether economic processes are addressed on a micro scale or macro scale, their determinism is the nature of their own behavior to certain economic operators (Avram, 2017).

A critical mass of companies has been formed in Romania that can cope with the challenges of eventual membership of the euro area. Economist Neagu F. (2017) believes that the number of firms composing critical mass is relatively low (less than 10% of the total number of active firms in the economy). These companies have recorded economic and financial performance indicators superior to the rest of the economy and constitute the basis for sustainable economic growth.

A number of characteristics specific to the Romanian economy retain the transfer of a large number of non-financial companies in the category of performance firms and the reduction of the competitiveness gap towards euro area companies:

- unfair competition generated by firms with LAX budget constraints;
- excessive bureaucracy;
- low quality and insufficient development of infrastructure;
- the reduced degree of absorption of the non-refundable European funds;
- predominance of companies that are technologically weak or providing services with a low degree of innovation;
- reduced correlation between educational offer and labour demand;
- unpredictable fiscal framework, etc.

According to the National Bank of Romania's survey on access to financing of non-financial companies in Romania, the unpredictability of the fiscal environment has at least moderate impact for 86% of companies. Companies with a high degree of adaptation and holding financial and human resources to accommodate tax changes, but also firms with a better negotiating position in relation to suppliers cope better with the rigors of the Romanian business environment. The identification of solutions to the above mentioned aspects can lead to the narrowing of the competitiveness corridor between the Romanian economy and the euro area economies.

5. ECONOMIC AND FINANCIAL PERFORMANCE OF COMPANIES IN ROMANIA

During the year 2016, companies in Romania continued their favorable developments in recent years, while improving the nationally-recorded economic situation. Thus, the sector of non-financial companies generated value added in growth by 5% compared to the year 2015, in the context of a turnover higher than the previous year (+ 4.4%). At the same time, the positive dynamics of the number of employees (+ 1.2%) and holdings of total assets (+ 1.5%) were maintained.

The favorable economic environment of the last period has also translated into a positive natural growth at the level of the company's population, the ratio between newly created firms and those that have ceased activity being over united.

At the end of 2016, the aggregate net result reported by non-financial companies was 51.3 billion lei, compared with 36.9 billion lei in the previous year, amid increased sales, in conjunction with the less accelerated dynamics of Operating expenses (+ 3.4%).

It reflects the contribution of two populations of opposite companies as performance: those with net profit by 84.3 billion lei and those that record negative net result of 33 billion lei. In this context, Romanian non-financial companies reported a level of expenditure on the profit tax of 12.7 billion lei. From a sector point of view, the highest contributions are recorded in the trade sectors (28.3%), the manufacturing industry (22.8%) and services (22.3%).

Spread between the numbers of companies for which a negative net result was recorded and that of companies that registered profit continued to increase. However, it is noted, for the second consecutive year, a sustained growth rate of wages expenditure (12.2%), which shows an increase in pressure on the competitiveness and profitability of Romanian companies. At the same time, companies' constraints in finding staff suitable for the continuation of activity, as well as the need to increase the share of higher value-added activities in the economy, require an increase in expenditure with employees.

Wage growth is a trend that begins to manifest in many European countries, supported including pressure for a fairer division of the company's results between the capital factor and the labour factor (Georgescu, 2016).

More than half of the non-financial companies registered profit at the end of the year 2016, while one-third of them recorded losses. About 90% of losses and more than 93% of profits were made by private companies. Both net profits and losses are characterized by a high degree of concentration, also observed in previous years. The first 100 companies with a positive net result accumulate about 25% of the profits, while in the case of losses the first 100 companies are responsible for 33% of the total.

The measure of the upward performance of non-financial companies is given by the advance of key indicators, such as capital profitability (ROE), which increased substantially (from 14.5% in 2015 to 17.3% in 2016), and asset profitability (ROA), which reached a level of 5.6% in 2016, compared with 4.6% in the preceding financial year (Figure 8). The profitability of Romanian companies is similar to the average level in the European Union.

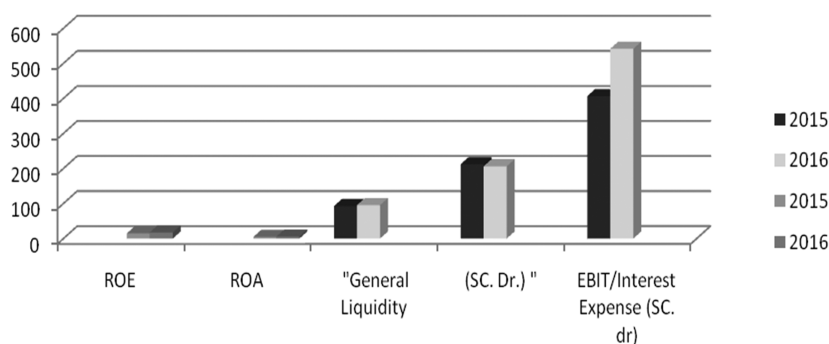


Figure 8. Financial health indicators of the company sector, Source [11]

For every euro made from sales the resulting profit is about 9 eurocents.

The sector of small and medium-sized enterprises has known performance over those recorded by corporations in terms of profitability, gross added value (Figure 9). However, corporations continue to record higher productivity values. Thus, although small and medium-sized enterprises have an almost double number of employees, contributions to gross value added or turnover of the two categories of companies are relatively close to the value. This situation is determined by factors such as better capacity to recover claims, diversify markets, better investment financing, major differences in technological advance integration, etc.

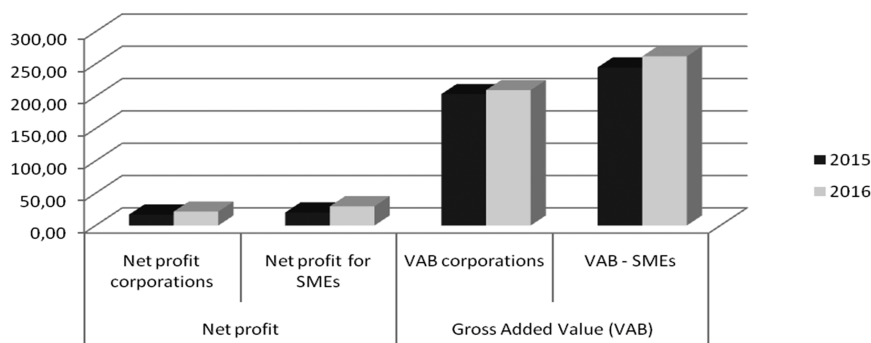


Figure 9. Profitability and contribution to gross value added by company size,

Source: *Ministry of Public Finances, Annual Report, Activity of public enterprises in the year 2016*

By field of activity, most business sectors experienced favorable returns in terms of profitability ratios (i.e. return on capital above 15%), excluding utilities and extractive industries, in the context of EBIT margins (earnings before interest and tax) or rotation speeds of increasing assets.

6. CONCLUSION

The economy of the euro area has seen positive developments in the first half of 2017. Economic growth recorded a 0.7% gain in the second quarter of 2017, after 0.6% in the first quarter. Also the profitability of euro area banks has improved but the main problem in the euro area is the high level of public and private debt.

Romania recorded one of the highest economic growth rates in the EU in the first nine months of 2017, but the analysis of the main macroeconomic indicators reveals the build-up of tensions. The main factor of growth was domestic consumption, a major role in stimulating it, among other things, fiscal and income policy measures over the past two years. A number of characteristics specific to the Romanian economy prevent the transfer of a large number of non-financial companies into the category of performing firms and the reduction of the competitiveness gap with the euro area firms:

- unfair competition generated by companies with lax budget constraints;
- excessive bureaucracy;
- low quality and insufficient infrastructure development;
- the low degree of absorption of European non-reimbursable funds;
- the preponderance of poorly-engineered or low-service companies;
- the low correlation between the educational offer and the demand for labor;
- the unpredictable fiscal framework, etc.

Businesspeople look with temperamental optimism and even with some signs of concern the real evolution of the economy this year. Inflation, depreciation of the lei and uncertainties related to the fiscal framework are the main signals raised by the business environment.

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APPLYING THE PRINCIPLES OF NEW PUBLIC MANAGEMENT TO MEASURE THE PERFORMANCE IN EDUCATION – VALUE FOR MONEY

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Abstract: *Education is a key area, the results of which play an important role in the development of each society. The role of education focused on the inclusion of children into school groups, to prepare students to enter the labour market or continue their studies in the context of tertiary education is a sufficient argument to enable beginning to look for answers and possible solutions to the difficult question of the quality of schools. Constant pressure from the public forces them to monitor and improve the provision of public services, and continually enhance their own performance in order to achieve long-term existential security. These facts consequently require a comprehensive measurement of their performance. This opens up opportunities for applying the concept of Value For Money based on the principles of New Public Management. The purpose of the scientific study is to show the potential uses of Value for Money on the example of education. The suggestion of methodology of VFM to measure the performance in education presented in this study shows possibilities to measure, evaluate, monitor and achieve necessary and especially relevant information about the situation of education and subsequent decision-making not only for public forces, but also, it can be the suitable tool for public grammar schools themselves. The article is co-financed by the project VEGA 1/0651/17.*

Keywords: *efficiency, economy, effectiveness, value for money, education*

JEL Classification H750 · I210 · I220

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1. INTRODUCTION

The concept of New Public Management represents innovation stemming from the private sector in the functioning of public sector organizations. According to Lane (2000), New Public Management expresses the application of methods and techniques of the private sector in the provision of public services in order to increase the efficiency and quality of their provision. Brignal and Modell (2000) also perceives the New Public Management definition, according to which New Public Management can be characterized as the implementation of methods and techniques used in the private sector in the field of public service provision.

Applying the principles of New Public Management as principles of the commercial sector to measure the performance of public expenditure at the micro level has been addressed by scientists and researchers, as well as those organizations providing public services. The key features of New Public Management are transitions from policy to management based on economic cost-benefit analysis, from the pyramid organizational structure to staffing, from classical planning to strategic activities, from process-oriented management to results-oriented management, from uniform public service delivery to their individualization, property ownership to asset management, and what is the most important pressure to reduce costs while preserving the quality and possible quantity of outputs - Value For Money (Keraudren, Mierlo, 1997). Constant pressure from the public forces them to monitor and improve the provision of public services, and continually enhance their own performance in order to achieve long-term existential security. These facts consequently require a comprehensive measurement of their performance. The pressure on the producers of public services to measure their performance comes from the founders, donors, volunteers, employees, clients and especially public authorities providing funds for their operation. The requirement to behave as commercial producers in their operation puts demands on comprehensive performance measurement. With the necessity to maintain a general social necessity, organizations are reliant on performance measurement and seeking opportunities for continuous improvement of their services and operations.

Achieving „Value for Money” (VFM) has become synonymous with the optimal combination of organization costs and quality assurance to meet the needs of clients, while such an offer may not be automatic and the cheapest. VFM is a method to assess whether the organization receives the maximum benefit from the services provided with those resources at its disposal. This is not just about the cost of production services, a combination of quality, cost, resource use, the suitability of the equipment, as well as their topicality must be taken into account. Studies about VFM show that this approach can be used in various areas, whether higher education (Coates, 2009), education systems (Dolton et al., 2014) but also healthcare (Smith, 2009), health spending (Ariste, Di Matteo, 2017) or Public-Private Partnership (Zwalf et al., 2017) etc.

2. THE SUGGESTION OF METHODOLOGY OF VALUE FOR MONEY

The study deals with the presentation and the possible suggestion of methodology of Value For Money for measurement and evaluation of public organizations in education (in our case public grammar schools) on the basis of their economy, efficiency and effectiveness as one of the indicators of performance assessment. The essence of the research and methodology is based on New Public Management.

Our application process „Value-for-Money” originated in the USA and is based on an analysis of three key performance indicators, the so-called „3E” (Nemec & Wright, 1997): economy - achiev-

ing the stated objectives at minimum cost, efficiency - the pursuit of the best possible relationship between inputs and outputs and effectiveness - the degree of success in achieving the objectives set, the merits of the objectives set, i.e. using funds for their intended purpose.

The central element of the VFM concept in public sector organizations is the principle of the best use of public funds, with public sector organizations being responsible for economic, efficient and effective management of the resources entrusted to them. Public sector managers are required to demonstrate the most productive use of resources, i.e. money, goods and people, to achieve the desired results, with due regard for value for money (Kalubanga, Kakwezi, 2013). This is illustrated by the figure 1.

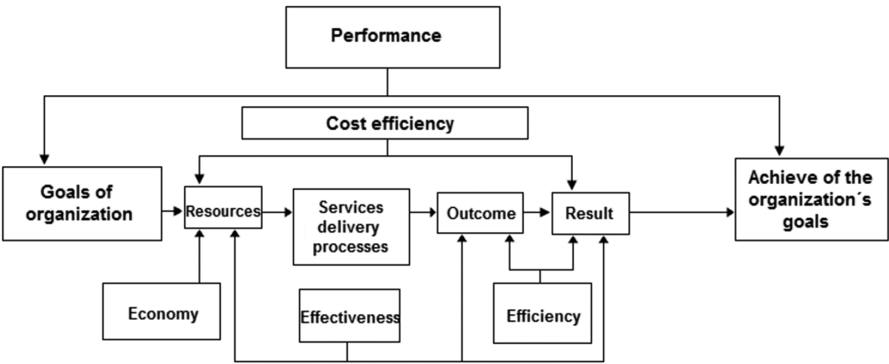


Figure 1: Relationship between concepts related to performance

It should be emphasized that different authors interpret the concept of performance, economy, efficiency and effectiveness in different ways. This conceptual mismatch was subsequently transferred to the use of methodology and evaluation methods. Those authors centered on performance management (Hudson et al., 2001; Ittner, Larcker, 2003; Johnston, Pongatichat, 2008; Keraudren, Mierlo, 1997; Neely, Austin, 2002; Wouters, Sportel, 2005) etc., are focused on creating relevant, integrated, balanced and strategic performance management systems. Over the last three decades a variety of systems have been developed to ensure balanced growth of an organization, but there is still no uniform way to clearly measure the performance of the organization. The approach „value-for-money” is a broadly conceived methodology able to express wholly the value of not only the organization but also the programme, project or the widest public expenditure programme.

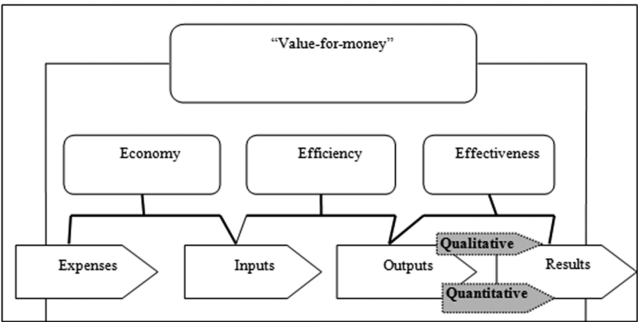


Figure 2: The concept of methodology “Value for money”

The approach used for overall assessment of „value-for-money” is benchmarking (peer comparison) of the individual areas (economy, efficiency, effectiveness) of the researched providers of public services. A disadvantage of the VFM method is that performance evaluation is possible only between homogeneous services. For this reason, we have chosen particular public grammar schools from all schools. Mathematical representation of the overall economy, efficiency and effectiveness through features has the following formula (Stankovičová & Vojtková, 2007):

$$\begin{aligned} H_{ij} &= \prod_{z=1}^n h_{ij}^z \\ E_{ij} &= \prod_{z=1}^n e_{ij}^z \\ U_{ij} &= \prod_{z=1}^n u_{ij}^z \end{aligned} \quad (1)$$

where:

H_{ij} - overall economy indicator for organization i in year j ,
 h_{ij}^z - partial economy indicator for organization i in year j ,
 E_{ij} - overall efficiency indicator for organization i in year j ,
 e_{ij}^z - partial efficiency indicator for organization i in year j ,
 U_{ij} - overall effectiveness indicator for organization i in year j ,
 u_{ij}^z - partial effectiveness indicator for organization i in year j .

When testing performance in the area of economy, efficiency and effectiveness standardized values of partial indicators are used. Accepting the multiplier effect of three areas can be expressed as an overall indicator value for money. The subsequent overall value of the indicator VFM has the formula (Stankovičová & Vojtková, 2007):

$$VFM_{ij} = \frac{1}{\log_{\frac{1}{H_{ij}E_{ij}U_{ij}}}} \quad (2)$$

Due to the need for the assessment of a number of criteria, the heterogeneous nature values of the indicators examined and necessity for expression of the integral indicator, we decided to use the standardized variable method. Its advantage is that it respects the relative variability of individual indicators and the results obtained through the application of this method are less sensitive to extreme values of the parameters in the sample. The essence of the standard variable method is a transformation of various parametric values for comparable shape, i.e. standard variable which is a dimensionless number.

Application of this method consists of the initial arithmetical average (\bar{x}_j) and standard deviations (s_{xj}) for individual indicators and the subsequent transformation of the original values of variables (x_{ij}) on a standardized form (z_{ij}), while in the event that the indicator has a maximizable character we use the illustrated relationship (Stankovičová & Vojtková, 2007):

$$z_{ij} = \frac{x_{ij} - \bar{x}_j}{s_{xj}} \quad (3)$$

In the event that the indicator has a maximizable character we use the illustrated correlation:

$$z_{ij} = \frac{\bar{x}_j - x_{ij}}{s_{xj}} \quad (4)$$

A significant problem that we can meet during implementation of VFM assessment is incomplete and partially unavailable data. The problem can be solved by filling in the gaps of data with the worst value, i.e. if the variable is missing, make up the worst value from a given set of data transmitted for the indicator in a given year. The assigned value was either the minimum or maximum value depending on the nature of the indicator. In order to allow construction of a model evaluating the quality of public grammar schools, the aforementioned data adjustment to so-called normalized data is necessary even though it could possibly lead to disparagement of the schools that did not supply the necessary data. The relevant element can be removed only by supplementing the required data. However, the relevant element should at the same time act as an incentive for individual public grammar schools. In accordance with the principle of the method of standard variables, those relationships for the maximisation and minimisation of the character of indicators are applied to the so-called standardized data (i.e. the modified data using the worst value).

In an attempt to eliminate subjective determination of weighting, multi-criteria evaluation in the study is supplemented by the analysis of the interrelationships between indicators. For individual partial indicators of economy, efficiency and effectiveness there is defined weighting using correlation relations between individual partial indicators in all three monitored areas, i.e. economy, efficiency and effectiveness. Weighting defined by analyzing the structure of the correlation matrix is determined according to the equation (Stankovičová & Vojtková, 2007):

$$v_j = \frac{|\sum_{i=1}^k r_{ij}|}{\sum_{j=1}^k |\sum_{i=1}^k r_{ij}|} \quad (5)$$

for $j = 1, 2, \dots, k$,

where r_{ij} = pair (Pearson) correlation coefficient for each individual indicator.

The subsequent characteristic, i.e. integral indicator () we calculate as the weighted arithmetical average standard value according to the equation (Stankovičová & Vojtková, 2007):

$$d_{li} = \frac{1}{k} \sum_{j=1}^k z_{ij} * v_j \quad (6)$$

where $i = 1, 2, \dots, n$; v_j = weighting j -th indicator.

Achieving a good placement of the evaluated object depends on the good results in all the researched variables, i.e. it is not sufficient to achieve an excellent result in only one or respectively a small number of variables (the higher the value, the better the evaluation) (Stankovičová & Vojtková, 2007).

The evaluation of the performance of the public grammar schools is realized by means of evaluation of three areas, namely economy, efficiency and effectiveness. Each of the three mentioned areas is represented by selected partial indicators, while accepting the character of the relevant area. Indicators for Value-for-Money in the school system must be divided into groups according to those fields of activity of the organizations concerned. If we want to establish performance indicators of a school system we have to comprehensively inspect the process from the perspective

of an organization that has its personnel, material-technical, economic and educational content. For the personnel area of an organization we can establish indicators such as the length of teaching experience, length of professional experience, length of the head teacher's experience, the average age of the teaching staff, the average number of pupils per teacher, the average number of pupils per class, the number of courses for teachers and so on. Indicators for the material-technical area of an organization may be presented as availability of textbooks, teaching aids, information and communication technologies, the number of classical classrooms, the number of specialized classrooms, the share of the school's own funds, the share of external funds, the number of equity investments in tangible and intangible assets of the school and so on.

For the economic area of the organization we can determine the type of indicators of total staff costs, total cost per pupil, total cost per class, total cost of maintenance of buildings belonging to the school complex and so on. In the pedagogical field, indicators such as attendance, number of observed lessons, the average number of pupils on hobby groups, the ratio of pupil intake to enrolled in secondary schools, entrance exam success to universities, number of complaints per teacher, number of provided consultations per teacher, number of specialized classes for gifted children, average results per pupil in school leaving examinations, average grade of the school report in the third year of study, number of awards per student, graduate unemployment and so on can be defined.

Based on this, we divided the indicators from the personnel area, the material-technical area, the economic area and the pedagogical area into three areas – economy, efficiency and effectiveness (Table 1). In terms of economy, the organization seeks to achieve the set objectives at minimum cost (cost, time, effort). In terms of efficiency, the organization follows the relationship between inputs and outputs, i.e. the efforts of the organization to achieve the best possible relationship between inputs and outputs. Effectiveness for the organization is monitoring the degree of success in achieving its objectives, respectively the extent to which invested inputs and created outputs fulfill the expected goals of the organization (University of Cambridge, 2010).

Table 1: The suggestion of performance indicators in education

Economy
share of the school's own funds
share of external funds
number of equity investments in tangible and intangible assets of the school
total staff costs
total cost per pupil
total cost per class
total cost of maintenance of buildings belonging to the school complex
Efficiency
length of teaching experience
length of professional experience
length of the head teacher's experience
average age of the teaching staff
average number of pupils per teacher
average number of pupils per class
number of courses for teachers
availability of textbooks
teaching aids
information and communication technologies

Effectiveness

the average number of pupils on hobby groups
ratio of pupil intake to enrolled in secondary schools
entrance exam success to universities
number of complaints per teacher
number of provided consultations per teacher
number of specialized classes for gifted children
average results per pupil in school leaving examinations
attendance
number of observed lessons
average grade of the school report in the third year of study
number of awards per student
graduate unemployment

Whereas the fields of economy, efficiency and effectiveness are interrelated, linking all three of the defined areas, the organization should seek to achieve a kind of optimum whereby the overall performance evaluation achieves the best possible success. For all three indicators, we cannot neglect the defined objectives of the organization achieved, meeting the needs of consumers of public services (quality of service) and compliance with financial policies and relevant laws.

3. CONCLUSION

The suggestion of methodology of VFM to measure the performance in education presented in our study shows possibilities to measure, evaluate, monitor and achieve necessary and especially relevant information about the situation of education and subsequent decision-making not only for public forces. But also, it can be the suitable tool for public grammar schools themselves. With this tool, individual schools can monitor their situation and gain a deeper insight into their strengths as well as reserves in which they can improve. The advantage of this methodology is the ability to supplement and modify indicators according to the nature of the particular type of school (primary schools, grammar schools, etc.) or other public service organization. A disadvantage of the VFM method is that performance evaluation is possible only between homogeneous services. The suggestion of methodology of Value For Money presented in this study is also the component of research which is realized by Faculty of Economics at Matej Bel University in Banská Bystrica and the subject of the pilot project that focus on the measurement and evaluation of performance in regional education with cooperation of self-governing regions of Slovakia. The methodology of Value For Money is further developed and adapted to the needs of practice. Refilling other adequate indicators may allow opportunity to use neural networks in the future to provide further relevant information on the future development of public grammar schools.

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GENERIC SKILLS DETERMINING QUALITY OF HUMAN RESOURCES – LESSONS FROM MANAGERS

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Abstract: *Human resources are recognized as one of the key factors of success. The generic skills significantly determine the quality of those resources. The paper aims at identifying a set of generic skills which are the most expected by managers. The discussion is based on the results of a survey which was carried out among the representatives of the pulp and paper industry. The responses came from 34 managers (including 17 top managers) from 17 different countries. The 10 most significant (most wanted by the managers) generic skills were identified as: (1) teamwork, (2) flexibility, (3) initiative, (4) leadership, (5) drive, (6) analyzing and investigating, (7) global skills, (8) planning and organizing, (9) verbal communication and (10) computer skills.*

Keywords: *Generic skills, quality of human resources, the pulp and paper industry*

JEL Classification M12

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1. INTRODUCTION

Human capital is of great importance in the modern economy (Hrabínová et al., 2012). The quality of human resources is identified in the scientific literature as one of the key elements of success, no matter whether the discussion concerns whole organization (Almeida & Zylbersztajn, 2017; Owusu-Manu et al., 2017) or only chosen projects or activities carried out in an organization (Prasad et al., 2018; Sohu et al., 2018).

According to the definition formulated by International Organization for Standardization, the meaning of an object's quality (i.e. for example organization, product, and activity) is understood as „degree to which a set of inherent characteristics of an object fulfils requirements” (International Organization for Standardization [ISO], 2015). On this basis one can assume that the quality of human resources (workforce quality) is the extent to which those resources meet the requirements of the interested parties i.e. managers, associates, subordinates, members of task teams etc. The quality is built up of many factors (e.g. C. Aruștei (2013), claims, that they include skills, behaviors and attitudes, physical appearances). Undoubtedly, in this set the skills are the most significant. Although they are thoroughly described in the scientific literature, they still require researching and analyzing with reference to various specific situations (e.g. for chosen countries, branches, professions etc.).

The article aims at identifying a set of generic skills which are currently the most expected by managers. It was assumed that the research would cover the managers from different countries, representing industry which is recognized as “average” i.e. the one which is neither very modern (does not belong to the high-tech sector) nor seen as outdated. It will be possible to use the conclusions especially in creating manufacturing-related degree programs.

2. THEORETICAL BACKGROUND

According to Mansfield (2005), competence is being able to perform ‘whole’ work roles to the standards expected in employment in real working environments. This refers to the achieved outcomes, and thus to the level of work performance setting the standards. It is referred to as the external, functional approach (Lester, 2014). It is assumed that the quality of human resources is a combination of vocational and generic skills (Heijke et al., 2003). Generic ones (other terms: transferable skills, employability skills, soft skills, skills for success, etc) refer to skills that are beyond disciplinary knowledge and which can be applied broadly across different contexts. Competence in these skills will not only contribute to the overall economic competitiveness and development of organizations, but will also determine the social and personal growth of future generations (Chan et al., 2017). In the source literature there are a lot of results of researches proving high importance of generic skills for getting a job and for further promotions and progress in the workplace (Sharma, 2009). The recruitment managers may respect and expect technical expertise, but results show that they do prefer people with experience, but at the same time, they also look for certain other qualities in them. Technical or the so-called hard skills soon become outdated when there is no motivation to keep learning new ones. So, they also look for people who are flexible and have the passion to appreciate and learn new technologies as part of their growth process. The ability to effectively communicate with the managers, superiors, bosses and co-workers plays a definite role in workplace success. Furthermore, the interpersonal skills, alignment with the corporate culture, the ability to work as an effective and contributing team member and the political savvy to know how to get things done in the organization also determine a person's long-term success in an organization (Deepa & Seth, 2013).

Currently there is not one, unified and generally accepted approach defining which generic skills are the most significant. The source literature provides a number of such proposals, however they considerably differ one from another. The differences result among others from: (1) the fact whether the authors aim at providing a universal set or focus on a specific group of workers (engineers, IT workers etc.), (2) what level of description's detail they accept, (3) what range of skills is accepted. As a result the literature provides examples of sets including e.g. 42 (Ramos et al., 2013), 36 (Chan et al., 2017), 26 (Top 10 skills..., 2018) and 10 (Griffin, & Annulis) generic skills. When the skill rankings are developed they may be influenced by the chosen procedure of gathering opinions or the choice of the respondents (e.g. students, staff of HR departments, recruiters, project leaders, managers, etc.).

3. RESEARCH METHODOLOGY

The research procedure was divided into three parts. The first stage was establishing the list of generic skills. It was decided that for the following research an existing set would be used. The chosen set, proposed by The University of Kent, based on a number of surveys undertaken by Microsoft, Target Jobs, the BBC, Prospects, NACE and AGR and other organizations (15). Among many reasons supporting this choice the most important are:

1. The research carried out by the university is of a universal nature i.e. they are not narrowed to one chosen profession (e.g. logistics workers).
2. Every generic skill included in the set had been defined which greatly facilitated their interpretation.
3. The university's research had been profiled in the way which allowed using the results in the process of academic education.
4. The set includes a ranking of 10 most significant skills sorted from the most to the least significant. Utilizing such a short set considerably increased the chance that the managers would accept to fill in the survey. At the same time the set prepared by the University of Kent included a list of additional 16 generic skills (important but not included in the ranking), which may be used to slightly expand the research survey.

Finally the survey included 15 skills. It consists of 10 most significant skills which were supplemented by 5 chosen on the basis of the research author's subjective decision (they were chosen from the list of 16 additional skills provided by The University of Kent). The skills are presented in table 1.

<i>Skills</i>	<i>Description</i>
1. Verbal communication	Able to express your ideas clearly and confidently in speech
2. Teamwork	Work confidently within a group
3. Commercial awareness	Understand the commercial realities affecting the organization
4. Analyzing and investigating	Gather information systematically to establish facts & principles. Problem solving
5. Initiative/self motivation	Able to act on initiative, identify opportunities & proactive in putting forward ideas & solutions
6. Drive	Determination to get things done. Make things happen & constantly looking for better ways of doing things.
7. Written communication	Able to express yourself clearly in writing
8. Planning and organizing	Able to plan activities & carry them through effectively
9. Flexibility	Adapt successfully to changing situations & environments
10. Time management	Manage time effectively, prioritizing tasks and able to work to dead-lines.

11. Global skills	Able to speak and understand other languages; appreciation of other cultures
12. Negotiating and persuading	Able to influence and convince others, to discuss and reach agreement
13. Leadership	Able to motivate and direct others
14. Calculations/numeracy	To multiply & divide accurately, to calculate percentages, to use statistics, to understand charts
15. Computer skills	Word-processing, using databases, spreadsheets, the Internet & email, designing web pages etc.

Table 1: Generic skills. Source: *own study on the basis of (Ramos et al., 2013)*

The second stage was choosing the kind of industry which would be covered by the research and the chosen one was the pulp and paper industry (PPI) – which produces pulp, paper, board and other cellulose-based products. The main steps of the process are pulping, papermaking and paper finishing. North America, Asia and Europe are the dominating world regions for PPI, and accounted for 37, 24 and 25%, respectively, of the global pulp production. The PPI is a globalized industry sector where several countries that were strong producers in the past now face growing competition from new producers. On national level, cost-efficient production is crucial for the survival of the industry. A future increase in competition for biomass resources from the energy sector implies further challenges. In meeting climate targets, biomass resources, including pulpwood, will likely become a sought after resource for energy products. However, measures and new technologies for increased cost-efficiency and competitiveness exist and include option for increased energy efficiency and diversification of products. An increased societal demand for “green”, high-value energy products can therefore be turned into an opportunity for the PPI, which has well-established biomass supply-chains and plants that can be converted to efficient energy combines with multiple outputs. In relevant countries, this could make the PPI a key factor in a future “greener” energy system (Pulpapernews.com, 2018; Euler Hermes Global, 2018). The strengths and weaknesses of PPI are presented in table 2.

<i>Strengths</i>	<i>Weaknesses</i>
Growing needs for (cardboard) packaging, in line with manufacturing and skyrocketing e-commerce activities	High sensitivity to feedstock costs (i.e. pulp)
New market outlets stemming from rising middle class in emerging markets	Ability to face high investments costs to ensure future growth
Rising demand for hygiene products	Plastics in competition against cardboard in the packaging outlet depending on variations of ethylene price vs. pulp (NBSK) price

Table 2: Strengths and weaknesses of PPI. Source: *(Gębarowski & Siemieniako, 2015)*

The third stage was carrying out the research surveys. Auditorium questionnaire was chosen as the research method. This technique is a form of measurement suitable for application during such events as conferences, symposia, lectures, trade shows. The research involves distributing questionnaires to its participants and after answering the questions – an interviewer collects the completed questionnaires. The possibility of measurement control is an advantage of the auditorium questionnaire, which enables to achieve a huge percentage of answers and to preserve anonymity at the same time (20). The research was carried out in May, 2017 during the 4th edition of the Open House Conference entitled “Save You Energy. Save You Money. Empower You Future”. The idea of the event is to gather industry experts from all around the world and create a networking platform. The conference attracted 103 participants including VIP papermakers, suppliers, media representatives and associations. The managers representing the PPI industry were asked to fill in the questionnaire.

The questionnaire was completed by 34 managers. The biggest number of respondents were from Poland (9 people), then Germany (4), Italy (3), France (2), India (2), the Netherlands (2) and Russia (2). There were single representatives from Austria, Czech Republic, Finland, Iran, Mexico, the RSA, Spain, Taiwan, Great Britain and the USA. Altogether there were 17 different countries represented. All respondents were managers, with an exact half of top level managers, and the second half consisting of middle or low level managers. All of them were professionally experienced. The average number of years in business was 27 (the lowest was 10 while the highest was 45).

The reliability of the constructs was tested with Cronbach's alpha coefficient. Cronbach's coefficient in this case was equal to $\alpha = 0.77$. The particular result indicates good reliability, since the coefficient's value is greater than 0.70.

4. FINDINGS

The research procedure was to present the list of 15 soft skills to the respondents and ask them to choose and mark 4 most significant (i.e. the most required from the employees) among them. The distribution of the answers is presented in Figure 1.

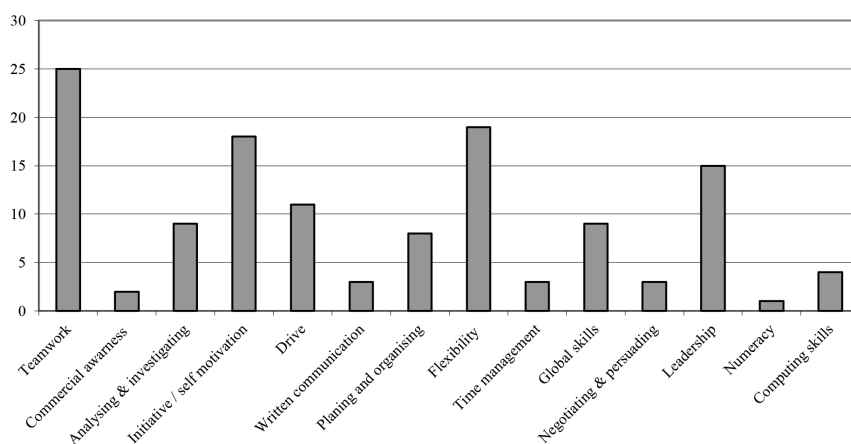


Figure 1: The distribution of the answers concerning the most significant soft skills.

Source: *own study*

The assessment of the 10 most significant generic skills declared by the respondents is different from the list proposed by The University of Kent. The comparison of both rankings is presented in table 3.

On the basis of the results of the carried out research three key conclusions may be drawn:

1. Every of the 15 generic skills included in the questionnaire were chosen by at least one respondent. Therefore it is justified to claim that they are all significant and expected by managers.
2. The most significant generic skills selected by the managers were as follows: (1) teamwork, (2) flexibility, (3) initiative/self motivation and (4) leadership. These four skills gained a noticeable advantage over the remaining issues included in the survey therefore they need to be especially remembered in the manufacturing-related degree programs. The finding is essential as it differs from the results of research carried out on other

groups of respondents e.g. Griffin and Annulis while analyzing opinions stated by 30 faculty and 121 students concluded that the most significant skills are: (1) problem solving, (2) teamwork, (3) critical thinking, and equally placed: (4) verbal communications and (4) project management (16).

<i>The ranking of the most important soft skills – by The University of Kent</i>	<i>The ranking of the most important soft skills – the survey results</i>
1. Verbal communication	1. Teamwork
2. Teamwork	2. Flexibility
3. Commercial awareness*	3. Initiative/self motivation
4. Analyzing and investigating	4. Leadership*
5. Initiative/self motivation	5. Drive
6. Drive	6. Analyzing & investigating
7. Written communication*	7. Global skills*
8. Planning and organizing	8. Planning & organizing
9. Flexibility	9. Verbal communication
10. Time management*	10. Computer skills*

* the skills which appeared only in one of the two presented lists

Table 3: Top ten generic skills

Source: *own study*

The ranking of top 10 generic skills prepared by the University of Kent is different from the ranking resulting from the carried out research. The differences concern the position in the ranking. Some of the differences are not significant e.g. the case of “teamwork”, which in the first ranking takes the second while in the other the first position. However some differences are crucial which concerns e.g. “verbal communication”. In the ranking prepared by the University of Kent it is positioned in the first place while in the ranking prepared after the research it is in the far ninth place. Moreover, three out of ten skills included in the first ranking were not chosen for the list prepared as the result of the research. They are: commercial awareness (which was in the 4th place), written communication (7th place) and time management (10th place). On the other hand the second ranking included 3 new skills i.e. leadership (which was in the 4th place), global skills (7th place) and computer skills (10th place). The differences might result from including different subjects in the researches. While The University of Kent based on opinions of different businesses, the research carried out by the author of the article concerned only one chosen industry. Therefore it may be claimed that the pulp and paper industry’s unique characteristics could have influenced the final results of the research.

4. CONCLUSION

Generic skills are vital to the quality of human resources. Findings indicate that currently the most important generic skills are teamwork, flexibility, initiative (self motivation) and leadership. The findings are significant as they were formed on the basis of opinions of 34 experienced managers (including 17 executive directors) from 17 different countries.

This research lays the foundation for manufacturing-related degree programs. It will be possible to use the conclusions drawn from the research to design and improve the programs. The findings and recommendations are also informative for workforce development agencies and human resources managers.

In the summary it is worth to emphasize that the research concerned only one, chosen industry. The future research needs to cover also the representatives of other businesses in order to compare the results.

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THE INVOLVEMENT OF SLOVAKIA IN INTERMEDIATE TRADE

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Abstract: *Fragmentation of production processes across borders represents a new paradigm of foreign trade. The new organization of production processes at the global or regional level opposite to a national level has been manifested by huge increase of trade in intermediate inputs. The world trade is growing fast and is largely driven by the intermediate trade. Countries that do not significantly engage in intermediate trade and achieve low labour productivity growth rates, have seen lower growth rates of value added. Therefore, the aim of this article is to investigate the involvement of Slovakia in use and trade in intermediates. We analyze the import and export of intermediates using data from world input-output database. The results for Slovakia show that the trade in intermediates has experienced a significant shift over last 14 years. The volume of intermediate trade remarkably grown moreover the dynamic of its change overcomes the growth of gross output as well as value added. At the same time, the Slovak industrial sectors have increased demand for imported intermediate inputs; furthermore the difference between imported and exported intermediate inputs rises.*

Keywords: *Trade in intermediates, Global value chains, Input-output tables, WIOD*

JEL Classification F14 · F62 · L60

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1. INTRODUCTION

The development of global production chains represents key component of the current economic globalization. At present, almost every final product consists of parts that have been produced in several countries. The international division of production and its development has contributed to the increase of intermediate products use at every stage of the production process. This increase in intermediate trade (for example with semi-finished products, different parts or components, etc.) reflects the enormous increase in foreign direct investment flows (EÚ, 2008). Fragmentation of production processes across borders has led to the relocation of tasks that could be carried out on the domestic market. In terms of employment, exports are characterized by positive effects, while offshoring is associated with a decline in domestic employment at company level. However, the effects of offshoring on employment at the domestic company level depend on various factors – type of countries, policies, conditions, etc. (Egger et al. 2015). For these reasons the aim of this paper is to investigate the involvement of Slovakia in offshoring activities via the analysis of trade and use of domestic and imported intermediates.

The paper is divided into four sections. Following the introduction, the relevant empirical literature is reviewed in Section 2. In Section 3 we provide an overview of methodology and empirical results. Finally, concluding remarks are made in Section 4.

2. LITERATURE REVIEW

World trade in goods and services is growing rapidly due to the reduction of transport and communication costs. This growth is largely driven by intermediate products trade (Hummels et al. 2001). A significant part of the foreign trade in intermediate products is realized within the networks of TNC while independent suppliers (small and medium-sized enterprises) are also gradually involved as subcontractors. Participation in the global production chain (GVC) and its profit require an open and transparent business and investment regime as well as investment in education, production capacity development and infrastructure (MZV, 2013). Significant increases in value added have been recorded in particular by countries which have increased their involvement in trade with intermediates. Profits from intermediate trade more than offset losses in market shares in the final products trade. Countries that do not significantly engage in intermediate trade and achieve low labour productivity growth rates, have seen lower growth rates of value added. This development has negatively affected the country's economic growth in the next period (Lábaj, 2017; Lábaj 2014). The euro area, the main source of foreign value added in exports for most member countries and its share is more stable than that of other trade blocks. The growing relevance of external suppliers does not reflect a weakening of the production links within the euro area, being instead a substitution of domestic value added by extra euro area sourcing (Amador et al. 2015).

Changes due to GVC were reflected in the strong growth of trade with intermediates. However, in the next future, there may be changes in business costs due to the introduction of different regional barriers and increased protection. In addition, technological innovation, robotization can stimulate the restoration of production localization in developed countries, which can significantly affect the import intensity of world GDP (Los, Timmer, De Vries, 2015).

3. METHODOLOGY AND RESULTS

Analyzing the current trends in international fragmentation of production requires consistent timelines of the world's Input-Output Tables (WIOT). WIOD is the first public database that contains new trend information and provides the ability to analyze the consequences of fragmentation (Timmer et al., 2015). Input-Output Tables on which the analysis will be based are derived from a set of harmonized national supply and use tables that are linked to detailed bilateral trade-related international data from a variety of statistical sources such as the OECD, UN National Accounts and trade Statistics of IMF (Escaith, Timmer, 2012). The latest updated 2016 database contains data from 2000 to 2014 and includes 43 countries and the rest of the world classified according to the ISIC Rev.4 in 56 sectors. Using WIOT allows us to capture both direct and indirect links between industries and countries. They provide more detailed information on inter-sectoral flows and flows of goods and services at the end-use (Rojíček, Vavrla, 2006).

The world intermediate trade develops dynamically, since 2000 its value almost tripled. Due to the 2008 crisis slowdown the growth rates resumed only in 2010 (Fig.1). In the case of Slovakia, the development is even more dramatic. The total volume of intermediate consumption grew 4.6 times over the period 2000-2014. Annual growth rates, especially at the beginning of the monitored period gained 35%. However, global economic slowdown has contributed to significantly lower growth rates since 2008. Up to 2008 the FDI was dynamically growing particularly in industrial production dominated by the automotive sector. In this period, the character of the Slovak economy reinforced to export-oriented with the dominance of automotive industry.

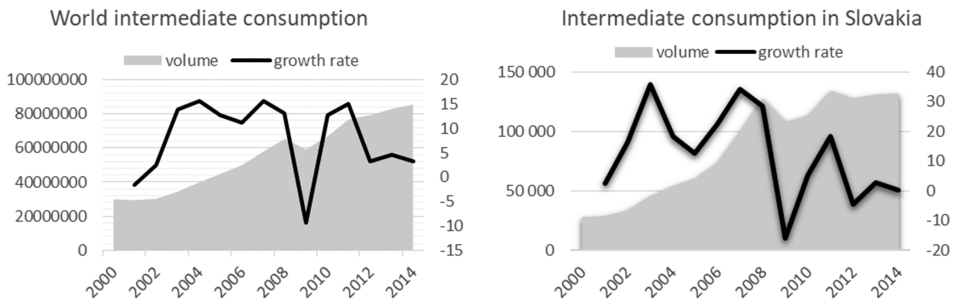


Figure 1: The development of world and Slovak intermediate consumption
Source: own graph, Data from WIOD

The volume of intermediate trade remarkably grown moreover the dynamic of its change overcome the growth of gross output as well as value added (Fig. 2). Gross output and value added volumes have grown approximately 2.4 times over this period, compared to 4.6 increase in intermediate production. Among the sectors, the highest gross output growth was recorded for the manufacture of motor vehicles (automotive industry 524%), manufacture of computers, electronic and optical products (753%) or manufacture of machinery and equipment (224%), but also computer programming, consultancy and related activities (532%). Growth in value added was also significant, but slower in these sectors compared to growth in gross production (manufacture of motor vehicles 398%, manufacture of computers 270%, manufacture of machinery and equipment 158%, computer programming 590%). The growth of intermediate consumption between 2000 and 2014 increased by 1000% in the manufacture of computer, by 547% in the manufacture of motor vehicles and by 474% in the computer programming sector.

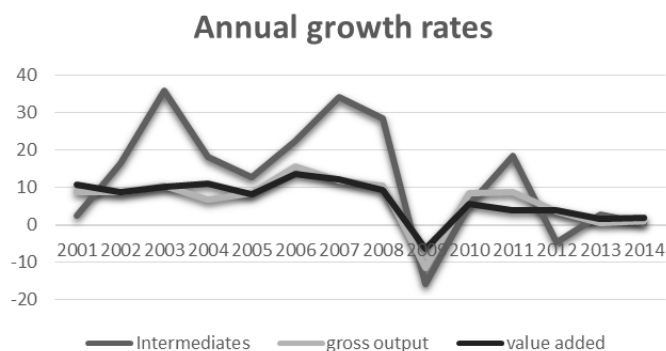


Figure 2: The average intermediate inputs, gross product and value added annual rates of growth
Source: own graph, Data from WIOD

The growing participation in the GVCs moves the structure of intermediate consumption in Slovakia as well. While in 2000 almost 76% inputs had domestic origins, in 2014 it was 10% less. Consequently the volume of imported intermediate consumption significantly increased (the share of imported intermediate in total intermediate consumption raised from 24% in 2000 to 40% in 2014) (Fig. 3).

Durable goods (for investment or consumer use) are mostly produced in large international production networks, while services have usually domestic origin. Hence the import of intermediates is more apparent in manufacturing services (Fig. 4). If the national economy is more oriented on durable goods production rather than services it may increase sensitivity to external shocks with more pronounced manifestations.

Up to 2008 the rates of annual import and export growth reached more than 20% (Fig. 5). In 2009 the slowdown of world economy influenced the development in Slovakia as well. Moreover, the difference between imported and exported intermediates grew. Furthermore the share of manufacturing sectors in export of intermediates decreased (81% in 2000 and 72% in 2014) and contrary the share of services grew (19% in 2000 and 28% in 2014).

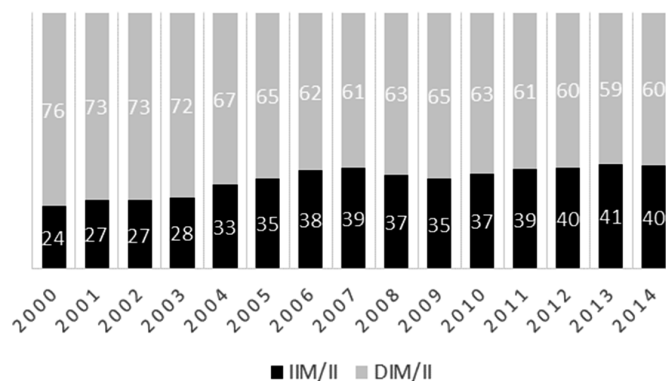


Figure 3: The share of domestic (DIM) and imported (IIM) intermediates in total Slovak intermediate consumption (II).
Source: own graph, Data from WIOD

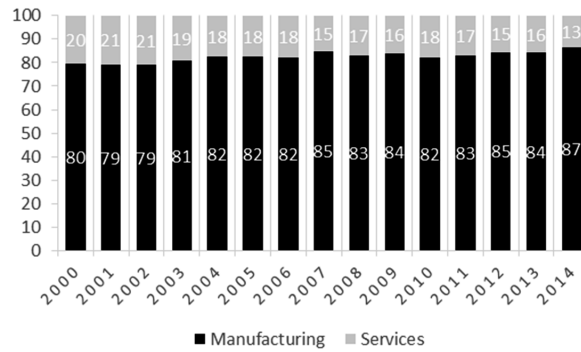


Figure 4: The share of imported intermediates in the Manufacturing and Services
Source: own graph, Data from WIOD

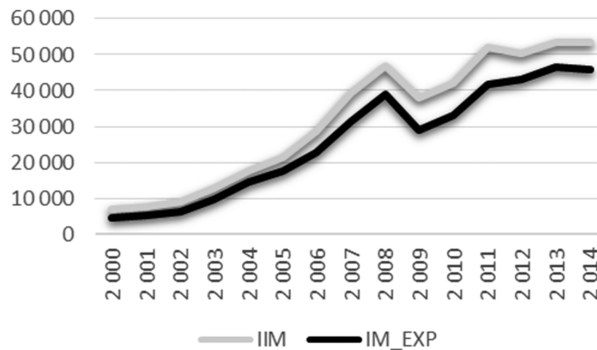


Figure 5: The volume of imported (IIM) and exported (IM_EXP) intermediates
Source: own graph, Data from WIOD

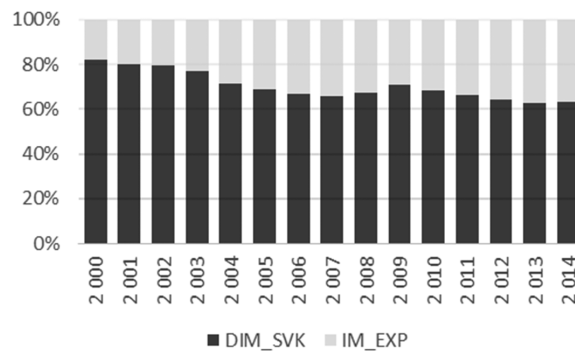


Figure 6: The share of domestic intermediate consumed in Slovakia (DIM) and exported from Slovakia (IM_EXP). Source: own graph, Data from WIOD

The changes are clearly visible in consumption of intermediates as well. While in 2000 more than 80% of domestic intermediates were used in Slovak production and 17% were exported, in 2014 the share of export represented already 37% (Fig. 6). It also manifests the growing involvement of Slovakia in GVCs as well as the risk of growing external fluctuations influence.

The manufacturing sectors exported the intermediates more intensively (Tab.1). Although the involvement of individual manufacturing sectors in export of intermediates during 14 years have changed. Up to 2000, Manufacture of basic metal held the dominant exporting position (25%), while in 2014 it was automotive industry (18%). The export of intermediates in 2000 was concentrated to less number of countries. The main destination of Slovak intermediate export was Germany and neighbor countries (54%). In 2014 the share of countries is more disperse, the export widen to other countries like Russia, Great Britain, France as well as Rest of world. However, almost 72% of Slovak intermediate is exported to the EU markets (38% to Euro zone countries).

In the period 2000-2014 the import of intermediates to Slovakia grew by 7.8%. More than half of imported intermediate (59%) was demanded only by the six industrial sectors; moreover just automotive industry required 26%. The automotive industry in Slovakia is highly depended on import of intermediates that clearly reveal the lower position of Slovakia on its global value chain. Moreover, the sector Manufacture of computer with lower share on the total Slovak output creation (3.4% while automotive industry 12.23%) engaged on import of intermediates by more than 11%. However the share of this sector on Slovak value added creation is no more than 0.96% (the automotive industry 3.84%) which raises the question whether this sector is beneficial for Slovak economy.

Table 1: Intermediate export from Slovakia by industrial sectors and country of destination
Source: *Data from WIOD*

<i>Export by industrial sectors</i>	<i>2000</i>		<i>2014</i>
Manufacture of basic metals	25%	Manufacture of motor vehicles, trailers and semi-trailers	18%
Manufacture of motor vehicles, trailers and semi-trailers	9%	Manufacture of basic metals	10%
Land transport and transport via pipelines	5%	Manufacture of rubber and plastic products	6%
Manufacture of paper and paper products	5%	Real estate activities	6%
Wholesale trade, except of motor vehicles and motorcycles	5%	Manufacture of machinery and equipment n.e.c.	6%
Manufacture of machinery and equipment n.e.c.	5%	Manufacture of electrical equipment	5%
Others	46%	Others	48%
Export by country of destination	2 000		2 014
Germany	23%	Rest of world	12%
Czech republic	15%	Germany	11%
Rest of world	11%	Czech republic	10%
Austria	8%	Hungary	7%
Poland	8%	Austria	7%
Italia	6%	Poland	6%
Others	30%	Others	48%

Furthermore the significant change appears in territorial structure of intermediate import (Tab. 2). While the German market rest the dominant source of Slovak intermediate import, the demand from the countries as Austria or Russia decreased (the share of intermediate import from these countries on total intermediate import). Generally, the main partners are EU countries although the

intertemporal comparison showed that the share from these counties decreased (68% of imported intermediate from EU in 2000 while 66% in 2014). The Slovak manufacturing sectors increased the import of intermediates from the Rest of World as South Korea. Moreover, the share of import from the countries of Euro zone decreased (from 47% in 2000 to 37% in 2014). That's the reason why it can't be generally stated that the growing relevance of external suppliers does not reflect a weakening of the production links within the euro area, as argue Amador et al. (2015).

Table 2: Intermediate inputs import by industrial sectors and countries

Source: *Data from WIOD*

Import by industrial sectors	2000		2014
Manufacture of motor vehicles, trailers and semi-trailers	13%	Manufacture of motor vehicles, trailers and semi-trailers	26%
Manufacture of coke and refined petroleum products	10%	Manufacture of computer, electronic and optical products	11%
Manufacture of basic metals	9%	Manufacture of coke and refined petroleum products	7%
Electricity, gas, steam and air conditioning supply	7%	Electricity, gas, steam and air conditioning supply	6%
Construction	6%	Manufacture of basic metals	5%
Manufacture of electrical equipment	5%	Manufacture of rubber and plastic products	4%
Others	50%	Others	41%
Import by countries	2 000		2 014
Germany	26%	Germany	20%
Russia	19%	Rest of world	17%
Czech republic	12%	Czech republic	14%
Austria	8%	Poland	7%
Rest of world	6%	South Korea	6%
Poland	4%	Hungary	5%
Others	25%	Others	31%

4. CONCLUSION

Slovakia has experienced a significant change in trade in intermediates over the last 14 years. The volume of intermediate trade remarkably grown moreover the dynamic of its change overcome the growth of gross output as well as value added. Up to 2008, many investments were coming to Slovakia, mainly to industrial sectors e.g. automotive industry. The manufacturing sectors have stronger intermediate inputs demand as well as capital use and lower demand for labour. The growing involvement of Slovak manufacturing sectors in the global production chains influenced the intermediate consumption too. While in 2000 almost 76% inputs has domestic origins, after 14 years it's 10% less. Consequently the volume of imported intermediate consumption significantly increased. Moreover, the difference between imported and exported intermediates grew. Furthermore the share of manufacturing sectors on exports of intermediates decreased. The changes are clearly visible in consumption of intermediates too. While in 2000 more than 80% of domestic intermediates were used in Slovak production and 17% were exported, in 2014 the share of export represented already 34%. The export of intermediates in 2000 was concentrated

to less number of countries. The main destination of Slovak intermediate export was Germany and neighbor countries. In 2014 almost 72% of Slovak intermediate is exported to the EU markets (38% to Euro zone countries). Concerning import of intermediates, the main partners are still EU countries however the share of import from these countries decreased. The Slovak manufacturing sectors increased the import of intermediates from the countries as South Korea. More than half of imported intermediate is demanded only by six industrial sectors; moreover 26% is destined to automotive industry.

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CHANGES IN THE STRUCTURE IN EU COUNTRIES

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Abstract: *The divergent developments in productivity and employment over the past two decades, as well as the crisis and subsequent recovery of the global economy have led to significant changes in different parts of the economic structure in all EU countries. The aim of our study was to examine changes in the basic segments of the economic structure of European countries. The development of segments is assessed through the indicator of gross added value (in current prices) and employment in the period 1995 to 2017. We compared the situation of the two main groups of European countries - the original and new EU countries. We note that there are significant differences between these groups, especially in the 1990s. Subsequently, there have been changes in the structure of new countries that have narrowed the gap between countries. The structural gap between countries has slowly diminished in average. However, the crisis has significantly delayed the process of convergence and the economic recovery period has not recovered to the pre-crisis situation. On the contrary, after the end of crisis the structural gap has thus re-expanded in a number of cases. In this article we target on the comparison of Estonia and Germany. Estonia represents precisely the group of countries whose structural gap has widened after the end of the crisis. On the other hand, the German economy is seen as a stable backbone of European politics and economics. We considered Germany the most economically strong representative of the old EU countries. From this point of view, our research was based on the assumption that Estonia wants to bring its economy closer to Germany's economy. We monitored whether the Estonian economy was getting closer or moved away from the German economy. Our results confirmed that Germany's economy is stable and more or less unchanged for more than 20 years. However, the assumption that Estonia's economy is moving closer to Germany's economy has not been confirmed. The opposite is probably true.*

Keywords: *Structural Gap, Structural deviation, Estonia, Germany, Gross Value Added, Employment*

JEL Classification L16

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1. INTRODUCTION

Estonia, as well as other European countries, changed very significantly under the influence of both external and internal political and socio-economic factors. In particular, the relatively challenging process of transforming the economy into a market economy and its subsequent establishment on European markets has prompted many changes.

The aim of the article is to highlight the main changes in the structure of the Estonian economy. We assumed that Estonia, as a part of its transformation, tried to adapt to modern trends in Europe as much as possible. In the last two decades there is an increase of service share in gross value added in the European states (we are talking about the original EU states). This is also related to the involvement of countries in global value chains and the overall development of global production. Thus, we have tried to examine whether Estonia has also reorientated from the traditional sectors - agriculture and industry - to service industries.

We assumed that the effort of Estonia to enter the EU and later the EMU was a strong motivation of economic structure transformation according to the model of developed European countries. Implemented changes should accelerate the convergence of the country to an advanced Europe and its markets. Germany represents advanced Europe in our analysis. Thus, we assumed that the structural gap between Estonian economy and German economy is not more than 5%.

2. METHODS AND PROCEDURES

We used the industry classification NACE (Rev. 2) to investigate changes in structure, with the economy divided into 10 sectors. The changes were monitored in the period 1995-2017. However, 22 years is a very long series of data. For the purposes of this article, however, we chose only two years to compare - 1995, the beginning of the period and 2017 as the end of the period. Primary variables were gross added value (in current prices) and employment (in thousands of people). All used values were available in the Eurostat and OECD databases. Missing data was complemented by country statistical data.

When examining the structural gap, we relied on the Dujava (2010) methodology and the structural gap was calculated as follows:

$$s = 100 * \sqrt{\sum_{i=1}^{11} h_i * \left(\frac{GVA_{i,EST}}{GVA_{EST}} - \frac{GVA_{i,GER}}{GVA_{GER}} \right)^2} \quad (1)$$

$$h_i = \frac{1}{2} \left(\frac{GVA_{i,EST}}{GVA_{EST}} + \frac{GVA_{i,GER}}{GVA_{GER}} \right) \quad (2)$$

where:

- s - Structural deviation indicator;
- h_i - i - th sector;
- $VA_{i, country}$ - the GVA of “i-th” sector in Estonian economy;
- $VA_{country}$ - the total GVA in Estonian economy;
- $VA_{i, EU15}$ - the GVA of “i-th” sector in German economy;
- VA_{EU15} - the total GVA in German economy

The volume of the structural wobble index is increasing with the growing differences between the share of individual sectors in the economy of the Estonia and German economy. (Dujava, 2010) For the calculation of the structural deviation in employment, the employment replaced GVA.

Throughout the article, we will use the following abbreviations for each segment (Table 1):

Table 1: Segment names and their abbreviations; Source: (Eurostat, 2008)

Segment	Abbr.	Segment	Abbr.
Agriculture, forestry and fishing	AFF	Financial and insurance activities	FIA
Industry (except construction)	IND	Real estate activities	REA
Construction	CON	Professional, scientific and technical activities; administrative and support service activities	PST
Wholesale and retail trade, transport, accommodation and food service activities	WRT	Public administration, defence, education, human health and social work activities	PDE
Information and communication	ICO	Arts, entertainment and recreation; other service activities; activities of household and extra-territorial organizations and bodies	AER

3. CHANGES IN THE ECONOMIC STRUCTURE

Germany

Analysis of German economy structure has shown that there has been no fundamental change in its structure over 22 years. Industry was one of the strongest sector. It generated more than 26% of the total gross value added of the economy. (Figure 1) Nevertheless, the OECD (1995) assessed that its innovative capacity seems to have been impaired by excessive regulation and bureaucratic inertia, making for slow growth in services and some hi-tech sectors. In the field of employment, the OECD also criticized the fact that although unemployment was relatively low, labor incentives were adversely affected by high taxes, generous benefits, job-protection provisions, and restricted wage and working time flexibility. (OECDa, 1995)

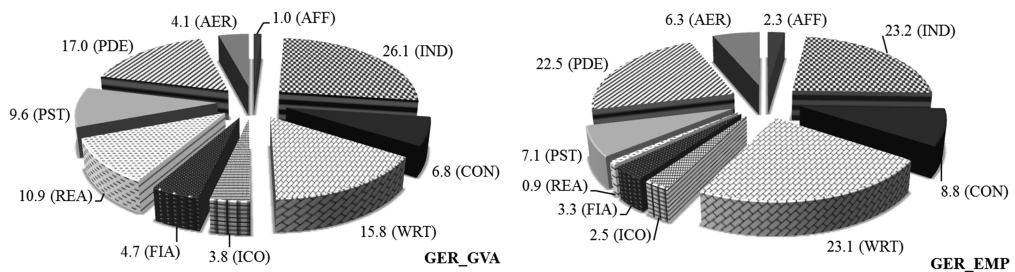


Figure 1 Structure of the German economy according to GVA and EMP in 1995 (%)

Source: own calculation based on (Eurostat1,2, 2018)

Germany has responded to these remorse by extensive reforms, which it has gradually implemented into its structure. The most powerful impetus for further development was the privatization of

large service companies such as Deutsche Telekom, Lufthansa and others. Reforms also covered other key areas such as the financial sector, private ownership of businesses, the labor market and the tax system. (OECDa, 1995)

Based on the data, we note that there have been no significant changes in the structure of gross value added over 22 years (Figure 2). However, reforms and innovations have led to a rise in gross value added of 1.6 times. (OECDb, 2018) According to the latest Forum's Global Competitiveness Report, Germany is the world's most innovative economy. Germany has invested mainly in the automotive industry, software engineering and e-mobility projects. (Whiting, 2018) The result is not only the first place among innovators but also significant changes in the structure of employment and productivity. The share of services in the economy has grown considerably and the share of industry has declined. The growth of employment in services (by 32%) was also driven by the growth of value added (by 70%), but the value added per one employee increased only 1.3 times. On the other hand, even because of innovation, fewer employees work in the industry (a drop of 7%), but the added value of the segment increased (by 70%) and the value added per employee increased 1.7 times. This is one of the reasons why industry in Germany belongs to very strong segments of the economy. However, it is true that the creation of gross value added is a long-term aspect of the service segment.

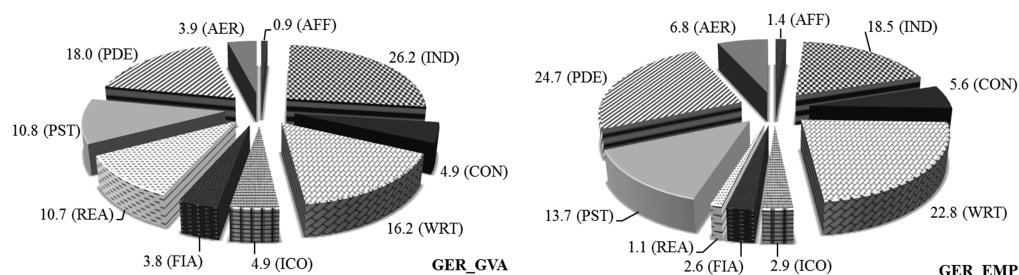


Figure 2 Structure of the German economy according to GVA and EMP in 2017 (%)

Source: own calculation based on (Eurostat1,2, 2018)

Estonia

As early as the beginning of the period, the structure of the Estonian economy differed significantly from Germany's economy, particularly in two respects:

- the agriculture segment represented not only a nearly 6% share of the gross added value of the economy (1% in Germany), but also a more than 10% share of employment in the economy (2.3% in Germany).
- the WRT segment was much more involved in gross value added than in Germany. At the same time, it had a greater share in employment, even though the difference was not so significant. (Figure 3)

The period of restructuring and the transformation of the economy has led to a significant increase in the share of the REA segment. The growth of the WRT sector was mainly driven by the government program for the restructuring of transport and trade. The government has also sought to adapt to the trend of computerization, and the public school-funded Estonian school computerisation program Tiger Leap was a positive impulse in this area. (Europa, 1998) The result was an increase in ICO's share not only in value added, but also in employment.

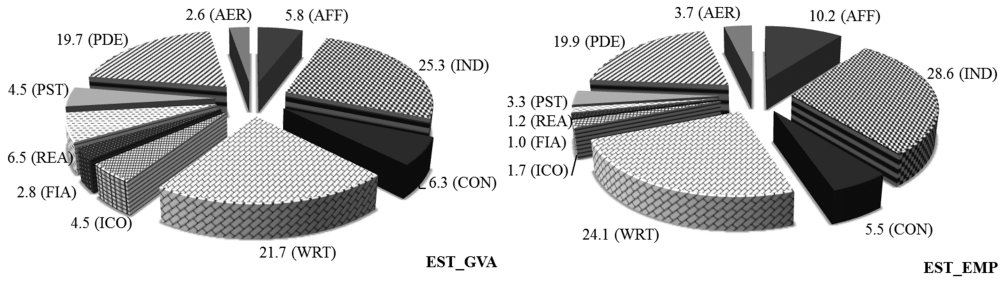


Figure 3 Structure of the Estonian economy according to GVA and EMP in 1995 (%);
Source: own calculation based on (Eurostat1,2, 2018)

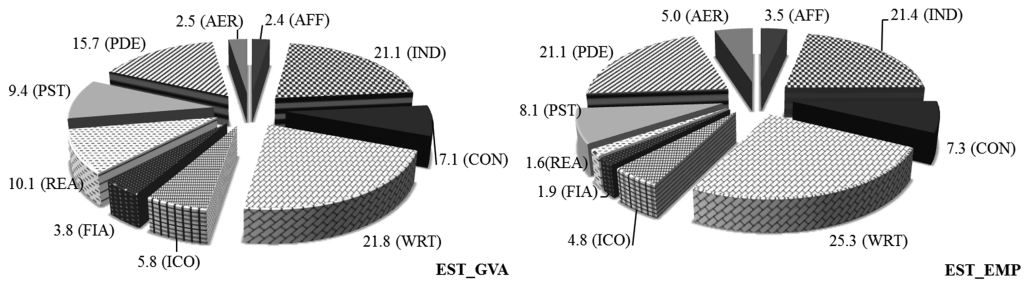


Figure 4 Structure of the Estonian economy according to GVA and EMP in 2017 (%)
Source: own calculation based on (Eurostat1,2, 2018)

Estonia is one of the countries in which it was possible to see a major transformation from the agro-industrial focus to focus on services. Already during the first five years the share of agriculture in the gross added value has decreased by almost 1.5%. Over the next few years, the share of agriculture has declined in both production and employment. The most striking expression of the retreat from traditional sectors is seen in the field of employment. (Figure 3 and 4) Only one-third of 1995 employees continue to work in this segment in 2017. We also see a decline in employment in the IND segment. From this segment, up to 24% of employees went up compared to 1995. About the same increase in the share of employment is in the services segment. At the same time, we note that the Estonian economy has grown productively in all its segments. The transformation process, and in particular the innovative programs, have ranked Estonia among the 35 most innovative countries in the world (the Forum's Global Competitiveness Report ranked 32nd). (Schwab, 2018)

4. STRUCTURAL GAP BETWEEN ESTONIA AND GERMANY

The aim of any economically weaker country is to get closer to the economically stronger countries. Countries that have joined the EU since 2004 are or were considered to be economically weaker countries than the old European countries. Our aim was to find out whether Estonia were structurally approaching Germany in the period 1995-2017 or not. We have calculated the structural gap measured by structural deviation between Estonia and Germany.

Based on our calculations, the Estonian economy is not structurally approaching the economy of Germany either by gross added value or by employment. (Figure 5) The structural deviation by gross value added ranged from 3.5% (in 1995) to 6.1% (in 2007). The average deviation value is

4.98%. The crisis period was the only moment in which it seemed that the structural deviation was smaller. However, as it is a period in which both countries have slowed down their productivity, it is only a distortion.

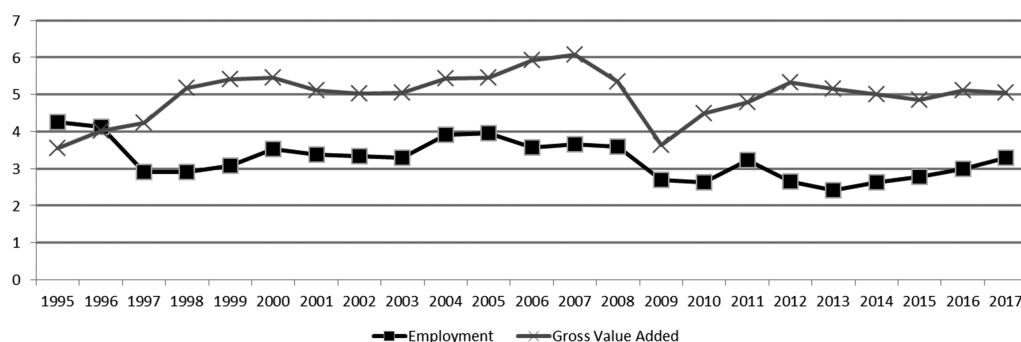


Figure 5 The structural deviations _ Estonia and Germany (%)

Source: own calculation

The slump in the economy is also supported by the development of the structural deviation by employment. Its value ranged from 2.42% (in 2013) to 4.25% (in 1995) and the average variance was 3.25%. Since the end of the second wave of the economic crisis (since 2013), this deviation has been increasing. The results reflect the situation the OECD criticizes in relation to Estonia. According to the OECD, the country lacks an effective dual system of education that would allow effective interconnection of secondary education with practice. Shortages of skilled labor contributes to structural unemployment and constrain competitiveness while out-of-work working-age individuals face a higher poverty risk. OECD therefore recommends improving access to upper-secondary vocational education by providing more financial assistance to students. Expand workplace-based training by introducing a tax-free lower minimum wage for apprenticeships. Strengthen collaboration of business and schools at the local level. (OECDc, 2017)

5. CONCLUSIONS

Since 1995, Estonia has undergone several milestones that have changed its internal structure. These changes are particularly significant in terms of changing the position of the original segments - agriculture and industry. In an effort to establish itself in the European area, Estonia has adapted itself to the trend of European countries and the position of the service segment has grown considerably in both gross value added and employment over the last 22 years. Nevertheless, industry and, above all, agriculture continue to play a very important role in the economy of Estonia. Based on the results, we state that our assumption about the adaptation of Estonia to the countries of advanced Europe has been fulfilled.

Germany is in a completely different position. The structure of the economy has essentially not changed in the last 22 years. However, the implementation of innovation has enabled more efficient production, leading to long-term growth in the economy. We see a more significant change only in the case of the employment structure in individual segments where, as in Estonia, there is a clear shift of staff to the service segment. In this respect, we can talk about similarities in development in both countries.

From the point of view of Estonia's structural convergence towards Germany, we note that Estonia has not been successful in this area yet. As the results show, the average value of the structural gap by value added is 4.98% and the structural gap by employment is 3.25%. In both cases, our assumption of less than 5% was confirmed. However, the evolution of the economy over the past 5 years has shown that this gap is rather widening than diminishing. If the implementation of the new reforms does not produce the desired effect, then there is a high probability that the structural gap will exceed the 5% threshold.

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THE CUSTOMERS' PERCEPTION OF THE SELLERS IN THE CONTEXT OF GENDER DIFFERENCES

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Abstract: *Personal selling has its own specifics and allows sellers to interact directly with the customer. The aim of the proposed paper is to find out statistically significant differences in the perception factor affecting personal selling from the customer's perspective in the context of gender differences. A differential analysis was conducted on the sample of 243 respondents (112 male customers and 131 female customers); on the basis of the data obtained by means of an original methodology for detecting the factors influencing the customers' perception of the sellers in personal selling. Gender differences in customer perceptions were confirmed in six items of observed factors: seller's image, seller's willingness and empathy, and his or her communication skills. The results of the analysis confirmed the existence of statistically significant differences between the male and the female in their perception of the sellers. Based on these results it may be concluded that, male and female differently view the seller's image, his or her willingness and empathy towards customers, as well as its communication skills.*

Keywords: *Gender differences, personal selling, buying behavior, seller*

JEL Classification M31

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1. CHARACTERISTICS OF PERSONAL SELLING

Personal selling is a part of the communication mix and is a tool for personal communication with customers. The seller, individually and without time, perceives the customer's response, allowing him or her to interact and formulate a sales conversation. Personal selling is based on offer and the subsequent sales to the customers. Personal selling is described as a face-to-face communication that aims to provide information, presentations, convince a specific public, or build long-term relationships with customers (Pelsmacker et al. 2003). According to Kotler and Keller (2013), personal selling is a process of support and oral presentation of products to sell and convince potential customers. It is an effective tool of marketing communication, but also the most costly way of advertising. Personal selling is defined according to Kita et al. (2005) as a process of promoting and persuading prospective customers through oral presentation for sale. Personal selling is sometimes referred to as the „last meter” of marketing effort, which is the distance between seller and customer (Clow and Baack, 2008). As Poliačiková (2007) describes personal selling is a face to face deal to present the product, answer questions and get an order with one or more potential customers.

Effective communication with customers works to their satisfaction, which for companies in today's markets is the basis for success and sustainability in the market. To meet these goals, each department of the company is required to meet specific customer desires. As stated by Lucina (2014), each customer has to be taken as a unique personality and to adapt the way of communicating on the basis of his or her family, generation or age. The seller approach should be non-manipulative, responsive and sensitive. According to Colletti and Fiss (2006), the sales environment requires sellers to have individual skills and abilities. The customer and the seller should be equal participants in the communication process. It should be noted that the role of the seller has become less dominant than it was before, so it has moved a lot to the customer side.

At the personal sales level, it is possible to understand the seller from six different positions. The listed characteristics are ranging from the least creative to the most creative sellers (McMurry 1961):

1. Delivery man - delivers the product,
2. Order Receiver - receives orders inside or outside the business,
3. Missionary man – does not accept orders, but he or she creates a reputation of the company and the voice of current and potential customers,
4. Technician - has a high degree of technical knowledge,
5. Creator of demand - relies on creative methods of selling products or services,
6. Solution Provider – meets customer needs.

As Shannahan (2013) states customers can also be actively involved in the communication partnership in sales and product information serve not only for presentation purposes but also for reducing uncertainty. In the context of personal selling, the seller performs the task of collecting and disseminating information in order to establish a friendly relationship.

2. GENDER DIFFERENCES IN CUSTOMER BUYING BEHAVIOR

As in every area, the shop is also a place where customer buying behavior was affected by gender differences and different tendencies in their behavior. The explanation of gender can be divided into three levels (Birknerová et al. 2017):

1. *Socio-structural level* - gender is a classification system that can characterize relationships between women and men in the area from their power status to their social roles.
2. *Interpersonal level* – defines gender more closely with the ancestral roles that lead to different behaviors that signal and reinforce gender stereotypes in everyday human interactions.

3. *Individual level* - the gender is significant at this level in terms of internalizing the gender identity of the individual. Individuals thus become gender-specific, thus gradually attributing characteristics, roles, and behaviors that are desirable for women and men in their own culture.

In a study of gender differences, Benko and Pelster (2013) states that even experienced traders observe the different behavior of women and men. They state what are the most frequent differences and their use in trading, however they suggest only a tendency towards a certain type of behavior, not guaranteed and stereotyped expressions. On the other hand, is the claim that if every individual in a shopping behaves uniquely, then it loses the meaning of these general and generalized claims about a particular group, segment.

There are a number of studies that confirm different purchasing behaviors from a gender perspective. As Benko and Pelster (2013) report, women in buying behavior tend to collect important information during the actual purchasing process. They enter the shop with a certain idea, but they are also open to the other possibilities that occur during the meeting itself. Men focus their attention on a particular role and do not change their plans and activities during the purchasing process. They trust more in their judgment and decide faster than women. Price offers are considered by women to be a source of information and guidance in the issue and often require variants that are not listed and explore options from multiple sellers. Men tend to limit their decision-making based on offers and catalogs and do not like to explore other alternatives. Jones et al. (1998) examined the role of gender in forming a relationship between seller and buyer. They found that the perception of this relationship depended on the seller's and the buyer's gender, the relationship being perceived as stronger when the seller and the buyer are of the same gender. In the study Homburg and Stock (2005) is shown that the relationship between the seller and the buyer is positively moderated by seller's empathy, expertise and reliability. The research by Mitchell and Walsh (2006) shows that women are more perfectionist than men. Men are less sensitive to news and fashion and women are more likely to get confused.

3. RESEARCH METHODOLOGY

The aim of the research was to analyze differences in the perception factors influencing personal selling from the point of view of customers in the context of gender differences. Based on the above objective, the hypothesis was established: „We assume that there are statistically significant differences in the perception factors affecting the effectiveness of personal selling by the seller between men and women.”

The data obtained were processed and interpreted at the level of descriptive statistics and inductive statistics using the T-test, and the results were processed by the mathematical-statistical methods in SPSS 20. The presented research was carried out by means of a questionnaire, which was divided into four parts: The impact of the seller's image on the customer (items 1-4), The impact of the seller's willingness and empathy on the customer (items 5-10), The impact of the seller's communication skills on the customer (items 11-15) and the impact of the seller's awareness on the customer (items 16-20).

The research sample consisted of 243 respondents, of whom 112 were men and 131 were women aged between 19 and 64 years, with an average age of 39 years. The research participants were to respond on the scale from 1 to 6 to what extent they agree with the given statement (1 = definitely no, 2 = no, 3 = rather no, 4 = rather yes, 5 = yes, and 6 = definitely yes).

4. RESEARCH RESULTS

In our research, we focused on identifying gender differences in perceived factors (the seller's image, the seller's willingness and empathy, the seller's communication skills, negotiating skills and information) affecting personal selling from the perspective of customers in the context of gender differences. Differences were detected through the Student T-test for two independent selections in the statistical program SPSS 20. The results of the conducted research are presented in Table 1, with statistically significant gender-based differences found in six questionnaire items.

Table 1: Gender differences in the perception factor affecting personal selling from the customers' perspective

Questionnaire Items	Gender	M	SD	t	^p Sig (2-tailed)
Image					
1. It is easier to make a purchase when I have a good impression from the seller.	Male	4,05	1,111	-2,884	0,004
	Female	4,43	,903		
3. When the seller is dressed untraditionally, I cannot concentrate well.	Male	2,56	1,105	-3,433	0,001
	Female	3,05	1,118		
4. The smiling seller looks fake.	Male	3,13	1,236	1,903	0,050
	Female	2,85	1,085		
Willingness and Empathy					
5. I feel more confident when I feel understanding from the seller.	Male	4,51	1,022	-2,103	0,034
	Female	4,76	,840		
7. I have a good feeling when the seller accepts my opinion.	Male	4,58	,983	-2,500	0,013
	Female	4,85	,725		
Communication skills					
11. When the seller is interested in my opinion, he or she gets my sympathy.	Male	4,28	1,149	-2,969	0,004
	Female	4,56	0,882		

Gender differences between males and females were recorded in items 1, 3, 4 (Factor - Seller's Image, Figure 1) 5 and 7 (Factor – Seller's willingness and empathy, Figure 2) and 11 (Factor – Seller's communication skills, Figure 3). In item 1: „It is easier to make a purchase when I have a good impression from the seller.” the responses of men and women varied slightly. In the answers above, women (4.43) who tended to respond yes, in contrast to males (4.05), who preferred a less exact response to the scale of „rather yes than no.” Women need a good impression from the seller. Men perceive this aspect less significantly than women.

Similarly, in item 3: „When the seller is dressed untraditionally, I cannot concentrate well”, we saw differences between men and women, where the women again scored more (3.05) than men. Men (2.56) responded to the „rather no than yes” and „no” interfaces; for women, the response was „rather no than yes”. In contrast to the previous claim, men and women also have moderate values, and the modus value in females was 3 and in males, 2. Women were more explicitly inclined to respond „rather yes than no”. We can conclude that there are statistically significant gender differences in the perception of an untraditionally dressed seller and its impact on customer's concentration. Women are more influenced by the outfit of the seller than men.

In item number 4: „The smiling seller looks fake”, the measured average values for women were 2.85 and for men 3.13, which in both cases represent the „rather no than yes” response. The men score was higher for the first time. The men’s response modus was „no” response, and for women it was „rather no than yes”. We can say that positive attitude and smile at seller are more effective for men than for women.

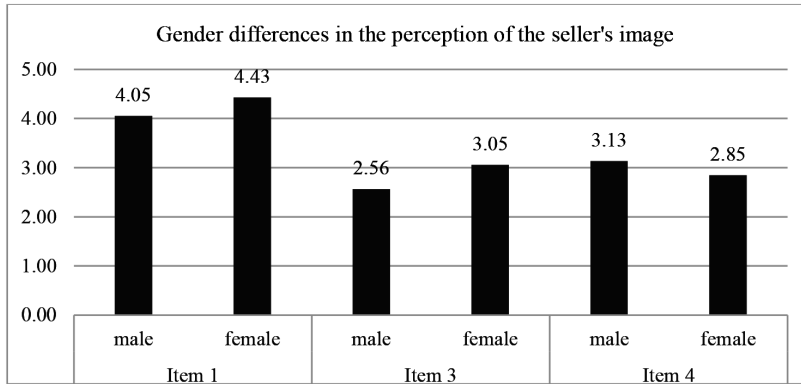


Figure 1: Mean Values of Items focused on the factor: Seller’s Image

Item 5: „I feel more confident when I feel understanding from the seller” also confirms the occurrence of statistically significant differences between men and women. The average men response (4.51) moved from „rather yes than no” and „yes” interfaces, while women (4.76) responded more explicitly and leaned forward to the „yes” response. We can also say that women require more understanding and certainty when purchasing than men.

In the 7th item of the questionnaire: „I have a good feeling when the seller accepts my opinion.” The responses of men and women were different, while women scored higher (4.85) than men (4.58) again. Women tended to respond more clearly to „yes,” and men responded mainly to the „rather yes than no” and „yes” responses. It can be affirmed that there is a statistically significant difference in the gender perception of the impact on a good customer feeling when the seller accepts his or her opinion.

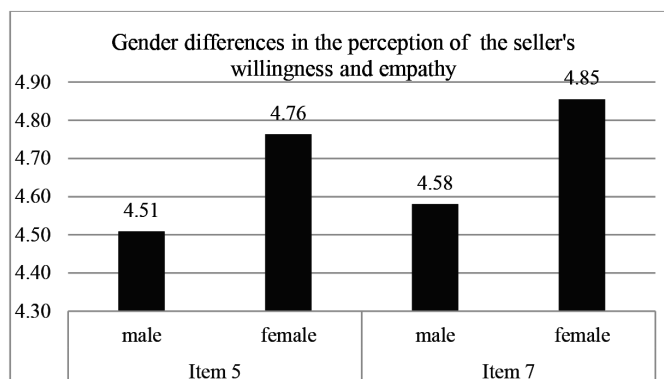


Figure 2: Mean Values of Items focused on the factor: Seller’s willingness and empathy

The last item in which statistically significant gender differences were showed is item no. 11: „When the seller is interested in my opinion, he or she gets my sympathy.” In this statement, women scored higher (4.56), answering the „rather yes than no” and „yes” interfaces. The men (4.28) leaned in response to „rather yes than no”. This argument points to the fact that if sellers are interested in selling and interested in their customers, it is possible that they will get sympathy mostly from women.

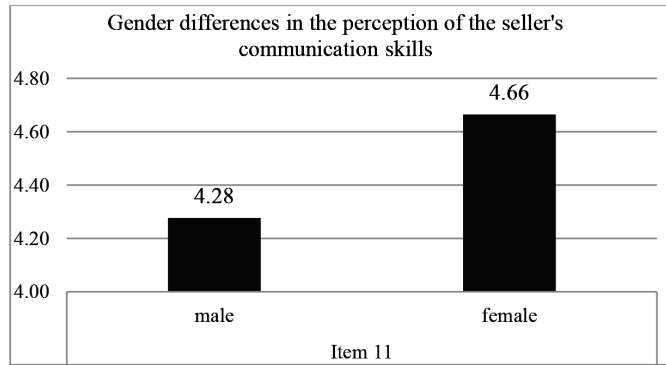


Figure 3: Mean Values of Items focused on the factor: Seller's communication skills

On the basis of the analysis described in Table 2 and Charts 1-3, which compare the perceptions of men and women on the seller to have access to a personal selling, we can say that the hypothesis: „We assume that there are statistically significant differences in the perception factors affecting the effectiveness of personal selling by the seller between men and women,” is confirmed.

5. DISCUSSION AND CONCLUSION

The presented contribution is aimed at approaching the issue of different perceptions of factors influencing the purchasing behavior of men and women in personal selling. With regard to gender differences, the aim was to analyze gender differences in the perception of factors influencing the effectiveness of personal selling by the seller from a customer perspective. The survey was conducted using the questionnaire method using mathematical-statistical methods and the total number of respondents was 243. Statistically significant differences were showed in the sixth questionnaire items (1,3,4,5,7,11), which are supported by the following factors: Seller's image, Seller's willingness and empathy and the Seller's communication skills. In the last „Seller's awareness” factor, there were no statistically significant differences from the point of view of the customer's gender.

On the basis of the research and its subsequent processing through statistical calculations, we have found that there are areas where the customer's perception of the seller in personal selling between men and women varies.

Both men and women naturally make it easier to make a purchase, if they have a good impression from the seller. However, based on our research, we can assume that there are some differences in gender perception, purchasing decisions, if the customer has a good impression from the seller. Good impression from the seller on women also makes it easier to buy, more than for men. A courteous and friendly seller is valued by both genders. Interestingly, there is a stronger disconciliation among women if the salesperson is dressed untraditionally. Men perceive this aspect less

sensitively than women. Here we can assume that if men serve a woman, this connection is positively evaluated from the point of view of men. On the other hand, women may be more attracted to men-sellers in their personal selling. Smiling seller is not perceived as fake for men and also for women. However, men in this case with little difference can perceive such access for the sellers artificially and mechanically.

Based on our research, we can conclude that there are gender differences in the perception of factors affecting the purchasing behavior of men and women in personal selling. Sellers can contribute to positive and negative customer feelings. Women admit that they feel confident when the salesperson is receptive to and has understanding for them. Men do not trust the sellers so much. In both cases, without significant difference, interest in the purchase declines if the salesperson does not pay enough attention to them. Since the answer to this claim was „rather yes than no”, we can assume that this fact is also related to the purchase type, and naturally, the strength of this factor may also be different for different purchases. Both men and women have a good feeling if sellers can accept their opinion, which is somewhat appreciated by women. If the seller is able to identify the customer requirements, there is a higher likelihood that customer will buy it repeatedly.

The subject of our research was also the study of gender differences in the perception of the sales skills of the salesperson. Adequate gesture can also influence customer attention and also affect both genders. It affects men and as well as women, if the salesperson knows the right arguments to defend against unauthorized criticism. If the seller is interested in women's opinions, there is a stronger sympathy than in men. It is not entirely clear to men that they are sympathetic if the seller is interested in their opinion. Providing contact with the seller for the case of additional information suits both men and women. Research has confirmed that the perception of men and women is different in the case of the image of the seller, his or her communication skills and his or her awareness.

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STATISTICAL ANALYSIS OF THE EUROPEAN UNION COUNTRIES ON THE BASIS OF SELECTED SOCIO-ECONOMIC AND DEMOGRAPHIC INDICATORS

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Abstract: *The aim of the paper is to compare the European Union countries on the basis of selected socio-economic and demographic indicators for the year 2016. The following indicators are selected for analysis: gross domestic product per capita, government gross debt as a percentage of gross domestic product, inflation rate, unemployment rate, total fertility rate, infant mortality rate and crude divorce rate.*

The contribution of the paper is a division of the countries of the European Union into several groups using cluster analysis so that the countries belonging to the same cluster are as similar as possible and the countries belonging to different clusters are the least similar, or rather the most different. The cluster analysis consists of several steps: a selection of the type of clustering process (hierarchical and non-hierarchical, the hierarchical can be agglomerated or divisive), a selection of the aggregation method (the nearest neighbour method, the furthest neighbour method, the average distance method, the centroid method, the median method, the Ward method, the typical points method, the k-means method, a method of optimum centers or medoids and fuzzy clustering, all of which can be used as the aggregation method), a selection of similarity rate (such as the Euclidean distance, the Hamming distance, the Minkow distance, the Mahalabonis distance), a specification of the number of significant clusters (based on the standard deviation of variables creating one cluster, the determination coefficient, the semi partial coefficient of determination, the distances of clusters, the cubic clustering criterion), a cluster interpretation (the description of each cluster based on the observed characteristics).

The application of individual statistical methods is implemented through the statistical programme SAS Enterprise.

Keywords: *Cluster analyses, European Union Countries, Method*

JEL Classification C40 · E24 · J01 · J13

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1. INTRODUCTION

In most cases, the statistical research focuses on the analysis of only one observed statistical character and its only characteristics in the analyzed file. In many cases, however, it is necessary to examine a statistical file from a lot of aspects and to take into consideration its multiple characteristics displayed by multiple statistical characters. In this analysis, it is necessary to use multidimensional statistical methods, including cluster analysis.

The above-mentioned cluster analysis is used in the paper to compare the countries of the European Union based on selected socio-economic and demographic indicators (gross domestic product - GDP - per capita, government gross debt as a percentage of GDP, inflation rate, unemployment rate, total fertility rate, infant mortality rate and crude divorce rate). The goal of this method is to divide the set of objects into several relatively homogeneous clusters so that the objects, in our case the EU countries belonging to different clusters, are the least similar and objects belonging to the same cluster are as similar as possible.

2. CLUSTER ANALYSIS

The cluster analysis is a basic research tool that sorts data vectors into similar groups (Wilks, 2011). It includes a wide range of procedures and methods used to solve object typology problems and their classification. The goal of cluster analysis is to divide a set of objects into several relatively homogeneous clusters so that objects belonging to different clusters are the least similar and objects belonging to the same cluster are as homogeneous as possible. We get a few clusters (relatively homogeneous subsets) from the object file. Its application does not permit to us to determine in advance which object will be in which cluster or the total number of clusters (Kubanová, 2003).

There are several names for this kind of methods in Slovakia, such as composite analysis, aggregate analysis, trice analysis, or analysis of nests, but the name cluster analysis provides the closest reflection of the ultimate goal of the method and corresponds to the English concept Cluster Analysis, which was used for the first time in 1939 by R. C. Tryon to describe a method of dividing a set of objects into several mutually exclusive subsets. The cluster analysis was developed independently of statistics in such sectors as education, biology and psychology. Due to the lack of exchange of information between science departments, the same methods have often been discovered several times. The same techniques, discovered as duplicates, have different names. Statisticians started to be involved in cluster analysis only around 40 years ago, which resulted in the development of a cluster analysis as a non-theoretical branch using ad hoc methods for a long time (Stankovičová, Vojtková, 2007).

The cluster analysis consists of several steps that need to be followed:

- Selection of the type of clustering process - we recognize hierarchical and non-hierarchical clustering processes. Hierarchical can be depicted easily using a hierarchical tree - dendrogram, which shows the exact sequence of decomposition at the individual clustering levels. Hierarchical procedures may be agglomerate or divisive (for details see in (Kubanová, 2003).
- Selection of the aggregation method - the nearest neighbour method, the furthest neighbour method, the average distance method, the centroid method, the median method, the Ward method, the typical points method, the k-means method, a method of optimum centers or medoids and fuzzy clustering (a description of these methods is given in (Kubanová, 2003), (Stankovičová, Vojtková, 2007), Chajdiak, Komorník, Komorníková, 1999), (Meloun, Milítký, 2004) can all be used as the aggregation method.

- Selection of similarity (or non-similarity) rate – the rates to which the similarity is found out are divided into four groups - distance measures (such as the Euclidean distance, the Hamming distance, the Minkow distance, the Mahalabonis distance), association coefficient, correlation coefficient, probability similarity rates (for details see in (Stankovičová, Vojtková, 2007)).
- Specification of the number of significant clusters - there are two basic approaches to the specification of the number of clusters - heuristic procedures and formal tests. The principle of a heuristic approach is to determine the number of clusters based on the subjective opinion of the investigator. In the second approach we use formal tests, or more precisely the quality indicators of clustering (the standard deviation of variables creating one cluster, the determination coefficient, the semi partial coefficient of determination, the distance of clusters, the graph of the number of clusters and cubic clustering criterion - CCC) (see (Stankovičová, Vojtková, 2007) for a description of the cluster quality indicators).
- Cluster interpretation - when formulating conclusions about the results and the quality of clustering, it is always necessary to take into consideration the factual aspect of the problem and to thoroughly assess whether the results of cluster analysis have a practical meaning, and whether they are interpretable in and acceptable for practice (Stankovičová, Vojtková, 2007). Interpretation of clusters means making a description of each cluster based on the observed characteristics (Řezánková, Húsek, Snášel, 2009).

3. INPUT DATA

We have selected 28 member countries of the European Union for the analysis. We will make a comparison of the selected countries with the use of 7 socio-economic and demographic indicators for the year 2016. The Eurostat website will serve as a source of the data. We will also briefly define the selected indicators:

Gross domestic product per capita – the ratio of gross domestic product and average population in the year. Gross domestic product is an indicator for a nation's economic situation. It reflects the total value of all goods and services produced less the value of goods and services used for intermediate consumption in their production. Calculations on a per head basis allows for the comparison of economies significantly different in absolute size.³

General gross debt as a percentage of gross domestic product – represents the total general debt as a share of GDP in percentage. It is made up of government commitments and is generated by a deficit financing of the state budget (Gola, 2009).

Inflation rate is defined as the devaluation of the monetary unit, which is manifested by the persistent growth in the price level of products and services in the economy (Šenkýřová, 2010).

Unemployment rate **represents unemployed persons as a percentage of the labour force. The labour force is the total number of people employed and unemployed. The indicator is based on the EU Labour Force Survey.**⁴

Total fertility rate – the mean number of children that would be born alive to a woman during her lifetime if she were to survive and pass through her childbearing years conforming to the fertility rates by age of a given year (Jurčová, 2002).

³ <https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tec00001&plugin=1>

⁴ https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&pcode=tepsr_wcl70&language=en

Infant mortality rate – the ratio of the number of deaths of children under one year of age during the year to the number of live births in that year. The value is expressed per 1 000 live births.⁵

Crude divorce rate is the ratio of the number of divorces during the year to the average population in that year. The value is expressed per 1 000 persons.⁶

4. APPLICATION OF CLUSTER ANALYSIS

Since the analyzed indicators are expressed in different units, we need to transform them by standardization. In this cluster analysis we used the Ward's method, which was supposed to help us create stable clusters of approximately the same size.

The number of significant clusters was determined based on the semi partial coefficient of determination by which we tried to achieve a minimum value. The decrease of this characteristic occurs already in the 3rd stage of clustering, but its value is not sufficiently low. In the 4th stage of clustering, the value of the semi-partial coefficient of determination is 0.0722, which is considered sufficiently low, since there is only a minimal decrease in this characteristic (figure 1) on other levels. Based on the results of the Ward cluster method, we divided the selected countries into four clusters.

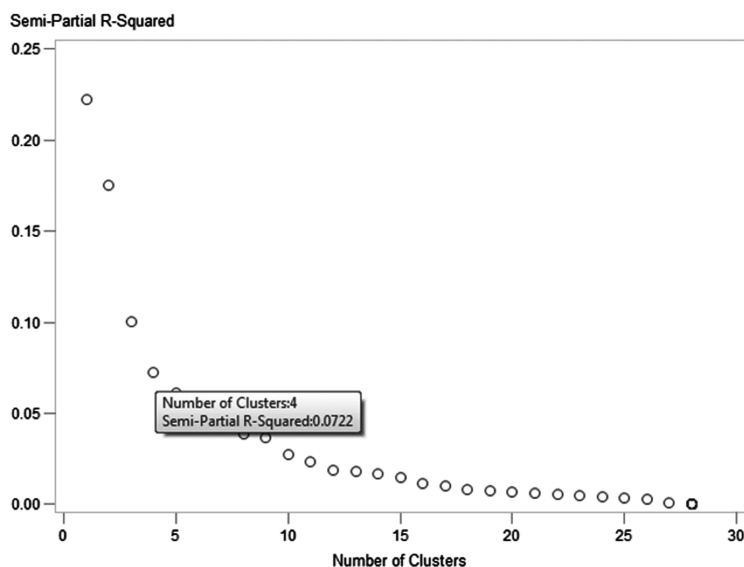


Figure 1: Trend line of the semi partial coefficient of determination

A graphical representation of the clustering of selected countries on individual levels is depicted using the hierarchical tree - dendrogram in figure 2. The y axis shows selected countries.

⁵ http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=demo_minfind&lang=en

⁶ <https://ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tps00206&language=en>

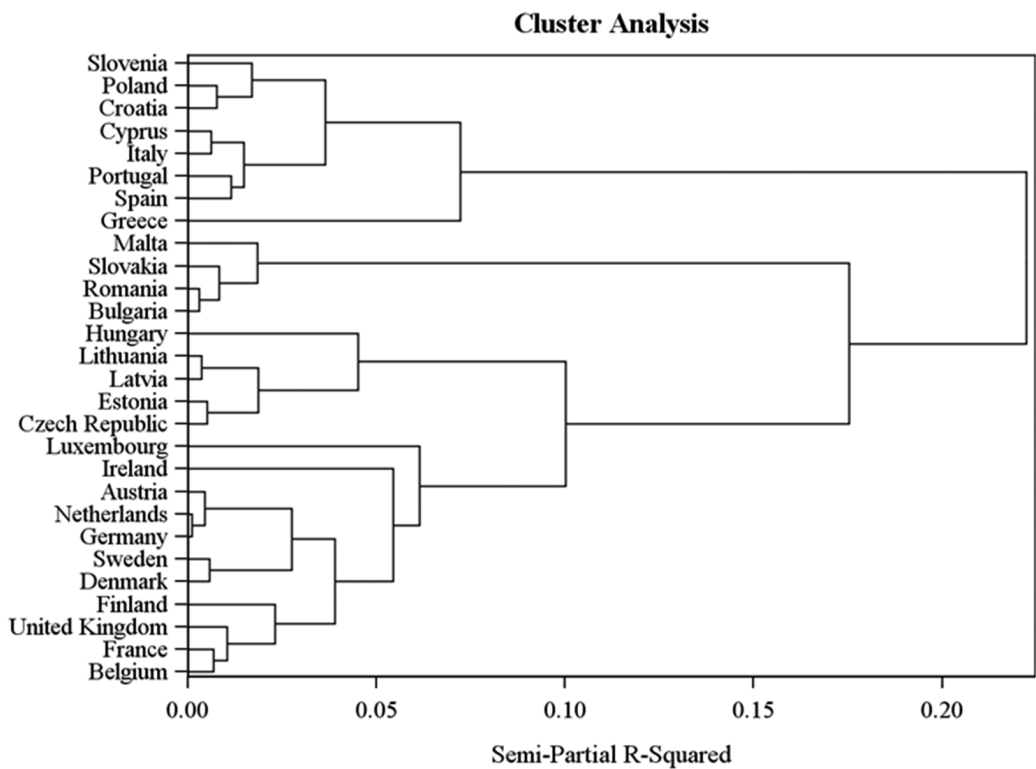


Figure 2: Dendrogram of clustering of selected countries

In the following tables (Table 1 - Table 4), we will integrate individual countries into particular clusters that we have obtained from the results of the Ward method. Each cluster contains a list of countries that belong to it together with the indicators which served for the comparison of selected European Union countries. For easier interpretation, we have replaced the standardized data with the original data. However, we have worked with standardized data at the time of implementation of the procedure.

The last step of the cluster analysis is cluster interpretation. For better interpretation of the obtained results, we used cluster centroids which represent the average level of selected indicators in the given cluster (table 5).

The use of cluster analysis, which served for the division of a set of objects into several relatively homogeneous clusters, allowed us to obtain four clusters.

The first cluster includes 11 countries: Belgium, Denmark, Germany, France, Luxembourg, Netherlands, Austria, Finland, Sweden, Ireland and the United Kingdom. This cluster is characterized by the highest average GDP, the second highest average government gross debt and the highest average fertility rate.

The second cluster consists of the following countries: Bulgaria, Malta, Romania and Slovakia. These countries reach the highest average infant mortality rate and the lowest average crude divorce rate.

In the **third cluster**, there are the Czech Republic, Estonia, Latvia, Lithuania and Hungary. These countries have the lowest average government gross debt and the lowest average unemployment rate. When comparing the average GDP, these countries are in the third place. This cluster includes countries that reach the highest values of inflation rate and crude divorce rate.

The **fourth cluster** is made up of Greece, Spain, Croatia, Italy, Cyprus, Poland, Portugal and Slovenia. This cluster is characterized by the highest average government gross debt and the highest average unemployment rate. However, the average inflation rate is the lowest among all clusters.

Table 1: Division of the EU countries to the first cluster

CLUSTER=1							
COUNTRY	GDP per capita (EUR)	General gross debt (% of GDP)	Inflation rate (%)	Unemployment rate (%)	Total fertility rate (‰)	Infant mortality rate (‰)	Crude divorce rate (‰)
BELGIUM	37 400,00	105,90	1,10	7,80	1,68	3,20	2,10
DENMARK	48 400,00	37,90	4,70	6,20	1,79	3,10	3,00
GERMANY	38 400,00	68,20	5,30	4,10	1,60	3,40	2,00
FRANCE	33 300,00	96,60	1,10	10,10	1,92	3,70	1,90
LUXEMBOURG	90 700,00	20,80	5,90	6,30	1,41	3,80	2,10
NETHERLANDS	41 600,00	61,80	4,40	6,00	1,66	3,50	2,00
AUSTRIA	40 800,00	83,60	7,00	6,00	1,53	3,10	1,80
FINLAND	39 300,00	63,00	-0,30	8,80	1,57	1,90	2,50
SWEDEN	46 600,00	42,10	7,60	6,90	1,85	2,50	2,40
IRELAND	57 500,00	72,80	6,60	16,80	1,81	3,00	0,70
UK	36 600,00	88,20	5,40	13,00	1,79	3,80	1,80

Table 2: Division of the EU countries to the second cluster

CLUSTER=2							
COUNTRY	GDP per capita (EUR)	General gross debt (% of GDP)	Inflation rate (%)	Unemployment rate (%)	Total fertility rate (‰)	Infant mortality rate (‰)	Crude divorce rate (‰)
BULGARIA	6 800,00	29,00	7,10	7,60	1,54	6,50	1,50
MALTA	22 300,00	56,20	4,80	4,70	1,37	7,40	0,80
ROMANIA	8 700,00	37,40	5,00	5,90	1,64	7,00	1,50
SLOVAKIA	15 000,00	51,80	7,00	9,70	1,48	5,40	1,70

Table 3: Division of the EU countries to the third cluster

CLUSTER=3							
COUNTRY	GDP per capita (EUR)	General gross debt (% of GDP)	Inflation rate (%)	Unemployment rate (%)	Total fertility rate (‰)	Infant mortality rate (‰)	Crude divorce rate (‰)
CZECH REPUBLIC	16 700,00	36,80	6,70	4,00	1,63	2,80	2,40
ESTONIA	16 500,00	9,40	3,80	6,80	1,60	2,30	2,50
LITHUANIA	12 800,00	40,50	7,30	9,60	1,74	3,70	3,10
LATVIA	13 500,00	40,10	4,50	7,90	1,69	4,50	3,10
HUNGARY	11 600,00	76,00	13,60	5,10	1,53	3,90	2,00

Table 4: Division of the EU countries to the fourth cluster

CLUSTER=4							
COUNTRY	GDP per capita (EUR)	General gross debt (% of GDP)	Inflation rate (%)	Unemployment rate (%)	Total fertility rate (‰)	Infant mortality rate (‰)	Crude divorce rate (‰)
GREECE	16 200,00	180,80	-1,50	23,60	1,38	4,20	1,00
SPAIN	24 100,00	99,00	4,60	19,60	1,34	2,70	2,10
CROATIA	11 200,00	80,60	2,10	13,40	1,42	4,30	1,70
ITALY	27 900,00	132,00	-0,20	11,70	1,34	2,80	1,60
CYPRUS	21 700,00	106,60	1,70	13,00	1,37	2,60	2,30
POLAND	11 100,00	54,20	2,30	6,20	1,39	4,00	1,70
PORTUGAL	18 100,00	129,90	6,10	11,20	1,36	3,20	2,20
SLOVENIA	19 500,00	78,60	3,80	8,00	1,58	2,00	1,20

Table 5: Cluster centroids of selected indicators

CLUSTER	VARIABLE	MEAN
1	GDP per capita (EUR)	46 418,180
	General gross debt (% of GDP)	67,355
	Inflation rate (%)	4,436
	Unemployment rate (%)	8,364
	Total fertility rate (‰)	1,692
	Infant mortality rate (‰)	3,182
	Crude divorce rate (‰)	2,027

2	GDP per capita (EUR)	13 200,000
	General gross debt (% of GDP)	43,600
	Inflation rate (%)	5,975
	Unemployment rate (%)	6,975
	Total fertility rate (‰)	1,508
	Infant mortality rate (‰)	6,575
	Crude divorce rate (‰)	1,375
3	GDP per capita (EUR)	14 220,000
	General gross debt (% of GDP)	40,560
	Inflation rate (%)	7,180
	Unemployment rate (%)	6,680
	Total fertility rate (‰)	1,638
	Infant mortality rate (‰)	3,440
	Crude divorce rate (‰)	2,620
4	GDP per capita (EUR)	18 725,000
	General gross debt (% of GDP)	107,713
	Inflation rate (%)	2,363
	Unemployment rate (%)	13,338
	Total fertility rate (‰)	1,398
	Infant mortality rate (‰)	3,225
	Crude divorce rate (‰)	1,725

5. CONCLUSION

We compared the EU countries on the ground of selected socio-economic and demographic indicators (GDP per capita, government gross debt as a percentage of GDP, inflation rate, unemployment rate, total fertility rate, infant mortality rate and crude divorce rate). The analysis was based on data from the year 2016. The Eurostat website served as a source of the data. The indicators were selected subjectively, but we tried to select indicators which influence the actual functioning of the country economy. With the use of cluster analysis, we grouped the EU countries on the basis of selected socio-economic and demographic indicators into four clusters. Countries that form one cluster are similar according to selected indicators. The cluster analysis was made using SAS Enterprise Guide statistical software.

Belgium, Denmark, Germany, France, Luxembourg, Netherlands, Austria, Finland, Sweden, Ireland and United Kingdom create the first cluster which has the highest average GDP and the highest average fertility rate. One of the factors that may have affected the inclusion of these countries into a common cluster may be the location of the countries, as they are located relatively close to each other.

The second cluster consists of countries like Bulgaria, Malta, Romania and Slovakia. This cluster reaches the highest average infant mortality rate and the lowest average crude divorce rate. The common factor that brought these countries together could be the year of joining the EU, since Malta and Slovakia joined the EU in 2004 and Romania and Bulgaria three years later.

The Czech Republic, Estonia, Lithuania, Latvia and Hungary are the four countries forming the third cluster. This cluster is characterized by the lowest average government gross debt and the lowest average unemployment rate. On the other hand, this cluster reaches the highest average inflation rate and crude divorce rate.

The last, fourth cluster consists of Greece, Spain, Croatia, Italy, Cyprus, Poland, Portugal and Slovenia. This cluster is characterized by the highest average government gross debt and the highest average unemployment rate. By contrast, the average inflation rate is the lowest.

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SUSTAINABLE POST-CRISIS CAPITAL MARKET RECOVERY – THE CASE OF EURO STOXX 50

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Abstract: *In the context of the last global financial crisis of 2008 and the subsequent post-crisis recovery of international capital markets, the question of the sustainability of that recovery process has been raised. To test that we use the presence and the magnitude of manifestation of market phenomena called volatility paradox. This paradox raises the question whether its presence in the conditions of the sustainable ascending market trend during the post-crisis recovery is not a signal marking the potential for a new forthcoming financial crisis. Studying the periods before and after the 2008 global financial crisis can give us a pattern market dynamics of volatility paradox manifestation in the pre-crisis period which can be traced out in the post-crisis period. If the existence of volatility paradox is possible, it should be seen in the pre-crisis period up to 2008. Its power of manifestation during this period should serve as a benchmark for verifying the post-crisis VP, both as an existence and as a size of manifestation compared to the demonstrated until 2008. The empirical results show that the market dynamics of the EURO STOXX 50 index proves the existents of volatility paradox, both in the pre- and the post-crisis period. For the same two periods for the shares included in the EURO STOXX 50 the existence of volatility paradox is not detected. Moreover, the shares of the EURO STOXX 50 index show higher market efficiency in the context of EMH in comparison with the index itself. The empirical research was made using market dynamics of the EURO STOXX 50 index and the shares it's incorporated in the period 2005 - 2017. In this research, we use the daily returns of the explored index and shares whose volatility was modeled by TGARCH models.*

Keywords: *Efficient Market Hypothesis, volatility paradox, information efficiency and asymmetry, TGARCH, EURO STOXX 50.*

JEL Classification C32 · G01 · G14 · G15

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1. INTRODUCTION

The Efficient Market Hypothesis (EMH) postulates that changes in the prices of financial assets are independent and unpredictable so that at each moment the market price includes all relevant information. In that matter, the market informational efficiency can be questioned not only in general about the rationality of all predictions concerning future market dynamics, but also when it comes to the ability for forecast the first signals of a forthcoming crisis. In the context of the last global financial crisis of 2008 and the subsequent post-crisis recovery of international capital markets, the question of the sustainability of that recovery process has been raised. Searching for indicators of future capital markets instability, the importance of market phenomena such as volatility paradox has emerged. This paradox raises the question whether its presence in the conditions of the sustainable ascending market trend during the post-crisis recovery is not a signal for a potential for a new forthcoming financial crisis.

Another important aspect of a volatility paradox study is its micro- and macro-level of manifestation, i.e. at the level of the market index and at the level of market dynamics of the shares included in the same index. In this way, not only can we put to the test the validity of the Efficient Market Hypothesis in direction of separation of the market efficiency in micro- and macro- aspect, but we can put to the test assumption that market phenomena such volatility paradox can defer as a manifestation depending on the scale to which they refer. This way we could also check the degree in which volatility paradox can be used as a reliable indicator for future crisis.

2. LITERATURE REVIEW

The connection between the phase of the business cycle and market volatility had been tested and confirmed mainly for the U.S. markets with the finding that financial crises are associated with high volatility (Schwert, 1989, 1990; Hamilton and Lin, 1996; Fornari and Mele, 2009; Corradi et al., 2013). The conceptual link between low volatility and crises can be traced back to Hayek's (1960) assumption that risk cycle is separate from the business cycle and that low risk encourages risk-taking. Minsky's (1992) develops further that assumption and suggests that economic agents interpret the presence of a low risk environment as an incentive to increase risk-taking, which in turn may lead to a crisis. That way the Minsky hypothesis is establishing the direct connection between presence of low market volatility and a high potential for eventual crisis, as the low volatility conditions leads in the end, or encourage, the acceleration of the market potential for turmoil and crisis. Bhattacharya et al. (2015) link Minsky's assumption for investors' riskier behavior during low volatility conditions with their borrowing. In their framework, the expectations of creditors follow those of the investors and they are more willing to give them funds. As a consequence, the borrowing increases but not the risk premium. This contributes to the increment of relatively riskier projects in the portfolios of the investors. Although this increases the loss potential of the portfolios, expected default and credit spreads do not adjust commensurately. That way when the positive market trend reverses default is higher than it would otherwise be and the consequences for financial stability are more severe. Danielsson, Valenzuela, and Zer (2016) study the effects of volatility on financial crises using a database for over 200 years. To study the effect of the impact of high and low volatility on agents' decisions they decompose volatility into high and low deviations from its trend. They found that volatility itself is not a significant predictor of banking crises, but unusually high and low volatilities are. Especially low volatility, the presence of which is directly linked with the forming of credit build-ups, indicates that agents take more risk in periods of low risk. This finding confirmed Minsky's instability hypothesis and his main statement that "stability is destabilizing". This way we can conclude that low volatility induces risk-taking,

which leads to riskier investments, and when those turns to loss a crisis follows. This finding becomes more important over time as their observation on stock markets over 221-year sample show growing importance of stock markets over time which leads to growing importance of the relationship between volatility gap and the incidence of a crisis.

3. ECONOMETRIC METHODOLOGY FRAMEWORK

For the purpose of the survey the data from the index and its shares are divided into two periods. *The pre-crisis period* shall cover the interval until the highest value of the index is reached before the start of the global financial crisis of 2008. The period covers the time interval of 03.01.2005. until 16.7.2007. And respectively, *the post-crisis period* covers the time interval from 10.3.2009. until 9.3.2017 during which time the index reached the lowest level and started post-crisis recovery.

For the econometric modeling of the EURO STOXX 50 index and its shares, daily data and the return on the basis of the following formula are used:

$$r_t = \ln \frac{P_t}{P_{t-1}} \quad (1)$$

Where:

r_t - return at the moment t ;

P_t and P_{t-1} - index or shares values for the moments t and $t-1$.

Regarding the econometric modeling of volatility, the Threshold GARCH (TGARCH) with Student-t distribution are used (2):

$$\sigma_t^2 = w + \sum_{j=1}^q \beta_j \sigma_{t-j}^2 + \sum_{i=1}^p \alpha_i \epsilon_{t-i}^2 + \sum_{k=1}^r \gamma_k \epsilon_{t-k}^2 I_{t-k} \quad (1)$$

Where:

$P_t = 1$ if $\epsilon_t < 0$ and $P_t = 0$ if $\epsilon_t \geq 0$;

γ - leverage coefficient representing the impact of the negative market news.

The volatility paradox (VP) confirmation analysis should go in the context of the efficient market hypothesis (EMH). According to this hypothesis, the market phenomenon in question should not exist and have predictive power. The basic assumption of VP is the existence of negative connection between market returns and volatility. When markets rise, i.e. there is a positive market trend and predominantly positive news about market returns, its volatility should be lower. The opposite behavior is requiring during a negative market trend and negative news. In order to capture this effect within the econometric methodology based on the TGARCH modeling of volatility the value of the leverage coefficient covering asymmetric incorporation of market information(news) should be: A) Negative, in the conditions of a rising market trend; B) Positive of relatively high value, at a downward market.

Splitting a survey period into two sub-periods not only facilitates the process of clearer identification of the impact of the 2008 global financial crisis but also give us a pattern market dynamics of VP manifestation in the pre-crisis period which can be traced out in the post-crisis period. If the existence of VP is possible, it should be seen in the pre-crisis period up to 2008. Its power of manifestation during this period should serve as a benchmark for verifying the post-crisis VP, both as an existence and as a size of manifestation compared to the demonstrated until 2008.

The results of the TGARCH models used for the shares are averaged for the purpose of direct comparison with the respective coefficients registered for the EURO STOXX 50 index. In order to better identify trends in the volatility of the shares, the TGARCH models used the database form ten leading shares in the EURO STOXX 50 with the highest capitalization over the studied period.

4. EMPIRICAL ANALYSIS

4.1. RETURNS SERIAL AUTOCORRELATIONS

The econometric analysis of the existence of the volatility paradox begins with an analysis for the presence of autocorrelation dependences in the return dynamics of the index and its shares. Statistically significant autocorrelation dependencies would determine the dynamics of return as inefficient in the context of EMH. Given the fact that the volatility paradox itself represents the same inefficiency, it would raise the question of whether its manifestation was not originally determined by the inefficiency of returns or the paradox is market phenomena related only with the market volatility. We find this an important moment for clarification, especially when the presence and manifestation of the volatility paradox are analyzed in terms of its prognostic capabilities as an early indicator of future crises.

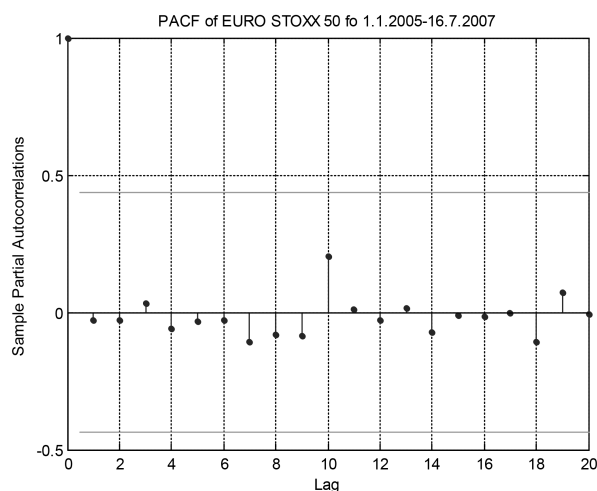


Figure 1: Graph of partial autoregressive (PACF) of index for pre-crisis period

In the context of EMH for *the pre-crisis period* (Figure 1), we register excellent results of PACF with values close to zero. The only exception is at lag ten with a value of 0.2, but it is statistically insignificant. There are no long-term autocorrelation dependences, whether in a positive or negative direction. All of this leads to confirmation of the „weak” form of the hypothesis over the period. Despite the steady rise in the index, as well as its share values over the period, with the market efficiently incorporating the information, there is no possibility of gaining the extra-market returns from the predictability of the dynamism of the market return.

In *the post-crisis period*, the market dynamics achieve its performance, as before the crisis with very close to zero values (Figure 2). Again, there is a free movement of prices, there are no serial correlation trends in one direction, which fully confirms the hypothesis in its „weak” form and shows that we have market efficiency in forming values in the index by reflecting of any available information at the time.

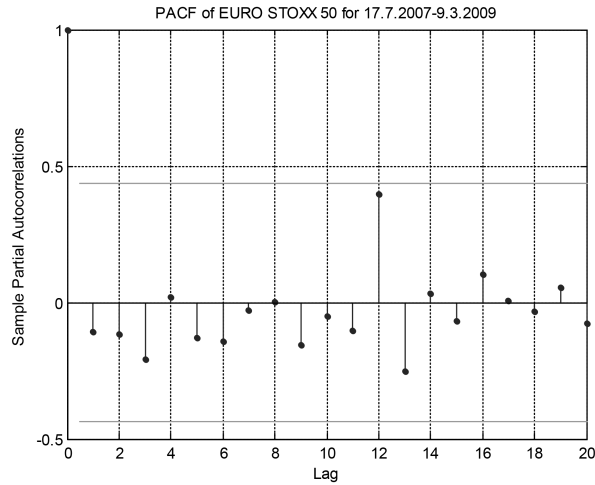


Figure 2 - Graph of partial autoregressive (PACF) of index for post-crisis period

The two subperiods the PACF testing shows results for the index that confirm the „weak” form of the EMH for the overall performance of the EURO STOXX 50 index. The next stage of verification is at the shares level, where we test the two sub-periods for the existence of statically significant autocorrelations.

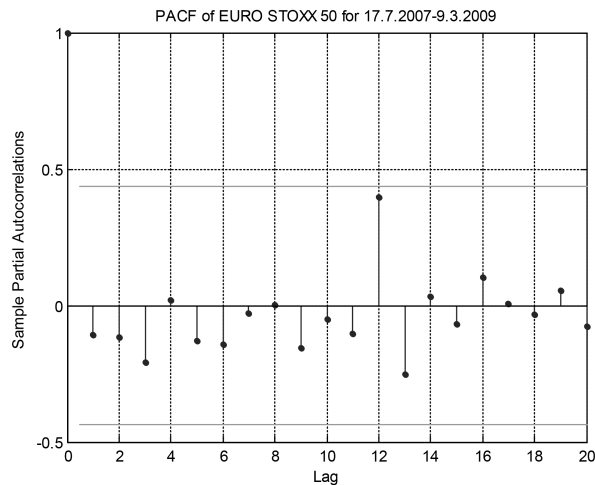


Figure 3: Graph of partial autoregressive (PACF) of shares for pre-crisis period

In analyzing the graph of partially autoregressive (PACF) for *pre-crisis period* of the shares in the index (Figure 3) the following conclusions can be drawn. The results are identical to those for the EURO STOXX 50. There are no statically significant autocorrelation dependencies, whether in a positive or negative direction. This is a sign of free movement of prices or so-called random walk, which is directly related to the assumptions of the „weak” form of the EMH. The results shown are increased between the tenth and the fourteenth lag, but again within the allowable range, with no crossing of the limits of significance. The period based on the results shown can be defined as relatively stable and confirming the thesis that the market is effective at a micro level.

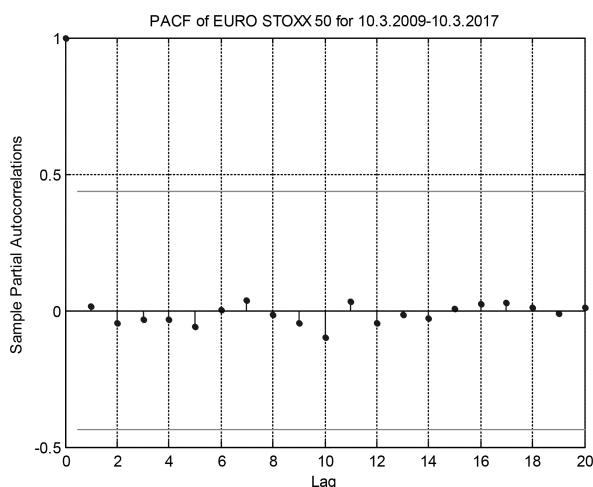


Figure 4: Graph of partial autoregressive (PACF) of shares for post-crisis period

The post-crisis period is the longest in the study - the observations cover the time interval from 10.3.2009 to 10.3.2017. After the financial crisis of 2008, reaching the bottom in share and index performance, the post-crisis period shows us the return for all to normal. The EURO STOXX 50 fail to regain its maximum levels, in contrast, the shares managed to stabilize their market performance at the levels of 2007. The autocorrelations as a value and graphical representation are close to those before the crisis (Figure 4). Partial autocorrelation has values close to the confidence interval, but they are statistically insignificant. There is even distribution without serial movements towards positive or negative lags, which is a direct indication of the validity of the „weak” form of market efficiency according to the EMH.

4.2. VOLATILITY TGARCH MODELLING

Volatility paradox existence at macro level - EURO STOXX 50 index

Pre-crisis period. The results from the TGARCH modeling of the volatility in the pre-crisis period, both for the EURO STOXX 50 and for the shares that are included it, are presented in Table 1. The leverage coefficient values in the pre-crisis period are -0.0176 for positive news and 0.1266 for negative. The recorded values are fully in line with the assumption of VP in the pre-crisis period. The positive market news prevailing during this period leads to a decrease in market volatility.

The magnitude of volatility reduction by the positive news is lower than the negative news impact - in absolute terms, it's equal to 0.1090, but taking into account the prevailing positive market news during that period, this completely matches the assumption of PPs. Such a significant contrast difference between the impact of positive and negative news not only indicates VP but also contradicts EMH market-performance assumptions. Market index dynamics show efficiency, with the coefficient of persistence at the value of 0.9213, to which we can add the relatively close value of the GARCH coefficient (0.9389), which represent the impact of volatility dynamics from past lags.

For *the pre-crisis period*, we can summarize that there is a relatively efficient market that does not fully translate the market trends of volatility from the previous periods but which shows the existence of VP. That resulting in volatility reduction made by the positive market news that is partially offset, even in a greater scale, by the negative news, which however has a lower frequency of manifestation.

Post-crisis period. The results from the TGARCH modeling of the volatility in the post-crisis period, both for the EURO STOXX 50 and for the shares that are included it, are presented in Table 2. For the purpose of analyzing the change in the TGARCH coefficients from pre- to post-crisis period their values are presented and compare in Table 3.

Table 1: TGARCH results for the pre-crisis period

<i>Shares / TGARCH coefficients</i>	<i>TGARCH model</i>	<i>Coefficient of persistence</i>	α	$\alpha+\gamma$	$\beta(\text{garch})$
<i>Allianz</i>	1:1	0,898827	0,097044	0,105946	0,801783
<i>Anheuser</i>	It's not in the index for the period				
<i>Inditex</i>	It's not in the index for the period				
<i>L'oreal</i>	2:2	0,423986	0,195985	0,178866	0,228001
<i>LVMH</i>	1:2	0,875432	0,125262	0,101802	0,75017
<i>Unilever</i>	1:1	0,938384 + 5,05E-05	5,05E-05	5,05E-05 + 0,055516	0,938384
<i>Sanofi</i>	1:2	1,007105	0,032471	0,003615	0,974634
<i>SAP</i>	2:2	0,865925	0,113234	0,06471	0,752691
<i>Siemens</i>	1:1	0,994186	0,036485	0,009159	0,957701
<i>Total</i>	2:1	0,32938	0,059484	0,148468	0,269896
<i>Average</i>		0,770691571	0,08250194	0,087509429	0,709158
<i>EURO STOXX 50</i>	1:1	0,921307	-0.017679	0,126682	0.938986

Table 2: TGARCH results for the post-crisis period

<i>Shares / TGARCH coefficients</i>	<i>TGARCH model</i>	<i>Coefficient of persistence</i>	α	$\alpha+\gamma$	$\beta(\text{garch})$
<i>Allianz</i>	1:1	0,947455	0,013586	0,121733	0,933869
<i>Anheuser</i>	1:1	0,932685	0,021075	0,092972	0,91161
<i>Inditex</i>	2:2	0,276751	0,025366	0,012037	0,251385
<i>L'oreal</i>	2:2	0,990276	0,003492	0,017358	0,986784
<i>LVMH</i>	1:1	0,980465	-0,008182	0,062065	0,972283
<i>Unilever</i>	2:2	0,892642	0,174405	0,167628	0,718237
<i>Sanofi</i>	1:2	0,992613	0,018693	0,017427	0,97392
<i>SAP</i>	1:2	0,966937	-0,001106	0,065727	0,968043
<i>Siemens</i>	2:1	0,983758	-0,003607	0,034162	0,987365
<i>Total</i>	1:1	0,950254	0,002982	0,10597	0,947272
<i>Average</i>		0,8913836	0,0246704	0,069708	0,865077
<i>EURO STOXX 50</i>	1:2	0,951884	-0.010051	0,098872	0,961935

Finding and analyzing the manifestation of VP in the post-crisis period can be made by tracing the dynamics of the leverage and persistence coefficients in the context of their performance in the pre-crisis period. It is noteworthy that the impact of positive news in the post-crisis period leads to a decrease in market volatility in line with the assumptions of VP. As in the pre-crisis period, the coefficient is negative and with a relatively close value - from -0.0176 in the pre-crisis period to -0.0100 in the post-crisis period. However, the offsetting effect of negative news on the dynamics of volatility is limited compared to the pre-crisis period. The coefficient changes from 0.1266 prior to the 2008 crisis to 0.0988 in post-crisis conditions. This gives less impact of the negative market news on market volatility in post-crisis conditions. We can add to this all so the decreased market efficiency of the index. The coefficient of persistence marks an increase of 0,9213 in pre-crisis conditions of 0,9518 in the post-crisis period. The same we observe with respect to the GARCH coefficient from 0.9389 to 0.9619. That way the worsened market efficiency is combined with the propensity of the index in post-crisis dynamics to more closely following the market trends in the volatility dynamics in comparison to the pre-crisis period. However, this worsened market efficiency does not lead to the formation of extremes in the incorporation of market news. The difference in the degree of the impact of the positive and negative news is lower than the pre-crisis period - from 0.1090 to 0.0888. This shows a market situation in which decreased market efficiency leads to a stronger follow-up of the market trends by the volatility, but the existence of VP in the post-crisis period is less pronounced, as positive news continues to reduce market volatility to the relatively same extent as before crisis, but the offsetting effect of negative news, albeit with a smaller size, gets stronger support by the worsened market efficiency. Thus, when the negative market news is available in a positive market post-crisis trend, they have a less increasing effect to the market volatility in comparison with the pre-crisis period. But the worsened market efficiency leads to a more sustainable impact of the offset effect of negative news. This could also give us reason to believe that worsened market efficiency even enhances the offset effect of negative news as opposed to VP assumptions.

Presence of volatility paradox at micro level – leading in market capitalization shares of EURO STOXX 50 index

The assumption of the presence of VP at the micro level is subject to substantial corrections compared to the demonstrated at the macro level, i.e. as demonstrated by the market index. The leverage coefficients reflecting the impact of positive market news in both the pre-crisis and the post-crisis period have no negative value, as VP assumes. In the pre-crisis and benchmark for the existence of the VP period leverage coefficients for both positive and negative news are positive and close as values - 0.08250 for the positive and 0.0875 for the negative ones. These coefficient values cover EMH assumptions that market news, whether positive or negative, should have a similar impact on market volatility. In this way, we could conclude that during the pre-crisis period, we cannot detect the existence of VP at the micro level of shares included in the studied index, unlike the index itself. Similar is the situation in the post-crisis period. The coefficients are positive, but with a greater difference between them and those from the pre-crisis period. Positive news leads to an increase in market volatility by 0.0247 and negative by 0.0697.

This allows us to conclude that during the post-crisis period at the level shares included in the EURO STOXX 50, we cannot detect the existence of VP. At best, we can talk about a highly modified VP, where positive news and market trends do not lead to a reduction in volatility, but to its increase, albeit to a lesser extent than the impact of negative news.

The relativity of the VP existence, except in the context of pre-crisis and post-crisis market dynamics, could be outlined when we take into account the magnitude of its manifestation in macro

and micro contexts. In the pre-crisis period, the difference in the values of the leverage coefficients in absolute terms is as follows:

- For the positive news, leverage coefficient of the index is approximately 7 times bigger in comparison with that of the shares;
- For negative news, the difference is approximately 4 times bigger in favor of the studied index.

In the post-crisis period, where is observed the weaker macro-level VP existence, these differences are weaker: for positive news, approximately one time, and for negative three times higher leverage coefficients for the index in comparison with the shares. This confirmation of VP's stronger existence in the EURO STOXX 50 index dynamics is also reinforced when we include in the analysis the level of market efficiency expressed through the coefficients of persistence and GARCH coefficients. In the pre-crisis period where the strongest VP existence is detected at the level of the index, the coefficient of the persistence of the shares is 0.1507 lower than that for the index.

This shows an increased market efficiency of the shares that leads to a significantly lower tendency for the shares to follow established market trends in contrast to the EURO STOXX 50. When we add to that and the relatively equal values of leverage coefficients for the shares, we can mark the overall efficiency of the shares fully in line with the assumptions of EMH. Not only we cannot detect the VP existence in the market dynamics of the shares, but the increased market efficiency leads to a lesser transfer of established trends in volatility than demonstrated by the index. If for the market index the GARCH coefficient has a value of 0.9389, for the shares his value is 0.7091.

Table 3: Change in TGARCH coefficients for the pre- to post-crisis period

<i>Shares / TGARCH coefficients</i>	<i>Coefficient of persistence ($\alpha+\beta$)</i>		<i>α (reflects the impact of positive news)</i>		<i>$\alpha+\gamma$ (reflects the impact of negative news)</i>		<i>$\beta(\text{garch})$ (reflects the impact of previous periods)</i>	
	Pre-	Post-crisis	Pre-	Post-crisis	Pre-	Post-crisis	Pre-	Post-crisis
<i>Shares Average</i>	0,771	0,891	0,083	0,025	0,088	0,070	0,709	0,865
<i>EURO STOXX 50</i>	0,921	0,952	-0.018	-0.010	0,127	0,099	0.939	0,962

5. CONCLUSION

The market dynamics of EURO STOXX 50 index proves the existents of volatility paradox, both in the pre- and the post-crisis period. For the post-crisis period, the presence of volatility paradox is less pronounced in comparison with the pre-crisis period. Positive news continues to reduce market volatility to the same extent as before the crisis, but the offset impact of negative news, albeit with a smaller size, gets stronger support from the worsened market efficiency.

During the pre and post-crisis period at the level shares included in the EURO STOXX 50, we cannot detect the existence of volatility paradox. At best, we can accept the existence of the highly

modified volatility paradox in the post-crisis period, where positive news and market trends do not lead to a reduction in volatility, but to its increase, albeit to a lesser extent than the impact of negative news.

The relativity of the volatility paradox existence, except in the context of pre-crisis and post-crisis market dynamics, could be outlined when we take into account the magnitude of its manifestation in macro and micro contexts. Leverage coefficients, indicating the magnitude of incorporation of the positive and negative market news in volatility dynamics, are times bigger for the EURO STOXX 50 in comparison with that of its shares. This difference in the magnitude of incorporation of the market information declines in the post-crisis period, but remains relatively high and in favor of the index.

Studied shares of the EURO STOXX 50 index show higher market efficiency in the context of EMH, which leads to a significantly lower tendency to follow established market trends in comparison to the index.

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ANALYSIS OF RELATIONSHIP BETWEEN LEADERSHIP STYLES AND EMPLOYEE ENGAGEMENT

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Abstract: *This paper examines the correlation between leadership styles and employee engagement. For the purpose of our research, we have used a random sample of 594 respondents who are employed in both the public and the private sector in Slovenia. The main goal of the research is to contribute to the understanding of how one independent variable (X_1 - a Dummy variable for Leadership style; $X_1 = 0$ mostly or over 50% of the leaders use the autocratic style of leadership; $X_1 = 1$ otherwise) impacts the Y variable (employee engagement). Online surveys combined with face-to-face as well as online interviews were carried out from 4 January to 14 March 2016. For statistical analysis, IBM SPSS 20 has been used and linear regression analysis applied. Based on the linear regression $F(1, 586) = 1.786$, $p\text{-value} = 0.182$, $R\text{-square} = 0.003$, we have found out that there is not any statistically significant (at the 5% significance level) correlation between leadership style and employee engagement. We have also come to a conclusion that autocratic style is mainly used in employee management by Slovenian leaders. Moreover, there is no statistically significant difference at the 5% significance level in leadership styles that are used between genders.*

Keywords: *leadership style, employee, engagement, linear regressions*

JEL Classification J21 · J53 · M12 · M54

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1. INTRODUCTION

The purpose of this paper is to investigate whether and how one variable (X1- a Dummy variable for Leadership style (LS); X1= 0 mostly or over 50% of the leaders use the autocratic style of leadership; X1= 1 otherwise) influences the dependent variable under study defined as Y-a (employee engagement-EE). The aim of the study is to contribute to the understanding of how one independent variable (X-Leadership style-LS) impacts the Y (employee engagement-EE) variable based on linear regression models.

The main research hypothesis is that the independent variable (X-LS) explains the variation in the dependent variable (Y-EE) and the relationship between the two is statistically significant.

An additional research hypothesis states that Slovenian leaders mostly use the autocratic style for managing employees.

The last research hypothesis states that there is a statistically significant difference in the use of leadership style between genders.

Software programs used for the analysis were IBM SPSS 20 and Excel. The research methods that we applied were the ANOVA test and linear regression model. Research data has been acquired through the use of a questionnaire.

2. EMPLOYEE ENGAGEMENT

Kahn (1990, p. 694) was the first academic author to define “personal engagement” as the “harnessing of organization member’s selves to their work roles: in engagement, people employ and express themselves physically, cognitively, emotionally and mentally during role performances”.

Employee engagement is the ability and willingness of employees to contribute to organizational success, especially their willingness to make „discretionary efforts” going beyond and above the minimum typically required for their position in order to make the organization successful.



Figure 1: Engaged Workforce

Source: *Employee Engagement*, <http://www.talentkeepers.com/engagement.jsp> (10.8.2018).

The model above (Figure 1) highlights the elements of developing and maintaining an engaged workforce. Employee engagement is an essential element of organizational health. It is the goal of strategic initiatives designed to improve employees' commitment and performance, customer satisfaction and loyalty, as well as the overall productivity and profit of an organization through credible leadership, supportive co-workers, job/career satisfaction, and a high performing organization.

Employee engagement is above all the average willingness to engage the energy and commitment of all employees in everything they do in order to achieve outstanding results.

Furthermore, employee engagement, also called work engagement, is a business management concept. "Employee engagement is a measurable degree of employees' positive or negative emotional attachment to their job, colleagues and organization that profoundly influences their willingness to learn and perform better at work." Work engagement has been defined as "a positive, fulfilling work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli et al, 2006).

Employee engagement is a distinct and unique construct that consists of cognitive, emotional, and behavioural components that are associated with individual role performance (Saks, 2006).

There are differences between attitudes, behavior and outcomes in terms of engagement. An employee might feel proud and satisfied with the job (attitude) and be a loyal advocate of their company to clients, or go the extra mile to finish a piece of work (behavior). Outcomes may include lower accident rates, higher productivity, fewer conflicts, more innovation, higher employee retention rate, reduced sickness rates, satisfied and loyal customers, etc. However, we believe that all three dimensions – attitudes, behavior and outcomes – are part of the engagement story. There is a virtuous circle when the pre-conditions of engagement are met when these three aspects of engagement trigger and reinforce one another. Engaged organizations have strong and authentic values, with clear evidence of trust and fairness based on mutual respect, where two ways promises and commitments – between employers and staff – are understood, and are fulfilled.

The results of a Rathy study (2011) demonstrated a positive relationship between psychological well-being and organizational commitment and its components, namely affective, continuance, and normative commitment.

Vorina (2013) study shows that the engagement of employees would increase if the satisfaction with life increased.

Vorina, David, Vrabčič-Vukotić (2013) study shows that if the development of ICT skills increase than also the employee engagement increases.

3. LEADERSHIP STYLE

Leadership is an effective approach by which a manager can establish a feeling of mutual goals and unity in a group, thereby ensuring maximum efficiency of the group. To achieve this, a manager needs to have special skills in order to understand individual and group behavior. Democratic leadership is conceptually distinct from positions of authority; rather, it is defined as the performance of three functions: distributing responsibility among the members, empowering group members, and aiding the group's decision-making process. Many, most, or all members of a group serve these functions, regularly exchanging the roles of a leader and a follower (Gastil, 1994).

Leadership style is considered to be an effective factor for employee performance and business success. In a recent research (Safi et al., 2015) based on a sample of 207 respondents, the authors found that 85.9% of the heads of health centers use consideration leadership style and managers leadership style. This approach had a positive and significant relationship with job satisfaction of employees (P -value <0.001) and a negative relationship with job burnout in staff (P -value <0.001).

The term “leadership” could be explained as a relationship between leaders and followers who undergo transformations and achieve mutual goals (Daft, 2011).

Bergh and Theron (2014) define leadership as a social process in which group processes and behaviors (such as communication and decision-making) play a role. Therefore, leadership is an influence relationship among leaders and followers who intend real changes that reflect their mutual purpose.

4. METHODOLOGY

Sample

For the purpose of this research, we selected population – residents, in a statistical region Savinjska in Slovenia. The investigated unit were people over 16 years old employed in a private enterprise or other institution. The sampling frame consisted of residents from different areas and towns in the statistical region Savinjska. The sample consists of 594 respondents - 251 (42.5%) men, 339 women (57.5%) and 4 respondents (0.7%) who did not provide information about their gender. As to the level of education of our respondents, 37 people (6.2%) had completed primary school level of education or less, 345 people (58.1%) had completed secondary school and 206 (34.7%) had finished high school level of education or more. There were 6 people (1%) who did not define their level of education. The average age of the respondents is 35.82 years (standard deviation 9.66 years). The average salary is €935.35 net (standard deviation is €339.95).

Questionnaire

The questionnaire consists of twenty-one closed-ended questions with three questions relating to demographic data (gender, age, level of education and amount of salary) of respondents. We have created a structure of the questionnaire. For the employee engagement measurement, we used the UWES-9 scale. This scale, also called the Utrecht Work Engagement Scale (UWES), is composed of 9 items and was found to have good psychometric properties, with Cronbach's α generally higher than 0.80. The UWES-9 (Schaufeli et al., 2002) questionnaire consists of 9 items: S1. At my work, I feel bursting with energy. S2. At my job, I feel strong and vigorous. S3. I am enthusiastic about my job. S4. My job inspires me. S5. When I get up in the morning, I feel like going to work. S6. I feel happy when I am working intensely. S7. I am proud of the work that I do. S8. I am immersed in my job. S9. I get carried away when I am working. We used the 5 point Likert scale for assessment: 6 – always, 1 – never.

The leadership style was measured with two claims, as shown below:

Please, add percentage points, indicating the level of the leadership style used by your immediate superior (for example 60% autocratic, 40% democratic, both the style in common must be 100%).³

³ We studied period of the last 60 days.

Management style by your immediate superior is:

a) Autocratic (all decisions are made by himself) - please add percentage points: (autocratic style): _____ %;

b) Democratic (to reach a decision by asking subordinates): please, add percentage points (democratic style): _____ %

c) I don't know.

Sample and database

Interviews (face-to-face) were carried out from January 4th, 2016 to March, 14th 2016. We interviewed friends and acquaintances. It took about 5 minutes to fill out the questionnaire. We collected 620 surveys but only 594 were analysed. 26 surveys were highly incomplete (more than half of the responses to the questions were missing), so we excluded them from the further statistical analysis.

Research methods

The collected data were analysed using the data analysis was made with the use of IBM SPSS, version 20. We have also used the Microsoft tools Word and Excel. Regarding the purpose and objectives of the research, we used ANOVA test and linear regression as statistical methods for quantitative data analysis.

Measurement instrument

We used the UWES-9 scale to measure employee engagement.

Cronbach's alpha is equal to 0.914 (Tables 1 and 2) which means sufficient reliability for measurement of the employee engagement.

Table 1: Case processing engagement. Source: *SPSS 20, Author's creation*

	N	%
Valid	587	98.8
Cases excluded	7	1.2
Total	594	100.0

Table 2: Reliability Statistics, engagement. Source: *SPSS 20, Author's creation*

Cronbach's Alpha	N of items
0.914	9

5. FINDINGS OF THE RESEARCH-TEST HYPOTHESES

The first hypothesis was tested with a model of linear regression. In the model, we chose independent variables (X-LS). The dependent variable (Y-EE) was measured as the sum of 9 factors by UWES-9. The linear regression model (1) with estimated parameters is:

$$Y = (37,524 + 0.984 X) \quad (1)$$

$n = 586$, $R\text{-squared} = 0.003$, $\text{Adjusted } R\text{-squares} = 0.001$, $\text{Standard Error} = 8.89219$. In the Model (Table 3, 4, 5) 0.3 % of total sum of squares are explained by the estimated model. Variable X ($p\text{-value} = 0.182$) is not statistically significant. The first hypothesis was rejected.

Table 3: Regression Model: $K=1$, $n=586$. Source: *SPSS 20, Author's creation*

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.055	0.003	0.001	8.89219

Table 4: Regression Model, F-test. Source: *SPSS 20, Author's creation*

Model	Sum of Squares	df	F	Sig.
Regres.	141.198	1	1.786	0.182
Resid.	46256.557	585		
Total	46397.755	586		

Table 5: Regression Model: $K=1$, $n=586$. Source: *SPSS 20, Author's creation*

	Coeff.	Standard Error	t - Stat	P-value
Inter.	37,524	0.501	74.895	0.000
X	0.984	0.736	1.336	0.182

The second hypothesis states that Slovenian leaders use mostly the autocratic style for managing employees. The hypothesis was checked by descriptive analyses.

Table 6: Descriptive analyses; leadership style. Source: *SPSS 20, Author's creation*

Leadership style	Mean (%)	St. deviation
Autocratic	60.01	21.14
Democratic	39.99	21.15

The Table 6 indicates, that Slovenian leaders use mostly (in 60.01 %) the autocratic style for managing employees.

The third hypothesis states that there is a statistically significant difference in the use of leadership style between genders. The hypothesis was checked by ANOVA test.

In the Table 7, we can see ($F(1, 513) = 0.334$, $p\text{-value} = 0.564$) that there is no statistically significant difference between genders in the use of leadership style. Therefore, the hypothesis was rejected.

Table 7: Test ANOVA-Leadership style and gender.Source: *IBM SPSS 20, Excel, Author's creation*

	Sum of Squares	df	Mean Square	F	P-value
Between Groups	150.057	1	150.057	0.334	0.564
Within Groups	230008.615	512	449.236		
Total	230158.671	513			

6. CONCLUSION

In this paper, we investigated the relationship between leadership style (X –LS) and the dependent variable Y – EE-employee engagement.

We found out that there is no correlation between employee engagement and leadership style.

Linear regression Model, with n=586 and K=1 regressor indicated that the relationship between the variables X and Y is not statistically significant at 5 % significance level. We also found that there is no statistically significant difference between genders and the use of leadership style. Furthermore, we also found that Slovenian leaders used mostly (60%) the autocratic style to manage employees.

For further research, it would be interesting to include more independent variables such as level of education, amount of salary, etc. in the linear regression model.

$$\text{Employee engagement} \neq f(\text{leadership style})$$

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