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Poštovani,

Ovaj 38. broj periodične publikacije Zbornik radova /Sarajevo Business and Economics Review (SBER) simbolično objavljujemo u godini kada Ekonomski fakultet Univerziteta u Sarajevu obilježava 68 godina postojanja i uspješnog rada.

Ovom prilikom podsjećamo da je SBER od 2007. godine uvršten u bibliografsku bazu EBSCO PUBLISHING – BUSINESS SOURCE COMPLETE (Journals & Magazines) http://www.epnet.com/titleLists/bt-journals.xls, a od 2009. godine u CEEOL (Central and Eastern European Library) bazu (http://www.ceeol.co).

Od 2011. godine Zbornik radova Ekonomskog fakulteta u Sarajevu/Sarajevo Business and Economics Review je uvršten i u ProQuest Business package platformu, kao jednu od najprestižnijih svjetskih baza podataka iz oblasti ekonomije i biznisa.

Na koncu akademske 2019/2020. godine Ekonomski fakultet u Sarajevu (EFSA) može biti ponosan činjenicom da pripada zajednici najboljih fakulteta u jugoistočnoj Evropi, o čemu svjedoče najprestižnije međunarodne akreditacije za ocjenu kvalitete: američka AACSB, evropska EPAS i austrijska AQA. EFSA može biti i sretan zbog činjenice da je, od osnivanja do danas, iznjedrio više od 25.000 alumnija, i da u svom ansamblu okuplja 60 međunarodno referentnih nastavnika.

Biti indeksiran je veliki uspjeh za Zbornik radova/Sarajevo Business and Economics Review jer nas to čini dostupnim širokoj međunarodnoj naučnoj zajednici. Za nas, to znači dodatni angažman ali i obavezu s ciljem kontinuiranog poboljšanja kvaliteta objavljenih radova.

Glavni i odgovorni urednik,
Prof. dr. sc. Jasmina Selimović, dekan Fakulteta

A word by the Editor

To Whom It May Concern,

We publish this 37th issue of periodical publication Zbornik Radova/Sarajevo Business and Economics Review (SBER) symbolically, in the year when School of Economics and Business in Sarajevo, University of Sarajevo, marks its 67 years of existence.

We use this opportunity to remind you that SBER has been a part of the bibliographic data base EBSCO PUBLISHING – BUSINESS SOURCE COMPLETE (Journals & Magazines) http://www.epnet.com/titleLists/bt-journals.xls since 2007, and a part of CEEOL (Central and Eastern European Library) data base (http://www.ceeol.co) since 2009. In 2011 SBER was also included in ProQuest Business package platform, which is one of the most prestigious world data bases in the areas of economics and business.

At the end of 2019 Sarajevo School of Economics and Business (EFSA) can be proud with the fact that it belongs to a group of the best faculties in South East Europe, and the proof for that are the most prestigious international accreditations for quality assurance: American AACSB, European EPAS and Austrian AQA. EFSA can also be satisfied with the fact that, from its establishing until today, it has produced more than 25 000 alumni, and that it has 60 internationally recognized professors in its ensemble.

It is a great success for The Collection of papers of School of Economics and Business in Sarajevo/Sarajevo Business and Economics Review to be indexed, because it makes us available to a wider international research community. For us, it means an additional engagement, but also an obligation with the aim of a continuous improvement in quality of published papers.

Editor in Chief,
Jasmina Selimović, Ph.D,

ORIGINALNI NAUČNI RADOVI

ORIGINAL PAPERS

ANALYSIS OF THE FACTOR OF SAVINGS OF PRIVATE PROFIT ENTERPRISES IN BIH BY APPLICATION OF ECM METHODOLOGY

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Abstrakt

The purpose of this research is to examine the factors that affect savings of private profit enterprises in BiH. Domestic savings as an alternative source of capital, in the opinion of most economists, is a much more reliable and rational source of investment funds. Therefore, the aim of this survey is to determine which factors can stimulate domestic savings of private profit enterprises with further growth-backs in growth and overall economic growth. Most of the analyzes are mainly macroeconomically focused on total private savings. In this way, there is no difference in the absolute and maturity of determinants of private savings, which is especially important for small, growing economies. This research investigated the impact of macroeconomic and financial determinants of savings of private profit companies on the basis of quarterly data from the Agency for Statistics of BiH and the Central Bank of Bosnia and Herzegovina for the period 2000-2016. For this purpose, the seasonalization of the variables used in the analysis by the X-13 ARIMA AND TRAMO/SEATS access. The model includes only nonstationary variables of the first order integrated, which are also coinetegrated, which is a condition for applying the Error Correction Model (ECM). The research results show that in the long run only the coefficients with the general government revenues in the previous period and the deposit interest rate of the company in the previous quarter have a statistical significance different from zero. The negative coefficient with the revenues of the general government suggests that the increase in general government revenue in the long run negatively affects the level of the enterprise's savings. The deposit interest rate of the company in the previous quarter has an unexpectedly negative impact on the level of enterprise's savings in the long run.. In the short-term part of the model, only general government revenue and expenditures have shown a statistically significant impact on savings of private profit enterprises. The relatively high value of the adjusted coefficient of determination, 0.607, suggests that almost 61% of variations in the level of private profit enterprise's savings are explained by variations in the set of independent variables included in the ECM model. The obtained research results can be significant indicators for adequate measures of BiH monetary and fiscal policies and can further be indicators for the overall macroeconomic decision of the state.

Key words: savings, econometric analysis, measures of economic policy.
JEL Classification: C32, E21

1. INTRODUCTION

Savings in a particular country are generally defined (according to Prinsloo, 2000) as the amount of funds or income produced in a particular economy over a given time period (usually a period of one year) that was not immediately used but left to be used in such a way increase returns in the observed economy in the years to come. Private savings are part of the income that remains untapped leaving the circulation income stream and is left for future consumption (Mankiw, 2007). In this paper, focus will be on private sector savings, although some empirical studies do not make a difference between household savings and savings of private profit enterprises (Kolasa and Liberda, 2015). The basic determinants of savings of private profit enterprises will be explored, following the same trend in the period 2000-2016 in Bosnia and Herzegovina on the basis of key theoretical and empirical determinants of savings, with the examination of the maternal effects of certain determinants.

Banks have a central role in financial markets in BiH, and therefore, bank deposits appear as the most common form of savings instead of investing in the capital market. If the capital market is more developed in BiH, in the sense that the state issues securities for infrastructure, holding bonds of this kind would be more cost-effective than demand deposits because it would yield higher interest rates. Thus, short money, which also includes foreign assets of banks and Central Bank reserves above obligatory reserves, transformed into investments over the capital market, ie short money would actually be a source of savings through the capital market. But precondition for this is market liquidity.

Saving in BiH, seen as the sum of long-term deposits, is growing despite the recent global financial crisis, but also the slowdown in economic growth and political instability in the country. Savings and time deposits of private profit companies are the biggest growth since 2005 to the last quarter of 2008 and the beginning of the global financial crisis. The cumulative growth of deposits in the observed period was 78.72%. The fall in savings and time deposits of private profit companies is recorded by the end of 2010. Savings and time deposits of private profit companies recorded a slight increase from 2010 to 2016, but with constant fluctuations in different changes. Through the conducted research, within this paper, there are identified factors influencing this kind of private profit enterprises savings in BiH.

The analysis is structured in five parts. After introductory remarks, a review of literature with special emphasis on scientific articles dealing with the issue of

saving factors, given that the basic economic theory of recognition income/income as the dominant saving factor. The theoretical framework of the research is given below, with potential theoretical and empirical contributions. The most important part of the paper is an overview of empirical results. In this section, the methodology of the research was first presented, and then the evaluation results of the set model. In the end, concluding considerations with summarized research results are given.

2. LITERATURE REVIEW

Within the research empirical studies, it is possible to notice a large number of determinants of different character that choose to save, such as the following groups: financial determinants (deposit interest rate, financial market development, stock market development), demographic determinants (population dependent, expected life expectancy, urbanization rate), education and employment (education level, form of employment), government policy (public revenues and expenditures, public savings/budget deficits, forms of social assistance), income, macroeconomic uncertainty (inflation, CPI changes), external factors import prices, balance of current account, balance of trade. The above mentioned studies are using different methodologies, with or without testing the relative effect of individual saving factors, by pointing out the direction and strength of the relationship between the observed phenomenas.

In accordance with most of the work savings, the economy is under the influence of GDP as a dominant factor recognized by economic theory, but also under the influence of financial variables, such as government revenue and expenditure, volumes of money, fluctuations in interest rates, deposit interest rates and the like. These variables will be included in the model of this research and will be reviewed below by empirical studies that consider these variables. These variables also met the criteria for applying ECM methodology.

The interest rate is the most significant "auxiliary" variable in the Friedman and Keynes model. Interest rate can affect savings in a variety of ways. On the one hand, there is a substitution effect, whereby the growth in interest rates increases current costs in relation to future consumption, causing growth in savings. Savings thus appear as current substitutions for future consumption.

On the other hand, an income effect may arise where the rise in interest rates may discourage savings as a result of the desire to receive the same amount of money in the coming period, or there will be a reduction in public savings in

countries with high public debt. The effect of "human wealth" may also arise, because the change in interest rates means changing the present value of future work expectations of individuals. The direction of influence is the same as in the substitution effect.

The strength and impact of the interest rate impact on savings on this may be different. Certain empirical studies highlight the positive effects of interest rate on savings both in developed and developing countries. Nicholas (200), and Chaudhry, Riaz, Farooq, and Zulfiqar (2014), using autoregressive distributed lag (ARDL) and error correction (ECM) methodologies determine that higher interest rates mean greater savings. The applied methodology has enabled to prove the importance of the interest rate impact on savings in both long and short term.

Other studies point out the negative effect of the interest rate on savings. Thanoon and Baharumshah (2005) show that the interest rate has a short-term negative impact on savings in Latin American countries. Authors applied the unit root and cointegration test to check the impact of interest rate on savings. Kolasa and Liberda (2015) use a regression method to determine the negative impact of interest rate on savings in Poland but weak positive influence on OECD countries. Several analyzes have determined that the interest rate has no significant impact on savings, such as Bhandari, Dhakal, Pradhan and Upadhyaya (2007).

Central government policy can have an impact on savings in various forms, whether through fiscal policy provisions or public savings, which is a significant implication of Keyne's theory. Neoclassical life cycle models show that reducing government savings lead to increased consumption and reduced aggregate savings by shifting tax burdens from current to future generations. By contrast, the Keynes model argues that higher aggregate savings temporarily reduce public savings. Ricardian's theory argues that the growth of public savings does not have a significant impact on total national savings, as the growth of public savings leads to a reduction in private savings in the same amount. There is a large number of empirical works dealing with this topic.

Nicholas (2007), Shaikh and Sheikh (2013), and Esmail (2014) point out that government spending reduce savings, especially if they are expressed in the form of public debt growth. The lifecycle hypothesis also points out the negative impact of reducing public savings on private, as consumption is growing that discourages growth in savings. Pradeep and Pravakar (2009), with their study, have confirmed that public savings have a significant impact on private savings.

The strictly defined postulates of Ricardian's theories are contradicted by Ozcan, Gunay and Ertac (2003), where empirical research has found that public savings do not tend to "outgrow" the private. Chaudhry et al. (2014) using the ARDL and ECM methodology show that the budget deficit has a negative impact on savings both in debt and short term, while budget revenues are a negative function of short-term savings and a positive debt function.

One of the most frequently quoted variables that expresses the development and depth of financial markets is the degree of monetization of the economy, measured as a ratio of M2 (money plus quasi-money) and GDP (Ozcan, Gunay and Ertac, 2012). This variable is included in this research model. Certain empirical studies show that the degree of monetization has only a positive impact on savings such as: Park and Shin (2009), Sahoo and Dash (2013), and Bayar (2014), while Horioka and Yin (2010) point out the negative impact of financial development to save. Nwachukwu and Odigie (2009) use the ECM to determine that there is no long-term impact of financial development on savings.

Since the unemployment rate in BiH is expressed, then this variable will also be included in the model, and empirical work (Athukorala and Tsai 2003) also confirms the significance of the impact of unemployment on savings.

3. THE THEORETICAL FRAMEWORK

Economic theories explicitly analyze two saving theories, namely: the hypothesis of permanent income and the life cycle hypothesis. Both theories fall into the category of neoclassical economic theories, which are characterized by certain common assumptions: the observed entities are rational beings who want to maximize their satisfaction and minimize their dissatisfaction with the personal utility of spending; there is little difference between income and assets (assets); economic resources provide financing for consumption; observers should make a choice between present and future consumption, where it is believed that such decision is a product of autonomous, stable preferences.

The permanent income hypothesis (Friedman, 1957) makes a distinction between permanent (an income that is expected to be stable and to last in the future, which is actually the average income) and the transient part of income (income whose existence is not expected in the future, which is actually deviation from the average income level). According to this theory, the observed subjects are faced with short-term and random fluctuations in income / income from year to year.

However, Frideman's theory points out that only lifelong, permanent income (expected, long-term income) is the determinant of consumption and savings, not the current income. The exception to this is the emergence of more permanent, longer-term changes that further have significant effects on consumption. Savings occur when long-term income is expected to be lower than current income, in order to ensure even consumption. According to DeJuan and Seater (2006), a number of empirical studies confirmed this theory, while a certain number denied it. As the main problem and lack of this theory, Meghir (2004) points out the "poor" definition of permanent income, which further creates difficulties in measuring it. But, in spite of the perceived criticisms, the theory of permanent income is still current and recognized in economic literature thanks to the logical and consistent focus of the theory on intertemporal optimization of consumer behavior.

The life cycle hypothesis (Ando and Modigliani, 1963) is based on the idea of adopting a rational decision on consumption throughout life, whereby the available resources in the considered period are the only limit to be taken into account. The theory assumes that the growth of "lifelong" resources or average income is a direct, proportional function of growth of consumption in all periods of life.

According to the theory of life cycle in the period of youth there is no pronounced preference for savings, given the amount of income and high expenditures, while savings start to increase significantly in the middle age, reaching their maximum in the retirement period. Further, accumulated funds start to spend from retirement to death. These assumptions have enabled the introduction of age into savings models. The mentioned theory is more significant for household savings as a component of private savings.

From this review of empirical literature it can be clearly noticed that there is no strictly determined order of magnitude and degree of influence of certain determinants on savings. The influence also depends on the cultural, political characteristics of particular economies, populations, experiences and the like. In BiH, it is likely to confirm the results for most of the underdeveloped or developing countries, considering the specificity of the cultural and political environment and the way the currency board is regulated. However, it is an indisputable role of saving in all economies, regardless of the level of development, so it is important to empirically test the factors that affect the saving of privete profit enterprises.

4. RESEARCH RESULTS

In this part of the paper, the methodology of the research that has been used will be presented and after that the results of the research.

4.1. Research methodology

When using economic indicators in the form of time series, their seasonal adjustment is necessary to exclude the effect of the season, ie to exclude short-term fluctuations in occurrence. The total variation of the time series is significantly determined by the seasonal variation of the series. Therefore, a large variant, a prognostic error, occurs in the case of neglecting the importance of seasonal influences, so it is necessary to conduct an analysis on seasonally adjusted, time-adjusted data. The application of the seasonalizing method is only directed at assessing and eliminating seasonal influences, without conducting the analysis or explaining the cause of seasonal phenomena.

For the purpose of seasonalizing data in this paper, X-13 ARIMA was used, and TREAMO SEATS methodology. The X-13 ARIMA methodology provides a number of reliefs for creating a time series model that meets regARIMA models, regression models with ARIMA errors. These are the models where the main function of the time series is expressed by a linear combination of regressors, and the covariance structure of the series is the ARIMA process. The regARIMA model is reduced to the ARIMA model if the regressors are not used, so it is assumed that the main function is equal to zero. The TRAMO/SEATS method for seasonalizing the series is also often recommended in the literature. This seasonalizing methodology, together with X-12 ARIMA, is used by Eurostat, the European Central Bank and most agencies and institutions. The greatest advantage of the method is sufficient reliability in detailed analyzes. The TRAMO program or the first phase of the TRAMO / SEATS method performs pre-adjustment of the series. At this stage, adjusting for working days is based on a regression model. During the pre-adjustment, extreme observations, oulier-i are also noticed. In the second phase, the TRAMO/SEATS method follows the seasonalization of the series.

In order to carry out a further econometric analysis after the seasonalizing of the data, it is necessary to examine the stationarity of the variables included. Stationarity is one of the most important characteristics of time series, and is a prerequisite for determining most econometric models. For some stochastic process it is valid that it is stationary if, over time, the probable properties of the

observed process are not changed. In this analysis, three unit root test probes will be used: Dickey-Fuller Test (DF)/Augmented Dickey-Fuller Test (ADF); Phillips-Perron Test (PP) and Kwiatkowski-Phillips-Schmidt-Shin Test (KPSS). ADF and PP test with zero hypothesis is the hardness of the process, while KPSS uses a zero hypothesis to claim the stationarity of the process and serves as a confirmatory analysis for the previous tests.

Johansen's approach (1988) is most commonly used for the determination of cointegration relations in econometric literature, as applied in this paper. The statistical packages used for the analysis of vector autoregressive models (VAR) contain Johansen's approach to determining cointegration relationships, although modified versions of this approach also appeared (Ahn and Reinsel, 1988, 1990). To determine the number of cointegration relationships Johansen uses two test sizes: λtrace and λmax.

The existence of long-term equilibrium among cointegrated variables does not have to mean their short-term equilibrium. Correction factors can be interpreted as errors in the cointegration equation because errors are in fact a deviation from the long-term equilibrium and need to be included in models that test the short-term dynamics of the observed phenomenon. The Error Correction Model (ECM) carries out both analyzes, both short and long-term. This model is first developed by Sargan (1984) and Engle and Granger (1987, 1991) further popularize its use in empirical analyzes. The model of this research was tested by ECM methodology.

Two software programs were used in the research: EViews 9.5 and R with numerous packages created for time series analysis.

4.2. Seasonalized data

Before estimating the quarterly model savings model, it is necessary to seasonize, if at least one of the variables has a season. Two approaches to the seasoning of time series known as X13-ARIMA and TRAMO/SEATS are used in the literature, as applied in this research. The results show that both approaches to seasonalizing give almost identical results for the selected parameters. Due to such seasoning results, it was decided to use only the last version of the first X13-ARIMA program for further analysis of variables in this work.

4.3. Unit root tests in seasoned sequences

Checking the hypothesis that seasonal variables have unit roots was performed using the augmented Dickey-Fuller (ADF test) and Phillips-Perron test (PP test). At both of these tests, the zero hypothesis is that the variable has a unitary root. The advantage of the Phillips-Perron test in relation to other unit root tests is that it does not require the inclusion of additional dependent variables, as is the case with most other tests. In addition, an additional advantage is that the Phillips-Perron test is not based on the assumption of the functional form of the error variable because it is a nonparametric test.

Also, Kwiatkowski-Phillips-Schmidt-Shin test (KPSS test) was used. The zero hypothesis of Kwiatkowski-Phillips-Schmidt-Shin's test is that the series is stationary. Given the weak power of these tests in small samples, ie short time series, the results for the three tests are shown below, in order to verify the robustness of the results. With the augmented Dickey-Fuller test, Schwarz's selection criteria for the displacement lag were used. The Phillips-Perron and Kwiatkowski-Phillips-Schmidt-Shin assays used a spectral evaluation method with the Barteltt core and Newey-West bandwidth.

The results of three tests do not yield unambiguous results. The decision on who the order of integrity of the variable is based on the test results as well as the visual revision of the time series chart. Precisely this kind of combined approach is also suggested in the literature due to the small strength of the unit root tests in the time series of lengths available in this analysis. It is a general impression that there is a general agreement between the flow of time series on its graph and the test results.

Table 1. Summary of the results of the unit root tests - the order of integration, Research results

Variable	ADF	PP	KPSS	Comment
Saving of private profit enterpises	I(1)	I(1)	I(0)	Non-stationary first order
Gross domestic product	I(1)	I(1)	I(1)	Non-stationary first order
General government revenue	I(1)	I(1)	I(1)	Non-stationary first order
General government expenditure	I(1)	I(0)	I(1)	Non-stationary first order
Money supply (M2)	I(1)	I(1)	I(1)	Non-stationary first order
Deposit interest rate of the company	I(1)	I(1)	I(1)	Non-stationary first order
Unemployment rate	I(1)	I(1)	I(0)	Non-stationary first order

Source: Authors

When deciding which order of integrity of a particular variable has started from an extended model, which includes a constant and a trend. Then in the iterative procedure according to the methodology Enderes (1995) determined whether the variable has or not the unitary root.

It can be concluded that the decision was made on the basis of a model that includes the constant and the trend, but not in a direct way by using the Enderes process.

From the table it can be seen that all variables of the nonstationary first integer order, ie I (1). In this case, two types of models are evaluated. First, the model is modeled using the least squares method using the level of the chosen nonstationary variables. The model thus graded will give long-term interdependence among the variables. The second model would be a correction error model evaluated using the least squares method. This will get a rating of short-term dynamics among variable models. In order to check whether the private profit enterprises savings model specifications fall under this case, it is necessary to apply cointegration tests.

4.4. Cointegration tests

To apply Johansen's co-integration test, it is necessary to first determine the number of VAR model lags based on the cointegration test.

For variables in Model 1 in Table 2, the values of the criterion functions used to determine the optimal lag length are given. Three extensions (FPE, AIC, and HQ) indicate that the optimum length of the lag is 4 while the LR criterion suggests a 3-second lag. "The most desirable" is the SC criterion which suggests that the one-quarter-lag duration is optimal. This result is consistent with the results in other studies where the same criteria were used to determine the lag length in VAR models. The SC criterion always indicates the smallest number of lags.

Variables in Model 1: Private Profit Enterprises Savings, Real Gross Domestic Product, Government Income, Government Expenditures, Deposit Interest Rate, and Unemployment Rate.

Table 2. Optimum lag length in VAR model, Research results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1634.25	NA	5.92E+23	74.60	74.89	74.71
1	-1353.99	458.61	1.66E+19	64.09	66.36*	64.93
2	-1290.86	83.22	1.03E+19	63.45	67.71	65.03
3	-1218.90	71.96*	5.95E+18	62.40	68.65	64.72
4	-1128.51	61.63	2.89E+18*	60.52*	68.75	63.58*

Source: Authors

The results in the previous table show that the SC criterion suggests a one-lag VAR model specification while the remaining criterion suggests a 4-lag specification.

Given the large number of variables in these models and the relatively small number of observations, VAR models with more than 2 lag would quickly "exhaust" the available number of degrees of freedom, which would result in a reduction in the strength of the cointegration test. Therefore Johansen's cointegration test used the lag length suggested by the SC criterion (p = 1).

In order to verify the sensitivity of the cointegration test results to the selected lag length, the two-quarter lag intervals (p = 2) were repeated. The letter in Table 3 represents the rank of matrix that appears in Johansen's cointegration test, or, in other words, the number of cointegration equations for variables in a given model.

Table 3. Johansen's cointegration test for variables in Model 1, Research results

Null hypothesis	Alternative hypothesis	Test statistic		5% critical value
		$p = 1$	$p = 2$	
Trace statistics				
$r = 0$	$r \geq 1$	149.43	215.65	125.62
$r \leq 1$	$r \geq 2$	93.82	137.25	95.75
$r \leq 2$	$r \geq 3$	52.47	77.36	69.82
$r \leq 3$	$r \geq 4$	22.41	46.20	47.86
$r \leq 4$	$r \geq 5$	11.16	22.14	29.80
$r \leq 5$	$r \geq 6$	3.75	6.23	15.49
$r \leq 6$	$r = 7$	0.01	0.14	3.84
Max eigenvalue statistics				
$r = 0$	$r \geq 1$	55.61	78.40	46.23
$r \leq 1$	$r \geq 2$	41.35	59.90	40.08
$r \leq 2$	$r \geq 3$	30.06	31.16	33.88

$r \leq 3$	$r \geq 4$	11.25	24.06	27.58
$r \leq 4$	$r \geq 5$	7.42	15.92	21.13
$r \leq 5$	$r \geq 6$	3.73	6.09	14.26
$r \leq 6$	$r = 7$	0.01	0.14	3.84

Source: Authors

Among the six variables in Model 1, the maximum eigenvalue statistics identified the existence of two cointegration equations for both lag lengths at 5% significance level. This result varies in the case of trace statistics where one and three cointegration equations have been identified for the 1 and 2 quarter lag slots respectively.

When, as in this case, there is a difference in the result based on the application of the statistics of the trace and statistics of the maximum eigenvalue, several approaches were proposed when deciding on the number of cointegration equations.

According to the first, it is suggested to use the test result based on the maximum eigenvalue statistics because the statistical strength of this test is greater than the tracer's strength.

According to another approach suggested by Johansen (1992), known as the Pantule principle (Pantula, 1989), it continues to reject the zero hypothesis about the absence of cointegration as long as it can no longer be done. The version of the test that does not first reject the null hypothesis will point to the actual number of cointegration equations.

It is also suggested that the economic criterion is used when deciding on the number of cointegration equations. According to this approach, the question should be whether the economic theory postulates more than one or two long-term equilibrium relationships between variable models? If the answer to this question is negative, then the analysis with a smaller number of cointegration equations should continue, despite the fact that the tests suggest a greater number of cointegration equations.

What is more concrete in the concrete model is the fact that there is at least one cointegration equation among the variables, which means that the analysis can continue by specifying and evaluating an error correction model (ECM). The result of this will be the result of Johansen's co-integration test on the existence of two cointegration equations.

4.5. Error correction model (ECM model)

After checking the order of integrity of the variable, the error correction model was evaluated. Table 4 shows the model error correction model for Model 1 specification.

Table 4. ECM model rating, Research results

Long term		
Kointegration equation	The first cointegration equation	The second cointegration equation
Saving of private profit enterprises (-1)	1.000	0.000
Real gross domestic product (-1)	0.000	1.000
General government revenue (-1)	**-0.138** (0.029) [-4.83]	-0.109 (0.081) [-1.35]
General government expenditures(-1)	-0.026 (0.023) [-1.10]	**-0.483** (0.067) [-7.25]
Money supply (M2)(-1)	0.003 (0.002) [1.34]	**-0.101**(0.007) [-14.53]
Deposit interest rate of companies (-1)	**-127.490** (11.545) [-11.04]	**-110.940**(32.839) [-3.38]
Unemployment rate (-1)	33.609 (2.854) [11.78]	42.661(8.119) [5.25]
Constant	-1081.32	-4757.93
Short term		
Error correction	∆ Saving of private profit enterprises	∆ Real gross domestic product
The first cointegration equation	**-0.623** (0.105) [-5.95]	0.631 (0.463) [1.36]
The second cointegration equation	**0.121** (0.037) [3.25]	**-0.490** (0.165) [-2.97]
∆ Saving of private profit enterprises (-1)	0.093 (0.134) [0.69]	**1.702** (0.595) [2.86]
∆ Saving of private profit enterprises (-2)	0.082 (0.144) [0.57]	-0.810 (0.636) [-1.27]
∆ Real gross domestic product (-1)	-0.040 (0.044) [-0.92]	0.377 (0.194) [1.94]
∆ Real gross domestic product (-2)	-0.008 (0.038) [-0.22]	0.224 (0.170) [1.32]
∆ General government revenue (-1)	**-0.075** (0.018) [-4.18]	-0.021 (0.080) [-0.26]
∆ General government revenue (-2)	**-0.053** (0.019) [-2.76]	0.051 (0.084) [0.61]
∆ General government expenditures (-1)	0.020 (0.013) [1.55]	**-0.143** (0.056) [-2.55]
∆ General government expenditures (-2)	**0.018** (0.008) [2.27]	**-0.073** (0.035) [-2.11]
∆ Money supply(M2)(-1)	-0.013 (0.030) [-1.04]	**0.348** (0.134) [2.59]

Δ Money supply(M2)(-2)	-0.021 (0.034) [-0.63]	-0.042 (0.150) [-0.28]
Δ Deposit interest rate of companies (-1)	-25.473 (22.257) [-1.14]	161.532 (98.499) [1.64]
Δ Deposit interest rate of companies (-2)	3.044 (20.112) [0.15]	105.938 (89.006) [1.19]
Δ Unemployment rate (–1)	2.207 (3.948) [0.56]	-26.329 (17.470) [-1.51]
Δ Unemployment rate (-2)	-2.164 (4.014) [-0.54]	-15.355 (17.765) [-0.86]
Constant	**23.591** (8.994) [2.62]	-58.805 (39.804) [-1.48]
Determination coefficient R^2	0.750	0.635
Adjusted coefficient of determination	0.607	0.426
F-statistic	5.252	3.040
Autocorrelation LM test	52.115 (number of lags= 3) (0.354)	
Doornik-Hansen test of normality	23.409 (degree of freedom = 14) (0.054)	
White's heteroskedasticity test	902.383 (degree of freedom = 896) (0.434)	

Note: Behind the coefficient are listed asymptotic standard error and t-test statistics respectively. The coefficient that is statistically significant at level 5% is given with a bold font. The zero hypothesis for the Auto-Correction LM test is that the model's residuals are not autocorrelated; The zero hypothesis for the Doornik-Hansen test of normality is that the residuals of the model follow a multi-dimensional normal layout; The zero hypothesis for the White's heteroskedasticity test is that the model's residuals are homoskedastic.
Source: Authors

The upper part of Table 4 contains coefficients of private profit enterprises interdependencies and other long-term model variables. The bottom part of Table 4 contains the results of the error correction model, ie the coefficients of private profit enterprises interdependence and other short-term model variables.

Among the coefficients of long-term interdependencies, only the coefficients with the general government revenues in the previous period and the deposit interest rate of the private profit enterprises in the previous quarter showed statistically significantly different from zero. Both coefficients have a negative sign.

Negative coefficient with general government revenues suggests that the long-term government revenue growth negatively reflects the level of private profit enterprises savings, which is consistent with other empirical results, eg Chaudhary et al. (2014). Increasing government revenue is usually a result of higher tax collection, which is the burden on private companies and, consequently, reduces savings. The value of this coefficient of -0.138 indicates that unitary increase in general government revenue, an increase of one million

KM, will lead to a reduction of private profit enterprise's savings of 0.138 million KM.
The deposit interest rate of companies in the previous quarter has an unexpectedly negative impact on the level of long-term private profit enterprise's savings. The negative impact of interest rate on savings was also determined by Thanon and Baharmshah (2005). The one-step increase in long-term deposit interest rates would reduce the private profit enterprise's savings by 127.49 million KM. Such results could be due to inadequate determination of the stationary stability of the included variables.

The error correction coefficient (EC (-1)) in the short-term part of the model that measures the speed of adjustment of the equilibrium state in the dynamic model, is with the expected negative sign and is statistically significant. Its -0.623 value suggests that the long-term private profit enterprises savings in the current period/ quarter are offset by 62.3% in the following period/quarter. Based on this coefficient, it is calculated how many quarters needed to be fully adjusted: 1 / 0.623 * 4 = 6.4 quartals, ie about six and a quarter that the level of the private profit enterprises savings is fully supported by the long-term private profit enterprises savings.
All short-term coefficients are expected to be smaller than the corresponding long-term coefficients, suggesting that only a part of adjusting the deviation from the equilibrium state is required, that is, that adjustment requires more than one quarter. In the short-term part of the model, only general government revenue and expenditures have shown a statistically significant impact on private profit enterprise's savings.

Revenues are expected to have a positive impact on savings in the short term. Expenditures of governments have an unexpectedly positive impact on empirical studies. However, since it is a underdeveloped economy that is exposed to various turbulent and crisis phases, then Keynes's postulate that reducing public savings, increasing public spending, causes an increase in private savings components due to precaution.

Although the focus on private profit enterprises savings, ie the first cointegration equation, and the other cointegration equation, which refers to the gross domestic product, carries some useful information. In the case of this cointegration equation, the following variables have a negative impact on the gross domestic product level: general government expenditure, money (M2) and deposit interest rates.

While the first cointegration equation showed that the short-term gross domestic product does not have a statistically significant effect on the level of private profit enterprises savings, the other cointegration equation indicates a statistically significant effect of the level of private profit enterprises savings on the gross domestic product (coefficient is 1.702). In addition to short-term savings, general government expenditures and money laundering have a statistically significant impact on the gross domestic product.

The correction coefficient of error (EC (-1)) in the short-term part of the model with the other cointegration equation has the expected negative sign and is -0.49. This value of the error correction coefficient is lower than the error correction coefficient in the equation of savings, suggesting that adjustment of the equilibrium state in the dynamic model of gross domestic product is achieved after 8.2 quarters, about two quarters later than in the case of private profit enterprises equations. The value of this error correction coefficient suggests that only 49% of the long-term gross product deviation in the current period/ quarter is corrected in the next quarter.

The validity of the ECM model is evaluated using a set of statistical tests whose results are shown in the lower part of Table 4. All statistical, diagnostic tests of the rated model indicate that the ECM model is correctly specified.

Breuch-Godfrey's autocorrelation LM test suggests that model failures are not autocorrelated. White test of heteroskedasticity confirms that homoskedastic and non-correlated model residuals with independent variable models. The Doornik-Hansen test of normality points to the normal layout of the model's residuals.

The relatively high value of a custom coefficient of determination, 0.607, suggests that almost 61% of variations in private profit enterprises savings are explained by variations in the set of independent variables included in this ECM model.

5. CONCLUDING CONSIDERATIONS

This paper was focused on exploring the economy savings phenomenon in the small open economy of Bosnia and Herzegovina over a 15-year period. Economic theoretical and empirical literature does not explicitly define the influence of individual factors on savings. Most of the studies have a macroeconomic focus on total private savings, not allowing the discrepancies in the absolute and maturity of the determinants of individual categories of private

savings, which is especially important for small, growing economies. This analysis examined the impact of macroeconomic and financial factors on saving the private profit enterprises as a component of private savings.

Research results show that private profit enterprises savings in BiH are determined by: the revenues and expenditures of the goverment and the deposit interest rate.

Government revenue is a negative function of long-term savings of companies. The unit's increase in general government revenue will lead to a reduction of private profit enterprises savings of 0.138 million KM in the long run. Sources of government revenue are to a large extent different forms of tax and other fiscal allocations. The higher tax burden on Bosnian-Herzegovinian profit companies is expected to result in lower savings since significant funds have to be allocated to the state so there is little funds on savings. In BiH, there is a marked trend of tax changes, changes in the existing tax rates or the introduction of new taxes, so increasing tax changes are perceived in the future, which leads to a reduction of long-term private profit enterprises savings.

Government expenditures are a positive function of saving only in the short term. The unit increase in government expenditures causes growth of private profit enterprises savings of 0.018 million KM. Government expenditures are an indicator of public spending or investment. If the government of BiH invests in investment then it leads to a growth of private profit enterprises savings on the short term because state investments ensure that the economy has enough resources to save. Due to the characteristics of the Bosnian-Herzegovinian political situation, there are no pronounced expectations that the state's investment will continue in long-term investments, so this determinant does not have an impact on long-term private profit enterprises savings. The increase in government expenditures can be interpreted both as growth of the incomes of the population, but again for short-term income because it is unlikely that this trend will continue in the future in BiH. If the population has more income then it will spend more and buy goods and services that companies produce, so the private profit enterprises has enough resources to increase savings and thus accumulate capital for the next period.

The deposit interest rate has a negative impact on savings and only in the long term. The one-step increase in long-term deposit interest rates would reduce the private profit enterprise's savings by 127.49 million KM. This can be justified by the fact that in foreign companies operating in BiH there is a lack of confidence in

the domestic banking sector and the accentuated business risk. This further causes even rising savings with rising interest rates. The negative impact of interest rates could be interpreted through the kenisian model of inflation and interest rates, but inflation in BiH is not high, so the most likely reasons for the negative impact of the interest rate on private profit enterprises savings are political uncertainty and the risk of business conditions. Also majority-owned enterprises can withdraw funds from the countries where they have higher trust, so that the growth in interest rates in BiH causes a reduction in private profit enterprises savings if more favorable terms of savings are achieved in the country. The available funds are withdrawn from BiH and sent abroad, leading to a reduction in the savings of the Bosnian-Herzegovinian economy.

The obtained results have achieved the objectives of the research, the influence of individual factors on private profit enterprises savings are examined and the results obtained can be put into the function of making strategic decisions both at the macroeconomic level and at the business level of the banks in which the majority of private profit enterprises savings are realized in BiH.

The theoretical contribution of this research is reflected in the analysis of the existing models and the doctrine of savings. These models do not yield unambiguous results regarding the categorical and routine effects of individual savings factors. Analyzing the existing theoretical and empirical models of savings, the distinctions between a number of factors in savings models were noticed.

The practical contribution of the research is multidimensional. By proving the intensity of the effects of certain determinants on savings in BiH, and examining the maturity of these factors, it can be helpful to create appropriate strategies for the development of the state's financial and economic sectors.

A special practical contribution of research is from the point of view of business operations of the commercial financial sector (banks or specialized savings institutions), ie marketing in this area where the marketers of the mentioned financial institutions knowing the most investing factors can provide an adequate choice of marketing strategy and/or market stratum, or managers of these institutions can determine the optimal business strategy.

The greatest limitation in writing was the availability and quality of data for carrying out empirical research, whether it was not to track individual variables for the BiH economy, whether the included variables had a significant number of

missing data over a considered period of time or had different methodologies of data processing. However, by using available statistical methods of imputation of missing data, and by contacting competent statistical and financial state institutions, while respecting the procedures for obtaining non-public information, limitations have been overcame.

In the follow-up, it would be useful to conduct an identical research over a number of years to find out whether the time series length had any impact on the results. It would also be useful to include demographic data in savings models, which was not possible because of the briefness of the data series. Significantly, comparative analysis with similar economies would be carried out in order to make more general conclusions.

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COMPARISON OF STRUCTURAL EQUATION MODELLING AND MULTIPLE REGRESSION TECHNIQUES FOR MODERATION AND MEDIATION EFFECT ANALYSIS

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Abstrakt

Multiple regression (MR) is a well-recognized technique that has been widely used since the beginning of the 20th century in which the period has been continuously developed and improved. On the other hand, structural equation modeling (SEM) has become a common technique among researchers, especially in social sciences. It is known as the second generation multivariate method. SEM, in relation to MR, allows not only testing the relationship between independent and dependent variables but also estimates measurement models and structural models. In this regard, the primary objective of this paper is to compare structural equation modeling and multiple regression analysis for interaction effect and mediation analysis purposes. The study of the moderating impact implies verifying that a third (moderating) variable affects the strength or direction of the relationship between an independent and dependent variable. On the other hand, the analysis of the mediation impact refers to verifying that the third variable (mediator) mediates the relationship between an independent and dependent variable. This paper empirically compares the structural equation modeling and multiple regression analysis by testing the moderating effect of environmental turbulence on the relationship between a firm's innovation and business performance; and by examining the mediation influence of innovation between environmental turbulence and firm's business performance. In this study, the sample included companies in B&H and respondents were managers. A questionnaire consisting of measurement indicators adopted from previous studies was used to collect data. For all questions, a seven-point Likert scale with "Strongly disagree" to "Strongly agree" anchoring the scales. Although the study does not indicate significant differences in the use of MR and SEM when the results of the estimation of moderating and mediating influence are concerned, some empirical limitations of MR as a statistical technique widely used in management and similar social research are supported. The results emphasize the benefits of SEM that relate to the assessment of simultaneous impacts and relationships of multiple variables at once, as well as the possibility of incorporating latent constructs into the analysis. In this way, a better understanding of the use of two popular methods, SEM and MR, in management research is provided. Besides, a comparison of the assumptions of these techniques is presented, as well as the obtained results and conclusions. The expected contribution of this paper is a deeper understanding of the relationship between SEM and multiple regression analysis when it comes to testing the influence of moderating and mediating variables.

Keywords: *structural equation modeling, multiple regression, SEM, MR, innovation*
JEL Classification: C4

1 INTRODUCTION

Structural equation modeling (SEM) has become a common statistical technique for testing the theory in a series of academic disciplines (Nusair and Hua, 2010). On the other side, multiple regression (MR) is a well-recognized technique that has been widely used since the beginning of the 20th century in which the period has been continuously developed and improved. SEM, in relation to MR, allows not only testing the relationship between independent and dependent variables but also estimates measurement models and structural models (Hair *et al.*, 2014). In this regard, the primary objective of this paper is to compare structural equation modeling and multiple regression analysis. Since some of the earlier studies confirmed the consistency of the results using these two techniques in testing relationships between variables, this paper aims to test the moderation and mediation effect. Specifically, this study aims to compare SEM and MR analysis results for interaction effect and mediation analysis. The analysis of the moderating impact implies verifying that a third (moderating) variable affects the strength or direction of the relationship between an independent and dependent variable. On the other hand, the analysis of the mediation impact refers to verifying that the third variable (mediator) mediates the relationship between an independent and dependent variable.

Besides, this study aims to check the results in light of the intervalist perspective of the Likert scale. Considering the long-standing debate on the Likert scale as an ordinal or interval, our goal was to compare the results of these two techniques in mediation and moderation effect analysis adopting intervalist perspective on the Likert scale. The intervalists consider the Likert scale as interval if the concept is measured with multiple indicators (Carifio and Perla, 2008) while ordinalist treat it exclusively as an ordinal.

Hence, this paper empirically compares the structural equation modeling and multiple regression analysis by testing the moderating effect of environmental turbulence on the relationship between a firm's product innovation and business performance; and by examining the mediation influence of product innovation between environmental turbulence and firm's business performance. In other words, this paper offers researchers, primarily those in social science, guidelines on the selection of an adequate methodology for data analysis when using the Likert scale and more indicators for measuring a particular concept.

2 LITERATURE REVIEW

2.1 Multiple Regression Analysis (MR) and Structural Equation Modelling (SEM)

Multiple regression is an analysis technique of over 100 years old and is commonly used in the testing of interactions between variables (Pearson and Lee, 1908). It is believed to bridge the gap between correlation and variance analysis in hypothesis testing (Nusair and Hua, 2010). MR is becoming more and more popular since 1967. The multiple regression analysis follows a three-step process: 1) model specification based on existing theory; 2) model identification; and 3) model estimation, i.e., calculating regression weights for independent variables (Nusair and Hua, 2010). The results of multiple regression show the total explanatory power of all predictor variables with R^2 measures together with the relative importance of individual predictors after calculating b coefficients (Hair *et al.*, 2014). One of the more recent and more sophisticated statistical analyses is the structural equation modeling (SEM), which can be used to estimate complex models and to determine the direct and indirect relationships of several independent and several dependent variables (Musil, Jones and Warner, 1998). Besides, SEM enables the testing of relationships between latent constructs, i.e., multi-items constructs (Diamantopoulos and Siguaw, 2000; Hair *et al.*, 2014; Keith, 2014). The path analysis is used to estimate indirect causal links in theoretical models (Musil, Jones and Warner, 1998). Hershberger (2003) examined the development of the SEM from 1994 to 2001, and the main conclusions are that SEM has become a prominent multivariate method of data analysis with both the number of journals that publish articles using the SEM approach and the number of articles employing SEM increasing. SEM analysis follows six steps: 1) defining individual constructs; 2) developing the measurement model; 3) designing a study to produce empirical results; 4) assessing the measurement model reliability and validity; 5) specifying the structural model; and 6) estimating the structural model (Hair *et al.*, 2014).

To compare MR and SEM, we should start from the main point that both techniques are multivariate data analysis techniques. SEM represents a general linear model and can be considered valid only if certain assumptions are fulfilled (Weston and Gore, 2006). However, Byrne (2013) lists the following aspects of the SEM that distinguish it from other multivariate data analysis techniques:

- SEM is a confirmatory rather than an exploratory approach to data analysis. In other words, it is necessary that relationships between the observed variables are defined in advance, and that they have the theoretical foundation and justification.

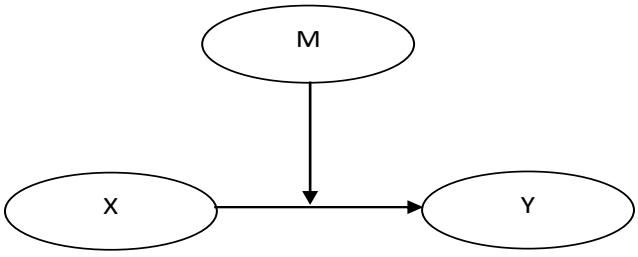
- SEM allows error estimation.
- SEM allows analyzing observed (manifest) variables, as well as unobserved (latent) variables.
- SEM represents the most straightforward technique for analyzing and modeling of indirect effects.

The fundamental difference between SEM and other multivariate techniques is the ability of SEM to evaluate a series of separate, but interdependent, multiple regression equations at the same time. In other words, SEM allows the analysis of complex relationships expressed through hierarchical or non-hierarchical, recursive, or non-curricular structural equations in order to present complete images of the entire model (Gefen, Straub and Boudreau, 2018). SEM allows estimation of the measurement error, and it represents the combination of factor analysis with hypothesis testing (Gefen, Straub and Boudreau, 2018).

2.2 Moderation Effect Analysis

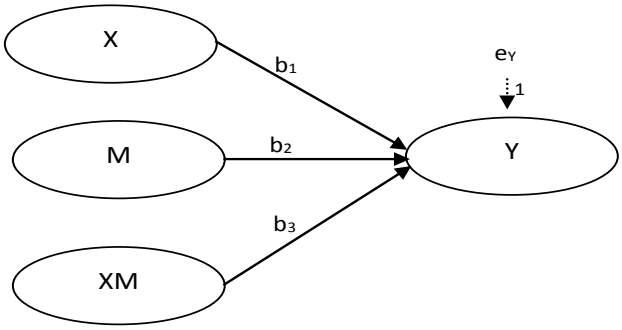
The interaction effect exists when the influence of an independent variable on the dependent variable changes, depending on the value of one or more moderating variables (Muller, Judd and Yzerbyt, 2005; Dalal and Zickar, 2012; Hayes, 2012; Keith, 2014). In other words, moderation exists when the relationship between the two variables is not the same at different levels of the third variable. Testing the moderation effect of a particular variable in the literature is treated as the interaction effect of the independent and moderating variables on the dependent variable (Jaccard, Wan and Turrisi, 1990; Jaccard and Wan, 1995; Jaccard, Wan and Jaccard, 1996; Allison, 2002). The conceptual diagram of the moderating effect of variable M on the relationship between variables X and Y is presented in Figure 1 (Hayes, 2013).

Figure 1. Conceptual diagram of moderation effect



However, statistically, the model should be tested as presented in Figure 2.

Figure 2. Statistical diagram of moderation effect



A standard regression equation without an interaction:

$Y = b_0 + b_1X + b_2M + e_1$
Y - dependent variable
b_0, b_1, and b_2 - regression coefficients
X and M - independent variables
e_1 – error term.

The very regression equation with an interaction:

$Y = b_0 + b_1X + b_2M + b_3XM + e_1$

XM – interaction variable (product of X and M) while b_3 estimates how much the effect of X on Y changes as M changes by one unit.

2.3 Mediation Effect Analysis

An analysis of mediation is a statistical method used to test the indirect influence of an independent variable (X) on the dependent variable (Y) through the mediation variable (M). In other words, the causal chain is analyzed in which one variable affects another variable that, in turn, affects the third variable (Hayes, 2009). An analysis of the mediation effect can be carried out using the SEM method, but also the regression analysis. Besides, there is the PROCESS procedure in the SPSS (the "bootstrap" test of the indirect effect) proposed by

Preacher and Hayes (2004) that allows testing both moderation and mediation effects.

Mediation involves three or more variables, so there is a causal relationship between all three variables. In mediation, there is a direct effect between the independent variable and the dependent variable. There are also relationships between an independent variable and a mediating variable, as well as between the mediator and the dependent variable (MacKinnon, 2008). The conceptual diagram of the mediation effect can be presented as shown in Figure 3 (statistical diagram is shown in Figure 4) adopted from Hayes (2013).

Figure 3. Conceptual diagram of the mediation effect

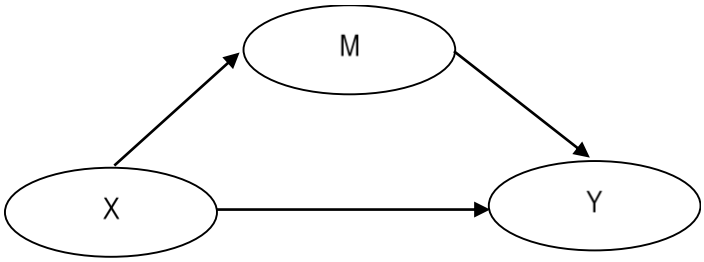
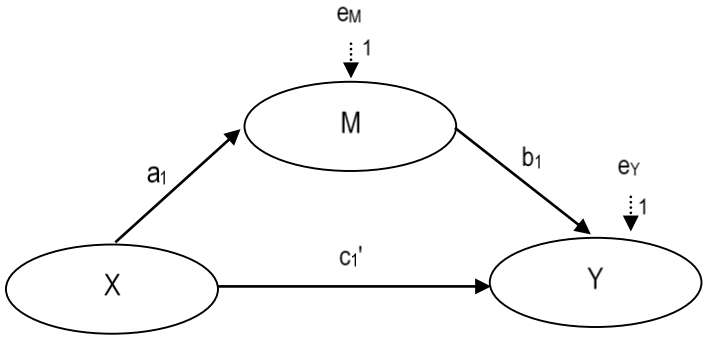


Figure 4. Statistical diagram of the mediation effect



The indirect effect of X on Y through M is estimated by a_1b_1, meaning the product of the effect of X on M and the effect of M on Y controlling for X (Hayes, 2012). The indirect effect can be presented with the equation:

$$Y = i_y + c_1'X + b_1M + e_y \text{ (M can be estimated from X as } M = i_M + a_1X + e_M)$$

Indirect effect estimates how much two cases differing by a unit on X are estimated to vary on Y as a result of the impact of X on M, which in turn affects Y (Hayes, 2012).

Mediation effect is tested in three steps (Baron and Kenny, 1986):

1. The influence of the independent variable on the dependent variable (X → Y) is tested, i.e., path c.
2. The influence of an independent variable on the mediation variable (X → M) or the path a_1 is tested.
3. The influence of an independent variable on the dependent variable (X → Y, the path c') and the mediation variable on the dependent variable (M → Y, the path b_1) are tested.

According to Baron & Kenny (1986), mediation effect testing can result in one of three results:

- No mediation - if the paths a_1 or b_1 are not statistically significant, there is no mediating influence.
- Partial mediation - a result in which all relationships are statistically significant, that is, the direct influence of the independent variable on the dependent variable is statistically significant as well as the mediation effect. In other words, a_1, b_1 and c' paths are statistically significant.
- Full mediation - there is an indirect statistical significant effect, but not a direct effect. In other words, by including a mediating variable, the relationship between the X and Y variables weakens, while X → M and M → Y will result in statistically significant relations. In other words, if the a_1 and b_1 paths are significant, and c' does not differ significantly from zero, the effect is said to be perfect mediation.

3 EMPIRICAL RESEARCH

To compare SEM and multiple regression through the testing of mediation and moderation analysis, the following hypotheses will be tested.

- *Environmental turbulence moderates the relationship between product innovation and a firm's business performance.*
- *Product innovation mediates the relationship between environmental turbulence and the firm's business performance.*

Since the aim of this study is the comparison of statistical techniques of data analysis, the theoretical background of the hypothesis will not be addressed (see Tsai and Yang (2013, 2014) and Turulja and Bajgoric (2018)).

3.1 Measurement Scales and Data Collection Process

The measurement model for product innovation (PROD) was created using four indicators proposed by (Ellonen, Blomqvist and Puumalainen, 2008). The measurement scale for environmental turbulence (ET) is considered as a second-order latent construct comprising three first-order dimensions: market turbulence (MT), technological turbulence (TT) and competitive intensity (CT) and eight indicators in total. The indicators are adopted from (Kmieciak, Michna and Meczynska, 2012). Finally, the first-order measurement scale for business performance (BP) with four indicators is adopted by Chen et al. (2009). All indicators were scaled on a seven-point Likert scale (1 – strongly disagree to 7 – strongly agree). The data was collected using the survey technique and online software LimeSurvey. The questionnaire was filled out by managers of BH companies selected using random sampling technique from the register of companies of the Foreign Trade Chamber of BiH. The sample consists of 427 companies: 7% of micro companies, 39% of small companies, 39% of medium-sized companies and 15% of large companies.

4 RESULTS

The use of parametric methods on the Likert scale is the topic of many discussions among scholars (Norman, 2010; Wu and Leung, 2017). However, when it comes to specific scientific fields (e.g., business, psychology, health, etc.), it is generally accepted that the Likert scale can be treated as an interval scale (Wu and Leung, 2017; Wadgave and Khairnar, 2016). The argument for this is that "*a multi-item Likert scale consists of interval quality data even when individual Likert response items are ordinal data*" (Wigley, 2013). In other words, the measurement scale which consists of more items measured with a Likert scale should be treated as an interval. (Norman, 2010) stated, "*Analyzing a single Likert item, it should also be noted, is a practice that should occur only rarely*". In this respect, Hair *et al.* (2014) recommends that a measurement scale of a certain phenomenon must have a minimum of 3 measurement indicators. In line with this, Owuor (2001) states that It is assumed that the underlying latent variable of indicators measured by Likert scales is continuous.

Furthermore, to create a composite variable, the approach of summing or calculating the mean value of the individual indicators can be used. In both

cases, both a summed composite score or a mean composite score should be treated as an interval scale (Norman, 2010; Wadgave and Khairnar, 2016). According to (Albaum, 2018), Likert scale "*was intended as a summated scale, which was then assumed to have interval properties*". In line with this, Joshi *et al.* (2015) confirm that combining items in order to generate a composite score is an interval scale. Besides, Ferguson (1941) noted that Likert used an interval scale which was constructed by the Thurstone (1929) as a basis for his work. There are certainly advantages and disadvantages in using the Likert scale as an interval scale, but many authors agree that the controversy can be solved by increasing the number of points (Wu and Leung, 2017).

After confirming the validity of measurement models, the data examination for the multivariate data analysis techniques' assumptions (Hair *et al.*, 2014) has been conducted. Confirmatory Factor Analysis (CFA) was employed to verify the reliability and validity of the measurement models. A total of three measurement models were analyzed, including a model of product innovation, model of environmental turbulence and a model of business performance. CFA revealed reliability and both convergent and discriminant validity of all three measurement scales. We then tested data for heteroscedasticity using the Breusch–Pagan test and found evidence of heteroscedasticity in our data. Collinearity was verified by checking the variance inflation factor (VIF) for each of the latent variables confirming no problem of multicollinearity of data. The results of Shapiro-Wilk indicate that the data are not entirely distributed normally. However, for further analysis, the Maximum Likelihood (ML) estimation method in SEM will be used, and many scholars have confirmed the robustness of the ML method on the deviation of data from the assumption of normality in multivariate techniques (Fuller and Hemmerle, 1966; Diamantopoulos and Siguaw, 2000; Nwabueze, Onyeagu and Onyedikachi, 2009). Hence, the analysis is performed using Lisrel 8.8 which default estimation technique is ML.

4.1 Testing the Moderating Effect of Environmental Turbulence

SEM analysis

There are constrained and unconstrained approaches in SEM analysis of the interaction effect (Steinmetz, Davidov and Schmidt, 2011). In this paper, the residual cantering unconstrained approach is adopted. This interaction effect testing process should be conducted through the following steps:

1. The model with X, Y and Z variables should be estimated whereby Z variable is treated as an independent variable. The model should fit the data well.
2. Indicators of X and Z variables should be multiplied.
3. The obtained indicators should be regressed to all indicators of X and Z variables, whereby the non-standardized residuals of analysis are saved.
4. The model estimation should be conducted, whereby the indicators of the interaction term are residuals saved in the previous step. The error covariance between interaction term indicators having the same elements should be allowed to correlate.

The same steps are performed in both SEM and regression analysis. There is no essential difference, except in the model fit estimation. Goodness-of-Fit (GoF) indices are primary indicators of model fit, while in regression, model in general (R2) should be significant.

In accordance with the steps presented, the following analysis has been conducted:

1. In the first step, the structural model with product innovation (PROD) and environmental turbulence (ET) as independent variables is tested. The estimated structural model fitted the data very well ($\chi 2$ = 188.637, df = 98, RMSEA = 0.0466, CFI = 0.983, SRMR = 0.0587).

Table 1. SEM analysis estimation

Dependent variable	*Independent variable*	*Path coefficient*	*t – value*
Business	← Product innovation	0.564***	8.845
Business	← Environmental turbulence	-0.132*	-1.816

***p-value<0.01; **p-value<0.05; *p-value<0.1

2. In the interaction effect analysis, each independent variable indicator should be multiplied with each indicator of a moderating variable to create a third interaction variable. Therefore, to transform the second-order model of ET to the first-order model, it was decided to create composite variables out of dimensions of the environmental turbulence variable. The latent construct of the second order has been transformed into the first-order construct by calculating the mean value, thus obtaining one indicator that represents the first-order factor (Bandalos, 2002). There are two ways to create composite variables, averaging and meaningful grouping by

summing (Song *et al.*, 2012). Certain authors recommend aggregating variables in SEM analysis, especially if data is not normally distributed (Finch, West and MacKinnon, 1997; Hutchinson and Olmos, 1998). Hair et al. (2014) note that summated scales can be directly incorporated into multiple regression and address the problematic measurement error (p. 168). As a result, ET variable consists of three indicators obtained by calculating the mean value out of indicators of MT, TT and CT dimensions.

Then, 4 indicators of PROD and 3 indicators of ET are multiplied with 12 new variables created.

3. The obtained indicators are regressed to all indicators of PROD and ET constructs, whereby the non-standardized residuals of analysis are saved. Upon completion of this step, the database contained 12 new variables labeled RES_1 - RES_12.
4. The model was estimated, whereby the indicators of the interaction term were RES_1 - RES_12. The error covariance between INTERACTION variable indicators having the same elements are allowed to correlate. In other words, error covariance between the indicators that share the same information are freed (i.e., error covariance of indicator obtained by the multiplication of PROD01 and MT is set to correlate freely with the indicators that involve PROD01 or MT, etc.). Besides, the interaction term is set to be uncorrelated with both the independent variable and the mediator variable. In this model, the variables PROD, ET and INTERACTION were independent variables, while BP is a dependent variable.

Table 2. Path analysis estimation with the interaction effect

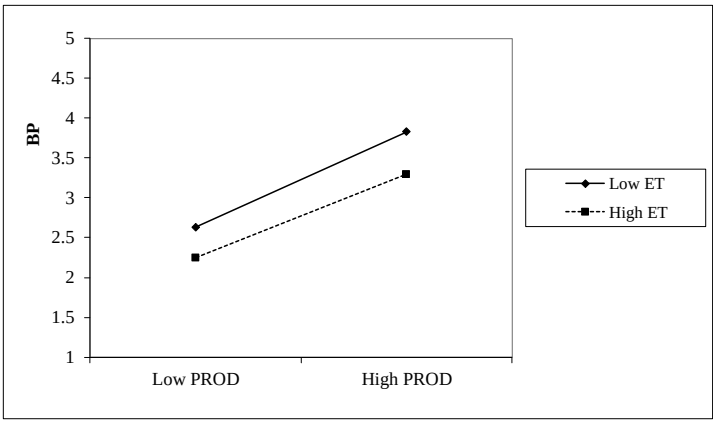
Dependent variable	*Independent variables*	*Path coefficient*	*t – value*
Direct effect			
Business	← Product innovation	0.561***	8.906
Business	← Environmental turbulence	-0.128*	-1.795
Interaction effect			
Business	← INTERACTION	-0.005	-0.0940

***p-value<0.01; **p-value<0.05; *p-value<0.1

The interaction effect is plotted in Figure 5. High and low degrees of PROD and ET are entered as one standard deviation above and below mean (Wakslak, 2012). Results indicate that product innovation influences business performance

positively while environmental turbulence affects business performance negatively. The moderating impact of environmental turbulence has not been proved as significant. In other words, higher levels of environmental turbulence will not contribute to the more significant effect of PROD on BP. That is, the impact of PROD on BP does not depend on ET.

Figure 5. Diagram of an interaction effect (SEM analysis)



Regression analysis

To test the same model using regression analysis, we should make composite variables out of all three constructs, PROD, ET, and BP. The composites were obtained by calculating the mean values of the indicators of the specific dimension (Song *et al.*, 2012).

1. We first analyzed the model with PROD and ET as independent variables.

Table 3. MR analysis results

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
PRODm	0.477	0.0414	0.523	11.537	0.000
ETm	-0.198	0.0639	-0.140	-3.091	0.002

***p-value<0.01; **p-value<0.05; *p-value<0.1

Multiple regression was conducted to predict business performance based on the firm's product innovation and environmental turbulence. A significant regression equation was found (F = 67.167, p<0.000). Both PROD and ET are significant

predictors of BP, and 24.1% of BP is explained with PROD and ET. In social behavioral science studies, the R2 value of 0.25 consider as "*a proper coefficient of determination and means that x is accounting for a quarter of the variance in y*" (Cohen, 1988, p. 533; Ozer, 1985). Cohen (1988) suggested that, unlike natural sciences, R2 of 0.26 in social/behavioral sciences represents a large effect size. There are many studies in social and behavioral sciences reporting R2 between 0.2 and 0.3 and claiming it as acceptable explanatory capacity (e.g., Gregory, Ngo and Karavdic, 2017; Palacios-Marqués, Merigó and Soto-Acosta, 2015; Kristiansen and Indarti, 2004). Besides, the regression analysis can provide predictions and explanations to the researcher (Hair *et al.*, 2014, p. 164). Most of the social studies aim to explain rather than predict, or to examine "*the magnitude, sign, and statistical significance of the regression coefficient for each independent variable*" (Hair *et al.*, 2014).

2. Then, PRODm and ETm variables are multiplied.
3. The obtained indicator is regressed to PRODm and ETm variables, whereby the non-standardized residual of analysis is saved. Upon completion of this step, the database contained new variables labeled RES_13.
4. The model was estimated with PRODm, ETm and RES_13 (INTERACTION) as independent and BPm as the dependent variable.

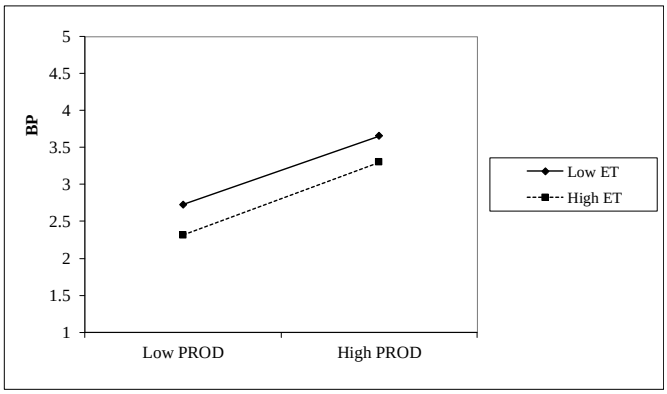
Table 4. MR analysis results with the interaction effect

	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
PRODm	0.477	0.0414	0.523	11.525	0.000
ETm	-0.198	0.0640	-0.140	-3.087	0.002
INTERACTION	0.0130	0.0394	0.014	0.331	0.741

A significant regression equation was found ($F = 44.721$, $p<0.000$). Both PROD and ET are significant predictors of BP. However, ET is not the moderator of the relationship between PROD and ET. 24.1% of BP is explained with PROD and ET. The interaction effect can be plotted as shown in Figure 6.

The diagram shows that business performance is highest when product innovation is high and environmental turbulence is low. On the other hand, business performance is lowest when innovation is low, and environmental turbulence is high. The moderating effect of turbulence is not statistically significant.

Figure 6. Diagram of an interaction effect (MR analysis)



SEM vs. MR Results of Moderation Effect Analysis

In summary, to test the hypothesis that the environmental turbulence moderates the relationship between product innovation and organizational business performance, SEM and multiple regression analyses were conducted. In the first step, two variables were included in the model, product innovation and environmental turbulence. These variables accounted for a significant amount of variance in business performance, $R^2 = 0.241$. To avoid potentially problematic high multicollinearity with the interaction term, the residual centering approach has been used to test the interaction effect. Then, the interaction term between product innovation and environmental turbulence was added to the regression model, which did not account for a significant proportion of the variance in business performance. Hence, the hypothesis is not supported.

Table 5 summarizes the results of SEM and MR analysis. The coefficients and conclusions of the hypotheses testing are very similar, whether SEM or regression analysis is employed. However, the MR results of the level of significance in relation to the model analyzed using the SEM technique differ.

Precisely, ET according to SEM technique affects BP at the level of significance of 10%, while regression showed a level of significance of 1%. In both cases, 24.1% of the BP variance is explained by product innovation and environmental turbulence, while there is no moderating effect of environmental turbulence. In other words, there is no difference in testing the proposed model and hypothesis.

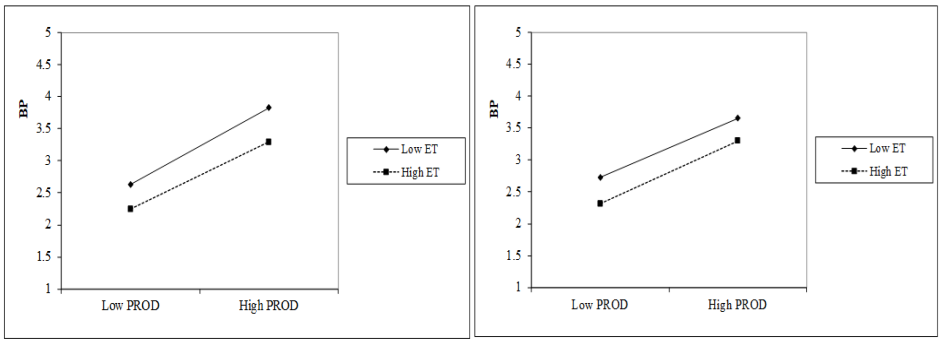
Table 5. Comparison of SEM and MR analysis results

Dependent variable	*Independent variables*	*SEM analysis Beta (t-value)*	*Regression analysis with mean composites Beta (t-value)*
Direct effect			
Business performance	← Product innovation	0.561*** (8.906)	0.523*** (11.525)
Business performance	← Environmental turbulence	-0.128* (-1.795)	-0.140*** (-3.087)
Interaction effect			
Business performance	← INTERACTION	-0.005 (-0.0940)	0.014 (0.331)

***p-value<0.01; **p-value<0.05; *p-value<0.1

The diagram below shows the interaction effects diagrams.

Figure 7. Comparison of interaction effect diagrams (SEM vs. MR)



4.2 Testing the Mediating Effect of Product Innovation

Mediation impact was tested in three steps, in accordance following the recommendations of Baron and Kenny (1986) (results are presented in Table 6):

1. The influence of the independent variable on the dependent variable (ET → BP) is tested.
2. The influence of an independent variable on the mediation variable (ET → PROD) is tested.
3. The influence of an independent variable on the dependent variable (ET → BP) and the mediation variable on the dependent variable (PROD → BP) are tested.

In mediation testing, relationships among variables must satisfy all of the following conditions (Baron and Kenny, 1986):

1. the independent variable must affect the dependent variable,
2. the independent variable must affect the mediator,
3. the mediator must influence the dependent variable.
4. the effect of an independent variable on the dependent variable must be reduced after controlling the impact of the mediator.

SEM analysis

The mediation effect of PROD between ET and BP is analyzed following steps proposed by (Baron and Kenny, 1986).

Table 6. Path analysis of the mediation effect

Dependent variable	*Independent variables*	*Path coefficient*	*t – value*
First step			
Business	← Environmental turbulence	0.139**	2.116
Second step			
Product innovation	← Environmental turbulence	0.509***	6.469
Third step			
Business	← Product innovation	0.564***	8.845
Business	← Environmental turbulence	-0.132*	-1.816
Product innovation	← Environmental turbulence	0.509***	6.448

***p-value<0.01; **p-value<0.05; *p-value<0.1

The results indicate the significance of all three observed relationships. When it comes to the direct impact of ET on BP in the first step in relation to the same relationship in the third step, we can conclude that there has been a change. However, in order to check whether a statistically significant change arises, we can use the Sobel test (Sobel, 1982). In other words, to determine whether the variable mediator significantly carries the influence of an independent variable on the dependent variable, we employed the Sobel test which was recommended by Baron and Kenny (1986). Hence, the result ($z = 5.210$, $p<0.00$) provides support for the partially mediating role of PROD between ET and BP. In other words, the effect of environmental turbulence on business performance emerges both directly and indirectly through product innovation. This is evident from the decomposition of the effects obtained in the third step and presented in Table 7;

direct effect is negative (β = -0.132, p<0.1) and indirect effect is positive (β = 0.287, p<0.01).

Table 7. Decomposition of effects

Path	Unstandardized coefficients (t-values)			Standardized coefficients		
	Total Effect	Direct Effect	Indirect Effect	Total Effect	Direct Effect	Indirect Effect
PROD → BP	0.562*** (8.845)	0.562*** (8.845)		0.564	0.564	
ET → PROD	0.852*** (6.448)	0.852*** (6.448)		0.509	0.509	
ET → BP	0.259** (2.374)	-0.220* (-1.816)	0.479*** (5.133)	0.155	-0.132	0.287

***p-value<0.01; **p-value<0.05; *p-value<0.1

Regression analysis

The same steps of mediating impact analysis were carried out using composite variables and regression analysis. The results are shown in Table 8.

Table 8. MR analysis results of the mediation effect

Step		Unstandardized Coefficients		Standardized Coefficients	t - value	Sig.
		B	Std. Error	Beta		
1	ETm → BPm	0.0662	0.0683	0.047	0.968	0.333
2	ETm → PRODm	0.553	0.0700	0.358	7.894	0.000
3	ETm → BPm	-0.198	0.0639	-0.140	-3.091	0.002
	PRODm → BPm	0.477	0.0414	0.523	11.537	0.000

In the first step, a non-significant simple regression equation was found (F = 0.937, p=0.334) with an R^2 of 0.002. In the second step, a significant regression equation was found (F = 62.320, p<0.000), and the third step revealed a significant regression equation (F = 67.167, p<0.000) with 24.1% of the BP variance is explained by product innovation and environmental turbulence. Again, the Sobel test has been employed, and the result (z = 6.515, p<0.00) provides support for the partially mediating role of PROD between ET and BP.

SEM vs. MR Results of Mediation Effect Analysis

The results confirm that the conclusions of the hypotheses testing are very similar, whether SEM or regression analysis is employed.

Table 9. Comparison of SEM and MR analysis results

Dependent variable	*Independent variables*	*SEM analysis* *B (t – value)*	*Multiple regression* *B (t – value)*
First step			
Business	← Environmental turbulence	0.139** (2.116)	0.047 (0.968)
Second step			
Product innovation	← Environmental turbulence	0.509*** (6.469)	0.358*** (7.894)
Third step			
Business	← Product innovation	0.564*** (8.845)	0.523*** (11.537)
Business	← Environmental turbulence	-0.132* (-1.816)	-0.140*** (-3.091)
Product innovation	← Environmental turbulence	0.509*** (6.448)	

***p-value<0.01; **p-value<0.05; *p-value<0.1

However, in step 1 of the mediation model, the F-test of overall significance of regression model was non-significant, i.e., the model does not fit the data. On the other side, SEM results revealed the model with an acceptable fit and significant relationship. Based on this result, we can conclude that by aggregating the scale we lost a certain part of the information and that the SEM technique in a model with a smaller number of variables is more appropriate. However, since the aim of this paper is to analyze the mediation and moderation influence of the observed variables, we will not deal more closely with the problem of this model. Step 2 revealed that the regression of environmental turbulence on product innovation, the mediator was significant. Step 3 of the mediation process showed that the mediator controlling for environmental turbulence was significant. Step 4 showed that controlling for product innovation, environmental turbulence scores predicting business performance changed. A Sobel test was employed, and the result showed partial mediation in the model. In other words, the results imply that product innovation partly mediated the relationship between environmental turbulence and business performance. Partial mediation means that both direct and indirect effects of environmental turbulence on business performance are significant. Interestingly, results imply negative direct impact and positive indirect impact. The higher turbulence will produce a lower business performance. However, higher product innovation will neutralize the negative effect of environmental turbulence. This type of mediation is considered *competitive mediation*, the mediation that occurs when a mediated effect and a direct effect exist in parallel, pointing in opposite directions (Busse, Mahlendorf and Bode, 2016; Nitzl, Roldan and Cepeda, 2016). Hence, the hypotheses can be considered confirmed.

5 CONCLUSION, LIMITATIONS, AND RECOMMENDATION

This paper aimed to compare the results of SEM and MR analysis in testing the mediation and moderating effect. Recent research has shown the consistency of these two techniques in hypothesis testing. However, bearing in mind the long-standing debate on the Likert scale as an ordinal or interval variable, our goal was to check the results of these two techniques in mediation and moderation effect analysis adopting intervalist perspective on the Likert scale. Namely, scholars have split into an ordinalist - those who treat the Likert scale exclusively as an ordinal; and intervalist - who consider this scale to be interval if a concept is measured with multiple indicators (Carifio and Perla, 2008). Intervalists make the difference between the Likert scale and the Likert type scale (Wigley, 2013; Boone and Boone, 2012).

Two hypotheses have been tested which have a theoretical justification but which are not addressed in this paper. When it comes to testing moderating effects, SEM technique and residual centering unconstrained approach, as well as MR with the composite scores based on the mean value of indicators were employed. SEM technique and MR were also used to analyze the mediation effect following the steps proposed by Baron and Kenny (1986).

The results of this study indicate that there is no difference in the results of mediation or moderation impact testing, whether using multiple regression or SEM analysis. Although the study does not indicate significant differences in the use of MR and SEM, some empirical limitations of MR as a statistical technique widely used in management and similar social research are supported. The results emphasize the benefits of SEM that relate to the assessment of simultaneous impacts and relationships of multiple variables at once, as well as the possibility of incorporating latent constructs into the analysis.

Besides, it is important to highlight, when it comes to the interpretation of coefficients in MR, special attention is needed. Namely, since it is a mean scale of indicators, the coefficients are difficult to interpret. We could conclude that in the use of regression for composite variables measured by the Likert scale, the objective is to check the statistical significance of theoretically hypothesized relationships rather than the interpretation of the coefficients. This is in line with Jaccard, Wan and Turrisi (1990) claiming that transformations do not affect the test of statistical interaction, but they do affect the interpretability of regression coefficients. Besides, SEM can directly accommodate measurement error, but

using summated scales can mitigate it when using multiple regression (Hair *et al.*, 2014).

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EXAMINATION OF THE IMPACT OF HOUSEHOLD INCOME ON EXPENDITURE ON CLOTHING AND FOOTWEAR IN BOSNIA AND HERZEGOVINA AND SERBIA

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Abstrakt

The subject of this research is the examination of the impact of household income on expenditure on clothing and footwear in Bosnia and Herzegovina and Serbia. Our aim is to quantify the impact of income as the main explanatory variable as well as of selected socioeconomic and demographic household characteristics on expenditure of Bosnian and Serbian households on clothing and footwear. This research is based on data obtained from the 2015 Household Budget Surveys in Bosnia and Herzegovina and Serbia. The surveys were carried out using the uniform methodology developed by the Statistical Office of the European Union (EUROSTAT). Apart from the descriptive analysis which includes a comparative overview of the structure of household expenditure in Bosnia and Herzegovina and Serbia in the observed year, this paper also uses some classical statistical methods and methodological instruments as components of econometric analysis based on a model formulated as a single linear regression equation and other functional forms of Engel functions which, by applying adequate transformations, can be reduced to a linear form. The impact of household income on expenditure on clothing and footwear was examined by means of six different functional forms of Engel's demand equations. The socioeconomic and demographic household characteristics were introduced into the classical linear regression model by means of dummy variables whose impact was quantified both separately and in interaction with income, as the main explanatory variable. The results of this analysis are a reflection of estimates of the significance of the impact that household income has on the share of expenditure for the observed group of products in the overall household expenditure as well as the estimates of the impact of socioeconomic and demographic factors, estimates of Engel elasticity and other sample indicators relevant for the testing of the initial research hypothesis.

Keywords: *p*ersonal consumption, Engel functions, household budget survey, income elasticity
JEL classification: C21, C51, D10, D12

1. INTRODUCTION

Within the analysis of family budgets, several researchers studied the dependence of expenditure on clothing and footwear on the household income. Even though the Second Engel's Law implies that expenditure on clothing and footwear increased at approximately the same pace as the household income (Engel, 1857), empirical research carried out so far has confirmed this law in a relatively small number of countries. In Malaysia, this law was confirmed by Yusof and Duasa (2010) who analysed a sample of 2.649 households participating in the 2007/2008 Expenditure Survey using the Engel model

$$W_{ij} = \beta_{0i} + \beta_{1i} \ln(X_j) + \beta_{2i} [\ln(X_j)]^2 + \varepsilon_{ij} \quad (1)$$

where W_{ij} represents the share of expenditure on the i[th] group of products in the overall expenditure of the j[th] household, X_j represents the overall expenditure of the j[th] household, β_{0i}, β_{1i} and β_{2i} are the estimated parameters in the model, while ε_{ij} symbolises random error. They succeeded in proving the hypothesis that expenditures on clothing and footwear were unit elastic, i.e. they proved the hypothesis that the share of expenditure on clothing and footwear was approximately the same on all levels of household income.

The majority of studies, however, have shown that expenditure on clothing and footwear increased more rapidly than income, i.e. that households with a higher income have a higher share of expenditure on clothing and footwear than households with a lower income. Similar results were obtained by Beneito (2003) whose research was carried out in Spain in 1991 on a sample of 21.155 households. Luo and Song (2012) focused their research on China for the period from 2003 to 2008. They applied the ELES (Extended Linear Expenditure System) model

$$Y_i = p_i r_i + \beta_i (X - \sum_{i=1}^{n} p_i r_i) \quad (2)$$

where Y_i represents the overall household expenditure for the *i*[th] group of products, p_i is the price of the *i*[th] group of products, r_i is the basic demand for the *i*[th] group of products, while the mathematical expression in parentheses denotes the non-basic expenditures.

In the Czech Republic, Dybczak et al. (2014), researched the period between 2000 and 2008 using a sample of around 3.000 households on an annual level, applying the QUAIDS (Quadratic Almost Ideal Demand System) model

$$W_i = \beta_{0i} + \sum_{j=1}^{n} \gamma_{ij} lnp_j + \beta_i ln\left[\frac{X}{a(p)}\right] + \frac{\lambda_i}{b(p)}\left\{ln\left[\frac{X}{a(p)}\right]\right\}^2 + \varepsilon_i \qquad (3)$$

Using the LA/AIDS (Linear Approximation Almost Ideal Demand System) model

$$W_{it} = \alpha_i + \sum_{j=1}^{n} \gamma_{ij} lnp_{jt} + \beta_i ln\left(\frac{X_t}{P_t}\right) + \varepsilon_{it} \qquad (4)$$

where W_{it} in the period t represents the share of expenditures for the i^{th} group of products within the overall expenditure, p_{jt} represents the price of the j^{th} product in the period t, X_t the overall expenditure in the period t, and P_t the price index, Siami-Namini (2017), carried out a research in the United States of America for the period between 1989 and 2015.

Using the results of the 2015 Household Budget Surveys carried out in Bosnia and Herzegovina and Serbia, the aim of this paper is to ascertain to which elasticity category the denoted group of products belongs, i.e. to ascertain whether the expenditures on this group of products are non-elastic (E<1), unit elastic (E=1) or elastic (E>1). In other words, the aim is to examine whether "Clothing and Footwear" in Bosnia and Herzegovina and Serbia respectively claim the status of necessary, relatively necessary or luxury goods; whether there are any differences in household expenditure patterns in Bosnia and Herzegovina and Serbia and whether there are any differences in expenditure elasticities for "Clothing" and expenditure elasticities for "Footwear".

Even though the majority of empirical studies revealed that household income was the key determinant of expenditure, i.e. that variations in the level of household income could largely explain the variability of expenditure on clothing and footwear, econometric research in this field has shown that certain socioeconomic and demographic variables also had an impact on expenditure. For example, Davies (2006) examined the effect of gender and education level of two main household members (usually husband and wife) on household expenditure patterns in Malawi. Analysing a sample of 1.350 urban, four-member households, he concluded that the share of income provided by a man in the overall household income had a significantly negative impact on expenditure on clothing, whereas the situation is reversed when it comes to the share of income provided by a woman; Sulgham and Zapata (2006) carried out a research in the

USA on a sample of 682 households of a specific structure, comprising only those households in which a married couple had one or two underage children. Using the Working-Leser logarithmic form,

$$W_i = a_i + b_i log\ X + \sum_{j=1}^{N} c_{ij} log\ p_j + \varepsilon_i \quad (5)$$

they found that the number of children in a household did not affect the relative expenditure on clothing; Al-Habashneh and Al-Majali (2014) estimated the Engel curves of household expenditure in Jordan in 2010 using the six functional forms (linear, log, semi-log, hyperbolic, log-reciprocal and Working-Leser) and data on expenditure for nine product groups used by 13.866 urban and rural households and found that household size had an effect on clothing demand; Yusof and Duasa (2010) found that the "young" population accounts for the largest share in clothing expenditure. With that in mind, one of the specific aims of this research is to examine the effects of a number of socioeconomic and demographic variables (gender, age, level of education, employment status of the head of household and the size of household) on expenditure on clothing and footwear, i.e. to examine whether uniform models may be used to quantify the net effect of income on expenditure for this group of products or is it necessary to examine the effect of income on expenditure for every household stratum defined by the head of household's gender, age, education level, employment status and by the number of household members.

The originality of this paper is reflected in the fact that for the first time, a relatively wholesome econometric analysis of household expenditure on clothing and footwear was carried out based on a large sample of data provided by the Statistical Office of the Republic of Serbia and the Agency for Statistics of Bosnia and Herzegovina. The data in question are not public; however they were made available to the authors by the above-mentioned statistical agencies to be used to scientific purposes exclusively. The originality of our research is also reflected in the usage of the functional forms of Engel's models that have not been previously used by authors from this region to quantify the effect of income[1] and socioeconomic and demographic variables on household expenditure on clothing and footwear in Bosnia and Herzegovina and Serbia. Also for the first time, a comparative analysis of income elasticities for the group "Clothing and Footwear"

[1] In order to satisfy the condition of additivity postulated by consumer demand theory in the empirical estimation of Engel curves and complete regression equation systems, data on total household expenditure was used, which is a practice in econometric consumption analysis, instead of household income data.

as well as for two main subgroups in Bosnia and Herzegovina and Serbia was carried out as part of the research.

This paper is divided into five sections. Section II presents the methodology used in the research, the basic functional forms used to estimate the parameters of the impact of income on clothing and footwear demand as well as the explanation for including the socioeconomic and demographic household characteristics in the econometric model by means of dummy variables. Section III provides a brief description of the sample and the subsamples of households around which this research was centred, from which it drew its conclusions and on which a comparative analysis was carried out in the observed countries. Section IV presents the research results, while Section V contains the conclusions and implications of the research.

2. METHODOLOGY

The theoretical model of consumer demand (or else known as the Pareto model, Slucki-Hiks-Alen model or demand model based on the ordinal preferences hypothesis) implies that the demand for a certain product is conditioned by income, price of the observed product and prices of all other products (first and foremost its substitutes and complementary products) that participate in the overall consumer demand, i.e.

$$q_i = f(p_1, \dots, p_n, X), \quad i = 1,2, \dots, n \tag{6}$$

where $p_1, \dots, p_n$ are prices, and X stands for consumer's income .

Three methodological approaches are used in the econometric analysis of consumer demand, namely:

- demand analysis using cross section data;
- demand analysis using time series data;
- demand analysis using a combination of cross section and time series data (panel)

Demand, i.e. expenditure analysis using cross data is based on an implicit assumption that prices of all products are constant $[p_1 = p_2 = \cdots = p_n = \mathcal{C}, \text{where } \mathcal{C} \text{ is the constant}$; hence, the previous model can be reduced to

$$q = f(X) \tag{7}$$

a model known as the Engel demand model, while the graphic representation of the function $q = f(X)$ is consequently known as the Engel curve to honour the memory of the German statistician who was a pioneer in the empirical research of the dependence of consumption on income.

Bearing in mind that the dependence of consumption on income is not strictly functional in an empirical, i.e. econometric examination of the impact of income on expenditure, this model is to include a random (stochastic) component ε. Thus, the previous model can be formulated as

$$q = f(X) + \varepsilon \tag{8}$$

where $f(X)$ is the systematic component and ε is a stochastic component.

Apart from the economic determinants (income and prices) which are included in the theoretical demand model, the empirical demand models (particularly those based on the analysis of structural changes in expenditure) also include the socioeconomic and demographic variables which can succinctly be expressed through Z, so that the previous model is now formulated as

$$q = f(X, Z) + \varepsilon \tag{9}$$

where $Z = (Z_1, Z_2, \dots, Z_k)$.

The functional forms used to examine the impact of income on household expenditure using a single regression equation as seen in existing empirical studies (Aitchinson and Brown (1954), Tričković (1971), Hanić (1990), Hague (2005)) are:

- $Y_i = \beta_0 + \beta_1 X_i + \varepsilon_i$ (Linear form) (10)
- $log\ Y_i = \beta_0 + \beta_1 log\ X_i + \varepsilon_i$ (Double-log or Log-log function or the constant elasticity curve) (11)
- $log Y_i = \beta_0 + \beta_1 X_i + \varepsilon_i$ (Semi-log form or Log-linear function) (12)
- $Y_i = \beta_0 + \beta_1 log\ X_i + \varepsilon_i$ (Semi-log form or Linear-logarithmic function) (13)
- $Y_i = \beta_0 + \beta_1 log\ X_i + \beta_2 X_i^2 + \varepsilon_i$ (Quadratic form or Parabola) (14)
- $Y_i = \beta_0 + \beta_1\ 1/X_i + \varepsilon_i$ (Inverse form or Hyperbola) (15)
- $log Y_i = \beta_0 - \beta_1\ 1/X_i + \varepsilon_i$ (Log-inverse form or Log-hyperbola) (16)
- $log Y_i = \beta_0 - \beta_1\ 1/X_i - \beta_2 X_i + \varepsilon_i$ (Log-log hyperbola) (17)

- $\frac{Y}{K} = \int_{-\infty}^{z} \frac{1}{\sqrt{2\pi}} exp - \frac{1}{2} t^2 dt;\ Z = log\ \beta_0 + \beta_1 log\ X$ (Integral log-normal curve) (18)
- $Y = \frac{\beta_0}{X+\beta_1}$ (First Törnquist curve or the necessary goods demand curve) (19)
- $Y = \frac{\beta_0 (X-\beta_2)}{X+\beta_1}$ (The second Törnquist curve or relatively necessary goods demand curve (20)
- $Y = \beta_0 X \frac{X-\beta_2}{X+\beta_1}$ (third Törnquist curve or luxury goods demand curve) (21)

where K marks the level of saturation, while the remaining symbols have previously been explained.

In our research we have limited ourselves to the usage of the first seven functional expenditure forms which are most frequently used in empirical, i.e. econometric examination of the impact of income on expenditure using cross section data. Monthly household expenditure on Clothing and Footwear, i.e. subgroups Clothing and Footwear is marked with Y_i, the income, i.e. the overall household expenditure with X_i, while other symbols have the usual denotation: ε_i is the stochastic term, while β_0, β_1 i β_2 represent the (unknown) population parametres to be estimated on the basis of sample observations.

The socioeconomic and demographic characteristics have been included in the linear regression model through dummy variables whose impact was quantified both in isolation and in interaction with income as the main explanatory variable. These household features, which are in fact control variables, are defined as qualitative or categorical variables whose modalities express a certain qualitative characteristic of the observation unit in the sample. Consequently, the estimated regression coefficients of control variables indicate whether the observation unit with a given characteristic has a larger or lesser effect on the dependent variable in comparison with the observation unit that lacks the given characteristic. Should an dummy variable z be included in the linear regression specification, the extended Engel model could be formulated in the following manner:

$$Y_i = \beta_0 + \beta_1 X_i + \beta_3 z + \varepsilon_i, \quad (22)$$

Including the control variable in the form of an dummy variable has important limitations as it implies that for every income level the difference in expenditure of a household with or without a certain characteristic will be constant, i.e. that the marginal increase in expenditure with the increase in income is the same in both household categories, which is a very rigid assumption in a situation when there

is an interaction between income and a certain household characteristic. In reality, the marginal increases of two household categories can differ significantly, e.g. Bosnian households with an increase in income may have a greater propensity to demand "Clothing and Footwear" than the households in Serbia. If it is expected that the marginal increase of the dependent variable, which is caused by the change of the explanatory variable, should be different in the two categories of the observation units, then the regression model will include a special component reflecting the interaction between the explanatory and the (control) dummy variable as follows:

$$z\_X = z * X \tag{23}$$

If the previously stated regression specification of the Engel curve is to include a control variable z_X, then we have

$$Y_i = \beta_0 + \beta_1 X_i + \beta_4 z\_X_i + \varepsilon_i, \tag{24}$$

In cases when an observed characteristic has more than two categories, it is possible to define more dummy variables. As a rule, in such situations, there will be one dummy variable less with regard to the overall number of categories so as to avoid perfect multicolinearity. Therefore, the regression specification of the model which includes *k* dummy variables and *k* interactions between dummy and explanatory variable can be formulated as follows:

$$Y_i = \beta_0 + \beta_1 X_i + \sum_{k=1}^{K} \beta_{3k} z_k + \sum_{k=1}^{K} \beta_{4k} z\_X_k + \varepsilon_i, \tag{25}$$

i.e. if there is a regrouping of elements with the intercept and slope of the regression curve:

$$Y_i = (\beta_0 + \sum_{k=1}^{K} \beta_{3k} z_k) + (\beta_1 + \sum_{k=1}^{K} \beta_{4k} z\_X_k) X + \varepsilon_i. \tag{26}$$

In this model, the estimated regression parameters β_0 and β_1 refer to the (sub)sample of observations that meet the condition that all the dummy variables equal zero ($z_1 = z_2 = \cdots = z_k = 0$) under the assumption that there is a significant interaction between income and at least one of the control variables z_k.

Based on the data on every individual household, we generated the following socioeconomic and demographic control variables:

1. Gender of the head of household

$$Z_{11} = \begin{Bmatrix} 1 - if\ the\ head\ of\ household\ is\ a\ male \\ 0\ - if\ the\ head\ of\ household\ is\ a\ female \end{Bmatrix}$$

2. Level of education of the head of household

$$Z_{21} = \begin{Bmatrix} 1 - if\ the\ head\ of\ household\ has\ completed\ elementary\ education \\ 0\ - for\ all\ other\ situations \end{Bmatrix}$$

$$Z_{22} = \begin{Bmatrix} 1 - if\ the\ head\ of\ household\ has\ completed\ secondary\ education \\ 0\ - for\ all\ other\ situations \end{Bmatrix}$$

$$Z_{23} = \begin{Bmatrix} 1 - if\ the\ head\ of\ household\ has\ completed\ tertiary\ education \\ 0\ - for\ all\ other\ situations \end{Bmatrix}$$

3. Age of the head of household

$$Z_{31} = \begin{Bmatrix} 1 - if\ the\ head\ of\ household\ is\ 25 - 65\ years\ old \\ 0\ - for\ all\ other\ situations \end{Bmatrix}$$

$$Z_{32} = \begin{Bmatrix} 1 - if\ the\ head\ of\ household\ is\ more\ than\ 65\ years\ old \\ 0\ - for\ all\ other\ situations \end{Bmatrix}$$

4. Employment status of the head of household

$$Z_{41} = \begin{Bmatrix} 1 - if\ the\ head\ of\ household\ is\ employed \\ 0\ - for\ all\ other\ situations \end{Bmatrix}$$

5. Size of household

$$Z_{51} = \begin{Bmatrix} 1 - two, three\ or\ four\ household\ members \\ 0\ - for\ all\ other\ situations \end{Bmatrix}$$

$$Z_{52} = \begin{Bmatrix} 1 - five, six\ or\ seven\ household\ members \\ 0\ - for\ all\ other\ situations \end{Bmatrix}$$

$$Z_{53} = \begin{Bmatrix} 1 - more\ than\ seven\ \ household\ members \\ 0\ - for\ all\ other\ situations \end{Bmatrix}$$

6. State

$$Z_{61} = \begin{Bmatrix} 1 - household\ on\ the\ territory\ of\ the\ Republic\ of\ Serbia \\ 0\ - for\ all\ other\ situations \end{Bmatrix}$$

3. DATA

As sources of data for this paper, we used the household budget surveys that were carried out in Bosnia and Herzegovina and Serbia in 2015. The year in

question represents the last year for which data are available in Bosnia and Herzegovina. The data are completely comparable bearing in mind the fact that the household budget surveys in both countries were carried out using a uniform methodology developed by the Statistical Office of the European Union (EUROSTAT).

The examination of the impact of income on the demand for the group "Clothing and Footwear" and the subgroups "Clothing" and "Footwear" was carried out using individual samples of the countries observed but also on a unified sample. When unifying two samples into one, we had to convert the Bosnian households' expenditures and income denominated in convertible marks into Serbian dinars.

In Bosnia and Herzegovina 7702 households participated in the survey, on the basis of which 1033452 households were estimated. The number of households surveyed in Serbia was somewhat smaller - 6531 households (2466316 households estimated). The profiles of respective Bosnian and Serbian households in the sample described by the average household size (2.9 and 2.8 respectively) and the share of expenditure on clothing and footwear (4.9% and 5.0%) do not differ much. Other profile dimensions defined by socioeconomic and demographic features of Bosnian and Serbian households are shown in Table 1.

Table 1. The structure of Bosnian and Serbian households in 2015

Socio-economic and demographic characteristics		B&H	Serbia
Gender of the head of household	Male	74%	69%
	Female	26%	31%
Total		100%	100%
Level of education of the head of household	No education	6%	4%
	Elementary	31%	28%
	Secondary	52%	50%
	Tertiary	11%	17%
Total		100%	100%
Age of the head of household	<25	1%	1%
	25-65	68%	64%
	>65	31%	36%
Total		100%	100%
Employment status of the head of household	Employed	40%	27%
	Not employed	60%	73%
Total		100%	100%
Size of household	1	20%	24%
	2-4	64%	62%
	5-7	15%	14%

	>7	1%	1%
	Total	100%	100%
	Belonging to the state	54%	46%
		Total	100%

Source: Authors

The first four profile dimensions shown in Table 1 refer to the characteristics of the head of household, while the remaining two refer to the household in general. It is evident that in Bosnia and Herzegovina the percentage of households whose head is a male is by 5 percentage points larger compared to the same households in Serbia. Head of household's level of education in Serbia is higher than in Bosnia and Herzegovina, e.g. the participation of households whose head completed his/her university education is 17%, while in Bosnia and Herzegovina it is 11%.

Head of household's age, which represents a metric variable measured on a ratio scale, has been included in the regression model through dummy variables by transforming this metric variable into a non-metric, qualitative, i.e. categorical variable with three age categories such as follows: younger than 25 years, between 25 and 65 and older than 65 years. It can be seen that Bosnia and Herzegovina and Serbia have an equal share of households whose heads are younger than 25 years of age. Bosnia and Herzegovina has a higher percentage of households whose head is between 25 and 65 years old, while Serbia has a higher percentage of households whose head is older than 65 years of age.

When formulating the variable "Employment status of the household head", the employed modality included only those heads who are "employed" on a full-time contract, while the unemployed modality included entrepreneurs with employed workers and entrepreneurs with no employed workers. The metric (numeric) variable "Household size" was transformed into a non-metric variable with four different values. Apart from the difference in the share of small (one-member) households in the overall number of households in Bosnia and Herzegovina and Serbia respectively, there are no differences in the relative number of the remaining three household categories in this two countries.

4. RESULTS

The impact of income on expenditure on Clothing and Footwear has been estimated using the seven forms of Engel functions (linear, double-log, linear-log,

logarithmic-linear, parabola, hyperbola and logarithmic hyperbola, whereas for the estimation of the parameter model, the method of least squares was used (OLS - Ordinary Least Squares).

Table 2 presents a comparative overview of estimated parameters of the above-mentioned functional forms with determination coefficients, p-values and income elasticities for Clothing and Footwear in 2015 for Bosnia and Herzegovina, Serbia and for the unified sample. Apart from the standard indicators, the analysis also included some alternative criteria for the validation of the models including information criteria (AIC/BIC) and residual diagnostics. As for residual diagnostics, the focus of the test is usually on correlation, heteroscedasticity and normality of residual distribution. By analysing the residual, we found that correlation and residual normality do not represent a methodological problem, which was expected bearing in mind that residual correlation is a problem which, as a rule, occurs in time series analyses, while the residual normality of the regression estimated on the basis of a large sample was also expected in line with the Central Limit Theorem. On the other hand, residual diagnostics has indicated that the estimated residuals are heteroscedastic regardless of the functional form of Engel curve used. Bearing in mind the fact that residual heteroscedasticity cannot be eliminated, the testing of statistical hypotheses was done by using the so-called Huber-White variant-covariant matrix.

Based on data presented in Table 2, we can conclude that all the functions are statistically significant in the estimated models, both in the unified sample of the two observed countries and in each of the countries respectively. Observing the unified sample, we can see that the determination coefficient is highest for the double-log form (45%), which means that income variations can account for 45% of variations when it comes to household expenditure on Clothing and Footwear. When observing the sample of Bosnian households only, the determination coefficients are almost the same in the case of linear and quadratic forms (34%), which is at the same time the highest percentage of explained variability in this sample. When it comes to the value of this indicator for the Serbian sample, the situation is almost the same - the linear and the quadratic forms have a similar determination coefficient (46%); it is noteworthy, however, that the estimated parameter of the quadratic term in the quadratic form is not statistically significant.

Table 3 presents a comparative overview of estimated parameters of the functional forms used with determination coefficients, p-values and income elasticities for the subgroup "Clothing" in 2015 for Bosnia and Herzegovina, Serbia and for the unified sample. As was previously the case too, the unified

sample had the highest determination coefficient in the double-log model (44%); in the Bosnian sample, the highest percentage of the explained variability was found in the quadratic model (31%), whereas in the case of Serbia the representative model cannot be clearly separated as the determination coefficients are nearly the same (41%) (the linear model, constant elasticity model and the quadratic model). Based on all the samples and all the forms of Engel curves the p-value is 0.000, which implies the model's statistical significance

Table 2. Estimations of Engel curves of BH and Serbian household expenditure on "Clothing and Footwear" in 2015

Engel curve	Indicator	B&H and Serbia (unified data)	Bosnia and Herzegovina	Serbia
Linear curve	Equation	$Y_i = -1934.406 + 0.076X_i$	$Y_i = -43.317 + 0.079X_i$	$Y_i = -1353.524 + 0.075X_i$
	p-value	0.000	0.000	0.000
	R^2	36%	34%	46%
	Elasticity	1.537	1.631	1.463
Double-log Curve	Equation	$logY_i = -6.107 + 1.274logX_i$	$logY_i = -3.119 + 1.033logX_i$	$logY_i = -6.994 + 1.348logX_i$
	p-value	0.000	0.000	0.000
	R^2	45%	32%	43%
	Elasticity	1.274	1.033	1.348
Log-linear curve	Equation	$logY_i = 7.143 + 0.000X_i$	$logY_i = 3.610 + 0.000X_i$	$logY_i = 6.588 + 0.000X_i$
	p-value	0.000	0.000	0.000
	R^2	34%	27%	36%
	Elasticity	0.000	0.000	0.000
Linear-log curve	Equation	$Y_i = -51927.297 + 5060.236logX_i$	$Y_i = -641.691 + 100.894logX_i$	$Y_i = -39287.04 + 3923.803logX_i$
	p-value	0.000	0.000	0.000
	R^2	25%	24%	38%
	Elasticity	1.380	1.481	1.317
Quadratic curve	Equation	$Y_i = -1133.909 + 0.058X_i + 0.000X_i^2$	$Y_i = -24.382 + 0.056X_i + 0.000X_i^2$	$Y_i = -1708.646 + 0.086X_i - 0.000X_i^2$
	p-value	0.000	0.000	0.000
	R^2	36%	34%	46%
	Elasticity	1.173	1.156	1.677
Inverse curve	Equation	$Y_i = 6459.25 - \frac{1.29E+08}{X_i}$	$Y_i = 124.369 - \frac{50968.671}{X_i}$	$Y_i = 5326.820 - \frac{8.964e+07}{X_i}$
	p-value	0.000	0.000	0.000
	R^2	11%	11%	20%
	Elasticity	0.476	0.532	0.518
Log-inverse curve	Equation	$logY_i = 9.187 + \frac{62063.095}{X_i}$	$logY_i = 5.330 + \frac{1140.096}{X_i}$	$logY_i = 8.880 + \frac{53467.628}{X_i}$
	p-value	0.000	0.000	0.000
	R^2	39%	26%	38%
	Elasticity	0.837	0.811	0.921

Source: Authors

Table 3. Estimations of Engel curves of BH and Serbian household expenditure on "Clothing" in 2015

Engel curve	Indicator	B&H and Serbia (unified data)	Bosnia and Herzegovinian	Serbia
Linear curve	Equation	$Y_i = -1534.609 + 0.053X_i$	$Y_i = -34.710 + 0.057X_i$	$Y_i = -817.49 + 0.046X_i$
	p-value	0.000	0.000	0.000
	R^2	31%	30%	41%
	Elasticity	1.636	1.750	1.434
Double-log curve	Equation	$logY_i = -5.397 + 1.181logX_i$	$logY_i = -3.013 + 0.977logX_i$	$logY_i = -5.401 + 1.172logX_i$
	p-value	0.000	0.000	0.000
	R^2	44%	30%	41%
	Elasticity	1.181	0.977	1.172
Log-linear curve	Equation	$logY_i = 6.885 + 0.000X_i$	$logY_i = 3.345 + 0.000X_i$	$logY_i = 6.430 + 0.000X_i$
	p-value	0.000	0.000	0.000
	R^2	35%	27%	33%
	Elasticity	0.000	0.000	0.000
Linear-log curve	Equation	$Y_i = -35313.001 + 3432.791logX_i$	$Y_i = -451.936 + 70.749logX_i$	$Y_i = -24192.901 + 2418.975logX_i$
	p-value	0.000	0.000	0.000
	R^2	21%	20%	40%
	Elasticity	1.430	1.545	1.298
Quadratic curve	Equation	$Y_i = -641.924 + 0.033X_i + 0.000X_i^2$	$Y_i = -15.271 + 0.034X_i + 0.000X_i^2$	$Y_i = -952.044 + 0.050X_i - 0.000X_i^2$
	p-value	0.000	0.000	0.000
	R^2	33%	31%	41%
	Elasticity	1.019	1.044	1.559
Inverse curve	Equation	$Y_i = 4253.457 - \frac{8.579e+07}{X_i}$	$Y_i = 84.358 - \frac{34943.931}{X_i}$	$Y_i = 3314.011 - \frac{5.537e+07}{X_i}$
	p-value	0.000	0.000	0.000
	R^2	9%	8%	18%
	Elasticity	0.482	0.543	0.512
Log-inverse curve	Equation	$logY_i = 8.791 + \frac{57840.083}{X_i}$	$logY_i = 4.973 + \frac{1066.778}{X_i}$	$logY_i = 8.430 + \frac{47735.306}{X_i}$
	p-value	0.000	0.000	0.000
	R^2	37%	24%	35%
	Elasticity	0.780	0.759	0.822

Source: Authors

Table 4. Estimations of Engel curves of BH and Serbian household expenditure on "Footwear" in 2015

Engel curve	Indicator	B&H and Serbia (unified data)	Bosnia and Herzegovina	Serbia
Linear curve	Equation	$Y_i = -399.796 + 0.022X_i$	$Y_i = -8.607 + 0.022X_i$	$Y_i = -536.032 + 0.028X_i$
	p-value	0.000	0.000	0.000
	R^2	21%	18%	34%
	Elasticity	1.289	1.386	1.458
Double-log curve	Equation	$logY_i = -4.138 + 1.051logX_i$	$logY_i = -0.489 + 0.621logX_i$	$logY_i = -4.492 + 1.070logX_i$
	p-value	0.000	0.000	0.000
	R^2	37%	16%	36%
	Elasticity	1.051	0.621	1.070
Log-linear curve	Equation	$logY_i = 6.91 + 0.000X_i$	$logY_i = 3.634 + 0.000X_i$	$logY_i = 6.412 + 0.000X_i$
	p-value	0.000	0.000	0.000
	R^2	26%	13%	28%
	Elasticity	0.000	0.000	0.000
Linear-log curve	Equation	$Y_i = -16614.296 + 1627.445logX_i$	$Y_i = -189.756 + 30.146logX_i$	$Y_i = -15094.140 + 1504.829logX_i$
	p-value	0.000	0.000	0.000
	R^2	17%	15%	29%
	Elasticity	1.286	1.351	1.349
Quadratic curve	Equation	$Y_i = -491.986 + 0.025X_i - 0.000X_i^2$	$Y_i = -9.111 + 0.023X_i - 0.000X_i^2$	$Y_i = -756.602 + 0.035X_i - 0.000X_i^2$
	p-value	0.000	0.000	0.000
	R^2	21%	18%	34%
	Elasticity	1.464	1.449	1.823
Inverse curve	Equation	$Y_i = 2205.793 - \frac{4.355e+07}{X_i}$	$Y_i = 40.011 - \frac{16024.740}{X_i}$	$Y_i = 2012.810 - \frac{3.426e+07}{X_i}$
	p-value	0.000	0.000	0.000
	R^2	8%	7%	15%
	Elasticity	0.464	0.511	0.529
Log-inverse curve	Equation	$logY_i = 8.791 + \frac{57350.991}{X_i}$	$logY_i = 4.675 + \frac{800.804}{X_i}$	$logY_i = 8.233 + \frac{48300.055}{X_i}$
	p-value	0.000	0.000	0.000
	R^2	34%	14%	33%
	Elasticity	0.774	0.570	0.832

Source: *Authors*

Table 4 contains the same elements as the Tables 2 and 3 with estimates of Engel expenditure curves for Bosnian, Serbian and unified households for the subgroup "Footwear" in 2015. As was the case with the group "Clothing and Footwear" and the subgroup "Clothing", the log-log form is also representative for the subgroup "Footwear" in the unified sample ($R^2 = 37\%$). As for the Bosnian sample, the explanatory power of the model is somewhat lower for the subgroup "Clothing", where the highest determination coefficient is 18% (in the linear and quadratic models), while in Serbia the double-log form stands out, its explained variability being 36%.

Information criteria are not listed in the Tables 2-4 as their value was lowest in the double-log form in all the cases, which is conditioned by the fact that in certain households there were no expenditures on the observed group of products and hence our software package opted to omit those observations from the sample.

Based on the estimations of income elasticities of the unified sample, it can be concluded that household expenditures on “Clothing and Footwear”, as well as for "Clothing" and "Footwear" respectively were increasing more rapidly than income. In the case of Bosnia and Herzegovina, the estimated income elasticities vary from 1.156 to 1.631 and therefore, it can be concluded that in Bosnia and Herzegovina "Clothing and Footwear" belongs to the group of luxury goods.

Income elasticity of expenditure on "Clothing" in Bosnia and Herzegovina is 1.044, which means that the demand is also elastic. This is also the case with "Footwear", with the exception that income elasticities are 1.386 (linear form), and 1.449 (quadratic form). Observing the estimations of income elasticities on the Serbian sample, a conclusion can be drawn that the demand for "Clothing and Footwear" in 2015 was elastic, as was the case with the subgroups "Clothing" (income elasticities were 1.434, 1.172 and 1.559 for the linear, double-log and quadratic forms respectively) and "Footwear" (1.070). However, a general conclusion can be drawn that the demand for Clothing and Footwear in Bosnia and Herzegovina and in Serbia in 2015 was elastic. Similar results were obtained by Beneito (2003) in Spain, Luo and Sung (2012) in China, Dybczak et al. (2014) in the Czech Republic, as well as Siami-Namini (2017) in the Unites States of America.

In order to test the hypothesis of the unit elasticity of expenditure on "Clothing and Footwear" and for "Clothing" and "Footwear"

$$H_0\colon \beta_1 = 1, \text{i.e.} \qquad H_1\colon \beta_1 \neq 1$$

we used the WALD F significance test, applying it with the double-log form[2] and concluded that (see Table 5) that income elasticities were statistically significantly different from 1 for Clothing and footwear in Serbia but also in the unified sample, while in the case of Bosnia and Herzegovina we lack arguments to reject the null hypothesis $H_0\colon \beta_1 = 1$, i.e. the income elasticity is statistically significantly different from 1. Similar conclusions were reached when we analysed the income elasticities for "Clothing", whereas for "Footwear", the WALD F test has shown a statistical significance in all the territorial scopes. Hence, we are to conclude that the demand for "Footwear" was not unit elastic, i.e. that expenditure on "Footwear" does not increase at the same pace as income.

Table 5. WALD significance test for income elasticities of Bosnian and Serbian household expenditure on Clothing and Footwear

Indicator	BH and Serbia (unified data)			Bosnia and Herzegovina			Serbia		
	Clothing and footwear	Clothing	Footwear	Clothing and Footwear	Clothing	Footwear	Clothing and footwear	Clothing	Footwear
Income elasticity	1.274	1.181	1.051	1.032	0.977	0.621	1.348	1.172	1.070
Wald F test	314.10	137.34	7.20	1.71	0.76	141.21	263.34	69.29	7.16
p-value	0.0000	0.0000	0.0073	0.1909	0.3832	0.0000	0.0000	0.0000	0.0075

Source: Authors

The impact of socioeconomic and demographic characteristics on Bosnian and Serbian household expenditure for the product group "Clothing and Footwear" and subgroups "Clothing" and "Footwear" has been estimated on the grounds of the Household Budget Surveys that were carried out in 2015 using a uniform methodology.

[2] To test the unit elasticity of expenditure hypothesis using the Wald F test, a double-logarithmic form was used because the parameter with the logX variable represents the income elasticity of household expenditure for the group and both subgroups. In addition, we had in mind that, according to both information criteria, the double-logarithmic form best represents the dependence of expenditures for the observed group and subgroups of expenditures on household income.

Table 6. The impact of the head of household's gender on expenditure on "Clothing and Footwear" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of the basic modality	Regression coefficient of the control modality
		Female head of household	Male head of household
Bosnia and Herzegovina	Intercept	-43.317***	5.190
	Slope	0.079***	-0.020
Serbia	Intercept	0.075***	143.629
	Slope	-1353.524***	-0.007

Source: Authors

Table 6 presents the estimated values of indicators of the impact of head of household's gender on expenditure on Clothing and Footwear in Bosnia and Herzegovina in 2015, based on which we can conclude that the gender of the head of household is an irrelevant demographic household characteristic for the product group Clothing and Footwear in Bosnia and Herzegovina and Serbia.

Table 7. The impact of head of household's level of education on expenditure on "Clothing and Footwear" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of the basic modality	Regression coefficient of the control modality	Regression coefficient of the control modality	Regression coefficient of the control modality
		No education	Primary education	Secondary education	University education
B&H	Intercept	-43.317***	-15.289	-11.303	-43.872*
	Slope	0.079***	0.023*	0.022*	0.051***
Serbia	Intercept	0.075***	78.419	-20.918	-449.324
	Slope	-1353.524***	-0.009	-0.004	0.011

Source: Authors

The estimations of the impact of the head of household's education level on expenditure on Clothing and Footwear are given in Table 7. We can generally conclude that the education of the head of household is partially significant in Bosnia and Herzegovina, both in terms of the initial value of expenditure and in terms of the interaction with income. In Serbia, however, no impact of this control variable was recorded either in terms of the initial level of expenditure or in terms of interaction with income.

Table 8. The impact of the head of household's age on expenditure on "Clothing and Footwear" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of the basic modality	Regression coefficient of the control modality	Regression coefficient of the control modality
		Younger than 25	Between 25 and 65 years of age	Older than 65
B&H	Intercept	-43.317***	-83.511**	-78.419*
	Slope	0.079***	0.031	0.018
Serbia	Intercept	0.075***	970.521	558.045
	Slope	-1353.524***	-0.039**	-0.037**

Source: Authors

Table 8 shows the estimations of the impact of head of household's age on expenditure on clothing and footwear in Serbian and Bosnian households in 2015.A significant impact of the head of household's age variable at the initial level of expenditure has been identified in Bosnia and Herzegovina, while in Serbia the impact of this variable is significant only in interaction with income. Moreover, as the head of household's age increases, the demand for clothing and footwear decreases.

Table 9. The impact of the head of household's employment status on expenditure on "Clothing and Footwear" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of the basic modality	Regression coefficient of the control modality
		Unemployed	Employed
B&H	Intercept	-43.317***	-4.081
	Slope	0.079***	0.019*
Serbia	Intercept	0.075***	408.182
	Slope	-1353.524***	0.006

Source: Authors

Table 9 shows the impact of head of household's employment status on expenditure on Clothing and Footwear. The impact of this variable was evident only in the case of Bosnia and Herzegovina, whereas in Serbia the observed variable was not significant in 2015.

Table 10. The impact of the household size on expenditure on "Clothing and Footwear" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of the basic modality	Regression coefficient of the control modality	Regression coefficient of the control modality	Regression coefficient of the control modality
		One-member households	Households with two, three or four members	Households with five, six or seven members	Households with more than seven members
B&H	Intercept	-43.317***	12.754	11.985	-61.667
	Slope	0.079***	-0.013	-0.007	0.038
Serbia	Intercept	0.075***	-883.899***	-481.797	-1729.964
	Slope	-1353.524***	0.030***	0.034***	0.062***

Source: Authors

The impact of the size of household on expenditure on Clothing and Footwear in Bosnia and Herzegovina and Serbia in 2015 is presented in Table 10. The size of the household has no impact on expenditure on Clothing and Footwear in Bosnia and Herzegovina. In Serbia, however, this demographic characteristic had an impact on expenditure in the sense that with the number of household members increasing, the expenditure on Clothing and Footwear also increased.

The impact of socioeconomic and demographic household characteristics has been estimated using the same methodology that was used to estimate expenditure on the subgroup "Clothing" for both samples in 2015. The results are presented in Appendix Tables 1-5.

By measuring the impact of the member of household's gender on expenditure on "Clothing", we came to the conclusion that there were not significant differences in the initial level of expenditure, nor in the interaction of dummy variable with income.

Table 12 presents the impact of the head of household's level of education on expenditure on "Clothing" in Bosnia and Herzegovina and Serbia in 2015. The age of the head of household has a significant impact in the initial level of expenditure in Bosnia and Herzegovina. Thus, as the head of household's age increases, the expenditure on "Clothing" decreases. The head of household's employment status has a significant and positive impact on the expenditure on "Clothing" in Bosnia and Herzegovina and Serbia in 2015, which implies that the initial level of expenditure is higher in households in which the head of the

household is employed (see Appendix Table 4). Household size has either a partially significant or a significant impact on expenditure on "Clothing". When it comes to the initial level of household expenditure, we can conclude that with the number of household members increasing, expenditure on "Clothing" also increases in Bosnia and Herzegovina but not in Serbia. In Serbia, there is a significant impact of the interaction between income and the number of household members on the demand for "Clothing", while in Bosnia and Herzegovina this impact is only partially significant (see Appendix Table 5).

The impact of the head of household's gender, his/her level of education, age, employment status as well as the household size on expenditure on "Footwear" has been estimated using the same methodologe that was used for estimating their impact on expenditure for the group “Cloating and footware” and subgroup “Cloating”. Our research has shown that the majority of the above-mentioned socioeconomic and demographic variables are not significant (see Appendix Tables 6-10).

5. CONCLUSIONS

Running the WALD F test, we proved the hypothesis that the income elasticity for Clothing and Footwear in Serbia was significantly different from 1. When it comes to the Bosnian sample, the Second Engel Law on unit elasticity of expenditure on Clothing and Footwear was confirmed. Similar conclusions were drawn when it comes to income elasticities for "Clothing", while in the case of "Footwear", the WALD F test proved the hypothesis that income elasticities were statistically significantly different from 1 in both sample countries, i.e. that the demand for "Footwear" was elastic.

The results of the econometric estimations of Engel curves have expectedly confirmed the significance of income as the key determinant of expenditure, providing a deeper insight into the explanatory power income exerts when explaining the variations of expenditure from 34 to 46%, depending on the state in question.

By introducing socioeconomic and demographic household characteristics through dummy variables, we found that there was a significant difference in the initial level of expenditure of households on Clothing and Footwear in Serbia in comparison with Bosnia and Herzegovina. Moreover, we confirmed the statistical significance of other characteristics, i.e. of the head of household's gender, age, level of education, employment status and the household size. Of all the

functional forms of Engel curves that have been estimated in this paper, the double-log, linear and quadratic Engel curves stand out, depending on the sample on which the research is done.

The significance of the research results is reflected in the possibilities of their application in certain macroeconomic structural models used to quantify the impact of changes in personal consumption on the scope, structure and growth dynamics of the gross domestic product of Bosnia and Herzegovina and Serbia. In the input-output model of the national economy $\boldsymbol{X} = (\boldsymbol{A} - \boldsymbol{I})^{-1} * \boldsymbol{y}$, where X and y denote, respectively, the vector of total production and the vector of final demand (which includes personal consumption, general consumption, investment demand and export), sorted in n economic sectors, and $(\boldsymbol{A} - \boldsymbol{I})^{-1}$a Leontief matrix expressing the direct and indirect effects of changing final demand on the production of particular economic sectors, clothing and footwear expenditures are a component of personal consumption as part of final consumption. Therefore, if the matrix of Leontief coefficients is known and if all components of personal consumption and other components of final demand are fixed, then it is possible to consider the implications of changes caused by varying expenditures on clothing and footwear, and their impact on the volume and structure of total production in the national economy.

The knowledge of the numerical values of income elasticities has a practical purpose even on a microeconomic level, particularly for the manufacturers of Footwear and clothing as they can serve to predict the impact of changes in consumer, i.e. household income on the scope and sale value of the products in question.

One of the limitations of the results obtained is derived from the fact that the analysis was carried out using data on household expenditure in 2015, which was the last year for which data were available in Bosnia and Herzegovina. The other limitations regarding data arise from missing or incorrect answers provided by respondents to certain questions in the survey, which is an unavoidable disadvantage when it comes to this type of survey.

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APPENDIX

Table 1. The impact of head of household's gender on expenditure on "Clothing" in Bosnia and Herzegovina and Serbia in 2015.

	Regression coefficient	Regression coefficient of basic modality	Regression coefficient of control modality
		Female head of household	Male head of household
B&H	Intercept	-3.013***	-0.093
	Slope	0.977***	-0.000
Serbia	Intercept	-5.401***	-0.004
	Slope	1.172***	-0.000

Source: Authors

Table 2. The impact of head of household's level of education on expenditure on "Clothing" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of basic modality	Regression coefficient of control modality	Regression coefficient of control modality	Regression coefficient of control modality
		No education	Primary education	Secondary education	University education
B&H	Intercept	-3.013***	0.101	0.195	0.352
	Slope	0.977***	0.000	0.000	0.000
Serbia	Intercept	-5.401***	0.104	0.121	0.194
	Slope	1.172***	-0.000*	-0.000	-0.000

Source: Authors

Table 3. The impact of the head of household's age on expenditure on "Clothing" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of the basic modality	Regression coefficient of the control modality	Regression coefficient of the control modality
		Younger than 25 years of age	Between 25 and 65 years of age	Older than 65 years of age
B&H	Intercept	-3.013***	-0.686***	-0.853***
	Slope	0.977***	0.000	0.000*
Serbia	Intercept	-5.401***	-0.017	-0.276
	Slope	1.172***	-0.000	-0.000

Source: Authors

Table 4. The impact on the head of household's employment status on expenditure on "Clothing" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of basic modality	Regression coefficient of control modality
		Unemployed	Employed
B&H	Intercept	-3.013***	0.143*
	Slope	0.977***	-0.000
Serbia	Intercept	-5.401***	0.256***
	Slope	1.172***	-0.000

Source: Authors

Table 5. The impact of the household size on expenditure on "Clothing" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of basic modality	Regression coefficient of control modality	Regression coefficient of control modality	Regression coefficient of control modality
		One-member households	Households with two, three or four members	Households with five, six or seven members	Households with more than seven members
B&H	Intercept	-3.013***	0.275***	0.351***	0.187
	Slope	0.977***	-0.000*	-0.000*	-0.000
Serbia	Intercept	-5.401***	-0.088	0.013	-0.198
	Slope	1.172***	0.000***	0.000**	0.000***

Source: Authors

Table 6. The impact of head of household's gender on expenditure on "Footwear" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of basic modality	Regression coefficient of control modality
		Female head of household	Male head of household
B&H	Intercept	-8.607***	-2.558
	Slope	0.022***	-0.003
Serbia	Intercept	-4.492***	-0.074
	Slope	1.070***	0.000

Source: Authors

Table 7. The impact of head of household's level of education on expenditure on "Footwear" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of the basic modality	Regression coefficient of the control modality	Regression coefficient of the control modality	Regression coefficient of the control modality
		No education	Primary education	Secondary education	University education
B&H	Intercept	-8.607***	-0.602	5.025	2.009
	Slope	0.022***	0.004	-0.000	0.004
Serbia	Intercept	-4.492***	-0.284	-0.296	-0.207
	Slope	1.070***	0.000	0.000	0.000

Source: Authors

Table 8. The impact of the head of household's age on expenditure on "Footwear" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of the basic modality	Regression coefficient of the control modality	Regression coefficient of the control modality
		Younger than 25 years of age	Between 25 and 65 years of age	Older than 65 years of age
B&H	Intercept	-8.607***	-13.642	-9.119
	Slope	0.022***	-0.002	-0.009
Serbia	Intercept	-4.492***	0.393	0.070
	Slope	1.070***	-0.000**	-0.000*

Source: Authors

Table 9. The impact of the head of household's employment status on expenditure on "Footwear" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of basic modality	Regression coefficient of control modality
		Unemployed	Employed
B&H	Intercept	-8.607***	6.503
	Slope	0.022***	0.002
Serbia	Intercept	-4.492***	0.293***
	Slope	1.070***	-0.000

Source: Authors

Table 10. The impact of household size on expenditure on "Footwear" in Bosnia and Herzegovina and Serbia in 2015

	Regression coefficient	Regression coefficient of basic modality	Regression coefficient of control modality	Regression coefficient of control modality	Regression coefficient of control modality
		One-member households	Households with two, three or four members	Households with five, six or seven members	Households with more than seven member
B&H	Intercept	-8.607***	0.746	-0.611	-5.625
	Slope	0.022***	0.002	0.004	0.009
Serbia	Intercept	-4.492***	0.033	0.140	0.606
	Slope	1.070***	0.000	0.000	-0.000

Source: Authors

MODELLING THE EMPLOYMENT IN CROATIAN HOTEL INDUSTRY USING THE BOX-JENKINS AND THE NEURAL NETWORK APPROACH

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Abstrakt

Purpose of the research – Hotel industry is a fast growing worldwide sector, playing an important role in many economies, always looking for improved methodologies capable to provide more accurate key determinants forecasts. It is a well-known fact that hotel industry is the most propulsive sectors and among the most significant generators of Croatian economic growth and development. The aim of this paper is to investigate and compare the performances and the forecasting accuracy of different models in the attempt to define the data generating process of the number of employees in Croatian accommodation establishments. Methodology and data – Starting with the assumption that hotel industry is a human driven sector, and that the human factor is one of the most significant factors of successful business performances, the paper seeks to explore the forecasting accuracy of the Box-Jenkins and the neural network methodology in modelling the monthly number of employees in Croatian accommodation establishments. Considering the pronounced seasonal component and the non-stationarity of the analysed time-series various structures of the seasonal autoregressive integrated moving average models (SARIMA) were experimented and different neural networks architecture were trained and tested. After the modelling phase, the forecasting accuracy and the model performances were analysed. Model performance and forecasting accuracy evaluation was tested using the mean absolute error, the mean absolute percent error and the square root mean square error. Results - The diagnostic testing show that in, modelling the seasonal time-series of the number of employees in Croatian accommodation establishments, the neural network model outperformed the Box-Jenkins methodology; a methodology traditionally used in forecasting time-series with a pronounced seasonal component. Conclusions and implications – Given the importance of the hotel industry for Croatian economic development and international competitiveness enhancement, the research results could be useful, for both, researchers and practitioners, in the process of planning and routing the future Croatian hotel industry development and business performances improvement.

Keywords*: Employment, Croatian hotel industry, Box-Jenkins methodology, Neural networks methodology, Forecasting accuracy.*

JEL classification: C01, C32.

1. INTRODUCTION

The aim of this paper is to approach the number of employees in Croatian hotel industry modelling and forecasting. The number of employees, their structure and turnover modelling and analysing should assume a key role in Croatian hotel industry. In fact, reliable information and accurate forecasts of employees, are at the bottom of planning and efficient decision-making, efficient pricing policies and strategies setting, service quality improvements, and better business results achievements. The paper seeks to identify the model that depicts with accuracy the underlying process that generates the empirical time-series data. In modelling empirical time-series, there are a wide range of methodologies in use. This study considers the seasonal autoregressive moving average models and the neural networks models. Given the importance of the hotel industry for Croatian tourism and economic development, the current study intent to emphasizes and highlights the usefulness of investigating the core determinants of the employees in Croatian accommodation establishments.

2. THEORETICAL AND METHODOLOGICAL ISSUES

In modelling the number of employees in Croatian hotel industry and in designing the data generating process the Box-Jenkins and the neural network approaches were considered. The adopted research methodology was a three-staged process. The first stage involved previous researches and literature reviewing, the second stage consisted of data collecting as well as model designing. In the third phase the forecasting accuracy and the chosen model performances were investigated and compared.

2.1. Literature Review

A comprehensive desk research and literature review showed that several researches and studies deal with the issues of analysing the benefits of applying quantitative methods in modelling different tourism and hotel industry determinants. With regard to time-series forecasting, ARIMA models have won great popularity in a large number of studies concerning the tourism demand modelling and forecasting. In a comprehensive study Song and Li (Song and Li, 2008) reviewed 121 papers on tourism demand modelling and forecasting published in the period between 2000 and 2007. The authors found out that in 72 studies time-series models, e.g. different versions of ARIMA models proposed by Box and Jenkins, were used to model or forecast tourism demand. According to Song and Li different versions of ARIMA models have been applied in over two-

thirds of the post-2000 studies that utilised the time-series forecasting techniques (Song and Li, 2008). These models have shown sound performance in a large number of tourism demand modelling and forecasting studies. In fact, in investigating the performance of combination forecasts of the UK outbound tourism demand Shen, Li and Song combined five econometric models and two time-series models. The empirical results shown that the time-series model were ranked second (the naive model) and third (the SARIMA model) (Shen, Li, Song, 2011). Lin, Chen and Lee (2008) demonstrate that the ARIMA models outperformed the Neural Networks models and the Multivariate Adaptive Regression Splines in forecasting tourism demand in Taiwan (Lin, Chen and Lee, 2011). Lim and McAleer (Lim, McAleer, 2002) used autoregressive integrated moving average models to estimate tourist arrivals to Australia, Hong Kong, Malaysia and Singapore. In an empirical study of from four European countries to Seychelles Preez and Witt (Preez, Witt, 2003) used an autoregressive integrated moving average model and prove that such models have better forecasting accuracy than multivariate and univariate state space modelling.

Artificial neural networks are increasingly being used for tourism demand forecasting (Cho, 2003; Kon and Turner, 2005; Law, 2000, 2001; Palmer et al., 2006; Tsaur et al., 2002; Lin et al. 2018; Hassani et al., 2015; Claveria et al. 2015a; Claveria et al., 2015b) and have been criticised for lacking a theoretical background and for containing a "black box" of hidden layers between the input and output variables (Zhang et al., 1998). Recently, with one of machine learning methods, the artificial neural network model has become important tool in forecasting studies and has been demonstrated to have strong viability and flexibility for processing imperfect data or for handling almost any kind of nonlinearity (Song et al., 2019). Song et al. (2019.) reviewed 211 key papers published between 1968 and 2018, for a better understanding of how the methods of tourism demand forecasting have evolved over time. Therefore, according to Song et al. (2019.), the applications of ANN methods in forecasting tourism demand have been the most frequently used AI-based models (Chen et al., 2012; Claveria et al., 2015a; Claveria et al. 2015b; Law, 2000; Pattie & Snyder, 1996; Teixeira & Fernandes, 2012). The study of Hassani et al. (2017) employed nine alternative parametric and non-parametric techniques, thereby complementing all previous studies in an attempt to uncover the best forecasting method of tourist arrivals in Europe. In particular, the models employed include the Autoregressive Moving Average (ARIMA), Exponential Smoothing (ETS), Neural Networks (NN), Trigonometric Box-Cox ARMA Trend Seasonal (TBATS), Fractionalized ARIMA (ARFIMA) and both Singular Spectrum Analysis algorithms, i.e. recurrent SSA (SSA-R) and vector SSA (SSA-V). In addition, the

authors also considered the efficacy of simpler forecasting techniques such as Moving Average (MA) and Weighted Moving Average (WMA) in relation to the advanced econometric techniques. The results have shown that no single model can provide the best forecasts for any of the countries in the short-, medium- and long-run. The Recurrent Singular Spectrum Analysis model is found to be the most efficient based on lowest overall forecasting error, whereby the neural networks and ARFIMA found to be the worst performing models.

The authors Claveria and Torra (2014) forecasted tourism demand to Catalonia by using neural network vs. time series models. The results suggest that the there is a trade-off between the degree of pre-processing and the accuracy of the forecasts obtained with neural networks, which are more suitable in the presence of nonlinearity in the data and that forecasts of tourist arrivals are more accurate than forecasts of overnight stays. Experiments combining ANN models with traditional time series approaches have emerged as an important focus of tourism demand forecasting studies. For instance, Nor et al. (2018) combined the Box-Jenkins and ANN models to apply the forecast Malaysia's tourism demand and Chen (2011) combines linear models (such as the Naïve, ES or ARIMA models) with nonlinear AI models (such as back-propagation neural networks or SVRs) to evaluate the models' turning points in forecasting performance. The research results by Fernandes et al. (2008) showed that ANN is suitable for modelling and forecasting tourism demand, when compared with the model produced by using the Box-Jenkins approach.

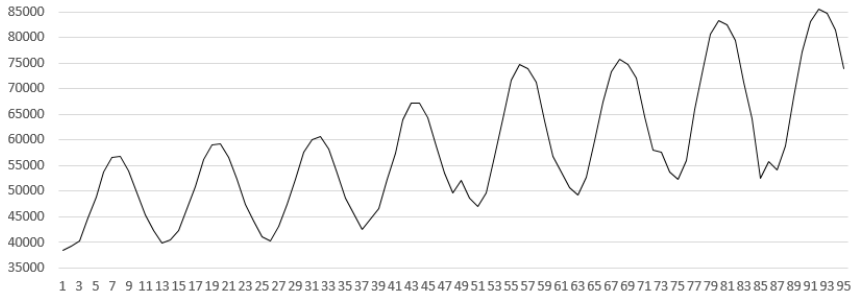
2.2. The Research Design

In this study the Box-Jenkins and the neural network approach are combined to yield effective and accurate models for modelling and forecasting the number of employees in Croatian hotel industry, in a situation in which the analysed time-series presents strong seasonal influences and a pronounced upward trend component.

2.2.1. The data set

Monthly data on the number of employees in Croatian accommodation and food services sectors from January 2011 to November 2018 were collected from the Eurostat Database and were considered as neural network model output. Figure 1 show monthly number of employees in Croatian hotel industry from 2011 to 2018.

Figure 1. Number of employees in Croatian hotel industry; actual monthly data; time span: January 2011 to November 2018.



Source: EViews output

Figure 1 reveals that the time-series presents strong, seasonal influences and a significant upward trend component. Nevertheless, there are evidence of irregular oscillations, too, suggesting a non-stabilisation of the average and variance. It is well known that hotel industry in Croatia is pronouncedly seasonal sensitive. In fact, the number of employees is at its maximum level in the summer period till July to August, with a drastic fall in the period from October to May. It is clearly shown that the seasonal patterns are rather consistent over the analysed period. The observed time series consists of 95 observations with an average value of 58106.78 employees and a standard deviation of 1263.54 employees. The maximum number of 85592 employees was registered in August 2018, while the lowest number of 38503 employees was recorded in January 2011. The time-series of monthly number of employees is considered a significant source of information for all the stakeholders involved in the Croatian hotel industry, since its provide valuable indicators in the process of organising, planning and successful decision-making. Thus, the empirical time-series is analysed using the Box-Jenkins and the neural networks approaches. The data set used for creating a predictive model contained 8 variables and 95 observations. There were no missing values in the considered data set. Monthly data on the number of employees in Croatian accommodation and food services sectors (EM) from January 2011 to November 2018 were considered as neural network model output. Several inputs variables were experimented as inputs. The considered inputs variables are listed and describe bellow:

– *OCCR:* net occupancy rate of bed places in hotel and similar accommodation establishments; monthly data from January 2011 to November 2018; collected form the Eurostat Database

- *TN*: total, domestic and foreign, nights spent at tourist accommodation establishments; monthly data from January 2011 to November 2018; collected from the Croatian Bureau of Statistic Statistical Database and the Eurostat Database;
- *TA*: total, domestic and foreign, tourist arrivals at tourist accommodation establishments; monthly data from January 2011 to November 2018; collected from the Croatian Bureau of Statistic Statistical Database and the Eurostat Database
- *W*: average net earnings in Croatian accommodation and food service sectors; monthly data from January 2011 to November 2018 collected from the Croatian Bureau of Statistic Statistical Database;
- *CPI*: consumer price indices in Croatia; monthly data from January 2011 to November 2018; twelve-month average; collected from the Croatian Bureau of Statistic Statistical Database;
- *ITI*: industrial turnover indices in Croatia; monthly seasonal and working day adjusted (2005=100) from January 2004 to November 2018 and are collected from the Croatian Bureau of Statistic Statistical Database.
- *NI*: natural increase of population; monthly data from January 2011 to November 2018 collected from the Croatian Bureau of Statistic Statistical Database;
- *MONTH:* time variable; assuming values from 1 to 12.

The listed input data were used in designing the neural network because of their supposed influence on the target variable. The chosen variables relate to tourist demand as well as to most significant macroeconomic and demographic determinants that could potentially influence the number and the structure of employees in Croatian accommodation establishments. Moreover, a monthly time variable has been included among the input variables in order to capture the significant seasonal component of the examined empirical series. In the next paragraph a brief outline of the selected modelling approaches is given.

2.2.2. The Modelling Approach

The purpose of this study is to investigate and compare the applicability and the performances of the Box-Jenkins methodology and the neural networks approach in modelling time-series that presents both, a strong seasonal and a trend component, as well as an irregular behaviour. The Box-Jenkins and the neural networks methodologies are summarized in the following, as foundation to describe the modelling approach used in this study.

The Box-Jenkins methodology

(Fernandes, Teixeira, Ferreira, Azeveda, 2008). The Box-Jenkins method is developed throughout three interactive steps, namely the model identification, the parameter estimation and the diagnostic checking stage. In the model identification stage the selection of the order of non-seasonal differencing (d), the order of seasonal differencing (D), the non-seasonal AR order (p) and the seasonal AR order (P), as well as the non-seasonal MA (q) and the seasonal MA (Q) order have to be determined. The model identification stage is based on the sample autocorrelations and the sample partial correlations functions. The estimation stage involves the selected model parameter estimation procedure. At least the diagnostic checking stage involves error terms testing procedures. In order to deal with seasonality, ARIMA processes have been modified and adjusted and SARIMA models have then been formulated. The seasonal ARIMA (the SARIMA) models incorporate both non-seasonal and seasonal factors in a multiplicative model as follows (Baldigara, Mamula, 2015):

$$ARIMA(p,d,q) \times (P,D,Q)S \quad (1)$$

where:
p = non-seasonal AR order
d = non-seasonal differencing
q = non-seasonal MA order
P = seasonal AR order
D = seasonal differencing
Q = seasonal MA order
S = time span of repeating seasonal pattern

The seasonal autoregressive integrated moving average model of Box and Jenkins (1970) is given by:

$$\phi(B)\Phi(B^s)(1-B)^d(1-B^s)^D Y_t = \Theta_0 + \theta(B)\Theta(B^s)\varepsilon_t \quad (2)$$

where:

$\phi(B) = 1 - \emptyset_1 B - \emptyset_2 B^2 - \cdots - \emptyset_p B^p$ = the non-seasonal AR model of order *p*

$\theta(B) = 1 - \theta_1 B - \theta_2 B^2 - \cdots - \theta_q B^q$ = the non-seasonal MA model of order *q*

$\Phi(B^s) = 1 - \Phi_1 B^s - \Phi_2 B^{2s} - \cdots - \Phi_P B^{Ps}$ = the seasonal AR model of order *P*

$\Theta(B^s) = 1 - \Theta_1 B^s - \Theta_2 B^{2s} - \cdots - \Phi_Q B^{Qs}$ = the seasonal MA model of order *Q*

$(1 - B)^d$ = the non-seasonal differencing of order *d*

$(1 - B^s)^D$ = the seasonal differencing of order *D*

ε_t = the error term ~*IID* $(0,\sigma^2)$

B = the backward shift

S = the seasonal order

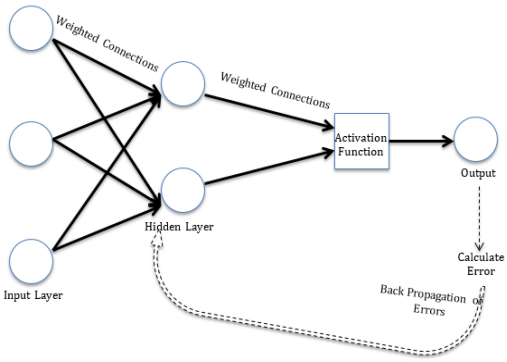
So defined seasonal ARIMA models are flexible and widely used in time-series analysis as they combined three type of processes: autoregression, differencing to strip off the integration and moving average. (Cho, 2003)

The neural networks methodology

In recent years, neural networks are achieving great popularity as prediction models used in analysing and modelling time-series. The growing interest in the neural networks is due to their impressive applicability when dealing with big data, the capability in capturing non-linear and very complex patterns, the ability to model process with multiple inputs and multiple outputs and, their high tolerance to noise.

The neural networks as Machine Learning methods, are based on mathematical models with an architecture analogous to the human nervous system. A neural network is characterised by the architecture (the pattern of connections between the neurons), the training algorithm (the method of determining the weights on the connections) and the activation function. Figure 2 depicts a representation of a simple neural network model structure.

Figure 2. The Neural Network Model



Source: https://www.analyticsvidhya.com/blog/2017/09/creating-visualizing-neural-network-in-r/

Neural networks usually consist of a set of interconnected neurons (perceptrons) organised in layers: an input layer, one or more hidden layers and an output layer. The hidden layers are capable to capture nonlinear relationships between variables. In the input layer each neuron accepts a single value/variable (distributed input) and generates an output value that will be used as an input for the neurons of the following layer. The *net* input for the neuron *j* of the receiving layer is given by the following equation:

$$net_j = \sum_i w_{ij} I_i \quad (3)$$

where I_i is the signal sent by the neuron *i*, $w_{i,j}$ is the weight associated to the neuron and, consequently, net_j is given by the sum of the weights of each neuron multiplied to the related signal received by the input neuron. The receiving neuron creates the activation on the basis of the signal net_j. The activation become the input of the following layer and the process reiterates till the final signals reach the output layer. During the training process, the weights, initially set to very small random values, are determined through the training Back Propagation (BP) algorithm, that stops when the value of the error function achieve the aimed threshold. The weights are updated following the comparison between the obtained output and the expected result, evaluated through the selected error function. Among the different types of neural networks architecture, the feedforward neural networks are the most widely used. In most considered studies they are usually designed with the back-propagation learning algorithm, and they are simply called backpropagation neural networks (BPNNs) and sometimes referring to multilayer perceptrons (MLPs). BPNNs are used in a variety of analysis and forecasting researches, and are considered particularly effective in approximate various nonlinearities in datasets with a high degree of accuracy. The modelling approach used in the BPNN developing process consisted in the following: data pre-processing, BPNN architecture selecting, BPNN training process, and model performance testing.

2.2.3. Model Performance and Forecast Accuracy Evaluation

Forecast model performances and accuracy is evaluated using some chosen prognostic errors as forecast accuracy measures. According to Fretchling (Frechtling, 2001) "the most familiar concept of forecasting accuracy is called "error magnitude accuracy", and relates to forecast error associated with a particular forecasting model." The error magnitude is defined as:

$$e_t = A_t - F_t \tag{4}$$

where:
t = some time period
e = forecast error
A = actual value of the variable being forecast
F = forecast value.

Among the different methods developed to measure the error magnitude accuracy this study considers the Mean Absolute Error (MAE), the Root Mean Square Error (RMSE) and the Mean Absolute Percentage Error (MAPE).
The expression to calculate MAE is:

$$MAE = \frac{1}{n}\sum_{t=1}^{n}|(A_t - F_t)| \tag{5}$$

The Root Mean Square Error (RMSE) is computed by the following expression:

$$RMSE = \sqrt{\frac{1}{n}\sum_{t=1}^{n}(A_t - F_t)^2} \tag{6}$$

The Mean Absolute Percentage Error (MAPE) is expressed in generic percentage terms and it is computed by the following formula:

$$MAPE = \frac{1}{n}\sum_{t=1}^{n}\frac{|(A_t - F_t)|}{A_t}\cdot 100 \tag{7}$$

3. RESEARCH RESULTS

In this section the modelling process is explained and the research results obtained by applying the selected methodologies are explained. At the end, the models performances and accuracy are compared.

3.1. The Modelling Process

The modelling process consisted in implementing both considered methodologies to the empirical time-series. The following describes the modelling process features.

The SARIMA model

The purpose of this section is to use the Box-Jenkins approach in order to determine the most appropriate seasonal autoregressive integrated moving average (SARIMA) model to identify the data generating process of the monthly number of employees in Croatian hotel industry from January 2011 to November 2018. The time-series presents both a trend and a seasonal component, that make the series nonstationary.

The Box-Jenkins methodology request a time-series to be stationary in mean and variance. Thus, in order to stabilised the series, data were transformed by applying the logarithmic transformation and the simple differencing. The stationarity was tested performing the ADF test (the value of the ADF test is -7.645867). After achieving stationarity, the model identification was approached based on the analysis of the correlograms of the Autocorellation Function and the Partial Autocorrelation Function. The analysis suggested the following seasonal ARIMA model:

$$ARIMA(1,1,0) \times (1,0,0)_{12} \tag{8}$$

The selected seasonal ARIMA parameters estimation was performed using the least square method. The estimation method yields the following results:

$$(1 - 0{,}951B)(1 - B)^1 y_t = (1 - 0{,}832B^{12})\varepsilon_t \tag{9}$$

(22,862) (16,999) $\chi^2_{Norm}(2) = 5{,}157$

$R^2 = 0{,}656$ *se* = 0,586 SSR = 15,8

Where:

- σ is the standard error of the regression
- SSR are the sum squared residuals
- χ_Norm^2 (2) is the Jarque-Bera normality test.

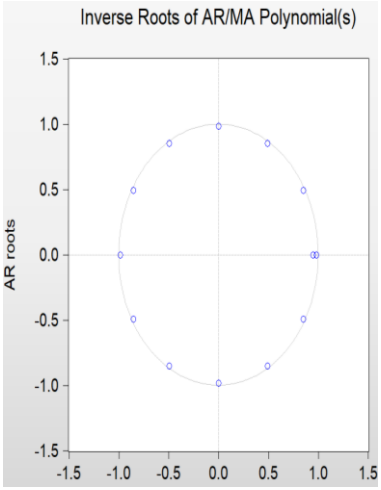
The diagnostic checking confirmed that the coefficients are statistically different from zero at the 5% significance level, the conditions of invertibility exists and the residuals are normally distributed and non-autocorrelated (Figure 3).

The diagnostic checking procedure results proved that the selected model is adequate to capture the behaviour of the analysed empirical time-series.

Figure 3. Diagnostic checking results

Q-statistic probabilities adjusted for 2 ARMA terms

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.031	-0.031	0.0514	
		2	0.066	0.065	0.2851	
		3	0.086	0.091	0.6875	0.407
		4	-0.126	-0.126	1.5646	0.457
		5	-0.032	-0.053	1.6217	0.654
		6	-0.031	-0.024	1.6776	0.795
		7	-0.099	-0.075	2.2628	0.812
		8	0.066	0.059	2.5303	0.865
		9	-0.132	-0.126	3.6256	0.822
		10	-0.028	-0.040	3.6773	0.885
		11	-0.012	-0.031	3.6867	0.931
		12	-0.321	-0.308	10.631	0.387
		13	0.156	0.135	12.322	0.340
		14	-0.086	-0.078	12.845	0.380
		15	-0.009	0.009	12.851	0.459
		16	-0.049	-0.184	13.034	0.524
		17	-0.064	-0.071	13.355	0.575
		18	-0.070	-0.116	13.751	0.617
		19	0.011	-0.050	13.760	0.684
		20	0.023	0.063	13.805	0.742



Source: EViews output

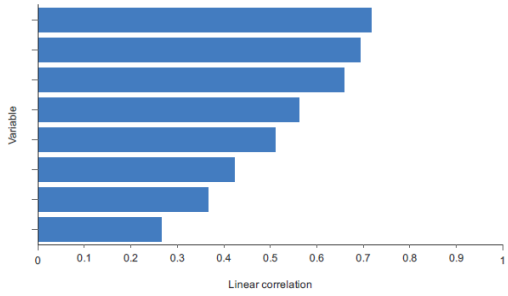
The BPNN model

The neural network designing process was carried out with the purpose of investigating the existence and the nature of the relationship between the number of employees in Croatian accommodation and food services sectors and several variables that reflect the performance of different key tourism and hotel industry determinants. Before approaching the BPNN designing data pre-processing has been performed. Data have been inspected and selected so there were no missing values. In order to analyse the importance of the inputs and their potential influences on the target variable, the linear correlation were performed. Figure 4 depicts the absolute values of the linear correlations between all input and the target variable.

As shown, the maximum correlation (0.716) is yield between the input variable *MONTH* and the target variable *EM*. The y-labels from greater to smaller correlations are graphically represented, too. Input and output data have been normalized using the *z*-score normalization method and the minimum-maximum normalisation method, respectively. Scaling data usually results in better neural network performance and an improved and more accurate training process. After input data scaling, the whole dataset has been split into the training and the testing set.

Figure 4: Absolute values of the linear correlations between all input and the target variable

	EM
TA	0.716
OCCR	0.692
TN	0.657
W	0.56
ITI	0.51
MONTH	0.422
CPI	-0.365
NI	0.265



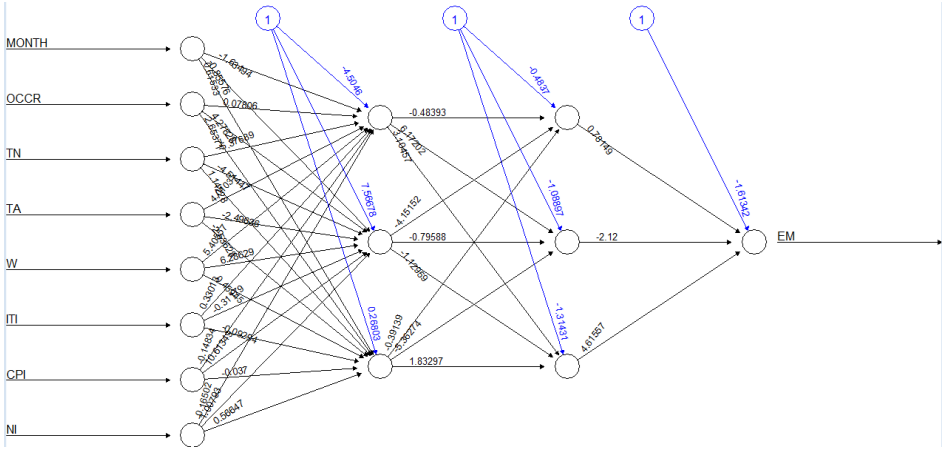
Source: Author's Illustration's

The training set, used to train the neural network, consisted of the 70% of the initial data set. The testing set, composed of the remaining 30%, was used to test the model in the evaluation stage. To perform the modelling of the number of employees in the Croatian hotel industry a BPNN was selected using the free statistical software environment R (https://www.r-project.org/). The BPNN presents the following features:

– 8 input nodes, corresponding to the input variables;
– 2 hidden layers with 3 nodes each and
– 1 output node, corresponding to the target variable.

The structure of the neural network is depicted in Figure 5.

Figure 5: Neural Network Architecture

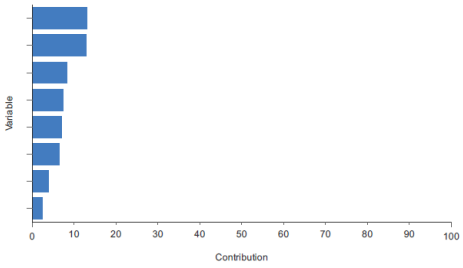


Source: Author's Illustration's

The selected neural network model is a multilayer type with a feedforward structure that can be written as 8:3:3:1. The sigmoid function was used in the hidden layers, and the linear activation function in the output layer. For training the network the quasi Newton method was used. The network error has been calculated as the mean square error obtained comparing the expected (target) and the obtained output. As the regularization method applied, to control the complexity of the neural network by reducing the value of the parameters, the neural parameters norm weight with a value of 0.001 was used. The input significance analysis showed that the most significant input variable is the input variable *OCCR* with a contribution of 13.1% to the outputs. The bar chart and the calculus of the single input variable contribution to the target variable are given below.

Figure 6: The contribution of single input variables to the target variable

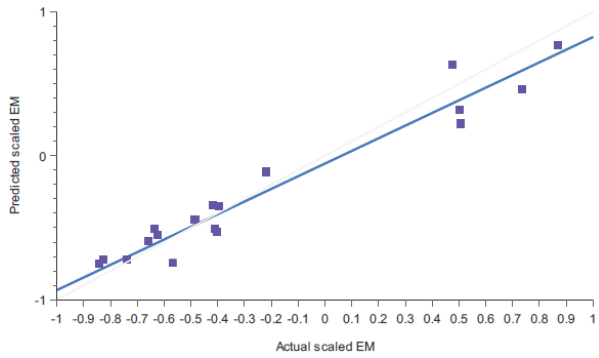
	Contribution
MONTH	12.9
OCCR	13.1
TN	8.15
TA	7.22
W	6.94
ITI	6.45
CPI	3.86
NI	2.38



Source: Author's Illustration's

In the attempt to test the loss of the mode the linear regression analysis, between the scaled neural network outputs and the corresponding targets for an independent testing subset was performed. Figure 7 illustrates the linear regression for the scaled output *EM*.

Figure 7: Actual vs Predicted Target Variable Values



Source: Author's Illustration's

The predicted values are plotted versus the actual ones as squares and the linear regression parameters indicate that the neural network is predicting well the actual data.

3.2. Model Performance Evaluation– SARIMA Vs BPNN

In this section the research results obtained using both methodologies are compared and the models performances are evaluated. The conducted diagnostic tests showed that both selected models describe the time-series of monthly number of employees in Croatian hotel industry reasonably well. The seasonal ARIMA and the BPNN accuracy is evaluated using the previously mentioned selected measures. Table 1 presents the model performance evaluation results.

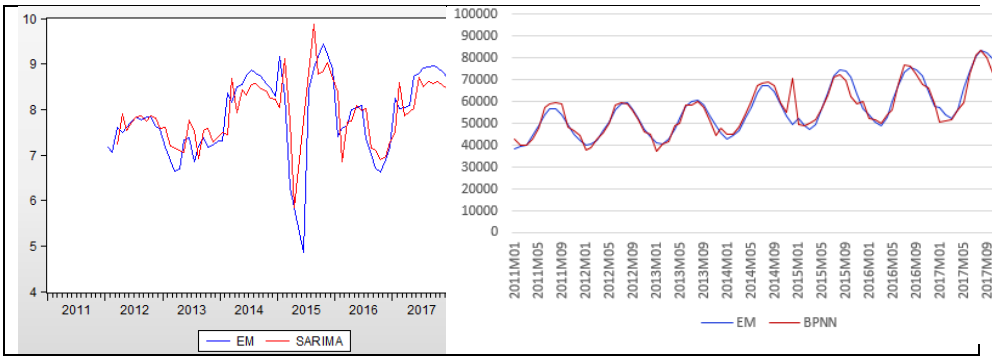
Table 1: Model performance evaluation results

	MAE	*MAPE*	*RMSE*
SARIMA	0.38	5.300	0.59
BPNN	2774.33	4.012	3463.21

Source: Author's Illustration's

The mean absolute percentage error is very low for both models, indicating that that the neural network and seasonal ARIMA model describe well the data generating process. Figure 8 depicts the actual and the fitted values obtained using the selected models of both methodologies.

Figure 8: Actual and fitted values: *SARIMA* vs *BPNN*



Source: Author's Illustration's

Figure 8 displays the actual and the fitted values yield by both methodologies. It is clearly shown that the models fit well the actual data throughout the whole sample period. Furthermore, both selected models present satisfactory fitted values, following quite well the behaviour of the empirical time-series.

CONCLUSIONS

Croatian economic development relies on tourism and therefore on all sectors and activities closely related to the tourism sector. Among the sectors that contribute to Croatian tourism development, hotel industry is certainly the most significant. Given the importance of the hotel industry for Croatian tourism development and enhancement, this paper aimed to model the number of employees in Croatian accommodation establishments. In approaching the modelling process, the study sought to investigate and highlight the adequateness of the neural network methodology as an alternative to the Box-Jenkins methodology. The Box-Jenkins procedure yield in the ARIMA(1,1,0)×$(1,0,0)_{12}$ as the most adequate. The selected neural network model was a multilayer 8:3:3:1 based on a feedforward structure and trained with the quasi Newton backpropagation algorithm. The analysis of the research results showed that the models obtained for the two methodologies were adequate and presented satisfactory statistical qualities. The performed diagnostic checking stressed out that the models fitted well the actual data. However, the neural network model presented better performance features and forecast accuracy.

In spite of the great importance of the hotel industry for Croatian tourism, and given the fact that both are pronouncedly human-driven sectors, the literature and previous studies review highlighted an incomprehensible lack of systematic

and exhaustive quantitative researches oriented on analysing the core features and patterns of employees in Croatian hotel industry.

Such, more comprehensive and detailed studies, could be used in formulation of future macroeconomic development strategies, pricing strategies and hotel industry sector routing strategies in Croatia, as a predominantly tourism oriented country.

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SHARE OF ADULTS WHO ORDER GOODS OR SERVICES ONLINE INFLUENCED BY SHARE OF THOSE WITH DIGITAL SKILLS BROKEN DOWN BY GENDER: CLUSTER ANALYSIS ACROSS EUROPEAN COUNTRIES

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Abstrakt

This paper investigates the influence of digital skills of females and males on the percentage of individuals ordering goods or services online in selected European countries. In EU28, from 2007 to 2018, this percentage has been linearly increasing by 2.8 percentage points annually, being doubled from 30% to 60%, and based on the linear trend extrapolation forecast, it would reach 65% in 2020. In 2017, the percentage of such Internet users ranged from 13%, for Montenegro, to 82%, for United Kingdom, with the overall average of 48% per country. Just to focus the EU candidates, other than Montenegro, which has the minimum value of the indicator considered, North Macedonia has 15%, Serbia 31% and Turkey reached 21%, and they joined the cluster with Romania Bulgaria, Greece and Croatia. The correlations of percentage of females and males having basic or above basic digital skills with the main variable under study were analysed, and the positive correlation appeared to be slightly stronger for female, than for male. Clustering of countries appeared to be different when using the variable showing basic or above basic digital skills for females or males, showing in Slovenia surprisingly visible shift from the less, in 2007, to the most developed clusters of countries, in 2017, when using the females' data. This result might be used in improving selling approaches and techniques, with perspective to improve business results and customer satisfaction, and might be useful for creators of education policies across not enough developed countries, to influence a digital skills adoption increase over both gender.

Keywords: *purchasing goods and services online, digital skills, liner regression model, regression diagnostics, hierarchical cluster analysis*
JEL classification: C31, L86

1. INTRODUCTION

The main variable under study in this research has been Percentage of individuals, who use the internet for ordering goods or services, which for the European Union (EU28) increased twice in 2018 (60%) as compared to 2007 (30%). In this research, the authors study how does three selected development indicators influences the studied variable. The papers by Dumičić, Žmuk and Novkovska (2017), Dumičić, Skoko Bonić and Žmuk (2018) studied number of development indicators' influencing the percentage of individuals purchasing online. Dumičić, Čeh Časni and Palić (2015), performed multivariate analysis, using variety of development indicators influencing online banking only, while relation of development indicators and online booking for travel and accommodation was analysed by Žmuk, Dumičić and Mihajlović (2014) and Dumičić, Žmuk and Čeh Časni (2015), who applied cluster analysis of European countries. Žmuk and Mihajlović (2018) dedicated their research to study the position of Western Balkan countries within Europe regarding online booking, influenced by digital and economic development indicators. Visualised particular digital economy impacts on customer behaviour for customers in European countries are shown in Consumer Barometer, see CB (2017). Dumičić, Lozanov-Crvenković, Nikolić Đorić and Novkovska (2019) evaluate 'the statistical professional associations' possible role at national, European and international level in the digital era, when supplying or offering their specific non-profit services to their members.

Hafkin and Huyer (2007) analyse problems regarding the women and gender issues in ICT statistics and development indicators related data collection. The lack of statistical data on gender issues to enable their inclusion in the ICT policies and strategies designed by policymakers in all, but especially in developing countries. Since many governments do not collect ICT statistics on regular basis, this paper consider existing gender ICT data and indicators and makes recommendations for filling the existing breaks. Since data are rarely broken by sex, not many gender ICT statistics are offered. The gender digital divide in francophone countries of West Africa and Orbicom's 2005 research on women in the information society is analysed in details, and the gender data collection should be encouraged. Antonio and Tuffley (2014) gave an overview of the gender digital divide in developing countries, emphasising what the ICT adoption in the society, where social norms prefer men and women's education level is a means for empowering women in digital society inclusion. Stoet and Geary (2018) explained the Gender-Equality Paradox in Science, Technology, Engineering, and Mathematics Education (STEM), showing that girls performed

similarly to or better than boys in science in 2/3 of countries. In addition, in the vast majority of countries, more girls are shown to be skilled of college-level STEM study than had enrolled. Paradoxically, the sex differences in the magnitude of relative academic powers and search of STEM degrees increased with increases in a national gender equality level. The break between boys' achievement in science and girls' achievement in reading as opposed to their average academic performance shown to be close to universal. These differences regarding the sex in academic gifts and assertiveness concerning science was correlating with the STEM graduation break. A mediation analysis indicated that life-quality burdens in less gender-equal countries encourage women's commitment to STEM courses.

In Digital Agenda Scoreboard key indicators (2019), European Commission services selected number of indicators, allocated into groups by themes, which illustrate some key dimensions of the European information society, such as Broadband, Mobile, Internet usage, Internet services, Telecom sector, e-Government, e-Commerce, e-Business, ICT Skills and Research and Development. These indicators allow a comparison of progress across European countries, by many breakpoints, which include gender, as well, while various graphs allow assess countries' profiles assessment, interactively. Digital Economy and Society Index (DESI) (Eurostat, 2018b), and DESI by components are visualized at Digital Single Market (2019).

In this paper, the research hypothesis states that a positive correlation exists between the percentage of individuals using the internet for ordering goods or services and each of selected digital and economic development indicators, and that there a different impact exists for female's and for male's percentage of individuals who have basic or above basic digital skills. The following chapters include statistical data description, correlation and regression analysis, as well as cluster analysis, which all helped in testing the claims that are set in this research.

2. DATA AND METHODOLOGY

Even though being interested in all the recent data, only selected indicators and countries with completely available data in the Eurostat database are used. The main variable of the interest has been a Digital Society related indicator, entitled as Percentage individuals aged 16 to 74, who use the internet for ordering goods or services.

In this research, after the investigation on the recent official data availability, the following indicators have been analysed:

- Y_2017IntOrderGoods - Percentage of individuals aged 16-74, who use the internet for ordering goods or services, in 2017, available at Eurostat (2019b)
- X1_GDPpcPPS - GDP per capita in PPS, Index, EU28 = 100, given at Eurostat (2018c)
- X2_AccHome - Percentage of households who have internet access at home, for the population aged 16 to 74, also called Level of internet access for households, given at Eurostat (2019c)
- X3_DigitalSkill_F and X3_DigitalSkill_M - Percentage of individuals aged 16-74, who have basic or above basic overall digital skills, for females and males only, respectively, available at Eurostat (2018d).

All variables, the dependent, Y_IntOrderGoods, and those independent, X1_GDPpcPPS, X2_AccHome and X3_DigitalSkill, are explored for 2017, using descriptive statistical analysis. Further, correlation and multiple regression modelling was performed using the software EViews 9, Gujaraty and Porter (2010). The general multiple linear regression population model is:

$$y_i = \beta_0 + \sum_{j=1}^{k} \beta_j x_{j,i} + e_i, \quad i = 1, 2, ..., n, \tag{1}$$

with the Ordinary Least Squares (OLS) estimated sample regression model as follows:

$$\hat{y}_i = \hat{\beta}_0 + \sum_{j=1}^{k} \hat{\beta}_j x_{j,i}, \quad i = 1, 2, ..., n \tag{2}$$

At the end, using all four studied variables, a hierarchical clustering, according to Hair et al. (2018) was performed twice, with percentage of females and males with digital skills, separately.

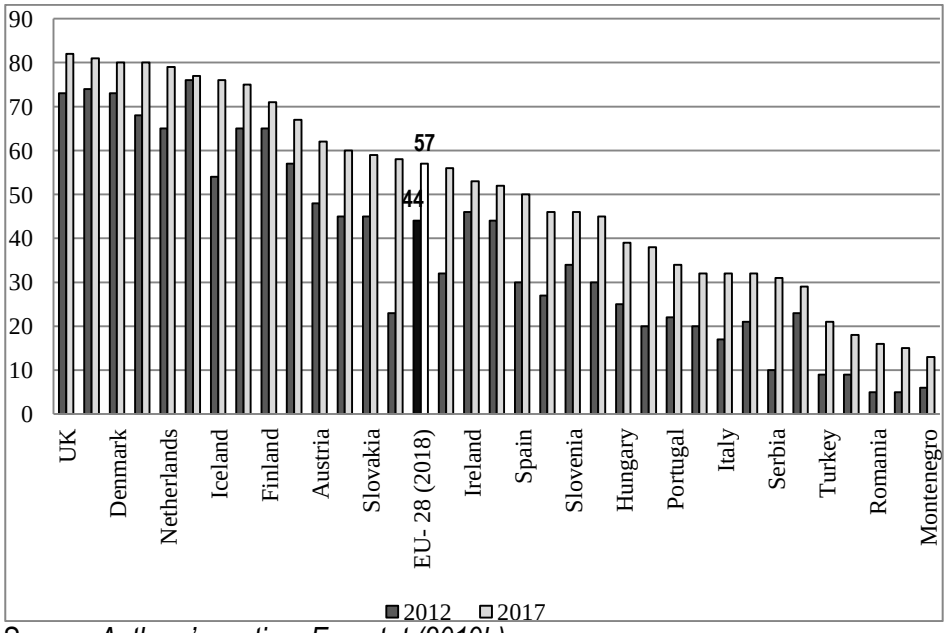
3. RECENT DYNAMICS OF PERCENTAGE OF INDIVIDUALS ORDERING GOODS OR SERVICES ONLINE

A simple liner trend model for the variable Y_IntOrderGoods, for the EU28 area from 2007 to 2018, shows a yearly positive slope of 2.8 percentage points with 99.50% of total sum of squares being explained by this estimated model (Dumičić et al., 2019). The forecast using a linear trend extrapolation shows that it would reach 65% in 2020.

When ranking data for 2018, it is visible that Denmark (84%), United Kingdom (83%) and Netherlands (80%) are the leaders in 2018, while North Montenegro (12%), Bosnia and Herzegovina (18%) and Romania (20%) are at the bottom.

In EU28, from 2007 to 2018, this percentage has been linearly increasing by 2.8 percentage points annually, being doubled from 30% to 60%, and based on the linear trend extrapolation forecast, it would reach 65% in 2020.

Figure 1 Percentage of individuals, aged 16 to 74, ordering goods or services online, EU-28, Iceland, Norway, North Macedonia, Serbia and Turkey (ranked by 2017)



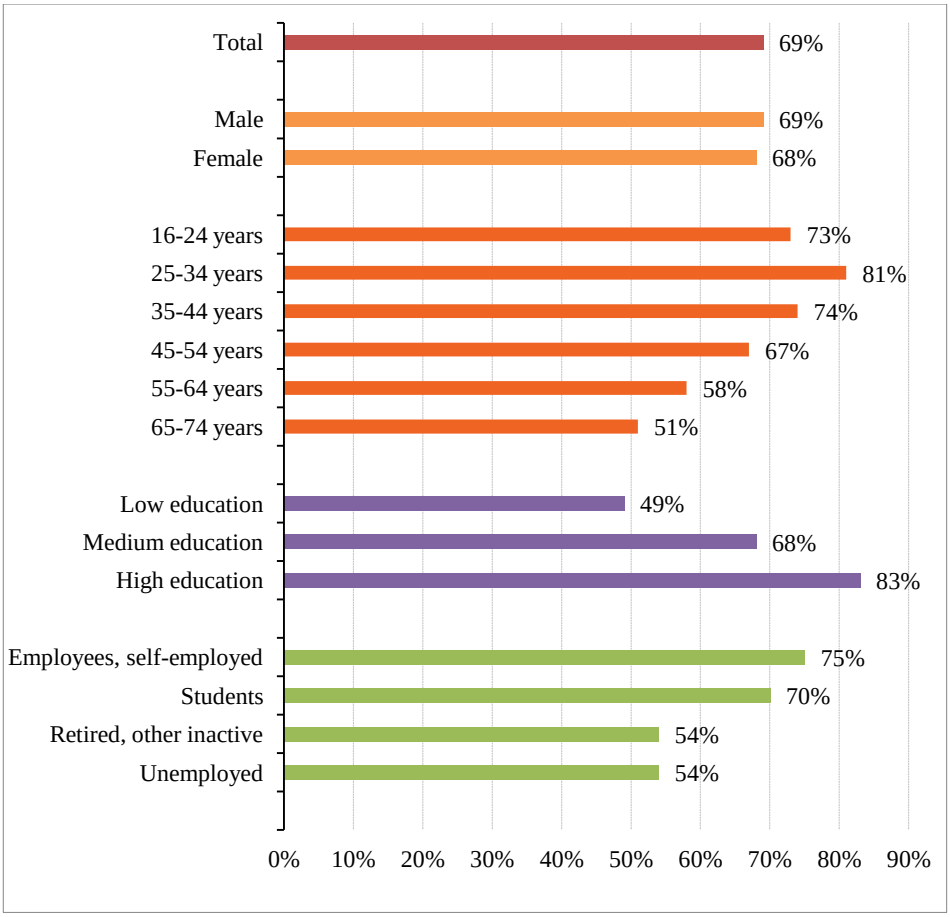
Source: Authors' creation, Eurostat (2019b).

Based on Figure 1, at the EU28 level, that Y_IntOrderGoods increased from 44% in 2012, to 58% in 2017, with an increase rate of 29.55%. The rates of change in 2017 /2012 are shown the greatest increase for Romania (220%), Serbia (210%) and N. Macedonia (200%), while the lowest increase is noted for developed countries, Norway (1.32%), Finland (9.23%), Sweden (9.46%), and Denmark (5.59%).

4. PERCENTAGES OF INTERNET USERS: BREAKDOWNS RELATED TO OTHER RELEVANT VARIABLES

Figure 2. shows percent of Internet users who bought or ordered goods or services for private use in the previous 12 months, by gender, age, education level and employment status, EU-28, 2018. It tells us that in 2018, in EU28 there was in total 69% of Internet users who bought or ordered goods or services for private use in the previous 12 months. Among males, 69% of them are in that category, and among women, there is a similar percent of 68% of such Internet users.

Figure 2. Percent of Internet users who bought or ordered goods or services for private use in the previous 12 months, by gender, age, education and employment status, EU-28, 2018



Source: Eurostat (2018a).

Regarding the age groups, group 24-34 has the highest value of 81% of such users, followed by those aged 35-44. Regarding the education level, those with high-education level prevail with the highest percentage of 83%, followed by those with medium-education level, 68%, and low-education level, only 49%. Self-employed employees have the greatest percent, 75% of such Internet users, while students have 70%, retired or inactive have 54%, and unemployed group has 54%, as well.

5. DESCRIPTIVE DATA EXPLORATION AND CORRELATION ANALYSIS

Based on data given in Eurostat (2019b), descriptive statistical analysis for the main variable under study for 2012 and 2018 was performed. For 2012, a high variability for Y_2012IntOrderGoods across 33 countries is calculated, with the range R_{2012}=69%, from 5% (North Macedonia) to 74% (Sweden), the mean 34.67% and relative average deviation from this mean of CV=65%. In 2018, data for Y_2018IntOrderGoods are, compared to 2012, with even wider range of R_{2017}=72, from 12% (Montenegro) to 84% (Denmark), with the higher mean of 49.61% when compared to 2012, but with relative average deviation from the mean of CV=41.24%, which shows smaller overall dispersion of data than in 2012. No outlying values were found, neither for 2012, nor for 2018.

All four variables of interest have the latest data available for 2017. So, Y_2017IntOrderGoods, X1_GDPpcPPS, X2_AccHome and X3_DigitalSkill (in total, for both genders), are statistically described for 31 countries in 2017, see Table 1, according to Dumičić and Palić (2011). Here, the EU28 countries, without Luxembourg, but with Montenegro, North Macedonia, Serbia and Turkey, have been included. Since, the Luxembourg's data for GDP per capita appeared to be a serious outlier, with standardized value z_GDPpcPPS=3.84, it was removed from the further analysis.

Table 1. Descriptive statistics, for n=31 (EU28 countries, without Luxembourg, with Montenegro, North Macedonia, Serbia and Turkey), in 2017

Descriptive statistics	*Y_2017IntOrderGoods*	*X1_GDPpcPPS*	*X2_AccHome*	*X3_DigitalSkill*
count	31	31	31	31
mean	47.48	87.10	82.61	53.61
sample standard deviation	21.05	32.84	8.38	13.70
minimum	13	36	67	29
maximum	82	181	98	79
range	69	145	31	50

skewness	0.07	0.68	0.08	0.03
kurtosis	-1.03	0.70	-0.62	-0.53
coefficient of variation CV	44.33%	37.71%	10.14%	25.55%
1st quartile	32.00	66.50	76.50	46.00
median	46.00	82.00	82.00	54.00
3rd quartile	61.00	108.50	88.00	60.50
interquartile range	29.00	42.00	11.50	14.50
mode	32.00	75.00	81.00	50.00
low extremes	0	0	0	0
low outliers	0	0	0	0
high outliers	0	**1**	0	0
high extremes	0	0	0	0

Source: Authors' calculation, Eurostat (2018b, 2018c, 2018d, 2019b).

In 2017, the highest variability of 31 countries' data is calculated for Y_2017IntOrderGoods, with the coefficient of variation CV=44.33%, and the Range from 13% for North Macedonia to 82% for United Kingdom, and the smallest variability is present at X2_AccHome (CV=10.14%), which has the Range from 67% for Bulgaria to 98% for the Netherlands. Only one moderate outlier for the variable X1_GDPpcPPS appeared for Ireland, Z(IE)= 2.86. Two lowest, equal, extreme values were found for North Macedonia and Serbia, Z(MK)= Z(RS) = -1.56.

Correlation matrixes for 31 countries in 2017 includes Pearson correlation coefficients among variables, for those with digital skills, for females in table 2, and for males in Table 3.

Table 2. Digital Skills for females only: Correlation matrix, for n=31 countries and 2017

	Y_2017IntOrderGoods	*X2_AccHome*	*X3_DigitalSkill_F*
Y_2017IntOrderGoods	1.000		
X2_AccHome	0.903	1.000	
X3_DigitalSkill_F	0.921	0.833	0.000

Source: Authors' calculation, Eurostat (2018b, 2018c, 2018d, 2019b).

Table 3. Digital Skills for males only: Correlation matrix, for n=31 countries and 2017

	Y_2017IntOrderGoods	*X2_AccHome*	*X3_DigitalSkill_M*
Y_2017IntOrderGoods	1.000		
X2_AccHome	0.903	1.000	
X3_DigitalSkill_M	0.892	0.839	1.000

Source: Authors' calculation, Eurostat (2018b, 2018c, 2018d, 2019b).

All correlations show strong positive correlations between all pairs of variables. The highest correlation of Y_2017IntOrderGoods appeared with X3_DigitalSkill_F, and the weakest between X2_AccHome, Table 2. The highest correlation of Y_2017IntOrderGoods exists with X2_AccHome, and the weakest with X3_DigitalSkill_M, Table 2, which is different from for females with digital skills, respectively, see Table 3.

6. EXPLAINING THE PERCENTAGE OF THOSE WHO ORDER GOODS OR SERVICES BY GENDER'S ADOPTION OF DIGITAL SKILLS

After positive correlations were found, three simple linear regression models with the *Y_2017IntOrderGoods* as the dependent variable were developed and they tell us that:

- if the GDP per capita in PPS, X1_GDPpcPPS would increase by one index point, the regression value for the percentage of those who are purchasing goods and services online (both gender in total), would increase by 0.49 percentage points (t=6.40, p-value≈0.000, R^2=0.5858);
- if, the percentage of households who have internet access at home, X2_AccHome, would increase by one percentage point, the regression value for the dependent variable (for both gender in total), would increase by 2.27 percentage points (t=11,30, p-value≈0.000, R^2=0.8148); and finally,
- if the percent of individuals who have basic or above basic overall digital skills, X3_DigitalSkill2017, would increase by one percentage point, the regression value for the dependent variable would increase by 1.41 percentage points (t=12.34, p-value≈0.000, R^2=0.8401).

After All Possible Regressions analysis, one multiple linear regression model was selected and built for 2017 and 31 countries, as shown in Dumičić and al. (2019). To explain Y_2017IntOrderGoods, two regressors with the highest Pearson

correlations were used: X2_AccHome, and X3_DigitalSkill (both gender in total), with the estimated equation (3):

$$\hat{Y}_{2017\,IntOrderGoods} = -89.61 + 0.12\ gX2_{X2\_AccHome} + 0.83\ gX3_{DigitalSkill};$$
$$\hat{\sigma} = 7.008;\ R = 0.947;\ R^2 = 0.897;\ \bar{R}^2 = 0.889;\ F = 121.30;\ n = 31. \quad (3)$$

The multiple regression model (3), was statistically significant at the overall level (F=121.30, p-value≈0.000, R^2= 0.897, standard error of the regression of SE=7.0008, and regression coefficient of variation CV_{reg}.= 0.45%, n=31), and at each estimated regression coefficients, as well. All the regression assumptions of normality, homoscedasticity and no autocorrelation of the residuals, for all four models were fulfilled (Dumičić and al., 2019). The leverage of more than 0.2 was the highest (equal) for Turkey, Montenegro and Romania. For one index point increase in the variable X2_AccHome, fixing the remaining variable, Percentage of individuals aged 16-74, who have basic or above basic overall digital skills (total, both gender), X3_DigitalSkill, unchanged, the regression value of Y_2017IntOrderGoods would increase by 0.12 percentage points. For one percentage point increase in the variable Percentage of individuals aged 16-74, who have basic or above basic overall digital skills (total, both gender), X3_DigitalSkill, fixing the variable Level of internet access for households, X2_AccHome unchanged, the regression value of Y_2017IntOrderGoods would increase by 0.83 percentage points.

The purpose of this research is to study if the gender breakdowns for digital skills adoption influence the Y_2017IntOrderGoods in European countries, in particular when performing correlation and multiple regression analysis approach for 31 countries in 2017, with three considered independent variables, respectively. All Possible Regressions method applied for Y_2017IntOrderGoods, as the dependent variable and X1_GDPpcPPS, X2_AccHome and X3_DigitalSkill as the independent variables, once for females (X3_DigitalSkill_F), and the other time for males (X3_DigitalSkill_M). Result was that only two variables give valid multiple regression models (without X1_GDPpcPPS), the following regression models for explaining the percentage of those who order goods or services online were designed as follows:

- *The multiple linear regression Model F, based on adoption of digital skills by females* - For explanation of the dependent variable, Y_2017IntOrderGoods, in multiple linear regression Model F, two independent variables were as follows: X2_AccHome, and X3_DigitalSkill_F (for females only), for 2017 and 31 European countries.

- *The multiple linear regression Model M, based on adoption of digital skills by males* - For explanation of the dependent variable, Y_2017IntOrderGoods, two independent variables were as follows: X2_AccHome, and X3_DigitalSkill_M (for males only, for 2017 and 31 European countries.

6.1. The multiple linear regression Model F based on adoption of digital skills by females

For explanation the dependent variable, Y_2017IntOrderGoods, in multiple linear regression model, the independent variables were as follows: X2_AccHome, and X3_DigitalSkill_F. Model F, for 31 countries in 2017, with OLS estimated parameters, looks as follows in equation (4):

$$\hat{Y}_{2017\,IntOrderGoods} = -87.14 + 0.12\ gX2_{AccHome} + 0.82\ gX3_{DigitalSkill\_F};$$
$$\hat{\sigma} = 6.626;\ R = 0.953;\ R^2 = 0.908;\ \overline{R}^2 = 0.901;\ F = 137.367;\ \text{n=31}. \quad (4)$$

Coefficient of determination R^2 indicates very high representativeness of the Model F, since 90.8% of the total sum of squares is explained. Since the overall F-test has p-value ≈ 0.000, the whole regression model is statistically significant at 1% significance level. Using two-sided t-test, the variable $X2_{\_AccHome}$ is statistically significant, with t-statistic = 4.268 and p-value = 0.0002, at 1 % significance level. The variable $X3_{\_DigitalSkill\_F}$ is significant, with t-statistic = 5.297 and p-value = 0.0000, at 1% significance level, too. Regression diagnostics tests for residuals were performed. Jarque-Bera Test statistic J-B=0.3246, with p-value=0.8502, shows at 5% significance level that there is no problem of non-normality. White Test shows, at 5% significance level and p-value = 0.2560, that there is no problem of heteroscedasticity. With Variance Inflation Factor, VIF = 3.2728, there is no multicollinearity problem in Model F. It may be concluded that both independent variables in Model F have been statistically significant in explanation of the main variable under study $Y_{\_2017IntOrderGoods}$. The regression coefficient of variation is CV=13.95%, showing that the developed Model F is a very representative one.

For one index point increase in the variable X2_AccHome, fixing the remaining variable, Percentage of individuals aged 16-74, who have basic or above basic overall digital skills for females, X3_DigitalSkill_F, unchanged, the regression value of Y_2017IntOrderGoods would increase by 0.12 percentage points. For one percentage point increase in the variable Percentage of individuals aged 16-74, who have basic or above basic overall digital skills for females, X3_DigitalSkill_F, fixing the variable Level of internet access for households,

X2_AccHome unchanged, the regression value of Y_2017IntOrderGoods would increase by 0.82 percentage points. It should be noted that models given in equation (3) and equation (4) have similar varies of the estimated regression coefficients.

6.2. The multiple linear regression Model M based on adoption of digital skills by males

For explanation of the dependent variable, Y_2017IntOrderGoods, in multiple linear regression Model M, the independent variables taken were as follows: X2_AccHome, and X3_DigitalSkill_M. The OLS estimated Model M, for 31 countries in 2017, looks as follows in equation (5):

$$\hat{Y}_{2017\,IntOrderGoods} = -99.56 + 1.31 gX2_{AccHome} + 0.70\ gX3_{DigitalSkill\_M};$$
$$\hat{\sigma} = 7.667;\ R = 0.935;\ R^2 = 0.876;\ \bar{R}^2 = 0.867;\ F = 99.039;\ \text{n=31}. \quad (5)$$

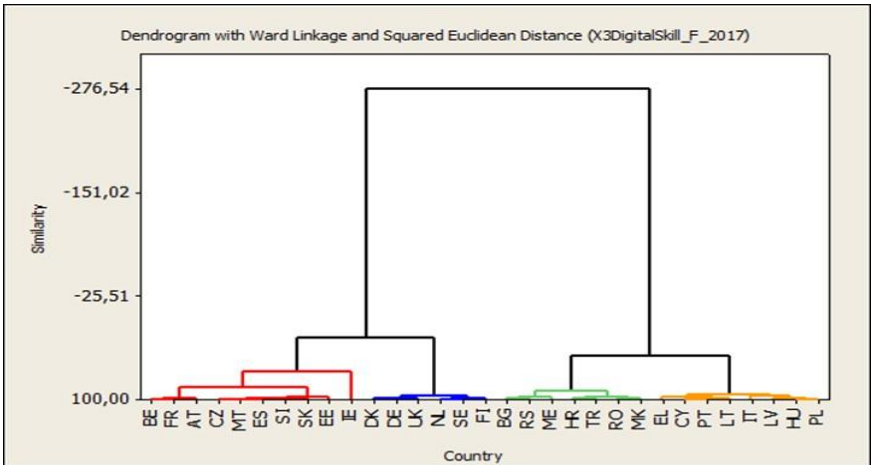
Coefficient of determination R^2 shows a high representativeness of the Model M, since 87.6% of the total sum of squares is explained. Since the overall F-test has p-value ≈ 0.000, the whole regression model is statistically significant at 1% significance level. Using two-sided t-test, the variable $X2_{\_AccHome}$ is statistically significant, with t-statistic = 4.267 and p-value = 0.0002, at 1 % significance level. The variable $X3_{\_DigitalSkill\_M}$ is significant, with t-statistic = 3.723 and p-value = 0.0009, at 1% significance level, too. Regression diagnostics tests for residuals were performed. Jarque-Bera Test statistic J-B=0.3801, with p-value=0.8269, shows that there is no problem of non-normality at 5% significance level. White Test shows, at 5% significance level and p-value = 0.1231, that there is no problem of heteroskedasticity. With Variance Inflation Factor, VIF = 3.3729, there is no multicollinearity problem in Model M.

Both independent variables in Model M have been statistically significant in explanation of the main variable under study $Y_{\_2017IntOrderGoods}$. The regression coefficient of variation is CV=16.15%, showing that the developed Model M is a very representative one. For one index point increase in the variable X2_AccHome, fixing the remaining variable, Percentage of individuals aged 16-74, who have basic or above basic overall digital skills for males, X3_DigitalSkill_M, unchanged, the regression value of Y_2017IntOrderGoods would increase by 1.31 percentage points. The regression value of Y_2017IntOrderGoods would increase by 0.70 percentage points, for one percentage point increase in the variable X3_DigitalSkill_M, unchanging the variable X2_AccHomel.

7. CLUSTER ANALYSIS

In the next step, a cluster analysis was performed for 31 countries in 2017, based on all four variables examined in the regression models (Y_2017IntOrderGoods, X1_GDPpcPPS, X2_AccHome, and finally X3_DigitalSkill). A cluster analysis was performed first for females (X3_DigitalSkill_F) and then for males (X3_DigitalSkill_M) respectively. Figure 3, with the female's variable X3_DigitalSkill_F, comprised countries within the for clusters, as given in Table 4. Figure 4, with the male's variable X3_DigitalSkill_M, comprised countries within the for clusters, as given in Table 5.

Figure 3. Dendrogram for 31 countries grouped into four clusters based on four variables, using the female's variable X3_DigitalSkill_Fin 2017



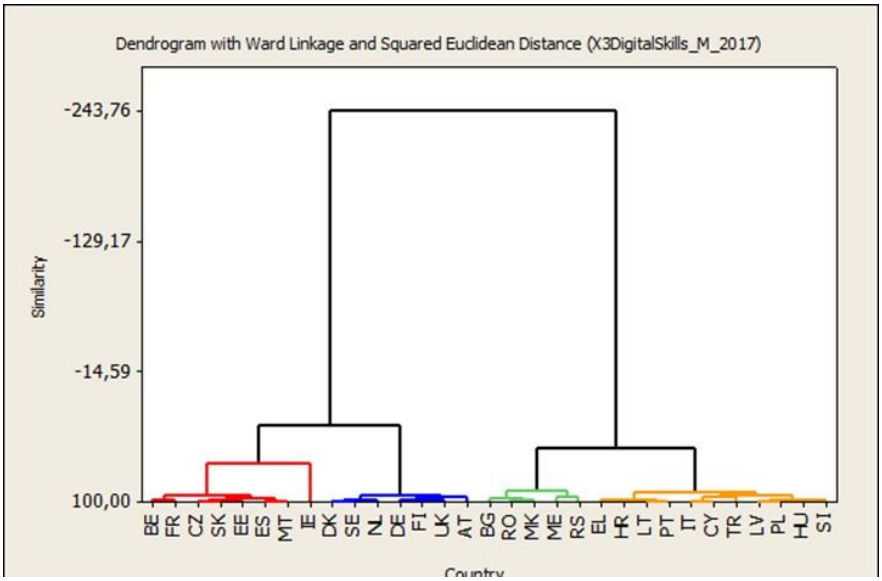
Source: Authors' creation; Eurostat (2018b, 2018c, 2018d, 2019b).

Table 4. Hierarchical clustering of 31 countries with Ward linkage and squared Euclidean distances, 2017, using the females' variable X3_DigitalSkill_F in 2017

Cluster	No. of countries; n = 31	Countries grouped into the clusters
Cluster 1	10	Belgium, France, Austria, Czech R., Slovakia, Estonia, Spain, Malta, *Slovenia,* Ireland
Cluster 2	6	Denmark, Germany, Finland, United Kingdom, Netherlands, Sweden
Cluster 3	7	**Bulgaria, Serbia, Croatia, Montenegro, Romania, North Macedonia, Turkey**
Cluster 4	8	**Greece, Cyprus**, Portugal, Lithuania, Italy**,** Latvia, Hungary, Poland

Note: The SEE countries are bolded.
Source: Authors' creation; Eurostat (2018b, 2018c, 2018d, 2019b).

Figure 4. Dendrogram for 31 countries grouped into four clusters based on four variables, using the male's variable X3_DigitalSkill_Min 2017



Source: Authors' creation; Eurostat (2018b, 2018c, 2018d, 2019b).

Table 5. Hierarchical clustering of 31 countries with Ward linkage and squared Euclidean distances, 2017, using the males' variable X3_DigitalSkill_M in 2017

Cluster	No. of countries; n = 31	Countries grouped into the clusters
Cluster 1	8	Belgium, France, Czech R., Slovakia, Estonia, Spain, Malta, Ireland
Cluster 2	7	Denmark, Sweden, Netherlands, Germany, Finland, United Kingdom, Austria
Cluster 3	5	**Bulgaria, Romania, North Macedonia, Montenegro, Serbia,**
Cluster 4	11	**Greece, Croatia,** Lithuania, Portugal, Italy**, Cyprus, Turkey**, Latvia, Poland, Hungary, Slovenia

Note: The SEE countries are bolded.
Source: Authors' creation; Eurostat (2018b, 2018c, 2018d, 2019b).

Figures 3 and 4 show the dendrograms for 31 European countries grouped into four clusters based on four variables, using Ward linkage and Squared Euclidean distances, in 2017. Figure 3 is using the females' variable X3_DigitalSkill_F, and Figure 4 is based on the males' variable X3_DigitalSkill_M. Both graphs having the common three variables, Y_2017IntOrderGoods, X1_GDPpcPPS and

X2_AccHome, respectively. It might be visible that the most developed countries clustered together and those less developed clustered together, but with different grouping of the SEE countries.

8. CONCLUSION

Individuals using the internet for ordering goods or services, as the percentage of individuals aged 16 to 74, which doubled for the EU28 countries from 30% in 2007 to 60% in 2018, resulted with the OLS linear trend for that period showing the trend slope of 2.73% yearly, with 99.44% of the total variance explained by the linear trend model. Based on the trend analysis since 2007 to 2018, there was the positive OLS linear trend slope for the percentage of Individuals using the internet for ordering goods or services. There is evidence about recently slightly slowing down from 2.82%, with coefficient of determination 99.44% (if counted from 2007 until 2015) to 2.73%, with linear trend coefficient of determination 99.50%, (if counted from 2007 until 2018) yearly.

There is comparison of the influence of Percentage of individuals aged 16-74 who have basic or above basic overall digital skills, by gender, on Percent of individuals aged 16-74 using the internet for ordering goods or services, in 31 European countries in 2017. The greater influence comes from females (0.82 percentage points) than from males (0.70 percentage points) fixing the influence of the variable Level of internet access for households.

Clustering method applied for Y_2017IntOrderGoods, X1_GDPpcPPS; X2_AccHome and separately for females' variable X3_DigitalSkill_F and for males' variable X3_DigitalSkill_M, resulted with four distinctive clusters.

When the clustering of countries is based either on the males' variable X3_DigitalSkill_M, or on the females' variable X3_DigitalSkill_F, the Cluster 1 and Cluster 2, which are economically and digitally the most developed, collected the same 15 members, with the only exception of Slovenia which left Cluster 1 and moved to Cluster 4, in 2017. The only shift is noted for the highly developed Austria, which moved from Cluster 1 to Cluster 2, which is not a big move.

The SEE countries all belong to the remaining two clusters, Cluster 3 and Cluster 4, regardless the gender issues related to digital skills. When taking into account the males' variable X3_DigitalSkill_M, five SEE countries *Bulgaria, Romania, North Macedonia, Montenegro and Serbia,* are in Cluster 3, while the remaining four SEE countries, *Greece, Croatia, Cyprus and Turkey*, are clustered together

with Lithuania, Portugal, Italy, Latvia, Poland, Hungary and Slovenia, comprising Cluster 4.

But, when taking into account the females' variable X3_DigitalSkill_F, seven SEE countries are clustered in Cluster 3, Bulgaria, Serbia, Croatia, Montenegro, Romania, North Macedonia and Turkey, while remaining two, Greece and Cyprus, joined Cluster 4, with Portugal, Lithuania, Italy, Latvia, Hungary, Poland. Therefore, two SEE countries, Croatia and Turkey, are shifted from Cluster 4 to Cluster 3, joining in such a manner the majority of the SEE countries. Surprisingly, when using the females' variable X3_DigitalSkill_F, Slovenia enters the most developed Cluster 1, while the clustering based on the males' variable X3_DigitalSkill_M, put Slovenia to the less developed Cluster 4.

More efforts for improved education should come from various sides, e.g. from governments should offer more adequate legal frame and financial support. Educators should adapt their educational programs. Employees', who face some skill gaps, should pose clearer request for additional forms of adults' education. Finally, professional societies, namely those that are encouraging digital literacy, might contribute through rising their voice for improved digital literacy, needed for implementing diversity of Digital Society profits. In the future research, the limitations of this study may be overcome if more development level variables, those economic, social, education and Information and Communication Technology related, would be analysed, additionally. It should be taking into account the mentioned research findings that the gender differences in the magnitude of relative academic powers and search of STEM degrees increased with increases in a national gender equality level.

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PREGLEDNI NAUČNI RADOVI

REVIEW PAPERS

FOREIGN DIRECT INVESTMENTS IN WESTERN BALKAN COUNTRIES – COMPARATIVE ANALYSIS

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Abstract

Developing countries are aware of foreign direct investments (FDI) significance as one of the main investment source. Therefore, they try to be more attractive for these kind of investments. Western Balkan countries, developing countries as well, are also increasingly dependent on foreign direct investment. As it's known FDI are one of the important factors for economic growth as well as for development. Foreign direct investments have recently begun to play important role in the business internationalization. This paper aims to analyze level and effects of foreign direct investments in these countries. It, also, give better insight into current and historical trend of FDI in these countries. For the purpose of analysis, data for pre-crisis and current period for Western Balkan countries have been used. This paper shows importance and impact of FDI in Western Balkan countries. Thus, it was investigated which of these countries have the greatest level of FDI, which of them are better in FDI usage and how does level of foreign direct investments influence country's growth and development. Analysis shows recommendations for better FDI usage and attraction are settled.

Key words: investments, foreign, comparation, influence, effects.

JEL: F65, E22

1. INTRODUCTION

In global economy foreign direct investments are the most important way of international business activities. Open transition economies are dependent on foreign direct investments. Therefore they open their economies for transnational corporations. The whole concept of their development is based on creation of an attractive environment for capital imports. This paper focuses on Western Balkan transition economies. These countries are, mainly in process of EU integrations (Croatia is already a member) what should increase FDI.

Impact of FDI on national economies depends on many factors such as: investors motivation, type of investment, possibility of new technology and know-how transfer, investments into human capital, development of general and economic environment, host country motivation etc. Thus, they don't represent just cross-border movement of capital, but transfer of new technologies and knowledge that contributes to growth of competitiveness, employment and international trade. This lead to economic growth and development of domestic economy. During two crisis years total world foreign direct investments have decreased for 50% and till end of 2009th have stabilized on level of 1,1 bn USD. Therefore, data show that financial crisis has decreased level of FDI to developing countries, so in this paper this fact will be examined.

Slow recover of global FDI, increasing attraction of new investment destinations as well as shift of focus of foreign investors from manufactory industry to primary sector and services, have heavy determine state on international capital markets in long-term as well as in mid-term. Attracting of FDI's have become international competitive activity for state governments. That require overview of trends on international capital markets, capacity of host countries to receive FDI as well as factors which influence level and structure of FDI. Moreover, identification of growth potential for FDI and comparison with successful countries, should point at necessary remaining economic and institutional reforms in order to increase attractiveness of local market for new investments.

2. FOREIGN DIRECT INVESTMENTS (FDI)

Foreign direct investments are basic form of international capital movement and one of the most attractive forms of international cooperation and realization of development goals of the country. Direct financing shall be provided for large profits and other direct benefits bypassing tariff barriers or cheap work force usage. Under the FDI implied those forms of investments where investor enables

ownership, control and firm management into which funds have been invested due some economic interest realization.

Inflow of foreign capital have big impact on national economy. On the one hand, it decreases deficit balance of payments, enables employment of local work force etc. There are various definitions of foreign direct investments. Some authors define FDI as direct investment into aboard firms in order to gain a permanent control under production, trade and finance of firms into which investments were delivered. Other authors define FDI as investments which include long-term relations and maintaining of permanent relations and firm control – resident of one country in firm which is resident of another country.

FDI can be realized in different forms and on different ways:

- Greenfield investments: direct investments into completely new manufacturing plant on to foreign market, wholly owned by foreign investors;
- Cross-border acquisitions: merger of existing firms at another country. It can be formed as: majority acquisition, minority acquisition or swop agreement;
- Brownfield investments: hybrid model which is combination of Acquisition and Greenfield investments. Formally it is acquisition, but essential they are more like Greenfield investments – investors almost completely change plants, equipment and manufacturing line;
- Joint venture – agreement between two or more subjects to work together on the project and create entity which they together control by:
    - common investment without ownership rights,
    - investments in form of concessions. (Grgurević, 2009)

According to investors' motives, economic theory differs four forms of FDI:

- Market Seeking - aimed at winning local and regional markets. Market size and potential are the main decision factors;
- Resource Seeking – investors in host country uses resources which is not in their country;
- Efficiency Seeking - proximity to developed markets as well as markets where they are already most important factors;
- Asset Seeking – they are realized because of promotion of log-term strategic goals and they are characteristic for developed countries.

Resource seeking FDI require availability of useful resources what can be excuse for manufactory movement to another country. These investments have the

greatest increase in value of investments as well as in number of projects, because they are focused on investments into oil, agriculture and food industry. Market seeking FDI are focused on victualing of local market and connecting with suppliers and customer market and adjustment of goods and services to local customers' tastes and preferences. The most important aim of efficiency seeking FDI is willingness to improve efficiency in manufacturing by differentiation and geographic separation between production phases and business activities in accordance with comparative advantages of host country. Asset seeking FDI aimed transnational corporation's asset increase and diversification. This include strategic positioning on monopoly and oligopoly markets. (Derado, 2013)

Foreign direct investments in contemporary development phase they become main development factor and with international trade are becoming a basic mechanism of world economy globalization. Positive impacts on host country are related to inflow of additional accumulation from aboard and enabling of possibilities for higher investments and higher growth rates of productivity and employment as well as economy growth. This is basis for foreign trade balance improvement, because it enables substitution of import and increase of export. Also it enables financing of deficit balance of payments what enables domestic economy adjustment in order to provide foreign trade balance. Further, it enables transmission of new technologies, infrastructure development, and easiest product placement on international market in order to provide a stronger competition and export increase. Increase in production, by foreign capital employment, boost revenues. Developing countries are characterized as low-capital countries what is basic generator of prosperity of economy. Foreign direct investments, unlike loan capital, do not require repayment of principal and interest and contribute to inflation stabilization, increase of GDP and improving the balance of payments situation. Engaging local workforce into subsidiaries decreases unemployment rate and increases disposable income of households. Since the FDI implies transfer of new technologies, it enhances way of doing business of entire economy, since domestic economic subjects are trying to be like their new market rivals. Ultimately, competitiveness of the whole economy increase. Newly built capacities enable better supply of domestic market. Therefore, they start to export surplus, so the image of host country increase.

Host countries have to think about negative implications of process of business internationalization. Financial management includes risk management in relation to the expected apprentices. In that context, the risk is danger of the loss in monetary transactions. (Sović & Kikanović, 2014) Foreign capital inflows in form of FDI can have different negative implications on host country. Actually, it

creates dependence of foreign and it is possible that foreign capital could enter into more profitable areas and develop segments of domestic economy according to the needs of foreign investors. Anti-globalization as an argument against the inflow of FDI allegations exploitation of the workforce. Under the pressure of foreign capital, especially when it comes to FDI, economy develops according to the needs and interests of foreigners, that means that aims of national economic and social development. A particular challenge for public authorities and other government bodies will be enabling of market transparency. It especially comes to the fore at developing countries into which foreign economic powerful companies can by damping prices eliminate competitors and exploit dominant position at market. Therefore, this monopoly structure will be of interest just for transnational companies. One of the greatest problems is, surely, profit transfer from subsidiaries to parent company. In this way tends to spill over accumulation of host country to foreign. Legal and other regulations are trying to prevent this occurrence, but these companies have a lot of mechanisms to bypass these legal restrictions. Transfers of profit disrupts balance of payments and neutralizes initial positive effects of foreign capital inflows. One of the main motives of foreign companies for operating outside of its national borders is exploitation of nature resources of host country. Most frequently there are nonrenewable sources, so governments have to be very careful when they define concession agreements. (Bubnjević, 2009)

4. FDI IN DEVELOPING COUNTRIES

Processes of liberalization and privatization are the main triggers for foreign capital inflows into developing countries. Although the fact that inflow of foreign capital in all developing countries was present, impacts were different. Some countries managed to significantly increase export competitiveness, to involve into international manufacturing and technological flows and chains. Others have used those inflows for disinvestment, actually for financing different forms of domestic consumption. While FDI represents investment in production facilities, its significance for developing countries is much greater. The first to benefit are enterprises that are part of transnational systems (consisting of parent firms and affiliates) or that are directly linked to such systems through nonequity arrangements, but these assets can also be transferred to domestic firms and the wider economies of host countries if the environment is conducive. (Mallampally & Sauvant, 1999) Due to vulnerable external positions and enhanced funding requirements related to the EU accession and catching-up, FDI is often highly welcomed by government officials in the South East European (SEE) countries. (Botrić, 2010) Inflows of foreign capital in developing countries have led to

significant foreign trade and balance of payments deficit. But, strategy of FDI attraction in some countries proved to be successful, since deficits decreased and export increases faster than import. Entrepreneurs have enable efficacy production and more competitive export. It was shown that FDI have the greatest efficacy in countries which are best made adequate investment and institutional ambient. Therefore, FDI have a huge potential for economic growth and development, so they are one of the main strategic aims of developing countries. Results point out the main variables that impact on FDI for the Western Balkan countries: wages, level of corruption, agreement with EU, privatisation. (Kersan-Škabić & Orlić, 2007)

5. RESEARCH RESULTS

In recent years a world financial markets have gone through a very difficult period. This crisis period have contributed to decrease in FDI inflows too. This scenario isn't, of course, bypassed neither Western Balkan countries.

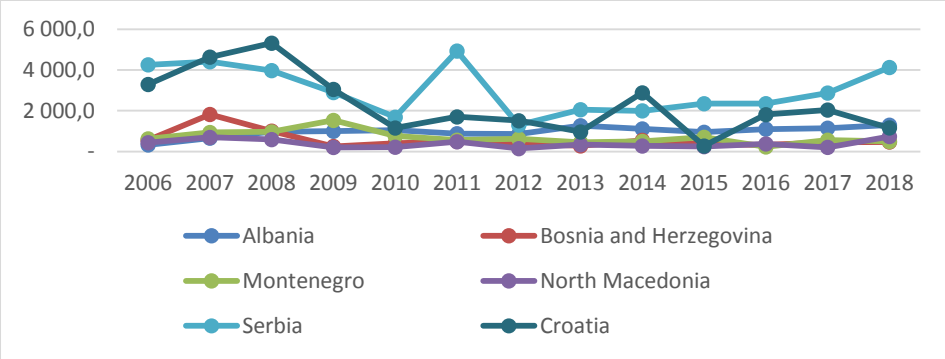
Table 1: FDI inflows in Western Balkan countries, 2006-2018 (millions of dollars)

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	324,4	658,5	974,3	995,9	1 050,7	876,3	855,4	1 265,5	1 110,0	945,3	1 099,9	1 146,1	1 293,6
Bosnia and Herzegovina	554,7	1 819,2	1 001,6	249,9	406,1	496,5	394,9	276,4	550,2	361,1	319,0	448,1	467,7
Montenegro	622,0	934,4	960,4	1 527,3	760,4	558,1	619,8	447,4	497,0	699,1	226,3	557,2	489,6
North Macedonia	432,6	692,5	585,8	201,4	212,5	478,8	142,9	334,9	272,2	240,4	374,3	204,8	737,1
Serbia	4 255,7	4 405,9	3 971,9	2 896,1	1 686,1	4 932,3	1 298,6	2 052,5	1 996,1	2 346,6	2 350,4	2 871,2	4 125,5
Croatia	3 290,9	4 632,6	5 317,2	3 048,5	1 155,1	1 698,7	1 509,6	960,8	2 879,4	269,6	1 807,7	2 036,9	1 159,4

Source: UNCTAD, World Investment Report 2019; http://unctad.org/fdistatistics

As it can be seen on above table and following graph, the largest drop in FDI inflows was recorded in country which received the most of FDI in previous period – Croatia. The second largest decline was in Bosnia and Herzegovina, than The Former Yugoslav Republic of Macedonia and Serbia. The remaining countries in the sample have maintain level of FDI during the observed period on a balanced level. So, data show that FDI in this region has been affected by crisis.

Graph 1: Movement of FDI inflows in Western Balkan countries, 2006-2018



Source: UNCTAD, World Investment Report 2019; http://unctad.org/fdistatistics

The following table represents FDI inward stock as percentage of gross domestic product in Western Balkan countries. FDI stock can be defined in different ways, depend on corner of observation. Thus, for associate and subsidiaries, that's a value of share of their capital and reserves attributable to parent companies plus net indebtedness of associate of subsidiary to parent company. On the other hand, for branches FDI is value of fixed assets and current assets and investments without amounts due from parent, minus liabilities to third parties. So, if we look at the following table we can notice that FDI inward stock has increasing trend in all observed countries.

Table 2: FDI inward stock in Western Balkan countries, 2006-2018

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	1 392,0	2 693,3	2 868,5	3 257,8	3 254,9	4 399,1	4 303,3	3 930,7	4 295,4	4 336,5	4 985,2	6 739,2	7 902,0
Bosnia and Herzegovina	3 202,6	5 396,8	6 102,7	6 936,4	6 708,9	7 127,3	7 563,8	8 230,9	7 267,5	6 946,2	6 917,6	8 246,8	8 330,1
Montenegro	-	-	-	-	4 231,2	4 209,4	4 706,6	5 143,0	4 844,0	4 881,0	4 572,0	5 325,0	5 558,9
North Macedonia	2 763,8	3 746,7	4 131,6	4 525,5	4 350,6	4 677,6	4 862,7	5 488,8	4 885,1	4 790,4	4 909,3	5 634,1	5 961,4
Serbia	-	-	19 333,3	20 869,8	22 299,3	24 674,6	26 013,6	31 489,9	29 569,3	29 072,5	30 369,1	37 572,9	39 832,9
Croatia	24 376,5	41 699,9	27 845,5	32 942,5	31 517,4	28 206,5	29 645,8	29 858,1	28 984,2	25 952,1	27 602,0	33 468,9	32 884,5

Source: UNCTAD, World Investment Report 2019; http://unctad.org/fdistatistics

In order to investigate possible relations and causalities between FDI inflows and annual GDP growth, we will take a look at GDP annual growth rate. As it was expected the meltdown in GDP growth rate has occurred in 2009th. The greatest growth rate decrease is noticeable in Croatia. Only Albania has positive growth

rate in 2009th. So, crisis has affected all countries, some of them more and some of them less. All countries have recovered in 2010th.

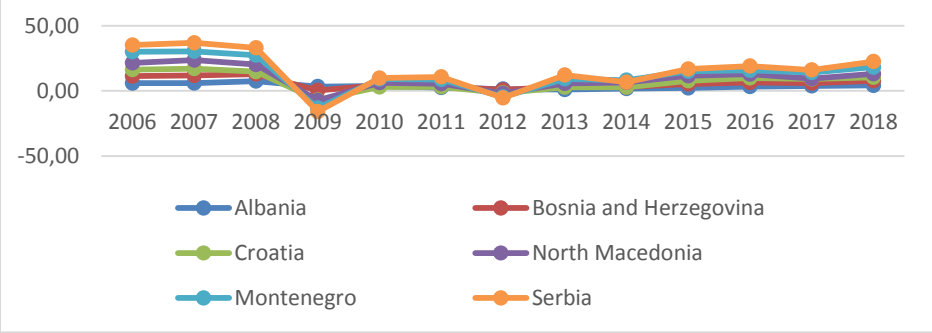
Table 3: GDP annual growth rate in Western Balkan countries, 2006-2018

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Albania	5,90	5,98	7,50	3,35	3,71	2,55	1,42	1,00	1,77	2,22	3,31	3,82	4,15
Bosnia and Herzegovina	5,42	5,86	5,43	-3,00	0,77	0,91	-0,70	2,35	1,15	3,09	3,15	2,13	3,62
Croatia	5,00	5,27	1,76	-7,36	-1,50	-0,31	-2,24	-0,55	-0,10	2,44	3,48	3,14	2,63
North Macedonia	5,14	6,47	5,47	-0,36	3,36	2,34	-0,46	2,92	3,63	3,86	2,85	0,24	2,66
Montenegro	8,57	6,81	7,22	-5,80	2,73	3,23	-2,72	3,55	1,78	3,39	2,95	4,72	5,08
Serbia	5,11	6,44	5,66	-2,73	0,73	2,04	-0,68	2,89	-1,59	1,78	3,34	2,05	4,39

Source: World Bank data, http://databank.worldbank.org/data/views/reports/tableview.aspx

The following graph represents GDP annual growth rate movements for observed countries in observed period. As it was already emphasized, a significant decline has occurred in 2009th, affected by financial crisis. If we take a look at convergence between FDI inflows and GDP annual growth rate for observed countries at observed period it's noticeable a significant correlation. Namely, up to 2009th FDI inflows as well as GDP annual growth rate have increasing trend for all observed countries. After that, FDI inflows have sharp decline as well as GDP annual growth rate. Of course, impact isn't same in all countries but all countries, except Albania, have experienced decline in both observed indicators.

Graph 2: GDP annual growth rate movements in Western Balkan countries, 2006-2018



Source: World Bank data, http://databank.worldbank.org/data/views/reports/tableview.aspx

The largest FDI inflow for the observed period had Serbia in 2011th – 4.932 million of dollars and the lowest FDI inflow has recorded North Macedonia. Further the largest GDP annual growth rate for the observed period has recorded Serbia in 2008h. Follow by that high GDP annual growth, Serbia has recorded the lowest in 2009th in comparison with other analyzed countries. If we look up for which of these countries in global during observed period had the largest FDI inflows level they are Serbia and Croatia. On the other hand the countries with the largest GDP annual growth rate are Serbia, Montenegro and North Macedonia. Also, countries with the lowest FDI inflows are Montenegro, North Macedonia and Bosnia and Herzegovina. The lowest GDP annual growth rate in sample of observed countries for the observed period has Serbia. So, it can be concluded that Montenegro on best way uses FDI and maintain or increase its GDP growth rate. Namely, it has one of the lowest levels of FDI inflows and one of the highest GDP growth. Croatia, for example, is country with the largest FDI inflow and with low GDP growth rate. Therefore, it's necessary further to investigate into which areas are FDI directed, are they used on right way and for right purposes.

5. CONCLUSION

Investments are one of the most important questions of macroeconomic policy of one country. Thus, it's very important to identify and implement clear and consistent policy which will comprehensively treat this area. FDI attraction is of a huge importance for developing countries because they contribute to development and increase of local and international market. They should increase employment, work productivity, aggregate supply, concurrency and export of host country. Therefore, it's necessary to overcome a practice of their disinvestment, antidevelopment and anti-productive FDI directing.

As the analysis had shown, countries with the largest level of FDI inflows had the lowest GDP annual growth rate so it's necessary to reassess FDI directing. It's was expected that all countries will suffer economic decline in crisis period. Also it was expected that FDI inflows decline in same period. But, it's not expected that countries with a huge level of FDI inflows have a low GDP annual growth rate. This is especially worrisome because analysis had shown positive correlation between FDI inflows and GDP annual growth rate. But some countries are, obviously, exceptions. Thus, further researches should investigate and disclose the source of the problem and its possible solution.

One more thing is important to emphasize – the largest drop in FDI inflows had country with the largest FDI inflows in previous period. Therefore, this problem is multidimensional and require involvement of additional variables and factors in analysis. For the end, what is very important to conclude, is that FDI inflows definitely support economic development and growth. What differ impacts and growth in one country from another is way of FDI inflows usage and directing. Therefore, it's on countries to use those FDI for development purposes in order to enable conditions for growth and prosperity.

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STRANE DIREKTNE INVESTICIJE U ZEMLJAMA ZAPADNOG BALKANA - KOMPARATIVNA ANALIZA

Abstrakt

Zemlje u razvoju svjesne su značaja direktnih stranih investicija (FDI) kao jednog od glavnih izvora ulaganja. Stoga se trude privući što više ovakvih investicija. Zemlje zapadnog Balkana kao i zemlje u razvoju, sve više ovise o direktnim stranim ulaganjima. Kao što je poznato, direktna ulaganja su jedan od važnih faktora kako za ekonomski rast, tako i za razvoj. Strane direktne investicije igraju važnu ulogu u internacionalizaciji poslovanja. Ovaj rad ima za cilj da analizira nivo i efekte direktnih stranih investicija u zemljama Zapadnog Balkana. Također, biti će prikazan bolji uvid u trenutni i historijski trend FDI u tim zemljama. U svrhu analize korišteni su podaci za pretkrizno i tekuće razdoblje za zemlje Zapadnog Balkana. Ovaj rad pokazuje važnost i utjecaj FDI u zemljama Zapadnog Balkana. Dakle, istraženo je koja od ovih zemalja ima najveći nivo FDI, koje su od njih bolje u korištenju FDI i kako nivo stranih direktnih investicija utiče na rast i razvoj zemlje. Analiza pokazuje preporuke za bolju upotrebu i privlačenje stranih direktnih investicija.

Ključne riječi: investicije, strane, poređenje, uticaj, efekti

JEL: F65, E22

ULOGA EKONOMSKE DIPLOMATIJE U PODRŠCI IZVOZU SLUČAJ BH. DIPLOMATSKO-KONZULARNIH PREDSTAVNIŠTAVA U REPUBLICI TURSKOJ

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Abstrakt

Ekonomska diplomatija kao podoblast u povezanim naučnim disciplinama javlja se relativno kasno, iako su njena pitanja prisutna od najranijih početaka diplomatske historije. Tehnički progres i razvoj komunikacija ubrzali su procese globalizacije i raznih vidova integracija, kako u sferi politike tako i u sferi ekonomije. Ovi procesi uticali su da pitanja ekonomske diplomatije budu značajnije tretirana i u državnim politikama ali i u teorijskim istraživanjima. Cilj ovog istraživanja je bio da prikaže aktivnosti ekonomske diplomatije BiH u podršci izvoznicima na tržištu R. Turske i da prikupi percepcije i ocjene bh.izvoznika o tim aktivnostima. U tu svrhu provedena su istraživanja i prikupljeni su podaci od predstavnika Ministarstva vanjskih poslova BiH i diplomata u Ambasadi BiH u Republici Turskoj. Također, na osnovu referentnog uzorka, prikupljeni su i stavovi bh. izvoznika koji su prisutni na turskom tržištu. Podaci prikupljeni na osnovu istraživanja pokazuju da postoji određena saradnja između bh. diplomatskih predstavnika i predstavnika izvoznika, ali da je neophodno da dođe do njenog unaprijeđenja kako u kvantitaitvnom tako i u kvalitativnom smislu. Rezultati istraživanja jasno ukazuju na potrebu strateškog vođenja ekonomske diplomatije koja će uvažavati potrebe i biznis sektora, uključujući oblasti kao što su: privlačenja stranih investicija, promocije izvoza, privlačenja turista i adekvatne izgradnje imidža BiH.

Ključne riječi: ekonomska diplomatija; diplomatska predstavništva; podrška izvozu; Bosna i Hercegovina, Republika Turska

JEL klasifikacija: F14, F59

ZNAČAJ EKONOMSKE DIPLOMATIJE

Prateći aktuelna dešavanja u međunarodnoj ekonomiji možemo uočiti da njom dominiraju pitanja ekonomske diplomatije čija refleksija ima globalni karakter a čije posljedice su primjetne i u kratkom i dugom vremenskom periodu. Zaštita domaće proizvodnje u odnosu na strane konkurente, upitna primjena ranijih postignutih sporazuma (trgovinskih, ekoloških...), odnos i povjerenje prema međunarodnim ekonomskih institucijama i integracijskim procesima, dešavanja oko cijene nafte te ponašanje i saradnja država i međunarodnih institucija u kriznim situacijama, jedne su od glavnih tema koje zaokupljaju širu i stručnu javnosti. Ova i brojna druga aktuelna pitanja predstavljaju sintezu ekonomskih, političkih, diplomatskih i sigurnosnih aspekata, koje ni jedna država ne može zanemarivati i koje predstavljaju ključne odrednice u formiranju njihovih politika i diplomatske aktivnosti. To nas direktno vodi na područje ekonomske diplomatije, koja se često određuje kao upotreba političkih alata za postizanje ekonomskih ciljeva, i ona kao takva zapravo postoji još od drevnih civilizacija. Ovaj proces je posebno potaknut ekonomskom liberalizacijom i globalizacijom te pojavljivanjem međunarodnih ekonomskih institucija i njihovim sve većim značajem.

Pojam ekonomske diplomatije obično se tumačiti na dva načina, koja možemo označiti kao širi i uži pristup u razumijevanju ovog pojma. U širem kontekstu, neki autori definiraju ekonomsku diplomatija kao granu diplomatije koja se bavi pitanjima ekonomske politike, ona upošljava ekonomske resurse jedne zemlje, stimulativne i destimulativne (npr. pomoć i/ili sankcije), u cilju ostvarivanja ciljeva vanjske politike. To je izraz koji se često koristi za opisivanje skupa vladinih mjera u cilju ostvarivanja državnih ekonomskih interesa (Berridge i James, 2003; Saner i Yiu, 2003). Drugi pristup u definiranju ekonomske diplomatije naziva se "mikro razina" ekonomske diplomatije (Kopp, 2004.). i fokusiran je na podršku trgovini, imidžu i investicijama i uže specijalozavanom spektru aktivnosti ekonomske diplomatije. U ovom radu koristi se "šira definicija" ekonomske diplomatije, prema kojoj je: ekonomska diplomatija proces kroz koji države ulaze u intereakciju sa vanjskim svijetom, kako bi povećale svoj nacionalni interes u područjima trgovine, investicija i drugih oblika ekonomski korisne razmjene. Često možemo susresti izraze kao što su: komercijalna, poslovna, trgovačka, biznis, korporativna i finansijska diplomatija. Za potrebe ovog rada korišten je termin ekonomska diplomatija koji objedinjuje sve pomenute termine.

1. SVRHA I GLAVNE AKTIVNOSTI EKONOMSKE DIPLOMATIJE

Ekonomska diplomatija obuhvata područja kao što su: izvoz, promocija stranih investicija, međunarodna trgovina, turizam, izgradnja imidža zemlje, promocija nauke i tehnologije, cjelokupni međunarodni rejting zemlje i slično. Ekonomska diplomatija, ako se koristi precizno i strateški, usklađena sa javnom diplomatijom, može da predstavi zemlju kao "snažan brend" te da razvija njene nematerijalne vrijednosti.

Imajući u vidu navedena teorijska određenja svrhe i glavnih aktivnosti ekonomske diplomatije, možemo konstatirati da su njeni zadatci po mnogim teoretičarima (Potter, 2004; Lee, 2004; Naray, 2008; Kostecki i Naray, 2007; Saner i Yiu, 2003 i dr) slijedeći:

- podrška kompanijama za izlazak na strana tržišta u vidu promocije trgovine;
- zagovaranje priliva stranih investicija;
- turistička promocija;
- saradnja u nauci, tehnologiji, uključujući i razvoj;
- zagovoranje interesa domaće poslovne zajednice;
- prikupljanje i širenje poslovnih informacija i istraživanje tržišta;
- razvoj poslovnih i vladinih kontakata u zemljama;
- promocija proizvoda (uključujući i nove proizvode) na tržištu domaćina kroz organizaciju seminara, sajmova i izravnog lobiranja i sl.;
- podrška novim izvoznicima;
- kreiranje pozitivnog ekonomskog imidža zemlje;
- organizacija sastanaka najviših nosioca državne vlasti u pratnji privrednika, s ciljem osiguravanja strateških partnerstava i unaprijeđenja ekonomskih odnosa između država i dr.

2. EFEKTI EKONOMSKE DIPLOMATIJE

Kako ekonomska diplomatija ima zadatak unaprjeđenje ekonomskih interesa zemlje tako možemo i posmatrati njenu efikasnost, shodno stepenu relizacije postavljenih ciljeva. Međutim da bi napravili naučnu analizu njenih potencijalnih efekata, neophodno je uzeti u obzir njeno određene, postavljene zadatke, stil vođenja, aktivnosti kao i aktere. Iako postoje brojne teorijske formulacije efekata ekonomske diplomatije, broj empirijskih istraživanja još nije na zadovaljavajućem nivou, što predstavlja izazov za istraživanja različitih aspekata ekonomske diplomatije, a od kojih bi imali potencijalnu korist i države i kompanije.

U najširem kontekstu efekte ekonomske diplomatije možemo podijeliti na političke i ekonomske. Kostecki i Naray (2007) predstavili su lanac vrijednosti ekonomske diplomatije, gdje navode da je ekonomska diplomatija aktivnost stvaranja novih vrijednosti.

Rose (2005), koristeći se gravitacionim modelom, iznosi kvantitativne rezultate iz kojih se vidi da broj diplomatskih predstavništava u svijetu utiče na razvoj izvoza. Komparativno koristeći podatke dvadeset i dva velika izvoznika i dvije stotine izvoznih odredišta, autor pokazuje da će bilateralni izvoz porasti za oko 6 do 10% za svaki dodatni konzulat u inostranstvu. Veenstra i dr. (2010) tvrde da su efekti koje ostvaruju izvozne agencije beznačajni u odnosu na efekte konzulata i ambasada. Povećanje od 10% broja konzulata i ambasada utiče od 0,5 do 0,9% većeg protoka trgovine. Yakop i Bergeijk (2011) u rezultatima svoje studije podržavaju nalaze Rosea. Također su utvrdili da kompanije koje koriste programe promocije izvoza, koje pružaju države, ostvaruju veći uspjeh u izvozu.
Pored pozitivnih efekata ekonomske diplomatije, u literaturi se mogu sresti i kritike ekonomske diplomatije i aktivnosti koje ona provodi. Neoklasični ekonomisti tradicionalno drže skeptičan pogled na ekonomsku diplomatiju i instrumente koje ona koristi, posebno kada se radi o izvoznim subvencijama i državnim poslovima promocije izvoza.

3. ULOGA DIPLOMATSKO-KONZULARNIH PREDSTAVNIŠTAVA U PODRŠCI IZVOZU

Kao što smo naveli porijeklo ekonomske diplomatije vraća nas u davna vremena, međutim novija historija ekonomskih predstavništava u okviru diplomatske službe vraća nas u XIX stoljeće, kada se u okvirima diplomatske službe šalju trgovački atašei (Carron 1998.). Kasniji razvoj ove službe unutar diplomatije razvija se iz potrebe za informacijama koje tržišta ne mogu sama dostaviti. S razvojem informacionih tehnologija pravi se pomak i u dostupnosti mnogih podataka ali i mogućnosti ostvarivanja izravnih kontakata, koji postaju pristupačniji.

S obzirom na shvatanje pojma ekonomske diplomatije, imamo i različito određivanje uloge diplomatsko-konzularnih predstavništava i njihovih aktivnosti (Saner, Yiu 2003), koji se najčešće koriste za pokrivanje dvije donekle različite vrste aktivnosti:

1. aktivnosti koje se odnose na trgovinsku politiku generalno (npr. multilateralni trgovinski pregovori, trgovinske konsultacije i rješavanje sporova), i
2. aktivnosti za podršku poslovnom sektoru.

Yakop i Bergeijk (2011) definiraju ambasadu kao tijelo diplomatije koje se bavi političko-ekonomskim ali i komercijalnim pitanjima. Dva najvažnija međunarodna izvora koja određuju okvir predstavljanja u drugim zemljama su: Bečka konvencija o diplomatskim odnosima, potpisana kao ugovor 1961. i Bečka konvencija o konzularnim odnosima, koja je potpisana 1963. godine. Funkcije vezane za posao predstavnika ekonomske diplomatije, jasno su naznačene u njima, a one se odvijaju kroz diplomatske aktivnosti. U konvencijama se navodi da je jedan od zadataka 'komercijalnog atašea' da predvidi mogućnosti novog tržišta koji su od interesa za nacionalnu industriju. To se postiže kroz prikupljanje informacija iz niza izvora i korištenjem iskustva i stručnog znanju u analizi, tumačenju i uočavanje bitnih elemenata.

3.1. Organizaciona struktura

Što se tiče organizacijske strukture i mjera ekonomske diplomatije u diplomatskim predstavništvima one se provode uz nadzor voditelja diplomatske misije kako bi se osigurala usklađenost sa vanjskopolitičkim ciljevima. Postoje značajne razlike između država u načinu organiziranja sistema ekonomske diplomatije s obzirom na organizacijski i institucionalni okvir. Razne su vrste kriterija na osnovu kojih možemo analizirati organizacioni okvir. Narayu i drugi autor (Lee i Hudson, 2004; Kopp, 2004.; Rana, 2002; Loewendahl, 2001; Sadžak 2008) navode da se upravljanje i organiziranje poslova ekonomske diplomatije razlikuje od države do države, ali da možemo identificirati četri kategorije koje su zastupljene u različitim zemljama:

1. Ekonomska diplomatija koja se realizira isključivo putem Ministarstva vanjskih poslova (Danska, Finska, Norveška, Švedska, Australija, Novi Zeland, Kanada, Južna Koreja, i dr.).
2. Poslovi promocije i nadzora nad trgovinom i ulaganjima odvijaju se u saradnji između Ministarstva vanjskih poslova i Uprave za trgovinu, ovaj model je zastupljen u Velikoj Britaniji.
3. Poslovi promocije vezane za izvoz i ulaganje vode se putem posebnih agencija koje djeluju u okviru Ministarstva za trgovinu, ali koje usklađuju svoj rad i sa Ministarstvom vanjskih poslova. Ovaj model "outsourcing-a" je zastupljen u Singapuru.
4. U nekim zemljama postoje tzv. slučajevi "natjecanja" između ministarstava vanjskih poslova i ministartsva trgovine što često ima za posljedicu da se diplomatska mreža ne koristi u optimalnoj mogućnosti za unapređivanja ekonomskih ciljeva zemlje. Tu možemo smatrati izuzetak Brazil, gdje Ministasrtvo vanjskih poslova upravlja regulatornim poslovima, kao i pregovorima sa WTO, a Ministarstvo trgovine igra sekundarnu ulogu.

Drugi strukturalni aspekt odnosi se na razinu vlasti, gdje se planira, organizira i upravlja ekonomskom diplomatijom. Neke zemlje aktivno su postigle saradnju između državnih i nedržavnih aktera za unapređenje ekonomskih interesa u inostranstvu, putem formalnih i neformalnih mehanizama. Međutim u malim ambasadama, gdje ambasador ima samo jedno ili dvoje diplomata koji mu pomažu u svim poslovima, nerealno je očekivati postojanje zasebnog službenika koji bi se bavio isključivo pitanjima ekonomske diplomatije. Većina država u razvoju imaju neki put u optimizaciji svoje diplomatske mreže, putem koje organiziraju sve poslove koji se tiču vanjske politike, uključujući i ekonomsku diplomatiju.

3.2. Aktivnosti ekonomske diplomatije u DKP

Obim i struktura poslova ekonomske diplomatije razvili su se tokom posljednje tri decenije, kao odgovor na promijenu vladinih prioriteta, tehnoloških promjena i razvoja spoljnotrgovinskog sistema. Naray (2008.) empirijskim istraživanjima dolazi do podataka, preko kojih tabelarnim prikazom, pokazuje matricu aktivnosti i područja ekonomske diplomatije koji se ostvaruju putem diplomatskih predstavništava.

Tabela 1. Matrica oblast/aktivnosti ekonomske diplomatije koju provode DP, izvor: Naray (2008)

OBLAST / AKTIVNOSTI	Promocija trgovine roba i usluga	Zaštita prava intelektualne svojine	Saradnja u nauci i tehnologiji	Promocija zemlje porijekla i imidža korporacije	Promocija stranih direktnih investicija
Inteligencija	Prikupljanje podataka o izvoznom tržištu	Nadgledanje povreda prava intelek. svojine	Praćenje istraživačkih dostignuća	Studije imidža	Identifikovanje potencijalnih investitora
Komunikacija	Konferencija za promociju turizma	Prezentacije tokom kampanja za podizanje svijesti	Priprema novinskih članaka o naučnim dostignućima	Doprinos 'made-in' promocijama događajima	Brifing za potencijalne investitore
Upućivanje	Predstavljanje potencijalnih izvoznika	Pronaći pouzdane advokate	Olakšavanje kontakata između H.T. laboratorija	PR za velike ugovore u kojima se promovira nacionalni imidž	Približavanje direktora sa investicionim prijedlozima

Zastupanje	Podrška firmi u postupcima za rješavanje sporova	Pritisci za poboljšanu zaštitu autora domaćih zemalja	PR u korist zajedničkih naučnih projekata	Odbrana nacionalnih kompanija izdvojenih od strane vlasti domaćih zemalja	Zaštita domaćih investitora u zemlji domaćina
Koordinacija	Organizacija radnih sastanaka	Koordinacija pravnih postupaka	Predstavljanje stranaka za iniciranje zajedničkih poduhvata istraživanja i razvoja	Koordinacija made-in kampanja	Organizacija učešća ministra na forumu privatnih investitora
Logistika	Ambasada održava konferencije za promociju trgovine	Materijal ambasade za obuku tokom kampanje podizanja svijesti (štampanje i distribuicija)	Ambasador ili ED održava konferenciju o promociji naučne saradnje	Prevod materijala kampanje vrši osoblje ED jedinice	Članovi misije za promociju investicija koriste prostore ambasade

Analizirajući literaturu koja se bavi aktivnostima ekonomske diplomatije od strane diplomatsko-konzularnih predstavništava, možemo sumirati njihove aktivnosti u nekoliko osnovnih djelatnosti:

1. Umrežavanje i traženje partnera - sastoji se od pružanja uvida u mogućnosti ulaganja i promoviranju poslovnih odnosa kroz savjetovanje ali i podršku domaćim i stranim kompanijama u provedbi njihovog ulaganja (Saner & Yiu 2003). S obzirom da se nalaze u zemlji prijema, znanje ekonomskih diplomata je posebno korisno u pomaganju kompanija za sudjelovanje na sajmovima, promociji poslovanja te trgovinskim i tehničkim simpozijima, i sl. (Carron 1998., Hibbert 1990).
2. Upravljanje sukobom - ekonomski diplomati mogu biti od direktne pomoći za kompanije koje se suočavaju sa poslovnim sporovima, neplaćanjima, i slično u zemlji domaćinu. Značajan dio vremena ekonomski diplomati koriste za pomaganje predstavnicima kompanija u cilju rješavanja slučajeva izvan suda. (Naray, 2008).
3. Podrška za poslovne i državne delegacije - diplomatsko osoblje direktno je uključeno u pripremu državnih posjeta i osiguravanju svih relevantnih informacija vezanih za ekonomske pregovore sa zemljom domaćinom. Oni imaju mogućnost da sugerišu na sva ona pitanja koja su dobila od biznis sektora, koja bi im olakšala poslovanje na tržištu te zemlje. Pored državnih posjeta, oni pomažu i/ili mogu biti od pomoći za organizaciju trgovinskih misija

i poslovnih posjeta kompanija. Obje vrste aktivnosti predstavljaju klasični način promovisanja i unapriđenja trgovine i ulaganja. (Hibbert 1990).

4. Strateški problemi - ekonomski diplomati često se bave strateškim trgovinskim politikama, međunarodnom saradnjom u području nauke ili istraživanja i razvoja, te pristupu energetskim resursima ili drugim materijalima.
5. Poslovne promocije - različite dimenzije poslovne promocije mogu biti zastupljene, koje se mogu razlikovati u zavisnosti od potreba i mogućnosti pa i vještina ekonomskog diplomate.

3.3. Stilovi rada ekonomskih diplomata

Ekonomski diplomati su ili državni službenici, posebno obučeni diplomati, ili predstavnici privrednih komora, trgovinskih udruženja koji su premješteni u ambasade na važnim stranim tržištima. Osim tradicionalnih funkcija trgovačkog atašea, diplomatsko-konzularna predstavništva danas proširivaju svoje usluge i prisutnost u inostranstvu, kako bi se dodatno podržalo proširenje trgovine i provodila ekonomska diplomatija. Carron (1998) tvrdi da aktivnosti poslovne podrške kompanijama nisu poslovi za tradicionalne diplomate, jer ti poslovi podrazumijevaju kopetencije iz marketinga, poznavanja tržišta, komercijale i finansija što se generalno ne može očekivati od tradicionalnih karijernih diplomata. Od ekonomskih diplomata očekuje se da pored stručne izobrazbe imaju i radno iskustvo u biznis sektoru. U Irskoj je praksa da se ekonomski diplomati nakon 3 do 4 godine vraćaju u biznis sektor, kako bi bili u stalnom doticaju sa potrebama poslovnog sektora. S druge strane, zemlje, poput Japana i Koreje potiču svoje ekonomske diplomate da nastavljaju što duže raditi na istim položajima na dužem vremenskom periodu kako bi postigli što bolje mreže i iskustvo.

Ekonomski diplomati će se za razliku od predstavnika kompanija, koji imaju primarno vlastiti ekonomski interes, baviti ekonomskim interesima zemlje i sve aktivnosti provodiće u cilju unapriđenja bileteralnih odnosa. Danas postoji i značajan broj zemalja čiji su ekonomski diplomati svojevrsna kombinacija diplomate i menadžera. Oni su posebno obučeni diplomati ili predstavnici komora ili trgovačkih društava sa sjedištem u ambasadama važnih stranih destinacija. Odličan primjer ovakvog profila ekonomskih diplomata su službenici Ureda za trgovinu S.R. Austrije, koji je dio austrijske privredne komore.

Glavna djelatnost ekonomskog diplomate je davanje stručne podrške, koja uključuje traženje informacija za potrebne domaćeg poslovnog sektora. Centralni ured američkih ekonomskih diplomata smatra da oko 95% klijenata traži

uglavnom osnovne informacije o pravnim pitanjima, političkoj situaciji, itd. Tipično pitanje može biti: "*postoji li tržište za proizvod X u zemlji Y?*" Takve jednostavne aktivnosti uglavnom pružaju malim i srednjim preduzećima, a ne većim kompanijama. (Saner i Yiu 2003.)

Prema Kostecki i Naray (2007) i Naray (2008), ekonomski diplomati mogu biti svrstani u one koji imaju poslovno orijentirani pristup (poslovni promotori), i oni koji su više fokusirani na provedbu državnih uputa a koje su u interesu klijenata (državni službenici) i onih koji se bave pitanjima poslovne podrške na ad-hoc osnovi (generalisti). U mnogim slučajevima ambasade ne naplaćuju svoje usluge ekonomske diplomatije ali ovaj pristup sve se više dovodi u pitanje. Jedni smatraju da ne treba plaćati usluge ekonomskih diplomata, drugi pak smatraju da bi trebalo naplatiti dio usluga, a treći da se trebaju plaćati ove usluge.

Analizirajući u literaturi učinak i efekte rada ekonomskih diplomata možemo primjetiti da mjerenje učinkovitosti ekonomskih diplomata je teško ali važno i značajno. Postoje shvatanja da bi rad ekonomskih diplomata trebali ocijenjivati i predstavnici poslovnog sektora i vlada.

Glavni korisnici usluga ekonomske diplomatije variraju ovisno od zemlje do zemlje i okolnosti koje utiču na to su i stručnost, besplatnost i vrsta usluga koje pružaju. Zahtjevi za usluge ekonomkskog diplomate dolaze od poslovnih subjekata obje zemlje, zemlje u kojoj je u misiji i zemlje iz koje dolazi.

4. INSTITUCIONALNI I FUNKCIONALNI ASPEKT BH. DIPLOMATIJE U R. TURSKOJ

Analizirajući ustavnu strukturu i pravne odredbe vidimo da je vanjska politika u nadležnosti državnog nivoa vlasti, odnosno da je Predsjedništvo BiH, prema članu 5. Ustava BiH, nadležno za njeno vođenje. Prema odredbama Zakona o ministarstvima i drugim organima uprave BiH, Ministarstvo vanjskih poslova (MVP BiH), nadležno je za provođenje vanjske politike, razvoj međunarodnih odnosa i praćenje međunarodnih ekonomskih kretanja. U provođenju vanjske politike BiH, u okviru svojih nadležnosti mogu učestvovati i druge institucije i organizacije kao što su: državna ministarstva vanjske trgovine i ekonomskih odnosa i finansija (u daljem tekstu: MVTEO i MF BiH), Agencija za promociju stranih investicija (FIPA), Izvozno kreditna agencija, Vanjskotrgovinska komora (VTK BiH), vlade i predstavništva nižih nivoa vlasti (entiteti, distrikt, kantoni).

BiH nema zakon o vanjskim poslovima, također nema ni Strategiju za promociju izvoza i privlačenja stranih direktnih ulaganja. Od 2003. godine pa do početka 2018. godine vanjska politika BiH uređena je dokumentom Predsjedništva BiH, „Opći pravci i prioriteti za provođenje vanjske politike BiH". U martu 2018. godine Predsjedništvo je usvojilo „Strategiju vanjske politike BiH 2018-2023 godine", u kojoj se ekonomski prosperitet BiH stavlja kao jedan od četri strateška stuba. U Strategiji se navodi da aktivnosti ekonomske diplomatije BiH podrazumijevaju, sinhronizovanu koordinaciju djelovanja institucija BiH, u čiju nadležnost spada izrada dokumenata kojima se promoviše izvoz, privlačenje stranih investicija, razvojni potencijali postojećih sektora privrede i industrije te MVP BiH i diplomatsko-konzularne mreže BiH. Također, navedeno je da će fokus ekonomske diplomatije biti i na organizaciji konkretnih događaja za susrete privrednika i drugih značajnih subjekata iz BiH i drugih zemalja kroz ekonomske forume, poslovne/investicijske konferencije, prezentacije za ulagače, što će potaknuti direktno povezivanje i nalaženje rješenja za izazove koji stoje na putu saradnje.

Strategija naglašava da je efikasnost ekonomske diplomatije uslovljena internim reformskim procesima, ali da je od jednake važnosti i vanjskopolitički aspekt koji podrazumijeva promociju postignutog napretka kroz javnu diplomatiju, pronalaženje adekvatnih tržišta za izvoz iz BiH te privlačenje kvalitetnih stranih ulagača. Za realizaciju ovih mjera posebno je predviđena uloga koju će imati diplomatsko-konzularna predstavništva (u daljem tekstu: DKP BiH), kojima moraju biti dostupne pravovremene, korisne i tačne informacije, kako bi iste bile iskorištene za promociju.

Što se tiče organizacione strukture za provođenje ekonomske diplomatije, MVP BiH u okviru svoje unutrašnje organizacije, ima Sektor za bilateralne odnose u čijem sastavu djeluje i Odsjek ekonomske diplomatije. Odsjek za ekonomsku diplomatiju, koordinira poslove i zadatke praćenja, analize i podsticanja ekonomskih odnosa i saradnje BiH sa drugim državama i daje prijedloge za unapređenje. Također, koordinira rad na informisanju odgovarajućih državnih institucija o privrednim kretanjima u pojedinim zemljama i njihovim vanjskoekonomskim orijentacijama i aktivnostima, te koordinira poslove i zadatke u cilju prezentacije ekonomskih mogućnosti BiH u drugim zemljama. Prema Pravilniku o unutrašnjoj organizaciji MVP BiH, Odsjek ekonomske diplomatije ima 10 sistematizovanih radnih mjesta, međutim ta radna mjesta nisu sva popunjena.
Što se tiče diplomatskog predstavljanja BiH u R. Turskoj, BiH ima ambasadu u Ankari i Generalni konzulat u Istanbulu, također postoje i tri počasna konzulata u Izmiru, Bursi i Konji. Od diplomatskog osoblja u Ambasadi se pored ambasadora

nalazi savjetnik, a dva sistematizovana radna mjesta nisu popunjena. Što se tiče Konzulata u Istanbulu, tu su angažirana tri diplomatska predstavnika: generalni konzul, konzul i konzularni radnik. Prema odgovorima iz upitnika, možemo zaključiti da ne postoji ni jedno radno mjesto vezano isključivo za ekonomsku diplomatiju, već se svi diplomati bave ekonomskom diplomatijom.

5. METODOLOGIJA ISTRAŽIVANJA

Opšti cilj ovog istraživanja je predstaviti aktivnosti bh. ekonomske diplomatije koje se poduzimaju u Turskoj i percepciju istih od strane bh. izvoznika. U nastojanju da analiziramo sistem institucionalne podrške ekonomske diplomatije DKP BiH u Turskoj, u radu smo prvo identifikovali i analizirali ključne dokumente koji uređuju ekonomsku diplomatiju BiH. Za prikupljanje podataka i informacija korišteni su zvanični propisi i dokumenti koji dijelom tretiraju i ekonomsku diplomatiju, zatim korišten je polustrukturirani intervju sa predstavnicima MVP BiH i Ambasade BiH u Turskoj.

Drugi dio istraživanja se odnosio na sagledavanje aktivnosti DKP BiH u procesu podrške bh. izvoznicima te evaluaciji tih usluga od strane preduzeća koja izvoze u Tursku. U tu svrhu također je korišten polustrukturirani intervju kao metod prikupljanja podataka koji je fokusiran na ocjenu pet kategorija aktivnosti DKP slijedeći metodologiju Haff (2010) i to: podršku preduzećima, dostupnost informacijama, umrežavanje, podršku privrednim delegacijama i nacionalno brendiranje. Svrha ovog dijela istraživanja bila je utvrditi kako bh. izvoznici ocjenjuju dosadašnje usluge DKP u Republici Turskoj te koje usluge nedostaju kako bi se unaprijedio nastup naših preduzeća na turskom tržištu. Istraživanje je provedeno na ciljanom uzorku bh. izvoznika a intervju je obavljen sa menadžmentom kompanija ili osobama zaduženim za izvoz.

Komparacijom podataka koji se odnose na ista pitanja dobijena od strane biznis sektora i zvaničnih subjekata ekonomske diplomatije BiH, nastojali smo dati integralnu slika o ekonomskoj diplomatiji BiH kroz prizmu uloge i aktivnosti DP BiH u Turskoj

Uzorak ispitanika (bh.izvoznici u Tursku), rađen je na osnovu dostupne internet baze VTK BiH uz dodatne direktne provjere. Istraživanje je provedeno na uzorku od deset kompanija (32,26% odukupnog broja izvoznika u R.Tursku registriranih u bazi VTK BIH), koje su prisutne u devet oblasti (69% oblasti u kojim se vrši izvoz na tursko tržište) i zapošljavaju 4.881 radnika (50,45% od broja zaposlenih u kompanijama koje izvoze u R.Tursku). Prosjek prisustva na turskom tržištu

intervjuisanih kompanija je oko 7 godina i svi izvoze i na druga tržišta a niko od njih nema otvoreno predstavništvo u R.Turskoj.

6. REZULTATI ISTRAŽIVANJA

Rezultati istraživanje predstavljeni su u pet tematskih cijelina, u kojima su izraženi stavovi bh. Izvoznika, MVP te Ambasade BiH u R. Turskoj o aktivnosti bh. ekonomske diplomatije za podršku izvozu i to: percepcija rada i kvaliteta pruženih usluga, podrška pristupu informacijama, podrška umrežavanju sa ino-partnerima te podrška u uspostavljanju saradnje sa ino-partnerima.

6.1. Aktivnosti bh. ekonomske diplomatije za podršku izvozu

- Iz intervjua vidimo da izvoznici razumiju pojam i zadatke ekonomske diplomatije i svi je pozicioniraju u okviru njenog značenja u širem kontekstu, kao ekonomske poslove države sa inostranstvom, pri tome uključuju i aktivnosti podrške izvoznom sektoru. S druge strane, MVP BiH nema "službenu definiciju" ekonomske diplomatije, ali iz odgovora na upitnik i analizom dokumenta, vidimo da se ekonomska diplomatija, također posmatra u širem kontekstu njenog teorijskog određenja, a njen zadatak određuju "privlačenje stranih ulaganja u privredu BiH i otvaranje novih tržišta za privrednike iz naše zemlje". Tako da se korištenje, teorijski šire formulacije ekonomske diplomatije u istraživanju pokazalo ispravnim.
- Intervjuisani izvoznici smatraju da su aktivnosti ekonomske diplomatije potrebne i da one mogu pomoći u poslovanju njihovoj kompaniji, posebno kao što su aktivnosti: promocija i aktivnosti vezane za imidž države, umrežavanje kompanija te informiranje. Iz dostavljenih odgovora može se zaključiti, da informacije koje izvoznici dobiju od predstavnika DKP, smatraju se kao pouzdane i sigurne. Interesantan je podatak da niko od anketiranih izvoznika nema kritički odnos na svrhu ekonomske diplomatije. Očekivanja od ekonomske diplomatije su da stvori preduslove i olakša pristup stranim tržištima. Iz istraživanja nismo mogli primjetiti da anketirani izvoznici imaju neke dodatne ideje i prijedloge koje bi unaprijedile aktivnosti ekonomske diplomatije.
- Što se tiče ocjene značaja institucija, čiji je rad vezan za ekonomsku diplomatiju, izvoznici smatraju značajnom svaku pojedinu instituciju koja je bila ponuđena u upitniku. Kao najznačajniji ocijenjeni su: MVTEO i DKP, zatim slijede: MVP BiH, Vijeće ministara BiH, Predsjedništvo BiH, Izvozno - kreditna agencija, entitetske vlade, Ministarstvo finansija BiH te općine i kantone. Dva

ispitanika su pored ponuđenih institucija dodali VTK BiH i ocjenili su je kao izuzetno značajnu.

- Rezultati vezani za najznačajnije aktivnosti DKP BiH u Turskoj, prikazani su u Tabeli 2. i sadrže ocjene intervjuisanih izvoznika i predstavnika Ambasade. Obje vrste ispitanika imali su isto pitanje, i ocijenili su ponuđene aktivnosti kao "izuzetno značajne" (pod rednim brojem 1.) ili "značajne" (pod rednim brojem 2). U 40% slučajeva i predstavnici Ambasade i anketiranih izvoznika ocijenili su aktivnosti u istoj bodovnoj skali, dok se 60% ocjena razlikuje za jedan rang.

Tabela 2. Ocjena značaja aktivnosti ekonomske diplomatije potrebne izvoznicima

Rang	Najznačajnije aktivnosti DP potrebne izvoznom sektoru prema ocjeni izvoznika
1.	Organizacija poslovnih susreta, Lobiranje, Promoviranje imidža države, Učešće na sajmovima i drugim privrednim susretima,
2.	Pomoć pri rješavanju pravnih/ političkih problema, Otvaranje novih poslovnih mogućnosti, Pronalazak poslovnih partnera, Adekvatno informisanje, Učešće na poslovnim sastancima kompanija.

Rang	Najznačajnije aktivnosti DP potrebne izvoznom sektoru prema ocjeni Ambasade
1.	Organizacija poslovnih susreta, Promoviranje imidža države, Pronalazak poslovnih partnera, Adekvatno informisanje, Učešće na poslovnim sastancima kompanija, Prezentacija o aktuelnim poslovnim mogućnostima u BiH,
2.	Pomoć pri rješavanju pravnih/ političkih problema, Lobiranje, Učešće na sajmovima i drugim privrednim susretima, Otvaranje novih poslovnih mogućnosti.

- Osam od deset intervjuisanih izvoznika smatra da su razvijeni odnosi između DKP BiH u i lokalne/nacionalne vlade, a koji mogu biti od pomoći za bh. izvoznike. I predstavnici Ambasade također smatraju da su im razvijeni odnosi sa predstavnicima vlasti u R. Turskoj, ali da "postoji velik potencijal za unaprijeđenje tog odnosa, za koji je potreban stručniji kadar bh. diplomata u oblasti ekonomske diplomatije". Naglašavaju da je VTK BiH otvorila

predstavništvo u Istanbulu, te da se u narednom periodu mogu očekivati bolji rezultati. Također, svi ispitanici smatraju da je dobar nivo ekonomske saradnje između BiH i Turske (prosječna ocjena 3,85 na skali od 1 do 5).

- Predstavnici Ambasade smatraju da bi se unaprijedio rad DKP BiH u R. Turskoj ukoliko bi se Ambasada kadrovski ojačala ili ako bi u njoj bili prisutni stručnjaci iz FIPA-e, VTK BiH, MVTEO. Cilj kadrovskog ojačavanja trebao bi biti snažniji i organizovaniji nastup na tržištu Turske, koje ocjenjuju kao veliko i zahtijevno tržište. Zbog svojih specifičnosti ekonomska diplomatija, pored diplomatskih vještina i kompetencija zahtijeva i stručna ekonomska znanja njenih aktera, tako da bi svako buduće planiranje ekonomske diplomatije trebalo uvažiti ovu činjenicu. Polazna osnova, pored strateških opredjeljenja trebaju biti kapaciteti naše privrede, posebno izvoznog sektora i njihove potrebe i zahtjevi za povećanjem obima i kvaliteta izvoza.
  Vezano za unaprijeđenje rada DKP BiH u Turskoj, šest intervjuisanih izvoznika predložilo je određene mjere koje bi bile korisne za izvozni sektor, to su: ciljano, proaktivno i kontinuirano informisanje; izgradnja poslovnih kontakta; organizacija sajmova za izlagače iz obje zemlje; kadrovsko jačanje (posebno kadrovima koji su završili adekvatnu izobrazbu u R. Turskoj) te finansijsko ojačavanje DKP.

6.2. Percepcija rada i kvaliteta pruženih usluga DP od strane bh.izvoznika

- Sedam od deset intervjuisanih kompanija nije ni pokušalo ostvarili saradnju sa predstavnicima DKP BiH u R. Turskoj, dok su ostali pokušali i uspjeli ostvariti tu saradnju. Komentar na odgovor dostavile su 4 kompanije, od kojih ni jedna nije pokušala ostvariti saradnju sa DKP, iz razloga koje navode: da su prisutni dugi niz godina na turskom tržištu te da imaju dobru reputaciju na ovom tržištu kao i veliki broj kupaca, a novi kupci ih sami direktno kontaktiraju. Zatim, da nismu imali značjanije barijere sa Turskom, nisu imali potrebu da kontaktiraju DKP te smatraju da DKP nema dovoljne ni ljudske ni finansijske kapacitete. Predstavnici Ambasade navode da na dnevnoj osnovi imaju saradnju sa kompanijama iz BiH i Turske, kojima daju potrebne smjernice. Evidentno je da postoji saradnja između kompanija i DKP, međutim moraju se tražiti i drugi oblici saradnje s ciljem bolje efikasnosti.
- Vezano za pitanja o vrsti usluga koje su kompanije tražile/koristile putem DKP BiH u Turskoj, mali broj izvoznika je dostavio odgovor na ovo pitanje, a oni koji su dostavili odgovor naveli su da su uglavnom tražili tehničke informacije te pravnu i tehničku pomoć. Ispitanici koji su koristili usluge ističu da su zadovoljni sa dobivenim uslugama.

Predstavnici Ambasade dali su odgovor na pitanje koju vrstu usluga traže/koriste bh. izvoznici, koji su prisutni na tržište R.Turske:

a) **najčešće** - pomoć pri rješavanju političkih/pravnih problema, pronalazak poslovnih partnera, učešće na sajmovima i drugim privrednim susretima;
b) **često** - traženje informacije o otvaranju novih poslovnih mogućnosti, traženje informacija o carinskim procedurama;
c) **uglavnom** - organizacija poslovnih susreta, učešće na poslovnim sastancima kompanija, usluge informisanja;
d) **rijetko** – lobiranje, aktivnosti oko promoviranja imidža BiH.

- Četri intervjuisana izvoznika su se izjasnila da su tražili određene poslovne informacije od DKP BiH, prije nego su počeli sa izvozom u Tursku, dok ostali nisu tražili informacije. Razloge su naveli, i dio onih sa pozitivnim i sa negativnim odgovorom, koje možemo grupisati:
  a) sa pozitivnim odgovorom: tražili su tehničke informacije, informacije o uslovima i dokumentaciji;
  b) sa negativnim odgovorom: nije bilo potrebe, duži vremenski period su prisutni na turskom tržištu; javio im se sam kupac.

  Predstavnici Ambasade navode da ima slučajeva kada im se javljaju kompanije prije izlaska na tursko tržište ali da je to rijetko.

- Ocjenjivanje odnosa DKP BiH prema izvoznicima u R. Turskoj, ponduili smo kroz tri vrste odgovora (sa značenjima), na kojih je deset intervjuisanih kompanija dalo slijedeće odgovore:
  a) da je odnos aktivan ("partnerski" u okviru njihovih nadležnosti) mišljenja su dve kompanije;
  b) dvije kompanije su stava da DKP imaju proaktivan pristup (daju inicijative, prijedloge i uvezuju sa novim poslovnim kontaktima),
  c) međutim većina ispitanika, čak njih 5, misli da je odnos reaktivan (reaguju isključivo po obraćanju kompanija).

6.3. Podrška pristupu informacijama

- Predstavnici Ambasade dali su informaciju koje kanale komunikacije koriste prilikom informisanja bh. poslovnog sektora, a to su: diplomatska komunikacija putem MVP, istupi u medijima (intervjui/izjave), tokom poslovnih susreta, kao i kroz direktnu komunikaciju sa zainteresiranim institucijama, agencijama i poslovnim subjektima.

A dajući odgovor o vrstama informacija koje najčešće pružaju predstavnicima bh. poslovnog sektora, predstavnici Ambasade dali su odgovor:

a) **redovno** - informacije vezane za učešće na sajmovima i drugim privrednim susretima te informacije o održanim poslovnim sastancima i dogovorenim projektima;
b) **često** - informacija o konkretnom poslovnom partneru i informacije o procedurama poslovnih natječaja ili općenito oko natječaja;
c) **uglavnom** - informacije o pronalasku poslovnih partnera, informacija o pristupu i stanju na tržištu ili nekim njegovim specifičnostima te informacije o makroekonomskim indikatorima te informacije o pravnom sistemu;
d) **rijetko** - informacija o političkoj situaciji.

- Skoro svi predstavnici izvoznika daju pozitivan odgovor o tome da su dobili tražene informacije od DKP BiH kada su počinjali sa izvozom na tursko tržište. Međutim, kasnije veći broj njih (6 kompanija) nisu tražili dodatne poslovne informacije, što može ukazivati na adekvatno prethodno informisanje ili uspješno snalaženje kompanija iz BiH na turskom tržištu.

- Izvoznici informacije od DKP dobijaju najčešće na njihov zahtjev objašnjavajući da veoma rijetko dobiju neku poslovnu informaciju na inicijativu DKP. I ovim odgovorima ispitanici su potvrdili ranije iznesen stav o reaktivnom informisanju DKP BiH. Informacije koje dobiju od DKP BiH za šest ispitanika bile su od koristi za otvaranje novih poslovnih mogućnosti i pomogli su njihovom poslovanju, dok četri ispitanika imaju negativan odgovor. A vezano za vrstu informacija, odnosno da li su to opći podaci (informacije) ili su informacije koje se tiču oblasti u kojoj njihova kompanija posluje, polovina ih je odgovorila da su to bili opći podaci, a druga polovina da je riječ o specifičnim poslovnim informacijama.

6.4. Podrška umrežavanju sa ino-partnerima

- Najčešće aktivnosti koje Ambasada provodi s ciljem povezivanja bh. kompanija sa turskim partnerima je: da učestvuju na prezentacijama poslovnih mogućnosti u BiH, koje na mjesečnoj razini nastoje organizovati u različitim gradovima Turske (u industrijskim i trgovinskim komorama, te udruženjima privrednika). Nastoje blagovremeno obavijestiti bh. kompanije o sajmovima u Turskoj. Ambasada često dobija besplatan prostor 9-15 m^2 na sajmovima, koji najčešće ustupe bh.firmama radi promocije. Prema ocjeni Ambasade, inicijative za poslovne saradnje između bh. i turskih kompanija,

najčešće dolaze od Centra za razvoj odnosa sa BiH (BIGMEV). Također, često ovu saradnju iniciraju i institucije i kompanije iz Turske te DKP BIH. A trećerangirani su predstavnici bh. kompanija kao inicijatori ovakve saradnje. Ovo nas upućuje na opravdanost uključivanja svih društvenih aktera (državnih i ne državnih, javnih i privatnih) u proces ekonomske diplomatije koji se bave nekim od njenih pitanja.

- Skoro svi izvoznici su odgovorili da im DKP BiH u Turskoj nije pomagao u pronalasku novih poslovnih partnera. Međutim, trećina ih je rekla da prepoznaju aktivnosti koje poduzima DKP BiH s ciljem povezivanja bh. kompanija sa turskim partnerima, odnosno aktivnosti oko izgradnje poslovne mreže između kompanija.

- Pola intervjuisanih izvoznika je potvrdno odgovorilo da su bili pozvani na neki događaj (radni sastanak, izložbu ili sl.) koji je organizovan od DKP, a odnosi se na unaprijeđenje ekonomske saradnje i predstavljanja BiH u Turskoj, dok je druga polovina dala negativan odgvor.

- Na pitanje o osoblju DKP BiH u Turskoj, zaduženo za aktivnosti ekonomske diplomatije, pola izvoznika je odgovorili da je ono "pasivno" - reaguje isključivo na zahtjev ili izostaje reakcija, dva ispitanika su odgovorili da je ono "aktivno" - daje korisne savjete i pomaže pri uspostavljanju poslovnih kontakata, dok tri kompanije nisu uopšte odgovorile na ovo pitanje.

6.5. Podrška u uspostavljanju saradnje sa ino-partnerima

- Možemo primjetiti, iz odgovora Ambasade, da ona informiše i podstiče kompanije da učestvuju na poslovnim sajmovima/izložbama i slično, i to obavještavjući ih "putem BIGMEV-a i VTK BiH, kao i B2B eventima". Međutim, anketirani izvoznici na isto pitanje odgovorili su samo sa 2 potvrdna odgovora da ih DKP informišu i podstiču na saradnju, dok je njih 8 odgovorilo negativno. Također, kompanije prilikom učestvovanja na sajmovima i drugim poslovnim sastancima veoma rijetko pozivaju osoblje DKP da učestvuje na istima. Na isto pitanje, Ambasada je odgovorila da su ih pozivali predstavnici kompanija da budu sudionici na sajmovim i izložbama, navodeći da su „predstavnici Ambasade u protekloj godini posjetili bh. privrednike na tri sajma koja su održana u R. Turskoj (IDEF, Sajam gastronomije u Ankari, Sajam turizma u Ankari)“.

- Samo jedan intervjuisani izvoznik se potvrdno izjasnio da su ih predstavnici DKP kontaktirali vezano za pripremu bh. delegacija za službenu posjetu R.Turskoj, dok ih je većina dala negativan odgovor. Međutim, Ambasada je na ovo pitanje odgovorila potvrdno, navodeći primjer „Klas-Migros“.

ZAKLJUČAK

Posljednjih decenija važnost ekonomske diplomatije postaje izraženija unutar planiranja, vođenja i organiziranja diplomatskih aktivnosti skoro svih zemalja. Ovaj proces je potaknuo i teorijska istraživanja o glavnim pitanjima i aspektima ekonomske diplomatije. Teorijski prikaz ekonomske diplomatije, koji smo dali u ovom radu, poslužio nam je da napravimo okvir za provođenje istraživanja, na način da damo pojašnjenja njenih određenih pojmova i funkcije. Ovaj pristup omogućio je da se istraži ekonomska diplomatija BiH, a posebno njeni kapaciteti i aktivnosti u R. Turskoj, te da se dođe do njihove ocjene od strane bh. izvoznika.

Također, u radu smo dali i kratku analizu pravnih odredbi kojima se uređuje i definiše vanjska politika BiH. Vanjska politika je u nadležnosti državnog nivoa vlasti, a Predsjedništvo BiH je nadležno za njeno vođenje, dok je MVP BiH je zaduženo za provođenje vanjske politike, razvoj međunarodnih odnosa i praćenje međunarodnih ekonomskih kretanja. U provođenju vanjske politike BiH, u okviru svojih nadležnosti mogu učestvovati i druge institucije i organizacije. U radu je dat i prikaz organizacione strukture MVP BiH koji se odnosi na ekonomsku diplomatiju i DKP u Republici Turskoj.

BiH nema zakon o vanjskim poslovima, također nema ni strategiju za promociju izvoza i privlačenja stranih direktnih ulaganja. Od relevantnih propisa aktuelna je jedino Strategija vanjske politike BiH 2018-2023. godine, u kojoj se ekonomski prosperitet BiH stavlja kao jedan od četri strateška stuba, a pomenuti zakon i strategija navode se kao strateška opredijeljenja. Strategija naglašava da je efikasnost ekonomske diplomatije uslovljena internim reformskim procesima, ali da je od jednake važnosti i vanjskopolitički aspekt koji podrazumijeva promociju postignutog napretka kroz javnu diplomatiju, pronalaženje adekvatnih tržišta za izvoz iz BiH te privlačenje kvalitetnih stranih ulagača. Za realizaciju ovih mjera posebnu ulogu trebaju imati DKP-i BiH kojima moraju biti dostupne pravovremene, korisne i tačne informacije, kako bi iste bile iskorištene za promociju.

Iz navedenih dokumenata, kao i iz odgovora na upitnike, od predstavnika MVP BiH, Ambasade ali i izvoznika možemo zaključiti da svi ispitanici zadatak

ekonomske diplomatije razumijevaju u njegovom širem teorijskom kontekstu. Anketirani izvoznici ocjenju da svaka institucija koja ima udio u ekonomskoj diplomatiji ima svoj specifičan značaj, a pri tom najviše rangiraju VTK BIH, MVTEO, ambasade i konzulate te MVP BiH. Također, izvoznici su saglasni da su aktivnosti ekonomske diplomatije potrebne i da mogu pomoći poslovanju njihovih kompanija. Kao najznačajnije aktivnosti ekonomske diplomatije izvoznici ocjenjuju: organizaciju poslovnih susreta, lobiranje, učešće na sajmovima i drugim privrednim susretima te pomoć pri rješavanju pravnih ili političkih problema.

I predstavnici Ambasade i anketirani izvoznici smatraju da je dobar nivo ekonomske saradnje između BiH i Turske. Većina anketiranih izvoznika smatra da su razvijeni odnosi, dok predstavnici Ambasade misle da treba kadrovski ojačati diplomatska predstavništva sa stručnim kadrom što će doprinjeti unaprijeđenju ovog odnosa.

Većina anketiranih izvoznika se izjasnila da nisu pokušali ostvariti saradnju s predstavnicima DKP BIH u R. Turskoj, međutim na osnovu analize drugih odgovora možemo zaključiti da je kod polovine anketiranih bilo određenih doticaja u saradnji. To nam na neki način potvrđuje i odgovor iz Ambasade koji ističu da imaju saradnju sa kompanijama na dnevnoj osnovi. Iz odgovora kompanija možemo zaključiti da su im predstavnici DKP BiH u Turskoj bili dostupni i da su uglavnom zadovoljni uslugama koje su od njih tražili. Međutim, interesantno je da se kompanije rijetko obraćaju ambasadi prije nego otpočnu aktivnosti izvoza na tursko tržište, što je čest slučaj u drugim državama kako možemo primjetiti u nekim dostupnim istraživanjima.

Ambasada ističe da najčašće provodi aktivnosti oko rješavanja pravnih/političkih problema, pronalaska poslovnih partnera, organiziranja i prisustva na poslovnim susretima i sastancima, informisanja te je angažirana na aktivnostima vezanim za promoviranje imidža BiH i prezentacije poslovnih mogućnosti u BiH.

Analizirajući proces informisanja, možemo zaključiti da se informisanje obavlja uglavnom na zahtjev izvoznika i da su to često opće informacije. Pored redovnog informisanja MVP, Ambasada određene poslovne informacije plasira preko VTK BiH i BIGMEV, međutim ostavlja se dojam da nema proaktivan pristup. Tokom istraživanja, nismo došli do podataka da postoji strateško komuniciranje u oblasti ekonomske diplomatije BiH, koje bi podrazumijevalo uređen proces i tok dvosmjerne komunikacije. Tako da proces informisanja zavisi u velikoj mjeri od sposobnosti i zainteresovanosti diplomatskog osoblja.

Najčešće aktivnosti koje Ambasada provodi s ciljem povezivanja bh. kompanija sa turskim, jeste učešće na prezentacijama poslovnih mogućnosti BiH koje pokušava na mjesečnoj razini realizirati. Također, trude se blagovremeno obavijestiti bh. kompanije o sajmovima koji se održavaju u R.Turskoj ustupajući im i manji besplatan sajamski prostor. Pola od anketiranih izvoznika kažu da su pozvani od strane DKP u Turskoj na neku od promocija ili sajmova.

Prema mišljenju Ambasade, BIGMEV je najčešći inicijator za povezivanje kompanija iz BiH i R. Turske, a na trećem mjestu nalaze se kompanije iz BiH. Međutim, skoro svi ispitanici kompanija su odgovorili da im DKP nisu pomogla u pronalasku poslovnih partnera. Također, većina ih i ne prepoznaje aktivnosti Ambasade na umrežavanju kompanija, smatrajući osoblje Ambasade pasivnim, odnosno da reaguje isključivo na zahtjev kompanija ili izostaje u potpunosti reakcija. Smatramo da i po ovom pitanju nedostaje kvalitetna i sistemska komunikacija između subjekata ekonomske diplomatije i kompanija.

Vezano za saradnju po pitanju podrške privrednim delegacijama može se eventualno zaključiti da ne postoji dovoljno ni inicijative ni komunikacije u ovom segmentu aktivnosti. Kompanije veoma rijetko traže prisustvo osoblja DKP na sajmovima, izložbama i sastancima na kojim su prisutne u R. Turskoj, međutim kako ističu iz Ambasade da oni posjećuju naše kompanije koje učestvuju na velikim sajmovima. Ambasada obaviještava kompanije putem VTK BiH i BIGMEV-a, međutim prema rezultatima istraživanja te informacije ne dolaze uvijek do krajnjih korisnika. Teško je zaključiti, na osnovu raspoloživih informacija, gdje nastaju propusti u komunikacijskom kanalu. Međutim i ovdje smo uvidjeli nedostatak strateškog pristupa sa jasno utvrđenim aktivnostima, procedurama i nosiocima.

Na osnovu iznesenog možemo zaključiti da ekonomska diplomatija BiH predstavlja izazov za izučavanje u narednom periodu. Koristi od njenog izučavanja mogu imati i država i biznis sektor ukoliko se rezultati istraživanja budu primjenjivali u praksi. Neophodno je da BiH ima strateški okvir ekonomske diplomatije, koji će biti zasnovan na strategije vanjske politike. U njenom koncipiranju trebaju učestvovati sve relevantne institucije i organizacije i za očekivati je da će se njenom primjenom pozitivno uticati na makroekonomske indikatore, kao što su povećanje izvoza i privlačenje stranih direktnih investicija.

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THE ROLE OF ECONOMIC DIPLOMACY IN SUPPORT TO EXPORT THE CASE OF BIH DIPLOMATIC AND CONSULAR MISSIONS IN THE REPUBLIC OF TURKEY

Summary: Economic diplomacy as a subset within related scientific disciplines appears relatively late, it can be traced back to the earliest beginnings of diplomatic history. The development of technology and communication development have contributed to the accelerated processes of globalization and various forms of integration, both in the sphere of politics and economy. These processes have made economic diplomacy to be a significant part of state policies as well as a subject of theoretical research. The aim of this research was to present the activities of economic diplomacy of Bosnia and Herzegovina in support of exporters to the market of the Turkish Republic and to analyse the perceptions and evaluations of B&H exporters about those activities. For this purpose, surveys were conducted and data was collected from representatives of the Ministry of Foreign Affairs of B&H and diplomats at the Embassy of B&H in the Republic of Turkey. Also, based on the reference sample, the attitudes of B&H exporters who were present on the Turkish market were also collected. Data collected on the basis of this research shows that there is some cooperation between B&H diplomatic representatives and representatives of exporters, but it is necessary to improve it both, in terms of quantity and quality. The research results clearly indicate the need for a strategic management of economic diplomacy which will consider the needs of the business sector, including areas such as: attracting foreign investment, export promotion, attracting tourists and adequate construction of the image of B&H. Keywords: economic diplomacy; diplomatic representations; support to export; Bosnia and Herzegovina Republic of Turkey.

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TOURISTS' SATISFACTION, RECOMMENDATION AND REVISITING SARAJEVO

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Abstract

Sarajevo is becoming an increasingly popular tourist destination. In 2018, 573.227 tourists visited Sarajevo Canton and had a total of 1.189.159 overnight stays. The purpose of this paper is to explore the influence of the overall tourist satisfaction on the intention of tourists to recommend and say positive things about Sarajevo to friends and colleagues, as well as the intention of tourists to return to this tourist destination in the future. For the purposes of data analysis, descriptive statistics and statistical method ANOVA were used. The results of the research have shown that there is a statistically significant difference and that the overall tourist satisfaction with Sarajevo has a positive influence on the intention of tourists to recommend Sarajevo to friends and relatives, say positive things about Sarajevo to friends and colleagues and on intention of tourists to return to this tourist destination in the future.

Keywords: Tourism; Destination; Satisfaction; Recommendation, Revisiting, Sarajevo

1. INTRODUCTION

Sarajevo is the capital of Bosnia and Herzegovina. It is also the largest city with a population of 275.524 in its administrative limits. The Sarajevo metropolitan area, including Sarajevo Canton, East Sarajevo and nearby municipalities, has 555.210 inhabitants. It is a popular tourist destination, mostly because of the cultural and historical heritage and nature. Sarajevo as a tourist destination, becomes more and more attractive to visitors from all over the world. Numerous cultural and historical monuments, turbulent history and numerous cultural manifestations are the reasons for a large number of tourist visits to Sarajevo (Čaušević, 2017:63).

Since its formation in the beginning of the second half of 15th century, Sarajevo has become one of the most prominent cities in South East Europe (Dizdar, 2005:6). The key and the first destination of all tourists is certainly the urban part of the city that is characterized bymany sacral objects, a unique mosque from the Ottoman era, the Catholic and Orthodox churches, the synagogue and other traces of multiethnic living. Of course, there are many cities in the world that can boast with such multi-religious features, but what makes Sarajevo specific is the fact that all the above mentioned objects are in the distance of several hundred meters (Mikulić, 2009:17).

Sarajevo has good predispositions for far greater tourism development than it has been so far, which makes tourism one of the main determinants of the development of the city of Sarajevo (Čaušević, 2017:63). In 2018, 573.227 tourists visited Sarajevo Canton and had a total of 1.189.159 overnight stays (IT and Statistics Administration of Sarajevo Canton, 2018). Most of the tourists came from Turkey, Croatia, China, UAE, Slovenia, Saudi Arabia, Germany, Serbia, USA and Italy. In 2018, Sarajevo Canton was visited by tourists from 167 countries of the world. The average length of their stay was 2,1 days.

The purpose of this paper is to explore whether the tourists are satisfied with the overall stay in Sarajevo, did they have any reason to complain during their stay or any reason to praise this tourist destination during their stay. The aim of this research is also to find out whether overall tourist satisfaction with Sarajevo has an influence on the loyalty of tourists to Sarajevo, ie on the intention of tourists to revisit Sarajevo, recommend it to friends and relatives and say positive things about Sarajevo to friends and colleagues.

2. LITERATURE OVERVIEW

The tourism industry is important because it plays a significant role in the in the economy of developing countries (Shahrivar, 2012). Tourism and travel is the world's largest service industries (Hui, Wan, & Ho, 2007). Appreciating the economic benefits of tourism at a national or regional level, it is unsurprising that destinations struggle against one another and attempt to leverage their advantages in order to gain the most out of their tourism source markets (El-Said & Aziz, 2019:1). The tourist satisfaction is the key of every destination's success. Increasing the tourist's satisfaction can lead to profit growth and revenues for service providers (Dmitrovic et al., 2009). A satisfied customer offers many other benefits besides increasing revenue and profits and these are the following: ability to isolate costumers from competition, reduce the cost of failure, create sustainable advantage, attract returning consumers, reduce the cost of attracting new customers, drive loyalty and create a campaign with positive word of mouth (WOM) (Lovelock & Wright, 2007: 104-105).

Chen & Tsai (2007) define customer satisfaction as a psychological concept that involves feelings of happiness and prosperity which resulted from expectancy of products and services as well as expectations. Fornell (1992) also defines customer satisfaction as the customers overall post purchase evaluation and judgment about the extent to which the product or service purchased has fulfilled the customer's needs (El-Said & Aziz, 2019:7). The interest in customer satisfaction is an interesting field for various researchers for decades (Santouridis & Trivellas, 2010; Lorca & García-Diez, 2004). Customer satisfaction is especially important for the domain of services where fulfillment of customer satisfaction is the primary purpose of many service industries, especially for tourism. Research about customer satisfaction is most often conducted in the field of tourism and hospitality, such as destinations and hotels, restaurants. The level of satisfaction and, in particular, the experience of tourists visiting a tourist destination, constitute the final product of a tourist destination (Middleton, 1994; Smith, 1994). Tourists' satisfaction is the result of the comparison between tourist expectations and their actual experiences (Ngoc Khuong & Dac Luan, 2015). Accordingly, satisfaction comes when expectations are exceeded or when they are met (Crompton & Love, 1995). If the overall experience during or after a visit to a particular tourist destination fulfills or exceeds the initial expectations of tourists, it will be considered that the level of tourist satisfaction has been achieved. But if perceived experience fails to meet or exceed the initial expectations of tourists, then it will be considered that the pleasure of the tourist has not been achieved. Satisfied tourists will be the first to recommend a tourist destination to others,

making this the cheapest and most effective form of marketing and promotions. Furthermore, the pleasure of tourists contributes to increasing tourist retention rates through their loyalty (Golob, Sirotić & Golob, 2014).

Revisit intention is defined as the tourists' loyalty to return to the tourism destination in the future (Canny, 2013). Besides the intention to return to the same destination, word of mouth (WOM) communication is also very important in the analysis of tourist loyalty. WOM is used to describe oral communication, both positive and negative (Ng et al., 2011; Zeithaml et al., 1996). Future tourist behavior is very difficult to foresee. The level of future behavioral intentions in a particular destination is often reflected in the rating of intention to recommend, saying positive things, and return to previous destination (Lee et al., 2011; Chen & Tsai, 2007).

Numerous studies have shown a significant relationship between the level of overall tourist satisfaction with destination and their intention to recommend it to other people as well as their intention to revisit the same destination it the future (San Martín, Herrero & García de los Salmones, 2018; Antón Camarero & Laguna-García, 2017; Hahm et al., 2016; Sun, Chi & Xu, 2013; Allan, 2012; Hui, Wan, & Ho, 2007; Kozak & Rimmington, 2000). A satisfied tourist has a higher probability of choosing the destination again and he/she is more likely to engage in positive WOM behaviour (Hui, Wan, & Ho, 2007: 968).

Tourists loyalty is influenced by overall tourist satisfaction (Lai et al., 2009; Kandampully & Hu, 2007; Bitner, 1990). A large number of research has shown that the level of overall tourist satisfaction with destination had the greatest influence on the tourists intention to revisit the same destination in the future and their willingness to recommend it (Gok & Sayin, 2015; Hutchinson, Lai & Wang, 2009; Kozak & Rimmington, 2000; Oppermann, 1998). If tourists are satisfied with a destination it could involve behavioural effects, of which revisit intentions could occur (Vryoni et al., 2017; Lo, Wu, & Tsai, 2015; Prayag & Ryan, 2012; Hutchinson, Lai & Wang, 2009). Overall tourist satisfaction is a requirement for loyalty and travelers' expectations and must be exceeded or met in order to build loyalty (Kotler et al., 2003: 389-390).

Tourism is one of the most important economic sectors in countries all over the world, especially in Bosnia and Herzegovina. Therefore, special attention should be dedicated to building the tourism loyalty. Through literature review, it can be concluded that tourists satisfaction has a notable influence on repeat visits and positive WOM publicity.

3. RESEARCH DESIGN

The research was designed to answer several simple questions:

1. What is tourists overall satisfaction with their visit to this tourist destination?
2. Have tourists had any reason to complain since they have been staying in this tourist destination?
3. Have tourists had any reason to praise this tourist destination since the beginning of their stay?
4. Do tourists have the intention to recommend this tourist destination to their friends and relatives?
5. Do tourists have the intention to speak highly of this tourist destination to their friends and colleagues?
6. Do tourists have the intention to return to this tourist destination?

4. COLLECTION OF THE DATA

The data was collected through survey. The total sample consisted of 250 respondents (foreign tourists) on the following locations in the center of the Sarajevo: Cathedral and the Baščaršija square. The survey was conducted during winter time (from December 10, 2018 to January 31, 2019). The questionnaire used for survey of tourists has been taken from previous similar research and adapted to this research.

After the survey process was completed, data from the questionnaires was entered in a specially designed database in Excel and then exported to SPSS, where the analysis was performed. Calculating Cronbach's Alpha coefficients was used to test the internal consistency of the sections measuring overall tourist satisfaction, tourists complain or praise this tourist destination, tourists intention to return to this tourist destination, tourists intention to recommend this tourist destination to their friends and relatives and tourists intention to speak highly of this tourist destination to their friends and colleagues. The calculated coefficient is shown in the table below.

As can be seen in Table 1, Cronbach's Alpha coefficient was above 0.8, which confirms the high reliability of the measuring instrument.

Table 1: Cronbach's Alpha coefficient

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,849	,921	8

Source: Research results

5. FINDINGS

During the analysis and interpretation of the obtained data, descriptive statistics and the statistical method ANOVA were used. In this way, the validity of the hypothesis was verified.

Overall tourist satisfaction

Tourists evaluated the question reffering to overall tourist satisfaction by using a Likert scale from one (1) to five (5), where „1" means they are completely dissatisfied and „5" that they are completely satisfied. Table 2 shows the answers of the respondents.

Table 2: Overall tourist satisfaction

	Frequency	Percent
Between satisfied and dissatisfied	23	9,2
Near completely satisfied	107	42,8
Completely satisfied	120	48,0
Total	250	100,0

Source: Research results

Most of the tourists (90,8%) are satisfied with their visit, namely 48,0% of tourists are completely satisfied with their visit to Sarajevo, while 42,8 of tourists are near completely satisfied. Only 9,2% of tourists are between satisfied and dissatisfied. Tourists have not evaluated this question with completely dissatisfied (grade 1) and near completely dissatisfied (grade 2).

Table 3 gives respondents answers to question if tourists have had any reason to complain since their stayin this tourist destination.

Table 3: Have you had any reason to complain since you have been staying in this tourist destination?

	Frequency	Percent
Yes	53	21,2
No	197	78,8
Total	250	100,0

Source: Research results

Although 78,8% of tourists did not have any reason to complain. 21,2% of tourists still have had reason to complain since they have been staying in this tourist destination.

The question „Have you filed a complaint?“ was responded only by those tourists who the previous question answered with yes. In Table 4 are the answers of the respondents.

Table 4: Have you filed a complaint?

	Frequency	Percent
Yes	25	10,0
No	28	11,2
No answer	197	78,8
Total	250	100,0

Source: Research results

Almost the same number of respondents answered with yes and no, ie 10,0% of tourists said yes and 11,2% of tourists said no. 78,8% of tourists did not answer this question since they answered the previous question „Have you had any reason to complain since you have been staying in this tourist destination?“ with no.

The next question referred to the fact if tourists have had any reason to praise this tourist destination since the beginning of their stay. Table 5 shows the answers of the respondents.

Table 5: Have you had any reason to praise this tourist destination since the beginning of your stay?

	Frequency	Percent
Yes	180	72,0
No	70	28,0
Total	250	100,0

Source: Research results

Most of tourists (72,0%) have had reason to praise this tourist destination while 28,0% of tourists have not had any reason to praise this tourist destination since the beginning of their stay. In table 6 are the answers of the respondents who answered the previous question, which refers to the expressing tourists compliments, with yes.

Table 6: Have you expressed your compliments?

	Frequency	Percent
Yes	139	55,6
No	41	16,4
No answer	70	28,0
Total	250	100,0

Source: Research results

Most of respodents (55,6%) expressed their compliments and 16,4% of tourists have not expressed their compliments. 28,0% of tourists did not answer this question because they answered the previous question with no, ie they have not had any reason to praise this tourist destination since the beginning of their stay so they could not express their compliments.

Tourists Loyalty

Tourists loyalty can be defined as the level of future behavioral intentions in a particular destination and it is often reflected in the rating of intention to recommend, saying positive things, and return to previous destination. Tourists evaluated statements concerning the loyalty of tourists by using a Likert scale from one (1) to five (5).

For each of the statements, tourists should indicate to what extent do they agree, „1“ meaning they completely disagree, „2“ - near completely disagree, „3“ - between agree and disagree, „4“ - near completely agree and „5“ that they completely agree with the statement. In table 7 are the answers of the respondents about intention of tourists to recommend Sarajevo to friends and relatives, say positive things about Sarajevo to friends and colleagues and intention of tourists to return to this tourist destination in the future.

With a statement “I will recommend this tourist destination to my friends and relatives”, 57,2% of tourists were in complete agreement. 28,4% of tourists near completely agree, 11,6% of tourists between agree and disagree and 1,6% of tourists near completely disagree with this statement. It can be concluded that

tourists in general agree with this statement, because 85,6% of tourists agree with this statement and not a single tourist completely disagrees with it.

Table 7: Tourists loyalty

I will recommend this tourist destination to my friends and relatives.		
	Frequency	Percent
Near completely disagree	4	1,6
Between agree and disagree	29	11,6
Near completely agree	71	28,4
I completely agree	143	57,2
I don't know	3	1,2
Total	250	100,0
I will speak highly of this tourist destination to my friends and colleagues.		
	Frequency	Percent
Near completely disagree	2	,8
Between agree and disagree	24	9,6
Near completely agree	77	30,8
I completely agree	145	58,0
I don't know	2	,8
Total	250	100,0
I will return to this tourist destination.		
	Frequency	Percent
Near completely disagree	11	4,4
Between agree and disagree	40	16,0
Near completely agree	64	25,6
I completely agree	124	49,6
I don't know	11	4,4
Total	250	100,0

Source: Research results

When it comes to a second statement "I will speak highly of this tourist destination to my friends and colleagues", it can be concluded that tourists agree with this statement the most- even 88,8%, ie 58,0% of tourists completely agree with it and 30,8% of tourists near completely agree. 9,6% of tourists between agree and disagree with this statement and 0,8% of tourists near completely disagree with it.

Similar is the situation with the third statement "I will return to this tourist destination". Most of respodents (49,6% of tourists) answered this statement with "completely agree". 25,6% of respondents "near completely agree", 16,0% of respodents „between agree and disagree" and 4,4% of respodents „near completely disagree" with this statement. As in the case of the previous two statements tourists did not answer this statement with a "completely disagree".

Most of tourists (about half of respondents) completely agree with all three statements regarding tourists loyalty. Not one tourist has rated these statements with completely disagree. It can be concluded that tourists have the intention to recommend Sarajevo to their friends and relatives, speak highly of Sarajevo to their friends and colleagues and also have an intention to return to this tourist destination in the future.

For the hypotheses testing, the statistical method of ANOVA was used. Test results and hypothesis testing are shown below. Three hypotheses have been defined for this research: H1: Overall tourist satisfaction positively influences intention of tourists to recommend this tourist destination to friends and relatives; H2: Overall tourist satisfaction positively influences intention of tourists to speak highly of this tourist destination to friends and colleagues and H3: Overall tourist satisfaction positively influences intention of tourists to revisit this tourist destination in the future.

Tourists are generally very satisfied with their visit to Sarajevo as a tourist destination. As high as 90,8% of tourists are satisfied with their visit and 9,2% of tourists are between satisfied and dissatisfied.

6. TESTING HYPOTHESIS H1

Most of tourists (85,6%) agree with statement „I will recommend this tourist destination to my friends and relatives". 11,6% of tourists between agree and disagree with this statement and 1,6% of tourists near completely disagree with it, while not a single tourist completely disagrees with it.

H1: Overall tourist satisfaction positively influences intention of tourists to recommend this tourist destination to friends and relatives.

Table 8: ANOVA

I will recommend this tourist destination to my friends and relatives.					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	36,109	2	18,055	39,217	,000
Within Groups	113,715	247	,460		
Total	149,824	249			

Source: Research results

Results of ANOVA show that $p<0,05$ and therefore, the first hypothesis is accepted. Overall tourist satisfaction has a statistically significant positive influence on intention of tourists to recommend this tourist destination to friends and relatives.

7. TESTING HYPOTHESIS H2

With a statement "I will speak highly of this tourist destination to my friends and colleagues", most of tourists (88,8%) agree. 9,6% of tourists between agree and disagree with this statement, 0,8% of tourists near completely disagree with it and not a single tourist completely disagrees with it.

H2: Overall tourist satisfaction positively influences intention of tourists to speak highly of this tourist destination to friends and colleagues.

Table 9: ANOVA

I will speak highly of this tourist destination to my friends and colleagues.					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	34,606	2	17,303	46,541	,000
Within Groups	91,830	247	,372		
Total	126,436	249			

Source: Research results

Since p<0,05 the second hypothesis can be accepted, which means that overall tourist satisfaction has a statistically significant positive influence on intention of tourists to speak highly of this tourist destination to friends and colleagues.

8. Testing Hypothesis H3

25,6% of respondents "near completely agree", 16,0% of respodents „between agree and disagree" and 4,4% of respodents „near completely disagree" with statement „I will return to this tourist destination". Most of tourists (75,2%) agree with this statement.

H3: Overall tourist satisfaction positively influences intention of tourists to revisit this tourist destination in the future.

Table 10: ANOVA

I will return to this tourist destination.					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	27,090	2	13,545	17,010	,000
Within Groups	196,686	247	,796		
Total	223,776	249			

Source: Research results

The third hypothesis can also be accepted, because p<0,05. Overall tourist satisfaction has statistically significant positive influence on intention of tourists to revisit this tourist destination in the future.

9. Analysis Of Findings

Upon data analysis, reviewing the research results and hypothesis testing, many conclusions are imposed. Most of tourists, as high as 90,8% of tourists are satisfied with their visit to Sarajevo. Additionally, 78,8% of tourists have not had any reason to complain since they have been staying in this tourist destination and most of tourists (72,0%) have had reason to praise this tourist destination since the beginning of their stay. About 80% of respondents agree with all three statements regarding tourists loyalty. The intention of the tourists to recommend Sarajevo to their friends and relatives, speak highly of Sarajevo to their friends and colleagues and also to return to this tourist destination in the future, are at a high level.

These results are in accordance with previously conducted research in Sarajevo. Previously conducted similar research in Sarajevo has also shown that tourists are satisfied with Sarajevo as a tourist destination (Čizmić & Čaušević, 2017; Domazet, 2007). In the research "The impact of cultural event on tourists intend to revisit Sarajevo – Case of the Sarajevo Film Festival", in the section "Recommendation and revisit potential", the statement " I will recommend Sarajevo to other people (friends and relatives)" was rated with a score of 4,48 and the statement "I intend to come to Sarajevo again in the future" was rated with a score of 3,89 on a scale from 1 to 5 (Čaušević-Ribić & Čizmić, 2016).

All three defined hypotheses are accepted. It can be concluded that overall tourist satisfaction has a statistically significant positive influence on intention of tourists to recommend this tourist destination to friends and relatives, intention of tourists to speak highly of this tourist destination to friends and colleagues and intention of tourists to revisit this tourist destination in the future.

Accepted hypotheses are in accordance with the results of research „The effect of destination image on tourist satisfaction, intention to revisit and WOM: An empirical research in Foursquare social media". According to hypotheses H7 („H7. Tourist satisfaction mediates the relationship between overall destination image and expressions of intention to revisit on Foursquare.") and H8 („H8. Tourist satisfaction mediates the relationship between overall destination image and word of mouth on Foursquare.") of the research, satisfaction had significant

effect on intention to revisit (β=0.4, CR= 6.75) and recommend (β= 0.65, CR= 15.89) (Shafiee, Tabaeeian & Tavakoli 2016).

The results of this research are also in agreement with the results of the research „Tourists' satisfaction, recommendation and revisiting Singapore". The likelihood of tourists recommending Singapore to their family and friends and revisiting Singapore in the future were positively related to their overall satisfaction levels (Hui, Wan, & Ho, 2007). The study „The impact of tour quality and tourist satisfaction on tourist loyalty: The case of Chinese tourists in Korea" showed that positive relationship exists between satisfaction and loyalty (Lee et al., 2011). The positive link between satisfaction and behavioral intentions appears evident in study „How destination image and evaluative factors affect behavioral intentions?" (Chen & Tsai, 2007). In most of the previously conducted studies, it has also been shown that overall tourists satisfaction affects the loyalty of tourists. Hutchinson, Lai & Wang (2009) indicated in their research that satisfaction had significant influences on the intention to revisit and word-of-mouth behavioral intention variables.

10. Conclusions And Recommendations

Tourists are generally very satisfied with their visit to Sarajevo. This is confirmed by the fact that the largest number of tourists have not had any reason to complain since they have been staying in Sarajevo. On the other side, most of tourists have had reason to praise Sarajevo since the beginning of their stay. Regarding the loyalty of tourists, about half of the respondents rated statements regarding the recommendations, WOM and revisiting Sarajevo with a rating of 5 on a scale from 1 to 5.

The three hypotheses were defined and all of them were accepted. The conclusion of this research is that overall tourist satisfaction has a statistically significant positive influence on intention of tourists to recommend Sarajevo to other people, to speak highly of this tourist destination to other people and intention of tourists to revisit Sarajevo.

Although tourism is a comparative advantage of Bosnia and Herzegovina, there are only a few authors who have been exploring the tourist satisfaction with Sarajevo and their loyalty. There is still very little work in this area. This paper presents a more serious and scholarly approach to one part of this topic and points out the possibility of contributing to the better recognition of Sarajevo in the tourist market. Research results have wide application. The results can be used

by the universities in education, Federal Ministry of Environment and Tourism, Ministry of Economy of the Sarajevo Canton, Ministry of Physical Planning, Construction and Environmental Protection of Canton Sarajevo, Ministry of Culture and Sports of Sarajevo Canton, Institute for Informatics and Statistics of Canton Sarajevo, Agency for Statistics of Bosnia and Herzegovina and many non-governmental organizations.

Recommendations for further research would be to include a qualitative approach in research. Considering the satisfaction of tourist and loyalty, it is necessary to understand the breadth of experience during a tourist visit to Sarajevo. For this reason, besides quantitative research, a qualitative approach is needed.

Recommendations for further research are also that research projects on the experience and satisfaction of visitors should be the strategically made for the city/Canton Sarajevo. For this reason, it is necessary for marketing teams to approach the research in the future in order to have a broader and better picture of the experience and satisfaction of the visitors in order to strategically and systematically build the image and design the experience for the satisfaction of tourists as well as loyalty.

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JOB INSECURITY AND ROLE AMBIGUITY AS THE CAUSE OF JOB SATISFACTION AND TURNOVER INTENTION AMONG TEMPORARY LABOURER OF BATIK TRUSMI SMALL AND MEDIUM ENTERPRISE IN CIREBON DISTRICT, WEST JAVA, INDONESIA

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Abstract

This paper reports on a study of the job insecurity and role ambiguity as antecedent job satisfaction and turnover intention. The sample is a hundred temporary labourers from varied small and medium enterprises of Batik Trusmi in Cirebon West Java obtained accidentally directly at the research location with the questionnaire. SmartPLS used to test hypotheses. The study finds job insecurity was affected negatively on job satisfaction and positively on turnover intention, same with role ambiguity. Thus, job insecurity and role ambiguity are proven to be the reason behind turnover intentions among labourer of the small and medium enterprise. Job satisfaction affected negatively on turnover intention. Role ambiguity is a more critical antecedent for job satisfaction and turnover intention of the temporary labourer. Therefore, small and medium enterprise owners have to compelled to guarantee there are apparent job certainty and clarity of what are the duties and responsibilities of those employees.

Keywords: *job insecurity, job satisfaction, role ambiguity, small and medium enterprise, temporary labourer, turnover intention*

1. INTRODUCTION

Human resources are essential assets for a company because they are the movers, and that will carry, maintain, and develop the company to achieve its goals. Therefore, the utilization of human resources will determine the operational functions of the company. However, companies often, including small and medium enterprises, pay less attention to the hidden phenomenon in workers to wit turnover intention. Real labour turnover occurs, beginning with a high level of turnover intention and then realized by labourers (Steel and Ovalle, 1984).

Turnover intention is a condition where labourers have intentions or tendencies consciously to look for another job as an alternative in different workplaces (Vandenberg and Nelson, 1999). Other definitions explain turnover intention is a behaviour which includes the process by which labourer leave the organization or replaced by others (Currivan, 1999). It means that labourers can intentionally leave the workplace or because others replace by the employer. Various symptoms that often appear that indicate turnover intention among labourers include increased absence, demotivation, increased violations, the courage to protest to superiors, emergence of behaviour that is very different from before.

Batik Trusmi crafts in Cirebon district West Java are mostly managed and run by small and medium scale enterprises. Small and medium enterprise owners mostly employ temporary labourers as an efficiency effort, because the batik craft business in this scale still relies heavily on orders. Turnover intentions that arise in temporary labourers can happen anytime, let alone driven by something that is felt not per under themselves, so it is possible for the emergence of the perception that it is not a necessity to keep a job at work now. The reaction is instant (Egan, Yang, and Bartlett, 2004), meaning that individual turnover intention can occur at any time and is most likely caused by several causes (Noe et al., 2006) because a labourer can deliberately leave the organization voluntarily on the grounds, for example, dissatisfaction with salary, benefits, or working conditions (Yanga, Wanb, and Fu, 2012).

This study uses a psychological approach that emphasizes content research and is the rationale for the need for research on why turnover intention arises among temporary labourers. It is an essential thing because many researchers try to answer the question of what causes a labourer wants to quit. It is also essential for practitioners (Kalliath and Beck, 2001; Kramer, Callister, and Turban, 1995).

Content research, as mentioned earlier, in a psychological approach has a significant emphasis on identifying cause variables that arranged in a multivariate empirical model (Maertz and Kmitta, 2012; Griffeth, Hom, and Gaertner, 2000).

Low job satisfaction will have an impact on increasing desire to leave (Munir and Rahman, 2016; Kaye and Jordan-Evans, 2000). Job satisfaction as a cause of workers leaving their work has proven by various previous studies (Griffeth, Hom, and Gaertner, 2000; Lee and Mitchell, 1994: Hom et al., 1992; Steers and Mowday, 1981). Job satisfaction is the perceptions and attitudes of workers towards several dimensions, namely the job itself, payment, promotion, supervision, and work colleagues (Munir and Rahman, 2016; Spector, 1997; Smith, Kendall, and Hulin, 1969). Thorough empirical investigations have conducted by various scholars on the determinants of job satisfaction with varying contexts of organizational behaviour (Darwish, 2000).

In reality, temporary labourers must have a perception that employers will not always use them; when this perception is getting stronger, it can affect the desire to find another job. Job insecurity is the threat of job loss shortly perceived by workers (Vander Elst, De Witte, and De Cuyper, 2016) or simply job insecurity as one's expectation about continuity in current employment (Davy, Kinicki, and Scheck, 1997). Previous research found that job insecurity was negatively correlated with job satisfaction and positively correlated with turnover intention (De Witte et al., 2010; Sverke, Hellgren, and Na ¨swall, 2002).

Previous studies have empirically shown evidence that role ambiguity correlates with workers' attitudes, including job satisfaction, organizational commitment, and turnover intention (Harris et al., 2006; Bettencourt and Brown, 2003). Thus, role ambiguity can be the cause of the emergence of a turnover intention and determine the job satisfaction of labourers. Bedeian and Armenakis (1981) asserted that role ambiguity had a positive effect on turnover intention, but that it negatively impacted on job satisfaction. Role ambiguity is a condition where labourers do not clearly understand their role, so they do not understand they must be meet which expectations. Unclear role of temporary labourers will increase job pressure and can directly cause job satisfaction (Slatterya, Selvarajanb, and Andersonc, 2008).

This research conducted with the thought that every company, including a small and medium scale, needs to make efforts and identify problems that arise relating to human resources, both visible and unseen. Human resource management becomes essential in this framework, considering that human resources are the

determining factor for every form of company. Various symptoms, which predicted in the short and long term, can be detrimental to the company need to be detected early. Therefore studies of human resources related to job insecurity, role ambiguity, job satisfaction, and turnover intention are essential to do in order to maintain the human resources of each company.

During this time the study of turnover intention perceived by labourers is more with the objects of professional workers (e.g. Blau, Tatum, and Ward-Cook, 2003; Doerner, 1995; Harris and Baldwin, 1999), very less study of turnover intention with objects temporary labourers, especially in the small and medium enterprise. In fact, in a small and medium enterprise, temporary labourers are often used by owners of these enterprises to improve operational activities. Therefore, the study of the turnover intention of temporary labourers in a small and medium enterprise is interesting to do further, and this study aimed at closing the gap from previous studies of turnover intention and its causes.

2. LITERATURE REVIEW

Job insecurity is the loss of certainty of work continuity, which is perceived subjectively by labourers (Ellonen and Nätti, 2015; Vander Elst, De Witte, and De Cuyper, 2014; Zheng et al., 2014; Bernardi, Klärner, Der Lippe, 2008). Decreased in job satisfaction can be caused by perceptions about job insecurity (e.g. Zheng et al., 2014; De Witte et al., 2010; Buitendach and De Witte, 2005; Sverke, Hellgren, and Na ¨swall, 2002; Probst, 2000), and can even raise the desire to deviate from the workplace (Probst, 2002). The direct impact of job insecurity is not only on job satisfaction, but previous studies have proven that job insecurity has an impact on turnover intention (Staufenbiel and Ko¨nig, 2010; Mauno, Leskinen, and Kinnunen, 2001; Burke, 1998). Based on theoretical arguments and previous research that has explained, then the hypothesis is formulated:

- *Hypothesis 1.* Job insecurity will be affected negatively on job satisfaction among temporary labourer of small and medium enterprise.
- *Hypothesis 2.* Job insecurity will be affected positively on turnover intention among temporary labourer of small and medium enterprise.

Role ambiguity, job satisfaction, and turnover intention

Role ambiguity occurs when there is no clear role and requirements expected to complete individual work (Rizzo, House, and Lirtzman, 1970). This condition occurs when the task or authority of an individual is not clear so that the

individual is confused to act or take responsibility for the completion of his work (Jones, 2007; Onyemah, 2008). Some previous empirical evidence shows that employee attitudes are related to role ambiguity, including job satisfaction, organizational commitment and turnover intention (Bettencourt and Brown 2003; Harris et al., 2006). Bedeian and Armenakis (1981) asserted that role ambiguity has a positive influence on turnover intention, but its negative impacts on job satisfaction. Therefore, based on preceding arguments and related research before, the hypothesis is formulated:

- *Hypothesis 3.* Role ambiguity will be affected negatively on job satisfaction among temporary labourer of small and medium enterprise.
- *Hypothesis 4.* Role ambiguity will be affected positively on turnover intention among temporary labourer of small and medium enterprise.

Job satisfaction and turnover intention

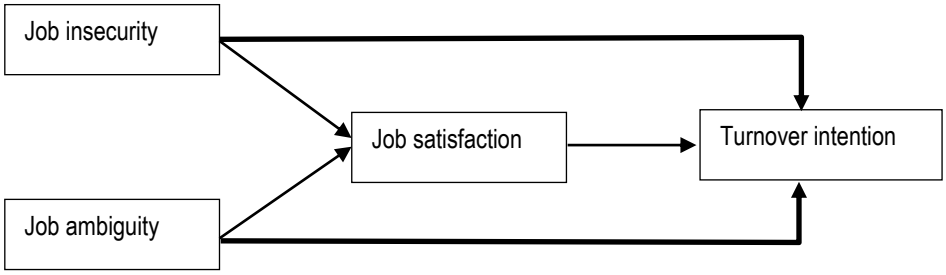
Job satisfaction is a form of labourer response to their work compare actual job outcomes with the outcomes felt (Hulin and Judge, 2003; Porter and Lawler, 1968). While other definition defines job satisfaction as expectations, needs or values of a job owned by labourers compared to the reality received about the job (Heslop et al., 2002). So, job satisfaction interpreted as a picture of emotions, feelings and thoughts and perceptions of labourers from various points of view of the workplace (Brief, 1998; Spector, 1997). Therefore, if dissatisfaction occurs, they will be a desire to look for alternatives (Reed, Kratchman, and Strawser, 1994). Dissatisfaction will occur if there is an injustice in payment; opportunities for self-development is limited. Even the decline in cooperation between labourers at work will encourage dissatisfaction and subsequently have an impact on turnover intention (Munir and Rahman, 2016). Also explained that job dissatisfaction caused the resignation of employees and moved to other companies that were better able to provide benefits and advantages that were higher than the previous company (Kaye and Jordan-Evans, 2000; Chen et al., 2011). The impact of job satisfaction on turnover intention has also been proven empirically by previous studies (Wayne, Shore, and Liden,1997; Cotton and Tuttle, 1986). Therefore, based on theoretical arguments and empirical evidence given above, the following hypothesize is formulated:

- *Hypothesis 5.* Job satisfaction will be affected negatively on turnover intention among temporary labourer of small and medium enterprise.

Based on empirical findings and theoretical reasonings given above, the following model presented in Figure 1 proposed. The model predicts that the job insecurity

effect on job satisfaction and turnover intention, the role ambiguity effect on job satisfaction and turnover intention, and further proposed that job satisfaction was affect on turnover intention.

Figure 1. Proposed model linkages job insecurity, role ambiguity, job satisfaction, and turnover intention



3. RESEARCH METHODOLOGY

Data agregation

Data agregation was conducted from September to November 2019 with samples taken using accidental sampling of 100 temporary labourers from various small and medium enterprises of Batik Trusmi in Cirebon District, West Java, Indonesia. Data collection was carried out by survey method that is looking for and meeting temporary labourers in various small and medium enterprise locations of Batik Trusmi Cirebon and asking to participate in this research by becoming respondents then participants were asked to fill out questionnaires. Overall, 100 questionnaires were fulfilment, representing a 100% response rate.

The questionnaire filled out by respondents containing two parts, the first part of the questionnaire relating to the profile of respondents such as gender, age, education qualification, and length of working. Table 1 is a description of participants based on their characteristics. Overall, based on statistics data of 100 participants of temporary labourers from Trusmi Batik Cirebon small and medium enterprises, mostly male (76%); most of the participants in the age range between 17 to 22 years old (62%) and 23 to 28 years old (28%); based on educational qualifications of participants of this research, all participants have graduated senior high school (100%); the number of labourers with 1 to 2 years length of working (48%) and followed by less than one year (40%).

Table 1 Personal characteristic of the partisipants

Characteristic	Group	Percentage
Gender	a. Male	76
	b. Female	24
Age	a. 17 to 22 years old	34
	b. 23 to 28 years old	28
	c. 29 to 34 years old	11
	d. 35 to 40 years old	22
	e. > 40 years old	5
Educational qualification	a. Junior high school	-
	b. Senior high school	100
	c. Diploma	-
	d. Bachelor	-
Length of working	a. < 1 years	40
	b. 1 to 2 years	48
	c. 3 to 4 years	12
	d. 5 to 6 years	-
	e. > 6 years	-

Measurements

The second part of the questionnaire relates to the items of measures job insecurity, role ambiguity, job satisfaction, and turnover intention. Participants asked to respond to all questionnaire items. Every item used to measure the job security and role ambiguity were rated using a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree) and adjusted to the research context. Job insecurity was measured using four items from Hawass (2015), for example, "I feel I will not lose my current job", "I feel able to face the threat of my current job", and "I feel the sustainability of my current work ". Role ambiguity was measured using a five-item based on Hill, Chenevert, and Poitras (2015), for example, "I think there is a clear responsibility in my current job", I think clearly about how to be accomplished my current job, "and" I think confident about the authority in my current job ".

Rated using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) and adjusted to the research context used for items to measure job satisfaction and intention to leave. Job satisfaction was measured using a five-item based on Spector (1997) and Smith, Kendall, and Hulin (1969) include the work itself, payment, promotion, supervision, and work colleagues. Sample

items include "I am satisfied with my present job" and "I am satisfied with my salary from my present job". The turnover intention was measured using three items based on Jehanzeb, Rasheed, and Rasheed (2013) and Wayne, Shore, and Liden (1997), such as "I am thinking of leaving my current job" and "I have the desire to look for other job openings".

4. RESULTS AND DISCUSSION

SmartPLS result for validity and reliability

Based on Table 2 shows the results of data processing using SmartPLS generating a loading factor value for each item that measures a variable. All loading factor values meet the required convergent validity of more than 0.5 (Kumar, Scheer, and Steenkamp, 1998). Thus the items used have been able to describe each construct or variable to be measured.

Table 2 Validity test of items based on SmartPLS results

Item	Job insecurity	Role Ambiguity	Job Satisfaction	Turnover intention
JI1	0.763			
JI2	0.754			
JI3	0.560			
JI4	0.644			
RA1		0.686		
RA2		0.645		
RA3		0.771		
RA4		0.788		
RA5		0.778		
JS1			0.703	
JS2			0.698	
JS3			0.615	
JS4			0.587	
JS5			0.811	
TI1				0.617
TI2				0.772
TI3				0.821

Items of job security include JI1, JI2, JI3, and JI4 have loading factor 0.763; 0.754; 0.560; 0.644. Role ambiguity includes RA1, RA2, RA3, RA4, and RA5 have loading factor 0.686; 0.645; 0.771; 0.788; 0.778, moreover for job satisfaction including JS1, JS2, JS3, JS4, and JS5 have loading factor 0.703; 0.698; 0.615; 0.587; and 0.811, and then for turnover intentions include TI1, TI2,

and TI3 have loading factor 0.617; 0.772; 0821. Table 3 shows the Cronbach's alpha of job insecurity, role ambiguity, job satisfaction, and turnover intention were range 0.851 to 0.873, so the Cronbach's alpha value more than 0.7 might be a durable internal consistency (Nunnally, 1978).

Table 3 Realiability based on Cronbach's alpha

	Cronbach's alpha	Composite reliability
Job insecurity	0.868	0.892
Role Ambiguity	0.855	0.887
Job Satisfaction	0.873	0.897
Turnover intention	0.851	0.893

Data analysis for hypotesis test

Based on SmartPLS bootstrapping results as shown in Table 4, hypothesis testing is performed by comparing t-statistic and t-table values (with 95% confidence interval, t-table = ± 1.96). Job insecurity has a significant effect on job satisfaction (t-statistic = -2.009; p-value = 0.045), the effect of job insecurity on job satisfaction is negative (β = -0.242), as predicted in H1. Job insecurity has a significant effect on turnover intention (t-statistic = 2.782; p-value = 0.000), the effect of job insecurity on turnover intention is positive (β = 0.374). Thus, H2 was supported. Role ambiguity has a significant effect on job satisfaction (t-statistic = -3,135; p-value = 0.002). Similar to job insecurity, the effect of role ambiguity on job satisfaction is negative (ß = -0.363), which is supported H3. Role ambiguity has a significant effect on turnover intention (t-statistic = 4.132; p-value = 0.001), the effect of role ambiguity on turnover intention is positive (ß = 0.527). Thus, H4 was confirmed. Moreover, job satisfaction has a significant effect on turnover intention (t-statistic = -2.303; p-value = 0.000), job satisfaction has a negative influence on turnover intention (ß = -0.335), so H5 was confirmed too.

Table 4 Results of hypotesis test

Proposed Hypotesis	Original Sample (O)	t Statistic (|O/STDEV|)	Probability (*p-values*)	Decission
JI → JS	- 0.242	-2.009	0.045	Sig. *)
JI → TI	0.374	2.782	0.000	Sig. *)
RA → JS	- 0.363	-3.135	0.002	Sig. *)
RA → TI	0.527	4.132	0.001	Sig. *)
JS → TI	- 0.335	-2.303	0.000	Sig. *)

Note: *) *p-values* less then 0.05
JI = job insecurity; RA = role ambiguity; JS = job satisfaction; TI = turnover intention;

5. DISCUSSION

The psychological approach emphasizes it is important to answer the question of what causes a labourer wants to quit (Kalliath and Beck, 2001; Kramer, Callister, and Turban, 1995). Therefore, we focus on job insecurity and role ambiguity as antecedents of job satisfaction and turnover intention among temporary labourers of Batik Trusmi small and medium enterprise. We use the multivariate empirical model (Maertz and Kmitta, 2012; Griffeth, Hom, and Gaertner, 2000), as shown in Figure 1. Furthermore, hypothesis testing carried out to prove the impact of job insecurity and role ambiguity partially on job satisfaction and turnover intention, as well as job satisfaction with turnover intention.

The results of our analysis provide that job insecurity is proven to have a significant direct positive impact on turnover intention, in line with previous studies (e.g. De Witte et al., 2010; Sverke, Hellgren, and Na ¨swall, 2002: Staufenbiel and Ko¨nig, 2010; Mauno, Leskinen, and Kinnunen, 2001). Thus, job insecurity is proven to be the cause or antecedent turnover intention. Likewise, role ambiguity, as expected, has a significant direct positive impact on turnover intention. These results are in line with studies before (e.g. Harris et al., 2006; Bettencourt and Brown 2003). Moreover, job satisfaction directly and significantly negatively impacts turnover intention, which is consistent with various previous studies (e.g. Munir and Rahman, 2016; Kaye and Jordan-Evans, 2000; Griffeth, Hom, and Gaertner, 2000; Lee and Mitchell, 1994: Hom et al., 1992; Wayne, Shore, and Liden, 1997).

Our results also demonstrate that job insecurity and role ambiguity are partially antecedents of job satisfaction. Job insecurity has a negative and significant impact on job satisfaction, so dissatisfaction will increase if expectations about job continuity guarantees are currently perceived low by labourers. These were in line with several previous studies (e.g. Zheng et al., 2014; De Witte et al., 2010; Buitendach and De Witte, 2005; Sverke, Hellgren, and Na ¨swall, 2002; Probst, 2000). Furthermore, role ambiguity is also partially proven to have a negative and significant impact on job satisfaction, so dissatisfaction will occur if there is no clarity of the expected role for compiling the task by the labourer. This result in line with several studies before (e.g. Harris et al., 2006; Bettencourt and Brown 2003; Bedeian and Armenakis, 1981).

Based on our research, there is some contribution. First, we provide the linkage of job insecurity, role ambiguity, job satisfaction, and turnover intention, primally focus on job insecurity and role ambiguity as to the antecedent of job satisfaction

and turnover intention in the small and medium enterprise with temporary labourer as participants. It contributes to human resources management for the small and medium enterprise. Second, we hope our present study of the turnover intention of the temporary labourer in a small and medium enterprise can close the gap from previous studies of turnover intention and its causes.

6. CONCLUSION AND LIMITATION

Every company needs the existence of human resources in achieving its goals because they are essential assets, including temporary workers. This principle applies to every company in any form and scale. Thus here, we need to understand what causes turnover intention (Kalliath and Beck, 2001; Kramer, Callister, and Tuban, 1995). Job insecurity and role ambiguity are proven to be the cause of turnover intention among labourers in small and medium enterprises, and also cause dissatisfaction.

Our study has several limitations that future research may address. First, the turnover intention is more useful than actual turnover because turnover intention can encourage companies to take preventive actions to keep workers staying. However, further research is still needed to analyze the impact of turnover intention on actual turnover (Steel and Ovalle, 1984), to develop this research model and validate the model by proving through the addition of actual turnover variables. Besides, subsequent researchers can also add commitment variables as dependent variables because based on theory and previous empirical evidence the role of ambiguity affects organizational commitment (Harris et al., 2006; Bettencourt and Brown 2003). Second, the present study found that temporary labourers were more likely to think of quit the job when their work continuity threatened, and there was no clarity in completing work. In those cases, the labourer feels dissatisfaction and intention to quit developed. In terms of job satisfaction, dissatisfaction with supervisors is the leading cause that contributes. Empirically it has been proven that job insecurity and role ambiguity are the causes of temporary labour turnover intention, for the next empirical study can add other predictors to enrich answers about the causes of turnover intention among temporary labour such as role conflict, organizational culture, psychological contract, and leadership.

In general, small and medium enterprise owners need to be concerned about temporary labourers who are working for them. These were important because if small and medium business owners only focus on income, profits and

productivity, the labourers will feel disappointed and go looking for other workplaces that offer better conditions (Kaye and Jordan-Evans, 2000).

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STRATEŠKO PLANIRANJE BOLJE REGULATIVE U BOSNI I HERCEGOVINI: ANALIZA POSTOJEĆEG STANJA I PREPORUKE

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Abstrakt

Funkcionalan i efikasan sistem donošenja i provedbe javnih politika i zakonodavstva, utemeljen na integritetu, participaciji i transparetnosti suštinski je važan za demokratski legitimitet vlasti i ukupan društveno-ekonomski razvoj zemlje. Efikasan sistem strateškog planiranja bolje regulative predstavlja preduslov učinkovite i odgovorne javne uprave. U sklopu reformskih procesa u Bosni i Hercegovini, posebna reformska oblast odnosi se na strateško planiranje, kapacitete za izradu politika i koordinaciju. Predmet ovog rada je prezentirati mogući i potrebni dalji razvoj pravnog okvira strateškog planiranja s ciljem donošenja boljih, kvalitetnijih i svrsishodnijih politika, zakona (propisa) i mjera za društvo i građane i razvoj poslovanja uz punu garanciju pravne sigurnosti i vladavine prava.

Ključne riječi: strateško planiranje bolje regulative, bolja regulativa, vladavina prava, pravna predvidljivost

1. UVOD

U savremenom društvu i ekonomiji postoji stalna potreba za strateškim planiranjem. Ciljevi vlada obično su formulisani u obliku javnih politika, a zakonodavstvo je instrument kojim se političke vizije i ciljevi ostvaruju. Javne politike možemo definisati kao namjerno djelovanje institucija vlasti, koje mijenjaju društvo i ekonomiju i utiču na njih. Izrada kvalitetnih javnih politika a samim time i kvlitetnog zakonodavstva zahtijeva drugačiji pogled na postupak izrade i planiranja kako javnih politika tako i zakonodavstva (Alessie et al: 2018).

Na pitanje zbog čega su zemlje bogate ili siromašne, Acemoglu i Robinson daju jednostavan odgovor - "institucije, institucije, institucije"! Političke i ekonomske!" (Acemoglu&Robinson:2017). Navedeni autori dalje objašnjavaju da su institucije, ili "dobre"- uključive/inkluzivne, fokusirane na široko raspodijeljivanje moći, produktivnost, obrazovanje, tehnološki napredak, dobrobit cijele zemlje, ili "loše" - ekstraktivne, koncentriraju moć i mogućnosti u rukama nekolicine, te bogatstva i resurse iz jednog dijela društva, od masa, izvlače u korist drugog dijela društva, malobrojne vladajuće elite. Stoga, Acemoglu i Robinson tvrde da inkluzivne političke i ekonomske institucije, a to posljedično znači kvalitetno zakonodavstvo, nepristrasno i efikasno sudstvo, stabilan pravni okvir, podsticajno utiču na ekonomiju, društvo i prosperitet jedne države (Acemoglu&Robinson:2017).

U analitičkom izvještaju Evropske komisije za Bosnu i Hercegovinu iz 2019. godine (COM: 2019,261) ističe se da je sistem kreiranja politika u Bosni i Hercegovini veoma fragmentiran. Potrebno je u velikoj mjeri poboljšati koordinaciju između državnih i entitetskih institucija. Nadalje se navodi da nepostojanje cjelodržavnog strateškog planiranja i dalje predstavlja veliki nedostatak i ozbiljna je prepreka javnom nadzoru nad radom vlade. Evropska komisija u svojim godišnjim izvještajima o napretku Bosne i Hercegovine kontinuirano naglašava neophodnost uspostave efikasnih i učinkovitih mehanizama koordinacije procesa evropskih integracija u Bosni i Hercegovini. Strateško planiranje postaje nezaobilazni faktor koji treba da utiče na optimalni napredak Bosne i Hercegovine u svim sektorima. Kao jedan od preduslova za strateško planiranje jeste postojanje odgovarajuće regulative koja ga uokviruje kao i postojanje institucija, njihova umreženost i koordiniranost na svim nivoima vlasti u Bosne i Hercegovine.

Nedovoljno razvijen sistem strateškog planiranja i upravljanja razvojem u Bosni i Hercegovini dovodi do neučinkovite realizacije politika u oblastima od vitalnog značaja za kvalitet života i blagostanje građana poput zapošljavanja,

ekonomskog rasta, razvoja malih i srednjih preduzeća, ruralnog razvoja i poljoprivrede, razvoja ljudskih resursa i obrazovanja, te zaštite i upravljanja okolišem. Pojam upravljanje razvojem predstavlja pretvaranje razvojnih ciljeva i prioriteta u konkretne aktivnosti sa jasno definisanim finansijskim učinkom i institucionalnim odgovornostima, potom realizaciju tih aktivnosti, monitoring, izvještavanje o stepenu njihove implementacije, te evaluciju razvojnih dokumenata i rezultata implementacije (COM: 2019,261).

Početkom 2020. godine predstavljen je i objavljen dokument "Poboljšavanje postupka pristupanja - vjerodostojna EU perspektiva za Zapadni Balkan" (COM: 2020,57). Vladavini prava iznova je dodijeljen središnji značaj. Jasno određenje i predstavljanje značenja vladavine prava i pravne sigurnosti kao *sine qua non* je preduvjet ekonomskog i društvenog razvoja. Ako ne postoje vladavina prava i pravna sigurnost, nema i ne može biti ozbiljnih, sistematično zasnivanih i dugoročno usmjerenih strateških razvojnih planiranja. U istraživačkom radu (Rigobon, Rodrik, 2005:5), autori su diskutovali međuodnose između vladavine prava, demokratije, otvorenosti i prihoda. Na osnovu prethodne literature te vrativši se na pitanja i izjave koje su oni postavili u svom radu, njihova glavna važna otkrića koja podupiru istraživanje autora ovog rada su „i demokratija i vladavina prava dobri za ekonomske rezultate, ali vladavina prava ima mnogo snažniji učinak na prihode (i statistički i kvantitativno).

Funkcionalan i efikasan sistem donošenja i provedbe javnih politika i zakonodavstva, utemeljen na integritetu, participaciji i transparetnosti (Amrollahi, Rowlands :2018) suštinski je važan za demokratski legitimitet vlasti i ukupan društveno-ekonomski razvoj zemlje. Efikasan sistem strateškog planiranja predstavlja preduslov učinkovite i odgovorne javne uprave. U sklopu reformskog procesa predviđenog Strategijom reforme javne uprave (, posebna reformska oblast odnosila se na Strateško planiranje, kapacitete za izradu politika i koordinaciju.

Predmet ovog rada je prezentirati mogući i potrebni dalji razvoj pravnog okvira strateškog planiranja s ciljem donošenja boljih, kvalitetnijih i svrsishodnijih politika, zakona (propisa) i mjera za društvo i građane i razvoj poslovanja uz punu garanciju pravne sigurnosti i vladavine prava. Ovaj rad je zasnovan je na konsultantskim/savjetodavnim procesima i njihovim rezultatima "Procjena uticaja na oblast dugoročnog strateškog planiranja na nivou Bosne i Hercegovine" koji su sprovedeni kao dio projekta „Programme for Strengthening of Pubic Institutions in Bosnia and Herzegovina, GIZ, 2019".

2. STRATEŠKO PLANIRANJE BOLJIH POLITIKA I BOLJE REGULATIVE

Reforma javne uprave je okosnica za jačanje upravljanja na svim nivoima. Reforma javne uprave u državama članicama EU je među pet najvažnijih zadataka za podršku ekonomskom razvoju (Odličnost u javnoj administraciji za konkurentnost u EU zemljama članicama, 2012). To uključuje unaprijeđenje kvaliteta i odgovornosti uprave, unaprijeđenje profesionalnosti, depolitizaciju i transparentnost, takođe u zapošljavanju i otpuštanju administracije, transparentnije upravljanje javnim finansijama, i bolje usluge građanima. Bolja regulativa je popularan naziv za agendu regulatornih reformi (Radaelli, Meuwese, 2009:639), ali šta stoji iza ovog naziva? U svom članku o regulatornim politikama u evropi, Lodge zapaža porast akademskog interesa za ovu temu (Lodge, 2008:289). Lodge takođe zaključuje (Lodge 2009:145) da je savremena debata manjkava usljed konkurentnih pretpostavki koje se kriju iza zajedničkog jezika. Pristup koji više obećava je da se visokokvalitetna regulativa uklopi u regulatorne razgovore nego da se nameću zahtjevi putem hijerarhijskih sredstava.

Procjena učinka danas je fascinantna tačka za posmatranje kako politika zasnovana na dokazima i „političko“ donošenje odluka međusobno djeluju (Dunlop, Radaelli 2016:34).Vlade moraju osigurati da interesne skupine aktivno sudjeluju u procesima reformi i kreiranja politika (OECD, 2017). Istraživanja o kvalitetu regulative pokazala su da se on ne može jednostavno postići smanjenjem ukupnog broja pravila. On zahtijeva adekvatno institucionalno uređenje regulatornih nadzornih institucija (Dunlop, Maggetti, Radaelli,Russel 2012:24). Sve mora biti uvedeno sistematskim i dugoročno uspostavljenim ali urgentno primijenjenim procesom digitalizacije kompletnog državnog sistema. Sve ove reforme su sama suština puta zemalja Zapadnog Balkana prema Evopskoj Uniji. Uvjerljiv zamah ostvarit će se samo postizanjem mjerljivih i održivih rezultata. To je viđenje sa stanovišta Evropske unije onih nužnih sistematičnih promjena u cjelini državnih poredaka šest spomenutih država. Ali te promjene mogu i moraju napraviti vlasti tih država.

Iyigun and Rodrik analiziraju međusobno djelovanje reforme politike i poduzetništva u svom istraživanju zasnovanom na dokazima sprovedenom u nekoliko zemalja (Iyigun &Rodrik, 2004), u kojem njihov model nudi uvid u to zašto su reforme institucija djelovale u pregršti zemalja ali doživjele neuspjeh u mnogim drugim zemljama. U zaključku, oni iznose da „s normativne strane, korisno je identifikovati okolnosti pod kojima je vjerovatno da će razne vrste

reforme politike – krparenje politike naspram dubljih institucionalnih reformi – potaknuti strukturalne promjene i ekonomski rast“ (Iyigun &Rodrik, 2004:4).

Procjena uticaja (*Impact Assessment*) je način povećanja integriteta i povjerenja u procese donošenja politika, te poboljšanja regulatornih ishoda promovisanjem informisanog donošenja odluka koje je usmjereno, proporcionalno, konzistentno, odgovorno i transparentno (Camilla Adelle, Donald Macrae, Andreja Marusic& Faisal Naru, 2015:237). „Dok je Evropska komisija zasigurno vođa po pitanjima bolje regulative u EU, dok se uglavnom obavezuje na ciljeve bolje regulative, Evropski parlament ima zapravo jako različit stav od Komisije o nekima od konkretnih zahtjeva koje ona implicira, ili treba da implicira, za zakonodavca, kao što su obaveza da sprovodi procjenu uticaja i da uzima procjene Komisije kao početnu tačku... Sve ovo znači da moramo biti jako pažljivi prilikom donošenja bilo kakvih čvrstih zaključaka o osobinama i posljedicama bolje regulative općenito, te upućivati na njene specifične„inkarnacije“ gdje je to prikladno“ (vidjeti u:ur. Garben, Govaere EU Agenda za bolju regulativu: kritička procjena, 2018:4)
Strategija predstavlja akt planiranja kojim se definišu pravci akcija i alokacije resursa neophodnih za ostvarivanje dugoročnih strateških ciljeva. S tim u svezi, strategija, u smislu javne uprave, je planski dokument kojim se oblikuje provedba javnih politika u jednoj ili više oblasti za određeno razdoblje. U teoriji je planiranje definisano kao proces utvrđivanja ciljeva i izbor strategija adekvatnih za postizanje tih ciljeva. Jedna od podjela planiranja je po njihovom vremenskom aspektu odvijanja, i to na: Strateško planiranje - dugoročno (5-10 godina); Taktičko planiranje - srednjoročno (1-5 godina); te Operativno planiranje - kratkoročno (do 1 godine).

Peter Drucker (1974) navodi "the relevant question is not simply what shall we do tomorrow? but rather what we shall do today in order to get ready for tomorrow?" "relevantno pitanje nije šta ćemo uraditi sutra? već, šta ćemo uraditi danas da budemo spremni za sutra." Proces strateškog planiranja u javnom sektoru trebao bi započeti usvajanjem nacionalne vizije koja predstavlja iskaz o budućnosti države utemeljen na širokom političkom i socijalnom konsenzusu i koji pruža okvir, smjernice i prioritete za sve druge resorne strategije i politike. Na temelju te vizije donosili bi se strateški ciljevi za sve segmente javnog sektora (Obradović:2006).

Među ključnim uzrocima neučinkovitosti strateškog planiranja i realizacije razvojnih politika, a posljedično i kvalitete regulative, na državnom nivou u Bosni i Hercegovini evidentan je nedostatak jasno definisane vizije i regulatornog okvira kojim bi se utvrdila svrha, procesi, funkcije i odgovornosti u ciklusu strateškog

planiranja i upravljanja razvojem (Izvještaj Revizije učinka Upravljanje strategijama na razini Bosne i Hercegovine, Broj: 05-16-1-1100/18). Važećim propisima u Bosni i Hercegovini je definisana obaveza donošenja jednog krovnog strateškog dokumenta - strateškog okvira, koji treba obuhvatati sve dokumente na temelju kojih institucije Bosne i Hercegovine pripremaju svoje programe ili planove. Strateški okvir je temelj za donošenje srednjoročnog program rada. U Bosni i Hercegovini je definisano je i uspostavljeno srednjoročno planiranje (tri godine) kao i godišnje planiranje. Potrebno je naglasiti da ni procedura, ni metodološki okvir izrade sektorskih strategija u Bosni i Hercegovini nije propisan, što njihovu svrhu i funkciju u praksi u bitnom relativizuje. Ne postoje zvanični podaci o broju sektorskih strategija koje su trenutno na snazi, a njihova forma kao i vremenski period na koji su donošene se znatno razlikuje od strategije do strategije.

U entitetima Republika Srpska i Federacija Bosne i Hercegovine, postoji pravno regulisana oblast strateškog planiranja (Zakon o razvojnom planiranju i upravljanju razvojem u FBiH (Službene novine FBiH, broj 32/17); Odluka o postupku planiranja, praćenja i izvještavanja o realizaciji usvojenih strategija i planova Vlade RS i republičkih organa uprave (Službeni glasnik RS, broj 50/2016). Entitet Federacija Bosne i Hercegovine je definisala streteško planiranje kroz svoj zakonski okvir. Navedenim zakonom uređuje se institucionalni okvir za razvojno planiranje i upravljanje razvojem u FBiH, strateški i implementacioni dokumenti u FBiH, proces strateškog planiranja i programiranja razvoja u FBiH i evaluacija strateških dokumenata, izvještavanje o implementaciji strateških dokumenata, kao i finansiranje implementacije razvojnih prioriteta. Entitet Republika Srpska je djelimično uredio streteško planiranje kroz svoj normativni okvir (četverogodišnje, trogodišnje i jednogodišnje palniranje) donošenjem Odluke Vlade entiteta Republika Srpska. Prema dostupnim informacijama i entitet Republika Srpska planira izradu i usvajanje Zakona o strateškom planiranju, koji bi zamjenio postojeću Odluku o postupku planiranja, praćenja i izvještavanja o realizaciji usvojenih strategija i planova Vlade RS i republičkih organa uprave.

Na nivou Bosne i Hercegovine, Ured za reviziju institucija BiH u 2018 godini je proveo reviziju učinka na temu: „Upravljanje strategijama na razini BiH“. Cilj ove revizije bio je istražiti preduzimaju li Vijeće ministara i institucije Bosne i Hercegovine sve potrebne mjere kako bi osigurali efikasan sistem planiranja, izrade, usvajanja i provedbe strategija kao i izvještavanje o provedbi strategija i postignutim rezultatima i efektima tih strategija. Nalazi do kojih je revizija došla ukazuju da je proces upravljanja strategijama na nivou Bosne i Hercegovine

neefikasan i nekoherentan tj. ne postoje propisi kojima se reguliše upravljanje strategijama, ne postoje uspostavljene prakse planiranja, izrade, usvajanja, provedbe, izvještavanja o provedbi i evaluaciji strategija, kao što je i nedovoljan angažman svih učesnika, a što je uticalo na neefikasnost u procesu upravljanja strategijama (Izvještaj Revizije učinka Upravljanje strategijama na razini Bosne i Hercegovine, Broj: 05-16-1-1100/18).

Potpuno odsustvo normativno-metodološkog određenja politika, kao i proceduralnog aspekta njihovog donošenja reflektuje se na gotovo sve faze ciklusa razvoja politika. Izradom propisa za izradu strateških dokumenata i programa razvoja, uspostavili bi se jedinstveni standardi metoda, strukture i sadržaja ključnih dokumenata, te procesa njihovog praćenja i evaluacije. Posljedice svega do sada navedenog se ogledaju u nekoherentnosti u izradi strateških dokumenata prevashodno na nivou vlasti u Bosni i Hercegovini, nejasnim institucionalnim odgovornostima, aktivnostima na *ad hoc* osnovi, dupliciranju u djelovanju politika, neefikasnom korištenju oskudnih finansijskih resursa i u konačnici, usporenom i neodrživom društveno-ekonomskom razvoju u Bosni i Hercegovini (Izvještaj Revizije učinka Upravljanje strategijama na razini Bosne i Hercegovine, Broj: 05-16-1-1100/18).

Potrebno je naglasiti da je regionalno i šire, ova oblast normativno regulisana. Primjera radi usporedba modela strateškog planiranja i upravljanja razvojem u Sloveniji (Slovenia Development Strategy 2030: Prospects, challenges and policy options to achieve the main objectives:2019), Poljskoj (Długookresowa Strategia Rozwoju Kraju Polska 2030: 2013), Latvi (Karnitis & Kucinskis: 2009), Hrvatskoj (Zakon o sustavu strateškog planiranja i upravljanja razvojem Republike Hrvatske, Narodne novine Republike Hrvatske 123/17), i Srbiji (Zakon o planskom sistemu Republike Srbije, Službeni glasnik Republike Srbije, 30/2018), pokazala je da su Poljska i Latvija u potpunosti uspostavila integrirani sistem strateškog planiranja i upravljanja razvojem, Sloveniji je to uspjelo djelomično, a Hrvatska i Srbija su tek nedavno uspostavile sistem strateškog planiranja i upravljanja razvojem (GIZ:2019). Glavne preporuke za prevladavanje deficita kapaciteta upravljanja odnose se na nužnost pozicioniranja strateškog planiranja kao alata upravljanja razvojem i povećanje razine odgovornosti javnog sektora. Većina vlada i u zemljama EU imaju problem s provedbom održive politike i prečesto posežu za „ad- hoc“ mjerama (Kraljić, T:2016). Da bi se osigurala kvaliteta života ne samo za sadašnje nego i za buduće naraštaje nužno je da vlade promišljaju dugoročno, što opet upućuje na važnost regulativnog uređenja strateškog planiranja.

3. PRAVNI OKVIR STRATEŠKOG PLANIRANJA ZA BOLJU REGULATIVU U BOSNI I HERCEGOVINI

Bitno je naglasiti da pravna regulative neće sama od sebe i sama po sebi riješiti sve probleme strateškog planiranja, ali predstavlja preduslov za uspostavljanje optimalnog sistema strateškog planiranja u Bosni i Hercegovini. Svrha ovakvog legislativnog djelovanja je da se, uvažavajući i koristeći najbolja iskustva i prakse, integrira najoptimalniji model pravnog određenja strateškog - dugoročno razvojnog i sektorskog planiranja u Bosni i Hercegovini.

Uvidom u postojeći sistem strateškog planiranja i upravljanja razvojem u Bosni i Hercegovini evidentno je da je on veoma rascjepkan te da su na snazi odvojeni pravni okviri za planiranje strateških dokumenata i javnih politika na državnom i entitetskom nivou. Uz to, pristup izradi i koordinaciji politika je različit, te je nužna potreba za sistemom strateškog planiranja koji vertikalno uvezuje sve administrativne nivoe razvojnog planiranja, i koji bi bio usklađen sa procesima izrade budžeta i progarama javnih investicija u Bosni i Hercegovini. Na ovaj način bilo bi moguće osigurati bolje korištenje javnih resursa i ostvarivanje razvojnih prioriteta. Navedeno bi značajno doprinijelo realiziranju nužne međusektorske koherentnosti i zajedničkog djelovanja razvojnih politika u Bosni i Hercegovini, a posljedično i bolje regulative (COM: 2019, 261).

Uspostavljanje potpunog i koherentnog sistema za efikasno i svrsishodno strateško planiranje i upravljanje razvojem, treba da bude primarni cilj reformskih procesa u Bosni i Hercegovini. Postojanje više paralelnih strateških procesa, odnosno nepostojanje jedinstvenog i sveobuhvatnog sistema strateškog planiranja i upravljanja razvojem u Bosni i Hercegovini je, na osnovu rezultata provedenog istraživanja (GIZ, 2019), primarni problem koji dovodi do nerealnog i neefikasnog planiranja. Da bi sistem strateškog planiranja doveli do zaokružene cjeline potrebno je ispuniti odgovarajuće preduslove. Optimalni model regulatornog djelovanja mora uključivati realizaciju specifičnih ciljeva i to: uspostava odgovarajućeg regulatornog i institucionalnog okvira za strateško planiranje i upravljanje razvojem; razvoj institucionalnih kapaciteta za strateško planiranje; unaprijeđenje efikasnosti korištenja budžetskih, vanbudžetskih i donatorskih sredstava. Kao preduslovi koje bi trebalo ispuniti, a u svrhu realizacije pobrojanih ciljeva posebno se nameće sljedeće: 1. Postojanje odgovarajućeg pravnog, institucionalnog i metodološkog okvira koji bi osigurao djelotvorno i koordinirano planiranje; 2. Osiguravanje adekvatnog nivo ososobljenosti i kapacitiranosti nosioca strateškog planiranja i upravljanja

razvojem; 3. Osiguravanje alokacije budžetskih i vanbudžetskih resursa za potrebe strateškog planiranja i upravljanja razvojem.

Integrisan sistem strateškog planiranja i upravljanja javnim politikama predstavlja preduslov ujednačenog i bržeg socio-ekonomskog rasta, te je stoga prevazilaženje problema u procesu dugoročnog strateškog planiranja i budžetiranja u realizaciji razvojnih prioriteta u Bosni i Hercegovini imperativ. Bez obzira na odabranu regulatornu opciju, kojom bi se sistem strateškog planiranja uspostavio i uredio jedinstveno na nivou Bosne i Hercegovine - bilo zakonom na nivou Bosne i Hercegovine, bilo odlukom Vijeća Ministara Bosne i Hercegovine - trebao bi imati sljedeće karakteristike: a) Sistem dugoročnog razvojnog i sektorskog planiranja u kojem su normirani/pravno regulisani: (i) terminologija, (ii) funkcije i odgovornosti institucija i organizacija, (iii) procesi, (iv) tipovi, obuhvat, struktura, metodologija i vremenska dinamika izrade razvojnih planova; b) Sistem strateškog planiranja koji vertikalno uvezuje sve administrativne razine razvojnog planiranja, koji je usklađen sa procesima izrade budžeta i progarama javnih investicija u Bosne i Hercegovine i na taj način koji treba da osigurava bolje korištenje javnih resursa i ostvarivanje razvojnih prioriteta; c) Sistem strateškog planiranja koji omogućava međusektorsku koherentnost i zajedničko djelovanje razvojnih politika u Bosni i Hercegovini (GIZ:2019).

Potrebno je naglasiti i postojanje političkog rizika, koji je izvjesniji kod donošenja predloženog zakona u Bosni i Hercegovini, nego kod donošenja predložene odluke Vijeća Ministara Bosne i Hercegovine, kojom bi se uspostavio adekvatan sistem strateškog planiranja. Naime, složenost pravnog uređenja Bosne i Hercegovine je osnova koja je nezaobilazna u bilo kojoj pravnoj ili ekonomskoj analizi. Tako da, uzimajući u obzir i procjenu političke izvedivosti, autori ovog rada smatraju da je, iz svih pobrojanih razloga, usvajanje zakona najbolja opcija, ali da je u trenutnom političkom kontekstu donošenje Odluke Vijeća Ministara Bosne i Hercegovine o sistemu strateškog planiranja i upravljanja razvojem sa metodologijom dugoročnog razvojnog i sektorskog planiranja, najrealnija i najefikasnija raspoloživa opcija. Na ovaj način bilo bi moguće na najbrži i najefikasniji način uspostaviti jedinstven sistem strateškog planiranja na nivou države u funkciji nužnih razvojnih i pristupnih procesa Bosne i Hercegovine u Evropsku Uniju. Kada se steknu odgovarajući politički uslovi, potrebno je pristupiti izradi Zakona o sistemu strateškog planiranja i upravljanja razvojem Bosne i Hercegovine, u skladu sa najboljim evropskim praksama.

Poštujući u cijelosti ustavne nadležnosti različitih nivoa vlasti u Bosni i Hercegovini predloženom strukturom i karakteristikama jedinstvenog

legislativnog djelovanja bilo bi moguće uspostaviti adekvatan sistem strateškog planiranja na nivou Bosne i Hercegovine, te način vetikalne integracije entitetskog strateškog planiranja sa strateškim planiranjem i upravljanjem razvojem na nivou cijele države. Uspostavljanjem ovakvog modela strateškog planiranja i upravljanja razvojem u Bosni i Hercegovini, bile bi osigurane pretpostavke, kako na političkom, tako i na tehničkom nivou, za efikasnu horizontalnu i vertikalnu međuvladinu saradnju i koordinaciju strateškog planiranja i upravljanja razvojem. Ovim bi u konačnici ostvarili koherentnost i komplementarnost razvojnih ciljeva i prioriteta u Bosni i Hercegovini. Time bi se stvorili uslovi za efikasnije trošenje budžetskih sredstava po principu „od vrha prema dnu“, gdje bi se prvo finansirali visoko rangirani prioriteti, pa tek onda oni koji su niže rangirani.

U posljednjim mjesecima COVID 19 je natjerao ljude širom svijeta da promijene način života i interakciju sa drugim ljudima. Pitanje sa kojim su suočeni svi je "Kako možemo praviti izbore koji promoviraju zajedničko dobro u vremenu COVID 19?" Vlade, kompanije i pojedinci osjećaju visok nivo neizvjesnosti zbog novonastale kako zdravstvene tako i ekonomske i političke krize koje uzdrmavaju međunarodne odnose i ekonomije svih država svijeta. Način na koji će vlade i kompanije odgovoriti na postojeću krizu je određujući momenat, koji će biti pamćen u budućim desetljećima (Kramer:2020). Istovremeno, percepcija kako trenutnog tako i budućeg ekonomskog stanja (Kramer: 2020) ne zadovoljava ljudske i socijalne potrebe, što otvara vrata razvoju novih modela napretka koji su orjentirani prema čovjeku. Funkcionalan i efikasan sistem donošenja i provedbe javnih politika i zakonodavstva, utemeljen na integritetu, participaciji i transparetnosti suštinski je važan za demokratski legitimitet vlasti i ukupan društveno-ekonomski razvoj zemlje. Tri glavna stuba vladavine prava su pravda, bolji pristup pravdi i podrška ekonomskom rastu, što je u skladu sa zahtjevima za proces pridruživanja EU. U ovom procesu, od Bosne i Hercegovine se naročito zahtijeva da ispuni specifične preduvjete. Preciznije, prema Sporazumu o stabilizaciji i pridruživanju, „..., stranke će posebnu važnost pridavati učvršćivanju vladavine prava i jačanju institucija na svim razinama uprave općenito, a naročito u provedbi zakona i izvršavanju sudskih presuda” (SSP, čl. 78).

ZAKLJUČNA RAZMATRANJA

Ovaj rad ukazuje da bi normativno uređenje sistema strateškog planiranja i upravljanja razvojem u Bosni i Hercegovini, sigurno doprinijelo skladnijem funkcionisanju čitavog sistema razvojnog i sektorskog planiranja bosanskohercegovačke budućnosti. Da bi navedeno bilo realizirano, potrebno je

uspostaviti legislativni okvir strateškog planiranjana na nivou Bosne i Hercegovine uz ispunjenje pobrojanih preduslova. Naročito je važno kreiranje odgovarajućeg pravnog, institucionalnog i metodološkog okvira koji bi osigurao djelotvorno i koordinirano planiranje uz adekvatan nivo ososobljenosti i kapacitiranosti nosioca strateškog planiranja, te omogućavanje alokacije budžetskih i vanbudžetskih resursa za potrebe strateškog planiranja. Shodno tome, u skladu sa rješenjima najboljih evropskih praksi, identifikovana je nužnost postojanja odgovarajućeg normativnog okvira, institucija, njihova umreženost i sinhronizovanost na svim nivoima, a sve radi uspješnog strateškog dugoročnog planiranja kao jednog od generatora razvoja Bosne i Hercegovine. Potrebno je napomenuti i identifikovati legislativni rizik. To bi bila izuzetno složena struktura legislativnog djelovanja. Kako je to u radu prezentovano, moguće su dvije opcije legislativnog djelovanja - bilo donošenjem zakona na nivou Bosne i Hercegovine, ili odlukom Vijeća Ministara Bosne i Hercegovine. Osnovna svrha budućeg predloženog modela treba da bude prevashodno stvaranje održive strukture, koji se mora adekvatno inkorporisati u lokalni i nacionalni kontekst i koja će uključiti napredne modele upravljanja procesima dugoročnog razvojnog i sektorskog planiranja u Bosni i Hercegovini.

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STRATEGIC PLANNING OF BETTER REGULATION IN BOSNIA AND HERZEGOVINA: ANALYSIS OF THE CURRENT SITUATION AND RECOMMENDATIONS

ABSTRACT

A functional and efficient system of adopting and implementing public policies and legislation, based on integrity, participation and transparency, is essential for the democratic legitimacy of government and the overall socio-economic development of the country. An efficient system of strategic planning for better regulation is a prerequisite for efficient and responsible public administration. As part of the reform processes in Bosnia and Herzegovina, a special area of reform relates to strategic planning, policy-making capacity and coordination. The goal of this paper is to present the possible and necessary further development of the legal framework of strategic planning with the aim of adopting better, more meaningful policies, laws (regulations) and measures for society and citizens and business development with full guarantee of legal security and rule of law.

Key words: strategic planning of better regulation, better regulation, rule of law, legal certainty

SUVREMENI TRENDOVI U MJERENJU LJUDSKOG KAPITALA

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Abstrakt

Ljudski kapital je u središtu znanstvenih rasprava o načinima mjerenja ovog oblika kapitala i njegovih učinaka. Sa pojavom Novih teorija ekonomskog rasta, posebno s Teorijom ljudskog kapitala ljudski kapital se uključuje i postaje jedan od ključnih čimbenika u objašnjavanju procesa ekonomskog rasta a obrazovanje se počinje promatrati kao ključni dio ljudskog kapitala i ima višestruke pozitivne i društvene učinke. Osnovni cilj ovog rada jest analizrati suvremene trendove u mjerenju ljudskog kapitala koji su prisutni u znanstvenoj literaturi ali i u analizama relevatnih međunarodnih organizacija koje prate statistiku obrazovanja. U radu su analizirane različite klasifikacije, pokazatelji i pristupi mjerenju obrazovanja.S posebnom pažnjom su prezentirani i pristupi u testiranju učenika. Zaključuje se da ovakva mjerenja imaju višestruke koristi i načine uporabe: procesi donošenja odluka i kreiranja politika, identificiranje specifičnih potreba u sustavu obrazovanja, identificiranje dobre prakse i mnoge druge. Međutim, značajan izazov stoji pred zemljama u razvoju koje nisu obuhvaćene ovim ili sličnim mjerenjima.

Ključne riječi: ljudski kapital, obrazovanje, mjerenje, trendovi

JEL klasifikacija: I20, I21, I28

1. UVOD

Razvoj ekonomske znanosti imao je značajan utjecaj na pojmovno određenje i mjerenje ljudskog kapitala. Od posebnog značaja u znanstvenim raspravama jeste evolucija poimanja procesa ekonomskog rasta za koju se može reći da je imala utjecaja na pozicioniranje ljudskog kapitala u navedenom procesu. Prvi modeli rasta pod osnovnim su čimbenicima ekonomskog rasta podrazumijevali kapital, i to isključivo fizički kapital te broj radnika, odnosno radnu snagu.[3] Do značajnijih promjena u poimanju ljudskog kapitala dolazi s pojavom suvremenih teorija koje kao osnovni čimbenik ekonomskog rasta promatraju ljudski kapital, obrazovanje, različite oblike tehnologije i druge. Jedna od najznačajnijih promjena javlja se s pojavom autora poput Ramsey (1928), Solow (1956), Swan (1956), Cass (1965) i Koopmans (1685). Ray (1998) smatra da su oni doprinijeli razvoju i razumijevanju novog modela rasta. Jedan od najznačajnijih doprinosa ogleda se u objašnjavanju veze između ekonomskog rasta i tehnološke promjene, odnosno tehnologije. U kontekstu razumijevanja uloge ljudskog kapitala, tehnologija ima poseban značaj jer ima direktan utjecaj na poboljšanje rada. Zapravo, neoklasična ekonomska teorija uvodi jedan bitan pojam, a to je tehnološki napredak. Tehnologija je uključena kao čimbenik koji ima direktan utjecaj na rad kao input, odnosno na njegovu kvalitetu. Ipak, značaj uvođenja tehnologije u modele ekonomskog rasta je dvostruk, a ogleda se kroz poboljšanje tehnologije kao fizičkog i kao ljudskog kapitala, odnosno poboljšanja radne snage, vještina i dr.

Međutim, tek s Novim teorijama ekonomskog rasta, posebno s Teorijom ljudskog kapitala (engl. *Human capital theory*) ljudski kapital se uključuje i postaje jedan od ključnih čimbenika u objašnjavanju procesa ekonomskog rasta.[4] Nedvojbeno, značajan doprinos ogleda se u promoviranju ideje da ulaganje u ljudski kapital ima višestruke pozitivne učinke i na pojedinca i na društvo u cjelini. Ovi su učinci u daljim istraživanjima nazvani eksternalijama ljudskog kapitala (Lucas, 1988, 1990, Ray, 1998). Barro i Sala-i-Martin (1995) također ističu da ulaganje u ljudski kapital koje vodi ka tehnološkom napretku i inovacijama se smatra pozitivnim eksternalijama, te u konačnici povećava produktivnost ostalih čimbenika procesa rasta. Uz navedeno, Barro (1997) najveći doprinos novih modela vidi u činjenici da ekonomski rast može beskonačno rasti jer povrat od ulaganja u ljudski kapital

[3] Ovo je posebno vidljivo u Harrod – Domarovom modelu rasta, jednom od prvih modela klasične ekonomske teorije koji naglašava potrebu zemlje da štedi i ulaže određeni omjer BDP-a kako bi ostvarivala viših razina ekonomskog rasta.

[4] Ključni modeli Nove teorije ekonomskog rasta prezentirani su u djelima sljedećih autora: Romer (1986), Lucas (1988), Rebelo (1991) i drugi.

neće padati s rastom i razvojem gospodarstva kako se to pretpostavljalo u ranijim teorijama. Osnovni cilj ovog rada jest analizrati suvremene trendove u mjerenju ljudskog kapitala koji su prisutni u znanstvenoj literaturi ali i u analizama relevatnih međunarodnih organizacija koje prate statistiku obrazovanja. U radu su analizirane različite klasifikacije, pokazatelji i pristupi mjerenju obrazovanja.S posebnom pažnjom su prezentirani i pristupi u testiranju učenika. Nakon uvodnog dijela, analizirani su različiti pristupi u definiranju ljudskog kapitala. Zatim, u četvrtom dijelu rada su evaluirani pokazatelji i klasifikacije obrazovanja potrebni u mjerenju ljudskog kapitala i u konačnici, trendovi u međunarodnom testiranju učenika. Na kraju je dat zaključak i popis korištene literature.

2. DEFINIRANJE LJUDSKOG KAPITALA

U literaturi ne postoji jedinstvena definicija ljudskog kapitala. Ovaj pojam se javlja i u djelima prvih ekonomista kao što je Adam Smith gdje se ističe značaj obrazovanja i iskustva kao načina poboljšanja vlastitog (osobnog) dohotka, ali i kao čimbenika koji vodi napretku i povećanju bogatstva društva. On se također zalagao za javno obrazovanje, gotovo cijelo stoljeće prije nego je u Velikoj Britaniji uvedeno obavezno, a kasnije i besplatno obrazovanje, prije svega iz moralnih razloga (Gradstein et al., 2005, str. 16). Nakon Smitha, Heinrich von Thunen i Engle su naglašavali ljudske sposobnosti, znanje i vještine kao pretpostavke za upravljanje fizičkim kapitalom. Ovdje se već mogu prepoznati određeni elementi suvremenog poimanja ljudskog kapitala. Prema Cohnu i Geskeu (1990) prvi su ekonomisti vodili znanstvenu raspravu o ljudskom kapitalu na isti način kao i o fizičkom (npr. strojevima) kapitalu. Međutim, evoluciju ekonomske znanosti u pogledu značajnijih istraživanja o ulozi i značaju ljudskog kapitala nalazimo u djelima Beckera (1964) i Schultza (1971). Oni su začetnici Teorije ljudskog kapitala koja je tijekom 1960. - ih godina prošlog stoljeća reafirmirala značaj i ulogu ljudskog kapitala.

Becker (1964) naglašava „ekonomski značaj ljudskog kapitala, posebno obrazovanja“ za ekonomski rast smatrajući da se „samo mali dio rasta i dohotka može objasniti dostupnim fizičkim kapitalom.“ U znanstvenu raspravu uvodi i ideju o razlici u zaradama između obrazovanog i neobrazovanog stanovništva. S druge strane, Schultz (1971) u središte rasprave stavlja potrebu za promjenom cjelokupnog koncepta kapitala smatrajući da je kapital heterogen te da je ljudski kapital samo dio cjelokupnog kapitala. Današnje poimanje kapitala je mnogo šire od fizičkog kapitala i uključuje različite i mnogo šire oblike kapitala poput: tehnološkog, ljudskog, institucionalnog i društvenog kapitala. Za njega je obrazovanje ključan čimbenik koji dovodi do ostvarivanja različitih razina zarada

na tržištu rada pri čemu ističe da će s rastom pojedinačnih investicija u obrazovanje, bez obzira na spol i rasu, doći do rasta zarada. Schultz isto tako uvodi i ideju o promatranju obrazovanja kao industrije koja bi trebala imati vlastitu politiku investiranja, planiranja, sustava praćenja i sl. Osim Beckera i Schultza, autori poput Rodrik (1995), Mingat (1998), Lim (1996.), Pack i Saggi (2006) i drugih ističu potrebu za promatranjem obrazovanja kao industrije sa vlastitom politikom ulaganja te kontinuiranog praćenja i unapređenja efikasnosti.

Očita je heterogenost u samom definiranju ljudskog kapitala, a zatim i u postojanju različitih načina mjerenja ljudskog kapitala. Osim toga, postojanje eksternalija u ljudskom kapitalu stvorilo je dodatni izazov u pogledu njegovog pojmovnog određenja i razumijevanja ljudskog kapitala i njegova sadržaja. Teorija ljudskog kapitala prošlog stoljeća postavila je teorijske osnove za sva kasnija istraživanja vezana za obrazovanje, razvoj vještina na radu kao i sveobuhvatni značaj ljudskog kapitala za procese ekonomskog rasta i razvoja. Definiranje ljudskog kapitala je bitno kako bi se razumio njegov značaj kao i specifičnosti koje se mogu javiti u znanstvenoj raspravi o potencijalnim načinima njegova mjerenja. Kao što su pokazala ranija istraživanja, ljudski kapital je veoma bitan čimbenik ekonomskog napretka i sastoji se od formalnog obrazovanja, osposobljavanje na poslu (engl. *on-the-job training*) i neformalnog obrazovanja. Međutim, formalno je obrazovanje postalo promotor razvoja ljudskog kapitala što je u konačnici pojednostavilo mjerenje i analizu ljudskog kapitala. Hicks (1995) u analizi dostupne literature o ljudskom kapitalu i njegovu utjecaju na rast dolazi do zaključka da je formalno obrazovanje osnovni čimbenik za poboljšanje ljudskog kapitala, a Barro i Lee (2001, str. 541) ističu „ljudski kapital stečen kroz obrazovanje kao ključnu odrednicu ekonomskog napretka." Ulaganje u obrazovanje ima višestruke pozitivne učinke. Lim (1996) naglašava pozitivne učinke ulaganja u obrazovanje kao što su poboljšanje kvalitete radne snage, bolje usvajanje novih znanja, podjelu rada, koje zajedno omogućavaju efikasniju alokaciju raspoloživih resursa, što prema istom autoru vodi do eliminiranja institucionalnih i društvenih ograničenja i dalje promocije poduzetništva. Navedene koristi mogle bi se promatrati kao društvene koristi od ulaganja u obrazovanje.[5] Veza obrazovanja i tržišta rada bitna je i neizostavna u analizama. Analizirajući učinke obrazovanja na razinu zarada s aspekta pojedinca, Duflo (2001) ističe da je moguće povećanje zarada od 6 do 10% sa svakom dodatnom godinom formalnog obrazovanja. Mincer (1974), Patrinos i Psacharopoulos (2010) također naglašavaju postojanje višestrukih pozitivnih učinaka ulaganja u formalno obrazovanje na razinu zarada. Ulaganje u ljudski kapital kroz ulaganja u

[5] Više o društvenom aspektu obrazovanja u McMahon (2002).

formalno obrazovanje ima pozitivne učinke i na razini gospodarstva kroz ekonomski rast kao i na pojedinačnoj razini, kroz razinu zarada.

3. MJERENJE LJUDSKOG KAPITALA

Značaj ljudskog kapitala danas se ogleda u njegovom utjecaju na procese ekonomskog rasta i razvoja. U procesu kreiranja javnih politika, razvojnih planova i strategija, ljudski kapital ima središnju ulogu. Dominantne ekonomske teorije, ali i međunarodne organizacije koje na određeni način prate ljudski kapital (OECD, UNESCO, Svjetska banka i dr.) u svojim izvješćima kao jedan od ključnih čimbenika sveobuhvatnog ekonomskog napretka upravo navode ljudski kapital. Praćenje razvoja teorije omogućava nam istovremeno i praćenje promjena u pogledu značaja određenih čimbenika za ekonomski rast i razvoj, ali i identificiranje posve novih čimbenika u ovim procesima. Ekonomska je znanost nastojala odgovoriti na pitanje što utječe na ekonomski rast i razvoj. Barro (1997), Lim (1996), Perkins et al. (2001.) i Ray (1998) navode između ostalih sljedeće čimbenike:

- ulaganje u ljudski kapital;
- povećanje štednje i izvoza;
- substituciju uvoza;
- radno-intenzivne tehnike;
- preraspodjela dohotka;
- socijalni programi (omogućavanje pristupa osnovnim dobrima siromašnim osobama);
- slobodno tržište i alokacija resursa;
- tržišna ekonomija.

Autori kao što su Ray (1998) i Perkins et al. (2001., str. 9) ističu da ne može jedan čimbenik biti u potpunosti zaslužan za napredak u pogledu procesa rasta i razvoja. Naglašavaju i da u skladu s tim ne postoji jedinstvena strategija ili određeni razvojni plan koji bi bio odgovarajući u procesima ostvarenja ekonomskog napretka. Autori navode i određene kombinacije ključnih čimbenika koji dovode do najboljih rezultata u procesima ekonomskog rasta i razvoja. Tako Besley i Burgess (2003) navode ljudski kapital, fizički kapital i tehnološke promjene, Easterly (2007) kvalitetu institucija, ljudski kapital i politike preraspodjele, Samuleson i Nordhaus (2007, str. 558) ljudske resurse, prirodna dobra, akumulaciju kapitala i tehnologiju. Znanstvena rasprava o načinima mjerenja ljudskog kapitala usko je povezana sa kompleksnošću definiranja i pojmovnog određenja termina ljudskog kapitala. Međutim, mjerenje ljudskog kapitala višestruko je bitno i ogleda se u boljem razumijevanju čimbenika

ekonomskog rasta, posebno u smislu odgovora na pitanja koja se odnose na (OECD, 2012):

- analize ekonomskog rasta i produktivnosti, odnosno razumijevanje odnosa ekonomskog rasta i ljudskog kapitala, odnosno utjecaja ljudskog kapitala na ukupnu razinu produktivnosti;
- procjenu održivosti, tj. maksimizaciju razina dohotka i potrošnje uz postojanje ograničenih resursa, odnosno pitanje efikasne alokacije raspoloživih resursa;
- mjerenje proizvodnje i karakteristika produktivnosti sektora obrazovanja; obrazovanje je ključni pokretač (engl. *driver*) ulaganja u ljudski kapital kao i pitanja koja se odnose na financiranje obrazovanja;
- širih mjera ljudskog blagostanja i društvenog napretka kroz uključivanje nematerijalne dimenzije kao što je npr. kvaliteta života. Ljudski je kapital postao jedna od osnovnih mjera ljudskog blagostanja jer se danas raspravlja o neravnomjernoj raspodjeli obrazovnih postignuća.

Mnogi istraživači i međunarodne organizacije imaju značajnu ulogu u znanstvenoj raspravi o mogućim načinima mjerenja ljudskog kapitala. Makroekonomska i razvojna istraživanja kao i njihovi rezultati značajni su zbog mogućih preporuka za politike koje su krajnji cilj tih istih istraživanja. Može se reći da je upravo zbog različitih načina i pristupa mjerenju ljudskog kapitala gotovo nemoguće izvesti univerzalne ili zajedničke preporuke za politike. Drugi izazov koji se javlja zajedno s različitim načinima mjerenje ljudskog kapitala jest nemogućnost provođenja komparativne analize zbog korištenja različitih metodologija za različite zemlje, skupine zemalja i sl. Nepostojanje jedinstvene definicije ljudskog kapitala, uključenost više elemenata u pojmovno određivanje što ga ne čini isključivo ekonomskim već između ostalog i društvenim fenomenom, dodatni je izazov za mjerenje ljudskog kapitala.

3.1. Različiti pristupi, pokazatelji i klasifikacije obrazovanja
3.2.

U praksi se pokazalo da veliki broj institucija i autora pribjegava mjerenju formalnog obrazovanja kao osnovnog izvora ljudskog kapitala, a dalje mjeri povrate od ulaganja u obrazovanje kroz pojedinačne povrate od ulaganja u formalno obrazovanje ostvarene u vidu zarada na tržištu rada. Specifičnosti obrazovanja i načina mjerenja razina obrazovanja će biti obrađeni kasnije u radu. Analiza postojeće literature pokazala je da postoji više različitih načina mjerenja ljudskog kapitala. U nastavku rada dat je pregled osnovnih karakteristika dominantnih načina mjerenja ljudskog kapitala. Liu i Fraumeni (2014) navode sljedeće pristupe mjerenju ljudskog kapitala:

1. Pristup temeljen na pokazateljima koji se dalje dijeli na:
a) pristup koji koristi dominantno kvalitativne pokazatelje;
b) pristup koji dominantno koristi kvantitativne pokazatelje.

Pristup temeljen na pokazateljima prema ranije navedenim autorima temelji se na promatranju sektora obrazovanja kao jedinice proizvodnje koja ima odgovarajuće inpute, outpute i ishode procesa. Kada je pak riječ o vrsti pokazatelja koji se koristi, pod kvantitativnim pokazateljima podrazumijevaju se između ostalih pokazatelji poput prosječnih godina obrazovanja, broja studenata i sl., dok se pod kvalitativnim pokazateljima podrazumijevaju pokazatelji koji na određeni način pokazuju kvalitetu obrazovanja kao što su ostvareni rezultati na međunarodnim testiranjima, veličina razreda i dr.

2. Monetarni pristup koji se dalje dijeli na (Liu i Fraumeni, 2014):
a) pristup temeljen na troškovima;
b) pristup temeljen na prihodima;
c) pristup temeljen na rezidualu.

Za monetarni pristup može se reći da u osnovi ima financijsku stranu obrazovanja. Pristup temeljen na troškovima jest onaj koji promatra investiranje pojedinca, kućanstava, poslodavaca ili vlade. Ovakav način mjerenja ljudskog kapitala dominantno se temelji na mjerenju troškova obrazovanja, i to primarno formalnog obrazovanja. Troškovi formalnog obrazovanja mogu biti dio javne (vladine) ili privatne potrošnje.[6] Pristup temeljen na prihodima odnosi se na izračunavanje, odnosno procjene budućeg prihoda koji generira ulaganje u ljudski kapital. Za razliku od Pristupa temeljenog na troškovima, odnosno inputima proizvodnog procesa, ovaj se pristup fokusira na outpute odnosno rezultate ulaganja u ljudski kapital koji se ovdje promatraju kroz ostvarene prihode na tržištu rada. U konačnici, Pristup temeljen na rezidualu jest onaj koji u velikoj mjeri promovira Svjetska banka, a odnosi se na mjerenje ljudskog kapitala kao razlike između ukupnog bogatstva i zbira proizvedenog i prirodnog kapitala. Ovdje pod rezidualom Svjetska banka podrazumijeva ljudski kapital, međutim rezidual sadrži sve ono što nije objašnjeno, a ne isključivo ljudski kapital (Liu i Fraumeni, 2014). Uzimajući u obzir karakteristike navedenih pristupa, značajna prednost nalazi se na strani monetarnog pristupa, i to u velikoj mjeri jer omogućava sagledavanje različitih aspekata razumijevanja ljudskog kapitala. Korištenje troškovnog pristupa omogućava analizu potrošnje različitih sektora

[6] Novija istraživanja, u kojima dominira Pristup temeljen na troškovima, obuhvaćaju i troškove koji se odnose na osposobljavanje na poslu (engl. *on-the-job training*) kao dijelom troškova ljudskog kapitala.

(privatnog i javnog) koji su uključeni ili su dijelom sustava obrazovanja poput npr. obrazovnih institucija, kućanstava, poduzeća itd. S druge strane, korištenje dohodovnog pristupa kreira prostor za dalju demografsku analizu uzimajući u obzir obrazovnu razliku i, što je veoma bitno, omogućava uključivanje bitnog aspekta (tržišta rada) u analizu.

Mjerenje ljudskog kapitala postalo je bitnim dijelom rada mnogih značajnih međunarodnih organizacija. Kao jedna od ključnih organizacija izdvaja se OECD. OECD (1998) navodi tri pristupa u mjerenju zaliha ljudskog kapitala (engl. *human capital stock*) i to:

- obrazovna postignuća gdje se prije svega OECD usredotočuje na praćenje stopa upisa i stopa diplomiranja za sve razine obrazovanja, te broj godina provedenih u obrazovnom sustavu;
- direktni (standardizirani) testovi koji omogućavaju praćenje znanja iz definiranih područja kao što su matematička, čitalačka i prirodoslovna pismenost i sl.;
- razlike u ostvarenim zaradama na osnovu pojedinačnih karakteristika.

Prema Liu i Fraumeni (2014) u OECD-oj međunarodno priznatoj publikaciji *Education at Glance* dominira pristup temeljen na pokazateljima (OECD, 2019).[7] Veliki značaj danas imaju i OECD-ovi međunarodni standardizirani testovi poput PISA (Program za međunarodno ocjenjivanje studenata - engl. *Programme for International Student Assessment* – PISA), PIAAC (Program za međunarodno ocjenjivanje kompetencija odraslih - engl. *Programme for the International Assessment of Adult Competencies*) i drugih koji se nerijetko koriste kao pokazatelji kvalitete obrazovanja. UNESCO je druga značajna međunarodna organizacija za statistiku ljudskog kapitala. Baza poznata kao Barro – Lee međunarodna baza iz 1993, 1996, 2001, 2010 i 2013. godine jedna je od veoma često korištenih baza u znanstvenim istraživanjima i uključuje podatke iz različitih međunarodnih baza i nacionalnih statističkih ureda. Statistički ured Europske unije (EUROSTAT) je također razvio posebne pokazatelje za mjerenje ljudskog kapitala.[8] Isto tako, UNDP-i Izvještaji o ljudskom razvoju (engl. *Human*

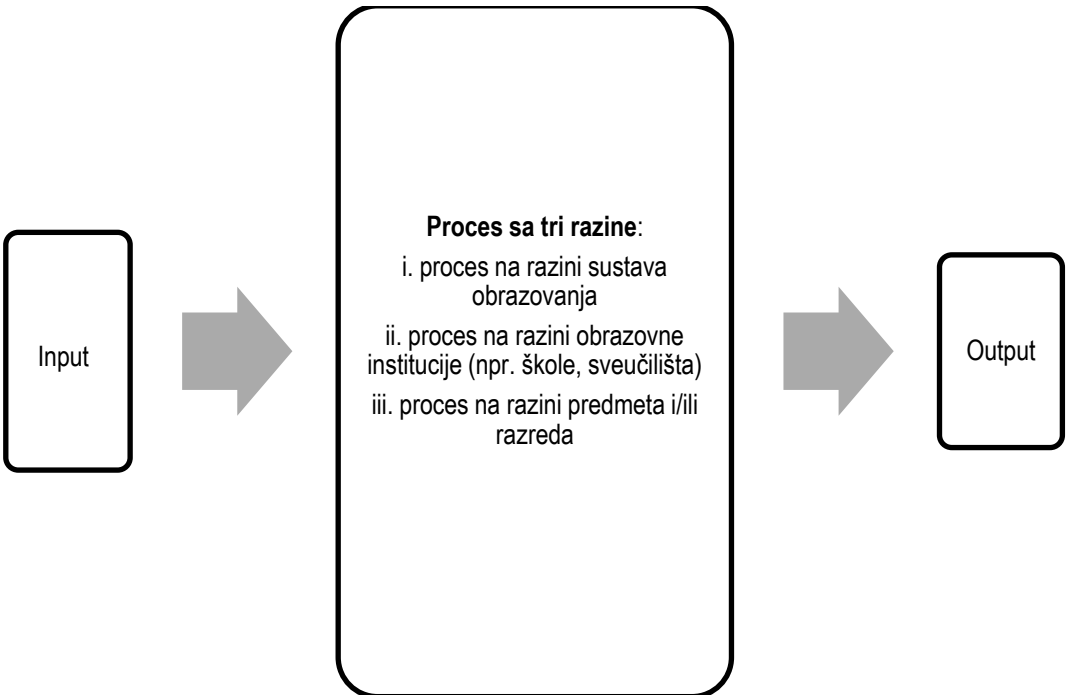
[7] Pokazatelji koje koristi OECD u analizi obrazovnih sustava zemalja članica su dostupni u posljednjoj publikaciji *Education at Glance* iz 2019. godine. Više na: https://www.oecd.org/education/education-at-a-glance/ [28.05.2020.]. OECD-ovi pokazatelji se između ostalog odnose na financiranje obrazovanja, stope završetka obrazovanja, područja obrazovanje, mogućnosti zaposlenja i dr.

[8] Pokazatelji EUROSTAT-a pokrivaju sljedeća područja: mobilnost, zaposlene u obrazovanju, financije, ishode obrazovanja i osposobljavanja i jezike. Više na: http://ec.europa.eu/eurostat/web/education-and-training/data/main-tables [28.05.2020]

Development Reports) koji prate Indeks ljudskog razvoja (engl. *Human Development Index*) također su primjeri pristupa temeljenog na pokazateljima.

Mjerenje oba aspekta obrazovanja (kvantiteta i kvaliteta) je značajno i za znanstvenike i za kreatore politika. Na slici 1 je prikazan pojednostavljeni model funkcioniranja obrazovanja koji je koristan u daljoj analizi pokazatelja i načina mjerenja obrazovanja.

SLIKA 1: FUNKCIONIRANJE OBRAZOVANJA



Izvor: prema Vos (1996)

Dakle, ovisno o razini procesa koji se analizira koriste se različiti pokazatelji za analizu. U nastavku su analizirane neke od klasifikacija pokazatelja koji dominiraju u znanstvenoj literaturi i ekonomskoj praksi. Kompleksnost samog obrazovnog procesa, interdisciplinarnost u izučavanju, značajan broj interesnih skupina i sudionika doveli su i do pojave različitih pokazatelja i načina mjerenja i praćenja obrazovanja. Vos (1992, 1996) navodi četiri kategorije pokazatelja u obrazovanja:

- pokazatelji koji prate inpute u procesu obrazovanja poput broja učitelja/nastavnika; troškova obrazovanja i dr. Uzimajući u obzir ograničeni značaj apsolutnih pokazatelja za donosioce odluka dostupni

su pokazatelji poput troškova po učeniku/studentu za različite razine obrazovanja, omjer učenik/nastavnik i dr.;
- pokazatelji koji prate pristup procesu obrazovanja i odnose se između ostalih na pokazatelje geografske udaljenosti škole; pokazatelje obiteljskih i društveno – ekonomskih karakteristika učenika/studenata; zarada pojedinaca i kućanstava; direktnih privatnih troškova obrazovanja poput troškova školarina i dr.
- pokazatelji koji prate outpute procesa obrazovanja se odnose na pokazatelje koji direktno prate realizaciju postavljenih ciljeva u obrazovanju;
- pokazatelji koji prate ishode procesa obrazovanja također su pokazatelji koji se odnose na definirane ciljeve obrazovanja, ali se za razliku od pokazatelja outputa odnose na šire razvojne i društvene ciljeve procesa obrazovanja poput poboljšanja zdravlja, produktivnosti radne snage i dr.

Prateći logiku pristupa koji je prikazan na slici 1, OECD je razvio set pokazatelja koji prate inpute, proces i outpute obrazovanja. Klasifikacija pokazatelja obrazovanja je poznata kao INES (engl. *Indicators of Educational Systems*) i od 1992. godine se objavljuje u OECD-ovoj publikaciji *Education at a Glance* (OECD, 2012;OECD, 2016) gdje su:
- pokazatelji koji analiziraju financijske i ljudske resurse, pokazatelji inputa obrazovanja;
- pokazatelji koji prate pristup, učešće, napredovanje, organizaciju i okruženje za učenje, pokazatelji procesa obrazovanja;
- pokazatelji koji prate postignuća i ishode na tržištu rada, pokazatelji outputa tj. pokazatelji procesa obrazovanja.

Carvalho i White (1994) navode tri tipa pokazatelja potrebnih za praćenje i procjenu obrazovanja, i to: pokazatelji inputa, procesa i utjecaja politike obrazovanja. Vos (1996) navodi da Američka agencija za međunarodni razvoj (engl. *United States Agency for International Development* – USAID) kao i druge donorske institucije razlikuju tri kategorije pokazatelja:
- pokazatelji inputa odnosno aktivnosti;
- pokazatelji outputa;
- pokazatelji ciljeva i svrhe.

Značaj pokazatelja ogleda se prije svega u mogućnosti analize i praćenja stanja u sustavu obrazovanja što dalje omogućava definiranje specifičnih politika i praćenje realizacije istih. Analiza znanstvene literature je pokazala da se sustavu

obrazovanja najčešće pristupa sa tri razine, kao što je prikazano u tablici 1 u nastavku rada.

TABLICA 1: ANALIZA SUSTAVA OBRAZOVANJA

	Aspekti mjerenja	Specifični pokazatelji	Napomena
Prva razina analize (odnosi se na analizu karakteristika sustava obrazovanja)	**Tijekovi u sustavu obrazovanja**	Stope upisa u predškolsko, primarno, sekundarno i tercijarno obrazovanje Stope zadržavanja u obrazovanju Troškovi po učeniku odnosno studentu	Navedeni pokazatelji se najčešće koriste u procesu donošenja odluka o proračunu za obrazovanje.
	Zalihe ljudskog kapitala	Stope (ne)pismenosti Prosječne godine obrazovanja	Definicija (ne)pismenosti nije konstanta kategorija te su danas dostupni podaci o informacionoj (IT) i financijskoj pismenosti.
	Kvaliteta obrazovanja	Ostvareni rezultati na nacionalnim i međunarodnim standardiziranim testiranjima učenika.	Testiraju se znanja i vještine iz određenih predmeta, i to u najvećem broju slučajeva iz matematike, prirodnih znanosti, čitanja i pismenosti.
Druga razina analize (odnosi se na analizu učinkovitosti odnosno efikasnosti te pravednost cjelokupnog sustava obrazovanja)	**Učinkovitost sustava obrazovanja** (odnosi se na analizu troškovne učinkovitosti i korištenje dostupnih resursa)	1.1. Unutarnja učinkovitost	Broj diplomiranih studenata Broj učenika sa završenim primarni i sekundarnim obrazovanjem Zarade diplomiranih studenata Troškovi obrazovanja (direktni troškovi poput troškova školarine, udžbenika itd); oportunitetni troškovi (troškovi propuštene zarade na tržištu rada)	Pokazatelji unutarnje učinkovitosti sustava u odnos stavljaju inpute i direktne outpute odnosno ciljeve procesa obrazovanja. Profitabilnost ulaganja u obrazovanje prati se analizom povrata od ulaganja u obrazovanje.

		1.2. Vanjska učinkovitost	- Pokazatelji koji pokazuju razinu produktivnosti radne snage prije i poslije implementacije određenog programa obrazovanja (prekvalifikacije) - Stope (ne)zaposlenosti za različite kategorije stanovništva	Pokazatelji vanjske učinkovitosti odnose se na analizu veze obrazovanja i gospodarstva, odnosno odgovaraju na pitanje da li i u kojoj mjeri sustav obrazovanja omogućava stjecanje znanja i vještina koje su potrebne u gospodarstvu. Ovi pokazatelji su istodobno i pokazatelji eksternalija obrazovanja.
	Pravičnost sustava obrazovanja		Rodni jaz u upisu na različite razine obrazovanja Rodni jaz u zaradama Uključenost u obrazovanje (za određene starosne kategorije stanovništva)	Pokazatelji se odnose na raspodjelu dostupnih resursa i koristi obrazovanja među ukupnim stanovništvom. Najčešće se naglašava besplatno i/ili subvencionirano obrazovanje posebno primarno obrazovanje.
Treća razina analize (odnosi se na analizu veze obrazovanja i ekonomskog rasta)	**Eksternalije obrazovanja**	Broj registriranih patenata Broj objavljenih znanstvenih članaka u referentnim časopisima Izlazak građana na izbore	Pokazatelji su brojni i mogu se odnositi na sve aspekte endogene teorije rasta, poput utjecaja obrazovanja na stvaranje novog znanja, poboljšanja zdravstva, smanjenja spolne nejednakosti i dr.	

Izvor: prema Vos (1996)

Pored navedenih pokazatelja i pristupa analizi sustava obrazovanja sa kojima se susrećemo u dostupnoj znanstvenoj literaturi, jedan od načina jedinstvenog mjerenja razine formalnog obrazovanja stanovništva u većini zemalja svijeta jeste korištenjem Međunarodne standardne klasifikacije obrazovanja (engl.

International Standard Classification of Education – ISCED) koju je kreirao UNESCO tijekom 1970. - ih godina da bi služila "kao sredstvo pogodno za prikupljanje, sastavljanje i prezentiranje statistike obrazovanja i unutar pojedinih zemalja i na međunarodnoj razini." Odobrila ju je Međunarodna konferencija o odgoju i obrazovanju (Ženeva, 1975), a naknadno odobrila UNESCO-ova Opća konferencija. ISCED se koristi u međunarodnoj statistici obrazovanja i omogućuje razumljivost i usporedivost podataka o obrazovanju na međunarodnoj razini. Osnovna jedinica, odnosno kriterij klasifikacije ISCED razina obrazovanje jest obrazovni program. Posljednja je verzija usvojena na Općoj skupštini UNESCO-a u studenom 2011. godine. U tablici koja slijedi dat je pregled razina prema posljednjim dvjema klasifikacijama.

TABLICA 2: ISCED 1997 I ISCED 2011 KLASIFIKACIJE OBRAZOVANJA

ISCED 1997	**ISCED 2011**
	– Rano obrazovanje (engl. *Early childhood education*) stvoreno radi pripreme pojedinaca na funkcioniranje u društvu i školi te usmjereno na djecu uzrasta do 3 godine. Ova razina obrazovanja nije bila definirana u ranijoj (ISCED 1997) klasifikaciji.
Razina 0 – Predškolsko obrazovanje	**Razina 0**– Rano obrazovanje usmjereno na djecu uzrasta od 3 godine do polaska u primarno obrazovanje
Razina 1 – Primarno obrazovanje (ovisno o zemljama, počinje između 4. i 7. godine starosti i obično traje 5 do 6 godina)	**Razina 1** – Primarno obrazovanje ili Prva razina primarnog obrazovanja (engl. *Primary education*)
Razina 2 – Niže sekundarno obrazovanje (u većini slučajeva završava nakon 9 godina provedenih u sustavu obrazovanja)	**Razina 2** – Niže sekundarno obrazovanje ili Druga razina primarnog obrazovanja (engl. *Lower secondary education*)
Razina 3 – Više sekundarno obrazovanje (obično počinje u 15. ili 16. godini; u većini slučajeva traje oko 3 godine)	**Razina 3** – Više sekundarno obrazovanje (engl. *Upper secondary education*)
Razina 4 – Viša srednja škola, netercijarno obrazovanje (ovi se programi nalaze između sekundarnog i tercijarnog obrazovanja promatrano s međunarodne točke gledišta i služe za proširenje znanja stečenog u razini 3, a to su npr. programi dizajnirani za pripremu učenika za studij na razini 5, dok ostali programi pripremaju studente za direktna uključivanja na tržište rada)	**Razina 4** - Viša srednja škola, netercijarno obrazovanje (engl. *Post – secondary non-tertiary education*)
Razina 5 – Prva razina tercijarnog obrazovanja – ne vodi direktno do naprednih istraživačkih kvalifikacija, obuhvaća programe od najmanje	**Razina 5** – Kratki ciklus tercijarnog obrazovanja (engl. *Short – cycle tertiary education*). Ovoj razini obrazovanja odgovara

dvije godine trajanja i podijeljena je između: Tipa A: Programi koji se teorijski temelje ili za pripremu istraživanja (historija, filozofija, matematika, itd.) ili daju pristup zanimanju za osobe s visokim zahtjevima, kao što su medicina, stomatologija i arhitektura i Tip B: programi koji su orijentirani praksi i uglavnom dizajnirani za učesnike s ciljem sticanja praktičnih vještina i *know-how* potrebne za zapošljavanje u posebnim strukama ili trgovinama	razina 5b iz prethodne (ISCED 1997) klasifikacije.
Razina 6 – Druga razina tercijarnog obrazovanja (koja dovodi do naprednih istraživačkih kvalifikacija, npr. PhD, odnosno stjecanje zvanja doktora znanosti, koji su namijenjeni za napredne studije i duboko istraživanje)	**Razina 6** – Bakaleureat ili ekvivalentno (engl. *Bachelor's or equivalent level*). Odnosi se na prvu razinu tercijarnog obrazovanja koje je primarno usmjereno na izučavanje teorijskih aspekata i odgovara razini 5a iz prethodne (ISCED 1997) klasifikacije.
	Razina 7 – Master ili ekvivalentno (engl. *Master's or equivalent level*). Odnosi se na prvu razinu tercijarnog obrazovanja koje je primarno usmjereno na izučavanje teorijskih aspekata i odgovara razini 5a iz prethodne (ISCED 1997) klasifikacije.
	Razina 8 – Doktorat ili ekvivalentno (engl. *Doctoral or equivalent level*). Odnosi se na drugu razinu tercijarnog obrazovanja koje omogućava nastavak rada u istraživačkim institutima i odgovara razini 6 prethodne (ISCED 1997) klasifikacije.

Izvor: UNESCO (2006) i UNESCO (2012)

Nestatičnost procesa obrazovanja u svijetu kao i utjecaji procesa globalizacije i integracije doveli su do promjena u načinima mjerenja i praćenja razina obrazovanja. Tijekom 2011. godine dogovorena je revizija klasifikacije ISCED 1997., i to u sljedećim aspektima: ISCED 2011. ima 9 razina u odnosu na 7 razina iz ranije klasifikacije. Izmijenjena je klasifikacija tercijarnog obrazovanja koje prethodi doktoratu te je uključeno rano obrazovanje za djecu sa 3 ili manje godina starosti kao najniža razina obrazovanja. ISCED je dakle klasifikacija koja omogućava mjerenje razina formalnog obrazovanja, odnosno obrazovanja stečenog boravkom u obrazovnim institucijama. Međutim, danas se često naglašavaju i stečene vještine. Međunarodna standardizirana klasifikacija zanimanja (engl. *International Standard Classification of Occupation* – ISCO) klasifikacija je Međunarodne organizacije rada (ILO) i trenutačna verzija ISCO-08 iz 2008. godine četvrta je takve vrste nakon ISCO-58, ISCO-68 i ISCO-88. Ova

klasifikacija povezuje razine vještina s ISCED klasifikacijom obrazovanja onako kako je prikazano u sljedećoj tablici:

TABLICA 3: MAPIRANJE ISCO-08 I ISCED KLASIFIKACIJA

ISCO -08	**ISCED – 97**	**ISCED - 11**
Razina vještina 4	6 5a	8 7 6
Razina vještina 3	5b	5
Razina vještina 2	4 3 2	4 3 2
Razina vještina 1	1	1 0

Izvor: ILO (2012)

Razina vještina se općenito definira kao razina zadataka i dužnosti koje su dio određenog zanimanja koje postoji na tržištu rada te stoga povezivanje ISCO i ISCED klasifikacija omogućava povezivanje razina potrebnih vještina i razina formalnog obrazovanja i kao takav je koristan alat u analizi veze tržišta rada i obrazovanja. Nova klasifikacija ISCED – F 2013 (engl. *ISCED fields of education and traning* 2013) odnosi se na redefinirana ISCED područja obrazovanja i osposobljavanja te se koristi od školske 2014/15. godine u prikupljanju podataka u vezi sa sustavima obrazovanja dok se od 2016. godine koristi u istraživanjima kućanstava. Za razliku od ISCED klasifikacija (iz 1997. i 2011. godine) iz Tablice 3 koje se odnose na razine obrazovanja, ISCED klasifikacija prezentirana u Tablici 4 se odnosi na područja obrazovanja i osposobljavanja.

TABLICA 4: ISCED 1997 I ISCED – F 2013

ISCED 1997	**ISCED-F 2013**
0 – Osnovni programi (engl. *General programmes*) 1 – Obrazovanje (engl. *Education*) 2 – Humanističke znanosti i umjetnosti (engl. *Humanities and arts*) 3 – Društvene znanosti, poslovna ekonomija i pravo (engl. *Social sciences, business and law*) 4 – Prirodne znanosti (engl. *Science*) 5 – Inženjerstvo, proizvodnja i gradnja (engl. *Engineering, manufacturing and construction*) 6 – Poljoprivreda (engl. *Agriculture*) 7 – Zdravstvo i socijalna skrb (engl. *Health and welfare*)	00– Osnovni programi i kvalifikacije (engl. *Generic programmes and qualifications*) 01 – Obrazovanje (engl. *Education*) 02 – Umjetnosti i humanističke znanosti (engl. *Arts and humanities*) 03 – Društvene znanosti, novinarstvo i informacije (engl. *Social sciences, journalism and information*) 04 – Poslovna ekonomija, administracija i pravo (engl. *Business, administration and law*) 05 – Prirodne znanosti, matematika i statistika (engl. *Natural sciences, mathematics and statistics*) 06 – Informacijske i komunikacijske tehnologije

8 – Usluge (engl. *Services*)	(engl. *Information and Communication Technologies*) 07 – Inženjerstvo, proizvodnja i gradnja (engl. *Engineering, manufacturing and construction*) 08 – Poljoprivreda, šumarstvo, ribarstvo i veterinarstvo (engl. *Agriculture, forestry, fisheries and veterinary*) 09 – Zdravstvo i socijalna skrb (engl. *Health and welfare*) 10 – Usluge (engl. *Services*)

Izvor: EUROSTAT ISCED (2017)

Tablica 4 sadrži komparativni prikaz definiranih područja obrazovanja prema ISCED 1997 i ISCED – F 2013 klasifikaciji. Naime, ISCED – F 2013 klasifikacije prati ISCED 2011 klasifikaciju obrazovanja i sadrži 11 širih područja, 29 užih područja i oko 80 detaljnih područja obrazovanja i osposobljavanja.

3.3. Trendovi u testiranju učenika

3.4.

Jedan od značajnih trendova u obrazovanju je testiranje znanja učenika na nacionalnoj i/ili inozemnoj razini, a njegova pojava u europskim zemljama postoji od početka 1990. - tih godina (EURYDICE, 2009). Mogućnosti upotrebe rezultata testiranja učenika su višestruke. Neke od njih su: donošenje odluka o usmjerenjima i budućoj karijeri; identificiranje specifičnih potreba u obrazovanju; ocjenjivanje i rangiranje obrazovnih institucija; ocjenjivanje i identificiranje dobre prakse u podučavanju; donošenje odluka na različitim razinama (lokalna; nacionalna) u vezi sa različitim aspektima obrazovanja i dr. S obzirom na značaj testiranja učenika i sve veće korištenje rezultata u različitim znanstvenim istraživanjima cjelokupnog procesa obrazovanja u nastavku rada dan je pregled nekih od najznačajnjih međunardnih testiranja učenika. U radu je već ranije napravljena razlika između ishoda i outputa procesa obrazovanja. Mjerenje obrazovnih postignuća jedan je od načina mjerenja direktnih ishoda odnosno rezultata obrazovanja. S druge strane, indirektni ishodi obrazovanja mogu se podijeliti na ekonomske i neekonomske, gdje se pod ekonomskim ishodima podrazumijeva utjecaj obrazovanja na razinu zarada na tržištu rada. Neekonomski ishodi mogu se dalje podijeliti na privatne i društvene koje je teško i/ili nemoguće novčano izraziti, npr. utjecaj obrazovanja na zdravlje, nejednakost, demokraciju i sl. Obrazovna postignuća učenika kao direktan ishod procesa obrazovanja najčešće se mjere ostvarenim rezultatima učenika na različitim nacionalnim i/ili međunarodnim testiranjima. Danas su najpoznatiji OECD-ov Program za međunarodno ocjenjivanje studenata (engl. *Programme for*

International Student Assessment – PISA)[9] i Trendovi u međunarodnim studijama matematike i prirodnih znanosti (engl. *Trends in International Mathematics and Science Study* – TIMSS)[10].

PISA test je namijenjen petnaestogodišnjacima iz tri područja: matematike, znanosti i čitanja kojima u prosjeku pristupi 4.500 i 10.000 studenata iz svake zemlje sudionice. OECD navodi značaj PISA testiranje kao testiranja koje prati sposobnost učenika da primjene stečena znanja u rješavanju realnih problema inkorporirajući na taj način elemente cjeloživotnog učenja. S druge strane, TIMSS testovi se smatraju testovima koji se odnose na sadržaj nastavnih planova i programa bez elemenata primjene stečenih znanja. Ocjenjuje se znanje učenika (minimalno 4500 – 5000 učenika iz svakog sustava obrazovanja) četvrtih i osmih razreda širom svijeta iz matematike i znanosti.[11] Međunarodna asocijacija za evaluaciju obrazovnih postignuća (engl. *International Association for the Evaluation of Educational Achievement* - IEA) je također razvila tzv. napredni TIMSS (engl. *Advanced TIMSS*) koji ocjenjuje uspjeh učenika u posljednjoj godini sekundarnog obrazovanja iz napredne matematike i napredne fizike. Osim prethodno spomenutih, susrećemo se i sa sljedećim međunarodnim standardiziranim testovima:

- Istraživanje o pismenosti i životnim vještinama odraslih (engl. *Adult Literacy and Lifeskills Survey* – ALL);
- Međunarodno istraživanje pismenosti odraslih (engl. *International Adult Literacy Survey* – IALTS)
- Međunarodno istraživanje o napretku u čitanju (engl. *Progress in International Reading Literacy Study* – PIRLS);
- Ocjenjivanje ishoda učenja u tercijarnom obrazovanju (engl. *Assessment of Learning Outcomes in Higher Education* – AHELO).[12]

[9]Program za međunarodno ocjenjivanje studenata PISA provode i administriraju zemlje koje sudjeluju u programu. Namijenjeno je petnaestogodišnjacima i do sada je provedeno šest puta, i to: 2000., 2003., 2006., 2009. 2012., 2015. i 2018. godine. Dostupno na: https://www.oecd.org/pisa/aboutpisa/ [29.05.2020.]

[10]Trendovi u međunarodnim studijima matematike i prirodnih znanosti (TIMSS) je ocjenjivanje znanja učenika četvrtih i osmih razreda širom svijeta. TIMSS je razvila Međunarodna asocijacija za ocjenjivanje obrazovnih dostignuća IEA (engl. *International Association for the Evaluation of Educational Achievement*). Ovaj test je prvi put bio proveden 1995. godine i od tada se provodi svake četiri godine. Ocjenjivanje se sastoji od upitnika za učenike, roditelje, direktore škola i nastavnike. Više na: http://timssandpirls.bc.edu/ [29.05.2020.]

[11] Belgija i Ujedinjena Kraljevina su primjeri zemalja za koje su dostupni rezultati po specifičnim regijama, odnosno sustavima obrazovanja.

[12] AHELO ima za cilj ocjenjivanje znanja koje posjeduju studenti odmah po završetku studija. AHELO na taj način predstavlja direktnu ocjenu uspjeha studenata, analizirajući relevantnost, kvalitetu učenja i predavanja u području tercijarnog obrazovanja i kao takav predstavlja oblik

Rezultati navedenih ili sličnih testiranja veoma su često korišteni u analizama koje prate ishode obrazovanja, odnosno postignuća učenika, ali i kao pokazatelj kvalitete obrazovanja. Međutim, obuhvat zemalja ovim i sličnim istraživanjima često je ograničen na zemlje visokog dohotka što dalje ograničava sveobuhvatnije analize i studije. Međutim, Filmer et al. (2020) navodi da su istraživanja poput PISA-e i TIMSS-a neprikladni za zemlje nižeg dohotka te da je u tim slučajevima bolje koristiti novu mjeru LAYS (engl. *Learning-adjusted years of shooling*) koja uzima u obzir regionalne ograničenja i specifičnosti. Autori kritiziraju prosječan broj godina obrazovanja kao mjeru ljudskog kapitala navodeći da studenti u različitim zemljama sa istim prosječnim brojem godina provedenih u obrazovanju imaju znatno različite ishode učenja. Stoga predlažu novu mjeru koja kombinira količinu i kvalitetu obrazovanja navodeći da je predložena mjera informativnija je od prosječnih godina jer na primjer, pokazuje da LAYS objašnjava više varijacije u stopama rasta BDP-a.

4. ZAKLJUČAK

Teorija ljudskog kapitala u središte znanstvene rasprave pozicionira pozitivne učinke ulaganja u ljudski kapital na ukupnu produktivnost, sveukupan razvoj ljudskog kapitala i u konačnici ekonomski rast. Autori koji analiziraju vezu ljudskog kapitala i ekonomskog rasta promatraju formalnog obrazovanja kao ključni čimbenik u procesu poboljšanja sveukupnog ljudskog kapitala odnosno „ljudskom kapitalu stečenom kroz obrazovanje kao ključnoj odrednici ekonomskog napretka“ Barro i Lee (2001). Tako je obrazovanje postalo odrednica ljudskog kapitala. Pored vidljivoga teorijskog doprinosa, ljudski kapital također dobiva na značaju pojavom mnogih međunarodnih organizacija poput OECD-a, UN-ovih agencija kao što su UNDP, UNESCO i dr. Njihov doprinos razumijevanju i promicanju značaja te mjerenja ljudskog kapitala u suvremenim razvojnim procesima je nemjerljiv. Mjerenje razina ljudskog kapitala posebno je značajno pitanje u suvremenoj znanosti i praksi. Liu i Fraumeni (2014) su identificirali dva dominantna pristupa mjerenju ljudskog kapitala: (i) pristup temeljen na pokazateljima i (ii) monetarni pristup. Prvi pristup uključuje različite kvantitativne i kvalitative pokazatelje dok monetarni pristup promatra troškove, prihode i rezidual kao način mjerenja ljudskog kapitala.

Kada je u pitanju statistika ljudskog kapitala, najrelevantnije međunarodne organizacije poput OECD - a, UNESCO - a i UNDP - a primjenjuju pristup

izlaznog testa. Tijekom 2012. godine napravljena je studija izvodljivosti. Više na: http://www.oecd.org/edu/skills-beyond-school/testingstudentanduniversityperformancegloballyoecdsahelo.htm [29.05.2020.]

temeljen na pokazateljima. OECD u godišnjoj publikaciji Pregled obrazovanja (engl. *Education at a Glance*) (OECD, 2012; 2016) objavljuje Pokazatelje sustava obrazovanja (engl. *Indicators of Education Systems* – INES) koji su grupirani u tri skupine: (i) pokazatelji inputa obrazovanja - pokazatelji koji analiziraju financijske i ljudske resure, (ii) pokazatelji procesa obrazovanja – pokazatelji koji prate pristup, učešće, napredovanje, organizaciju i okruženje za učenje i (iii) pokazatelji outputa obrazovanja – pokazatelji koji prate postignuća i ishode na tržištu rada. Uloga UNESCO-a u mjerenju obrazovanja je također značajna. Danas, većina zemalja svijeta koristi UNESCO-ovu ISCED klasifikaciju obrazovanja koja je imala posljednju reviziju krajem 2013. godine te koja se u europskoj statistici počela koristiti 2016. godine. Kao jedan od značajnih trendova u mjerenju obrazovanja javlja se testiranje znanja i vještina učenika iz specifičnih područja. EURYDICE (2009) naglašava višestruke mogućnost korištenja rezultata ovih testiranja: kod donošenja odluke o daljnjem usmjerenju ili karijeri; identificiranju specifičnih potreba u sustavu obrazovanja, ocjenjivanju i rangiranju institucija obrazovanja; identificiranju dobre prakse u podučavanju i dr.

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CONTEMPORARY TRENDS IN HUMAN CAPITAL MEASUREMENT

Abstract

Human capital is at the center of scientific discussions about ways to measure this form of capital and its effects. With the developmens of New theories of cconomic growth, especially with the Theory of human capital, human capital is involved and becomes one of the key factors in explaining the process of economic growth and education begins to be seen as a key part of human capital and has multiple positive and social effects. The main goal of this paper is to analyze current trends in measuring human capital that are present in the scientific literature, but also in the analysis of relevant international organizations that monitor education statistics. The paper analyzes different classifications, indicators and approaches to measuring education. Special attention is given in the analysis of available international students testing. It is concluded that such measurements have multiple benefits and uses: decision-making and policy-making processes, identification of specific needs in the education system, identification of good practice and others. However, a significant challenge is facing developing countries that are not covered by these or similar measurements.

Keywords: human capital, education, measurement, trends

JEL classification: I20, I21, I28

STUDENTSKI RADOVI

STUDENTS' PAPERS

ANALYSIS OF FACTORS AFFECTING YOUTH TO VOTE ON ELECTIONS - CASE STUDY: STUDENTS OF SCHOOL OF ECONOMICS AND BUSINESS AT THE UNIVERSITY OF SARAJEVO

Ninković Emil

Abstrakt

This research has been done at September 2018, when great attention was focused on the upcoming general elections in Bosnia and Hercegovina. We are witnessing that a lot of dissatisfaction with politics is taking place in Bosnia and Herzegovina, so the motivation for this research was generally a low trend of youth turnout in the elections. The primary goal of this research is to examine the impact of socioeconomic and demographic variables on the intention of students of the School of Economics and Business at the University of Sarajevo to vote on the upcoming elections. The intention to vote on the elections will best be examined through the degree of education of the environment in which the student is located, the most likely his parents, the income of his household and his active participation in the elections. We have analyzed the primary data collected from students at the School of Economics and Business at the University of Sarajevo. The data were collected through online survey, it is a deliberate sample of 204 people, of whom 145 are female and 59 male, aged from 18 to 25. The dependent variable in the logistic regression model is „student will vote on the elections(yes/no)", while the independent variables are the monitoring of campaigns of political subjects in the media, the language in which the student is studying, voting on 2016 elections, the mother's education, the education of the father, a way of studying, monthly household income, way of life during studies, employment and gender. Logistic regression model was used for data analysis. The variable language in which the student is studying, the monitoring of campaigns of political subjects in the media, employment, living in their own flat during studies, gender and monthly household income in a range from 1000 to 1499 and from 1500 to 2000 turn out to be statically insignificant variables in the estimated model while the rest of the variables are statistically significant. For variables whitch are statistically insignificant in the logit model, we will use the hi-square test in order to examine interdependence with the dependent variable. The secondary goal is to establish a degree of interest in politics and education, and a degree of belief in political subjects among students. A detailed analysis has established a low level of interest of young people for politics, and a very high degree of distrust in political subjects.

Keywords: *youth, political participation, logistic regression, voting*

INTRODUCTION

We are now in the month of September, where great attention is focused on upcoming elections that are going to be held on Octobar 7, 2018. Every day we are witnessing the growing discontent of people with politics. The motivation for this research is the general trend of low youth turnout on elections, and in this research I want to examine young people intrest in upcoming elections.

One of the main problems facing Bosnia and Herzegovina is emigration, the departure of a huge number of people from the country and a large percentige of them are young people. According to the available official data of the Agency for Statistics of Bosnia and Herzegovina integrated in the Migration Profile for BiH for 2016, the estimate of the total number of persons originating in BiH and living in emigration is at least 2 million, which is 56.64% compared to 3.531.159 total population in Bosnia and Herzegovina. A worrying fact for Bosnia and Herzegovina is the willingness of young people to leave the country and their disappointment with the current situation.

Many studies have shown that young people spend most of their free time with social networks and media-oriented activities, but show little interest in political events. All political events and political activities are learned by young people mainly from the media (TV, internet), but it appears that they do not have enough information and knowledge about political issues in Bosnia and Herzegovina and globally.

OBJECTIVE OF THE RESEARCH

For the purpose of research, a questionnaire was designed for students of the School of Economics and Business at the University of Sarajevo. The subject of research is the causes, that are the factors that influence the decision to vote in young people.

The primary goal of the research is to identify how demographic factors influence a student's decision to vote. Demographic factors best describe the student and his or her characteristics. We want to determine if demographic factors have a statistically significant effect on a student's decision to vote

The secondary objective is to determine the level of interest of young people in politics and elections, as well as the level of belief of young people in elections and political entities. In the last question, using the Likert scale is exemined the

level of agreement with statements that represented their level of interest and degree of belief in elections.

THEORETICAL FRAMEWORK

In Bosnia and Herzegovina, there are two types of elections, general and local. We have a general election ahead, and everyone over the age of 18 has the right to vote.

Elections are a set of principles, measures and political processes and procedures which, in accordance with the prescribed electoral rules and processes of a country, ensures and achieves organized participation of citizens, ie voters. Elections are the means by which the basic values and mechanisms of the political system are determined, determined by the nature of class and social relations.

What factors influence on the students decision to vote on elections? In this theoretical framework we will look through some variables that may affect on their choice.

Gender

The impact of gender on turnout has changed dramatically over the years. From the beginning of suffrage to the 1980s, women voted less than men (Arneson, 1925; Arneson & Eels, 1950; Glaser, 1959). Since the mid-1980s, however, women have been voting to the same extent as men, and sometimes their turnout is higher than men's (Leighley & Nagler, 1992a; Schlozman, Burns, Verba, & Donahue, 1995), apparently because of this women now have more political efficiency and political interest. We are also expecting for this paper that there will be no difference in election turnout between male and female.

Monitoring the campaigns of political entities in the media.

According to the BiH Youth Studies, young people receive most of the information about political events through the media (TV and Internet), so over 85% of respondents use the Internet or TV as their primary source of information.

Education

In her research that was done at 1991, Nagler says that citizens with more formal education will vote more often, and each additional year of education is associated with greater turnout. Education can impart skills that enhance a person's ability to understand how the civic process works. Education could motivate people to vote by making them interested in political processes or by placing them in the social environments in which they vote. (Nagler, 1991).

The impact of education on a person's turnout depends on the educational attainment and political activity of other people in that person's environment. The greater the educational attainment of a person in his or her environment, the more likely he or she is to vote. (Teen, 2005).

We are expecting huge impact of education on overall result, we assume that highly educated environment can directly influence on the student and his or her mindset.

Income

According to research,[13] high wealth people have higher voting rates in elections. And it is interesting to note that when the health of the national economy declines, citizens who are most injured are most likely to reduce turnout (Radcliff, 1992; Rosenstone, 1982).

The influence of parents and friends on the decision to vote

According to the BiH Youth Study, youth conversations about politics with friends or parents are very rare. The majority of young people, about half of them, do not discuss political events with loved ones at all. So with older age, with a higher degree of father education and with a greater degree of self-education, the frequency of discussing politics with friends increases.

Youth Political Literacy in BiH

Political literacy implies raising the competencies of young people for understanding, critical evaluation of political events and political reality, but also stronger involvement in political life.

[13] Istraživanje (cf., Filer, Kenny, & Morton, 1993;Leighley & Nagler, 1992b; Rosenstone & Hansen, 1993)

In 2016, the BiH Youth Study conducted a focus group study that discussed with young people to gain a deeper understanding of young people's attitudes toward BiH politics. The results showed that most of the focus group participants saw the only way out was to leave the country sooner or later and find "happiness" in a Western European country. The percentage of young people who are not interested in politics in BiH is very high, but still not very different from their peers in Western Europe.

Analyzing the research conducted so far on youth issues, it is devastating that more than 80 percent of young people think that they have little or no influence on political events in Bosnia and Herzegovina.Youth interest in politics is best illustrated by the data on the political engagement of young people who go to the polls. As many as 92.9% of young people are not engaged in any socio-political activities. Only 3.2% of young people are politically engaged through political parties, while 0.8% are through election campaigns.

METHODOLOGY

It consists of questions based on theory and previous research, and includes demographic questions, questions about employment, education, going to the polls, reasons why the respondents vote and why not, the influence of parents and friends on the decision to vote and the Likert scale with the level of agreement with the claims.

For the purpose of the research, a questionnaire was created consisting of 18 questions and a Likert scale with the levels of agreement for ten statements. The study involved students at the School of Economics and Business at the University of Sarajevo. The survey was conducted with the help of Google Forms and distributed on the social network Facebook in September 2018. The survey was attended by 204 students, of which 145 are female and 59 are male.

The collected data will be processed by statistical methods in MS Excel and in the statistical programs STATA and IBM SPSS Statistics, and the results will be presented in tables and charts and at the end they will be interpreted. The questionnaire was created in a way that most of the data are a qualitative nature and will be presented in absolute, relative and percentage frequencies.

Methods for data analysis

A logistic regression model was used to analyze the data. The logistic regression model is a special case of a GLM model where the dependent variable is dichotomous (binary, dummy). In our case, this is a "student will vote on the elections" variable that has two modalities 1 = yes (person intends to go to the polls), 0 = no (person does not intend to go).

For variables that are statistically insignificant in the logit model, we will use the chi-square test to examine whether there is a difference in the intention to vote between groups, that is, whether the intention to vote and belonging to the category of independent variables are statistically independent.

Respondents attitudes about the decision to vote

Of the 204 respondents, 179 declared that they intended to go to the upcoming elections, so we asked them what are the reasons why they are voting. They had the right to choose three answers out of eight offered and a free field to state the reason of their choice. As a personal choice, eight people stated that the reason for their election was that they did not want their vote to go into the wrong hands. The largest number of respondents, 152 (84.92%), stated that voting for them was a civic duty. The high frequency of respondents said that they want to support change with their voice, whitch suggests that students at the School of Economics and Business at the University of Sarajevo are ready for change and they think optimistically about the future of Bosnia and Herzegovina. Unfortunately, as we stated in theory, a very small percentage (21.79%) of respondents are interested in politics.

Of the 25 students who said they did not intend to vote in the upcoming elections, 16 indicated that this was a lack of confidence in politics or dissatisfaction with politics, representing 64% of them. For the most part, we see that views are divided, but dissatisfaction and disinterest in politics and political entities prevails. Eight of the 25 people stated that they intended to leave the country (32%), we can be pleased that the main reason for not attending the elections of students of tthe School of Economics and Business at the University of Sarajevo is not leaving the country.

It is certain that there is great dissatisfaction with politics in BiH between all people and also young people. It is very good that students have an optimistic

attitude and they want changes. As we have stated in theory, this is also true in this research, which is that there is little interest in politics.

DATA ANALYSIS

The analysis was performed on the basis of the primary data collected in the STATA program. We will set up a model and evaluate which variables do positively and which negatively affect the turnout. The variable "student will vote on the elections" is a dependent variable and it tells us whether the respondent will vote (1) or not (0). The independent variables in the model are all of a qualitative nature.

Ten variables were selected for the potential independent variables of the model:

1. Media – monitoring the campaigns of political subjects in the media
2. Language – the language in which the student is studying
3. Vote2016 – did respondent vote on previous elections
4. Mother's education
5. Father's education
6. Student's way of studying
7. Monthly household income
8. Place of residence during study
9. Employment
10. Gender

Logistic regression

In this study, we will take a look at a regression model with a dependent dichotomous variable.The model with the dependent "student will vote on the elections" variable is a function of the following variables: media (dummy), study language (dummy), vote2016 (dummy), mother's education level - high school (dummy), mother's education level - bachelor's degree (dummy),father's education level - bachelor's degree (dummy), father's education level - high school (dummy), full-time student (dummy), full-time self-financing student (dummy), monthly household income from 1000 to 1499 (dummy), monthly household income from 1500 to 1999 (dummy), monthly household income over 2000 (dummy), students living with their parents (dummy), students living in a rented apartment (dummy), students living in their own apartment (dummy), employment (dummy), and the variable that a person is female (dummy). Dummy variables the level of education of mothers and fathers who have no schools are not included in the model because there is no student whose father or mother are

without school in the sample, the income variable from 0 to 499 is also omitted because there is only one observation, and we consider it insignificant for our model.

Estimated model:

$$\text{logit}(voting) = -26{,}33 + 5{,}17\,vote2016 - 3{,}59\,media - 3{,}99\,language - 3{,}83\,employment + 3{,}32\,ownApartment + 9{,}87\,rentedApartment + 10{,}62\,parentsApartment + 9{,}13\,income\_over2000 + 6{,}15\,income2000 + 1{,}85\,income1500 + 9{,}76\,motherBachelor + 5{,}6\,motherHighSchool + 10{,}3\,fatherBachelor + 9{,}03\,fatherHighSchool + 12{,}77\,studentFT + 9{,}69\,studentSF - 0{,}9\,female$$

The model was estimated in seven iterations.

$p=0{,}00<0{,}05$ the model is statistically significant.

The pseudo R2 value in the model is quite high and it is equal to $R^2=0{,}828$.[14] Independent variables language, media, employment, ownAparment, income2000, income1500, female are statistically insignificant variables because their p value is p> 0.055 and all other variables are statistically significant.

Table 10 Coefficients, standard errors and p values of variables

Variable	Coefficient (standard errors)	p value
vote2016	5,17 (2,1603)	0,017
Media	-3,59 (2,3866)	0,132
Language	-3,99 (2,3362)	0,088
Employment	-3,83 (2,1197)	0,071
ownApartment	3,32 (42,0806)	0,937
rentedApartment	9,87 (3,7116)	0,008
parentsAparment	10,62 (3,8290)	0,006
income_over2000	9,13 (3,8960)	0,019

income 2000	6,15 (3,3202)	0,064
income1500	1,85 (1,9563)	0,344
motherBachelor	9,76 (4,0822)	0,017
motherHS	5,6 (2,9014)	0,054
fatherBachelor	10,3 (4,7024)	0,028
fatherHS	9,03 (4,4373)	0,042
studentFT	12,77 (4,5461)	0,005
studentSF	9,69 (3,6301)	0,008
female	-0,9 (1,6057)	0,577

Levels of statistical significance:
0≤P≤0,015 - Statistical significance at 1% level
0,016≤P≤0,055 Statistical significance at 5% level
0,056≤P≤0,15 - Statistical significance at 10% level

As we said before, variables language, media, employment, ownAparment, income2000, income1500, female are statistically insignificant variables at the 5% level, and we will not interpret their estimated coefficients.

vote2016: the person who voted in the 2016 election is expected to be more likely to vote, ceteris paribus. The effect was statistically significant at the 5% level, p = 0.017

rentedApartment: it is expected that a person who rents an apartment during his or her studies is more likely to vote than students living in a dormitory, ceteris paribus. The effect was statistically significant at the 1% level, p = 0.008

parentsAparment: it is expected that a person who lives with their parents during their studies is more likely to vote than students living in a dormitory, ceteris paribus. The effect was statistically significant at the 1% level, p = 0.006.

income_over2000: a student whose monthly household income is over 2000 is expected to be more likely to vote than those whose household has a monthly income in the range of 499-1000, ceteris paribus. The effect was statistically

significant at the 5% level, p = 0.019. As stated in the Theory, less rich people have a lower turnout rate than richer people (Radcliff, 1992; Rosenstone, 1982). We proved this in our sample with the fact that the richest students are represented by the income variable above 2000.

motherHS: a student whose mother has a high school degree is expected to be more likely to vote than students whose mother has a primary school education, ceteris paribus. The effect was statistically significant at the 5% level, p = 0.054.

motherBachelor: a student whose mother has a university degree is expected to be more likely to vote than students whose mother has a primary school education, ceteris paribus. The effect was statistically significant at the 5% level, p = 0.017. Referring to theory, where he says that the greater the educational attainment of people in your area, the more likely you are to vote on elections (Teen, 2005), and this is precisely why a person whose parent, in this case the mother, has a degree in education university graduates are more likely to go to the elections.

fatherBachelor: it is expected that a student whose father has a university degree is more likely to vote than students whose fathers have a primary school education, ceteris paribus. The effect was statistically significant at the 5% level, p = 0.028.

fatherHS: a student whose father has a high school degree is expected to be more likely to vote than students whose fathers have a primary school education, ceteris paribus. The effect was statistically significant at the 5% level, p = 0.042.
studentFT: full-time students are expected to be more likely to vote than Distance learning students, ceteris paribus. The effect was statistically significant at the 1% level, p = 0.005.

studentSF: full-time self-financing students are expected to be more likely to vote than Distance learning students, ceteris paribus. The effect was statistically significant at the 1% level, p = 0.008. We can relate this data to employment, given that most of the students employed are mainly studying on DL (distance learning) study, and in our analysis we have seen that employment has a negative impact on elections, we assume that for this reason full-time self-financing students are more likely to go to the polls. We have to take this conclusion with reservation, because in our model employment is a statistically insignificant variable.

Students who live with their parents are more likely to go to the polls, which we can relate to what we said in theory, which is that their environment influences whether they go to the polls. Of course, if we associate this with the fact that their parents are educated people, it is clear to us how much influence the environment has on a student's decision. When it comes to education, we have to consider that students are also highly educated persons, and the high degree of students' turnout for the upcoming elections should not be surprising. For a country that has very little engagement of young people in politics, it is a very encouraging fact that 179 out of 204 respondents will go to the polls. Ultimately, we can conclude that the key link between a student and his or her decision to vote on election is their environment and wealth.

Statistical tests

The following is a representation of the Hi-square test on statistically insignificant variables language, a way of study, and father's education. We will test whether there is a statistically significant difference in the voting intention of students studying in their native language and English languages.

We will test the following hypotheses.

H_0: The variables "student will vote on the elections" and the language in which students study are independent.
H_1: The variables "student will vote on the elections" and the language in which students study are dependent.

Table 11 Distribution of student voting intentions by language of study

	Intention to vote		
Language	NO	YES	Total
Native	19 (11,24%)	150 (88,76%)	169
English	6 (17,14%)	29 (82,86%)	35
Total	25	179	204

After the test, the obtained p value is p = 0.333> 0.05, which means that we accept the null hypothesis that the intention to vote and study language are independent characteristics. This means that the intention to go to the polls is not

statistically significantly different in the group of students studying in their native and English languages.
We want to test whether the variables "student will vote on the elections" and gender of students are independent.
H_0: The variables "student will vote on the elections" and gender are independent.
H_1: The variables "student will vote on the elections" and gender are dependent.

Table 12 Distribution of student voting intentions by gender

	Intention to vote		
Gender	NO	YES	Total
Male	8 (13,56%)	51 (86,44%)	59
Female	17 (11,72%)	128 (88,28%)	145
Total	25	179	204

By the Hi-square test, a p value of p = 0.717> 0.05 was determined, which means that we accept the null hypothesis whitch says that variable "student will vote on the elections" and the student's gender are independent characteristics. This means that the intention to go to the polls is not statistically significantly different between male and female students.

As the variable of monitoring political campaigns of political entities is statistically insignificant in our model, we will test whether the variables "student will vote on the elections" and monitoring the campaigns of political entities in the media are independent.

H_0: The variables "student will vote on the elections" and monitoring the campaigns of political entities in the media are independent.
H_1: The variables "student will vote on the elections" and monitoring the campaigns of political entities in the media are dependent.

Table 13 Distribution of student voting intentions by following political campaigns in the media

	Intention to vote		
Media	NO	YES	Total
NO	20 (21,74%)	72 (78,26%)	92
YES	5 (4,46%)	107 (95,54%)	112
Total	25	179	204

A p value of p = 0.00 <0.05 was obtained, which means that we reject the null hypothesis and accept the alternative, which states that the intention to vote and monitoring the campaigns of political subjects in the media are dependent characteristics. This means that the intention to go to the polls is statistically significantly different between the group of students who monitori the campaigns of political subjects in the media and those who do not.

From the results of the hi-square test, we concluded that there are no differences in the election between students who follow political campaigns in the media and those who do not. We all know how much influence media and social networks have on people today, but this result confirms to us that young people's lack of interest in politics, which our students have characterized as a general lack of confidence in politics or dissatisfaction with politics. Even the media cannot get their attention. When it comes to gender, we have confirmed what the theory said and that means there is no difference in voting between men and women.

CONCLUSION

It is very important to accept the fact that young people are a pillar of every society, therefore it is necessary to invest in them, in their education and continuous professional development, employment, solving existentially important issues. It is also very important to politically educate young people, especially when it comes to BiH society.

While working on this paper, we tried to answer the questions why young people vote if they vote and why they will not vote, and we wanted to examine students' attitudes and evaluate their interest in politics and political choices and their level of belief in political entities. Demographic factors are being imposed that influence the decision to vote, which we collected through a poll.

Generally we have found that students at the School of Economics and Business at the University of Sarajevo are not fully informed about politics and that with this lack of awareness comes a disinterest in political activities, but in addition, 88% intend to vote on elections.. When we asked them why they were voting in the second place with the most answers, they said that they wanted to support changes in BiH, which speaks to optimistic thinking about the future of this country. Also, there was a great dissatisfaction with the current situation in the country and their distrust of political institutions.

We have proven that the education of parents has a great influence on the students voting decision. Also, students living with parents are more likely to vote on elections than students living in a dormitory, that means they are spending more time with their parents. It is estimated that this highly educated environment, in which they find themselves during their studies, makes them more likely to vote. It is obvious that students who voted in the 2016 elections will go to the polls again this year, and we have found that there is an increase in the turnout rate compared to the previous elections, which shows that in addition to distrust of political entities, poor engagement in political activities, students of the School of Economics and Business , are optimistic about this country and probably have the desire to act in it and apply their knowledge.

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ANALYSIS OF THE MAIN FACTORS THAT CAUSE STRESS DURING THE EDUCATION AT THE SCHOOL OF ECONOMICS AND BUSINESS AT THE UNIVERSITY OF SARAJEVO

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Abstrakt

The relationship between a person and the environment in perception and the response to stress is particularly increased by new level of education, college. In order to cope successfully with stress, it is necessary to identify risk factors that are causing stress. The goal of this research is to examine and analyze the main factors that cause the stress of students during their studies at the School of Economics and Business at the University of Sarajevo. This project is focused on identification of the role and importance of some of the identified sources of stress among students at School of Economics and Business. A survey was performed for the needs of the research, through which the necessary data were collected. The survey is anonymous and is consisted of three parts: the first part contains socio-demographic data, the other part focuses on the student's lifestyle and the third part assesses the extent to which an individual source of stress has disturbed and burdened the student in everyday functioning. The respondents are students of the first, second and third year of the School of Economics and Business at the University of Sarajevo, who have the status of regular, regular self-financed and DL student. The research involved 213 students, 59 men and 154 women, ranging from 19 to 35 years. Students assessed whether they feel they are prone to stress, which represents the dependent variable in the logistics regression analysis model. A dependent variable is the probability coefficient of one or the other case of a dichotomous variable. We will try to determine the probability that students of the School of Economics and Business will be prone to stress in relation to many demographic characteristics. Based on previous researches and theory, the following variables have been identified: gender, age, marital status, employment, year of study, learning schedule, physical activity, public speaking, sleep, nutrition, parental education, change of residence, life in a dorm or new environment. The results of this research have shown that students of the School of Economics and Business in Sarajevo during the previous education have been greatly disturbed by the lack of sleep, irregular nutrition, insufficient time for recreational activity and learning at the last minute. These are all possible causes that make up as much as 55% of students in the sample think they are prone to stress.Interestingly, the fear of public speaking, which is considered one of the greatest fears, is not a big burden to students of this college. In addition, the research results confirmed some theoretical assumptions. Also, we confirmed that women are more prone to stress, as students who are employed.

Keywords: *cause of stress, socio – demographic factors, logistic anaysis*

1. INTRODUCTION

Stress denotes the state of an organism in which we experience a threat to our own existence. Sources of stress are all around us and are part of our daily lives. Frequent stressful situations can affect memory and learning ability. In order to successfully cope with stress, it is necessary to identify the risk factors that are the source of stress. With the advancement of technology and a fast-paced lifestyle, we are finding sources of stress all around us. Fast lifestyles, fast food, no sleep, too little physical activity and many other factors put us in touch with the "silent killer" called stress. The relationship between the person and the environment in the perception and response to stress is particularly enhanced by going to college. The problems and situations that students face may differ from those faced by their non-studying peers. (Hirsch & Ellis, 1996). The environment in which students move is quite different. Continuous testing, such as tests, quizzes, and seminar papers, can be a source of stress, and peers who do not study are not exposed to such stress (Wright, 1964). The pressure to get good results and get a degree can also affect students (Hirsch and Ellis, 1996), however, this is not the only source of stress for students. In addition to academic requirements, relationships with faculty members, time pressures, relationships with family and friends, unhealthy and erratic eating and sleep deprivation can also be a source of stress (Sgan-Cohen and Lowental, 1988).

1.1. The subject and purpose of the research work

The aim of the research is to identify and analyze the factors that influence students' stress at the Faculty of Economics, University of Sarajevo. The focus is on identifying the role and importance of some of the identified sources of perceived stress for students at the Faculty of Economics in Sarajevo. For the purposes of the paper, a survey was created to collect the necessary data. Students evaluated whether they felt they were prone to stress, which would represent a dependent variable in the logistic regression analysis model. The dependent variable is the probability factor of one or the other case of a dichotomous variable. We will try to determine the likelihood that students of the Faculty of Economics will be prone to stress in relation to many demographic characteristics. In addition, we will investigate what are the key factors that are a source of stress for students at the Faculty of Economics, University of Sarajevo, and whether certain factors have a positive, negative, or no effect on student stress.

2. OVERVIEW OF PREVIOUS RESEARCH

Students often come in contact with various stressful situations during their schooling, starting with first contact with the faculty, public speaking in front of a large number of people, one part and with a new city and independent life, and often dealing with pressures related to finding a job or a potential life partner. In the following, we will describe the various factors and sources of stress that are most common among students according to research and examine the nature of these stressors.

Gender - There are numerous studies that have confirmed that there is a significant gender difference when it comes to school stress and anxiety, where girls achieve higher anxiety scores (Dautovic, 1990; Albano, et al., 1996). The results of the study (Subotic et al., 2008) indicate that, in the sample of girls, school stress, among other things, proved to be a significant predictor of self-destructiveness.

Age - When it comes to the relationship between stress and age, research finds no correlation between these two variables, regardless of the stress factor studied. (Saleh et al. 2017; Koochaki et al. 2011). Nevertheless, one study (Shamsuddin, et al., 2013) shows that stress and depression are significantly higher among college students over 20.

Marital Status and Employment - The study looked at the difference between social effects based on marital status and gender, which showed that of the 4 options (married and unmarried men, married and unmarried women), married women were most vulnerable to stress, while marriage contributed in a positive way to men (Preston, 1995).

Year of study - According to research (D`Zurilla and Sheedy, 1991) there is a difference in stress with regard to the year of study. Generally, students are prone to stress, but freshmen are particularly prominent because they are first faced with a college environment and various new situations that can be stressful for them (Towbes and Cohen, 1996).

Physical Activity - There are numerous studies showing that men are more physically active than girls and more involved in sports (Telama, et al., 2005; Motl et al., 2006), which may be correlated with earlier studies where found that girls are more prone to stress and anxiety.

Public Speaking - The results of the research showed that the students most often used fear of public speaking as their most common fear. Among the biggest sources of fear of public speaking was the inability to predict what would happen when a student made his speech or presentation to other students. (Gottlieb, 2004).

Sleep - A study conducted at the University of Nevada in 2013 found that, out of 120 students, 60% had spent at least one night without sleep during school. These students reported more problems with their physical and mental health than those with better sleeping habits.

Nutrition - Due to the dense schedule of classes, exam periods and extra work commitments, students often neglect the importance of regular healthy meals for mental and physical functioning in a stressful daily routine. Lack of breakfast, too long breaks between meals and poor food choices lead to a lack of energy, fatigue and decreased immunity. Research has shown that eating breakfast contributes to improved student discipline and test scores, fewer absences and fewer hospitalizations (Ford, 2013).

Impact of Family Support and Parental Education Level - According to a survey (Haq et al., 2018), parental education is associated with depression and student stress. Specifically, students with educated parents showed less symptoms of stress, anxiety, and depression. In addition, research has shown that higher levels of stress are significantly higher among those whose family had low or high incomes compared to those with middle income. (Shamsuddin, et al., 2013).

Changing your residence and living in a home or new environment - Going to college brings with it many changes in students' lives. While some students stay with their parents, there are many of them for whom going to college means moving from their parents to a new city, where they will live independently in an apartment or dorm. This can mean additional stress for those who come to a new environment because of studies (Hechanova-Alampay et al., 2002). Students living in a dormitory may have additional stress due to sharing a room with strangers, noise, shared bathrooms, food in the canteen, which can make the situation even more challenging (Taylor, Peplau, & Sears, 2000).

3. EMPIRICAL RESEARCH

For the purpose of research, a questionnaire was designed for students of the first, second and third year of the Faculty of Economics, University of Sarajevo. Previous research into the sources of student stress identified some of the issues that could best address the most important factors. The survey consists of three parts: the first part contains socio-demographic data, the second part focuses on the student's lifestyle and the third part to assess the extent to which a particular source of stress has disturbed, burdened and restrained the student in daily functioning. The first part deals with socio-demographic data and includes data on gender, age, marital status, children, mode, department and language of study, year of study, level of parental education, employment, learning schedule, physical activity. It also begs the question of whether or not a student feels he or she is prone to stress. In the analysis, this variable will represent the dependent variable of logistic regression analysis. In this way, we will determine the likelihood that a student at the Faculty of Economics at the University of Sarajevo will be prone to stress, given his socio-demographic characteristics. The study involved 213 students, of which 59 were male and 154 were female, ranging in age from 19 to 35 years.

The ideal sample in the research is a random sample. Given that a random sample has the characteristic that each member of the population has the same probability of being selected in the sample, we cannot say that this is a random sample in our study. However, the sample size is quite large and has similar characteristics to the population. Certainly, the results of the survey should be taken with caution.

3.1. Description of the variables

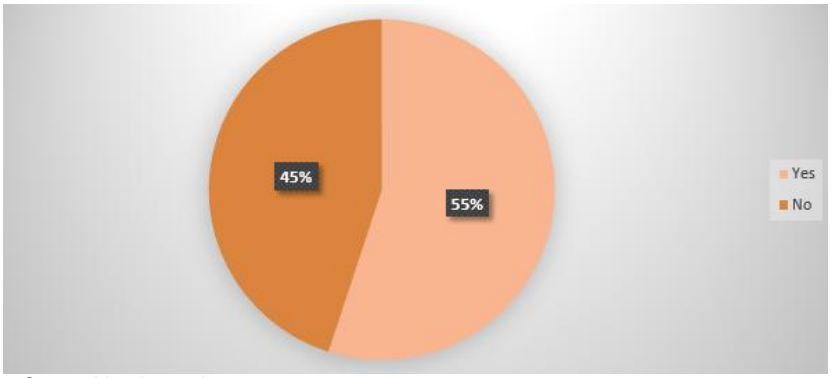
Age - In a sample of 213 students, 50% of students are 21 years old or under, and the other 50% are over 21 years old. The most common number of student years is 20, and the average number of years is 21. The years range from 19 to 35 years. Physical Activity - Variable physical activity is the number of hours students allocate to physical activity at the weekly level. The maximum number of hours students spend on physical activity is 22 hours per week, while some students do not spend time on physical activity, so the value is 0. The average number of hours spent on physical activity is 6.8, and the average linear deviation of an individual number of hours from the average number hours for physical activities is 4.8. Variable attendance - Variable attendance is a student's subjective assessment of how often he / she attends lectures / exercises during

his studies, expressed as a percentage. The minimum percentage of attendance is 20, while the highest is 98. The average percentage of attendance at predictions and exercises is 69, with a standard deviation of 16.12.

3.2. Sample structure

When asked if you think you are prone to stress, the majority answered affirmatively, which is 55% of the answers (117 students), and 45% of students think that they are not prone to stress (96 students).

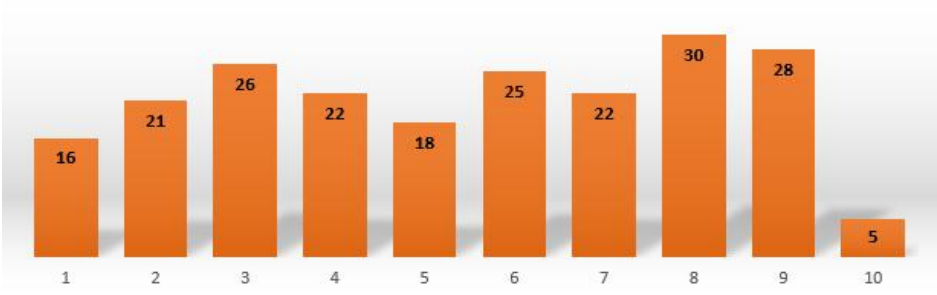
Graphic 1 Do you find yourself prone to stress?



Source: Created by the author

In addition, students were asked to rate their stress level while studying on a scale of 1 to 10. The most commonly selected number was 8 with 30 responses, followed by 9 with 28 responses, and 3 with 26 responses. The least selected number is 10 with 5 answers. The following graph shows all the answers.

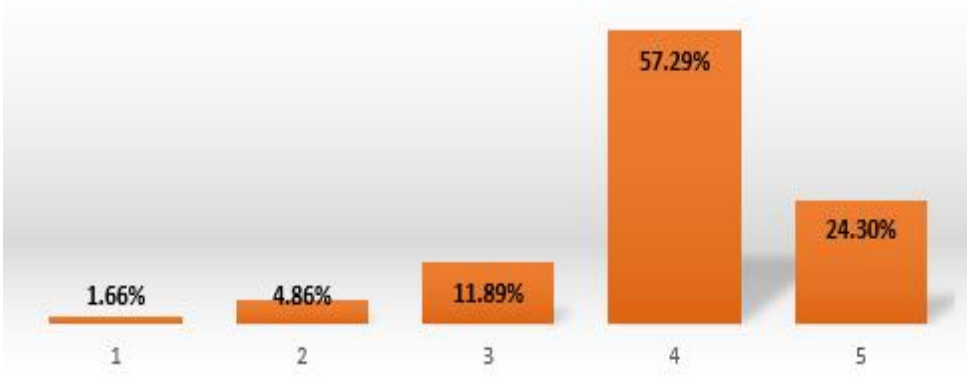
Graphic 2 Rate your stress level while studying on a scale of 1 – 10



Source: Created by the author

Below, the answers to lifestyle questions are presented. Of the 213 respondents, 57% generally agree that they invest a lot of time and money in attending classes.

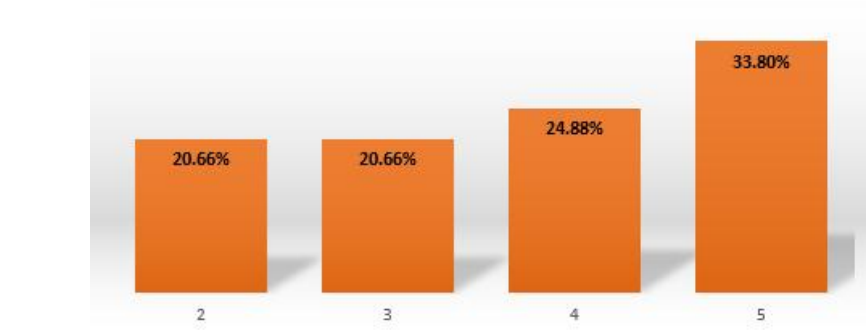
Graphic 3 By attending classes, I invest a lot of time and money



Source: Created by the author

According to the results of the survey, the highest percentage (34%) completely agree with inadequate and unhealthy foods during their studies, and 25% of students generally agree with this statement. In this case, no one answered that they disagreed with the claim at all.

Graphic 4 I find myself eating inadequate and unhealthy while studying



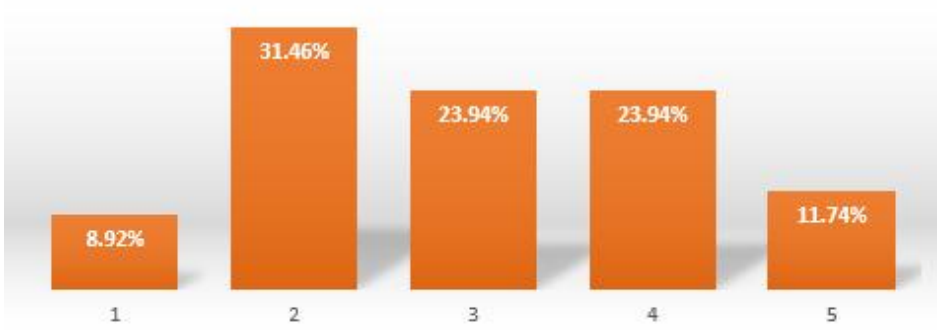
Source: Created by the author

Below are the sources that, by theory, have the most impact on the student.

According to the results, 31.46% of students say that public speaking did not disturb at all during their studies, and 11.47% of students said that it greatly

disturbed and burdened them. Although this is not in accordance with theory, students of the Faculty of Economics are often able to present their seminar papers, projects, etc. in front of colleagues and teachers. It is well known that with experience in performing and speaking in front of an audience, fear decreases, which is probably the reason why students of the Faculty of Economics in Sarajevo are not so stressed during public appearances.

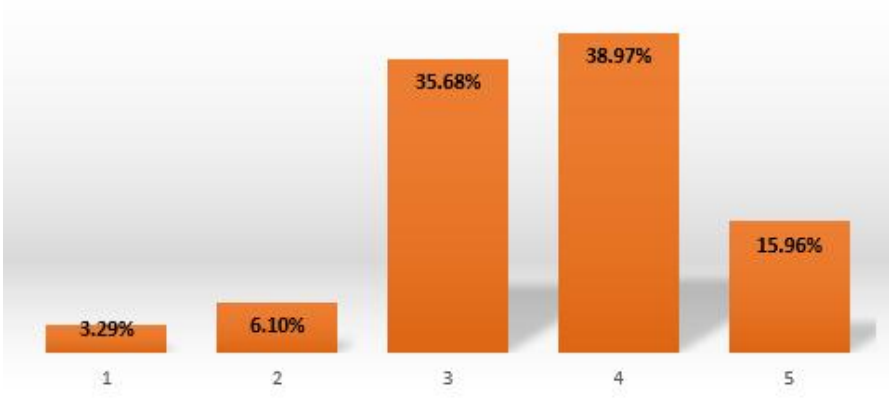
Graphic 5 Public appearances



Source: Created by the author

When asked about sleep deprivation, only 3.29% of respondents said they had no experience with it. 6.10% believe that lack of sleep did not produce any stress or anxiety, and on the other hand, as many as 38.97% of students believe that lack of sleep moderately stressed them during their studies. Below are all the answers.

Graphic 6 Not enough sleep



Source: Created by the author

3.3. Logistic regression

We will start analyzing the data by logistic regression analysis in StataMP 13. The goal is to set up a model where the dependent variable will be dichotomous, that is, the dependent variable is the probability factor of one or the other case of the dichotomous variable. Students evaluated whether they felt they were prone to stress, which would represent a dependent variable in the logistic regression analysis model. We will try to determine the likelihood that students of the Faculty of Economics will be prone to stress in relation to many demographic characteristics, and then we will investigate what are the key factors that are the source of stress for the students of the Faculty of Economics, University of Sarajevo, and whether certain factors affect positively, negatively or have no effect on student stress.

The independent variables in the model are gender, student stress level during study, age, dummy variable for students who worked during study, and attendance. When selecting variables for the logistic model, different models or different combinations of explanatory variables were tested. Many models could not be evaluated because the iterative process did not converge. The final logistic regression model takes the form:

The estimated model:

logit (stress tendency) = -23.82 - 3.02female + 5.46stress level - 0.08age + 5.32employment during study - 0.02attendance

The model was evaluated in 7 iterations. The P value is 0.000 which is less than 0.05 and we conclude that the model is statistically significantly better than the "empty" model (model without predictor, only with constant).

The independent variables age and presence are statistically insignificant in the model (p values of the above variables greater than 0.15) and we do not interpret their estimated coefficients.

R - square = 0.9345 - Analogous to the linear regression model, the so-called pseudo R^2 is determined as one measure of model validity. In this model it is extremely high and stands at 0.9345.

93.45% of the variability of the dependent variable *Stress tendency during study* was explained by the variability of the included independent variables in the model.

Table 14 Coefficients, standard errors, and p values of independent variables

Studentpronetostress	**Coefficient; (st. error)**	**P value**
Female	-3,018074 (1.729843)	0,081
Stresslevel	5,463597 (1.689787)	0,001
Age	-0,081124 (0.4357131)	0,852
Employmentduring	5,324056 (2.427702)	0,028
Attendance	-0,0220682 (0.040825)	0,589
_cons	-23,8281 (12.21408)	0,051

Source: Authors' calculations

Variable gender

Female students are less likely to be stressed than male students, with other unchanged characteristics. The effect is statistically significant at the level.10% because p = 0.081. However, this result does not confirm the theoretical basis that women are more prone to stress.

Variable stress level

With the increase of stress levels by one, with the other unchanged characteristics, the logarithm of the odds ratio of the likelihood of stress preference will increase by 5.46. The effect is statistically significant at the 1% level because the p value is 0.001. The higher the level of stress during school, students are rated, the more likely they are to be prone to stress, so this kind of result makes sense.

Variable employment during studies

Students who were employed during their studies compared to non-employed students, with other unchanged characteristics, are more likely to be prone to

stress. The effect was statistically significant at the 5% level is p = 0.028. On a theoretical basis, the occupation the respondent is engaged in represents the greatest source of stress, and overrides the impact of all other potential stressors that a student may have during their studies. We can conclude that the results are consistent with the theoretical basis.

4. Conclusion

With this research, based on the results of previous research, we have identified which sources of stress most commonly occur in the lives of students of the Faculty of Economics.

What we need to consider when studying stress is which sources of stress are motivational and useful, and which sources of stress are detrimental, since a moderate amount of stress helps and sometimes can even improve our results.

The results of this research showed that students of the Faculty of Economics in Sarajevo were very upset by their lack of sleep, poor nutrition, insufficient time for recreational activities and last-minute learning during their education so far. All of these are possible reasons why as many as 55% of sample students find themselves prone to stress. Interestingly, the fear of public speaking, which is considered one of the biggest fears, does not place a great burden on the students of the Faculty of Economics. Research confirmed that students who were employed during their studies compared to non-employed students, with other unchanged characteristics, are more likely to be prone to stress.

It is important to note at the end that stress actually results from the interaction between stressors and the perception and response of individuals to these stressors. So, if we feel that a situation is not stressful and we can find a solution to get out of it, such situations will not lead to an increase in stress levels. Our ability to cope effectively with stressful situations and events can affect our resilience and perception of stress exposure.

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DETERMINANTS OF SUCCESS OF STUDYING AT THE SCHOOL OF ECONOMICS AND BUSINESS, UNIVERSITY OF SARAJEVO

Ajla Šušić

Abstrakt

Academic education has been recognized by more young people as a logical step in the path of professional career development. During this educational process, commitment and work of each individual result in some success. The purpose of this survey is to examine the influence of some socioeconomic and demographic variables on students' success during the study. Achievement during the education is usually followed by an average grade which is primarly the assessment of student's knowledge and secondly the assessment of student's continuous work and effort. The data analysis will be done on primary data basis, collected by interviewing students of the School of Economics and Business at the University of Sarajevo. The survey was distributed online and collected data for 210 students, of which 63 were male and 147 were female students. Students' success is defined as the average grade in the previous study and is a dependent variable in our model. The independent variables in the model are: the percentage of student's attendance at lectures and tutorials, physical activity, years of study, department, the way of learning, level of education, level of parents' education, way of financing the study, the place of stay during the studies, the high school grade and the entity where the students came from. Since the goal of the research is to examine the dependence between variables and that one dependent variable and a set of independent variables have been identified, the method of dependence or multiple regression analysis has been used for the analysis. In this paper we tried to find out how regularly attendance, study methods, department, gender, years of study, level of parents' education, way of financing the study, and other factors selected on the basis of theory affect the success of the studies. In particular, for this research, in addition to theoretical expectations, the values of the parameters are also interpreted from the point of view of the everyday situation. The results of the survey confirmed some of the hypothesis. We have obtained a model where the estimated values are the actual picture of the population, because the model is the best efficient impartial estimator. More precisely, our model proves that variables such as attendance, department, method of study, physical activity, level of parents' education, way of financing the study, the place of stay during study, way of learning scheduling affect the average grade during study. A variable such as gender was not significant in estimated model, however, using a non-parametric test, we have shown that there is a significant difference in the average grade between female and male students.

Keywords: *socioeconomic and demographic factors, regression analysis, summary statistics*

1. INTRODUCTION

Academic education is recognized by a growing number of young people as a logical step on the path to developing a professional career. During this educational process, the knowledge, commitment and work of each individual results in some success. Success during education, whether through primary and secondary school or college, is most often followed by an average grade, which is first and foremost an assessment of the student's knowledge and then an assessment of his or her continuous work and effort.

Many studies have made conclusions about the influence, to a greater or lesser extent, of motivation, certain personalities, modes of studying, and socioeconomic environment on success during the educational process. Also, depending on their maturity, personalities, coping styles, social support and life circumstances, students adapt differently to the new ways of life conditions during their studies, which can have a significant impact on the success of their studies.

A large number of authors in their works emphasize the importance of students' attendance at lectures and their active role in them. Whether attendance influences student success during their studies will be determined after analyzing the data collected through a survey of undergraduate students at the Faculty of Economics, University of Sarajevo. Except of the presence, other factors, mentioned above, will be included in the analysis, which are discussed in more detail below.

1.1. The subject and purpose of the research work

The aim of the research paper is to identify the key factors that determine a student's performance during their studies. For the purposes of the research work, the data, previously collected on the basis of a survey questionnaire, were analyzed. Student achievement is defined as the average grade in the course of the study so far and is a dependent variable, while the factors listed in the theoretical section will represent independent variables. The aim is therefore to check whether there is a statistically significant influence of age, years of study, physical activity, mode of study and learning schedule, regular student attendance at lectures and exercises, socioeconomic environment, parent / guardian educational attainment, on the student's average grade during study. All the conclusions that will be made refer to the students of the Faculty of Economics, University of Sarajevo.

2. OVERVIEW OF PREVIOUS RESEARCH

There is a number of research papers that wrote about how factors affect student performance, and in particular we highlight the work that was the model for writing this research paper, which is: "An Analysis of the Impact of Socio-Economic and Demographic Characteristics on Student Academic Success," by Milun, Antić and Dumičić, published in 2017 in Proceedings of the School of Economics and Business in Sarajevo. Below is a theoretical overview of selected factors.

Gender - A survey of socio-demographic determinants of school achievement by Kalajdžić et al. (2015) confirmed that student gender can be a couse of differences in school achievement. The classic explanations for such results at the most part is that men were not interested in attending lectures and exercises at the collage, and that they did not fulfill their collage obligations on time. Also, research results show that women are more interested in lectures and exercises.

Age - Richardson (1995) included 38 adults and 60 younger students in the same study. He concluded that adult students achieved significantly better results in understanding what they were learning, but that they were less successful in reproducing the content learned.[15]

High school grade point average - Based on case studies at the University of Winnipeg conducted by Cyrenne and Chan (2010) with high school students from Manitoba High School, the likelihood of student achievement was assessed based on their characteristics as well as their high school grades. There are a number of conclusions that emerge from this study, but the most important one is that the average grade of students in high school is a significant factor in their average grade point at the University.

Student Attendance - Based on a study conducted at Polk Community College in Florida, it has been found that absenteeism is poorly correlated with exam performance, while nonviolent absenteeism significantly influences final grades is Nelson (1973) .

Physical Activity - Physical exercise requires various renunciations of life, such as leisure, which today is largely devoted to technology (Berčić and Đonlić,

[15] Milun, T., Antić, A., J., Dumičić, K. (2017). Analiza utjecaja socio-ekonomskih i demografskih karakteristika na akademski uspjeh studenta. Sarajevo Bussines and Economics Review 35/2017. Sarajevo: Ekonomski fakultet u Sarajevu, str. 86-104.

2009). 94% of students consider physical activity very important, however 56% of students do not take the time to perform physical activity (Vračan et al., 2009).

Work experience - In their research, Dundes and Marx (2007) state that student work from 10am to 7pm per week results in more intensive learning and a better average grade point, as they develop discipline and value the value of education.
Parental education level - Children of more educated parents achieve better results in school (Bowey, 1995; Rečić, 2003). Research particularly emphasizes the importance of mothers education, since it is more often that father is not involved in the child's daily school activities (Markuš, 2005).

Place of residence during study - Few studies examining the difference in adjustment between students living in and outside the dorm find better social adjustment and stronger institutional attachment for students in the dorm compared to students living outside the dorm. (Baker, 2004).

Socioeconomic status - Research in England shows that parents with greater financial resources and social connections can provide their children with educational options such as relocation to higher education and private schooling, while children whose parents do not have the resources listed are not given the opportunity (Reay, 2004).

3. EMPIRICAL RESEARCH

In order to achieve the goal of the research, a questionnaire was created for students at the of the School of Economics and Business in Sarajevo. The questionnaire was compiled according to theoretical bases and previous research and includes data on gender, age, mode of study, college and non-university activities, level of parental education, method of financing studies and other costs. The study involved 210 students, of whom 63 were male and 147 were female, ranging in age from 18 to 38 years.

Since the survey questionnaire was distributed online, the analysis was conducted on the basis of a deliberate sample, more precisely it is a suitable sample (the units we have available). We are aware that the sample is not random and that the results should be taken with reserve. However, the sample is relatively large and is estimated to have similar characteristics to the population. In the continuation of this chapter, each variable will be described in detail and the results of the research presented.

3.1. Description of the variables

Table 1 presents descriptive statistics of the quantitative variables from the sample. We can see information on the type of variable, average, standard deviation, minimum and maximum values of the variables.

Table 15 Descriptive statistics

Variable	The type of variable	Obs	Average value	Standard deviation	Minimum	Maximum
Age	Quantitative	210	21,6	2,22	18	38
Attendance	Quantitative	210	0,72	0,22	0,15	1
Physical Activity	Quantitative	210	5,65	6,9	0	40
The average grade in high school	Quantitative	210	4,51	0,46	2	5
Mathematics (entrance exam)	Quantitative	154	14,15	4,24	6	20
Mother tongue (entrance exam)	Quantitative	189	14,59	2,58	7	20
Average grade in college	Quantitative	210	7,4	0,78	6	9,35
Broj mjeseci radnog angažmana	Quantitative	210	1,39	3,28	0	12
Labor intensity	Quantitative	210	0,12	0,27	0	1

Source: Authors' calculations

The average value of the Age variable is 21,6 with a standard deviation of 2,22, ranging from 18 to 38 years.

Variable Attendance is the student's subjective rating of how often he / she attends lectures / exercises during his studies is expressed as a percentage. The lowest attendance percentage is 15, while the highest is 100.

The Physical Activity variable represents the number of hours allocated to physical activity at the weekly level. The maximum number of hours students spend for physical activity is 40 hours per week, and the minimum number of hours is 0, ie individual students do not allocate time for physical activity. The average number of hours allocated to physical activity is 5,65 with a standard deviation of 6,9.

The average value of the variable The average grade in high school is 4,51 with a standard deviation of 0,46. The lowest average grade a student has achieved in high school is 2, while the highest average grade is 5.

The entrance exam in Mathematics at the School of Economics and Business in Sarajevo was not done by students who chose DL(Distance Learning) and VPS way of study. Ultimately, out of 210 students who completed the survey, 154 of them did the Mathematics entrance exam, which earned at least 6 credits and a maximum of 20. The average Mathematics entrance exam score was 14,15 with a standard deviation of 4,24.

The entrance exam in the Mother tongue at the School of Economics and Business in Sarajevo was not done by students who choose to study DL and students who study in English. Ultimately, out of 210 students who completed the survey, 189 of them did the Mother language entrance exam, with at least 7 points earned and a maximum of 20. The average number of points in the Mother language entrance exam is 14,59 with a standard deviation of 2,58.

The lowest average student has achieved is 6, while the highest is 9,35. Other descriptive statistics data are presented in Table 1.

Variable The number of months of work engagement represents the average number of months during one year that students spent working. Some students work year-round, while some students do not.

The variable Labor intensity is obtained when we divide the number of months (in which the student was employed) by 12. The descriptive statistics are shown in Table 1.

3.2. Multiple linear regression model

The analysis was performed on the basis of the primary data in StataMP 13. The goal is to set up a model, where the dependent variable is the average grade during the studies, and the remaining variables are independent variables. Since the aim of the study is to examine the dependence between the variables and to identify one dependent variable and a set of independent variables, the dependency method, ie multiple regression analysis (OLS method), was used for the analysis. The values are shown in the following table.

Table 16 Multiple linear regression model

Success	Coefficient	Standard Error	t-value	p-value
Attendance	1,643*	0,127	12,910	0,000
Physical Activity	0,006*	0,003	2,030	0,044
Second year	-0,118*	0,057	-2,070	0,040
Third year	0,022	0,053	0,410	0,679
Economics	-0,089	0,052	-1,690	0,093
High school business	0,244	0,158	1,540	0,124
Regular self-financing students	-0,107*	0,042	-2,560	0,011
DL	0,025	0,201	0,120	0,901
Monthly learning	-0,598*	0,064	-9,290	0,000
Weekly learning	-0,834*	0,078	-10,750	0,000
Elementary school (father)	0,228*	0,095	2,410	0,017
High school (father)	0,101*	0,041	2,450	0,015
Elementary school (mother)	-0,443*	0,068	-6,520	0,000
High school (mother)	-0,321*	0,050	-6,450	0,000
With parents	-0,167*	0,070	-2,370	0,019
Rent an apartment	-0,038	0,096	-0,400	0,691
Other (place of residence)	-0,148	0,115	-1,280	0,201
Labor intensity	-0,108	0,099	-1,090	0,278
Mathematics ((dummy)	0,316*	0,157	2,010	0,045
Mother tongue (dummy)	-0,200	0,126	-1,590	0,113
The average grade in high school	0,012	0,043	0,280	0,780
Constant	7,048	0,287	24,590	0,000

*statistically significant at 0,05
Source: Authors' calculations

β_1 = 1,643 - If the student attendance rate increases by one percentage point, the student's average grade is expected to increase by 1,643, if all other factors remain unchanged (ceteris paribus). The effect is statistically significant at the 1% level

β_2 = 0,006 - If the number of hours students take for physical activity increases by one, the average student grade is expected to increase by 0,006, ceteris paribus, on average. The effect is statistically significant at the 5% level.

β_3 = -0,118 - Students who are in the second year of study are expected to have, on average, a lower average of grades during the course of study by 0,118, ceteris paribus, compared to students who are in the first year of study. The effect is statistically significant at the 5% level.

β_7 = -0.107 - Regular self-financing students are expected to have, on average, a lower grade point average during study by 0,107, ceteris paribus. The effect is statistically significant at the 1% level. When it comes to the way of study, because of the possibility of transition from the status of full-time self-financing to the status of full-time student and invested funds, it would be logical for regular self-financing students to have a better average grade during their studies, to work harder, to learn better and to achieve better results. However, the results obtained are not consistent with the above. Based on the rankings by average grade point in high school and the entrance exam scores, students with more credits receive full-time student status, which means that "better" students are full-time students. This may be one of the reasons why the average for self-financing students is worse. In addition, there may be a greater number of self-funded and DL students who are simultaneously working and studying, which may have a negative effect on their average grade.

Table 17 Distribution of students by type of study, average grade from high school, entrance examination and by whether students worked or not during their studies

Student status	Total students	Working students		Non-working students		Entrance exam		Number of students	The average grade in high school
		Number of students	Average	Number of students	Average	Number of students	Average		
Regular	107	12	7,56	95	7,66	89	7,79	107	4,62
Regular self-financing	87	11	1,11	76	7,07	59	7,18	87	4,37
DL	16	16	7,47	0	-	-	-	16	4,6

Source: Authors' calculations

From Table 3 we can observe that the students who work during their studies, the worst average is the regular self-funded students. In addition, we may note that the average is also higher for full-time students who have passed the entrance examination than for self-funded students who have also taken the entrance exam. When it comes to the average grade in high school, we can see that the highest average is for full-time students and the lowest for self-funded students.

β_9 = -0,598 - Students who are scheduled to study for a month before the exam is expected to have a lower average grade point of 0,598, ceteris paribus, when compared to students who schedule their classes continuously. The effect is statistically significant at the 1% level.

β_{10} = -0,834 - Students who study 7 days before the exam are expected to have a lower average grade point average of 0,834, ceteris paribus, than students who study continuously. The effect is statistically significant at the 1% level.

β_{11} = 0,228 - Students whose parents / guardians (when it comes to fathers) are expected to have completed elementary school compared to students whose parents / guardians have a university degree, will have an average grade point average of 0.228 during their studies. ceteris paribus. The effect is statistically significant at the 5% level.

β_{12} = 0,101 - Students whose parents / guardians (when it comes to fathers) are expected to have a university degree compared to students whose parents / guardians have a university degree, will have an average grade point average while studying for 0,101, ceteris paribus. The effect is statistically significant at the 1% level.

β_{13} = -0,443 - Students whose parents / guardians (when it comes to mothers) are expected to have completed elementary school compared to students whose parents / guardians have a university degree, will have, on average, a lower grade point average of 0,443 , ceteris paribus. The effect is statistically significant at the 1% level.

β_{14} = -0,321 - Students whose parents / guardians (when it comes to mothers) are expected to have a university degree compared to students whose parents / guardians have a university degree, have, on average, a lower grade point average during their studies for 0,321, ceteris paribus. The effect is statistically significant at the 1% level.

β_{15} = -0,167 - Students living with their parents are expected to have, on average, a lower average grade point average of 0,167, ceteris paribus, than students living in a dormitory. The effect is statistically significant at the 5% level

β_{19} = 0,316 - Students who have passed the Mathematics entrance exam are expected to have, on average, a higher average grade point of 0,316, ceteris paribus, than students who have not passed the entrance exam. The effect is statistically significant at the 5% level.

90.92% of the variability of the dependent variable The average grade during the study was explained by the variability of the included independent variables in the model.

3.3. Regression diagnostics

In order to determine the statistical and economic effect of the variables involved on the dependent variable, it is necessary to carry out diagnostic tests, which include: verification of functional form, residual normality, homoscedasticity, and multicollinearity of the independent variables.

Success = 7,05 + 1,64Attendance + 0,006Physical Activity – 0,12Second year + 0,02Third year – 0,09Economics + 0,24High school business - 0,11Regular self-financing students + 0,02DL - 0,6Monthly learning - 0,83Weekly learning + 0,23Elementary school (father) + 0,1High school (father) – 0,44Elementary school (mother) – 0,32High school (mother) – 0,17With parents - 0,04Rent an apartment – 0,15Other (place of residence) - 0,11Labor intensity + 0,32Mathematics – 0,2Mother tongue + 0,01The average grade in high school

The estimated model:

For the above model, we tested the hypothesis about the correctness of the functional form. The obtained p value according to Ramsey test is greater than 0,05 (p = 0,0556) which means that we cannot reject the null hypothesis of correct functional form. We conclude that the estimates are unbiased and that we can interpret the coefficients obtained.

The following is a test of the residual normality assumption. According to the Skewness / Kurtosis test, we obtained a value of p = 0.0049 <0.05, and therefore reject the null hypothesis that residuals follow a normal distribution. We conclude that residuals do not follow normal distribution. Since residues do not follow the normal distribution, this will affect significance, variance, t statistics, but the estimates are still unbiased (we believe coefficients are only less effective), so we can continue to do other diagnostic tests.

The following is a test of the assumption of homoscedasticity. The white test, a formal homoskedasticity test, is not sensitive to residual normality, which is why we decide to use it. According to White's test, the p value is greater than 0,05 (p

= 0,0963), and therefore we cannot reject the null hypothesis that the variance of a random member is constant, or that homoskedasticity is fulfilled.

To examine multicollinearity, we first tested the correlation matrix between independent variables. The Table 4 shows that there is a correlation, but it is not a concern, since the values of the correlation coefficients are less than 0.8, except for the correlation between the variables mother tongue (dummy) and the way DL is studied.

We then did a formal VIF (Variance Inflation Factor) test, which confirmed that we did not have a problem with multicollinearity because the value of VIF = 3.9 <5.

Table 18 Correlation matrix

	Prisustvo	Fizička aktivnost	Druga godina	Treća godina	Ekonomija	VPŠ	RS	DL	Mjesečno učenje	Sedmično učenje	OŠ otac	SS otac	OŠ majka	SS majka	Kod roditelja	Najam stana	Ostalo (boravak)	Intenzitet rada	Matematika	Maternji jezik	Ocjena SS
Prisustvo	1,00																				
Fizička aktivnost	0,06	1,00																			
Druga godina	-0,17	0,03	1,00																		
Treća godina	0,26	-0,06	-0,72	1,00																	
Ekonomija	-0,12	-0,14	-0,15	0,05	1,00																
VPŠ	-0,32	0,20	0,22	-0,23	-0,22	1,00															
RS	-0,26	-0,01	0,17	-0,27	-0,09	0,18	1,00														
DL	0,03	0,36	0,02	0,00	-0,07	-0,02	-0,24	1,00													
Mjesečno učenje	0,35	0,15	0,02	-0,04	-0,20	0,05	-0,08	0,11	1,00												
Sedmično učenje	-0,62	-0,19	0,10	-0,12	0,20	0,08	0,23	-0,10	-0,76	1,00											
OŠ otac	0,05	-0,07	-0,03	0,00	0,04	-0,05	-0,08	-0,06	-0,12	0,12	1,00										
SS otac	-0,11	-0,05	-0,12	0,06	0,08	0,03	-0,07	-0,08	0,12	-0,10	-0,28	1,00									
OŠ majka	-0,28	-0,12	-0,02	-0,08	0,05	-0,04	0,21	-0,01	-0,10	0,20	0,18	-0,02	1,00								
SS majka	-0,29	0,02	0,08	-0,08	0,09	0,10	0,02	-0,05	-0,05	0,31	-0,08	0,09	-0,42	1,00							
Kod roditelja	-0,07	0,01	0,05	-0,12	0,03	0,15	-0,01	0,04	-0,06	0,11	-0,02	0,02	0,02	0,02	1,00						
Najam stana	-0,01	-0,15	-0,05	0,06	0,04	-0,14	0,07	-0,08	0,09	-0,05	-0,06	0,10	0,05	-0,07	-0,59	1,00					
Ostalo (boravak)	-0,08	0,11	0,04	-0,02	-0,08	0,02	0,09	0,13	0,05	0,01	0,08	-0,05	-0,01	0,09	-0,42	-0,06	1,00				
Intenzitet rada	-0,05	0,29	-0,07	0,06	-0,05	0,11	-0,14	0,73	0,02	0,02	0,00	0,00	-0,03	-0,05	0,02	-0,08	0,10	1,00			
Matematika	0,28	-0,28	-0,17	0,18	0,23	-0,85	-0,06	-0,44	-0,06	-0,06	0,07	-0,02	0,03	-0,08	-0,14	0,17	-0,11	-0,44	1,00		
Maternji jezik	0,09	-0,28	-0,04	0,03	0,01	0,05	0,22	-0,86	-0,07	0,04	0,07	0,17	-0,05	0,06	-0,07	0,09	-0,10	-0,61	0,34	1,00	
Ocjena SS	0,37	-0,01	-0,10	0,12	-0,11	-0,26	-0,27	0,05	0,15	-0,25	-0,02	0,04	-0,06	-0,18	-0,02	0,06	-0,12	-0,08	0,21	0,05	1,00

Source: Authors' calculations

3.4. Statistical tests

After obtaining the appropriate functional form, the following is an overview of the performed parametric and non-parametric tests. When analyzing the factors, the results showed that gender was a non-significant factor, but the theory suggested otherwise. However, if there is a difference in the average grades of female and male students, we will find out below with the help of a non-parametric test.

Based on the p-value of the non-parametric test for two independent samples of the Mann-Whitney test ($p<0.05$), we reject the null hypothesis of no difference. We conclude that there is a significant difference in average over the course of studies between female students and male students. The following table shows

the average values of the average grades of female and male students and we can conclude that female students have a higher average during their studies.

Table 19 Average student grades

Gender	Average
Female	7,53
Male	7,10

Source: Authors' calculations

4. CONCLUSION

Many authors have been quoted throughout the paper who have focused their research on this topic, and are similar and contradictory. The results of many studies show that intelligence, motivation, certain personality characteristics, socio-economic environment, social and emotional intelligence, etc.

In this paper we tried to find out how regular attendance at teaching, mode of study, department, gender, year of study, parental education, mode of study funding and other factors selected on the basis of theory influence the success during the study. In particular, for this research, in addition to theoretical expectations, parameter values were also interpreted from the perspective of the everyday situation.

The research results confirmed some hypothesis. We obtained a model where the estimated values are the real picture of the population, because the model is the best efficient unbiased estimator. More specifically, our model proves that variables such as attendance, mode of study, physical activity, parental education, place of residence during study, mode of learning schedule, influence average grade during study. Variables such as gender were not significant for our model, however, using a non-parametric test, we proved that there was a significant difference in the average grade of male and female students.

There is a need to investigate further what influences success during study, and other factors not covered in this study, which certainly have some influence on success (intelligence, motivation, personality traits, number of siblings, whether are students satisfied with their choice of studies and the like).

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