



ČASOPIS ZA POSLOVNU EKONOMIJU, PREDUZETNIŠTVO I FINANSIJE
MAGAZINE FOR BUSINESS ECONOMICS, ENTREPRENEURSHIP AND FINANCE

POSLOVNA EKONOMIJA - BUSINESS ECONOMICS

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FAKULTET POSLOVNE EKONOMIJE

Novi Sad, Sremska Kamenica
Vojvode Putnika 87

Tel: 021/489-3647, 021/489-3611
www.educons.edu.rs

ISSN 1820-6859



9 771820 685005

God. XV - br. 1/2021

POSLOVNA EKONOMIJA - BUSINESS ECONOMICS

UDK 3:33 + 336

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ISSN 1820 - 6859

**POSLOVNA
EKONOMIJA**

God. XV - br. 1/2021

Business economics

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POSLOVNA EKONOMIJA BUSINESS ECONOMICS

Godina XV, broj 1

vol. XXVIII

Sremska Kamenica, 2021.

POSLOVNA EKONOMIJA
BUSINESS ECONOMICS

ČASOPIS ZA POSLOVNU EKONOMIJU, PREDUZETNIŠTVO I FINANSIJE
MAGAZINE FOR BUSINESS ECONOMICS, ENTREPRENEURSHIP AND FINANCE

Godina XV, broj 1
vol. XXVIII

Časopis izlazi dva puta godišnje

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PANONIJPRES, Novi Sad

Tiraž: 300 primeraka

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UDK: 339.138:669.2

POSLOVNA EKONOMIJA
BUSINESS ECONOMICS

Godina XV

Broj 1

Str 1 – 19

doi: 10.5937/poseko19-31611

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COVID-19 PANDEMIC AND COMMODITY MARKET INSTABILITY: EVIDENCE FROM THE LONDON METAL STOCK EXCHANGE

ABSTRACT: The paper provides insight into the behavior of non-ferrous metal prices on the London Stock Exchange during the health crisis caused by the spread of coronavirus in the period January 22 – October 30, 2020. The aim of this paper is to determine a statistically significant relationship between the number of confirmed cases of COVID-19 and non-ferrous metals prices copper, aluminum, zinc, nickel, lead and tin. A simple linear regression was used in the paper to obtain results. Following the report of the World Health Organisation and the introduction of restrictive measures to prevent the spread of coronavirus, the results of the regression support the fall in non-ferrous metals prices on the London Stock Exchange. Also, the results suggest that the measures taken to address the negative economic consequences of the health crisis are associated with rising non-ferrous metal prices. As the economic impact of the pandemic is still uncertain, through an indicative review of current impacts, the conducted research also provides an opportunity to predict the price of non-ferrous metals in the

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future. The assumption that price stability in the metal market depends on the degree of control of pandemic COVID-19 provide a basis for future research.

Key words: COVID-19 pandemic, commodity market, non-ferrous metals price, simple linear regression

INTRODUCTION

In 2020 the world entered the largest global deadly pandemic crisis after more than a century (the last one was the Spanish flu pandemic in 1918). The outbreak of coronavirus (COVID-19) was in China at the end of 2019 and in less than three months it spread to Asia, Europe, North America and Latin America. As a result of the huge amount of infections by May 2020, more than 6 million infected and more than 300,000 dead people were recorded worldwide (Johns Hopkins University & # 38; Medicine, 2020).

The World Health Organisation (WHO) officially declared the outbreak of COVID-19 a pandemic on March 11, 2020. Accordingly, the Organisation for Economic Co-operation and Development (OECD) reports that the economic turmoil is greater than the global financial crisis during 2007-2009 (BBC BusinessNews, March 23, 2020). Also, the International Monetary Fund (IMF) describes it as “the coronavirus pandemic has fueled an economic downturn that the world has not experienced since the Great Depression” (Reuters Business News, April 9, 2020). To stop the spread of the virus, governments in the countries with confirmed COVID-19 cases require people to stay at home and maintain social distance on a daily basis (Wilder-Smith & # 38; Freedman, 2020). In addition, countries issue executive orders to severely restrict travel and personal commercial activities, which leads to the complexity of the global supply chains, and rapid decline of the global economy (McKibbin & # 38; Fernando, 2020).

In fact, the COVID-19 pandemic has introduced great uncertainty into supply chains and especially into the global metal industry market. The security of the metal supply chain is undermined by the fact that China produces about 20 percent of intermediary products that are a critical element of the global metal and metal products sector (UNCTAD, 2020). All of these government actions have created more uncertainty, worsened confidence, increased risk aversion, and deepened turmoil in global stock markets. Namely, the direct effects of social distancing measures can have a negative impact on stock market returns and thus, economic activity. On the other hand, the indirect effect of the government actions is channeled by reducing the intensity of the COVID-19 outbreak. Based on recent literature

reporting that stock exchanges around the world responded to the COVID-19 pandemic with strong negative returns (Baker et al., 2020; Iyke 2020a; Iyke 2020b; Reilly 2020; Saadat et al. 2020), the assumption is that if strict government actions reduce the intensity of local outbreaks, then they weaken the negative market reaction to the growth of confirmed COVID-19 cases.

Since stock markets have become extremely unstable and unpredictable and the economic impact of the pandemic is still uncertain, the aim of the paper is to determine a statistically significant relationship between the COVID-19 pandemic based on data for the period January 22 – October 30, 2020 (the number of confirmed cases of COVID-19) and the price of non-ferrous metals on the London Metal Exchange.

Having in mind that the disease has caused extreme uncertainty that could bring the world to the brink of a terrible crisis, the authors want to answer the question of how much and to what extent the number of confirmed cases affects the price of copper, aluminum, zinc, nickel, lead and tin on the London Stock Exchange. In this way, the paper joins earlier research and expands the literature on the stock market response to the COVID-19 pandemic.

The rest of the paper is organized as follows. After the introductory part, in section 2, we pay attention to the earlier research in this area, which was used as a basis for presenting theoretical arguments in this paper. Section 3 explains the data and methodology applied. Sections 4 and 5 present a review and discussion of empirical results, while section 6 concludes the research

LITERATURE REVIEW

Unlike earlier global pandemics, COVID-19 stands out as the most influential, and this time it is really different. By analyzing previous research, we come to the conclusion that the COVID-19 epidemic has different impacts on people, societies, and economic expectations, which was proven in the study by Baldwin and Veder di Mauro, 2020. Namely, the results of their study provide evidence that COVID-19 has a negative impact on various economic aspects.

According to Ji et al. (2020), one of the most visible effects of the COVID-19 pandemic and declining economic activity, was a drastic drop in prices of many commodities on the stock market, as was the case with the price of a barrel of crude oil, which fell from more than 65 USD in early 2020 to less than 20 USD in mid-April, lower than during the 2007-2009 economic crisis.

Salisu et al., (2020a) in their study using the panel VAR model, have proved that oil and stock markets can have greater initial and prolonged effects of intrinsic and cross shocks during the pandemic compared to the period before.

The fall in oil prices was also confirmed in the research of Albulescu (2020), Gkillas et al. (2020), Torun et al. (2020) and Wu et al. (2020). This is consistent with the findings of Baker et al. (2020), stating that COVID-19 has caused more dramatic and frequent daily stock market changes than any other disease before.

Also, the World Bank (2020) announced a significant drop in the price of other commodities, such as agricultural products (cereals, edible oils, beverages, fertilizers), metals (copper, aluminum, and even precious metals other than gold), during the spread of the COVID-19 disease. Several studies have confirmed that gold still possesses characteristics of the protection and safe haven during this pandemic (Conlon and McGee, 2020; Corbet et al., 2020; Yarovaya et al., 2020).

In addition to the reaction of commodity markets, the Goodell study (2020) suggests significant reactions in financial markets due to the spread of coronavirus. Namely, earlier health crises did not lead to social distancing, which could be one of the main reasons for panic and fear, and therefore, negative reactions of stock exchanges.

RESEARCH METHODOLOGY

Data

The Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU) collected the data on the number of confirmed cases of COVID-19 for the period from January 22 to October 30, 2020. Also, official prices for non-ferrous metals copper, aluminum, zinc, nickel, lead, and tin expressed in US\$ per tonne were taken on a daily basis from the site the London Metal Exchange (LME). From the data collected in the observed period, the data for weekends and public holidays were omitted because the data were not published on the LME. For this reason, the data for COVID-19 available for each day were adjusted to follow the available data on the price of metals on the stock exchange. After corrections, the sample size for the observed period is 197.

The events in relation to which the price behavior of non-ferrous metals (Copper, Aluminum, Zinc, Nickel, Lead, and Tin) is observed, influenced the division of the research period. The sample is divided into three parts, i.e. three periods. The key points for dividing the research period

are the spread of coronavirus and the health and economic measures taken to mitigate the consequences of the COVID-19 pandemic. The events are defined based on the reports by the Health World Organisation (WHO), the International Monetary Fund, and the European Central Bank (ECB). The size of the first part of the sample is 43 and refers to the research period from January 22 to March 22, 2020. The second part of the sample is size 118 and refers to the research period from March 23 to September 10, 2020. The third part of the sample is size 36 and includes the research period from September 11 to October 30, 2020. The following were selected for reference events:

January 22 to March 22, 2020 - The WHO Mission in China issued a statement saying that there is evidence of human-to-human virus transmission in Wuhan and a declaration of a state of emergency in the city. At the same time, the spread of coronavirus is leading to the closure of economies worldwide. Mass quarantines around the world and the approaching date of the proclamation of the pandemic on March 11, 2020 caused a decline in industrial production and in demand for metals. As a result of the measures taken around the world, there was a sharp drop in non-ferrous metals prices on the stock exchange.

March 23 to September 10, 2020 – A gradual increase in prices of non-ferrous metals copper, aluminum, zinc, nickel, lead, and tin began on March 23 when a large number of finance ministers and bankers from central banks of 20 largest world economies made decisions to support the economies hit by the COVID-19 pandemic. That led to the lifting of the blockade and the resumption of economic activities in China, first in Wuhan, after 75 days of quarantine (April 7), where most of the industry is situated. All these developments led to an increase in demand for steel ores. Further growth in metal prices was strongly supported by the reopening of the Chinese market as well as the government's stimulus packages taken to boost China's economy in February and March. In addition, as a result of quarantine and isolation of the rest of the world, there were restrictions in supply, and thus, the price of metals on the stock exchange increased. After the period, most countries started the unlocking process in May, so that the expected improvement in demand for metals was reflected in the rise of stock market prices in the coming period. The rise in the stock market prices was also supported by the increase in China's demand for metals due to investments in infrastructure (construction of bridges, roads, utilities, broadband services, and railways across the country). The end result of the activities undertaken in China is a further increase in the prices of metals on the stock exchange.

September 11 to October 30, 2020 – A new coronavirus attack (third wave) with a record number of infected people in European countries. Also,

the number of newly infected people worldwide is growing, new, stricter progressive restrictions are being introduced due to the spread of the coronavirus epidemic, and some countries are prolonging the state of emergency (Romania until mid-November). All these events lead to the stagnation of the price of metals on the London Stock Exchange.

Research model

This model consists of seven variables: one independent, which refers to the number of confirmed COVID-19 cases, and six dependent, which refer to the prices of copper, aluminum, zinc, nickel, lead and tin. The relationship between the number of confirmed COVID-19 cases and the price of metals is checked by regression analysis, as one of the most used statistical methods, and which is widely applied both in economics and in other social sciences.

Regression analysis is used in the paper due to the assumption that there is a linear relationship between the independent variable (X) and the dependent variable (Y). Regression analysis is a set of statistical methods that show if there are connections between the observed phenomena and what they are like in shape (rectilinear-linear, curvilinear-nonlinear, and spatial) and direction (positive or negative). The applied statistical method enables the prediction and evaluation of a single phenomenon based on the value of another phenomenon (or group of phenomena). When we observe two phenomena between which there is a linear (rectilinear) connection, it is a simple linear regression. The simple linear regression model can be expressed by regression equation (1), as:

$$Y_i = \beta_0 + \beta_1 \cdot X_i + \varepsilon_i \quad i = 1, 2, \dots, N \quad (1)$$

where are:

Y_i - i -th value of the dependent (or response) variable

X_i - i -th value of the independent (or predictor or explanatory) variable

β_0 - regression parameter (the y-intercept of the regression line)

β_1 - regression parameter (slope)

ε_i - the error of the estimate

N - the size of the base set

Based on equation (1), the simple linear regression model for this study can be presented as follows:

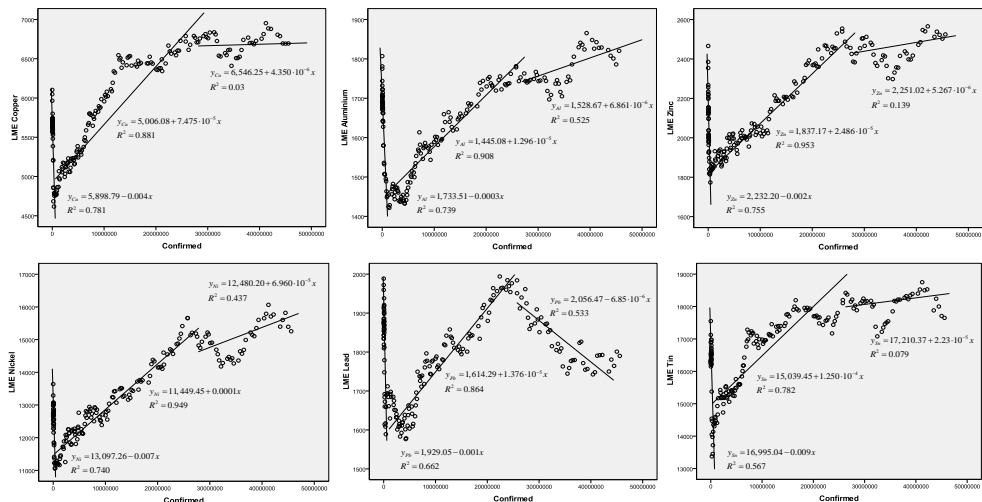
$$\text{Price}_i = \beta_0 + \beta_1 \cdot \text{Confirmed}_i + \varepsilon_i \quad i = 1, 2, \dots, N \quad (2)$$

In the research model described by equation (2), the variable Price_i represents the price for copper, aluminum, zinc, nickel, lead, and tin, taken daily from LME, and the variable Confirmed_i represents the number of confirmed COVID-19 cases on a daily basis. The regression parameters β_0 and β_1 are unknown constants, the random error ϵ_i represents the stochastic term, and N is the size of the base set (N=6).

EMPIRICAL RESULTS

SPSS 17.0 software package was used for statistical data processing. Before starting the regression analysis, the fulfillment of the presumptions necessary for its implementation was checked. Figure 1 shows Scatter diagrams for all dependent variables Y_i , $i=1,\dots,6$ (copper, aluminium, zinc, nickel, lead, and tin), for all three observed research periods.

Figure 1. Scatter diagrams



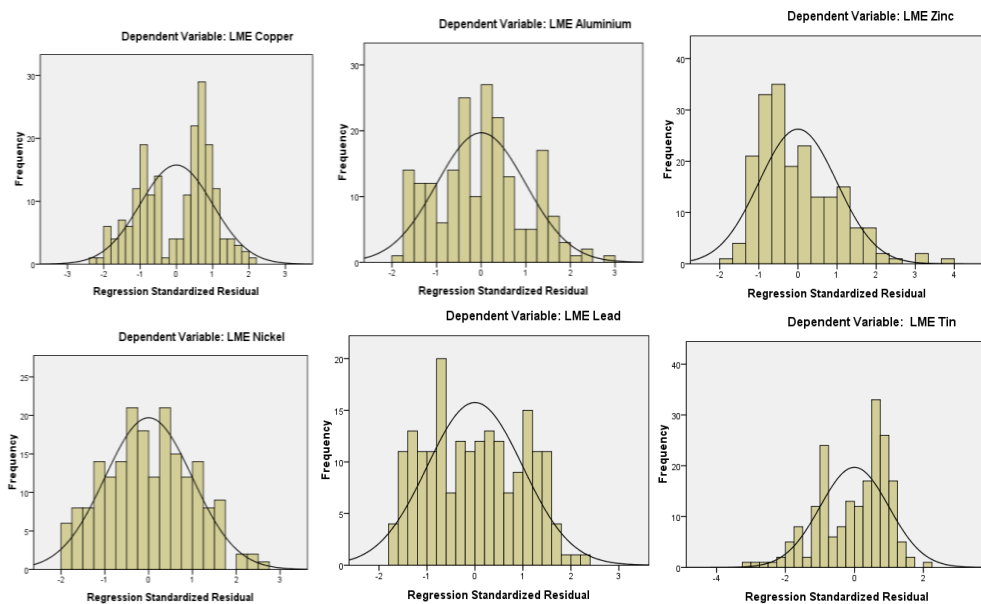
Source: Results of analysis conducted by the authors in SPSS 17.0 software package

Based on the diagram, the fulfillment of some basic assumptions for Simple linear regression is estimated. It can be noticed that the connections between the variables more or less look linear, which satisfies the precondition of linearity because the points on the diagram are grouped around straight lines.

In the first research period, with the increase of the value of the independent variable (X), the values of all dependent variables (Y_i) significantly decrease. In the second observed period, with the increase of

the value of the independent variable (X), the values of all dependent variables (Y_i) increase significantly. In the third observed period, it is noticeable that with the increase of the value of the independent variable (X), the values of the dependent variables (Y_i) increase, except for “Lead” where a decrease in the value is recorded. Also, Scatter diagrams suggest that the assumption of homoscedasticity (homogeneity of variance) was met for all the three observed research periods because the variability of variables Y_i remains relatively constant when switching from one value of variable X to another, i.e. the width of the group of points is approximately constant from one end of the diagram to the other. As it was determined that the ratio of variables is approximately linear for all three observed research periods and that the results are evenly distributed, it can be concluded that the initial data are suitable for regression analysis. Assumption of residual normality (normal residual distributions) is checked based on the constructed histogram of standard residuals (Figure 2) and diagram Normal Probability Plot (P-P) of Regression Standardised Residual (Figure 3).

Figure 2. Histogram of standard residues

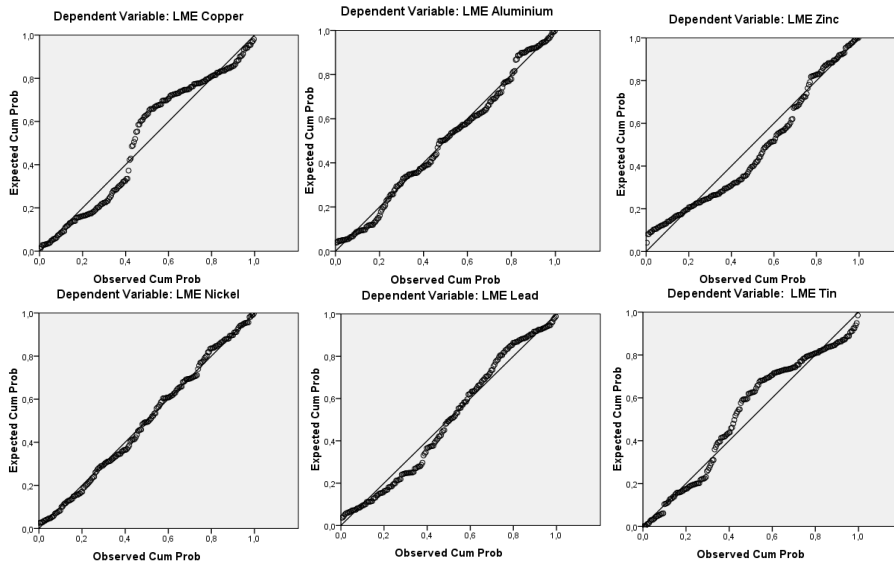


Source: Results of analysis conducted by the authors in SPSS 17.0 software package

Based on the histogram for dependent variable “Zinc”, it can be concluded that there are no large deviations of the residuals from the normal distribution except for two residuals that are significantly distant from the others (approximately +3 or +4 standard deviations from the average values).

These are atypical points because their values are significantly different from the others. A similar conclusion can be drawn for other dependent variables. For the dependent variable “Tin” there is one atypical point that is approximately -3 standard deviations distant from the average value. For dependent variables copper, aluminum, nickel, and lead, no atypical points were identified.

Figure 3. Normal P-P Plot of Regression Standardized Residual



Source: Results of analysis conducted by the authors in SPSS 17.0 software package

Another visual method to check the assumption of residual normality is provided by the graphs shown in Figure 3. It can be seen in the graphs that for all dependent variables, the points lie on an approximately straight diagonal line from the lower left to the upper right corner of the diagram. This leads to the conclusion that there are no large deviations from normality, i.e. the assumption of residual normality has been confirmed. Based on a visual review of the data presented on the Scatter diagrams of standardized residues, it can be seen that most of the residuals are accumulated in the center around point 0. Also, it is noticeable that there are some atypical points, i.e. that there are cases with standardized residual greater than +3.3 and smaller than -3.3. As this is a large sample, and only a few atypical residuals have been found, they can be tolerated. After checking, it can be concluded that initial assumptions of linear regression are not violated, although there are some atypical points with a standardized residual greater than +3.3 and less than -3.3 (Barberis, 1998).

Analysis of the data in Table 1 shows that there is a linear relationship between the independent variable confirmed and the dependent variables copper, aluminum, zinc, nickel, lead, and tin, for all three observed research periods. The strength of the relationship is determined by case analysis of the regression model. The values of the Pearson correlation coefficient (r), shown in columns $|R|$ in Table 1, represent the strength of the relationship between the independent variable (X) and dependent variables (Y_i).

Table 1. Model Summary

Model	$ R $	R Square	Types/ Strength	$ R $	R Square	Types/ Strength	$ R $	R Square	Types/ Strength
Dependent variables	First period			Second period			Third period		
Copper	0.884	0.781	- strong	0.939	0.881	+ very strong	0.173	0.030	+ very weak
Aluminium	0.859	0.739	- strong	0.953	0.908	+ very strong	0.725	0.525	+ strong
Zinc	0.869	0.755	- strong	0.976	0.953	+ very strong	0.373	0.139	+ weak
Nickel	0.860	0.740	- strong	0.974	0.949	+ very strong	0.661	0.437	+ moderate
Lead	0.814	0.662	- strong	0.929	0.864	+ very strong	0.730	0.533	- strong
Tin	0.753	0.567	- strong	0.884	0.782	+ strong	0.281	0.079	+ very weak

Source: Results of analysis conducted by the authors in SPSS 17.0 software package

The obtained values of the coefficient r , for the first observed period of the research, indicate that there is a strong, negative, linear relationship between the number of confirmed cases of COVID-19 (confirmed) and the price for copper, aluminium, zinc, nickel, lead and tin, because they amount to 0.884, 0.859, 0.869, 0.860, 0.814 and 0.753, respectively. For the second observed period of research, it's noticed that there is a very strong, positive, linear relationship between confirmed and prices for copper, aluminum, zinc, nickel, and lead, because the values for r are 0.939, 0.953, 0.976, 0.974, and 0.929, respectively. Also, there is a strong, positive, linear relationship between confirmed and the price for tin ($r=0.884$). For the third observed period, there is a strong, negative, linear relationship between confirmed and the price for lead ($r=0.730$); strong, positive, linear relationship between confirmed and the price for aluminium ($r=0.725$); moderate, positive, linear relationship between confirmed and the price for nickel ($r=0.661$); weak, positive, linear relationship between confirmed and the price for zinc ($r=0.373$); and very weak, positive, linear relationship between confirmed and the price for copper ($r=0.173$) and tin ($r=0.281$).

The relative measure of the representativeness of the regression line is determined by the coefficient of determination (R-square or R²). R-squared is a goodness-of-fit measure for linear regression models. It's a statistical measurement that examines how differences in one variable can be explained by the difference in a second variable, when predicting the outcome of a given event, ie estimating how strong the linear relationship is between two variables. In other words, R-squared indicates the percentage of the variance in the dependent variable that the independent variables explain collectively. The strength of the relationship is measured on a 0-1 scale. For R²=1, all empirical values y_i are on the regression line, i.e. the explained variability is equal to the total. Then the variations of the variable Y are completely explained by the regression line, and there is no influence of other factors. As the value of R-squared approaches zero, the share of explained variability decreases, and the regression line represents the data less and less.

Table 1 shows the values of the explained variability of the dependent variables copper, aluminum, zinc, nickel, lead and tin by the independent variable confirmed, for all three observed periods. For example, for the second observed period, the value R²=0.881 means that the independent variable confirmed explains 88.1% of the variability of the dependent variable copper, etc.

After testing the null hypothesis, that R² in population equals 0, it was observed that the model achieves statistical significance ($p=0.000 \leq 0.001$), for all dependent variables, for all three observed research periods. This means that the results of the overall regression are significant and that the regression model is good because the independent variable confirmed statistically well predicts dependent variables copper, aluminum, zinc, nickel, lead, and tin. The actual relationship between the dependent and independent variable can be approximated by a regression model (linear regression equations). The equations for predicting prices for copper, aluminum, zinc, nickel, lead, and tin, based on the number of confirmed cases of coronavirus infection (confirmed), for all three time periods, are shown in Figure 1.

For example, a simple linear regression equation for copper, for the second observed period, according to equation (1), can be written as follows $y_{Cu}=5,006.08+7.475 \cdot 10^{-5}x$. The simple linear regression model, according to equation (2), can be written as:

$$\text{PriceCu}=5,006.08+7.475 \cdot 10^{-5} \text{Confirmed} \quad (3)$$

The interpretation of the linear equation is as follows. The parameter $\beta_0=5,006.08$ represents the estimated price for copper at the beginning of the second observed period (March 23, 2020). The parameter $\beta_1=7.475 \cdot 10^{-5}$ is

the coefficient of the line direction slope (coefficient), and represents the expected change in the value of the dependent variable for the unit change in the value of the independent variable. In this particular case, 7.475·10⁻⁵ represents the expected increase in copper price along with an increase in the number of infected by unit value, i.e. US\$ 74.75 per tonne per 1.000.000 confirmed cases of coronavirus infection. Conclusions for other dependent variables can be drawn analogously.

DISCUSSION, IMPLICATIONS AND LIMITATIONS

By monitoring the behavior of non-ferrous metals prices in the London Stock Exchange and the reactions to the events related to the spread of COVID-19 disease from January 22 to October 30, 2020, it can be noticed that some significant changes took place. The results of the conducted research confirm that there is a linear relationship between the independent variable confirmed and the dependent variables copper, aluminum, zinc, nickel, lead, and tin, for all three observed research periods.

When analyzing the results of the first research period, it must be borne in mind that the outbreak of coronavirus in Wuhan disrupted the Chinese economy and forced the Chinese authorities to take drastic measures to prevent the spread of the disease. The shutdown and reduced production volume together led to reduced demand for raw materials such as metals, with the end result of falling metal prices on the stock exchange, which is confirmed by the results of this study. Namely, for the first observed period, there is a strong, negative, linear relationship between the number of confirmed cases of COVID-19 and the price for copper, aluminium, zinc, nickel, lead and tin, because the Pearson correlation coefficient values are 0.884, 0.859, 0.869, 0.860, 0.814 and 0.753, respectively.

The values of the explained variability of the dependent variables copper, aluminum, zinc, nickel, lead, and tin by the independent variable confirmed are 78.1%, 73.9%, 75.5%, 74.0%, 66.2%, and 56.7%, respectively. In the context of economic globalization, the great spread of the pandemic forced most countries and regions to adopt strict control measures, which inevitably affected the normal operation of the globalized production and industrial systems and sharp drop in metal prices in February and March 2020. The results of the regression analysis documented the negative and significant impact of the coronavirus crisis on the stock market response, which was proven in studies. (Al-Awadhi et al., 2020; Ashraf, 2020; Laing, 2020; Ramelli and Wagner, 2020; Zhang et al., 2020; Yin, 2020).

For the second observed period, there is a very strong, positive, linear relationship between the number of confirmed cases of COVID-19 and

prices for copper, aluminum, zinc, nickel, and lead, because the Pearson correlation coefficient values are 0.939, 0.953, 0.976, 0.974, and 0.929, respectively. Also, there is a strong, positive, linear relationship between the number of confirmed cases of COVID-19 and the price for Tin ($r=0.884$).

The results obtained for the second research period have strong support in the reopening of the Chinese market as well as in government stimulus packages taken to boost the economies affected by the coronavirus and in the process of unlocking most countries in May 2020. In addition, China's rising demand for metals due to infrastructure investment and investors' hopes for recovery further argue that the values of the explained variability of the dependent variables copper, aluminum, zinc, nickel, lead, and tin by the independent variable confirmed are 88.1%, 90.8%, 95.3%, 94.9%, 86.4%, and 78.2%, respectively.

Unlike the previous research period, for the third observed period, a linear relationship between the independent variable confirmed (the number of confirmed cases of COVID-19) and the dependent variables were observed as follows: a strong, negative for lead ($r=0.730$); strong, positive, for aluminium ($r=0.725$); moderate, positive for nickel ($r=0.661$); weak, positive for zinc ($r=0.373$); and very weak, positive for copper ($r=0.173$) and tin ($r=0.281$). The values of the explained variability of the dependent variables copper, aluminum, zinc, nickel, lead, and tin by the independent variable confirmed are 3.0%, 52.5%, 13.9%, 43.7%, 53.3%, and 7.9%, respectively.

The obtained results are supported by the new coronavirus attack with a record number of infected in European countries, measures taken to prevent the spread of the disease, and repair of the negative economic consequences caused by the health crisis. An additional argument is that China accounts for about half of the world demand for copper, making its manufacturing sector a primary driver of prices despite the increase in the number of confirmed COVID-19 cases.

Based on the regression equation (1) for the third observed period, the expected price increase for copper, aluminium, zinc, nickel, and tin, with an increase in the number of coronavirus infections by 1,000,000, is the US\$ 6.55, US\$ 6.86, US\$ 5.27, US\$ 69.60, and the US\$ 22.30 per tonne, respectively.

Based on the regression equation (1) for the third observed period, the expected decline in lead prices, with an increase in the number of coronavirus infections by 1,000,000, is US\$ 6.85 per tonne.

Based on a simple linear regression model, equation (2), the predicted market price for copper, aluminum, zinc, nickel, lead, and tin, with an increase in the number of infections to 50,000,000, would be the US\$

6,763.75; US\$ 1,871.72; US\$ 2,514.37; US\$ 15,960.20; US\$ 1,713.97; and the US\$ 18,325.37 per tonne, respectively.

Implications and limitations

The conducted research has given clear theoretical implications on how information about the public health crisis is relevant for negative market reactions. Through the contribution to economic theory, scientific literature has been expanded, and the results of the study have confirmed the hypothesis that stock exchanges around the world reacted negatively to the COVID-19 pandemic in the first months of 2020. Accordingly, by considering the characteristics of the pandemic and the assumption that price stability in the metal market depends on the degree of COVID-19 control in the future, this can be the basis of some future research. This study had the ambition to provide knowledge and information relevant to the planning of measures, i.e. a response to the economic challenges posed by future pandemics as a contribution to the community. Planning measures in advance would reduce the uncertainty and panic that lead to price instability of non-ferrous metals in the stock market.

The purpose of the study was to explore the relationship between the number of confirmed cases of COVID-19 and the price of non-ferrous metals copper, aluminum, zinc, nickel, lead, and tin on the London Stock Exchange. As no research is free from its own limitations, so does this one have its own that may have influenced the results. The first limitation of the study is the inclusion of only one independent variable in the model – the number of confirmed cases of COVID-19. In addition to this independent variable, future studies could also include information related to COVID-19, such as fake news, media coverage, and death toll. Another limitation of the study is the applied methodology. Namely, the adopted statistical approach in the paper was a simple linear regression. Therefore, in order to examine the impact of COVID-19 on the trend of metal prices in the market, future studies could apply other approaches, such as multiple linear regression, VAR methodology, Panel data analysis. Given the limitations, this research is an attempt by the authors to expand scientific literature and indicate that there is room for future studies. Further research in the area stems from the authors' expectations that these limitations will not have a negative impact on the applicability or usefulness of the study results.

CONCLUSION AND RECOMMENDATIONS

The new coronavirus has created notable shock waves in both commodity and financial markets. On the other hand, the drop in metal prices clearly shows short-term and long-term severe consequences in the industry which, unfortunately, cannot be avoided. All this leads to a global decline in economic activity. In this context, the aim of the paper was to determine the impact of COVID-19, i.e. number of confirmed cases on non-ferrous metal prices on the London Stock Exchange. By monitoring the behavior of non-ferrous metal prices from January 22 to October 30, 2020, it is clear that there were significant changes as a response to the events related to the spread of coronavirus.

Based on the research results, metal prices experienced a decline after the report of the World Health Organisation and introduction of restrictive measures, and they increased after hints or adoption of measures to cover the negative economic consequences of the health crisis. Also, the results suggest that prices of metal and, therefore, markets are less responsive to the health crisis after the introduction of measures and increased certainty which they operate with. The investigation of the link between the pandemic and volatility of non-ferrous metal prices is key to understanding market policy measures and the global economy. For this reason, in order to mitigate future shocks and prevent a large drop in prices in the non-ferrous metal market, it is necessary to have answers in advance to the economic challenges caused by the public health crisis. Therefore, the authors hope that the conducted research sheds a new light on how the information on the number of confirmed cases and public health crisis is relevant for negative market reactions and suggest the need to establish a strong coordinated global response.

REZIME

PANDEMIJA COVID-19 I NESTABILNOST ROBNIH TRŽIŠTA: DOKAZI SA LONDONSKE BERZE METALA

Rad pruža uvid u ponašanje cena obojenih metala na Londonskoj berzi tokom zdravstvene krize izazvane širenjem koronavirusa u period 22 januar - 30 oktobar 2020. Cilj rada je da se utvrdi statistički značajna relacija između broja potvrđenih slučajeva COVID-19 i cena obojenih metala bakra, aluminijuma, cinka, nikla, olova i kalaja. Da bi se došlo do rezultata, u radu je korišćena prosta linearna regresija. Nakon izveštaja Svetske zdravstvene organizacije i uvođenja restriktivnih mera za sprečavanje širenja koronavirusa, rezultati regresije podržavaju pad cena obojenih metala na

Londonskoj berzi. Takođe, rezultati sugerišu da su preduzete mere za saniranje negativnih ekonomskih posledica zdravstvene krize povezane sa rastom cena obojenih metala. Kako je ekonomski uticaj ove pandemije još uvek neizvestan, kroz indikativni pregled uticaja, sprovedeno istraživanje daje i mogućnost predviđanja cene obojenih metala u narednom vremenu. Pretpostavka da stabilnost cena na tržištu metala zavisi od stepena kontrole pandemije COVID-19, može biti osnova za neka buduća istraživanja.

Ključne reči: pandemija COVID-19, robna tržišta, cena obojenih metala, jednostavna linearna regresija

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Ovaj rad je primljen **04.01.2021.**, a na sastanku redakcije časopisa prihvaćen za štampu **28.06.2020.** godine.

UDK: 352.9.07

Originalni naučni rad

POSLOVNA EKONOMIJA
BUSINESS ECONOMICS

Godina XV

Broj 1

Str 20 – 31

doi: 10.5937/poseko19-32709

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CITIZEN PARTICIPATION IN THE DEVELOPMENT OF PUBLIC POLICIES IN VESZPRÉM COUNTY AND THE BALATON REGION⁴

ABSTRACT: The participation of citizens in decision-making process at the local level is a prerequisite for the existence of a democratic society. The importance of local producers' involvement in this process is significant because they contribute to the development of the local community and improve its living conditions. The authors deal with the questions of how the local producers in the Veszprém County and the Balaton Region are familiar with these rights, to what extent they use them and what the obstacles for citizen participation in public life at the local level are. In order to

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⁴ *This research was realised in the framework of the EFOP-3.6.2-16-2017-00017 – Sustainable, intelligent and inclusive regional and city models project which is subsidised by the European Union and Hungary and co-financed by the European Social Fund.*

examine the whole problem, the survey also includes the representatives of local authorities. This research consists of three parts. After introduction and legislative review, in the second part the results of the survey are presented. The combination of theoretical analysis and empirical research that is characteristic for social sciences is used. Finally, in the last part, recommendations for the improvement of the participation of local citizens in creating the public policies at the local level in the mentioned region are presented.

Key words: citizen participation, decision-making process at local government level, local producers/communities, creation of public policies – local level, Veszprém County/Balaton Region

INTRODUCTION

It is widely accepted that citizens can exercise their right to participate in the policy-making at the local level in two ways: directly and indirectly. In this context, a direct involvement means citizen participation through traditional methods – referendum, citizen initiatives and public meetings, as well as through innovative methods – citizen panels, focus groups or electronic debates. Indirect citizen participation refers to taking part through their freely chosen representatives. *Citizen participation in shaping and implementing public policies at state and local level is regarded as a critical ingredient of participatory democracy* (Golubović, 2013, p. 81).

In the article we deal with the direct participation of citizens in the decision-making process. That implies various citizens' activities in the decision-making process of public importance that thus directly affect the quality of their lives (within a narrow or wider community they live) (Brnjas & Radovanović Dumonjić, 2013, p. 10). It is considered that participatory democracy is a necessary complement to representative democracy.

Namely, it has been observed that the shortcomings of representative democracy and the rule of political parties have led to the worrying apathy of the citizen, as well as the growing complexity of the governance process in contemporary societies (Vukelic, ed., 2006, p. 1). In that regard participatory democracy could have positive impact which involves interest in and willingness for cooperation of all relevant subjects, i.e. local government bodies, on the one hand, and citizens on the other (Brnjas & Radovanović Dumonjić, 2013, p. 12).

In short, participatory democracy contributes to the effectiveness of

representative democracy in several ways:

- enables constant participation of citizens in the political process, not only during the elections
- enables citizens to defend their legitimate interests in the process of adopting public policies
- contributes to the open and transparent work of the executive and representative authorities and makes that work closer to the citizens
- contributes to the quality of adopted public policies and their effective implementation. Some empirical researches indicate that citizens are more willing to participate in the implementation of the particular public policy if they participated in the process of its adoption - even when their proposals are not fully accepted.
- provides easier control over the implementation of adopted public policies (Golubović & Velat, 2009, pp. 8-9)⁵.

Concerning citizen participation itself, it is possible to make distinction between the following forms, from lower to higher level of participation: (a) informing - informing citizens about the work, plans and intentions of a representative of local authorities and providing other information of public importance; (b) consultation - citizen participation in determining local community priorities through citizen panels, public debates, consultations via electronic media and the Internet; (c) suggestions - petitions, individual proposals, complaints, forms of public criticism, protests, peaceful gatherings, demonstrations, etc., (d) participation in decision-making - referendum, citizen initiative⁶.

In respect of legal framework relating to citizen participation in Hungary, it is necessary to mention that the Treaty of Lisbon prescribes that the European Union is based on the principles of political democracy (power sharing, multi-party system) and representative democracy (citizen participation in policy-making). Accordingly, citizens' participation in the creation of public policies represents the constitutional value of the Union and binds its members. In Consolidated version of the Treaty on European Union⁷ it is prescribed as follows:

⁵ For the summary of advantages and disadvantages of citizen participation in decision-making process see: Dubravka Jurlina Alibegović, Sunčana Slijepčević, Attitudes towards Citizen Participation in the Local Decision-making Process: A Comparative Analysis, The Institute of Economics, Zagreb, 27 (2018), No. 1, p. 158.

⁶ See: Jelisaveta Vukelić, Citizen Participation at the Local Level of Government in Serbia Sociologija, Vol. LI (2009), N° 3, p. 298.

⁷ Consolidated version of the Treaty on European Union, *Official Journal of the European Union*, C 326/21.

TITLE II
PROVISIONS ON DEMOCRATIC PRINCIPLES

Article 10

1. The functioning of the Union shall be founded on representative democracy.

2. Citizens are directly represented at Union level in the European Parliament. Member States are represented in the European Council by their Heads of State or Government and in the Council by their governments, themselves democratically accountable either to their national Parliaments, or to their citizens.

3. Every citizen shall have the right to participate in the democratic life of the Union. Decisions shall be taken as openly and as closely as possible to the citizen⁸.

.....

In that regard it is important to point out Recommendation CM/Rec (2018)4 of the Committee of Ministers to member States on the participation of citizens in local public life (Adopted by the Committee of Ministers on 21 March 2018 at the 1311th meeting of the Ministers' Deputies) and the Congress of local and regional authorities – Council of Europe Resolution no. 326/11- Citizen participation at local and regional level in Europe.

Finally, citizen participation in legislative processes is a constitutional right in Hungary:

Article XXIII

7. Every person entitled to vote in elections of Members of Parliament shall have the right to participate in national referenda. *Every person entitled to vote in elections of local representatives and mayors shall have the right to participate in local referenda.*

Local Governments

Article 31

(1) In Hungary local governments shall function to manage local public affairs and exercise local public power.

(2) Local referendums may be held on any matter within the functions and powers of the local government, as provided for by an Act.

....

Based on the above, it could be concluded that the legal regulation concerning the participation of citizens in Hungary is the same as in other contemporary European societies⁹.

⁸ See art. 11, Consolidated version of the Treaty on European Union and art. 20 and 24, Consolidated version of the Treaty on the Functioning of the European Union, *Official Journal of the European Union*, C 115/57.

⁹ See more: Erika Steiner, Introduction to the Hungarian Local Government System, available

CITIZEN PARTICIPATION IN THE DEVELOPMENT OF PUBLIC POLICIES IN VESZPRÉM COUNTY AND THE BALATON REGION

Methods and Methodology

The complexity of the subject of the research required a combination of theoretical analysis and empirical research. When it comes to theoretical analysis, a descriptive legal research, targeted and comparative methods of research were used. Empirical research was based on indicative methods of sample: interview with the citizens/local producers in order to get the data which presents how familiar the citizens are with the normative framework for their participation in the process of creating public policies and to what extent they have participated in it. This part of the research included the preparation of a questionnaire on the barriers for greater citizen participation in the process of creating public policies. There were 75 local producers and 11 representatives of the local government of Veszprém county/Balaton region who filled in the surveys (including mayor and vice-mayor of Veszprém). The use of this combined methodology enabled the appropriate verification of the obtained data.

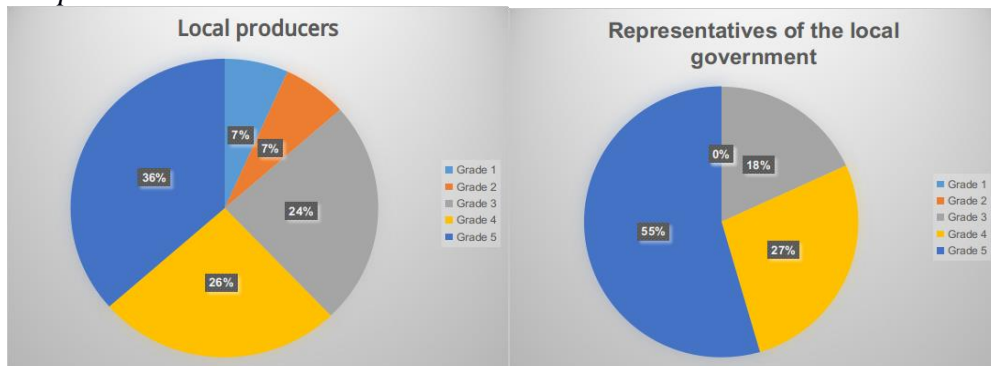
Survey – Results

Among the local producers who filled in the survey the most common occupations/professions were entrepreneurs and farmers, but there were also beekeepers, butchers, confectioners, technologists, teachers, medical workers, administration workers, hairdressers, retirees, artisans, managers, students, workers in rural tourism, engineers etc.

The following questions were evaluated by local producers and representatives of local authorities by grades from 1 to 5.

We examined if they knew that there was participation of citizens in public life at the local level, and that they had the right to manage the local community. Medium level of knowledge was demonstrated by local producers. However, 14% of the local producers gave the lowest grades (1 and 2) and 24% gave grade 3. That indicates the need for improvement. As expected, representatives of local authorities are familiar with these rights of citizens/local producers.

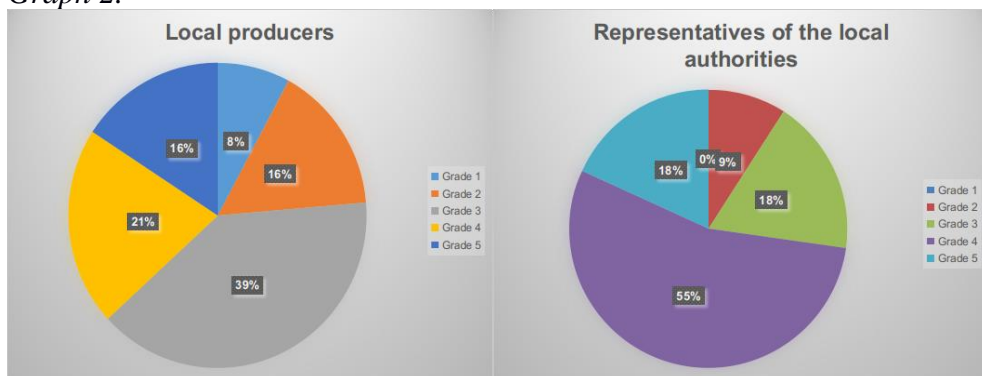
Graph 1.



Source: Authors

The next question asked if they were content with the quality of the relations between citizens and local authorities. There is a difference in answers here: 37% of local producers considered that the relationship is good (grades 4 and 5), comparing to 73% of government representatives. Local producers are much more dissatisfied with the quality of the relations between citizens and local authorities.

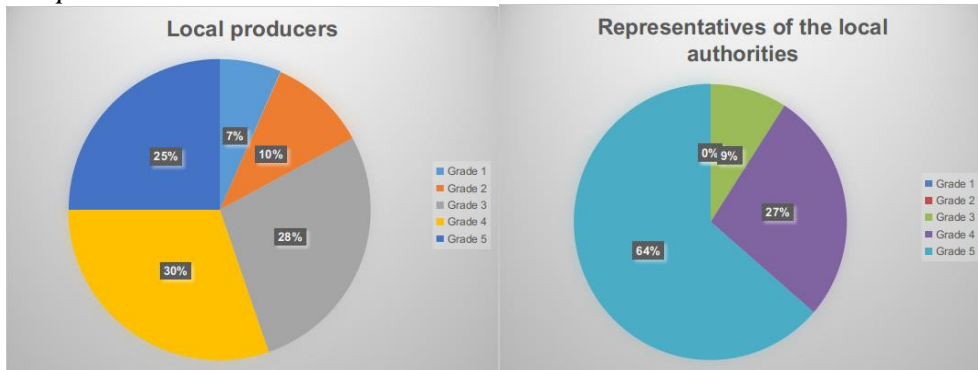
Graph 2.



Source: Authors

On the issue of them having any information about the work and plans of local authorities and the situation in the local community, 17% of local producers gave the lowest grade (1 and 2). This segment should also be improved. On the other side, over 90% of representatives of local authorities gave the best grade (4 and 5).

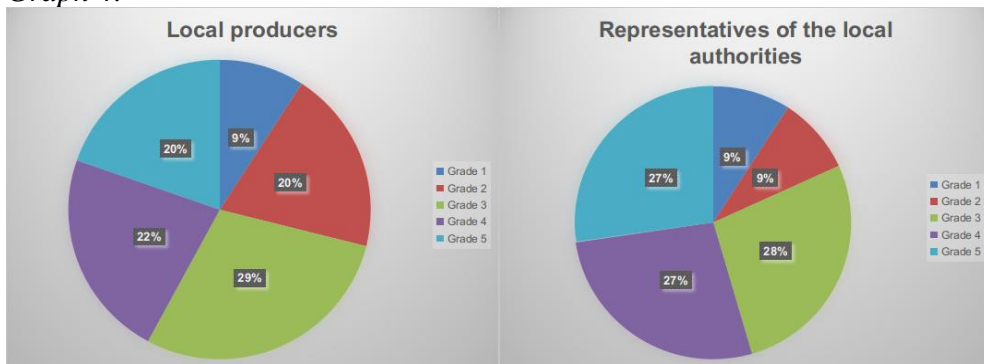
Graph 3.



Source: Authors

Very interesting information was obtained when we questioned if the local producers/representatives of local authorities thought that their suggestions, remarks and critics could influence decision-making at the local level. Nearly 30% of local producers do not think they have any impact (or think they have very little impact). If we have in mind that another 29% of local producers gave grade 3, we could conclude that this is one of the most serious problems when citizens' participation in decision-making is concerned because there is no mutual trust and faith necessary in this process. On the other hand, representatives of local authorities do not think that their suggestions, remarks and critics can influence decision-making on the local level as expected. Even 18% of local government representatives think they have little or no impact at all. We assume that this is due to the impact of politics at the national level.

Graph 4.

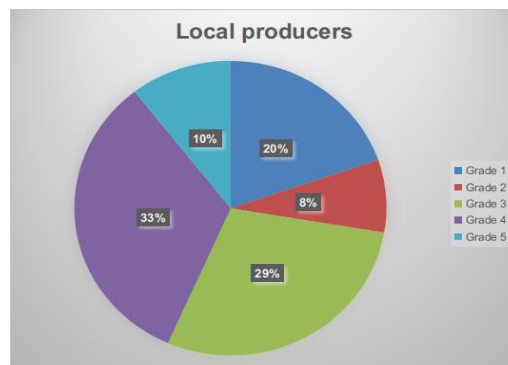


Source: Authors

According to the results of the research, local producers are generally not content with the taxation system that applies to their products and

services – 28% gave grades 1 and 2 (29% gave grade 3).

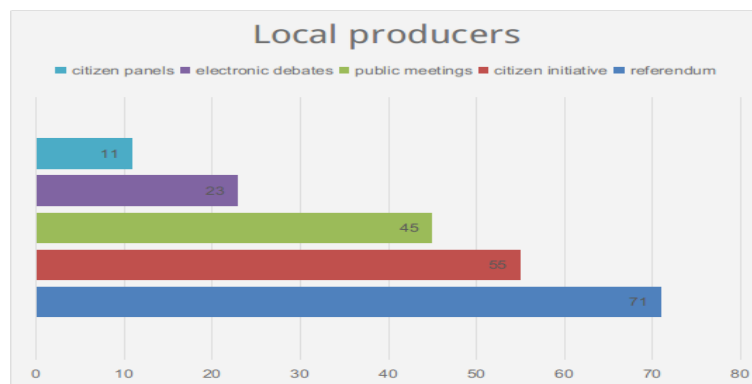
Graph 5.



Source: Authors

Almost all local producers are familiar with referendum, and in large numbers with citizen initiative and public meeting. They are the least familiar with citizens panels (14,6%) and electronic debates (30,6%). Therefore, all forms of citizen participation in decision-making process should be promoted, citizens should be informed and encouraged to use them.

Graph 6.



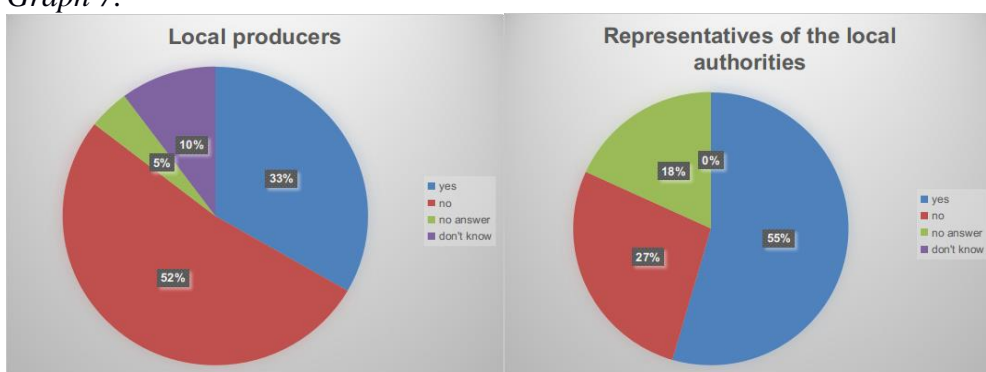
Source: Authors

Local producers and representatives of local authorities have very similar answers regarding the opinions concerning the obstacles for citizen participation in public life at the local level and about the most important obstacles for the improvement of citizen participation in public life at the local level. The most frequent answers were indifference, unconcern of the local citizens, lack of information, lack of time, laziness, non-transparency, and politics. Local producers added to this list by mentioning lack of money at the local level, corruption, the fact that decision makers at the local level

do not deal with the problems of the citizens and that the state-level policies have a significant impact on decision-makers at the local level.

Finally, the last two questions reflect significant difference between local producers and local government representatives. Namely, the question of how trustworthy they considered most people was answered as follows – 52% of local producers answered no, and 33% answered yes, in contrast to 27% of government representatives who answered no and 55% who answered yes. We could assume that it is due to the fact that local government representatives are not in the market in the way local producers are that they have such feelings and opinions.

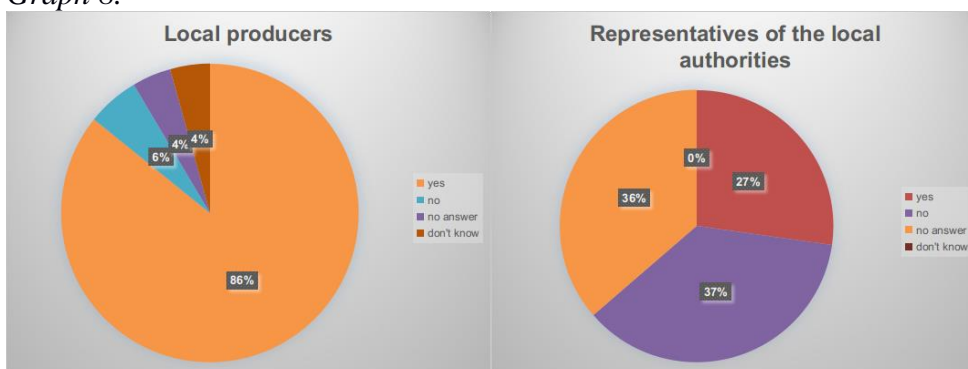
Graph 7.



Source: Authors

We believe that, for the same reason, answers to the last question were similar. Namely, we wanted to know if they thought that they needed to be cautious about working with people. The huge percentage (86%) of local producers' answers were affirmative, unlike 27% of local government representatives.

Graph 8.



Source: Authors

CONCLUSION AND RECOMMENDATIONS

Most of the conclusions are already presented in the part referring to the analysis of the survey. After a short review, recommendations for improving the position of local producers in the Veszprém County and the Balaton Region through citizen participation in the creation of public policies will be suggested.

Firstly, it is important to emphasize that legal and institutional frameworks in the mentioned region are typical of a modern democratic European society. The level of knowledge regarding participation of citizens in public life in the local community in the Veszprém County and the Balaton Region is medium. 38% of local producers gave grades 1-3, which indicates the need for improvement of this segment of citizen participation. Concerning the quality of the relations between citizens and local authorities, the results of the survey show that citizens are much more discontent. However, more worrying is the fact that 17% of the local producers do not have any information/have very poor information about the work and plans of local authorities and the situation in the local community. Likewise, we are concerned about the fact that almost 30% of citizens think they don't have influence on decision-making process (grade 1 and 2). Both local producers and representatives of local authorities in the Veszprém County and the Balaton Region pointed out the following problems: indifference, unconcern of the local citizens, lack of information, lack of time, laziness, lack of money at the local level, non-transparency, politics.

On the basis of the aforementioned, we consider that the following recommendations will contribute to greater and better participation of citizens in the creation of public policies. On one side, it is necessary to raise awareness of citizens that their participation is necessary and desirable. This could be achieved through the organization of workshops, trainings, seminars and other relevant educational and interactive activities. All kinds of local media are important in this process and the Internet and usage of social networks could be important source of information for this purpose, especially among younger population. Therewithal, it is necessary to raise awareness of the representatives of local authorities that citizen participation is necessary and desirable. The employees in local government should be well informed and educated about the importance of the local citizens' participation and give necessary support to citizens when exercising their rights. Both citizens and local government representatives should act jointly and with the same broader goal – the prosperity of the local community. Only in that way will the citizens' participation in the creation of public policies at the local level get its true meaning.

REZIME
UČEŠĆE GRAĐANA U KREIRANJU JAVNIH POLITIKA U
ŽUPANIJI VESPREM I BALATON REGIONU

Učešće građana u procesu donošenja odluka na lokalnom nivou je jedan od neophodnih uslova za postojanje demokratskog društva. Značaj uključivanja lokalnih proizvođača u ovaj proces je veoma bitan jer su oni ti koji doprinose razvoju lokalne zajednice i poboljšanju uslova za život i rad u njoj. Autori se u radu bave pitanjima koliko su lokalni proizvođači u županiji Vespem i Balaton regionu upoznati sa pravom da aktivno učestvuju u kreiranju javnih politika na lokalnom nivou, u kojoj meri koriste ova svoja prava i sa kojim se preprekama pri tom suočavaju. Kako bi se problem sagledao u celini, istraživanjem su obuhvaćeni kako lokalni proizvođači/građani, tako i predstavnici lokalnih vlasti. Sam rad se sastoji iz tri dela. Nakon uvoda i osvrta na pravnu regulativu, u drugom delu su prikazani rezultati sprovedene ankete/upitnika. Preporuke za unapređenje učešća građana u kreiranju javnih politika na lokalnom nivou, u pomenutom regionu, su iznete u poslednjem delu rada.

Ključne reči: učešće građana, participacija građana u donošenju odluka na lokalnom nivou, lokalni proizvođači/zajednice, kreiranje javnih politika na lokalnom nivou, županija Vespem/Balaton region

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Ovaj rad je primljen **10.06.2021.**, a na sastanku redakcije časopisa prihvaćen za štampu **28.06.2020.** godine.

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THE IMPACT of SARS - CoV-2 VIRUS ON CONSUMER PREFERENCES

ABSTRACT: The SARS-CoV-2 virus appeared in the Chinese city of Wuhan, drastically changing consumer preferences ever since. Globalization and facilitated means of sharing information have had a considerable impact on consumer preferences. These preferences are ranked differently as a result of the unknown future of unfolding crisis. Specific changes in the business environment have caused intensive employment of crisis management and other comparable approaches in the problem-solving process in companies, which ensued as a result of the pandemic. The main purpose of this paper is to explain how consumers change their opinion about the importance of different goods and how companies may utilize these changes towards their own business objectives. The paper also shows how goods are classified according to different types of preferences. The final aim of this analysis is to contribute to a general understanding of how companies could change their business practices to create innovative products and establish better communication channels with their customers and other businesses.

Keywords: SARS-CoV-2, crisis situation, consumer preferences, innovation

INTRODUCTION

The social problem that is the starting point in this presentation is the pronounced globalization of the world, the vast flow of information via the Internet and greater movement of people as a basis for the spread of SARS-

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CoV-2 virus, with subsequent changes in consumer preferences. The twentieth century is considered to be the period of emerging globalization, and nowadays it is stated that the process itself is completely finished. The development of information technologies has contributed to the further acceleration of this process due to the greater availability of information. With greater availability of information and greater connection of people via the Internet, there has been a faster exchange of data, goods, capital and the movement of people. However, with the appearance of the SARS-CoV-2 virus in the Chinese city of Wuhan and the rapid spread of information, there have been changes in the ranking of products and services, i.e. a sudden change in consumer preferences and in the use of products and services. New social circumstances worsen the situation in some economic activities, at the same time creating opportunities for a new way of doing business and for innovation that would respond to the crisis and expand market presence. In a large number of countries, borders have been closed, the movement of people has been restricted and the scale of many economic activities has been diminished or completely suspended, which has led to problems in the delivery of products. At the same time, the need for a large number of service activities has been reduced, due to an increase in the work-from-home model. All these new circumstances have led to a different ranking of products and services, i.e. a different evaluation of the contents of the consumer basket.

The subject of the paper is the impact of changes and information at the international and national level on the assessment of product value by consumers and the final effect this bears on the state of the economy. The research refers to the factors that affect the assessment of the value of products, the willingness of consumers to replace products or to give up the purchase of certain goods due to the existence of changes in income. The spread of the SARS-CoV-2 virus has changed the evaluation of goods and services by consumers. In addition to this factor, some of the key contributors to consumer perception are the media, institutions as well as individuals or groups that surround each consumer individually. Along with the external factors that have impact on consumer perception, their assessment is influenced by personal experience of the crisis situation, their previous experience, as well as personal motives for achieving some desired goal (such as striving to avoid virus transmission, helping people in their environment, etc.). As a consequence of changed consumer behavior, there is a change in market demand and negative impact on producers who produce goods for which consumers show less interest. The result is that producers must have the adequate skills and knowledge to apply crisis management and show a willingness to better adapt in the event of recurrence of similar crises. By considering the changes in consumer behavior in crisis situations, one can understand the extent of

changes, the influencing factors and steps that companies should take to reduce the negative effects.

GLOBALIZATION AND THE ORIGIN OF THE CRISIS

Globalization is a process that began in the twentieth century as an idea that would contribute to faster and easier networking of national economies, greater flow of information, greater exchange of opinions, knowledge, experience, innovation and thus greater productivity. In addition, there is a significant contribution to the flow of finances, but also to increased competition among producers. On the other hand, greater connectivity leads to faster dissemination of information in crisis situations, which can make major changes in the goods market to the point of shortages of certain products in retail outlets. The outbreak of the SARS-CoV-2 virus, first recorded in the Chinese city of Wuhan, is an example of major changes in the evaluation of the usefulness of products by consumers and the emergence of imbalances in the market of goods and services. Such large changes can leave long-term negative consequences on the economy that would further spread to other countries to a greater or lesser extent depending, on the degree of their interdependence. If we add to this the reality of increased spending on health care, it is clear why there is much concern for the further development of the present crisis.

Despite these facts, a global crisis is a phenomenon that has occasionally occurred during different periods in the past. Throughout history, a large number of scientists and experts from various fields have dealt with various crisis situations and the consequences they would leave after their withdrawal from certain areas. According to the German-American economist Ote (2006, p. 36), the world was already extremely connected on a global level in the past: "It was between 1870 and 1914 that the global economic system existed. In these years, there was such a movement of goods and capital that encompassed the entire world, and people moved with great freedom between individual continents ". In addition, he expands his views on globalization and crisis by claiming: "But crises have always been born in an age of euphoria and optimism. When people begin to believe that the business cycle has finally been overcome (such as infectious diseases such as malaria or plague) sooner or later the circumstances will disprove them" (Ote, 2006, p. 29). From these statements, it can be argued that owing to globalization, there was a probability for various crises to break out in the past. Therefore, we can safely discuss new problems after the disappearance of a crisis, which in this case manifests itself as a health crisis.

Crisis as a phenomenon can be interpreted as a change that interrupts the previous period of uninterrupted continuity and stability of the given cycle. It can have negative consequences for the whole society and the existing system. At the same time, it can create a condition for reaching new solutions and ideas that would tackle the negative effects, but at the same time there is a possibility that owing to them, the remaining positive elements from the previously built system will be annulled, thus creating new problems. Caslione and Kotler may be quoted as saying (Kotler, Caslione, 2009, p. 18): “Today’s world of increased interconnectedness and interdependence means more risk for every company. Critical factors that increase business risk opportunities include: technological advances and the information revolution, destructive technologies and innovations, the rise of others, hyper-competition, private hedge funds, the environment, and consumer empowerment“. However, in this paper, the goal is to show the change in consumer preferences, the factors that influenced the creation of these changes as well as the potential measures that companies should implement to reduce the negative effects on their own business activities.

THE OUTBREAK OF SARS-Cov-2

From the moment when the SARS-CoV-2 virus was registered for the first time in the Chinese city of Wuhan, researchers from various scientific fields have started researching the causes and consequences that the virus would leave after the epidemic. Natural and medical sciences contribute to determining the cause of the virus, treatment of patients, preventive measures to prevent its occurrence, prevention of further spread and the potential consequences it brings. In contrast, the social sciences try to answer the questions related to the behavior of people in the period before, during and after the epidemic, as well as trying to reorganize the patterns of human obligations, the functioning of the economy and the public sector. Nowadays, it can be fully confirmed that new issues and problems have been opened regarding the functioning of the system of state institutions and economic participants, as well as the emergence of a new approach to thinking in order to better adapt one's business to the crisis and its consequences. Taking into account that World Health Organization has recommended greater distance between people in order to reduce the spread of the virus, many participants in economic activities organized work from home for work positions that do not need to be performed from offices or on-site. The governments of many countries have decided to close the borders to prevent the movement of people, and as a result of emergency measures, there has been a delay in the delivery of certain goods. Also, shopping malls, catering facilities, hotels were

temporarily closed in some countries, and in the end, tourist arrangements were canceled. All the mentioned decisions of the competent institutions affected the reduction or complete suspension of earnings, with micro, small, medium enterprises and entrepreneurs being the most affected, which represent an important basis of economic activity in Serbia.

At the national level, in order to maintain economic activity throughout the crisis, assistance from the Government of the Republic of Serbia through the Program of economic measures is needed to reduce the negative effects caused by the SARS-CoV-2 virus pandemic and the Program of financial support to the SARS-CoV-2 crisis of the Development Fund of the Republic of Serbia is extremely important. In addition to the above measures of state institutions, businessmen were also offered credit lines by the European Bank for Reconstruction and Development (EBRD) and the European Investment Bank (EIB). European Bank for Reconstruction and Development credit lines would be placed through local branches of commercial banks. Alongside this great commitment of state institutions to help the economy as well as the additional efforts of foreign entities, consumer preferences changed during the pandemic and left visible consequences on various economic activities. Finally, we can say with certainty that at the global level, participants in the economic flows of different countries are more concerned with potential new crisis situations, but also with the possibilities for mitigating the consequences.

CHANGED CONSUMER BEHAVIOUR

With the appearance of the SARS-CoV-2 virus, the world media were dedicated to reporting on the situation in health care institutions, the lack of medical equipment, employees and patients who were in various stages of the disease. In addition, there was much information on ways of transmitting the virus, its presence in the general, regional and local population as well as ways to control it in the surrounding area (intensive disinfection of the area, increased hand hygiene, wearing protective masks). All of the aforementioned information significantly affects individuals through television, press, and Internet coverage. When the personal experiences of individuals who have encountered the virus are added to that, it resulted in a significant change in the preference for certain goods in the form of increased purchase of medicines and supplements, personal hygiene products and intensive purchase of space disinfectants.

The consumption of goods and use of services can be viewed from two angles of consumer perception. The first would refer to the increased consumption of certain goods due to the presence of the SARS-CoV-2 virus, while the second would refer to the change in the purchase of goods within the

same industry. In the first case, we are talking about the increased purchase of goods that serve as a preventive measure due to the presence of SARS-CoV-2 virus and the closure of borders: space disinfectants, personal hygiene products and certain food items. In the second case, we are talking about changes within the same area, such as a reduction in the utilization of natural cleaning products in comparison to classic chemical products. In both cases, consumers' purchasing decisions are influenced by personal income, information about various products and the general impression of the current situation resulting from the outbreak.

Owing to a varying level of information in the crisis situation, consumers act differently, and some are selectively exposed to information depending on the level of interest in the market, stories circulating in their environment and the recommendations of the authorities. Before making a decision to buy a certain product, the consumer assesses the crisis situation in which the company currently finds itself, collects information about the product using different media, thinks about the availability and properties of brands and considers various expert advice (doctors, pharmacists, chemists). Due to the reduced availability of products used by the consumer due to border closures and distribution setbacks, the consumer opts to purchase products that he/she has not used before and adapts some of them to new needs, which gives them a new purpose or a new use. However, after a long period of daily exposure to information, one becomes accustomed to the changed social reality and general acceptance of the new way of functioning and different use of goods and services. The new circumstances experienced by the consumers are combined with experiences from previous periods of crisis situations in the form of shortages of goods in stores and sudden changes in prices, which leads to a different overall impression and thus results in a different motivation to buy.

With the outbreak of the SARS-CoV-2 virus, employers sent some employees on forced annual leave, some were given a decision to terminate their employment contract, while many have been receiving reduced salaries due to a reduced demand for some goods and services on the market. All the mentioned decisions of the employers have reduced or completely stopped the earnings of a large number of the workforce, and based on such moves of the management, the employees are forced to adjust their spending to the reduced financial possibilities. In a crisis situation and reduced economic expectations of most consumers, there is a changed expectation of individuals, with preference given to products that are attributed to a greater effect of use such as: food, chemicals and personal hygiene. On the other hand, consumers are less likely to buy products that have less of an effect during the virus epidemic: furniture, footwear, clothing, luxury products. The assessment of the usefulness of a product in a crisis situation depends on the attitudes formed by the consumer on the basis of personal evaluation and the influence of the

environment. The influence of the environment that has an impact on the consumer is also important, which is manifested in the previous experiences of other individuals in the form of family and friends and the opinions of experts from various fields such as specialists in various fields of medicine and chemists. Due to exposure to a large influx of information from various sources and general instability in the market, the consumers may find themselves unable to properly assess the benefits of purchasing certain products. At the same time, retail chains and manufacturers can use such a situation as an opportunity to misrepresent their products through the media and thus increase sales of their products.

In a crisis situation, there is a possibility of misuse of fear among consumers for marketing purposes. The basis for manipulation can be found in the present fear among consumers regarding the prevalence of the virus, preventive measures, ways to combat it and the availability of products and services. In a situation whose further outcome is not known, it is necessary for the competent institutions to perform regular control of producers, retail chains and agencies in charge of marketing campaigns. In an atmosphere of fear and panic, manufacturers and retail chains have the opportunity to misrepresent the properties of products, exaggerating their importance and efficiency during the health crisis, leaving the consumer with inadequate information and misjudgment. In the general social crisis, the consumer is left in a state of complete subjective assessment of the credibility of information, the adequacy of the marketing campaign and personal willingness to pay for certain products at higher prices due to reduced supply in the market. In order to prevent price instability and abuse by producers and retail chains in the commodity market, the Government of the Republic of Serbia has adopted a Decree on limiting the level of prices and margins of basic foodstuffs and protective equipment 35 / 2020-17, 55 / 2020-4, 57 / 2020- 13, 67 / 2020-3, 75 / 2020-4 and thus reduced the fear and panic of further price increases due to the lack of certain items. In addition to the interest in price stability, consumers are also interested in the appropriate distribution of goods that would provide each individual with the necessary products on time. In the crisis period, distribution problems become noticeable due to additional health security measures at border crossings, lack of certain raw materials and packaging for final products due to reduced or suspended production in the countries from which the goods are delivered. All the problems that could arise could be used by individual producers to play a larger role in the market and thus suppress smaller producers who have smaller production capacities, weaker management and marketing budgets. However, an increasing number of consumers are interested in buying products online, giving smaller manufacturers a chance to distribute their goods to the end user while avoiding often unprofitable retail chains as places for end sales.

CHANGED CONSUMER PREFERENCES

The emergence of the SARS-CoV-2 virus has led to the closure of borders, reduced movement of people, changes in the way we work and changes in income that have modified the preferences of products and services. Consumer preferences in the field of services have become more focused on the use of mobile devices, online shopping and greater use of the Internet as a communication channel. The purchase of products is based on the preference of consumer goods, drugs and supplements. Consumer preference in a crisis situation can be seen as a commitment to consume products and services that would respond to the health crisis, reduced income and availability of products and services. In a time of crisis, the consumer decides to buy products in larger quantities, thanks to which he/she would respond to the health crisis adequately and secure themselves for a longer period of time due to the problems on the product supply side. This situation is a consequence of not knowing the direction of the crisis, the duration and possible end results. In a crisis situation whose further course is unknown, the consumer completely renounces some products or uses less products and services that he/she previously consumed, paying less attention to the money spent in favor of needed consumer goods, and at the expense of other products and services (clothing, footwear, travel). In addition, there is a chance of increasing costs due to price increases which would create less space for consumption of other products and services. All this represents a possible problem for the budget constraint of consumers whose income has been reduced due to economic problems.

In the Excerpt from the methodology of creating the consumer basket (17th number 021-188, 31/05/2010) published by the Republic Bureau of Statistics in cooperation with the Ministry of Trade and Services, the classification of products that make up the consumer basket was conducted. However, the relationship between the products in the consumer basket has changed significantly due to new needs and desires, and this is in line with the adjustment in the new crisis situation. Greater representation of required products in one basket (disinfectants and personal hygiene, food products, medicines and supplements) compared to another basket in which such products are not well-represented, leads consumers to buy the first basket, taking into account the budget constraints. This situation represents the preference of one basket over another, and is denoted with the symbol $>$ ($X > Y$). In case the consumer already has stocks of desired products to adequately respond to the crisis situation, he/she gives less importance to the existing differences in the basket, and thus becomes indifferent because the increase in stocks will not have the same utility effect during the crisis ($X \sim Y$). In case the consumer has to make a decision between different consumer baskets that have appropriate contents in an unpredictable and unstable situation and have the

properties of substitutes (alcohol - chlorine), the baskets are assessed as equally useful ($X \geq Y$), i.e. there is no pronounced preference for one particular basket.

In order for the consumer to be able to evaluate consumer baskets, it is necessary that each of them contains products that would be useful in a crisis situation (personal hygiene and disinfection products, medicines and supplements, food with a longer shelf life - frozen products, flour, sugar, oil, salt). Based on this, the consumer would adequately rank the baskets in accordance with their own budget constraint $(X_1, X_2) \geq (Y_1, Y_2)$, $(Y_1, Y_2) \geq (X_1, X_2)$. In a crisis situation, it is advisable to be able to rank more than two consumer baskets in order to reduce the impact of possible abuse of producers and retail chains in the pricing policy. In this way, each consumer basket would be as good as the others, and thus the consumer would mitigate the impact of price differences on his/her budget constraint $(X_1, X_2) \geq (Y_1, Y_2)$, $(Y_1, Y_2) \geq (Z_1, Z_2)$, i.e. $(X_1, X_2) \geq (Z_1, Z_2)$. However, when there is a problem in the availability of products on the market due to closing borders, increasing demand and lack of raw materials and packaging, the consumer is exposed to a reduced choice of products and consumer baskets. In a crisis situation, the consumer is instructed to reduce the possibility of combining products in the consumer basket. At such moments, a consumer basket that meets the criteria for responding to a crisis $(X_1, X_2) \geq (X_1, X_2)$ is considered a good enough consumer basket.

Amid a crisis, there occurs a modified classification of products from the consumer's point of view, greatly changing the desirability of the product. Due to the lack of certain wanted products, the consumer is looking for substitutes that are most pronounced in the field of disinfectants in which this relationship is expressed as, for example: alcohol-chlorine. Also, the same situation was recorded in the food industry, with the purchase of certain products that ensure the consumer would be provided with essential goods in the event of a total lockdown. This group of products includes: yeast and soda - bicarbonate, oil and fat, butter and margarine. In a crisis situation created by a viral epidemic, consumers move around less, in order to avoid possible infection. The result is that consumers are not interested in buying business clothes and shoes, summer equipment, or luxury products. Also, the consumer is interested in buying products whose joint use achieves the aimed objective of use, which is most visible in the personal hygiene products and house cleaning. In addition to the mentioned categories, there are also indivisible goods for which the consumer has shown greater interest. This category includes forms of property located outside cities and municipalities, the use of which would additionally protect the consumer from possible contamination (facilities outside populated areas). In a crisis situation, the consumer is forced to combine products in the consumer basket in different ways. In case of lack of certain brands or types of products, the consumer replaces them with other products with the same effect

or use. However, in addition to the fact that the consumer changes the contents of the consumer baskets, the appropriate choice makes the consumer indifferent in their assessment. At the same time, other options do not enter the spectrum of consumer interest, except for those baskets that represent the best choice but are not available to him/her due to the crisis. This situation leads to different rankings where the curves of indifference do not intersect and the best options are the baskets towards which the consumer is indifferent due to the changed offer on the market.

When the consumer does not attribute importance to a certain brand in a crisis situation, it is said that consumer becomes indifferent, which satisfies the weighted averages of all available baskets that contain the wanted products (average product values are preferred in relation to them). In a crisis, the consumer is ready to buy a larger quantity in order to create stocks of products due to the reduced supply on the market. In such a situation, due to a budget constraint, the consumer is often forced to reduce the purchase of another product in the consumer basket. The reduced quantity of the second product is expressed as Δx_1 (buys $E\Delta x_1$ of product 2) and at the same time the increased consumption of the more wanted product as Δx_2 (buys $\Delta x_2 / E$ of product 1). The quotient of these two types of products represents the consumer's willingness to exchange a less preferred product for a more preferred product (the exchange rate is expressed as $- E$). In the changed social circumstances, which are marked by a reduced supply on the market, the marginal willingness to pay for more desirable products has been swayed in the direction of the commitment to allocate a larger amount of money to more useful products.

IMPACT OF CHANGES ON MICRO, SMALL, AND MEDIUM ENTERPRISES AND ENTREPRENEURS

Based on the presented method of product evaluation by consumers in a crisis health situation, it can be concluded that a large difference in the purchase of goods is noticeable. On the one hand, the choice of consumers in favor of consumer goods has changed, while on the other hand there has been a change in the method of purchase, i.e. an increase in ordering and payment via the Internet. Due to the increased rates of work from home, canceled cultural and art events and tourist visits, as well as reduced or completely canceled celebrations, the craft services sector, the tourist industry and the event organization sector have been severely affected during the pandemic. Consequently, demand in the fashion and luxury goods sectors has decreased. In addition to major changes in the direction of decreasing demand for certain products and services, it is noticeable that demand has shifted from shopping in traditional brick-and-mortar facilities to online commerce. In this way, a

great chance is given for the placement of goods to organizations that have smaller budgets and are not able to allocate more money for more expensive classic marketing campaigns and distribution through traditional sales channels (retail chains, shopping malls and other more expensive locations in cities and municipalities).

Along with a more affordable way of conducting marketing campaigns and a different way of distributing products and services, economic entities have the opportunity to form associations in order to create innovative products and services adapted to new crisis situations that have arisen as a result of the virus. New problems created in this way may vary in different areas of business, which creates a chance for innovation from multiple sources. Utilizing such associations, economic entities would adapt to the changed consumer preferences better and motivate purchases from new customers and service users. In addition, businesses have the opportunity to adapt their existing products and services to the new crisis situation and thus retain existing consumers. All the mentioned chances are easier to achieve thanks to the increased trade via the Internet, which enables faster communication with existing and new consumers. However, the implementation of such plans requires a constant exchange of information with the consumer, which creates the possibility of misuse of data for marketing purposes and use by third market participants. Beside the risks involved in collecting consumer data and the new forms of cooperation among economic participants, innovations enable expansion into new markets and better adaptation to the changing demand. At the same time, conditions to hire new experts on a global level arise, which create a framework for transferring experiences and information from other markets. Lastly, innovation creates new opportunities for experts from the national arena, which results in new employment prospects and increases exports.

In the emerging health crisis that brings with it economic problems in the form of major changes on the supply and demand side, problems in cooperation with business partners and problems within the organizations themselves, it is important to make a plan for emerging out of the business crisis. It is first necessary to look at the overall picture of the market situation, which manifests itself in the form of difficult access to repro-material, and the problems with distribution in a situation of state emergency measures, as well as due to the sudden changes in the preferences of consumers and service users. Moreover, it is vital to continually change or adjust the strategy of reaching the targets in the market depending on the area of change when it comes to the supply and demand side. It is also important to connect key people in the company, exchange information among employees and be in contact with external data sources (business organizations, government institutions) in order to make adjustments in due time and create new alternatives.

CONCLUSION

In periods when there is no sudden crisis escalating, a large number of economic entities have a business plan which they utilize to compare current operations with the ones set out in the plan. However, with sudden abrupt changes such as the emergence of the SARS-CoV-2 virus, businesses are forced to make changes to existing business plans. Based on the current market situation, it is necessary to reconsider the business environment, i.e. to redefine the subject and objectives of the business in order to meet the changed needs in the market (changed consumer preferences and opportunities in other industries). In order to achieve this, it is important to establish and maintain good communication and trust with partner organizations and to secure contact with new business associates in order to broadly define the goals that would be in the interest of all parties involved. This broad, joint approach ensures faster penetration on new markets, which reduces the negative effects on the business that results from the pandemic. When creating a new joint strategy, it is important that economic entities exchange information on the situation in the business environment in real time, gather experiences and opinions from the management of other economic organizations and maintain contact with state institutions. Continual communication with state bodies in charge of the economy creates an opportunity to access various business development programs such as: more favorable loans, innovation vouchers, innovation centers (faculties, institutes), education. On the other hand, economic policy makers should, in cooperation with the economy, recognize new opportunities for economic development and employment, and include them in future economic strategies.

REZIME

UTICAJ VIRUSA SARS- CoV-2 NA PREFERENCIJE POROŠAČA

Virus SARS-CoV-2 se pojavio u kineskom gradu Vuhanu i promenio preferencije potrošača. Globalizacija i lak način za širenje informacija imaju uticaj na kreiranje različitih mišljenja o preferencijama. Ove preferencije su rangirane na drugačiji način kao rezultat nepoznate budućnosti kretanja krizne situacije. Specifične promene u poslovnom okruženju izazvale su intenzivnije korišćenje kriznog menadžmenta i drugačiji pristup u procesu rešavanja problema u kompanijama a koje su nastale usled pojave virusa. Glavna svrha ovog rada je da objasni kako potrošači menjaju mišljenje o važnosti različitih dobara i kako kompanije mogu da iskoriste ove promene za sopstvene ciljeve. Krajnji cilj ove analize je da se doprinese razumevanju kako bi kompanije

mogle da menjaju svoje poslovne prakse, kreiraju inovativne proizvode i osvare bolju komunikaciju sa kupcima i drugim poslovnim partnerima.

Ključne reči: SARS-CoV-2, krizna situacija, preferencije potrošača, inovacija

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Ovaj rad je primljen **23.05.2021.**, a na sastanku redakcije časopisa prihvaćen za štampu **28.06.2021.** godine.

UDK: 005.051:613.71

POSLOVNA EKONOMIJA
BUSINESS ECONOMICS

Godina XV

Broj 1

Str 46 – 59

doi: 10.5937/poseko19-32583

Originalni naučni rad

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PHYSICAL ACTIVITY DURING HOLIDAYS AS A FACTOR IN REDUCING FEELINGS OF PSYCHOPHYSICAL FATIGUE AMONG MANAGERS

ABSTRACT: The inevitable companion to managerial work is intense psychophysical stress. Its sources are located in the entire living and working environment of a person, as managerial work requires inevitable and constant interaction with the internal and external environment. In addition to factors related to the characteristics of the workplace, the source of psychophysical fatigue among managers is considered to be the current lifestyle. One of the reference areas that can be used to raise awareness of the benefits of regular physical activity among managers, and to influence the beginning of its regular application, is the concept of active rest.

The empirical research, which was conducted on a sample of 50 managers from several Belgrade business organizations, aimed to identify certain aspects of physical activity during summer vacation, which may be factors in reducing feelings of psychophysical fatigue. The results showed that managers of both male and female genders, although they do not have regular physical exercise as their life habits, show some interest in additional usage of some sports and recreational facilities during

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holidays, which resulted in a significant reduction of psychophysical fatigue symptoms.

Key words: managers, psychophysical fatigue, active rest

INTRODUCTION

Managerial work belongs to the group of occupations that became one of the fastest growing positions in organizations at the end of the 20th century. Consequently, it has dominantly established itself as one of the most lucrative professions. Being a manager, especially in developed western countries, was, and still is, a matter of prestige and reputation. Modern managers create their work integrally - as both business and life philosophy, so that they perceive themselves as a kind of business elite. Managers in economically developed countries today have built strong lobbies, specific business and social positioning, as well as their own codes, which in a certain way formats their specific psychology. However, their intensive social rise and business significance has created an environment that induces great psychophysical stress, so that today modern managers also encounter specific diseases, recognized in the western world through the determinant „managerial disease” (Nešić, 2008). This is, above all, conditioned by their responsibility for the management decisions they make, as well as the responsibility for the results achieved as a consequence of the decisions made. On the other hand, the working hours of managers are only formally determined by business and legal acts and general legislation. The unwritten company rules require managers, in essence, to have a „twenty-four-hour” commitment to the company's interests. Today's managers striving to be successful and to progress in the company's business hierarchy, especially those who are organizationally positioned at the levels of top and functional management lines, are under constant pressure from the business context, operate on the principle of 24/7/365, and most often consciously accept the sentence „private is subordinated to business”.

As the inevitable companion to managerial work is intense psychophysical stress, the context of stress is imposed as one of the important factors. The importance of psychosocial causes of stress is especially emphasized by managers, because their actions can be very strong and cause significant consequences. In contemporary literature that encompasses the area of psychology of management, stress is most often spoken of as a psychological and somatic reaction of an individual to a sudden change in his usual external environment (Dunderović, 2004). Therefore, the basic indicators of psychophysical manifestations of fatigue, and thus stress, in managers can be divided into two groups: (1) external/environmental, inputs that are „outside

the manager” - the type of activity in which they are engaged, types of material and social the benefits they can achieve, working conditions, the status of the competition they are surrounded by, the situation in the family, relationships with friends, etc. and (2) internal/intrapersonal, personality traits relevant to the job they perform - the way they perceive things and phenomena around them, the ability to see important relationships in non-standard situations, the ability to concentrate on relevant situations, the ability to control emotions, the ways fear prevails, the ability of persistence in psychophysical efforts, the way of overcoming conflicts, etc. (Nešić, 2018).

In recent times, and especially with managers, there is a current occurrence of burn-out syndrome, which generates primarily professional and in a broaderline context social problems that can affect psychophysical health. Observed in the context of managerial work, the most significant predictors of burnout syndrome are individual personality factors such as neuroticism and extraversion (Popov, Latovljević & Nedić, 2015; Smederevac & Mitrović, 2006). In addition to demographic and workplace characteristics, burnout causes are also considered to be psychosocial aspects, especially interpersonal relationships and lack of social support (Bradley & Cartwright, 2002; Lindblom et al., 2006).

The sources of factors that can influence the occurrence of psychophysical fatigue are located in the entire human life environment, and managerial work requires intensive, inevitable interaction with the environment, both internal and external (Čamdžija & Čamdžija, 2020). In the work environment, the dominant sources of psychophysical fatigue are consequences of the functioning of the organization as a dynamic business system (Juras et al., 2009). In this sense, we can talk about three groups of sources that are related to organizational dynamics: individual - managerial position, job requirements, deadlines pressure, responsibility for people, physical working conditions, role conflict, role ambiguity, etc. ; group/team - interpersonal relationships at work, relationships with superiors/subordinates, intragroup conflicts, group pressure, etc. and organizational - organizational structure, job design, management style, organizational climate and culture, lack of constructive communication, etc. (Nikić, 2009).

In addition to factors related to the characteristics of the workplace, the source of psychophysical fatigue among managers is considered to be the current lifestyle. It represents a symbiosis of acceptance of certain habits and behaviors, and a combination of implicit and explicit value determinants. People perceive each other as members of a lifestyle and act in accordance with it; they are focused on the application of knowledge, behavior and values to which they attach normative meanings - for example: ethical, business, political, etc. (Miliša & Bagarić, 2012). The issue of the presence of healthy living habits, as well as the appropriate lifestyle of managers, is a very

important issue when considering current trends in life and work. It is evident that in them, as in the majority of the population, the dominant life habits are the ones which can be characterized as unhealthy: improper and irregular diet, lack of physical activity, sedentary lifestyle, smoking, alcohol consumption, etc. (Nešić et al., 2014). Therefore, activities that go in the direction of encouraging managers to engage in regular physical activities, as the content of their life habits, at least three times a week for 60 minutes of moderate physical exercise, should be paid much more attention to through various forms of animation and promotion: public, through the media which promote physical exercise as a lifestyle; corporate, through recreation programs intended for managers in companies, team building programs with dominant recreational content, etc.

In this context, the popularization and availability of active vacation programs is also one of the good „channels” for acquiring healthy living habits. Annual vacations, as a means of revitalization and recuperation of the organism, are expedient as a means of „recharging the batteries” of managers only when they are filled with contents that have a compensatory effect in relation to working conditions during the year. The old paradigm that „nothing should be done on vacation” is more than misplaced today. In that sense, managers should make a decision about meaningful and purposeful activities, inevitably including recreational activities during the holidays, which will result in a good feeling and health benefits after their completion (Lugović, 2015).

METHOD

This is an empirical non-experimental study, conducted with the aim of identifying certain aspects of physical activity during summer vacation that may be factors in reducing the feeling of psychophysical fatigue in managers. Determining the manifestation of research indicators is based on the individual self-assessment of the respondents.

The sample of respondents consisted of a total of 50 managers (M = 25; F = 25) from several companies from the area of the city of Belgrade, who in the hierarchical organization of companies belong to the second managerial line, functional managers.

The instrument used to assess the research indicators was a questionnaire, specially designed for this research. The space of independent variables consisted of an item indicator - gender of the respondents, while the coverage of dependent variables was constructed in the form of self-assessment scales. Self-assessment of the scope of sports and recreational activities was performed using two scales (nominal): (1) sports and

recreational activities in everyday life and (2) physical activities during the holidays. Self-assessment of the subjective feeling of psychophysical fatigue was performed by applying the twelfth item of the indicator scale, arranged in the form of an ordinal scale construct. On a five-point summation scale, subjects self-assessed subjective indicators of fatigue (headache, muscle tension, back and neck pain, sleep disturbance, indigestion, palpitations, increased sweating, nervousness, anxiety, loss of patience, fear, shifting blame to others). The scalar range encompassed five intensities, where one (1) indicated the absence of a feeling of psychophysical fatigue, two (2) very rarely, three (3) often, four (4) very often, and five (5) a constant feeling of fatigue. The assessment was performed at two time points - before the annual leave and after the annual leave.

Empirical data were processed using descriptive and comparative statistical procedures. From the field of descriptive statistics, the procedure of determining the frequency distribution, as well as the central/dispersion parameters (mean-Mean, standard deviation-Std. Deviation and standard error-Std. Error) was predominantly used. From the field of comparative statistics, contingency analysis (chi square test) and t-test of paired samples were applied. All statistical inferences were conducted at a significance level of 0.05 (Sig. < .05).

RESULTS

The basis for the correct analysis of empirical data and the creation of conditions for drawing appropriate research conclusions is based on the established validity of the applied five-point scale – *self-assessment of the subjective feeling of psychophysical fatigue* (SSFPPF). The determination of the internal consistency of the scale was performed by identifying the Cronbach's Alpha coefficient (*Cronbach's Alpha*) which in this case was 0.874 (Table 1). As the determined value was significantly above the recommended theoretical value of 0.7 (De Vellis, 2003), statistical-methodological conditions were provided for valid analysis and interpretation of empirical data.

Table 1: Elements of the internal agreement of the SSFPPF scale

Indicator	Elements of subjective feeling of fatigue	Influence of item removal on alpha coefficient
1.	A headache	,860
2.	Muscle tension	,859
3.	Back and neck pain	,874
4.	Sleep disorder	,853
5.	Digestive problems	,859
6.	„Beating” heart	,849

7.	Increased sweating	,852
8.	Nervousness	,837
9.	Concern	,839
10.	Impatience	,847
11.	Fear	,840
12.	Shifting the blame to others	,849
Cronbach's alpha coefficient:		,874

Source: Authors

The characteristics of the sample of respondents in terms of sports and recreational activities have shown that these are people who have not incorporated regular physical exercise into their life habits at least three times a week. It can be noticed that even the contents related to walking as recreational activities are generally not practiced on a daily basis. Other recreational contents, which are generally the most current among recreational athletes, swimming, fitness, collective sports, yoga, etc., are not used at all by most respondents as a means of recreation. In this regard, the gender of the respondents did not prove to be a significant determinant of differentiation, which is confirmed by the values of the chi-square test (Sig. = 0.639) where no statistically significant differences are observed (Table 2).

Table 2: Sports and recreational activities as part of life habits

Gender	Exercising sports and recreational activities		
	Doesn't practice at all	Exercises occasionally	Exercises regularly
Women	15 30%	7 14%	3 6%
Men	16 32%	8 16%	1 2%
Σ	31 62%	15 30%	4 8%

Chi = 9,743 *Sig.* = 0,639

Source: Authors

The research coverage also referred to the detection of indicators that sought to determine whether respondents engage in certain physical activities/physical exercise during the use of annual leave in the summer. The answers to the item indicators showed that the respondents, although they do not have the habit of regular recreational exercise in everyday life, are somewhat more engaged in physical activities that have the character of sports and recreational exercise during their stay in the destinations where they spend their vacation. The highest percentage (64%) exercises daily on some of the

types of physical activity that can be considered recreational physical exercise, in a continuous duration of at least 60 minutes, while another quarter of respondents try to exercise almost daily (24%). Here, too, no statistically significant differences were observed in terms of gender (Sig. = 0.226), so it can be argued that in this context, the gender of the respondents does not represent a significant determinant of differentiation (Table 3).

Table 3: Practicing sports and recreational activities during the holidays

Gender	Exercising sports and recreational activities on vacation		
	Doesn't practice at all	Tries to practice every day mostly	Practices regularly every day
Women	2 4%	2 4%	21 42%
Men	4 8%	10 20%	11 22%
Σ	6 12%	12 24%	32 64%

Chi = 12,965 Sig. = 0,226

Source: Authors

When it comes to the type of recreational activities, swimming (82% of respondents) and walking (80% of respondents) are the most common, while for other activities respondents show significantly less interest in regular/daily exercise during holidays (jogging-34%; morning gymnastics-32%; visit to the wellness center-8%; breathing exercises and meditation-8%). Such findings are in line with the usual behavior of most people during the summer holidays, which is especially pronounced if it is carried out outside the place of residence and/or in summer tourist destinations. The new ambience certainly contributes to people's interest in getting to know and exploring the new environment, so walking is more common than in "regular" activities in the place of residence, and the availability of water surfaces suitable for swimming initiates some form of recreational content on and in the water.

The relation of perception of subjective feeling of psychophysical fatigue based on the self-assessment of the examinee in relation to the time of manifestation of certain psychophysical difficulties was also considered. Namely, the determined results of the self-assessment indicate differences in the assessment of difficulties, that is, their different (subjective) presence before the period of annual leave and after its completion. It is evident that the indicators of feelings of psychophysical difficulties before rest range in intensity of occasional manifestation ($S_v = 2.43$), approximate frequency 2-3 times a week, while after annual rest the scalar average decreases significantly

($S_v = 1.66$), which corresponds to the status of very rare manifestation or complete absence of fatigue symptoms (Table 4). Despite the fact that the assumption that this result is influenced by a number of factors, and not only physical activity, is justified, it is indisputable that its influence can be attributed to the reduction of symptoms of psychophysical fatigue in the respondents.

Table 4: SSFPF scale values before and after annual leave

Indicator	Before the leave S_v	After the leave S_v	Std. dev.	t	Sig.
A headache	2,52	1,70	1,165	8,394	,000
Muscle tension	2,68	1,68	,814	7,462	,000
Back and neck pain	3,42	2,16	1,220	9,908	,000
Sleep disorder	2,24	1,54	,683	5,194	,000
Digestive problems	2,26	1,62	1,162	5,172	,000
„Beating” heart	2,30	1,68	1,076	3,728	,001
Increased sweating	1,98	1,68	1,318	2,333	,024
Nervousness	2,84	1,74	,706	8,352	,000
Concern	2,74	1,72	1,209	7,701	,000
Impatience	2,64	1,64	,805	6,390	,000
Fear	2,02	1,54	1,313	3,734	,000
Shifting the blame to others	1,65	1,24	,957	3,466	,001
Σ	2,43	1,66	,503	10,847	,000

Source: Authors

DISCUSSION

The gender of the respondents does not represent a significant determinant of differentiation in relation to engaging in recreational activities. A large percentage of respondents (64%) do not engage in recreational activities before the holidays, the same percentage during the holidays are engaged in recreation with a better assessment of the psychophysical condition. There is almost no research on this topic. These are all the reasons for the discussion section to emphasize the need to raise the awareness of managers to engage in recreational activities, both continuously and during vacation, through active vacation.

The requirements of managerial work in a modern business environment, which is characterized by constant competitiveness, competitiveness and the struggle for the company's survival in the market, put managers as decision makers for whose execution they are directly responsible, in a very demanding work environment. Their basic feature is constant tension, as an expression of responsibility and uncertainty for the results of the decisions made. In this regard, the burden of corporate and personal responsibility, different requirements of the employer, uncertainty and variability of the business environment, as well as other internal and external factors, lead to high-intensity psychophysical stress in managers (Nikolić & Todorović, 2010). The managerial occupation is thus put at the very top of the so-called stressful occupations (Ristić, 2005). In that sense, it is very important how managers spend their free time, i.e. the way they rest in the daily and weekly work regime, and also during the annual vacations. Holidays should be treated, designed and realized as a means of refreshment from everyday business and life that try to change the rhythm of established habits (Filjak, 2008).

Positive life habits, especially those aimed at health, regular physical activity, proper nutrition, avoidance of tobacco and alcohol, regular health check-ups, etc. are acquired and developed throughout life. In that sense, they are directly related to the appropriate lifestyle (Nešić et al., 2014). A *healthy lifestyle*, which is insisted on by many large western companies as part of the corporate organizational culture of its employees, especially managers, is mostly associated with physical exercise, sports and recreation, that is, an active lifestyle (Piero, Mannetti & Livi, 2003; Boot & Chakravaty, 2002; Sharkey & Gaskill, 2008). In that sense, the active lifestyle is viewed as a multidimensional system of individual behavior that is not determined exclusively by physical activities, but is determined by other behaviors, i.e. habits related to health: proper nutrition, regular preventive health and dental examinations, regular blood pressure control, stress control, elimination of harmful life habits, etc. (Nešić, 2012). For managers, these determinants should be the guiding line in creating the entire life and work, which in practice, especially among managers in Serbia, is still insufficiently clearly perceived.

Some authors of current research (Kvaak, Meyer & Tverdal, 2004; Myint et al., 2007; Međedović, Perić & Ahmetović, 2013) are of the opinion that the level of physical and working ability of today's businessmen is unacceptably low, which is directly manifested in long-term unfavorable factors affecting their health. One of the main causes is quite clearly identified, and that is the so-called „morbogenic triassic factor”, hypokinesia, obesity and stress. Acceptance of positive habits, healthy lifestyles, is increasingly promoted in the modern business world as an important task for maintaining work ability. In this regard, an active lifestyle combines awareness and active struggle

against risk factors, thus contributing to the improvement of quality of life. Increasing the level of physical activity is one of the most frequently emphasized tasks in the recommendations of health and kinesiology institutions (Yamada et al., 2013).

One of the reference areas that can be used to raise awareness of the benefits of regular physical activity among managers, that is, to influence the beginning of their regular application, is the concept of active rest. Modern scientific knowledge defines the view that the restoration of impaired working ability, as a consequence of psychophysical fatigue, is performed faster and more completely during active than during passive rest (Nešić, 2008), which is the psychophysiological basis for the application of various sports and recreational activities during rest, especially as a desirable content of selective forms of tourism (Hrabovski-Tomić, 2008). Active vacation, as a concept, is closely connected with the area of sports recreation. With its contents, methods and training technology, it has significant potentials for quality completion of the contents of annual vacations of managers (Bogosavac, Jovanović & Dragosavljević, 2012), which is, of course, connected to the value aspects of the development of modern tourist destinations. If we keep in mind the basic principle of modern tourism - to satisfy the interests and desires of guests, then it is clear that the concept, programs and contents of active vacations simultaneously become the contents of the tourist offer, appropriate and shaped according to expressed and established interests and wishes of guests (Bakić & Hrabovski, 2010). The concept of active vacation, recreational sports, i.e. the idea of a healthy lifestyle is increasingly present in the developed countries of the world. A large number of guests come to tourist destinations with acquired habits and motives, demanding that they realize their healthy way of life during their stay in a certain tourist destination, where sports recreation activities have a suitable place (Đorđević, 2017). Therefore, it is indisputable that this category of tourist consumers must be offered and provided with various contents and programs, in order for them to stay and/or become „satisfied guests” who will want to return to the destination (Nešić & Kuburović, 2004). It is especially important that „satisfied guests” implement some of the consumed sports and recreational contents in their life habits even after the end of the vacation.

CONCLUSION

Psychophysical fatigue among managers is a phenomenon that is very present in a large number of people in managerial positions in companies. Although this is a complex problem, which is influenced by several factors, one of the dominant ones is stress overload, that is, they are behind the pressure

of managers' responsibility for the decisions they make and the consequences of those decisions on which the business result depends. Therefore, the symptoms of intense psychophysical fatigue should not be ignored, since their long-term presence in the manager can cause the appearance of the so-called managerial syndrome, which is a complex health problem. Psychophysical fatigue and sedentary lifestyle create conditions for weight gain, high blood pressure, high levels of „bad” cholesterol, increased blood sugar levels, cervical and lumbar syndrome and so on. Thus it can be said that the way is opened for the so-called mass non-communicable diseases such as diabetes, hypertension and other diseases of the cardiovascular and skeletal system.

In the research, in terms of sports and recreational activities, the gender of the respondents did not prove to be a significant determinant of differentiation (Sig. = 0.639), there is no statistically significant difference.

Also, in terms of performing certain physical activities during the use of annual leave in relation to gender, no statistically significant differences were observed (Sig. = 0.226), so it can be argued that in this context, the gender of respondents is not a significant determinant of differentiation.

Indicators of feelings of psychophysical difficulties before rest range in intensity of occasional manifestation (Sv = 2.43), with a frequency of 2 to 3 times a week, while after annual rest the scalar average decreases significantly (Sv = 1.66), which is very rare manifestation or complete absence of symptoms of fatigue. Despite the fact that the assumption that this result is influenced by a number of factors and not only physical activity is justified, it is indisputable that its influence can be attributed to the reduction of symptoms of psychophysical fatigue in the respondents.

In managers, the fight against psychophysical fatigue can take place by applying two groups of strategies: individual and organizational. Although their cooperation is, in essence, necessary, individual strategies for reducing psychophysical fatigue have much greater potential in the long run. These are, above all, related to lifestyle changes, acceptance of healthy living habits. It is imperative that managers implement the so-called active lifestyle that includes five key elements: physical activity, proper nutrition, weight control, stress management and safety habits. Also, organizational strategies can significantly help in the prevention and/or reduction of symptoms of psychophysical fatigue of managers, which primarily relate to the work environment, changes in organizational structure, changes in the nature of work, the implementation of company stress management programs and so on.

In recent times, in addition to the two mentioned strategies, in „serious” business systems, the third type of strategy is applied - conditionally directed vacations. Their essence lies in the organizational and personal animation of employed managers to practice vacations during the year that include physical exercise/recreation programs. Holidays are spent in the form of several shorter

weekend holidays during the year, the so-called extended weekends. Employees are also provided with a longer period of rest, „classic” summer and/or winter vacation, lasting at least ten days, with the recommended change of residence.

The results of our research can be concluded through three fields: (1) as a contribution to that part of the research corpus in the academic community that is problematically focused on the affirmation of physical exercise as one of the factors of a healthy lifestyle; (2) pointing out the need to change life habits of persons engaged in managerial work, given the potential health risks that such occupations entail; and (3) the basis for the development of another instrument is given – a scale for self-assessment of the subjective feeling of psychophysical fatigue among managers, whose reliability has been determined by checking its internal compliance. With the identified value of the Cronbach's alpha coefficient of 0.874, this scale proved to be reliable, and can be recommended for further verification and development in some future similar research, on a larger sample.

REZIME

FIZIČKA AKTIVNOST TOKOM GODIŠNJEG ODMORA KAO ČINILAC REDUKCIJE OSEĆAJA PSIHOFIZIČKOG ZAMORA KOD MENADŽERA

Neizbežan pratilac menadžerskog posla jeste intenzivno psihofizičko naprezanje. Njegovi izvori nalaze se u celokupnom životnom i radnom okruženju čoveka, a menadžerski posao zahteva neizbežnu i stalnu interakciju sa internim i eksternim okruženjem. Pored faktora vezanih za karakteristike radnog mesta, izvoristem psihofizičkog zamora kod menadžera smatra se i aktuelni životni stil. Jedno od uputnih područja kojima se može inicirati podizanje svesti o benefitima redovne fizičke aktivnosti kod menadžera, odnosno uticati na početak njihove redovne primene, jeste i koncept aktivnog odmora.

Empirijsko istraživanje, koje je sprovedeno na uzorku od 50 menadžera iz nekoliko beogradskih poslovnih organizacija, imalo je za cilj identifikaciju pojedinih aspekata fizičke aktivnosti tokom letnjeg godišnjeg odmora, a koji mogu biti činilci redukcije osećaja psihofizičkog zamora. Rezultati su pokazali da menadžeri, oba pola, mada u svojim životnim navikama nemaju pozicionirano redovno fizičko vežbanje, tokom odmora pokazuju izvesno interesovanje za dodatno korišćenje nekih sportsko-rekreativnih sadržaja, što je rezultiralo značajnom redukcijom simptoma psihofizičkog zamora.

Ključne reči: menadžeri, psihofizički zamor, aktivni odmor

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Ovaj rad je primljen **20.05.2021.**, a na sastanku redakcije časopisa prihvaćen za štampu **28.06.2021.** godine.

UDK: 330.322:338.124(497.11)

POSLOVNA EKONOMIJA
BUSINESS ECONOMICS

Godina XV

Broj 1

Str 60 – 70

doi: 10.5937/poseko19-33230

Originalni naučni rad

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NEW APPROACHES IN INVESTMENT RISK MANAGEMENT IN PUBLIC SECTOR IN THE POST- CRISIS PERIOD: A CASE STUDY OF THE REPUBLIC OF SERBIA

ABSTRACT: The subject of the research in this paper is giving an overview, description and analysis of the new approach in risk management of public sector investment, with a special focus on the Republic of Serbia as a domestic economy. The crisis of 2008 resulted, among other things, in an overall abandonment of neoliberal approach to market, and a complete redefining of market relationships, place and role and significance of particular participants in market. These new market circumstances have in particular affected the market position of public sector along with its market performance. Therefore, the main goal of this research in this paper is getting new knowledge, which can be validated in practice, about new approaches to management of public sector investment risks in post-crisis period, with a special focus on the Republic of Serbia and its public sector. The results of the research should provide new knowledge on modalities and effects of new approaches in management of public sector investment risks in the post-crisis period, thus enabling an effective and efficient repositioning of the place, role and significance of the public sector on the market of the Republic of Serbia. In this way they will be useful to the academic community in broadening the scientific data base in this area of interest, as well as policymakers

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in the process of defining and implementing of public sector policies.

Key words: public sector, risk management, investment, post-crisis period, the Republic of Serbia

INTRODUCTION

Contemporary market circumstances are in many respects specific and unusual. Their specific features are a result of the fact that there is no clear public concept of economic policy of bringing about an order to market and market relationships, which leads to having market conditions and relationships which resulted from unregulated, undefined rules with no clearly expressed direction for the further development of market and market related policies. Since leaving the Keynes concept of market arrangement, which was based on a statist approach, with the state standing in the foreground as a market participant, the liberal concept from around the middle of the 1980s has been dominant and widely accepted one of market regulation, which is based on a belief that market has the ability to self-regulate, and that the role of the state is to create conditions for the development of the market and growing of wealth. This concept became fully implemented in the middle of the 1970s, being a dominant pillar of economic policy until the economic crisis of 2008. In the meantime, it went through certain modifications, although it remained basically unchanged. This concept, which was named Liberal afterwards, (probably alluding to its promptness and flexibility in the real economic moment), totally collapsed when the economic crisis of 2008 broke out. One by one, the market participants turned to the state, asking for and expecting to be given support. In order to keep some sort of stability of markets and their economies, at least at a superficial level, states answered in a positive way, and they have supported market participants actively and with significant sums. Thus, we can see a form of neo-statism and a great comeback of the state to the market.

The position and significance of public sector considerably change in such market circumstances. Unlike the previous role it had, public sector is no more seen as a mere provider of services to the state, whose role is to provide for the needs of the public as well as to collect public goods, and is becoming to be seen as an important market participant, bearing in mind the scope of the means it manages along with a constant need to for various investment activities. These circumstances are particularly becoming prominent in case of the economies of developing countries, as highly volatile markets with low liquidity and efficiency. Therefore, the subject of the research in this work is giving an overview, description and analysis of new

approaches in public sector investment risks, with a special focus on the Republic of Serbia as a domestic economy. Our research will particularly deal with the ways the public sector of the Republic of Serbia manages investment risks, bearing in mind the tasks it has, as well as providing knowledge of the possibilities of improvement of investment policies of the public sector of the Republic of Serbia, in order to optimise investment risks and maximise effects of investment activities.

The main hypothesis of this research is that it is possible to create new approaches to public sector investment risks in post-crisis period, whose implementation will enable conditions for sustainable growth and development.

The main goal of this research is to get concrete knowledge, which can be validated in practice, about new approaches to public sector investment risks in post-crisis period, with a special focus on the Republic of Serbia and its public sector. Such knowledge should enable policymakers to optimise the relationship between public sector investment risks and estimated effects of investment activities, while, at the same time, maximising the function of being of advantage to public. History proves the fact that, as a rule, public sector's flexibility is low, that it is less effective than the private sector, and that new, altered market circumstances call for a change of the market position of public sector, which involves repositioning of its policy of market performance as well as particulars of its business activities management. This is especially important for making decisions related to investment activities and their validation, in order to optimise the relationship between investment risks and maximising investment effects. This also has a particular importance in case of developing countries, because their markets constantly face a lack of finance, which makes the optimisation of the previously mentioned relationship particularly important in the light of a changing market position of public sector. Realising and assessment of possibilities to apply new approaches in public sector investment risk management in actual post-crisis market circumstances becomes a necessity of the contemporary market milieu, especially in case of developing countries such as the Republic of Serbia.

This study is conceived in the next way: the introductory part gives a description of the subject and problem of the research, pointing out its main aim. Then follows an overview of bibliography related to the area of interest. The third part brings an analysis of the current market situation, the market position, role and significance of public sector, followed by an attempt to focus on a new paradigm of public sector investment risk management, particularly in the Republic of Serbia, which is to enable creation and application of new approaches in public sector investment risk management. This is all followed by concluding remarks and selected bibliography.

THEORETICAL BACKGROUND

A wide range of bibliography related to the area of interest must be analysed in order to provide a relevant theoretical base for the research. Domestic sources will mostly be in focus, considering the way the research is conceived, with an addition of researches by foreign authors as well.

Dašić (2018, pp. 14-18) gives an analysis and account of contemporary trends in the development of public sector in which he finds that entrepreneurial and business concept of public management, as an introduction to the quality system of public services, is becoming the fundamental objective of all reforms of administration. Jovanović (2020) points at a very important fact that the public sector in the Republic of Serbia still stays predominantly centralised in decision making process, being focused on administrative responsibility, while at the same time neglecting results and performance.

Đuričin and Đukić (2017, pp. 99-101) in their study deal with the financial performance of selected public enterprises. The results of their research point at a need to find individualised ways in order to define measures that lead to improvement of financial aspect of operation of the selected public enterprises. This finding is of particular importance in order to make a further analysis of public sector, which can be applied to any individual public enterprise as an entity for itself. However, a logical question arises in connection with a possible success of such approach, because only integrated, coherent, systemic and coordinated market performance can lead to positive effects of public sector reforms.

Themsen and Skaerbaek (2018, pp. 24-28) show that for a successful management of challenges associated with risks, it is required that technologies be constantly adjusted in order to enable long term stability. This means that flexibility is necessary if public sector is to be efficient and effective in contemporary market circumstances.

Caperchione, Demirag i Grossi (2017, pp. 3-5) in their study deal with public and private partnership as a specific form of organisation on the market, pointing at new directions of development of this form of organising, taking notice of possible dilemmas they cause.

This research is made more updated by taking referent sources in the area of interest into consideration, bearing in mind possible challenges in front of public sector and its investment policies in developing countries.

OPEN QUESTIONS REGARDING THE POSITION, ROLE AND SIGNIFICANCE OF PUBLIC SECTOR IN CONTEMPORARY MARKET CIRCUMSTANCES

Public sector can be defined in various ways. This research's aim is to observe the position, role and significance of public sector through the prism of market and its market participation rather than to offer different approaches to defining public sector. This way of looking into the matter enables us to take public sector as equal as any other market participant, and see its position, role and significance in contemporary market circumstances in an optimal manner.

Historically speaking, public sector's position has changed both within market and society in general. There was a time when public sector was seen as an incredibly important and dominant market subject or "the long arm of the state". Then there came the notion of its market position, which was considerably derogated, taking public sector as a necessary, but not important market factor, especially in terms of fulfilling certain public goods goals, with no real market significance. Such view was formed partly due to public sector itself, having behaved in a way which was inflexible, languid, lacking the interest to adjust to market conditions, and expecting the opposite instead. At the times of the domination of the liberal market concept, such expectations were neither realistic nor likely. So, once an important market subject in Keynes era, public sector became pushed aside and looked upon as an inefficient and ineffective" arm of the state". To be honest, public sector seemed to feel comfortable in that role. Such situation remained for rather long, and it was only in 2008 when the crisis imposed the need for market repositioning. The period of crisis made everyone turn to the state as a last resort, which subsequently made a considerable increase in public sector investment one other main ways of support given by the state, apart from direct subventions. This brought back the prominence of the policy of public works and Keynesian concept of market ordering. Therefore, there are authors who are prone to using the term "New-Keynesian" in order to designate the period after the breakout of the crisis. Yet, although public sector has experienced a sort of revival, we cannot speak of a Neo-Keynesianism here.

Active inclusion of the state in market developments has resulted in a number of changes, among which redefining and repositioning of public sector's market position seems to be particularly important. A logical question arises of the readiness of the public sector for the new role. Is public sector sufficiently capacitated for an efficient and effective new role, or the old notion of its being inflexible, inefficient in terms of organisational capacity will prove to be true? Many questions remain unanswered and still the period from 2008. until today leaves little room for optimism. Although

public sector has large financial means at its disposal, it still shows slowness, low efficiency and efficacy, burdened with the reputation it had in previous periods. These characteristics are especially observable in developing countries. What is the reason for this? On the one hand, we are talking about highly volatile markets with low efficiency, and on the other, even in the period before the crisis their public sector had been characterised with a number of challenges from the past, which not only never became resolved, but even increased in size. Therefore, the main motivation for this research comes from an attempt to use a systemic approach in order to get an insight into the new market position of public sector (primarily in developing countries), and then suggest new approaches to public sector investment risk management. It is undisputable that only optimal use of resources can help create a realistic basis for sustainable growth and development of economy, which in practice requires new approaches to public sector investment risk management in the post-crisis period.

Thus, it makes it possible to create prerequisites for a successful repositioning and redefining of the role public sector plays in contemporary market circumstances, turning it into an active, dynamic and modern market subject.

NEW APPROACHES TO PUBLIC SECTOR INVESTMENT RISK MANAGEMENT: THE CASE STUDY OF THE REPUBLIC OF SERBIA

Investment risks can be of a variety of kinds. The same is true for risks in general. How can we describe or define risks? What does it mean to manage risk? The easiest way to define risk is to say that it refers to any aberration from what was expected or planned. In other words, all aberrations of this kind can be taken as risk. If, for example, we understand that a crisis can be taken as a kind of mistake in an assumed continuity, then risk, according to this logic, is a prerequisite for a crisis to break out. So risk is directly related to crisis. This actually means that to manage risk is to manage a crisis, its occurrence and development.

Risk cannot be eliminated, but it can be managed in order to reduce it to an acceptable level. Of course, there is the question of the level which can be accepted. This means that reducing the risk to an acceptable level is an attempt to keep the level of the crisis acceptable. This is the reason why the topic of risk management has been given a special significance since the break out of the crisis. This also means that in order to manage crisis efficiently, one has to validate the risk as well as to keep it acceptable.

The next big issue is related to investment risk. It is well known that there is no growth and development without investing and that the absence of growth and development leads to stagnation and decline. Since investing is a necessity of contemporary market, optimisation of the effects of investment activities and their usefulness should be in focus. This can only be accomplished by managing investment risk in an optimal way, which means that there is a constant need to improve the approach and models of investment risk management.

We cannot talk about investment activities risk management without taking into consideration an important fact of who is the subject of investment, i.e. who leads the investment activities. Contemporary market circumstances have turned public sector companies into investment subjects of premier importance. This would have sounded incredible about a decade ago, but the current market reality proves to be quite the opposite. Since the crisis broke out public sector has become an important if not the main factor of investment activities, particularly in developing countries like the Republic of Serbia. Therefore, the market effect of new approaches in public sector investment risk management is manifold.

It can be seen in:

- the position of public sector in market relationships,
- creating the base for sustainable growth and development,
- providing the real basis for the growth of employment,
- increased market efficiency.

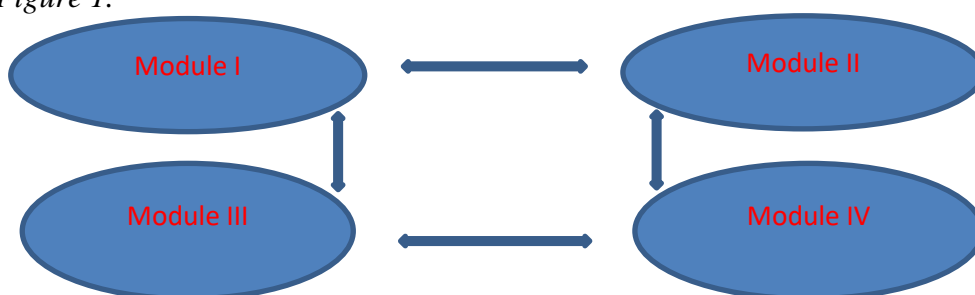
This influence is even more intensive in developing countries due to their specific market features. So the goal of new approaches in public sector investment risk management is taking into consideration the above mentioned issues, while at the same time avoiding making them restrictive factors in investment policy. The point is that in current conditions of recession any reduce in public sector investment activities results in negative consequences for market stability, and the stability of entire economies, which makes developing countries particularly vulnerable in this respect.

New approaches in risk investment are supposed to be able to incorporate a number of significant, market-oriented modules, namely:

- module of optimal organisation of public sector (module I)
- module of efficient and effective approach to the assessment of investment alternatives (module II)
- module of neodogmatic views and opinions about the future of market and market relationships (module III)
- module of social policies and social protection expenditure (module IV)

This could be schematically presented in the following way:

Figure 1.



Source: Author

New approaches in public sector investment risk management in the post-crisis period with a focus on developing countries (the Republic of Serbia in particular) should not miss to recognise the four modules mentioned above, which stand for four factors they represent. Only this can lead to realistic expectations in connection with the future ability of public sector to carry out repositioning process within market relationships in order to become an efficient market subject and bearer of the growth and development of economy. So, an overall systemic redefining of the way public sector is organised should be done, both at macro and micro levels, in order to make it more flexible, more proactive and more rational.

The next thing to do is to change the approaches of validation and assessment of possible investment alternatives. The approaches that have been used so far, i.e. the traditional ones, are no longer optimal enough in the contemporary post-crisis market conditions, and they should be made more flexible and efficient. In general, redefining the view on market and market relationships is utterly important, because the experience we have had so far alongside actual market circumstances have proved that already existing dogmatic views are not enough to cope with the reality of the moment. Last but not least, social policies should be reconceived in the way suitable for the new market reality and creation of preconditions for social stability and fairness.

All that has been stated above can be used as the basis for creating new approaches to public sector investment risk management in the post-crisis period, with a special insight in what is going on in developing countries and the Republic of Serbia, and their further application in practice. Realistic preconditions for changes can be created by approaching the problem in a systemic and comprehensive way; therefore, it would be highly preferable to start the implementation of the right activities as soon as possible.

CONCLUDING REMARKS

The research in this study has been done with aiming at gaining concrete knowledge about new approaches in public sector investment risk in the post-crisis period, with a special interest in developing countries i.e. the Republic of Serbia. This has resulted in the creation of a genuine base of knowledge, the practical use of which could enable public sector to reposition itself and change its contemporary market role and significance, while at the same time creating conditions for sustainable growth and development.

The basic hypothesis of the research implies the notion that it is possible to create new approaches to public sector investment risk management, whose implementation will create the conditions for sustainable growth and development, has proved to true, which necessitates doing further researches in this area of interest.

The goal of the research has been achieved by gaining actual knowledge which can be validated in practice, especially in connection with the Republic of Serbia and its public sector's new approaches to investment risk management in the post-crisis period.

Contemporary market circumstances constantly pose new increased challenges to all market participants. Having in mind the market importance of public sector, it is of a particular significance to gain pragmatic insight, and implement this knowledge in order to help optimise market sector's market position as well as maximise public sector investment effects. The effort in this research has been made as an attempt to broaden the base of information in this field of interest, both in order to help further research and to help creators of public policies in their everyday tasks.

The challenges which the author had to face during the research primarily originate from the fact that there is a shortage of previous studies of the subject of the position of public sector in contemporary market circumstances, notably in developing countries, but they have been overcome due to a systemic approach to the area of study and an overall analysis of conditions of both public sector and market.

Further research activities will be directed towards a more minutious and comprehensive analysis of public sector in developing countries, paying special attention to introduction of innovated approaches to public sector investment risks, aiming at even more optimised effects of such investment activities.

REZIME
NOVI PRISTUPI UPRAVLJANJU RIZICIMA INVESTIRANJA
JAVNOG SEKTORA U POST-KRIZNOM PERIODU: STUDIJA
SLUČAJA REPUBLIKA SRBIJA

Predmet istraživanja u radu jeste sagledavanje, opisivanje i analiziranje novih pristupa upravljanju rizicima investiranja javnog sektora, sa posebnim fokusom na Republiku Srbiju kao domaću ekonomiju. Kriza iz 2008. godine je, između ostalog, za svoju posledicu imala i potpuno napuštanje neoliberalnog pritupa tržištu, odnosno potpuno redefisanje tržišnih odnosa, mesta, uloge i značaja pojedinih tržišnih učesnika na njima. Ove nove tržišne okolnosti su naročito uticale na poziciju javnog sektora na tržištu i njegov nastup na njemu, pa je otuda osnovni cilj istraživanja koje se namerava realizovati u ovome radu dolaženje do konkretnih, u praksi validiranih saznanja o novim pristupima upravljanju rizicima investiranja javnog sektora u postkriznom periodu, naročito se fokusirajući na Republiku Srbiju i njen javni sektor. Rezultati istraživanja treba da omoguće nova saznanja o modalitetima i efektima novih pristupa upravljanju rizicima investiranja javnog sektora u post-kriznom periodu, omogućavajući na taj način efikasno i efektivno repozicioniranje mesta, uloge i značaja koji javni sektor ima na tržištu Republike Srbije. U tom smislu, oni će biti korisni kako akademskoj javnosti za širenje naučne baze u oblasti, tako i kreatorima politika u procesima formulisanja i implementiranja politika u javnom sektoru.

Ključne reči: javni sektor, upravljanje rizicima, investiranje, post-krizni period, Republika Srbija.

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Ovaj rad je primljen **24.05.2021.**, a na sastanku redakcije časopisa prihvaćen za štampu **28.06.2021.** godine.

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