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THE IMPACT OF FREE ZONES ON ECONOMIC GROWTH: EVIDENCE FROM DEVELOPING COUNTRIES

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Abstract: *The subject of research in this paper refers to the analysis of the impact of free zones on the economic growth of developing countries. The objective of the research is to explain to the scientific and professional public the way of functioning and the transmission mechanism of free zones in generating economic growth ceteris paribus. The analysis covers free zones in three countries in the development of compatible characteristics: Serbia, Croatia and Belarus. The research problem is sublimated in the question of whether and in what way free zones have an impact on the economic growth of developing countries? The research was conducted by analyzing the relevant literature and by using the panel analysis. The results of the research showed the existence of statistically significant determination of GDP per capita, as an indicator of economic growth, by variations of macroeconomic parameters of the functioning of free zones. That is, the operation of free zones has a statistically significant impact on the economic growth of targeted developing countries ceteris paribus. Whether growth will be inclusive and sustainable in the long run depends on political and economic decision makers and defined economic policy. In this way, the hypothesis was confirmed that the establishment of free zones in developing countries, with the condition of integration of the national economy into the work of zones, creates preconditions for sustainable and inclusive economic growth.*

Keywords: *Free zones, developing countries, economic growth, macroeconomic parameters.*

JEL classification: *F43, F63, O10.*

INTRODUCTION

Free zones represent an instrument for ensuring comprehensive economic growth in terms of achieving industrial competitiveness and attracting foreign and domestic investment. A well-defined subsidy policy, an efficient legislative and regulatory framework, the concept of symbiosis of multinational companies and domestic subcontractors are the most significant factors influencing the functioning of free zones, in line with sustainable economic growth and development. In today's globalized world,

free zones are a very attractive and important tool, through the effect of investment, for access to modern technologies, innovations, training of the workforce to the requirements of modern markets, know-how and other indirect benefits. That is why the importance of their establishment in developing countries is at the top of economic policy priorities.

The paper investigates the impact of free zones on the economic growth of developing countries, on the example of three countries that are compatible and comparable in many characteristics: Serbia, Croatia and Belarus. The time period of the analysis refers to the period of functioning of free zones in the mentioned countries for which relevant statistical data are available. The paper analyzes whether and in what way free zones have an impact on the economic growth of targeted countries. That is, what is the mechanism of functioning of free zones and generation of economic growth ceteris paribus. The analysis of the functioning of free zones will explain the transmission mechanism that creates the preconditions for inclusive and sustainable economic growth. Whether growth will be sustainable and inclusive depends, primarily, on political decision-makers in the countries that establish free zones. Through the transmission mechanism, companies operating in free zones create preconditions for a significant inflow of investments that affect production, exports and employment in free zones and thus GDP growth per capita.

In addition to the analysis of relevant literature, panel analysis was used in the research. The direct implication of the analysis is the determinism of economic growth by variations of free zone functioning indicators, i.e. variations of the independent variable have a statistically significant effect on the dependent variable. The results of the conducted analysis confirmed the hypothesis that the establishment of free zones in developing countries, provided that the national economy is integrated into the work of the zones, creates preconditions for sustainable and inclusive economic growth. The first part of the paper contains an overview of the theoretical framework of free zones and mechanisms of influence on economic growth. In the second part of the paper, the methodological framework of the research is defined and determined. In the third part, the research model was tested, and the research results were explained. The fourth part contains a discussion and comparison of research results with the same and/or similar research. The fifth part sets out the concluding considerations.

THEORETICAL FRAMEWORK OF FREE ZONES

Free zones are defined as enclosed parts of industrial areas that specialize in production for export and that offer companies conditions that facilitate trade and a free regulatory environment (WB, 1992). This definition of free zones has been modified, in line with new future trends and conditions related to domestic trade and the physical demarcation of free zones, which in some cases have become more flexible (Torres, 2007). The only international convention that defined and procedurally regulated the concept of free zones was the International Convention on the Simplification and Harmonization of Customs Procedures, i.e. the Revised Kyoto Convention (RKC) (Akinci & Crittle, 2008; Omi, 2019; Bost, 2019). Annex D, Chapter 2 of the Kyoto Convention defined free zones as a part of the territory of a country where any goods introduced are generally regarded, insofar as import duties and taxes are concerned, as being outside the Customs jurisdiction (WCO, 2008) In addition to the above frame-

work definition, the World Free Zones Organization (WFZO, 2015) has expanded and simplified the terminology of free zones, which are an area designated by one or more government(s)[1] where economic activities are permitted and relieved (totally or partially) from customs duties, taxes, fees or with specific regulatory requirements that would otherwise apply. Based on the above, it can be concluded that free zones represent a geographically defined territory within the national borders of the country, where business rules are different from the rest of the country and where there are certain benefits, primarily in terms of customs and tax policy, administrative procedures, infrastructure and legislative framework.

The characteristic of free zone theory is the permanent lag in relation to the models of free zones that function on a global level and the disagreement regarding the theoretical framework (Johansson, 1994). The theoretical framework of zone functioning has been included in many studies (Grubel, 1982; Warr, 1989; WB, 1992; Chen, 1993; Kaplinsky, 1993; Willmore, 1995; Johansson & Nilsson, 1997; Madani, 1999; Jayanthakumaran, 2003; Monge González, Rosales Tijerino, & Arce Alpízar, 2005; Farole & Akinci, 2011; Farole, 2011; WB, 2017), only since the 1980s, long after the establishment of the first zones. An exception is the analysis of Hamanda (Hamanda, 1974). For a long period of time, the Heckscher-Olin model (Krugman & Obstfeld, 2009) was the driving framework for measuring the functioning of zones (Jayanthakumaran, 2003; Meng, 2005). Since the mid-1980s, the focus of theoretical analysis of free zones has shifted towards emphasizing secondary effects, or catalytic effects (Johansson, 1994). Most modern research on free zones has incorporated catalytic effects and modern zone policies. The new focus in free zone research has linked the processes of structural transformation and development effects of zones, in the sense that zones have become an important instrument of economic policy in eliminating development policy problems.

The development of free zones in the last 40 years has a trend of continuous expansion. During this period, the number of free zones increased from 79 to 5.383, and the number of countries in which the zones operate from 29 to 147 (Akinci & Crittle, 2008; Farole & Akinci, 2011; ILO, 2014; ILO, 2017; Bost, 2019; UNCTAD, 2019). In 2019, the number of active free zones at the global level was 5.383, of which 93% was in developing and transition countries and 7% in developed countries (Bost, 2019; UNCTAD, 2019). According to estimates by the United Nations Conference on Trade and Development (UNCTAD, 2019) more than 500 free zones will be established in the near future. The success of free zone programs represents the supremacy of benefits over costs. The economic justification for the establishment of free zones implies the process of planning and defining the framework of free zones ex ante in order to create the preconditions for sustainable and inclusive economic growth and transformation of the national economy ex post. Economic growth represents the final phase of the transmission mechanism of economic activities of free zones. That is, free zones through the inflow of investment, growth of production, employment and exports create preconditions for generating economic growth ceteris paribus.

[1] There are also cross-border free zones whose purpose is to facilitate trade between the two countries, such as the Kaesong Industrial Complex free zone between North and South Korea (COMCEC, 2017).

FDI inflows to developing countries are one of the most important goals of establishing free zones. Free zones are established for the purpose of attracting greenfield and brownfield investments, and in certain cases portfolio investments. All relevant research (Akinci & Crittle, 2008; Farole & Akinci, 2011; Farole, 2011; Kanungo, 2016; Ciżkowicz, Ciżkowicz-Pękała, Pękała, & Rzońca, 2017;WB, 2017; COMCEC, 2017; ASEAN & UNCTAD, 2017; Alkon, 2018; UNCTAD, 2019) emphasize the importance of free zones in attracting FDI. Also, in the mentioned research, the existence of a strong connection between well-conceived free zone programs and the inflow of FDI has been proven. Free zones in a number of developing countries have played a marginal role in attracting FDI and most investment has been domestic investment. A disincentive business environment, underdeveloped infrastructure, an inefficient regulatory and legislative framework, and corruption have played a major role in the limited inflow of FDI.

Another fundamental goal of establishing free zones is their impact on exports. In addition to exports, free zones play a significant role in export diversification, which is particularly important for many developing countries, which primarily export raw materials and produce lower value added. Free zones, by providing an inflow of investment, increase industrial production, and thus the export ceteris paribus. Redefining the economic policy of developing countries, i.e. the transition from import-substitute to export-oriented economy is consistent with the development of free zones. The value of free zone exports in 2015 was 851 billion dollars, or 40.08% of total world exports (Zeng, 2015). Free zones have played a significant role in export growth and improving the export performance of the national economy (Akinci & Crittle, 2008; ADB, 2015; UNCTAD, 2019). Other studies (Johansson & Nilsson, 1997; Aggarwal, Hoppe, & Walkenhorst, 2008) have shown that the impact of free zones on the growth of exports of national economies is not statistically significant.

The third fundamental goal of the development of free zones is the creation of new jobs in developing countries, direct and indirect. Free zones have had significant implications for the labor market in developing countries. In addition to increasing employment, the effect of the development of free zones is reflected in the increase of knowledge and skills of workers, and thus productivity. Many relevant studies (Akinci & Crittle, 2008; Zeng, 2010; Zeng, 2016; WB, 2017; UNCTAD, 2019) have confirmed these claims. In 2019, free zones created between 90 and 100 million direct and up to 200 million indirect jobs (UNCTAD, 2019). The impact of free zones on economic growth is a sublimated result of the impact on these macroeconomic parameters. The establishment of free zones leads to FDI inflows. Investing in capital equipment and the production process of products and/or services creates preconditions for a positive impact on macroeconomic growth parameters. For companies operating in free zones to be operational and functional, a workforce must be hired. Employment creates the preconditions for starting the production process. Manufactured products or services are exported abroad or to the country in which the zones operate, if permitted by law. This channel, through which FDI influences the growth of employment, production and exports, is a transmission mechanism of the impact of free zones on economic growth, measured by GDP per capita. The growth of these macroeconomic indicators leads de facto to economic growth.

METHODS AND DATA

The selected research construction requires examination and quantitative expression of the impact of free zones on the economic growth of developing countries. For this purpose, an adequate theoretical model based on the available empirical material has been formulated, where the reactivity of GDP per capita in relation to the economic performance of free zones is expressed, i.e. indicators of the mechanism of influence of free zones. Data processing was performed on the basis of statistical software for social sciences - SPSS (Statistical Package for Social Sciences- SPSS). The dependent variable in the research is the economic growth of targeted developing countries (Serbia, Croatia, Belarus). Economic growth, i.e. increasing the income and well-being of countries (Acocella, 1998) is an indicator of the success of the implementation of economic policies and the inclusiveness and compatibility of the legislative and administrative framework in accordance with economic goals. The value of GDP per capita was taken as a precise, explanatory, comparative and statistically significant indicator of economic growth.

The analysis examined the impact of the independent on the dependent variable and the compatibility of the results in accordance with the conventional macroeconomic model of GDP. The independent variable in the study are free zones in the analyzed developing countries. Measuring indicators of economic performance and the impact of free zones are the number of companies that have business activities in free zones, investments in free zones, exports from free zones and employment in free zones. Investments include FDI and domestic sources of investment. Although statistically the most significant share of FDI in free zones of the countries subject to analysis (in Belarus the share of FDI in total investments is 100% in free zones, and in Serbia and Croatia approximately 90-95%), the analysis also includes domestic investments, due to the accuracy, consistency and compatibility of the analytical procedure and the interpretation of the obtained results.

The subject of the analysis are 32 free zones in 3 countries (15 free zones in Serbia, 11 free zones in Croatia and 6 free zones in Belarus), i.e. their economic performance and examination of the impact on economic growth, measured by GDP per capita. These countries have common characteristics that determine them as compatible for analysis. First of all, similarities in terms of economic (same or similar sectoral structure of industry), geographic (Europe), demographic (without great disparity in terms of population), and socio-political (transition period from central-planned to market-oriented economy) characteristics. These countries have also applied the same or similar economic policies regarding the model and functioning of free zones. The time period of the analysis is different for these countries and is a consequence of the lack of data in a longer period of time, especially in Croatia, despite the legal obligation to submit data to the Government of the Republic of Croatia, which has institutional jurisdiction over free zones. Data on economic indicators of free zones in Belarus are available for the period 2003-2019, in Serbia for the period 2008-2019 and in Croatia for the period 2011-2018.

RESEARCH RESULTS

An unbalanced Panel data model was used in the analysis. Three models were constructed: a model without a predictor, a model with a predictor with a fixed effect,

and a model with a random predictor. In the model without predictor, the mean value of the Intercept estimate, i.e. the free coefficient, is 6796.903295. Calculation of Intra-class Correlation Coefficient (ICC):

$$ICC = \frac{Variability\ Between\ groups}{Variability\ Between\ Groups + Variability\ Within\ Groups} x100 \quad [1]$$

$ICC_{Without\ predictors}$ = 13847656.86 / (13847656.86 + 1475114.602) x 100 = 90.37%

Table 1 . Estimates of covariance parameters (No predictors in the model)

Parametar	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Residual	1475114.602078	352645.633301	4.183	.000	923282.891223	2356767.476087
Intercept [subject=Zemlja] Variance	13847656.858717	13990082.561260	.990	.322	1911701.079350	100307314.018956

Source: Author`s calculation in SPSS

A strong cluster is present in the model without predictors. The value of the Intraclass Correlation Coefficient (ICC) is 90.37%. The value of the coefficient shows that 90.37% of the total variability arises from variability between countries, i.e. that 90.37% of variability can be explained by variations between countries, i.e. by variations of indicators number of companies and number of employees in the free zone in targeted countries. The fixed predictor model has a mean estimate of 8168.618211. Calculation of Intraclass Correlation Coefficient (ICC):

$$ICC = \frac{Variability\ Between\ groups}{Variability\ Between\ Groups + Variability\ Within\ Groups} x100$$

$ICC_{With\ fixed\ predictors}$ = 16910738.71 / (16910738.71 + 303360.5181) x 100 = 98.23%

Table 2. Estimates of covariance parameters (Fixed model)

Parametar	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Residual	303360.518054	77051.723269	3.937	.000	184399.208053	499067.240504
Intercept [subject =Zemlja]Variance	16910738.711720	16974742.492683	.996	.319	2364500.486021	120944396.275990

Source: Author`s calculation in SPSS

A strong cluster is present in the model with fixed predictors. The obtained value of the Intraclass correlation coefficient shows that 98.23% of the total variability comes from variability between countries as an independent variable, i.e. that 98.23%

of variability can be explained by variations in the number of companies and the number of employees in free zones in targeted countries. After calculating the Intraclass correlation coefficient, the procedure of change in $ICC_{\text{With fixed predictors}}$ in relation to the basic $ICC_{\text{Without predictors}}$ is calculated, using the following formula:

$$Percent\ Change\ in\ ICC = \frac{Final\ ICC - Initial\ ICC}{Initial\ ICC} x100 \quad [2]$$

Percent Change in $ICC_{\text{With fixed predictors}}$ = (98.23 % - 90.37 %) / 90.37 % x 100 = 8.69%. The Percent Change explains 8.69% of the cluster improvement. The model with a random predictor is not relevant for the analysis because the phenomenon of redundant covariance parameters is present in it. In order to determine the degree of agreement of the model with fixed predictors in comparison with the model without predictors, it is necessary to compare the values of -2 Restricted Log Likelihood, i.e. testing the quality of the model. In the model without predictors, the value -2 Restricted Log Likelihood is 643.669, and the total number of parameters is 7.

Table 3. Estimates of covariance parameters (Random effects in the model)

Parametar	Estimate	Std. Error	Wald Z	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Residual	168565.221979	44626.824457	3.777	.000	100326.693478	283217.088849
Intercept [subject=Country] Variance	23827220.965865	23956050.624517	.995	.320	3321005.155161	170953200.140003
No of companies [subject=Country] Variance	.000000b	.000000	.	.	.	.
Investments [subject= Country]Variance	.000000b	.000000	.	.	.	.
Export [subject= Country]Variance	2.659825E-012b	.000000	.	.	.	.
Employment [subject= Country]Variance	.000000b	.000000	.	.	.	.

Source: Author`s calculation in SPSS

In the model with fixed predictors -2 Restricted Log Likelihood is 646,799, and the total number of parameters is 11. The model without predictors is better adjusted because the value -2 Restricted Log Likelihood is closer to zero. To determine whether it is significant to add the following predictors to the model:

$$|df\ change| = 11 - 7 = 4 \quad [3]$$

The tabular value of the chi-square test is 9.49 ($p = 0.05$, $df = 4$).

$$|x^2 \text{ change}| = 646.799 - 643.669 = 3.13 \quad [4]$$

The obtained value of 3.13 < 9.49, i.e. the tabular value is higher than the tested one (calculated), which implies that the model with the added fixed predictor does not make a statistically significant change of the model. That is, the introduction of new indicators is not justified and does not lead to the improvement of the model, despite the expansion of the model, greater robustness and determinism, due to the higher tabular value than the tested one. The obtained model shows that there is a significant impact of the indicators number of companies and the number of employees in the free zone on the GDP per capita of targeted countries. Dependence is expressed by the following model:

GDP per capita = (8168.618211 ± 138476656.86) – 13.616655 × number of companies - 0.000001 × investments + 0.0000000 × export + 0.051190 × number of employees ± 1475114.602

The defined model shows that free zones have an impact on the GDP per capita of targeted countries. That is, the application of an adequate and functional framework of free zones creates the preconditions for sustainable and inclusive economic growth ceteris paribus. Three models were constructed: a model without predictors, a model with fixed predictors, and a model with random predictors. Based on the obtained results, the model with random predictors is inapplicable in the observed case because the covariance parameter is redundant. The Intraclass correlation coefficient was calculated for the model without predictors and for the model with fixed predictors. Based on the obtained results, a model with fixed predictors was chosen as an applicable model. The obtained value of the Intraclass correlation coefficient shows that 98.23% of the total value arises from variability between countries, i.e. that 98.23% of variability can be explained by variations of indicators number of companies and number of employees in the free zone in targeted countries. The model with a random predictor shows the maximum cluster amount.

The percentage change in the Intraclass correlation coefficient explains 8.69% of the cluster, which implies an improvement in the model because a model with fixed predictors was used. However, adding an indicator to the model, according to a previously conducted chi-square test, is not justified, so it is relevant to use a model without predictors.

GDP per capita = 8168.618211 – 13.616655 × number of companies – 0.000001 × investments + 0.0000000 × export + 0.051190 × number of employees

After inclusion of the covariance parameters, the following model is defined:

GDP per capita = (8168.618211 ± 138476656.86) – 13.616655 × number of companies – 0.000001 × investments + 0.0000000 × export + 0.051190 × number of employees ± 1475114.602

The value of the Intraclass correlation coefficient in the model without predictors implies that the variation between countries, i.e. variation of the indicators number of companies and number of employees in free zones explain 90.37% of variations in GDP per capita of targeted countries. The value of the Intraclass correlation coefficient in the model with fixed predictors implies that 98.23% of the variation in GDP per capita is explained by variations between countries, i.e. variation of the indicators the number of companies and the number of employees in the free zone in the targeted countries. The inclusion of indicators investment in free zones and exports from free zones in the model is not justified because they do not have a statistically significant impact. The impact of the indicator number of companies in free zones on GDP per capita is negative and the impact of the indicator number of employees in free zones on GDP per capita is positive. These indicators have a high statistical significance, of 99.99%. The statistical significance of the coefficient (model parameter) for the free zone investment indicator is 78.5%, but its value is small (0.000000) and thus the contribution to GDP per capita is not statistically significant. Also, the lower value (0.00000000) and statistical significance (18.5%) of the coefficient with the indicator exports from free zones implies that this indicator does not have a statistically significant impact on the value of GDP per capita.

The analysis of the economic performance of free zones and their share in the macroeconomic indicators of the national economies of the countries that are the subject of the analysis showed the existence of the influence and importance of free zones in economic growth. The share of companies that have business activities in free zones, in relation to the total number of companies in these countries is 0.32% (Table 4.). The share of companies in free zones in the total number of companies of the same business activity in Belarus is 0.65%, in Serbia 0.25% and in Croatia 0.06%. Companies that have business activities in free zones have cumulatively invested 2.38%, in relation to the total value of investments in these countries. The largest share of investments in free zones, in relation to the total value of investments, was generated in Serbia, with a share of 3.32%, followed by 2.71% in Belarus and 0.35% in Croatia. The share of exports of companies with business activities in free zones in Serbia, Belarus and Croatia in relation to the total exports of national economies is 11.48%, 9.27% and 3.82%, respectively. The average value of exports from free zones, in relation to the total exports of targeted countries is 8.81%. The share of the number of employees in free zones, in the total number of employees in Belarus, Serbia and Croatia, is 5.32%, 2.58% and 1.74%, respectively. The average value of the number of employees in free zones, in relation to the total number of employees in the targeted countries is 3.56%.

The impact of the indicator number of companies in free zones on the dependent variable is negative. The negative correlation implies the existence of an inversely proportional relationship between the increase in the number of companies having business activities in free zones and GDP growth per capita of countries. Increasing the number of free zones or increasing the capacity of existing free zones, compared to the available capacity of the national economy, reduces the potential for economic growth. The indicator number of employees in free zones has a high statistical significance and the impact on the dependent variable is positive. The positive link between employment and economic growth is consistent and compatible with the macroeconomic model of the share of components in GDP in market-oriented open economies. By de-

composing GDP, according to the first definition, i.e. the sum of net final sales made in a certain territory in a defined period of time (expenditure approach), the components that enter the structure of GDP are determined, namely: absorption (public and private consumption), investments and net exports, i.e. GDP = C + I + G + (X - Z) (Burda & Wyplosz, 2009).

Table 4. Share of free zones economic parameters in macroeconomic parameters of the targeted countries

Country	Year	No. of companies	Investments	Export	Employment
Belarus	2003	-	4.71%	3.08%	-
	2004	-	4.57%	3.62%	-
	2005	-	8.73%	3.63%	1.40%
	2006	-	-	4.20%	2.04%
	2007	-	-	4.11%	2.06%
	2008	-	3.03%	4.94%	2.89%
	2009	-	0.66%	5.48%	2.84%
	2010	-	0.63%	6.90%	3.05%
	2011	0.83%	0.65%	9.37%	7.09%
	2012	0.78%	1.13%	9.96%	7.34%
	2013	0.71%	2.52%	12.63%	7.58%
	2014	0.61%	2.31%	12.04%	7.29%
	2015	0.57%	1.80%	12.67%	6.94%
	2016	0.56%	2.06%	16.07%	6.86%
	2017	0.57%	2.45%	16.23%	7.37%
	2018	0.59%	2.70%	15.37%	7.39%
	2019	0.61%	2.77%	17.35%	7.64%
Serbia	2008	0.25%	0.44%	3.28%	0.81%
	2009	0.22%	0.31%	3.82%	0.81%
	2010	0.25%	1.28%	3.99%	1.37%
	2011	0.19%	6.24%	5.89%	1.40%
	2012	0.20%	11.10%	9.37%	2.61%
	2013	0.26%	3.30%	18.99%	3.32%
	2014	0.30%	3.69%	18.20%	3.53%
	2015	0.28%	2.57%	17.04%	2.74%
	2016	0.29%	3.77%	16.02%	3.03%
	2017	0.26%	3.10%	14.70%	3.28%
	2018	0.23%	2.26%	13.29%	3.91%
	2019	-	1.79%	13.12%	4.11%

Croatia	2011	0.08%	0.19%	5.72%	2.22%
	2012	0.08%	0.22%	5.72%	2.05%
	2013	0.08%	0.38%	4.12%	2.15%
	2014	0.05%	0.49%	5.07%	2.09%
	2015	0.04%	0.32%	4.35%	2.07%
	2016	0.05%	0.35%	3.78%	1.92%
	2017	0.04%	0.59%	0.89%	0.71%
	2018	0.03%	0.28%	0.89%	0.70%

Source: Author`s calculation

All relevant and conventional models (Krugman & Obstfeld, 2009; Blanchard, 2009; Burda & Wyplosz, 2009) which quantified the share of these components, show that the largest share in the GDP structure of most countries in the world, in the range of 56-65%, has absorption (private and government consumption), of which approximately 75% refers to private consumption, then investment, from 16 to 30% (of which about 70% refers to non-residential investment), and net exports often have a negative value, with a maximum share of 10 to 20% (the share of exports in net exports is approximately 10-15%) in countries that are export-oriented. The impact of the indicator number of companies in free zones on the dependent variable is negative. The negative correlation implies the existence of an inversely proportional relationship between the increase in the number of companies having business activities in free zones and GDP growth per capita of countries. Increasing the number of free zones or increasing the capacity of existing free zones, compared to the available capacity of the national economy, reduces the potential for economic growth.

The indicator number of employees in free zones has a high statistical significance and the impact on the dependent variable is positive. The positive link between employment and economic growth is consistent and compatible with the macroeconomic model of the share of components in GDP in market-oriented open economies. By decomposing GDP, according to the first definition, i.e. the sum of net final sales made in a certain territory in a defined period of time (expenditure approach), the components that enter the structure of GDP are determined, namely: absorption (public and private consumption), investments and net exports, i.e. GDP = C + I + G + (X - Z) (Burda & Wyplosz, 2009). All relevant and conventional models (Krugman & Obstfeld, 2009; Blanchard, 2009; Burda & Wyplosz, 2009), which quantified the share of these components, show that the largest share in the GDP structure of most countries in the world, in the range of 56-65%, has absorption (private and government consumption), of which approximately 75% refers to private consumption, then investment, from 16 to 30% (of which about 70% refers to non-residential investment), and net exports often have a negative value, with a maximum share of 10 to 20% (the share of exports in net exports is approximately 10-15%) in countries that are export-oriented.

The growth in the number of employees in free zones leads to an increase in the total wage fund, i.e. workers' incomes. The growth of the wage fund does not mean explicare and the growth of the level of real incomes (wages) in the national economy. The level of income of workers is directly related to the level of education,

level of knowledge and skills vice versa (Blanchard, 2009). Since most workers in free zones are of lower qualification in terms of level of education, knowledge and skills, in accordance with the above, they have a lower level of income. An increase in the income fund, based on an increase in the number of employees in free zones, leads to an increase in private consumption, and consequently to an increase in government consumption, and thus to an increase in aggregate demand. Private (personal) consumption is the most significant component of GDP, with a share of 50-65% (Burda & Wyplosz, 2009). The average value of the share of private consumption in the GDP of Serbia, Croatia and Belarus, in the target time period, was 73.6%, 59.3% and 53.5%, respectively (RZS, 2020; DZS, 2020; BELSTAT, 2020). This implies that employment growth in free zones is a significant generator of economic growth, measured by GDP per capita. That is, the growth of the income fund, due to the growth of the number of employees in free zones, has a statistically significant and positive impact on the level of consumption, and thus on the value of GDP per capita. Exports from free zones have a small value and statistical significance of the coefficient (18.5%). Although it has a positive impact, due to the small value and statistical significance of the coefficient, this indicator is not incorporated into the model. Also, the low value of the coefficient with the indicator of investment in free zones, despite the statistical significance (78.5%), eliminates this indicator from the model. The impact of the investment indicator on GDP per capita is negative.

DISCUSSION

By analyzing the obtained results, it was proved that the establishment of free zones has a statistically significant impact on the GDP per capita of targeted countries. Although there are no same studies that have analyzed the same problem, within the same research subject, so the results of the research cannot be ideally compared, partial comparisons can be made. That is, a comparison of the results of this research with research that focused on the partial economic performance of free zones. A World Bank study (WB, 2017) analyzed the impact of free zones on economic growth at the regional and national level but applying other variables and indicators. Other research has focused on the partial economic performance of free zones. That is, examining the relationship between free zones and FDI inflows, exports, employment and the impact on the national economy of the analyzed country or group of countries.

The most significant and relevant research (Akinci & Crittle, 2008; Farole & Akinci, 2011; Farole, 2011; Ciżkowicz, et al., 2017; Kanungo, 2016; WB, 2017; COMCEC, 2017; ASEAN & UNCTAD, 2017; Alkon, 2018;(UNCTAD, 2019; Frick & Rodríguez-Poze, 2019)) confirmed the existence of a positive relationship between the establishment of new and expansion of existing free zone capacities, the arrival of foreign companies in free zones and economic growth, at the regional and national level. Analyzing the impact of free zones on labor market fluctuations, many studies (Akinci & Crittle, 2008; Zeng, 2010; Farole, 2011; Zeng, 2016; COMCEC, 2017; WB, 2017; UNCTAD, 2019) found the existence of a statistically significant impact of free zones on the employment rate. The establishment of free zones creates preconditions for increasing the number of employees, and thus for more significant implications for economic growth, through mechanisms that affect the increase in aggregate demand, i.e. consumption, at the national level. The results of the mentioned research are in ac-

cordance with the results of the research in this paper. Free zones, through their impact on the labor market, create the preconditions for inclusive and sustainable economic growth ceteris paribus, which is a fundamental goal of economic policy in developing countries. In this way, by accelerating economic growth in the long run, positive implications are created for the growth of living standards (Krugman, Wells, & Graddy, 2014).

CONCLUSION

This paper investigates the impact of free zones on the economic growth of developing countries. The research sought an answer as to whether, and in what way, free zones have an impact on the economic growth of developing countries. The choice of research variables deviated from the formal assumptions of the stated theoretical approaches. The choice of free zone economic performance indicators sought to investigate the fundamental factors that reflect the success of the free zone framework. Also, the existence of connection and determination of economic growth of targeted developing countries and economic performance of free zones was examined. The limitation of the research was the availability of relevant statistical data and the choice of an adequate way of searching and using the available databases. Also, shortcomings regarding the use of older sources, especially in the theoretical aspect, and insufficient, irrelevant and inadequate analyzes, on the example of one or a group of countries, represented additional limitations in the research. Econometric calculations of the research model identified indicators that had a statistically significant impact on the dependent variable and omitted those whose statistical significance was low. The research results are compatible with macroeconomic interpretations of GDP. In the structure of GDP, calculated as the sum of net final sales realized in a certain territory in a certain period of time, the dominant position is occupied by absorption, i.e. the sum of private and government consumption. After absorption, investments have the statistically most significant share, followed by net exports. By analyzing the research results and comparing it with the macroeconomic model of the GDP structure, the statistical significance of the indicator that has the largest share in the GDP structure was proven. Namely, the transmission mechanism of free zones refers to the existence of transmission channels through which free zones provide an impact on economic growth. By establishing new and/or increasing the capacity of existing free zones, the number of companies that have business activities in free zones increases, and thus the total investment. The multiplier effect of investments leads to an increase in the production of products and services, exports and employment in free zones. As the stock of investments in free zones in the targeted countries is higher than the proportional increase in the number of employees, the returns on investments are declining. However, investment is a significant generator of increased employment in free zones in targeted countries. The increase in the number of employees resulted in an increase in real income funds, and thus aggregate demand and absorption. Since personal consumption has the statistically most significant share in the structure of GDP, the increase in the number of employees in free zones, and thus the income fund, had a statistically significant impact on the GDP per capita of targeted countries. This confirms the hypothesis that the establishment of free zones in developing countries, provided that the national economy is integrated into the work of the zones, creates the preconditions

for sustainable and inclusive economic growth. Free zones represent an important instrument of the policy of reindustrialization of developing countries that has an impact on economic growth ceteris paribus. Whether growth will be inclusive and sustainable in the long run is a direct implication of political and economic decision makers in developing countries and well-conceived, consistent and effective economic policies. The research conducted is a good starting point for further research in this direction. In order to obtain an extended and more robust model, which will confirm the results of this research and further expand them, with a greater degree of accuracy and reliability, it is necessary to upgrade the existing model. The inclusion of additional parameters of economic performance of free zones and the number of developing countries in the model and a longer period of observation, provides prerequisites for new insights into the mechanism of influence of free zones on economic growth ceteris paribus

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