ЕКОНОМИКА
ISSN 0350-137X, EISSN 2334-9190, UDK 338 (497,1)
Vol. 69, october-december 2023, № 4
P. 69-80

Miloš Stojanović[1]
Ivana Božić Miljković[2]
University Metropolitan,
Faculty of management

Jelena Obradović[3]
Novi Sad School of business

Ljiljana Dimitrijević[4]
The Faculty of Business Economics and Entrepreneurship (PEP)

ORIGINAL SCIENTIFIC ARTICLE
DOI: 10.5937/ekonomika2304069S
Received: November, 09. 2023.
Accepted: December, 08. 2023.

THE IMPACT OF IMPORTS AND EXPORTS ON ECONOMIC GROWTH: PANEL DATA ANALYSIS

Abstract

This paper aims to answer the question of whether import and export have a positive impact on the movement of the gross domestic product in selected countries of the European Union (EU). In the paper, a panel data regression analysis has been applied in the EViews 8 software package. In countries with a high level of income that were selected for analysis, a positive relationship between the observed macroeconomic variables by determined which is statistically significant. The results showed that imports had a greater impact on the gross domestic product than exports in the selected countries for the observed period

Key words: *import, export, economic growth, empirical analysis.*

JEL classification: ***F14***

УТИЦАЈ УВОЗА И ИЗВОЗА НА ЕКОНОМСКИ РАСТ – ПАНЕЛ АНАЛИЗА

Апстракт

Циљ овог рада је да одговори на питање да ли увоз и извоз позитивно утичу на кретање бруто домаћег производа у одабраним земљама Европске уније (ЕУ). У раду је примењена регресиона анализа панел података у софтверском пакету ЕВиевс 8. У земљама са високим нивоом дохотка које су одабране за анализу утврђена је позитивна веза између посматраних макроекономских варијабли, што је статистички значајно. Резултати су показали да је увоз имао већи утицај на раст бруто домаћег

[1] milos.stojanovic@metropolitan.ac.rs, ORCID ID 0009-0009-3774-6483

[2] ivana.bozic@metropolitan.ac.rs, ORCID ID 0000-0002-3311-7841

[3] jelena.obradovic.vps@gmail.com

[4] ljiljana.dimitrijevic@vspep.edu.rs, ORCHID ID: 0000-0003-3105-4039

производа од извоза у одабраним земљама, за посматрани временски период.

Кључне речи: *увоз, извоз, спољна трговина, привредни раст, бруто домаћи производ, емпиријска анализа.*

Introduction

The period in which the belief that the country should export but also apply protectionist measures when it comes to imports has long passed. Today, all the countries in the world sell part of the products produced on their territory to foreign markets. In addition, the needs of consumers in the domestic market cannot be fully satisfied by-products produced by domestic producers. For this reason, part of the products are imported from abroad. The growth of international trade occurred due to the process of globalization. This process took place quickly after the fall of the socialist regimes, and today it is even faster due to the digitalization process. The initiators of this process were, above all, countries with a high of income.

Imports represent the amount of goods and services that are imported from abroad to meet the needs of the domestic market. Previously, it was considered that imports adversely affect economic development yet that opinion has partially changed. What is important is to look at the structure of imports. If products for final consumption are imported, they certainly have an unfavorable impact on economic development. However, if raw materials are imported, which will be processed and then exported in the form of final products, which have added value in their price, as well as services, from which benefits will be realized later, this does not have to be the case. Exports, on the other hand, represent the amount of goods that are produced in a country and placed on the foreign market. Exports have a positive impact on the economic wealth of the country because it leads to an inflow of funds from abroad. The mercantilists also talked about this in their works. They argued that wealth is reflected, in money and that it can be obtained based on foreign trade. According to their opinion, the foreign trade balance must be active it must sell more to others and buy less.

Respecting the consumption principle of calculating the GDP, we can see that it is obtained as the sum of household consumption, gross investment, government spending, and the difference between imports and exports (Kitanović & Golubović, 2003). Therefore, imports are seen, as a negative component of the GDP. However, if import represents the basis for the production process of products that will later be exported at a higher price, as the basis for the development of techniques and technology that will enable a more efficient production process, that import can in no way be viewed as a negative component of the gross domestic product and economic growth. On the other hand, the growth of the gross domestic product has an impact on exports and imports. Therefore, there is a cause-and-effect relationship between these macroeconomic variables. With the growth of the GDP, exports also increase because the entire production cannot be placed on the domestic market, and thus the total wealth also increases. Also, the growth of the GDP leads to an increase in imports due to increased economic wealth and growth in

aggregate demand, but also due to an in the for raw materials, which are necessary for the production process to take place. There is no unified opinion on the relationship between these variables, and these relationships by the subject of analysis by economists for many years. There are opinions about a positive relationship between the given variables, but also those that indicate, that there is a negative influence of imports on the movement of the GDP. For this reason, the paper will examine these attitudes using the example of countries with a high income, using panel data regression analysis.

Literature review

The correlation between foreign trade and a country's economic growth is a subject that draws the interest of numerous economists. Several studies theoretically analyzed the relationship between these macroeconomic variables, but earlier studies have focused on the impact of exports on economic growth. Recently, the question that is being asked more and more is what impact imports have on economic growth and vis versa. Before defining the hypotheses and models and presenting the results of the conducted research, we will display a review of the literature, that is, the results of researchers who have dealt with this topic. Ballast (1978), in his research, concluded that there is a positive relationship between exports and economic growth, using data from 11 developing countries. He proved that the growth of exports affects the gross domestic product in the countries that were included in the analysis.

Considering data for the period 1960 to 1991 for Kenya, Pakistan, Sri Lanka, Cameroon, Ghana, Madagascar, Senegal, and the Ivory Coast, Onafowora et al. (1996) concluded that exports lead to economic growth in the countries that were the subject of their analysis. Rani and Kumar (2018) reached similar results when it comes to the impact of exports on economic growth. They found a positive relationship between imports, exports, and economic growth. Hagemejer and Mućk (2019), analyzed this impact based on data from the countries of Central and Eastern Europe and concluded that exports in the period, from 1995 to 2014 had an extremely significant positive impact on economic growth. On the other hand, a group of authors concluded in their papers that exports do not lead to economic growth. Jung and Marshall (1985) determined the weak influence of exports on economic growth by applying the Granger causality test to the example of 37 developing countries. Daratt (1986) concluded that there is no relationship between exports and economic growth in the example of Taiwan, Hong Kong, South Korea, and Singapore. Devkota and Panta (2019) reached the same conclusion, analyzing exports and economic growth in Nepal.

Hye et al. (2013) analyzed the example of six countries, in South Asia. They investigated the impact of exports on economic growth, the impact of imports on economic growth, and the impact of economic growth on exports and imports. When it comes to the impact of exports on economic growth, it is confirmed in five observed countries, except for Pakistan. The positive impact of economic growth on exports was observed in four countries, except in Nepal and Bangladesh, while the positive impact of economic growth on imports and imports on economic growth was confirmed by these authors in all countries that were the subject of their analysis. The BRICS economies are widely regarded as the foremost trading bloc and emerging economies on the global

stage. These countries have been analyzed by Raghutla and Chittedi (2020). The study they applied is the Johansen cointegration methodology to determine the relationship in the long run and the Granger causality test for the period 1979–2018. The findings of the study confirmed that economic growth was boosted by exports in India, South Africa, and China, while exports positively influenced the economy in Brazil and Russia. Economic growth positively influenced imports in Brazil, India, China, and South Africa, while imports fueled economic growth in Russia. So, based on their results, they confirmed that trade-led economic growth is valid.

Maitra (2020) tested identical hypotheses as Raghutla and Chittedi, but using the example of India. Based on the analysis, she concluded that imports have a stronger impact on economic growth in both the short and long term, while exports have an impact on India's economic growth only in the short term, and are weaker than imports, while in the long term, the impact is positive. but extremely weak. When it comes to the impact of economic growth on exports and imports in India, in this study, it is positive and statistically significant. Therefore, in the literature, there are no unique views on the relationship between the mentioned macroeconomic variables. For this reason, in the continuation of the work, we will analyze the relationship between the observed variables in the example of six member countries of the European Union: Belgium, Luxembourg, the Netherlands, Germany, Italy, and France. Based on the conducted tests and analyses, we will contribute to the analysis of this topic and confirm or refute the hypotheses that were defined below.

Methodology and Hypothesis

To perform a panel data regression analysis, a sample comprising six high-income countries was delineated. The criterion used in the selection of countries is that they are countries with a high level of income and members of the European Union. The final decision that these should be the Benelux countries, as well as Germany, Italy, and France, was that they have been part of the EU since its inception, that is, the European Economic Community (EEC), as a union that preceded the European Union. The time range for which the analysis was carried out is from 2015 to 2021, where quarterly data for the given period was used. Based on the used literature, the defined sample of countries, as well as the period for which the research is conducted, is adequate for conducting panel data regression analysis (Agung, 2009; Dragutinović-Mitrović, 2002) therefore the results that will be obtained can serve for making conclusions.

The hypotheses that we will test in this research are the following:

- H1: Exports have a positive impact on economic growth in the observed countries;
- H2: Imports have a positive impact on economic growth in the observed countries.

The data used to conduct research and test defined hypotheses were collected from the Eurostat website (https://ec.europa.eu/eurostat/en/). The data taken from the site are data on total exports, imports, and GDP in millions of euros in current prices and refer to quarterly periods of the year. Employing panel data regression analysis

for the examination of a specified dataset enables the exploration of both structure and heterogeneity among defined units of observation. Additionally, it facilitates the analysis of structural changes over the observed period (Dragutinović-Mitrović, 2002). The amalgamation of time series and cross-sectional data results in an augmentation of the degrees of freedom, thereby enhancing the statistical power of the conducted tests (Agung, 2009). The conducted testing will allow us to prove or disprove the defined hypotheses.

In the econometric literature, concerning panel data regression analysis, the most commonly referenced models include the pooled model, the fixed effects model, and the stochastic model, also known as the model of stochastic effects (Greene, 2002). Before proceeding with the analysis of panel data and the interpretations of the obtained results, it is necessary to decide which of the models we have listed is adequate for the analysis. Appropriate econometric tests are used for this purpose. The step from which we start, when we decide on which of the models is adequate for the analysis, is the F-test. This test provides a decisive answer regarding the suitability of the pooled model for the given analysis (Green, 2002). The null hypothesis in this context is that $\alpha_1 = \alpha_2 = \ldots = \alpha N$, signifying homogenity in the constant terms (Green, 2002). The regression analysis for the pooled panel model is executed in the EViews 8 software package, applying the following formula:

$$y_{it} = \alpha + \beta_{1xit1} + \ldots + \beta_{kxitk} + \varepsilon_{it};$$

$$_i = 1, \ldots, N; \ _t = 1, \ldots, T; \ _k = 1, \ldots, K, \qquad (1)$$

where: N – the number of units of consumption; T – number of periods; K – value of the k independent variable, i unit of observation in the period t.

Before entering the defined variables into the model, the data were logarithmized. The model itself, after entering the variables, can be displayed using the following form:

$$\ln\_GDP = \alpha + \beta 1 \ln\_EXP_{it} + \varepsilon_{it};$$
$$\ln\_GDP = \alpha + \beta 1 \ln\_IMP_{it} + \varepsilon_{it}; \qquad (2)$$

where: ln_EXP – logarithmic export amount; ln_GDP – logarithmic amount of gross domestic product and ln_IMP – logarithmic amount of imports.

If the null hypothesis is accepted, indicating that the variance of the members is zero, the pooled panel model is deemed more suitable for the given analysis than the fixed effect model. Conversely, if the null hypothesis is rejected, signifying that the variance of the members is not zero, then the fixed effect model proves to be a better choice than the pooled panel model. In contrast to the pooled panel model, in the fixed-effect model, the parameter α is not constant but varies with each unit of observation, remaining constant over time (Kennedy, 2008). The fixed effect model can be econometrically represented by the following formula:

$$y_{it} = \alpha_i + \beta_{1xit1} + \ldots + \beta_{kxitk} + \varepsilon_{it}$$
$$_i = 1, \ldots N; \ _t = 1, \ldots T; \ _k = 1, \ldots K. \qquad (3)$$

To ascertain the suitability of a stochastic effect model for a given analysis, conducting the Breusch-Pagan LM test is imperative. This test operates on the hypothesis that the variance of the members is zero. If this hypothesis is rejected, indicating that the variance of the members is not zero, it implies a significant stochastic influence in the model. In such a scenario, opting for the model with stochastic effects is deemed more appropriate than the pooled model for the analysis at hand (Green, 2002). The model can be represented by the following formula:

$$y_{it} = \alpha + \beta_{1xit1} + \ldots + \beta_{kxitk} + v_i + \varepsilon_{it}$$
$$_i = 1, \ldots N; \ _t = 1, \ldots T; \ _k = 1, \ldots K \qquad (4)$$

In the context where "vi" represents the random effect for each individual spatial unit, and "α" denotes the common constant term for all units of observation, if the conducted tests indicate that both the model with fixed effects and the model with stochastic effects are suitable for the analysis, the ultimate choice between the two is determined through the application of the Hausman test (Green, 2002; Kennedy, 2008).

Results of panel data regression analysis and discussion
The results of the tested hypothesis H1

In the part where the research methodology is defined, it is seen that the F-test is performed first. The value of the F statistic, which was obtained when hypothesis H1 was tested, is 212.4653 with a significance level of 0.000 ($p < 5\%$). This leads us to the conclusion that we reject the null hypothesis, asserting homogeneity in consonant terms, and instead, accept the alternative hypothesis. This implies that the model with fixed effects stands as a suitable alternative for testing the initial hypothesis. The results of the pooled model are in Table 1.

Table 1 Pooled model results - F test

Dependent Variable: LN_GDP Method: Panel Least Squares Periods included: 28 Cross-sections included: 6 Total panel (balanced) observations: 168				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.823017	0.744504	3.791808	0.0005
LN_EXP	0.852941	0.058516	14.57619	0.0000
F-statistic	212.4653			
Prob.	0.000000			

Source: Calculated by authors

Table 2 shows us the results of the fixed effects model. The results of this model show us that with an increase in exports by 1%, there is an increase in the gross national product by 0.45%. Before these results can be accepted, it is necessary to conduct additional testing.

Table 2 Fixed effect model results

Dependent Variable: LN_GDP Method: Panel Least Squares Periods included: 28 Cross-sections included: 6 Total panel (balanced) observations: 168				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.977708	1.480583	5.388222	0.0000
LN_EXP	0.445185	0.117118	3.801182	0.0006
R-squared	0.798479			

Source: Calculated by authors

The results of the Breuch Pagan LM test, which are shown in Table number 3, show us that there is a notable stochastic effect in the given model, whicgh suggests that the stochastic effects model could serve as a viable alternative for testing hypothesis H1.

Table 3 Results of Breusch Pagan LM test

Lagrange multiplier (LM) test for panel data Total panel observations: 168			
Null (no rand. effect)	Cross-section	Period	Both
Alternative	One-sided	One-sided	
Breusch-Pagan	122.2279	4.044449	126.2723
	(0.0000)	(0.0143)	(0.0000)

Source: Calculated by authors

In order to be able to decide on the appropriate model, the Hausman test was carried out, the results of which can be found in Table 4. Based on these results, it can be seen that for testing the first hypothesis, a model with a stochastic effect is adequate, because the probability The Chi-Square statistic surpasses the 5% ($p = 0.0609 > 0.05$) (Asterious, Hall, 2016).

Table 4 The result of the Hausman test

Correlated Random Effects - Hausman Test Test cross-section random effects				
Test Summary	Chi-Sq. Statistic	d.f.	Chi-Sq.	Prob.
Cross-section random	3.511604	1		0.0609

Source: Calculated by authors

Referring to Table 5, it's evident that the coefficient associated with Ln EXP is positively signed (0.562989) and holds statistical significance, considering the p-value of 0.0000, which is below the 0.05.

These results show that there is a positive relationship between exports and GDP, which is statistically significant, that is, a 1% increase in exports leads to a 0.56% increase in the GDP in the observed countries, or, in other words, a change in the gross domestic product of 0.56%, can be explained by changes in exports of 1%.

Table 5 The result of the stochastic effect model

Dependent Variable: LN_GDP				
Periods included: 28				
Cross-sections included: 6				
Total panel (balanced) observations: 168				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.488479	1.276837	5.081680	0.0000
LN_EXP	0.562989	0.098816	5.697353	0.0000
R-squared	0.762963			

Source: Calculated by authors

The regression model's R-squared is 76%, indicating the model's effectiveness in explaining the relative changes in gross domestic product. Consequently, the model proves suitable for prediction. Despite the high R-squared value, the variables incorporated in the regression model exhibit a statistically significant level, affirming the absence of multicollinearity in the analyses and the derived conclusions.

The results of the tested hypothesis H2

The value of the F statistic, when it comes to testing the hypothesis H2, is 255.0132, with a significance level of $p=0.000 < 0.05$, which can be seen in the attached Table 6. So, based on this, we can conclude that the constant terms are not homogeneous and that the pooled model is not adequate for the given analysis, which means that a fixed-effects model may be adequate for testing of this hypothesis.

Table 6 Pooled effect model – F test

Dependent Variable: LN_GDP				
Method: Panel Least Squares				
Periods included: 28				
Cross-sections included: 6				
Total panel (balanced) observations: 168				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.183713	0.781749	1.514186	0.0378
LN_IMP	0.911950	0.061491	15.96913	0.0000
F-statistic	255.0132			
Prob.	0.000000			

Source: Calculated by authors

The results of the fixed-effects model are presented in Table 7. If the model with fixed effects is accepted as a good alternative, the obtained results tell us that with an increase in imports of 1%, there is an increase in the gross national product of 0.91% in the observed countries. However, before accepting these results, as in the case of the first hypothesis, it is necessary to conduct additional tests.

Table 7 Fixed effects model results

Dependent Variable: LN_GDP				
Method: Panel Least Squares				
Periods included: 28				
Cross-sections included: 6				
Total panel (balanced) observations: 168				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.549153	1.116389	5.866372	0.0000
LN_IMP	0.557811	0.088249	6.320883	0.0000
R-squared	0.788996			

Source: Calculated by authors

The Breuch Pagan LM test, the results of which are shown in the following Table 8, shows us that there is an important stochastic effect in the model. For this reason, the stochastic effects model is recognized as a good alternative for testing the second hypothesis.

Table 8 Results of LM test

Lagrange multiplier (LM) test for panel data			
Total panel observations: 168			
Null (no rand. effect)	Cross-section	Period	Both
Alternative	One-sided	One-sided	
Breusch-Pagan	122.4132	3.979776	126.3930
	(0.0000)	(0.0460)	(0.0000)

Source: Calculated by authors

Considering that both the fixed-effect model and the stochastic effects model can be good alternatives for testing the second hypothesis, it is necessary to conduct the Hausman test (Table 9), as it was done when we tested the first hypothesis.

Table 9 Results of Hausman test – hypothesis 2

Correlated Random Effects - Hausman Test			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.005110	1	0.0554

Source: Calculated by authors

As can be seen from the previous table, p = 0.0554 > 0.05, we conclude that for testing the second hypothesis, a model with stochastic effects is more adequate. Applying this model (Table 10), it was determined that with a 1% increase in imports, there is a 0.63% increase in the gross domestic product. Therefore, there is a strong positive relationship between exports and gross domestic product, which is statistically significant (p = 0.000).

Table 10 Results of the stochastic effect model

Dependent Variable: LN_GDP				
Periods included: 28				
Cross-sections included: 6				
Total panel (balanced) observations: 168				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.622675	1.044870	5.381218	0.0000
LN_IMP	0.631049	0.080303	7.858320	0.0000
R-squared	0.689483			

Source: Calculated by authors

This regression model has an R-squared of 0.68, i.e. 68%, which shows us how much this model explains the relative change in the gross domestic product. This obtained value, as well as the other obtained parameters, show us that there is no fear of the existence of multicollinearity.

Analysis results and recommendations for further research

Based on the conducted tests, it can be concluded that both defined hypotheses have been proven. Therefore, both export and import have a positive influence on the movement of the gross domestic product, which we have chosen as an indicator of economic growth, in the observed countries By proving the first hypothesis that exports affect economic growth, we confirmed the results reached by Ballasa (1978), Rani and Kumar (2018), Onafoeora et al. (1996) and Hagemejer and Mućk (2019). As can be seen in the applied model, exports in the observed member countries of the EU from 2015(Q1) to 2021(Q4), had a positive impact on the growth of the gross domestic product. Changes in exports of 1% can be explained by in gross domestic product of 0.56%, with a significance level of p = 0.000.

For many years was an opinion that imports negatively affect the movement of the gross domestic product and the whole economic growth of the country. Analyzes of the impact of imports on economic growth, and vice versa, have started to be carried out in recent years. In those analyses, it has been proven that imports can have a positive effect on economic growth, and in some cases more significantly than exports. In the conducted empirical analysis, we determined that imports and gross domestic product have a positive relationship and that this relationship is statistically significant, that is, changes in imports of 1% can be explained by changes in gross domestic product of 0.69%. In this way, we proved the second hypothesis and reached the same conclusion

as Maitra (2020), Hye et al. (2013), Rani and Kumar (2018), and Raghutla and Chittedi (2020). The result we reached is interesting, that in the observed period, there is a stronger connection between import and gross domestic product than export and gross domestic product. Maitra (2020) also came to similar results in her research. This means that the observed countries should look at imports favorably, and not as a negative component of the gross domestic product and economic growth to improve their economic growth in the future period.

The limitation of this research is reflected in the fact that different results could be reached if some other countries had been chosen for analysis. It is also, recommended that the impact of imports and exports on economic growth should be analyzed individually for each country to know which macroeconomic variable has a more dominant influence and which should be encouraged to accelerate economic development.

The recommendation for future researchers of this topic is to look at which components of import and export have the strongest influence on the movement of the gross domestic product in the countries that we have analyzed, which will make a significant contribution to the deepening of this topic.

Conclusion

Completely closed economies do not exist today. The process of globalization, which was encouraged by countries with high-income levels, led to the opening of economies and liberalization when it came to the movement of goods, services, labor, and capital. Increasing international trade flows have led to the fact that the area of import and export is increasingly studied in terms of using these macroeconomic variables as a basis for the economic growth of the economy. By analyzing these relationships, different authors came to different conclusions, which depended on the country they were analyzing. The fact that foreign trade is a source of economic power is still talked about by mercantilists, but economists have proven through empirical analysis that the source of economic growth can also be imported, which is conditioned by the structure of imports. Namely, if raw materials are imported, for their further processing or techniques and technology that will lead to an increase in production and an increase in the efficiency of the production process, then such imports certainly have an impact on economic growth. To analyze whether export and import affect economic growth, we defined a model in the paper and used data for six countries with a high level of income (Belgium, the Netherlands, Luxembourg, Germany, Italy, and France). The obtained results showed that both exports and imports have a positive impact on the growth of the gross domestic product. Import has a stronger degree of influence on economic growth compared to export, for the observed period. For this reason, the observed countries, with the aim of further increasing the gross domestic product, should encourage their import.

References

Agung, G. N. (2009). *Time series data analysis using EViews*. John Wiley & Sons Pte Ltd. ISBN: 978-1-118-17630-6

Asteriou, D., & Hall, S. (2016). *Applied Econometrics*. Red Globe Press. ISBN: 978-1137415462

Balassa, B. (1978). Exports and economic growth: Further evidence. *Journal of Development Economics.* 5, 181–89. https://doi.org/10.1016/0304-3878(78)90006-8 (Acessed on 01.10.2022.)

Darrat, A. F. (1986). Trade and Development: The Asian Experience. *Cato Journal.* 6, 695–99. https://www.cato.org/sites/cato.org/files/serials/files/cato-journal/1986/11/cj6n2-16.pdf (Acessed on 02.11.2022)

Devkota, M. L., Panta, H. (2019). Are Exports, Imports, and Exchange Rates Cointegrated? Empirical Evidence from Nepal. *International Journal of Economics and Financial Issues.* 9 (2), 277–283. https://doi.org/10.32479/ijefi.7588

Dragutinović-Mitrović, S. R. (2002). *Analiza panel serija*. Zadužbina Andrejević. ISBN 86-7244-225-3

Eurostat. https://ec.europa.eu/eurostat/en/web/main/data/database, (Acessed: 01.10.2022)

Greene, W. H. (2002). *Econometric Analysis* (5th edition). Pearson education.

Hagemejer, J., & Mućk, J. (2019). Export-led growth and its determinants: Evidence from Central and Eastern European countries. *The World Economy.* 42, 1994–2025. https://dx.doi.org/10.1111/twec.12790 (acessed on 02.11.2022.)

Hye, Q. M. A., Wizarat, S., & Lau, W.Y. (2013). Trade-led growth hypothesis: An empirical analysis of South Asian countries. *Economic Modelling.* 35, 654–60. DOI: 10.1016/j.econmod.2013.07.040

Jung, W. S., & Marshall, P. J. (1985). Exports, growth and causality in developing countries. *Journal of Development Economics.* 18, 1–12. https://doi.org/10.1016/0304-3878(85)90002-1 (Acessed 07.10.2022)

Kennedy, P. (2008). *A guide to Econometrics* (6th edition). Blackwell Publishing. ISBN: 978-1-405-18257-7

Maitra, B. (2020). Exploring Import-led Growth in India: Evidence from the Post-reform Period. *South Asian Journal of Macroeconomics and Public Finance*. 9(1), 87-113. https://doi.org/10.1177/2277978720906068

Onafowora, O. A., Owoye, O. A., & Nyatepe-Coo, A. (1996). Trade policy, export performance and economic growth: Evidence from sub-Saharan Africa. *The Journal of International Trade and Economic Development.* 5, 341–60. https://doi.org/10.1080/09638199600000019

Raghutla, C., & Chattedi, K. R. (2020). Is there an export- or import-led growth in emerging countries? A case of BRICS countries. *Journal of Public Affairs.* 20(3). https://doi.org/10.1002/pa.2074

Rani, R., Kumar, N. (2016). Does Fiscal Deficit Affect Interest Rate in India? An Empirical Investigation. *Jindal Journal of Business Research.* 5, 87–103. https://doi.org/10.1177/2278682116680925 (acessed on 20.10.2022)