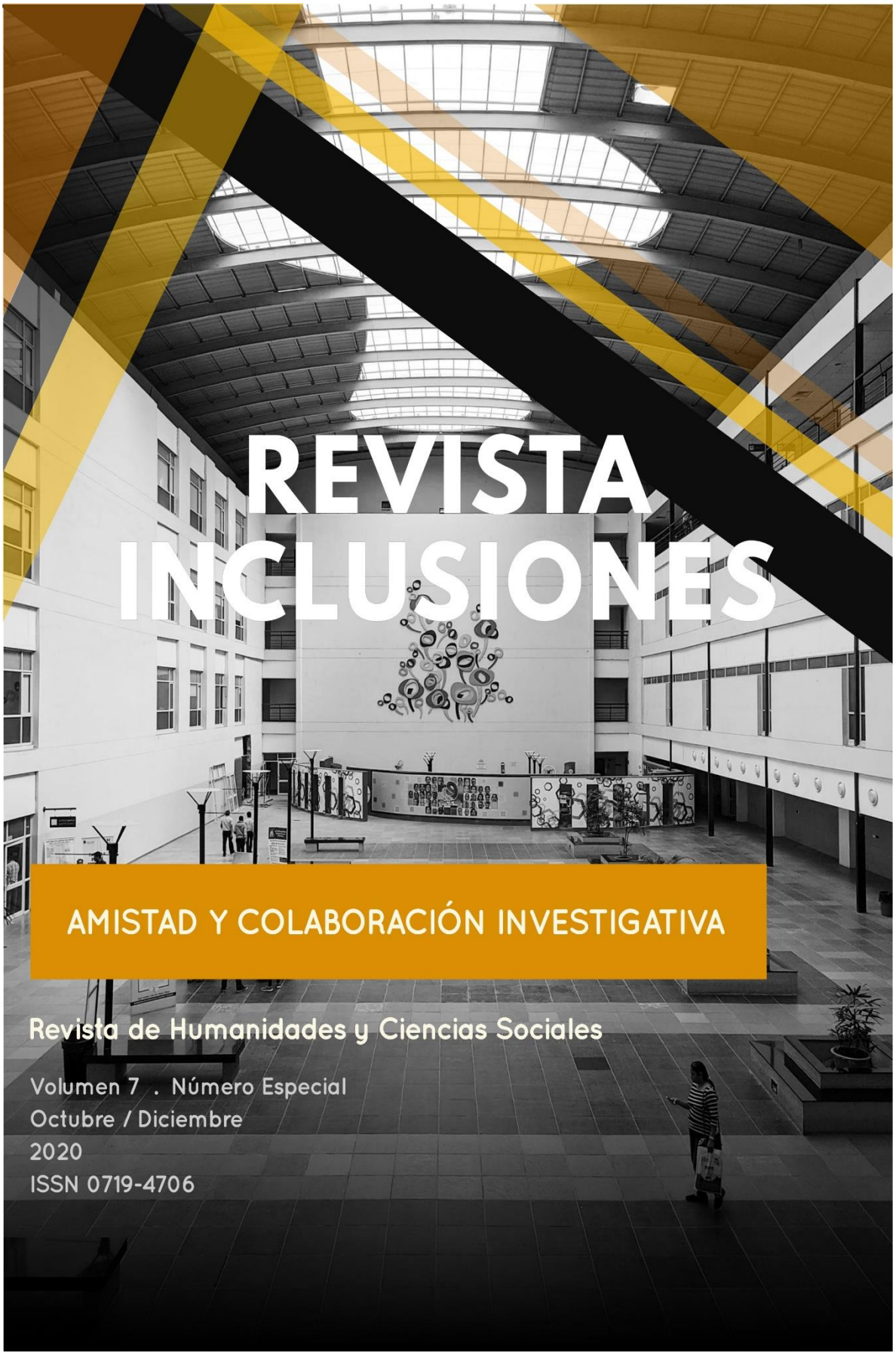

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THE INFLUENCE OF THE GLOBALIZATION ON THE DEVELOPED COUNTRIES IN THE EUROPEAN UNION

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Abstract

This article examines the impact of the globalization on the economies of the developed countries of the European Union. Globalization is seen as a process and state that includes three sub-indicators, namely an economic, social and political globalization. From here, we consider not only the impact of globalization as a whole, but also the impact of economic, social and political globalization on EU countries. The purpose of the study is to determine what this influence is. The fixed effects least squares method and the random effects least squares method are applied to achieve the objective. The findings of the study are that the globalization has a favorable impact on the economic development of developed countries in the EU.

Keywords

Globalization – Economic growth – Political globalization – EU

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Introduction

The globalization is a dynamic process of developing the economic and political cohesion of the countries in the EU and the world. It is a process that leads to a certain dynamic state of socio-economic development, which is characterized by the transition from a modern to a post-modern socio-economic state of the countries. Therefore, the globalization determines the economic, political and social development of the EU countries. Globalization is a combination of economic integration, political consolidation and social cohesion of the countries. The economic globalization is manifested as a consolidated movement of capital, people, goods and services. The social globalization is manifested through the international tourism, inequality, poverty and the mutual assistance. The political globalization is manifested in participation in political, customs, banking and military alliances. It is also the integration of the legislative framework into the common European legislative environment.

According to Manfred Steger, the globalization is **"***movement towards greater interdependence and integration*"[1]. The quote cited is the essence of the globalization, which is the rapid movement of convergence between the different economic models. According to Professor Alexander Tomov[2], this convergence is so fast that it is faster than the rate of growth of world GDP**.** It is clear that the globalization is a process that influences the economic development through three main channels, namely political, social and economic. The interpenetration of the different cultures, economies, and political models that the globalization describes is described by Steger as a synthesis of those of Anthony Giddens, Fredrick James, David Held, Ronald Robertson, and James Mittelman, by which he synthesizes the following definition of globalization:

> Globalization refers to a multidimensional set of social processes that create, multiply, stretch, and intensify worldwide social interdependencies and exchanges while at the sometime fostering in people a growing awareness of deepening connections between the local and the distant[3].

The essence of globalization, which stands out from the above quote, is reduced to an immense and comprehensive dynamic process that determines the development first in the social sphere and then in the economic sphere. And the "center" that determines the local development of the socio - economic status, can be geographically very far apart and culturally different. It clearly emphasizes the order of the channels that trigger the globalization, and namely the beginning is the political penetration, followed by economic penetration, and finally it is a cultural penetration that changes the value system and the essence of the whole local state.

The presented article examines the impact of the political, social, economic and overall globalization on the economic development of the EU countries. The survey covers the period 1995 - 2016 and the countries included in the study panel are: Belgium, Denmark, Germany, Finland, France, Italy, Netherlands, Austria, Poland, Sweden, Hungary, Spain. The countries involved and elected, although not all developed countries in the EU, fully reflect the economies of the developed countries in the European Union.

[1] M. B. Steger, Globalization: A Very Short Introduction. 1st ed. (New York: Oxford University Press, (2003), 9.
[2] A. Tomov, The New Global Powers and Europe. 1st ed. (Sofia: Sveti Kliment Ohridski, 2017).
[3] M. B. Steger, Globalization: A Very Short Introduction… 13.

The Fixed effect least squares method and the Random effects least squares method are used, as well as a correlation analysis.

Literature review

The measurement of the globalization and the impact on the economy is realized through a globalization index. Several such indexes are known in the literature, which include sub-indexes that cover the economic, political and social side of the globalization. These sub-indices, in turn, include variables that are indicators of a particular area. Axel Dreher[4] is the author responsible for compiling the most used globalization index. The globalization index consists of three sub-indexes.

The first is an index that is included in the index of the general globalization is the economic globalization. He views the economic globalization by dividing it into two parts. The first part covers the actual flows, which include the following variables: trade, FDI, portfolio investment, income payments to foreign nationals. The second part, which is included in the economic globalization, covers the following variables: hidden barriers to imports, average tariffs, taxes on the international trade and capital restrictions.

The second index of the General Globalization Index covers the policy. The political sub-index, on its part, covers the following variables: the number of the embassies in the country, membership of international organizations, missions to the UN Security Council.

The third sub-index is the social globalization. It covers some variables such as outgoing telephone traffic, international tourism, number of internet users and others.

Dreher concludes that globalization has a positive impact on economies of the countries he is considering. He argues that the economic integration has the greatest impact on the economic growth, followed by social integration, and the political integration has no effect on the economic growth.

The authors Savina Gygli, Florian Haelg, Niklas Potrafke and Jan-Egbert Sturm[5] introduce a revised version of the constructed Dreher Index. They divide the globalization index into "de jure index" and "de facto index". In the part of the index that covers the economic integration, the authors differentiate it into commercial and financial globalization. Thus, the revision of the globalization index leads to an increase in the variables from 23 to 43. According to Savina Gygli, Florian Haelg, Niklas Potrafke and Jan-Egbert Sturm[6], the development of the economy is positively related to the political, social and economic globalization. The Maastricht Index of Globalization includes trade, which is calculated as the sum of imports and exports of goods and services and is then referred to as a share of GDP. Also, in the economic sphere, the Maastricht Index of Globalization also includes gross foreign direct investment as a share of GDP, as well as net flows of private capital as a share of GDP[7].

[4] A. Dreher, “Does globalization affect growth? Evidence from a new index of globalization”, Applied Economics, Vol: 38 num 10 (2006): 1091-1110.

[5] S. Gygli, F. Haelg, N. Potrafke & J-E. Sturm, „The KOF Globalisation Index – revisited”, The Review of International Organizations, Vol: 14 (2019): 543–574.

[6] S. Gygli, F. Haelg, N. Potrafke & J-E. Sturm, “The KOF Globalisation Index…

[7] L. Figge & P. Martens, “Globalisation Continues: The Maastricht Globalisation Index Revisited and Updated”, Globalizations, Vol: 11 num 6 (2014): 875-893.

Petra Vujakovic[8] compiles a new index of the globalization to measure globalization. The new Globalization Index covers three areas. The three areas that make up the new globalization index are: economy, politics and the social sphere. The author introduces five new indicators which are: geographical distance, shares, patents and trademark creation by non-residents, ideas and introduction of new products and research and development of foreign companies in the internal market, number of international environmental agreements, mobility of the young high educated population, the purity of the signal of the international internet connection (International internet bandwidth seems).

Cuneyt Kilic[9], Pisi Bethania Titalessy[10], Mohammad Afzal[11], Parisa Samimi and Hashem Salarzadeh Jenatabadi[12] etc. conclude that the globalization as a whole has a beneficial effect on the economic development.

Polasek and Sellner[13] examine the impact of the globalization on the 27 EU countries for the period 2001-2006. They conclude that the globalization affects different regions and countries differently, and this influence is determined by the degree of development. According to the authors, the effects of globalization are greater and more positive in less developed regions.

In the scientific literature that examines the link between the globalization and the economic development, the predominant results are those that conclude, that the globalization has a positive effect on the economic development. According to Joseph Eugene Stiglitz[14] the globalization is a process that can produce positive impulses or negative shocks to the economic development. What the results of the globalization process will be, depends on how it is governed. Stiglitz[15] writes, that the globalization managed in a way, as it has been managed so far, leads to negative effects on the developing countries, especially if these countries are poor. However, Stiglitz[16] does not deny the globalization, but rather argues that it has a positive effect, but the question is how to use it properly and to manage it effectively.

Features of the survey

The survey is a panel based and includes the following countries: Belgium, Denmark, Germany, Finland, France, Italy, Netherlands, Austria, Poland, Sweden, Hungary, Spain, for the period 1995-2016. The data sources in the study are: Eurostat and 2018 Globalization Report. The variables considered in this study are:

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[8] P. Vujakovic, “How to Measure Globalization? A New Globalization Index (NGI)”, Atlantic Economic Journal, Vol: 38 num 2 (2010): 237.

[9] C. Kilic, “Effects of Globalization on Economic Growth: Panel Data Analysis for Developing Countries”, Economic Insights – Trends and Challenges, Vol: 4 num 1 (2015): 1 - 11.

[10] P. B. Titalessy, “The Impact of Globalisation on Economic Growth in Asia-Pacific”, Asia Pacific Journal of Advanced Business and Social Studies, Vol: 4 num 2 (2018): 79-85.

[11] M. Afzal, “The Impact of Globalisation on Economic Growth of Pakistan”, The Pakistan Development Review, Vol: 46 num 4 (2007): 723–734.

[12] H. S. Jenatabadi, “Globalization and Economic Growth: Empirical Evidence on the Role of Complementarities”, PLoS ONE, Vol: 9 num 4 (2014): 1-7.

[13] W. Polasek & R. Sellner, “Does Globalization Affect Regional Growth? Evidence for Nuts-2 Regions in EU-27”. Law and Economics Review, Vol: 4 num 1 (2013): 23-65.

[14] J. E. Stiglitz, “Globalization and Its Discontents”. 1st ed. New York & London: W.W. Norton & Company, (2002)

[15] J. E. Stiglitz, Globalization and Its Discontents…

[16] J. E. Stiglitz, Globalization and Its Discontents…

GDP	Gross domestic product
KOF	Index of the general Globalization
KOFeconomy	Index of Economic Globalization
KOFSocial	Index of Social Globalization
KOFPolitics	Index of Political Globalization

The Software product through which the survey is realized, is Eviews10.

Methodology of the survey

The process is stationary when it has the following characteristics[17]:

(1)

$$E(yt) = \mu$$

(2)

$$E(yt - \mu)(yt - \mu) = \sigma_2 < \infty$$

(3)

$$E(yt_1 - \mu)(yt_2 - \mu) = \gamma t_2 - t_1 \quad \forall\, t_1, t_2$$

From equations (1), (2), (3), we can say that the stationary is a dynamic order with constant mean (median), the variance is constant and there are constant and independent random deviations in the individual observations.

The stationarity of the panel data in this study is verified by applying the Panel unit root test: Summary, which includes the following tests: Levin, Lin & Chut, ADF - Fisher Chi-square, PP - Fisher Chi-square.

The stationarity of the dynamic orders is expressed by the following equation:

(4)

$$\Delta \mathbf{y_t} = \alpha \boldsymbol{\gamma_{t-1}} + \mathbf{x_t'} + \boldsymbol{\varepsilon_t}$$

where:

y – dependent variable;
α – regression coefficient;
β – regression coefficient;
x – independent variable;
ϵ – variable of interference.
The null hypothesis states that there is a unit root,

[17] C. Brooks, Introductory Econometrics for Finance. 2nd ed. (New York: Cambridge University Press, 2008).

(5)

$$\mathbf{H_0 : a = 0}$$

(6)

$$\mathbf{H_1 : a < 0}$$

The alternative hypothesis states that there is no a unit root.

In a stationary process, a Hausman test is applied to determine whether the fixed-effects least-squares method or the least-squares random effects method will be applied.

The Hausman test can be written with the following mathematical equations (Hausman, 1978):

(7)

$$\overset{V}{Y} = \overset{V}{X}\hat{\beta} + \tilde{X}\alpha + V$$

Where:

$\overset{V}{Y}$ and $\overset{V}{X}$ are Y transformed variables of random effects

$\tilde{X}$ the change in the state of the variables from the fixed effects specification

This equation expresses finding the correct form of the least squares method, i. e. whether the random effects regression analysis to be used or the fixed effect regression analysis. Hausman specializes in equation (7). After transformations, he obtains the following equation: (8)

$$Y = \tilde{X}\delta + \tilde{X}\alpha + V$$

Equation (8) tests whether α=0

(9)

$$\mathbf{H_0 : a = 0}$$

The mathematical expression (9) states that the preferred model is the least-squares method with random effects.

(10)

$$\mathbf{H_1 : a < 0}$$

Mathematical expression (10) states that the preferred model is the method of least-squares with fixed effects. The method of least squares with fixed effects can be written with the following mathematical equation:

(11)

$$y_{it} = \alpha + \beta x_{it} + \mu_j + u_{it}$$

μ_j a specific effect that captures the influence of all variables that affect the dependent;

Mathematical expression (9) states that the preferred model is the least-squares method with random effects. The least-squares method with random effects can be written:

(12)

$$y_{it} = \alpha + \beta x_{it} + \omega_{it}$$

x_{it} - vector of the explanatory variable

α, β- explaining parameters of the equation

y_{it}- dependent parameter of the equation

ω_{it}- term of the equation $\omega_{it} = \epsilon_{it} + u_{it}$

Results of the empirical study

The starting point for the empirical results will be the single root procedure.

The Results of Panel unit root test: Summary

	GDP	KOF	KOFeconomy	KOFSocial	KOFPolitics
Levin Lin&Chun	-3,3733** 0,0004*	-4,1013** 0,0000*	-3,8974** 0,0000	-3,79446** 0,0001*	-12,6181** 0,0000*
Im, Peseran and Shin W-stat	-2,9601** 0,0015*	-4,3922** 0,0000	-3,6443** 0,0002	-2,56429** 0,0062*	-14,6713** 0,0000
ADF- Fisher Chi-square	52,186** 0,0007*	-59,639** 0,0001*	51,638** 0,0009*	43,9699** 0,0077	361,614** 0,0000
PP- Fisher Chi-square	44,621** 0,0066*	73,638** 0,0000*	54,181** 0,0004*	81.6690** 0.0000	284,377** 0,0000
** t-statistic *prob.					

Data source: Eurostat[18], 2018 Globalization Report[19] , Kof globalization index -KOF Swiss Economic Institute [20]

Figure 1
Own calculations

[18] Eurostat. https://ec.europa.eu/eurostat/data/database

[19] J. Weiß; A. Sachs & H. Weinelt, Globalization Report, Who Benefits Most from Globalization?, Bertelsmann Foundation, 2018.

[20]Kof globalization index - KOF Swiss Economic Institute. https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html

The data are stationary and allow for the application of correlation analysis and the least squares method with random and fixed effects.

Correlation Matrix

	GDP	KOF	KOFeconomy	KOFSocial	KOFPolitics
GDP	1,000000	*********	*********	*********	*********
KOF	0,717575	1,000000	*********	*********	*********
KOFeconomy	0,714691	0,989565	1,000000	*********	*********
KOFSocial	0,133496	0,234066	0,135064	1,000000	*********
KOFPolitics	0,572577	0,792538	0,721749	0,334969	1,000000

Data source: Eurostat[21], 2018 Globalization Report[22] , Kof globalization index -KOF Swiss Economic Institute [23]

Figure 2
Own calculations

The correlation analysis (Figure 2) of the variables under consideration visualizes the significant relationship that exists between the economic development of the countries concerned and globalization. Particularly high correlation exists between the economic globalization and the economic development of the following countries Belgium, Denmark, Germany, Finland, France, Italy, Netherlands, Austria, Poland, Sweden, Hungary, Spain, which are included in the data panel. Following the economic globalization, a significant correlation has been established between the social globalization and the economic development. The relationship between the political globalization and the economic development is weak. From a methodological point of view, the correlation between the economic, political, social and the general globalization is an indicator of multicollinearity when constructing a multiple least squares model. Therefore, in the present study, to avoid multicollinearity, regression models will be constructed as one-factor. Mathematically this can be expressed by the following functions: GDP=f (KOF), GDP=f(KOFeconomy), GDP=f(KOFsocial), GDP=f(KOFpolitical). So divided procedurally, but viewed through a systematic approach, the results will produce statistically significant results.

The Results of Hausman Test

	GDP=f(KOF)	GDP=f(KOFeconomy)	GDP=f(KOFsocial)	GDP=f(KOFpolitical)
Cross-section random	10,870847** 0,0010*	10,388165** 0,0013	0,426718** 0,5136*	8,710126** 0,0032*
**Shi-Sq. Statistic *Prob.				

Data source: Eurostat[24], 2018 Globalization Report[25] , Kof globalization index -KOF Swiss Economic Institute[26]

Figue 3
Own calculations

[21] Eurostat. https://ec.europa.eu/eurostat/data/database
[22] J. Weiß; A. Sachs & H. Weinelt, Globalization Report…
[23] Kof globalization index -KOF Swiss Economic Institute…
[24] Eurostat. https://ec.europa.eu/eurostat/data/database
[25] J. Weiß; A. Sachs & H. Weinelt, Globalization Report…
[26] Kof globalization index - KOF Swiss Economic Institute…

The procedure for determining the type of the specialization of the regression analysis boils down to the following result: the impact of the political globalization on the economic growth must be examined using the least-squares method with random effects (See Fig. 3).

Fixed effects model GDP = f (KOF)

Dependent variable: GDP	Coefficient	Std. Error	t-statistic	Prob.
C	93,05334	10,45893	8,897020	0,0000
KOF	0,412149	0,144287	2,856381	0,0047
R-squared 0,980976		F-ststistic 1057,094		Prob.(F-statistic) 0,000000

Data source: Eurostat[27], 2018 Globalization Report[28] , Kof globalization index -KOF Swiss Economic Institute [29]

Figure 4
Own calculations

The overall globalization has a direct and positive impact on the economic development of the countries included in the panel. The development and the change of the process of globalization towards enlargement leads to an increase in the economic growth of the countries concerned. The overall globalization determines 98 percent of the changes in the economic development of the countries covered by the survey (Fig. 4).

Fixed effects model GDP=f (KOF economy)

Dependent variable: GDP	Coefficint	Std.Error	t-statistic	Prob.
C	105,0755	5,830874	18,02055	0,0000
GDP=f(KOFeconomy)	0,299186	0,097581	3,066014	0,0024
R-squared 0,981069		F-ststistic 1062,375		Prob.(F-statistic) 0,000000

Data source: Eurostat[30], 2018 Globalization Report[31] , Kof globalization index -KOF Swiss Economic Institute [32]

Data: own calculations
Figure 5

The economic integration also has a positively proportionate impact on the economic development of the developed EU countries. Deepening the integration of the economies of developed countries into the EU has led to an increase in economic growth of nearly 30 percent. And of those 30 percent of GDP growth, 98 percent are due to the changing dynamics of economic globalization (Fig. 5).

[27] Eurostat. https://ec.europa.eu/eurostat/data/database
[28] J. Weiß; A. Sachs & H. Weinelt, Globalization Report…
[29] Kof globalization index -KOF Swiss Economic Institute…
[30] Eurostat. https://ec.europa.eu/eurostat/data/database
[31] J. Weiß; A. Sachs & H. Weinelt, Globalization Report…
[32] Kof globalization index -KOF Swiss Economic Institute…

Fixed effects model GDP = f (KOFsocial)

Dependent variable: GDP	Coefficint	Std.Error	t-statistic	Prob.
C	104,0879	11,46159	9,081457	0,0000
GDP=f(KOFsocial)	0,211895	0,128995	1,642659	0,1017
R-squared	0,980558	F-ststistic	1033,943	Prob.(F-statistic) 0,000000

Data source: Eurostat[33], 2018 Globalization Report[34] , Kof globalization index -KOF Swiss Economic Institute[35]

Figure 6
Own calculations

The social globalization has no statistically significant effect on the economic situation of the developed countries in the EU. This result shows that there is none causally investigative link between the social globalization and GDP (Fig. 6).

Random effects model GDP = f (KOFpolitics)

Dependent variable: GDP	Coefficint	Std.Error	t-statistic	Prob.
C	169,5062	26,52913	6,389439	0,0000
GDP=f(KOFpolitics)	-0,481522	0,226601	-2,124975	
R-squared	0,017300	F-ststistic	4,524484	Prob.(F-statistic) 0,034366

Data source: Eurostat[36], 2018 Globalization Report[37] , Kof globalization index -KOF Swiss Economic Institute [38]

Figure 7
Own calculations

The political globalization has an inverse effect on GDP. The political cohesion is reducing the economic growth of the developed countries in the EU (Figure 7). From the empirical analysis made, it is clear that the political process is not conducive to the economic growth. The reason for this is that there is a lack of synchronization between the political and economic dynamics, and this is well evident from the correlation analysis presented in Figure 2. The political cohesion does not even significantly change with the overall globalization, which is also clearly seen in Figure 2. Precisely because the political global process is not determined by the economic dynamics and does not take into account the economic conditions, it does not have a favorable effect on the economic development of the countries we are considering.

[33] Eurostat. https://ec.europa.eu/eurostat/data/database
[34] J. Weiß; A. Sachs & H. Weinelt, Globalization Report…
[35]Kof globalization index -KOF Swiss Economic Institute. https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html
[36] Eurostat. https://ec.europa.eu/eurostat/data/database
[37] J. Weiß; A. Sachs & H. Weinelt, Globalization Report…
[38] Kof globalization index -KOF Swiss Economic Institute…

Conclusion

The study is a panel based and includes the following countries Belgium, Denmark, Germany, Finland, France, Italy, Netherlands, Austria, Poland, Sweden, Hungary, Spain, for the period 1995-2016. The fixed effects least squares method and the random effects least squares method are used, as well as the correlation analysis.

The impact of the globalization on the economies of the developed countries in the EU is positive. The economic globalization has the greatest impact on the economic development of the countries concerned, with a positive effect. The social globalization has no effect on the GDP development. The political globalization has a negative effect on the economic development of the developed countries in the EU. The empirical result can be deduced from the study, that the political process does not interfere with the economic development of the developed countries in the EU. This is one of the problematic points that can be difficult to solve because the countries concerned are economically heterogeneous and each economy has different requirements. The globalization is likely to deepen and the heterogeneity of the countries participating in it will increasingly emerge as a major point of interaction between the political, social and economic integration in Europe. The interaction between the political, social and economic processes is at the heart of the successful future of the globalization. In the other case, if there is a conflict between the politics and the economy, it will have a negative social effect. This will slow down the speed of the globalization and increase the dissatisfaction with it.

The analysis made is not exhaustive, but it provides good guidance for future research to deepen further explore the issues under consideration.

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