EVALUATION OF THE EFFECT OF GLOBALIZATION ON THE EURO AREA COUNTRIES' ECONOMIC GROWTH WITH PANEL DATA ANALYSIS

KÜRESELLEŞMENİN AVRO ALANI ÜLKELERİNİN EKONOMİK BÜYÜMESİ ÜZERİNDEKİ ETKİSİNİN PANEL VERİ ANALİZİ İLE DEĞERLENDİRİLMESİ

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ARTICLE INFO	ABSTRACT
Received 01.05.2022 **Revized** 19.05.2022 **Accepted** 30.06.2022 **Article Classification:** Research Article **JEL Codes** O11 F60 F63	*This study aims to determine whether globalization affects economic growth in Euro Area countries or not and the direction of the affect. The data used are annually and cover the period from 2000 to 2017. In the study, economic growth which is the dependent variable represents the annual GDP growth rate, and globalization which is the independent variable represents KOF globalization. Variables other than globalization that affect economic growth are included in the model as instrumental variables. These instrumental variables are labour force participation rate, foreign direct investments, external balance of goods and services and gross fixed capital formation. Eberhardt and Teal's (2010) Augmented Mean Group Estimator (AMG) was conducted to foresee long-term coefficients. Consequently, globalization has not same effects on economic growth in each euro area country. Globalization has increasing effects on the economic growth in Italy, Portugal, Slovenia, and Spain but decreasing effect in Ireland, Lithuania and Luxembourg.* **Keywords:** Globalization, KOF Index, Panel Data, AMG Estimator, Euro Area

MAKALE BİLGİSİ	ÖZ
Gönderilme Tarihi 01.05.2022 **Revizyon Tarihi** 19.05.2022 **Kabul Tarihi** 30.06.2022 **Makale Kategorisi** Araştırma Makalesi **JEL Kodları** H2 H26 K34	*Bu çalışma, küreselleşmenin Euro alanı ülkelerinde ekonomik büyümeyi etkileyip etkilemediğini; şayet etkiliyorsa bu etkinin yönünü belirlemeyi amaçlamaktadır. Kullanılan veriler yıllık olup, 2000-2017 dönemini kapsamaktadır. Çalışmada bağımlı değişken olan ekonomik büyüme yıllık GSYİH büyüme oranı ile, bağımsız değişken olan küreselleşme ise KOF küreselleşme katsayısı ile temsil edilmektedir. Ekonomik büyümeyi etkileyen küreselleşme dışındaki değişkenler ise araç değişken olarak modele dahil edilmiştir. Bu araç değişkenler, işgücüne katılım oranı, doğrudan yabancı yatırımlar, mal ve hizmetler dış dengesi ve gayri safi sabit sermaye yatırımlarıdır. Eberhardt ve Teal'in (2010) Artırılmış Ortalama Grup Tahmincisi (AMG) uzun dönemli katsayıları tahminlemek için kullanılmıştır. Görülmüştür ki küreselleşmenin ekonomik büyüme üzerindeki etkisi her bir Euro alanı ülkesinde aynı değildir. Küreselleşme İtalya, Portekiz, Slovenya ve İspanya'da ekonomik büyümeyi artırırken, İrlanda, Litvanya ve Lüksemburg'da ise azaltmaktadır.* **Anahtar Kelimeler:** *Küreselleşme, KOF Endeksi, Panel Veri, AMG Tahmincisi, Euro Alanı*

Introduction

After 1980, with the rapid development of technology, the intensification of political, cultural and economic relations between countries has occurred faster, and the acceleration of these relations has increased the interest in the concept of globalization. For this reason, it has started to be investigated on which variables globalization has an effect. One of the variables investigated is economic growth. For instance, how does the increasing market integration of international trade and finance affect economic growth? Various theories have been developed and tested to answer this question, but the validity of each theory differs with the different nature of the countries. In this respect, the debate continues among the disciplines of political science, sociology, and economics (Garrett, 1995).

The aim of this study is to reveal whether globalization has an effect on economic growth in Euro area countries using the data between 2000 and 2017, and if so, what is the direction and magnitude of this effect. Euro area countries are selected as the sample because of assumption that globalization will have stronger effects in countries using the common currency.

The eurozone is the monetary union, officially known as the euro area, using the euro as the official currency and payment instrument, and consists of 19 European Union (EU) member states. The Euro was first used on January 1st, 1999, by 11 countries, today 19 EU member states are using the Euro. These countries are "Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain".[1]

The rest of the study has represented an order as follows. The second section briefly presents background information about the Euro area, globalization, and economic growth. The third section explains the theoretical and empirical literature. The fourth section reviews the data and methodology used. In the last section, results and conclusions are represented.

1.Theoretical and Empirical Literature Review

Globalization is a concept that we come across, experience and will continue to see in the future in every aspect of our lives. Every new development concerning the modern world is pronounced together with globalization, and globalization is put forward as an element that affects every event that occurs in the world. Globalization has entered our lives so much that we feel the effects of this situation as individuals and experience its advantages and disadvantages at a personal level. For example, through imports and exports, consumers can purchase products manufactured in other countries from the sales points within the borders of their countries or order directly from abroad through online sales channels. Besides, the features of the products we buy according to the needs of our daily life, our clothing preferences and our palate tastes are like the rest of the world. Today, even if they belong to different nations, communities appear as a single society that uses the same brand products, recognizes the same popular culture elements, and is affected by the same political events. The most important thing that drives this integration process and makes the process so fast is that the exchange of information has become quick because of the progress in communication technologies.

In this context, when we look at the literature, many indexes and approaches are encountered. These are Kearney / foreign policy globalization (KFP), Maastricht globalization index (MGI), new globalization index (NGI), Globalization index (G-Index), Heshmati approach and KOF index. One of the most known is the KOF index. However, our study is consisting of KOF index, therefore, we will give detailed information about the KOF index in below.

The KOF Globalization index is an index that Axel Dreher brought to the literature with its article entitled "Does Globalization Affect Growth? Evidence from a New Index of Globalization" (Dreher,2006). While calculating the index, it is obtained from sub-components such as current flows, restrictions, personal communication data, information flow data, cultural affiliation data, number of embassies in the country, membership in international organizations, participation in United Nations security council resolutions, international agreements. Table 1 shows the components and sub-

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[1] "Which Countries Use the Euro?", European Commission, Access date: 06.07.2021, https://europa.eu/european-union/about-eu/euro/which-countries-use-euro_en, 2020

components of the economic, social, and political globalization components of the KOF globalization index.

Table 1: *KOF Globalization Index Components*

KOF Globalization Index Components	Percent Weighting
A) Economic Globalization	**36**
i) Current Flows	50
• Foreign Trade (Percentage of GDP)	22
• Foreign Direct Investment (Percentage of GDP)	27
• Portfolio Investments	24
• Income Payments to Foreign Nationals	27
ii) Restrictions	50
• Hidden Import Barriers	23
• Average tariff rate	28
• Foreign Trade Tax Revenues (Percent of Current Income)	26
• Capital Account Restrictions	23
B) Social Globalization	**37**
i) Personal Contact Data	33
• Phone Traffic	26
• Transfers	2
• International Tourism	26
• Foreign Population (Ratio to total population)	21
• International Mailing (per person)	25
ii) Information Flow Data	35
• Internet users (Per thousand people)	36
• Television (Per thousand people)	38
• Total budget allocated for the newspaper (Percent of GDP)	26
iii) Cultural Convergence Data	32
• Number of McDonald's Restaurants	46
• Number of Ikeas	46
• Total Budget Allocated for the Book (Percent of GDP)	7
C) Political Globalization	**27**
• Number of Embassies in the Country	25
• Membership to International Organizations	27
• Participation in UN Security Council Resolutions	22
• International Agreements	26

Source: http://globalization.kof.ethz.ch/media/filer_public/2017/04/19/variables_2017.pdf (Access: 12.07.2021).

According to table 1, the components of the KOF globalization index are economic globalization, social globalization, and political globalization. The weight of economic globalization is 36 per cent, social globalization is 37 per cent, the political globalization is 27 per cent. The components consist of sub-components like foreign trade, international tourism, membership in international organizations.

The impact of globalization on economic growth has been studied in many academic and scholarly works, it is indeed a very profound and significant topic in understanding today's world and economic relations.

Dollar and Kray (2004) examined the effect of globalization on economic growth for 101 countries by panel regression. As a result, they revealed the view that globalization leads to faster growth and poverty reduction.

Afzal (2007) tried to determine whether there is a relationship between economic growth and financial globalization in Pakistan for 1960-2006. Afzal used the error correction model and concluded that there is a strong relationship between economic growth and financial globalization in Pakistan.

Chang and Lee (2010) concluded that there is a bidirectional causality relationship between social

globalization, economic globalization and political globalization index and growth in the long run for 23 OECD countries and using the data between 1970-2006.

Adams (2010) has investigated the impact of globalization on economic growth in 29 Sub-Saharan Countries for 1970-2008. He has used Least Squares Method and Seemingly Unrelated Regression. As a result, he reached an increase in foreign direct investments both accelerate economic growth. However, financial developments are not related to economic growth.

Rao and Vadlamannati (2011) have made research to determine the relationship between globalization and economic growth in 21 low-income African countries between 1970-2005. They have found globalization has a positive and significant effect on this group of countries.

Osterloh (2012) has done research that investigated liberalization and economic growth are related to each other or not for 23 OECD countries between 1971-2004. As a result, Osterloh has found that there is a negative relationship between liberalization and economic growth. However, he found that there is a positive relationship between economic globalization and economic performance.

Gurgul and Lack (2013) have analyzed the effect of globalization on economic growth in Central and Eastern European countries. The KOF index was used as an indicator of globalization in the study, which was carried out using the data between 1990-2009. Finally, they concluded that the dimensions of social and economic globalization are effective and stimulating in economic growth.

Samimi and Jenatabadi (2014) conduct research that aimed whether economic globalization has any effect on economic growth or not for 33 Organizations of Islamic -Cooperation Countries between 1980-2008. As a result, they find economic globalization has contributed positively to the economic growth of these countries. This positive effect is also related to higher human capital and deeper financial development and income levels of countries. While high and middle-income countries benefit more from globalization, low-income countries lack this gain.

Turedi (2016) has estimated the impact of globalization on economic growth for 40 developing countries between 1996-2014. In the analysis, he used fixed-effects panel data approach.In the studied countries, globalization (economic, political, social) has statistically significant and positive effects on economic growth.

Shittu et. al. (2020) suggests a positive relationship between globalisation and political governance on economic growth for the West Africa over the period of 1996-2016. They have used ARDL technique to analysis the relationship between globalization and economic growth.

Haini and Loon (2022) have investigated impact of globalization on economic growth for ASEAN countries for the period of 1999-2019 by using dynamic panel estimator. According to their study, globalization is positive to growth.

As we can see there are so many study to investigate the effects of globalization on economic growth. Generally, effect of the direction of globalization on economic growth differs to country's trade openness, welfare,growth and income level.

2.Data and Methodology

The study aims to determine the effects of globalization on economic growth in 19 Euro area countries. The Euro area consists of Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain. Our data belongs to the years from 2000 to 2017.

In the study, to examine the effect of globalization on economic growth we derive an econometric model. In the model, the dependent variable is gross domestic product (GDP) growth rate (per cent), and independent variables are labour force participation rate (LFPR), foreign direct investment (FDI) (% of GDP), external balance on goods and services (EXIM) (% of GDP), gross fixed capital formation (GFCF) and KOF Globalization Index (GLO) Variable.

The variables in the econometric model are explained at table 2 in detail.

Table 2: *Variables in the Econometric Model Subject to Analysis*

Name of the Variables	Explanation of the Variables	Source
GDP %	Annual percentage growth rate of GDP at market prices based on constant local currency.	World Bank Data Bank
LFPR (% of total population ages 15-64)	Labour force participation rate is the proportion of the population ages 15-64 that is economically active: all people who supply labour to produce goods and services during a specified period.	International Labour Organization
FDI (% of GDP)	Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor.	International Monetary Fund, International Financial Statistics and Balance of Payments databases, World Bank, International Debt Statistics, and World Bank and OECD GDP estimates.
EXIM (% of GDP)	External balance on goods and services (formerly resource balance) equals exports of goods and services minus imports of goods and services (previously nonfactor services).	World Bank National accounts data, and OECD National Accounts data files.
GFCF (% of GDP)	Gross fixed capital formation (formerly gross domestic fixed investment) includes land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings.	World Bank national accounts data, and OECD National Accounts data files.
GLO	Globalization Index Value between 0-100	KOF Index

Source: Created by Authors

On the other hand, panel data analysis was used in the study. There are several steps to consider when studying with panel data. All these steps were discussed in the study. First, the correlation matrix was determined in the econometric model, then the heterogeneity of the slope coefficient was examined, the cross-section dependence was determined, it was decided whether there was a unit root in the series, and the cointegration test was applied to determine the long-term relationship between the variables. After all these tests, a coefficient estimator selected according to the results obtained was applied to the econometric model.

The model to analyse the impact of globalization on economic growth in Euro Area countries, can be summarized as the following;

Econometric Model: $GDP\% = \alpha_1 + \beta_1(LFPR) + \beta_2(FDI) + \beta_3(EXIM) + \beta_4(GFCF) + \beta_5(GLO) + \varepsilon_{it}$

The instrument variables in our model are macroeconomic variables that provide economic growth according to economic theory. The reason for adding these variables to the model is to give the closest answer to the question of how globalization affects economic growth in Euro area countries.

3. Analysis and Findings

In this section, the analysis of the variables in the model will be performed. Before applying the model test, it is useful to make descriptive test statistics about the data we will use. Hereby, the correlation matrix and slope coefficient heterogeneity will be examined as descriptive statistics; afterwards, cross-section dependency, unit root, cointegration and coefficient estimator test will be applied.

3.1. Correlation Matrix

A correlation matrix is a table showing correlation coefficients between variables. Each cell in the table 3 shows the correlation between variables.

Table 3: *Correlation Matrix Diagram*

	GDP%	LFPR (%)	FDI (% of GDP)	EXIM (% of GDP)	GFCF (% of GDP)	GLO
GDP%	1					
LFPR (%)	-0.0514	1				
FDI (% of GDP)	0.0022	-0.2222	1			
EXIM(% of GDP)	0.0183	0.1045	0.0401	1		
GFCF(% of GDP)	0.3999	0.0526	-0.1014	-0.3327	1	
GLO	-0.2128	0.4685	-0.0877	0.1077	-0.0256	1

Source: Created by Authors

LFPR is correlated positively with EXIM, GFCF, GLO, and negatively correlated with FDI, GDP.
FDI is correlated positively with GDP, EXIM, GFCF, GLO, and negatively correlated with LFPR,
EXIM is correlated positively with GDP, LFPR, FDI, and negatively correlated with GLO,
GFCF is correlated positively with GDP, LFPR, FDI, EXIM, ECOGLO and negatively correlated with GLO
GLO is correlated positively with LFPR, EXIM and negatively correlated with GDP, FDI, and GFCF.

3.2. Slope Coefficient Heterogeneity

In the widely used econometrics literature, the slope coefficient is assumed to be homogeneous. For this reason, fixed or random effects model or generalized moment method is used in studies. However, these methods give inconsistent and biased results when the slope coefficient is heterogeneous. In this respect, first generation estimators, which consider the heterogeneity of the slope coefficient, have started to be used. Among these estimators are the Mean Group (Pesaran and Smith, 1995), the Pooled Mean Group (Pesaran et al., 1999), and the Fully Modified OLS (Pedroni, 2000). While these estimators take into account the heterogeneity of the slope coefficient, they give inconsistent estimates in the presence of cross-sectional dependence. Thus, applying slope heterogeneity test indicate a distinctive way to pick right one among tests. But applying only slope coefficient test is not enough, existence of cross section dependence should also be tested.

Table 4: *Slope Coefficient Heterogeneity for Models*

Slope Coefficient Heterogeneity	Null Hypothesis	Adjusted Delta	p-value
Pesaran Yamagata Test	H_0: slope coefficients are homogenous	2.448	0.014

Source: Created by Authors

3.3. Cross Section Dependence Test

Cross section dependency is important in determining whether all series will be affected equally by a shock to the section units of the analysis. To determine Cross Section Dependence among the series; Breusch-Pagan (1980) LM or Pesaran CD test can be used. Breusch-Pagan (1980) LM test can be used in cases where (T> N). Pesaran CD test can be used if both the time dimension is greater than the cross-sectional dimension and the cross-section dimension is larger than the time dimension (T> N, N> T). For our study, time dimension is equal to 17, and cross section dimension is equal to 19. So, T= 17, N:19; T<N. Therefore, we applied Pesaran CD test. The cross-sectional dependence null hypothesis is as follows:

H_0 = No cross-section dependency. (There is no correlation between units)
H_1 = There is cross-section dependency. (There is a correlation between units)

The results of the CD test for Euro Area countries are given in Table 5. In the table 5, it was checked whether there was a cross-sectional dependency at the 0.05 percent significance level for each variable. Here, in cases where probability values are less than 0.05 (p <0.05), H_0 will be rejected and H_1 will be accepted; In cases where probability values are greater than 0.05 (p> 0.05). Hence H_0 will

be accepted and H_1 will be rejected. In short, there is a cross-sectional dependency and correlation between units for our model.

Table 5: *Cross Section Dependency Test Results for Pesaran CD Test*

Variable	GDP	LFPR	FDI	EXIM	GFCF	GLO
CD-Test Statistic	35.07	37.874	5.012	13.55	19.023	48.659
Probability	0	0	0	0	0	0

Source: Created by Authors

According to Table 5, we should use a 2nd generation unit root test that considers cross-section dependence. In this study, Pesaran (2003) was preferred as the unit root test. Investigating the cross-sectional dependency between the series in the fixed effects panel data model is a crucial step in achieving accurate results. At the same time, it is very important to take this into account in the unit root and cointegration tests to make the analysis results more consistent.

3.4. Unit Root Test

In this study, Pesaran (2003) was preferred as the unit root test. Pesaran (2003) introduced a simple and new process to test unit roots in dynamic panels that are serially dependent on correlated errors and have cross-section dependence. In the unit root test of variables, the Cross-Sectionally Augmented IPS-CIPS (Cross-Sectionally Augmented IPS-CIPS) test, which can be used in cases where there is a dependency between horizontal sections, was used. This test is derived from the CADF (Cross-Sectional Augmented Dickey Fuller) test. Pesaran expanded the standard DF (or ADF) regressions with the first differences of individual series and cross-sectional averages of lag levels. When applying the Pesaran CADF-CIPS statistics, Schwarz Info Criteria (SIC) has taken into consideration to find the appropriate lag lengths for the variables.

H_0: has unit root (Non-Stationary)

H_1: no unit root (Stationary)

As we can see in table 6, all variables' p -values are greater than 0,05. So, we cannot reject null hypothesis. Therefore, we accept Ho meaning that there are unit-roots for all our variables. Hence, we must take the differences of all variables to make them stationary. As can be seen at table 6, all variables have become stationary at the first level.

Table 6: *Unit Root Test Results for Variables*

Variables	GDP	LFPR	FDI	EXIM	GFCF	GLO
SIC **Coefficients and Lags**	3.522 (2nd Lag)	2.254 (2nd Lag)	2.414 (3rd Lag)	3.152 (4th Lag)	2.347 (2nd Lag)	2.236 (1st Lag)
Unit Root Test Results **CIPS Cross Section, Im-Pesaran Shin** **(Level)**	-2.204 (0,628)	-1.926 (0,936)	2.919 (0.998)	1.700 (1,000)	-1.771 (0,986)	-1.908 (0,946)
Unit Root Test Results **CIPS Cross Section, Im-Pesaran Shin** **(1st Differenced)**	-13.812 (0,000)	-4.546 (0,000)	-5.405 (0,000)	-1,868 (0,030)	-3,887 (0,001)	-8.088 (0,000)

Source: Created by Authors

3.5. Cointegration Test

We used the Westerlund (2007) test for cointegration. The reason that it is a test that can be used both in case of cross-sectional dependence and in case of heterogeneity in the model (Westerlund,2007).

As a result of test, null hypothesis should be rejected for the model. Hence, there is cointegration between the variables of the model. Briefly, it has been determined that there is a cointegration relationship between these variables for at least one of the 19 countries that generated the panel. These series move together in the long run and the model estimates to be made with the level values of these series will not include a spurious regression problem.

Table 7: *Westerlund Cointegration Test Result*

Models	Null Hypothesis	Statistics	P-Value	Decision
Model 1	H_0:No cointegration	-3.8377	0.0001	Co-integrated

Source: Created by Authors

3.6. Panel Coefficient Estimation

In our study Augmented Mean Group (AMG) estimator is used as coefficient estimator. The AMG estimator is derived by Eberhardt and Teal (2010) and was developed as an alternative to Pesaran's CCEMG (Common Correlated Effects Mean Group). This method can calculate a different coefficient for each cross-section, as well as taking into account the common factors and common dynamic effects in the variables. Briefly, this method is used when the panel is heterogeneous. It can also calculate the individual coefficients and the group average from the weighted averages of these coefficients.

Table 8: *AMG Coefficient Estimation Results for the Model*

Codes	Countries	LFPR	FDI	EXIM	GFCF	GLO
1	Austria	-0.0766	0.013	0.215	0.107	0.333
2	**Belgium**	**0.494** **(0.048)**	0.0196	0.139	-0.117	-0.150
3	Cyprus	0.876	-0.005	0.192	0.554	-0.147
4	**Estonia**	0.183	0.027	**1.047** **(0.013)**	**1.106** **(0.011)**	-0.880
5	**Finland**	0.038	-0.103	0.034	**1.21*** **(0.000)**	-0.042
6	France	-0.178	-0.407	-0.139	0.461	-0.297
7	**Germany**	**0.573** **(0.036)**	**-0.302*** **(0.060)**	**-1.139*** **(0.008)**	0.254	1.068
8	**Greece**	**-1.574** **(0.014)**	**2.723*** **(0.004)**	**1.483*** **(0.000)**	**1.397*** **(0,000)**	0.279
9	**Ireland**	0.669	**0,186*** **(0.000)**	**0.686** **(0.013)**	0.108	**-1.692*** **(0.081)**
10	**Italy**	-0.273	-0.218	0.140	0.432	**0,651** **(0.012)**
11	Latvia	0.012	0.297	0.604	1.023	-0.243
12	**Lithuania**	0.476	-0.013	**0,452*** **(0.094)**	-0.399	**-0.554** **(0.027)**
13	**Luxembourg**	0.166	**2.194** **(0.019)**	-0.359	-0.501	**-1.239** **(0.017)**
14	**Malta**	**0.829*** **(0.094)**	0.001	-0.210	0.0178	-0.065
15	**Netherlands**	**-0.436** **(0.046)**	-0.009	**0.852*** **(0.000)**	**0.893*** **(0.000)**	0.324
16	**Portugal**	-0.427	-0.198	0.262	**0.588** **(0.025)**	**1,029*** **(0.004)**
17	**Slovakia**	0.328	0.182	**0.381** **(0.043)**	**0.567*** **(0.000)**	0.012
18	**Slovenia**	**-0.902** **(0.046)**	-0.092	-0.183	0.547	**0.611*** **(0.002)**
19	**Spain**	**-0.630*** **(0.007)**	-0.057	0.501	**0.652** **(0.018)**	**1.323*** **(0.002)**
20	**Panel Equation**	0.007	0.223	**0.261** **(0.046)**	**0.468*** **(0.000)**	0.016

Source: Created by Authors

*** means significant at level 1%, ** level 5%, * level 10%.

According to table 8, when we investigate at the general panel equation coefficient results, we see that globalization does not affect economic growth in a statistically significant way for the general panel equation. According to the panel data equation, economic growth is affected by external balance on goods and services and gross fixed capital formation. But as we mentioned before for our model the slope coefficient is heterogeneous and there is cross-section dependence. This means for each unit different results might arise. Therefore, it is very useful to consider the units one by one on the model. We can clearly see globalization effects economic growth in Ireland, Italy, Lithuania, Luxembourg, Portugal, Slovenia, and Spain. It is seen that globalization has a statistically significant effect on economic growth in 7 of the Euro area countries. Countries whose economic growth is affected by globalization are Ireland, Italy, Lithuania, Luxembourg, Portugal, Slovenia, and Spain. Globalization in Ireland, Lithuania and Luxembourg effects negatively the economic growth rate. However, globalization in Italy, Portugal, Slovenia, and Spain effects positively the economic growth.

When we evaluate the labour force participation rate, it will be seen that increasing effect of the labour force participation rate (LFPR) in Belgium, Germany and Malta create an increasing effect of the economic growth. This situation shows that with the increase in the labour force participation rate in these countries, the employment rate also increased. However, as the labour force participation rate increases in Greece, Netherlands, Slovenia and Spain, economic growth decreases. This situation brings to mind either employment is provided in sectors with low productivity in these countries or the rate of participation in the labour force has increased as a result of rapid population growth due to migration or birth, but employment is not provided at the same speed. As a result, even if the labour force participation rate is increasing, the production force does not increase at the same rate.

When foreign direct investment increase, economic growth in Greece, Luxembourg, and Ireland also increases. This situation is compatible with the literature. But it reduces the economic growth in Germany. Although exceptional, there are studies in the literature with similar results. For example, it was found by Alfaro (2003) for 47 countries during 1981-1999 that FDI inflows into the primary sector tend to have a negative effect on growth.

External balance on goods and services has a statistically significant relationship with economic growth for Germany, Greece, Ireland, Lithuania, Netherland, and Slovakia. The direction of the relation is positive for Greece, Ireland, Lithuania, Netherland, and Slovakia, not just for Germany. There is a negative relationship between external balance on goods and services and economic growth for Germany. It is mainly caused by the production structure of Germany, as Germany has trade surpluses in general, its positive trade balance costs Germany fewer imports from in turn because of the high value of its currency.

Gross fixed capital formation has a statistically significant relationship with the economic growth rate for Finland, Greece, Netherland, Portugal, Slovakia, and Spain. The direction of the relationship is positive for all related countries. Gross fixed capital formation accelerates the economic growth rate for all related countries.

4. Results and Discussions

Our study was conducted to determine the effects of globalization on economic growth in 19 Euro area countries for the years 2000-2017. In the model established, the dependent variable is GDP, and the independent variable is the globalization variable obtained from the KOF globalization index. However, four different tools used as explanatory variables are included in the variable model. These are labour force participation rate, foreign direct investment are the net inflows, external balance on goods and services, and gross fixed capital formation.

According to the general panel data equation, economic growth is affected by external balance on goods and services and gross fixed capital formation. In all Euro area countries, if external balance on goods and services (GDP%) increases of 1 per cent, economic growth rate increases about 0.26 per cent. The same approach is valid for gross fixed capital formation. In all Euro area countries, if gross fixed capital formation (GDP%) increases of 1 per cent, the economic growth rate increases about 0.46 per cent.

According to country-based results, globalization has an impact on the economic growth rates of the Euro area countries in Ireland, Italy, Lithuania, Luxembourg, Portugal, Slovenia, and Spain. This effect is positive for Italy, Portugal, Slovenia, and Spain. The 1-unit increase seen in the KOF globalization index, which is an indicator of globalization, has an increasing effect on the economic growth rate of 0.65 units in Italy, 1.02 units in Portugal, 0.61 units in Slovenia and 1.32 units in Spain. There are also countries where globalization has a negative impact on the economic growth rate. These are Ireland, Lithuania, and Luxembourg. One unit of increase seen in the globalization index has a decreasing effect on the economic growth by 1.69 in Ireland, 0.55 in Lithuania, and 1.23 in Luxembourg.

Another variable that frequently affects the economic growth rates of euro area countries is LFPR, one of the instrument variables. Changes in the LFPR affect the economic growth rate in Belgium, Germany, Malta, Greece, Netherlands, Slovenia, and Spain. 1 unit increase in LFPR has an increasing effect on the economic growth rate of 0.49 units in Belgium, 0.57 units in Germany and 0.82 units in Malta. 1 unit increase in LFPR has a decreasing effect of 1.57 unit in Greece, 0.43 units in Netherlands, 0.90 units in Slovenia and 0.63 units in Spain on the economic growth rate.

FDI is another instrument variable that affects the economic growth rate. A 1 unit increase in FDI creates an increase of 2.72 units in the economic growth rate in Greece, 0.18 in Ireland and 2.19 units in Luxembourg; It creates a decrease of 0.30 in Germany. FDI has a negative effect on the economic growth rate only in Germany.

EXIM are also instrumental variables that have an impact on the economic growth rates of Euro area countries. While EXIM positively affects the economic growth rates in Greece, Ireland, Lithuania, the Netherlands, and Slovakia, it affects only Germany negatively. The 1-unit increase seen in EXIM affects the economic growth rate of 1.4 unit in Greece, 0.68 unit in Ireland, 0.45 units in Lithuania, 0.85 units in Netherlands and 0.38 unit in Slovakia.

GFCF is the last instrumental variable used in our model. The 1 unit increase in GFCF has an effect on economic growth rates of 1.21 unit in Finland, 1.39 unit in Greece, 0.89 unit in the Netherlands, 0.58 unit in Portugal, 0.65 unit in Spain and 0.56 unit in Slovakia. GFCF is the variable that affects economic growth most significantly and has the most impact.

The results of our study show that the effects of the instrumental variables, which we use to better understand the effects of globalization and globalization on economic growth, differ from country to country. In this context, it can be said that the effect of globalization on economic growth in Euro area countries consisting of developed countries is not significant in all Euro area countries. Therefore, we can say that other factors are affecting the economic growth of the countries that constitute the Euro area. Nevertheless, we can say that the impact of globalization is high in countries where the level of income is relatively lower than in the economically leading countries of the community. Therefore, globalization accelerates economic growth in countries below a certain level of income, as indicated in previous studies. It has been seen in our study that for Italy, Portugal, Slovenia and Spain, globalization creates an accelerating effect on economic growth.

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