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CAUSALITY RELATIONSHIP BETWEEN FOREIGN DIRECT INVESTMENTS AND ECONOMIC IMPROVEMENT FOR DEVELOPING ECONOMIES

GELİŞMEKTE OLAN EKONOMİLERDE DOĞRUDAN YABANCI YATIRIM VE EKONOMİK GELİŞME ARASINDAKİ NEDENSELLİK İLİŞKİSİ

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Abstract

The aim of this study is to determine whether there is a causality relationship between foreign direct investments and economic growth for developing countries. Within this context, 30 developing countries, which have the highest GDP growth rate in 2016, are taken into the consideration. Furthermore, annual data of these countries for the periods between 1991 and 2015 is evaluated with the help of Dumitrescu Hurlin panel causality analysis. It is concluded that there is a causality relationship from foreign direct investments to economic growth. In other words, it is identified that foreign direct investment is an important cause of economic growth. Hence, it can be said that developing countries should focus on the ways to attract foreign direct investments to their companies in order to have economic growth. In addition to this situation, it is also identified that there is a causality relationship from economic growth to FDI. This situation shows that when the economies of the countries are improved, it attracts foreign investors to make a direct investment in those countries.

Keywords: Foreign Direct Investment; Economic Growth; Dumitrescu Hurlin Panel Causality Test

JEL Classification: C01, F43, O47

Öz

Çalışmanın amacı gelişmekte olan ülkelerde doğrudan yabancı yatırım ve ekonomik büyüme arasında nedensellik ilişkisinin olup olmadığının belirlenmesidir. Bu kapsamda, 2016 yılında ekonomik büyümesi en yüksek olan 30 gelişmekte olan ülke incelenmektedir. Ayrıca, söz konusu ülkelerin 1991-2015 dönem aralığındaki yıllık verileri Dumitrescu Hurlin panel nedensellik analizi yardımıyla test edilmiştir. Analiz sonuçlarına göre doğrudan yabancı yatırımların ekonomik büyümenin nedeni olduğu belirlenmiştir. Bundan dolayı, gelişmekte olan ülkelerin ekonomik gelişmelerini arttırabilmeleri için

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doğrudan yabancı yatırımları ülkelerine çekmeleri gerekmektedir. Öte yandan, ekonomik büyümenin de doğrudan yabancı yatırımların önemli bir nedeni olduğu görülmüştür. Dolayısıyla, gelişmekte olan ülkelerin ekonomik büyümeleri artmaları durumunda yabancı yatırımcıların bu ülkelerde yatırım yapmayı tercih edecekleri görülmektedir.

Anahtar Kelimeler: Doğrudan Yabancı Yatırım; Ekonomik Büyüme; Dumitrescu Hurlin Panel Nedensellik Analizi

JEL Sınıflaması: C01, F43, O47

1. Introduction

After 1980s, with the effect of globalization, there was a significant improvement in foreign trade. The main reason is that globalization caused the integration of the economies between the countries. This situation provided many benefits for these countries, such as accessing new markets. In spite of this aspect, it can be said that globalization also led to many important risks for these countries. For example, due to increase in foreign trade, countries can be affected from the problems in other economies easily (Şimşek, 2016).

Foreign investment became an important topic in these years all over the world. There are mainly two different types of foreign investment, which are foreign direct investment and portfolio investment (Findlay, 1978). Foreign direct investment refers to the investment made by a company in another country by either establishing a new business or purchasing another company (Ewe-Ghee, 2001). Additionally, the term "direct" is used to show the difference of foreign direct investment from the portfolio investment that means making investment in financial assets, such as government bonds (Ajayi, 2006).

It is thought that foreign direct investment has many advantages to the economies of the countries. First of all, it boosts economy by increasing the investment amount (De Mello, 1997). Moreover, foreign direct investment has a decreasing effect on current account deficit problem (Borensztein et al., 1998). In addition to them, it contributes to reduce unemployment rate in the country by providing new job opportunities (De Gregorio, 2003). Furthermore, with the help of foreign direct investment, countries have a chance to improve technology (Abramovitz, 1986; Rodrik, 1999).

On the other side, foreign direct investment also creates some risks for the countries. For instance, local companies may have financial losses because of the strict competition. In addition to this situation, countries become more sensitive to the changes in foreign exchange rates (Aitken and Harrison, 1999; Lipsey, 2002). Moreover, countries may suffer very much when there is an

outflow in foreign direct investment. The main reason behind this aspect is that it reduces the stability of the economy (Herzer, 2008).

Developing countries are the countries in which there is a lower living standard in comparison with developed countries. Owing to this situation, these countries aim to improve their economies. Foreign direct investment is a very significant way for these companies to achieve this objective. With the help of these investments, developing countries can take the opportunity to have an economic growth. However, this situation may also cause some problems for these companies' due to the reasons emphasized above.

In this study, it is aimed to identify whether there is a causality relationship between foreign direct investments and economic growth for developing countries. In this framework, 30 developing countries, which have the highest economic growth rate in 2016, are taken into the consideration. Annual data of these countries for the periods between 1991 and 2015 are evaluated by using Dumitrescu Hurlin panel causality test. As a result of this analysis, it will be possible to give a policy recommendation for these countries. Hence, it can be said that this study makes an important contribution by focusing on an important topic for developing countries.

This study consists of four different parts. After the introduction part, there is a literature review in the second part. In this part, similar studies about this subject are detailed. In addition, the third part gives information about the application. Within this framework, data set, methodology analysis results will be given in this part. Finally, in the conclusion part, policy recommendations will be detailed by considering analysis results.

2. Literature Review

The relation between FDI and economic growth has been attracted by researchers so there are a great number of studies in literature. Some of these studies are detailed on table 1.

Table 1: Featured Studies in the Literature

Author	Scope	Method	Result
Sun and Parikh (2001)	China	Regression	FDI plays an important role in the economic growth.
Chakraborty and Basu (2002)	India	VECM	Economic growth has a significant effect on economic growth.
Liu et al. (2002)	China	VAR	There is a relationship between FDI and economic growth.
Bengoa and Sanchez-Robles (2003)	18 Latin American Countries	Regression	FDI contributes economic growth.
Alıcı and Ucal (2003)	Turkey	Toda Yamamoto Causality Analysis	FDI has a positive influence on economic growth.
Makki and Somwaru (2004)	Developing Countries	SUR Model	FDI leads to advance economic growth.

Baliamoune-Lutz (2004)	Morocco	Granger Causality Analysis	Economic growth is considered as the main determinant of FDI.
Afşar (2008)	Turkey	Granger Causality Analysis	The causality from FDI to economic growth is observed.
Katircioglu (2009)	Turkey	ARDL	The economic expansion causes FDI to increase.
Chee and Nair (2010)	Asia and Oceania Countries	Regression	Increase in FDI is regarded as the key strategy to increase economic growth.
Kottaridi and Stengos (2010)	45 Countries	Semi-Parametric Model	The positive impact of FDI on economic growth is confirmed.
Andraz and Rodrigues (2010)	Portugal	Granger Causality Analysis	FDI is regarded as the main determinant of economic growth.
Jayachandran and Seilan (2010)	India	Granger Causality Analysis	Economic growth is dependent on FDI.
Azman-Saini et al. (2010)	85 Countries	GMM	FDI does not have any impact on economic growth.
Iqbal et al. (2010)	Pakistan	VAR	FDI contributes economic growth.
Anwar and Nguyen (2010)	Vietnam	Simultaneous Equations Model	FDI is more beneficial while investing in education, technology and financial market.
Mah (2010)	China	Granger Causality Analysis	Economic growth is not associated with FDI.
Tiwari and Mutascu (2011)	Asian Countries	Regression	FDI has an important effect on economic growth.
Hassen and Anis (2012)	Tunisia	Regression	FDI is an important factor of economic growth.
Ahmed (2012)	Malaysia	Regression	FDI plays an important role in the economic growth.
Mustafa and Santhirasegaram (2014)	Sri Lanka	Regression	FDI has a positive impact on economic growth.
Omri (2014)	13 MENA Countries	GMM	There is a bidirectional relationship between FDI and economic growth.
Tan and Tang (2016)	5 ASEAN Countries	Cointegration Analysis	FDI stimulates economic growth.
Luu et al. (2016)	Vietnam	GMM	There is a relationship between FDI and economic growth.
Gunby et al. (2017)	China	Meta-Analysis	FDI has a significant influence on economic growth.

Table 1 shows that most of the studies concluded that foreign direct investment causes economic growth. For example, Sun and Parikh (2001) made a study to understand the relationship between foreign direct investment and economic growth in China. As a result of the regression analysis, it is defined that FDI has a significant influence on economic growth. Parallel to this study, Bengoa and Sanchez-Robles (2003), Chee and Nair (2010), Tiwari and Mutascu (2011), Hassen and Anis

(2012), Ahmed (2012) and Mustafa and Santhirasegaram (2014) reached the similar conclusions for different countries by using the same methodology.

In addition to these studies, Alıcı and Ucal (2003) analyzed the relationship between foreign direct investment and economic growth in Turkey. They used Toda Yamamoto causality relationship to reach this objective. It is determined that FDI plays an important role in the economic growth. Similar to this study, Chakraborty and Basu (2002) also emphasized the same issue for India by using Vector Error Correction Method. Moreover, Kottaridi and Stengos (2010), Anwar and Nguyen (2010), Makki and Somwaru (2004), Tan and Tang (2016), Afşar (2008), Andraz and Rodrigues (2010), Gunby et al. (2017) and Iqbal et al. (2010) underlined the importance of foreign direct investment in economic growth.

Furthermore, it can also be seen that some studies identified that economic growth is the main determinant of foreign direct investment. For instance, Baliamoune-Lutz (2004) made a study to see the relationship between foreign direct investment and economic growth in Morocco. By using Granger causality analysis, it is concluded that economic growth has a significant influence on foreign direct investment. Parallel to this study, Jayachandran and Seilan (2010) also reached the similar conclusion for India with the help of the same methodology. Additionally, Katircioglu (2009) also underlined the importance of economic development on the value of foreign direct investment for Turkey.

Moreover, some studies in the literature reached the conclusion that there is a mutual relationship between foreign direct investment and economic growth. As an example, Omri (2014) analyzed the relationship between these two different variables in 13 MENA countries by using GMM approach. It is defined that there is a bidirectional relationship between FDI and economic growth. Luu et al. (2016) also reached the similar conclusion by using the same methodology for Vietnam. Furthermore, Liu et. al. (2002) tried to analyze this relationship in China by considering VAR analysis. They determined that there is a mutual relationship between them.

In spite of these studies, there are also some studies which did not find any relationship between foreign direct investment and economic growth. For example, Azman-Saini et al. (2010) aimed to analyze the relationship between these two variables in 85 different countries. For this purpose, GMM approach was taken into the consideration. They reached the conclusion that FDI does not have any impact on economic growth. Similar to this study, Mah (2010) also tried to analyze this relationship in China by using Granger causality analysis. It is identified that there is not a relationship between foreign direct investment and economic growth.

While analyzing similar studies in the literature, it can be understood that the relationship between foreign direct investment and economic growth was evaluated very much for different countries. In addition to this situation, it can also be seen that many different methodology was taken into the consideration in these studies, such as regression, Granger causality analysis and VECM. Nevertheless, it is identified that there is not a current study that analyzes this relationship for developing countries.

3. An Application for Developing Countries

3.1 Data and Scope

In this study, annual data between 1991 and 2015 is taken into consideration. For economic improvement, the variable of "GDP Growth" is used whereas the ratio of "FDI Net Inflows/GDP" is considered for foreign direct investment. This data is provided form the website of World Bank. On the other side, 30 developing countries, which have the highest economic growth in 2016, are analyzed in this study. However, some countries have to be eliminated from this study because of data constraint. In this process, the developing countries were selected according to International Monetary Fund's World Economic Outlook Report in April 2015. The details of the developing countries evaluated in this study are given on table 2.

Table 2: 30 Developing Countries Analyzed in this Study

Antigua and Barbuda	Bangladesh	Bhutan	Burkina Faso	Cameroon	Central African Republic
China	Dominican Republic	Guinea	Guinea-Bissau	India	Indonesia
Kenya	Mali	Nicaragua	Niger	Pakistan	Panama
Romania	Rwanda	Samoa	Senegal	Seychelles	Sierra Leone
Sri Lanka	Sudan	Tanzania	Togo	Uganda	Vietnam

3.2 Dumitrescu Hurlin Panel Causality Analysis

Dumitrescu Hurlin (DH) panel causality analysis was generated to find out the causal relationship between the panel variables. Thus, it can be underlined that this analysis is able to give more handful information with respect to other causality analysis. Thus, it was acknowledged that Dumitrescu Hurlin panel causality analysis has some advantages over Granger causality analysis. For example, Dumitrescu Hurlin panel causality is pretty good at analyzing unbalanced panel data and cross-sectional dependency between countries. It was required that all variables are to be stationary on their level values. The features of this test were symbolized below (Dumitrescu and Hurlin, 2012).

$$Y_{i,t} = a_i + \sum_{k=1}^{K} Y_i^k \, Y_{i,t-k} + \sum_{k=1}^{K} B_i^k \, X_{i,t-k} + \boldsymbol{\varepsilon_{i,t}}$$

In this equation, K means the optimum lag interval. In addition to this aspect, Y and X refer the variables of which causality analysis will be analyzed. Namely, it can be understood that the aim of this analysis is to detect whether X is the cause of Y or not.

3.3 Analysis Results

In the analysis process, first of all, stationary analysis is performed. Within this context, Levin, Lin and Chu (LLC) and Im, Pesaran and Shin (IPS) panel unit root tests are taken into the consideration. The details of these tests are given on table 3.

Table 3: Panel Unit Root Test Results

Variables	Levin, Lin and Chu Test (p Value)	Im, Pesaran and Shin W-stat Test (p Value)
GDP Growth	0.0007	0.0000
FDI	0.0000	0.0000

Table 3 shows that GDP growth and FDI are stationary for both two different tests because their probability values are less than 0.05. After unit root tests, Dumitrescu Hurlin panel causality analysis is performed to reach the objective of the study. The details of this test are given on table 4.

Table 4: Dumitrescu Hurlin Panel Causality Test Results

Null Hypothesis	Probability Values (lag=1)	Probability Values (lag=2)
"Foreign Direct Investment" does not cause *"Economic Growth"*	0.0505	0.8327
"Economic Growth" does not cause *"Foreign Direct Investment"*	0.0000	0.0210

Table 4 explains that the null hypothesis of "Foreign Direct Investment does not cause Economic Growth" can be rejected for lag 1 since the probability value is less than 0.1. However, this situation is not the same when lag is equal to 2. This condition shows that there is a causality relationship from foreign direct investment to the economic growth. Tan and Tang (2016), Afşar (2008), Andraz and Rodrigues (2010) and Gunby et al. (2017) also underlined the same conclusion in their studies. Therefore, it can be said that developing countries should give importance to attract foreign investors to provide economic improvement.

In addition to this aspect, it can also be seen that the null hypothesis of "Economic Growth does not cause Foreign Direct Investment" can be rejected for both two different lags because the probability values are less than 0.05. This situation explains that economic growth is the main cause of foreign direct investment for developing countries. This issue gives information that foreign investors give importance to economic growth of the developing countries to make a direct investment. This situation was also emphasized in many different studies (Omri, 2014; Luu et al., 2016; Liu et al., 2002).

4. Conclusions

Especially after the globalization, there was a significant increase in the amount of foreign direct investment all over the world. It means the investment made by a company to another country.

The difference of foreign direct investment from the portfolio investment is that it can be either establishing a new business or purchasing another company. Foreign direct investment has many benefits to the developing countries, such as increasing investment, decreasing current account deficit, reducing unemployment rate and improving technology.

The aim of this study is to determine whether there is a causality relationship between foreign direct investments and economic growth for developing countries. Within this scope, 30 developing countries, which have the highest economic growth rate in 2016, are evaluated in this study. Additionally, annual data of the variables for the years between 1991 and 2015 is analyzed with the help of Dumitrescu Hurlin panel causality method.

In the analysis process, first of all, panel unit root tests are performed to understand whether these variables are stationary or not. For this purpose, Levin, Lin and Chu (LLC) and Im, Pesaran and Shin (IPS) panel unit root tests are considered. As a result of these tests, it is identified that all variables are stationary on their level values because their probability values are less than 0.05.

After stationary analysis, Dumitrescu Hurlin panel causality analysis is performed. According to the results of this analysis, it is concluded that there is a bidirectional relationship between FDI and economic growth. In other words, it is determined that both FDI and economic growth are the causes of each other. This situation shows that developing countries should take actions to attract foreign investors to improve their economies. Another conclusion of this study is that foreign investors give importance to economic growth of the developing countries to make a direct investment.

Most of the developing countries in the world take many actions to improve their economies. Within this context, foreign direct investment is a way to achieve this objective. Therefore, it is believed that this study makes a significant contribution to the literature by analyzing an important issue for developing countries. Nevertheless, a new study which focuses on developed economies with an original methodology will also be beneficial to the literature.

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