

## Relationship between Foreign Direct Investment and Economic Growth in Selected Transition Economies

Yavuz Özek<sup>1</sup>

### ABSTRACT

Economies transitioning from the command economy to the free market economy experienced several important reforms throughout the transition period, these reforms have affected the sociological structures of the countries as well as the economic ones. While sociological change has an impact on the structure of the labor factor, economic transition has changed the origin and amount of capital. In this study, the effect of the transformation on the countries through the capital channel was investigated by examining the effect of foreign direct investments on transition economies in the context of economic growth. The results show that when countries are evaluated as a whole, foreign direct investments can affect the economy only in the long term. As for country-based analyzes, it is concluded that foreign direct investments are effective on economic growth in Slovakia, Slovenia and Hungary economies.

### ملخص

شهدت الاقتصادات التي تمر بمرحلة انتقالية من الاقتصاد الموجه إلى اقتصاد السوق الحر العديد من الإصلاحات المهمة طوال الفترة الانتقالية، وقد أثرت هذه الإصلاحات على الهياكل الاجتماعية للبلدان فضلاً عن الهياكل الاقتصادية. ففي حين أن التغيير الاجتماعي له تأثير على هيكل عامل الشغل، فقد غير التحول الاقتصادي منشأ رأس المال ومبالغه. في هذه الدراسة، تم التحقيق في تأثير التحول على البلدان من خلال قناة رأس المال بدراسة تأثير الاستثمارات الأجنبية المباشرة على الاقتصادات التي تمر بمرحلة انتقالية في سياق النمو الاقتصادي. وتظهر النتائج أنه عندما يتم تقييم البلدان ككل، يمكن للاستثمارات الأجنبية المباشرة أن تؤثر على الاقتصاد على المدى الطويل فقط. أما بالنسبة للتحليلات القطرية، فقد خلصنا إلى أن الاستثمارات الأجنبية المباشرة فعالة في تحقيق النمو الاقتصادي في اقتصادات سلوفاكيا وسلوفينيا والمجر.

---

<sup>1</sup> Department of Banking and Insurance, Firat University, Vocational School of Social Sciences, Elazig, Turkey, yozek@firat.edu.tr

**ABSTRAITE**

Les économies qui passent de l'économie planifiée à l'économie de marché ont connu plusieurs réformes importantes tout au long de la période de transition, ces réformes ont affecté les structures sociologiques des pays ainsi que les structures économiques. Si l'évolution sociologique a un impact sur la structure du facteur travail, la transition économique a modifié l'origine et le montant du capital. Dans cette étude, l'effet de la transformation sur les pays par le biais du canal des capitaux a été étudié en examinant l'effet des investissements directs étrangers sur les économies en transition dans le contexte de la croissance économique. Les résultats montrent que lorsque les pays sont évalués dans leur ensemble, les investissements directs étrangers ne peuvent affecter l'économie qu'à long terme. Quant aux analyses par pays, il est conclu que les investissements directs étrangers sont efficaces sur la croissance économique en Slovaquie, Slovénie et Hongrie.

**Keywords:** Transition Economies, Foreign Direct Investments, Panel Data

**JEL Classification:** F21, F43, C33

**1. Introduction**

The notion of foreign direct investment (FDI, hereafter) has become important for emerging market economies since 1990s. In 1990s, amount of FDI has started to increase in early 1990s (Baiaashvili and Gattini, 2020: 2). Reason of increasing importance can be seen inside of the definition of FDI. According to FDI definition of OECD and IMF, FDI means that permanent interest of the person residing in another country (direct investor) on an organization in another country (Duce, 2003: 2). What is meant by permanent interest is the establishment of a long-term relationship between the investor and the organization and This relationship may also include the investor having a say in management of organization.

Dunning (1994) states that there are several factors underlying the increase in FDI. These factors can be listed as the acceleration of the transition to the liberal market economy, economic globalization, the movement in welfare assets, the better understanding of the benefits of such investments by governments and the implementation of supportive policies in this context, and the increase in the number of countries in the development phase.

Studies in the literature implies that FDI affects economic growth positively (Baiashvili and Gattini, 2020: 2). Because while foreign direct investment stimulates growth in macroeconomic terms, it increases total factor productivity. In a more general statement, it can be said that it provides more efficient use of resources in the country where capital has entered. This is done through three channels (OECD, 2002: 9). The first is realized through the effect of FDI on foreign trade. Investments contribute to trade between the capitalist country and the country where the capital enters, thereby increasing the possible export volume.

The second concerns the business sector. Investments have a positive effect with the spillover effect in different business sectors within the country, causing positive externalities. The third channel works on a positive impact on the structural factors in the country of investment.

The degree of positive effect of foreign direct investment on economic growth is related to the absorption capacity of the country. This capacity is determined by human capital development, economic, political and social environment, financial influence and degree of development and institutional quality (Baiashvili and Gattini, 2020: 3). The improvement in all these factors increases the stimulating effect of investments on economic growth.

On the other hand, there are few studies implying that direct foreign capital investments have negative effects on countries. It is claimed that the investments of multinational companies especially in developing countries have a negative impact on the development of local firms and have a negative impact on economic growth by preventing local firms' development. (Agrawal, 2005: 94). This situation is called crowding out effect in the literature. Schoors et al. (2001), on the other hand, mentioned the negative effects of foreign direct investment in the early stages of the transition process and included the term "market stealing". The authors stressed that foreign firms are more productive and more competitive than local firms, and the entry of a foreign firm into the market may result in the local firm leaving the market.

Dunning and Lundan (2008) define the motivations behind foreign direct investment in four groups. In the first group, there are physical resources such as underground resources, the existence of cheap and qualified workforce, technology, managerial and marketing capacity and

organizational skills. There are market search activities in the second group. In this group, in foreign economies that import high amounts, foreign direct investments are made to overcome trade barriers such as tariffs and quotas. In the third group, there are those seeking strategic assets that invest abroad in certain strategic assets to increase their future competitiveness. In the last group, Dunning and Lundan (2008) talk about investments to avoid restrictive legislation or macro-organizational policies and investments to support related businesses.

Kar and Tatlısoz (2008) classify the factors that affect the investment of FDI into two as driving and attractive factors. Driving factors are the factors that cause capital to be directed to different countries due to economic developments in the outside world. As an example, regional trade agreements, the decrease in profitability rates in developed countries' markets. It is possible to define attractive factors as features in the local economy, such as tax rates, financial incentives, exchange rate strategies, economic stability, bureaucratic structure, abundance of natural resources, cheapness of labor force, technological development, financial freedom and lack of capital flows.

It is also possible to classify foreign direct investments into two vertically and horizontally. Horizontal direct foreign capital investments can be defined as the investment made by a company operating in the same industry branch outside of the country where the investment will be made. In this case, the company may want to take advantage of entering a new market (Almfraji and Almsafir, 2014: 207). These types of investments are also called as foreign direct investments looking for markets (Coskun, 2001: 111).

Vertical direct foreign capital investments are also referred to as direct foreign capital investments seeking efficiency (Coskun, 2001: 110), especially for economies with low-wage workforce, are made for labor-intensive production and products are sent to countries with high wages (Ozcan and Ari, 2010: 72).

In this study, the effect of FDI on transition economies is examined. While doing this, recently developed methods of panel data methodology are used. The countries analyzed in the study are subjected to foreign direct investments of western developed countries. The investigation of possible effects of investments can be useful for theoretical inferences. In this

context, the econometric methods applied can give results on both country group and country basis, which may enable more clear results. In the light of these explanations, it is thought that the study will contribute to the literature because of the second period of transition economies, the post-2007 period and the panel data methods used.

In the next section, detailed information about the countries discussed is given. This information is about the amount and trend of FDI as well as the transition process of the countries subject to the analysis.

In the third section of the study, related literature is reviewed. In the fourth section, model and data employed are presented. In the fifth section, empirical findings are discussed. In the last section, policy implications will be made in the light of empirical findings.

## **2. Transition Economies and Foreign Direct Investments**

The concept of transition economy is generally used for countries that switch from command economy to free market economy. While this process still continues, the term transition economies is used for twenty-five countries (Bal, 2004: 155). These countries are generally members of Central and Eastern Europe and the Baltic states and the Union of former Soviet Socialist Republics.

The IMF (2000) basically mentions four topics in the transition process. These are liberalization, macroeconomic stability, privatization, and structural and institutional reforms. Undoubtedly, an important part of the transformation process under these topics is foreign capital movements. There are many factors that attract foreign investors to these countries. Foreign capital inflows have been experienced for the purpose of privatization and liberalization, with the absence of private sector in many sectors in transition economies.

When the movements of foreign capital movements are analyzed on a country basis, it is possible to see that there are many factors that directly affect foreign capital inflows. This situation can be seen when the transition economies are examined. For example, in Poland, which has the highest investment in transition economies, the transition to a free market economy has provided political stability from the beginning, and its commitment to the understanding of free market economy has created

an attractive environment for foreign capital. In addition, low inflation, the relative size of local markets, four times lower labor costs compared to Western European countries and the presence of skilled labor encouraged capital inflows (Torrise et al., 2009: 7).

A similar situation applies to the Czech Republic. According to Pavlinek (1998), foreign direct investments meet capital requirements, also caused an increase in human capital. It also supports the technological development by ensuring the accumulation of industrial knowledge.

When the Hungarian economy is analyzed, it is seen that capital came from West European countries, Germany, the Netherlands, France, Ireland and the United States, and South Korea to invest. While initial foreign direct investments are focused on low value added products such as textile, in 2019, the state's new support policies on foreign capital inflows have allowed high-tech production investments, such as electric cars, to enter the country (UNCTAD Access date: 19.12.2019). With the new policy strategy, the direct foreign capital stock, which was around 80 billion US dollars in 2016, reached 89 billion dollars at the end of 2019.

According to the OECD (2017) report, FDI are very important for the Slovakia economy. According to the report, 45% of the economic size depends on foreign markets and in this respect, a significant part of its foreign trade belongs to Germany. Moreover, 20% of private sector employment depends on FDI. According to the data of UNCTAD (2020), foreign direct capital stock in Slovakia economy is more than 57 billion USD.

Although the Slovenian economy is a small country compared to other transition economies, as of 2018, the foreign capital stock of 17 billion US dollars constitutes one third of the country's gross domestic product. In this respect, foreign capital investments are economically important in Slovenia. On the other hand, the country is attractive for foreign direct investments. According to the World Bank's "Doing Business", the developed infrastructure, the strategic position of the country on the coast of the Adriatic Sea, well-educated human capital is among the factors that increase the attraction of the country.

According to the World Bank's "Doing Business", another transition economy, Romania, owns a cheap and qualified workforce, tax advantages, geographical location and perhaps a major local market, which is the most important factor. The country has been in focus. According to UNCTAD data, by the end of 2019, Romania has a foreign capital stock of 94 billion USD. Almost 20% of these investments were made in the construction and real estate sector.

On the other hand, Bulgaria performed poorly in terms of FDI, especially in the first years of the transition period. In the period between 1986 and 1996, there was only a direct foreign capital inflow of 890 billion USD. It is possible to say that there are insufficient reforms related to the transition process, that is why the economy performed poor performance in the related period (World Bank database, Access date: 29.12.2019). As a result of the agreement made with the IMF in 1997, together with the economic stability, for the first time in 2000, there was an annual foreign capital investment in Bulgaria over a billion dollars.

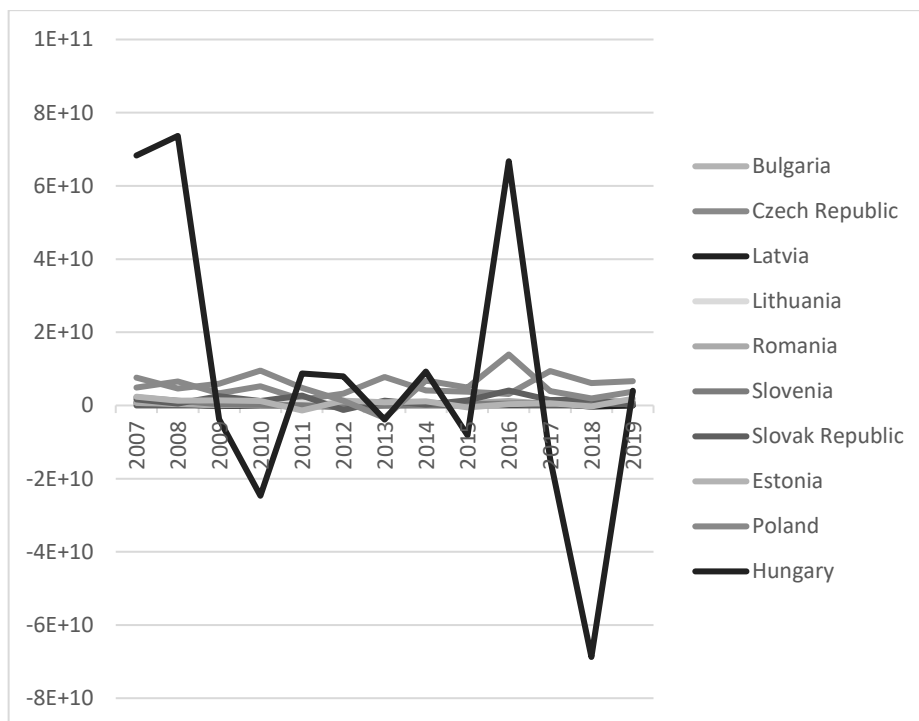
According to the World Bank's "Doing Business Report", Estonia, which has a favorable environment for FDI in green industries, information technologies and biotechnology, shows a successful performance in the transition process via balanced budget, free trade regime, fully convertible exchange rate regime and competitive banking system. According to the OECD (2017) report, foreign direct investments constitute 38% of the private sector's job creation capacity. Almost half of the private sector's employment capacity is formed by foreign capital investments. According to UNCTAD (2019) data, the foreign capital stock of the country has increased in recent years and reached 24 billion USD.

Graph 1 shows the movements of FDI in the period analyzed. Accordingly, it can be said that the performances of the countries investigated are similar, and there are serious fluctuations in the foreign direct investment stock in the Hungarian economy. Slovakia economy, on the other hand, is observed to be in second place after Hungary in the context of highest foreign direct investments.

It is possible to say that transition economies attract foreign direct investments regularly and global crises affect the countries in a similar way in the context of foreign direct investments. Also, when the data of

UNCTAD is examined, it will be possible to say that origin of the capital coming to these countries is similar. These countries are generally Western European countries, mainly Germany, Austria, France, Italy, Netherlands and UK. In addition, the United States, Japan and South Korea are among these countries. This shows that geographical proximity is an important factor in capital inflows to transition economies.

**Graph 1: FDI in Transition Economies (\$)**



Source: World Bank, Economic Indicators Database (Access date: 10.06.2020).

### 3. Review of Literature

When the studies examining the effect of foreign direct investments on economies are analyzed especially with the liberalization process in the 1990s, it increased significantly. It is seen that these studies have focused on different sectors of the economy, such as the financial system and the manufacturing industry, as well as examining the effects of the economy on macro indicators such as growth and unemployment. The current



literature focuses more on the economies of developing countries, and panel data methods are used as an empirical method, which enables collective analysis of country groups.

When these studies are classified, results are obtained that many of them are proof of positive relationship, and few studies show that there is no relationship or negative relationship. Since there is a large literature in this study, only the studies analyzing related countries and results of them will be summarized.

While studying the Polish economy in his study, Konings (2001) finds that there is no relationship between FDI and economic growth for the period 1993-1997. In the study of Konings, it is also stated that this relationship has negative consequences for the Romanian and Bulgarian economies because current imbalances, monopolistic structures and reverse technology transfers have taken place.

Campos and Kinoshita (2002) examine the relationship between FDI and economic growth for twenty-five Central and Eastern Europe and the member states of the former Union of Soviet Socialist Republics in the period 1990-1998. As a result of the analysis of the authors, it is determined that FDI positively affect economic growth for each country. This result seems to be compatible with theoretical explanations.

Aleksynska et al. (2003) examined the effect of foreign direct investment on economic growth in the Ukrainian economy, which is one of the transition economies. At the end of their study, the authors conclude that foreign direct capital stock indirectly affects economic growth, not directly, and that this indirect impact is reflected on the economy through human capital.

Lee and Tcha (2004) use cross-sectional and panel data analysis in their studies in which they examine the transition countries in Baltic and Eastern Europe in the context of foreign capital. As a result of their work, the authors conclude that they had positive effects such as increasing total factor productivity, getting rid of falling into the trap of poverty of the relevant countries, and a positive effect on economic growth in total.

Lyroudi et al. (2004), on the other hand, examined the effects of foreign investments on growth, which entered into economies between the years

of 1995 and 1998 in seventeen transition economies. The authors conducted a country-based analysis in their work, but concluded that FDI had no impact on economic growth for all countries.

Cristina and Rati (2005) use data from 1991-2002 period and panel data analysis methods in their study examining the relationship between variables for twelve Eastern European countries. As a result of the analysis of the authors, they conclude that FDI have a strong and positive effect on the economies under consideration.

Titarenko (2005) examines the Latvian economy in the context of the economic growth of foreign direct investment. As a result of his analysis, Titarenko states that FDI prevent domestic investments and thus the “crowding out effect” is valid.

Stanisic (2008), in his study of Eastern European transition countries, contends that contrary to theoretical explanations, FDI have no positive effect on the economy.

Another study that examines the Romanian economy belongs to Roman (2012). In his novel, he states that there is a positive correlation between FDI and economic growth between 1995 and 2004, and this interaction is based on capital stock.

Melnyk et al. (2014) examine the economic impact of foreign direct investments in twenty-six COMECON transition countries in their studies. The authors using panel data analysis methods have reached the result that foreign capital investments positively affect economic growth in the 1998-2010 period.

Miteski and Stefanova (2017) test the relationship between FDI and economic growth for sixteen countries in Central, Eastern and Southeastern Europe. Panel data analysis results show that foreign capital investments had a positive effect on economic growth in between 1998 – 2013 period, moreover, investments in industry and service sectors affect economic growth more.

As can be seen, the current empirical literature does not reach a clear conclusion on how effective the relationship between FDI and economic growth is in transition economies. The main reason of the differences

among studies come from period, empirical method and countries included into panel data models.

Panel data methods, which especially provide group statistics, may miss country-specific results. Moreover, while the relationship was weak in the early stages of the transition period, the relationship may have accelerated in the later periods. In the light of all these explanations, the use of panel data method, which can provide country-specific results in this study, and the period after the transition to the European Union, which constitutes the second part of the transition process, shows the contribution of the study to the empirical literature.

#### **4. Model and Data**

In this study, Central and Eastern European countries are analyzed. These are Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic and Slovenia which are joined into European Union in 1st of May 2004, called first wave, and Romania and Bulgaria which are joined into European Union in 1st of January 2007, called second wave. The empirical analysis period covers annual data from 2007, when transition economies joined the European Union as a whole, until 2018.

In the analysis, gross domestic product per capita (GDPPC, hereafter) is employed suggested by Aisen and Veiga (2013), Szkorupová (2014) and Almfraji and Almsafir (2014). Similarly, foreign direct investment (FDI, hereafter) is employed suggested by Bengoa et al. (2003), Azman-Saini et al. (2010) and Iamsiraroj (2016). Data belonging to both variables are obtained from World Bank. So, model with two variables is built for empirical analysis.

The common feature of the transition economies that make up the panel is that they switch from the central planning economy to the free market economy within the framework of the European Union harmonization process. For this reason, there is an issue of being affected by each other in the process of economic transformation. In empirical analysis, this situation is referred to as the cross-sectional dependency. For this reason, it is necessary to use test methods that examine whether there is a cross-section dependency among economies. In section dependency, the basic hypothesis is that transition economies have no effect on each other, and

the alternative hypothesis is that transition economies have an effect on each other.

**Table 1:** Cross Section Deendency Test Results

Model with constant	FDI	GDPPC
$CD_{lm}$ (BP,1980)	106.757 (0.00) <sup>a</sup>	77.430 (0.00) <sup>a</sup>
$CD_{lm}$ (Pesaran, 2004)	6.51 (0.00) <sup>a</sup>	3.418 (0.00) <sup>a</sup>
$CD$ (Pesaran, 2004)	-0.601 (0.274)	-1.703 (0.044) <sup>b</sup>
$LM_{adj}$ (PUY, 2008)	21.112 (0.00) <sup>a</sup>	14.702 (0.00) <sup>a</sup>

$$\Delta y_{i,t} = d_i + \delta_i y_{i,t-1} + \sum_{j=1}^{p_i} \lambda_{i,j} \Delta y_{i,t-j} + u_{i,t}$$

Note: In model,  $p_i$ , number of lag ( $p_i$ ) is accepted as 1. Symbols, a, b and c present that alternative hypothesis is accepted in significance levels 1 %, 5 % and 10 %, respectively.

In the decision phase of the horizontal cross-section dependency test, probability values are used. If probability values are less than 1%, 5%, and 10% significance levels, the alternative hypothesis that transition economies have an impact on each other is accepted. Conversely, if the probability values are greater than 1%, 5% and 10% significance levels, the basic hypothesis that transition economies have no effect on each other is accepted. Except CD test developed by Peseran (2004), cross section dependency tests results show that it is accepted the alternative hypothesis that transition economies have an impact on each other. For this reason, second generation unit root tests must be applied.

In order to apply the PANIC panel unit root test developed by Bai and Ng (2004), there should be dependency in horizontal sections. In the PANIC panel unit root test, the null hypothesis is that the variable contains unit root and the alternative hypothesis is that the variable does not contain the unit root. Probability values are used in the decision phase. If the probability values are less than 1%, 5% and 10% significance levels, the alternative hypothesis that FDI and GDPPC variables are not affected by economic crises is accepted. On the contrary, if the probability values are

greater than 1%, 5% and 10% significance levels, the null hypothesis is that the variables of FDI and GDPPC are affected by economic crises.

**Table 2:** PANIC Panel Unit Root Test Results

Level	<u>Model with constant</u>		<u>Model with constant and trend</u>	
	Test Stat.	Prob. Values	Test Stat.	Prob. Values
<b>FDI</b>				
$Z_{\hat{\epsilon}}^c$	2.1542	0.0156 <sup>b</sup>	6.957	0.00 <sup>a</sup>
$P_{\hat{\epsilon}}^c$	33.6242	0.0288 <sup>b</sup>	64.0002	0.00 <sup>a</sup>
<b>GDPPC</b>				
$Z_{\hat{\epsilon}}^c$	5.7838	0.00 <sup>a</sup>	7.9246	0.00 <sup>a</sup>
$P_{\hat{\epsilon}}^c$	56.5798	0.00 <sup>a</sup>	54.9482	0.00 <sup>a</sup>

Note:  $P_{\hat{\epsilon}}^c$  is a Fisher type statistic which takes individual ADF test probability values into account.  $Z_{\hat{\epsilon}}^c$  is a Choi type statistics standardized for large N samplings. Maximum common factor number is accepted as 2. the symbols a, b, and c show that the alternative hypothesis is accepted at 1%, 5% and 10% significance levels, respectively.

When the test results are analyzed, the variable of FDI is stable at the level value of 5% in the model with constant, and 1% in the model in which the constant term and trend variable is included. The per capita gross domestic product variable is stationary in the model in which the level value includes both constant and constant term and trend variable. This is thought to have arisen since the empirical analysis period started after the transition economies' membership to the European Union. Because with the help of the Union's common economies policies, transition economies with low per capita income converge to member countries where income per capita is high, resulting in mass economic shocks.

**Table 3:** Cross Section Dependency and Homogeneity Test Results

	Statistic	Prob. Value
<b><u>Cross Section Dependency</u></b>		
<i>LM</i> (BP,1980)	82.022	0.00 <sup>a</sup>
<i>CD<sub>lm</sub></i> (Pesaran, 2004)	3.902	0.00 <sup>a</sup>
<i>CD</i> (Pesaran, 2004)	6.076	0.00 <sup>a</sup>
<i>LM<sub>adj</sub></i> (PUY, 2008)	4.937	0.00 <sup>a</sup>
<b><u>Homogeneity Tests</u></b>		
$\tilde{\Delta}$	13.898	0.00 <sup>a</sup>
$\tilde{\Delta}_{adj}$	15.791	0.00 <sup>a</sup>

Note: In the regression model  $FDI_{it} = \alpha_i + \beta_{1i}GDPPC_{it} + \varepsilon_{it}$ , the symbols a, b, and c show that the alternative hypothesis is accepted at 1%, 5% and 10% significance levels, respectively.

In the model  $FDI_{it} = \alpha_i + \beta_{1i}GDPPC_{it} + \varepsilon_{it}$ , FDI are dependent and GDPPC is independent variable. The *i* index shows the cross sections that form the panel. It is necessary to test whether the parameters of cross sections are equal each other in the regression obtained and in the co-integration test to be used later. Because when comparing economies such as Estonia and Latvia, which are among the countries that form the panel, and Romania and Bulgaria, which are relatively larger countries, the fact that the slope parameters of the regression are the same will cause errors in policy inferences.

In the homogeneity tests, the basic hypothesis is that the slope parameters of the countries forming the panel are the same. The alternative hypothesis is that the slope parameters of the countries that form the panel are different from each other. According to Table 3, where the probability values are included, the alternative hypothesis is accepted and therefore, it is concluded that the slope parameters of the countries forming the panel are different from each other. For this reason, in choosing the co-

integration method used to determine long-term relationships, methods that take cross section dependency into account should be used.

**Table 4:** Panel Co-integration Test Results Considering Cross Section Dependency Results

	Constant			Constant and Trend		
	Stat.	Asymptotic Prob. Value	Bootstrap Prob Value	Stat.	Asymptotic Prob. Value	Bootstrap Prob Value
<b>Error Correction</b>						
<b>Group_tau</b>	-43.555	0.00 <sup>a</sup>	0.016 <sup>b</sup>	-50.662	0.00 <sup>a</sup>	0.345
<b>Group_alpha</b>	-8.922	0.00 <sup>a</sup>	0.00 <sup>a</sup>	-2.233	0.013 <sup>b</sup>	0.19
<b>Panel_tau</b>	-24.031	0.00 <sup>a</sup>	0.00 <sup>a</sup>	-12.334	0.00 <sup>a</sup>	0.247
<b>Panel_alfa</b>	-18.962	0.00 <sup>a</sup>	0.00 <sup>a</sup>	-7.916	0.00 <sup>a</sup>	0.043 <sup>b</sup>

Notes: The null hypothesis claims that there is no co-integration. In the error correction test, the lag length is considered one. The probability ratio obtained with the bootstrap method is obtained from 1,000 repetitions.

Asymptotic probability ratios are obtained from the standard normal distribution. The symbols a, b, and c show that the alternative hypothesis is accepted at 1%, 5% and 10% significance levels, respectively.

In the co-integration test, the basic hypothesis is based on the claim that there is no long-term relationship between FDI and GDPPC and hence there is no co-integration. The alternative hypothesis, on the other hand, claims that there is a long-term relationship and thus co-integration exists between FDI and GDPPC. Probability values are used in the decision phase. If the asymptotic and bootstrap probability values are less than 1%, 5% and 10% significance levels, an alternative hypothesis is accepted that claims a long-term relationship between FDI and GDPPC. Conversely, if the asymptotic and bootstrap probability values are greater than 1%, 5% and 10% significance levels, the null hypothesis is assumed that there is no long-term relationship between FDI and GDPPC.

The null hypothesis that there is no long-term relationship between FDI and GDPPC is accepted, since the bootstrap probability values in the

model in which the constant and trend variable are included are greater than at least 10% significance level. However, the asymptotic and bootstrap probability values of the constant term model and the asymptotic probability values of the constant term and trend variable model (excluding group alpha statistics) lead to the conclusion that there is a long-term relationship between FDI and GDPPC.

**Table 5:** Panel VAR and VECM Causality Test Results

	Short Term Causality		Long Term Causality
	$\Delta$ (FDI)	$\Delta$ (GDPPC)	ECT(-1)
$\Delta$ (FDI)	-	1.873 (0.171)	-1.288 [-12.199] <sup>a</sup>
$\Delta$ (GDPPC)	1.356 (0.244)	-	1.38E-07 [1.773] <sup>c</sup>

Note: The symbols a, b, and c show that the alternative hypothesis is accepted at 1%, 5% and 10% significance levels, respectively. () presents probability values and [] presents t statistics.

Vector autoregression (VAR) and error correction model (VECM) which are time series analysis methods are modified for panel data analysis and results are presented in the table 5. In the panel vector error correction model, the short-term causality among the variables and the statistical significance since the error correction coefficient is different from zero means long-term causality. In the vector autoregression and error correction model, the null hypothesis shows that there is no causality from direct FDI to GDPPC or vice versa, to direct foreign capital investments from gross domestic product per capita. The alternative hypothesis shows that there is causality from direct FDI towards GDPPC, or vice versa, from GDPPC to FDI. Probability values and t statistics are used in the decision phase.

According to the results in table 4, in the panel vector error correction model, it is found that there is no causality in the short term, from direct foreign capital investments to gross domestic product per capita or from direct domestic capital to direct foreign capital investments. However, according to the panel vector error correction model, there is causality in



the long run from direct foreign capital investments to per capita gross domestic product or vice versa.

**Table 6:** Canning and Pedroni (2008) Panel Causality Test Results

Country	FDI $\Rightarrow$ GDPPC		GDPPC $\Rightarrow$ FDI	
	t stat	Prob Value	t stat	Prob Value
Bulgaria	-0.864	0.420	1.209	0.271
Czech Republic	-1.797	0.122	1.260	0.254
Latvia	-0.660	0.533	0.341	0.744
Romania	0.737	0.488	-1.656	0.148
Slovak Republic	-2.205	0.069 <sup>c</sup>	0.691	0.515
Slovenia	-3.376	0.014 <sup>b</sup>	0.243	0.815
Lithuania	-0.232	0.824	0.409	0.696
Hungary	-2.862	0.028 <sup>b</sup>	-0.393	0.707
Estonia	-0.547	0.603	-0.260	0.803
Poland	-0.393	0.707	-0.264	0.800
<b>Lambda Pearson</b>	<b>31.553</b>	<b>0.048<sup>b</sup></b>	<b>13.779</b>	<b>0.841</b>

Note: The symbols a, b, and c show that the alternative hypothesis is accepted at 1%, 5% and 10% significance levels, respectively.

The causality test results obtained in the panel vector autoregression and panel error correction model provide policy implications for all the countries that form the panel. However, there may be social and economic differences for the countries that form the panel. With the causality test developed by Canning and Pedroni (2008), it can give an idea about the existence of a causal relationship between FDI and GDPPC and the direction of the possible relationship for each country that constitutes the panel.

According to the results in table 6, there is a causality in Slovak Republic at 10% significance level, in Slovenia and Hungary at 5% significance level, from FDI to GDPPC. Causality from direct FDI to GDPPC is not an issue in other countries. The results of Canning and Pedroni (2008) causality test also show that there is no causal relationship from GDPPC to FDI in any countries.

## **5. Results and Conclusion**

Foreign direct investment is important, especially for economies that are in the early stages of development, both because they meet their capital factor needs and increase their total factor productivity. There are many studies in the literature that examine the relationship between foreign direct investment and economic growth.

"Transition economies", which are located in Central and Eastern Europe, and which focus on the free market economy from communist understanding, are among the countries with the highest foreign direct capital inflow. In this study, the relationship between economic growth and foreign direct investment in the economies of Bulgaria, Czech Republic, Latvia, Romania, Slovak Republic, Slovenia, Lithuania, Hungary, Estonia and Poland, which are accepted among transition economies, is examined for the period between 2007 and 2018.

Although data for the countries under consideration were available until the 1990s, January 1, 2007, which is the accession date of many countries to the European Union, is considered the beginning of the second phase of the transition period of the countries. Therefore, the analysis period starts from 2007.

The results of the analysis show that there is no short-term causality in the country group analyzed, and there is no uni-directional relationship from direct foreign direct investments to economic growth as well as from economic growth to direct foreign investments. On the other hand, the error correction model results that show that the relationship between the variables in the long term is statistically significant. This shows that foreign direct investments are effective on the economy in the long run. When the results are evaluated theoretically, it can be said that they are theoretically meaningful. Because the effects of the investments on the economy will appear only after a certain time. The absence of any

causality from economic growth to the amount of foreign direct capital indicates that foreign investors make investments by considering different variables rather than economic magnitude.

On the other hand, results of country-based analysis show that there is a causality from foreign direct investment to economic growth in only three countries. These countries are Hungary, Slovenia and the Slovak Republic. When the relationship of these countries with foreign capital is examined, it is seen that foreign capital is important especially in the Republic of Slovakia and that foreign capital has a very important place in employment and GDP. While the size of the economy is 105 billion US dollars, foreign capital stock is at the level of 57 billion dollars. In this context, the emergence of causality in the Slovak Republic seems economically meaningful as well as statistical.

The Hungarian economy is among the countries with the highest capital stock among the transition economies with a foreign capital stock of nearly 100 billion US dollars. On the basis of this, it is possible to estimate that the policies supporting the foreign capital implemented by the Hungarian government have been influenced in recent years. In addition, the capital's orientation towards high-tech areas may increase the direct dependence on foreign capital in the new economic structure.

When the Slovenian economy is analyzed, it is possible to conclude that the foreign capital stock corresponds to one third of the country's economy, therefore foreign direct investment can have an impact on economic growth even in the short term.

Finally, it is possible to say that foreign direct investments are higher in transition economies than in other developing countries. However, the fact that the incentive policies implemented by the governments of the countries to attract foreign capital are effective can be seen in the example of Hungary.

## References

- Agrawal P. (2005). Foreign Direct Investment in South Asia: Impact on Economic Growth and Local Investment. In: Graham E.M. (eds) *Multinationals and Foreign Investment in Economic Development*. International Economic Association Series. Palgrave Macmillan, London.
- Aisen, A., & Veiga, F. J. (2013). How Does Political Instability Affect Economic Growth?. *European Journal of Political Economy*, 29, 151-167.
- Aleksynska, M., Gaisford, J., & Kerr, W. (2003). *Foreign Direct Investment and Growth in Transition Economies*. University Library of Munich, Germany, MPRA Paper.
- Almfraji, M. A., & Almsafir, M. K. (2014). Foreign Direct Investment and Economic Growth Literature Review from 1994 to 2012. *Procedia-Social and Behavioral Sciences*, 129(15), 2014.
- Azman-Saini, W. N. W., Baharumshah, A. Z., & Law, S. H. (2010). Foreign Direct Investment, Economic Freedom and Economic Growth: International Evidence. *Economic Modelling*, 27(5), 1079-1089.
- Bai, J., & Ng, S. (2004). A Panic Attack on Unit Roots and Cointegration. *Econometrica*, 72(4), 1127-1177.
- Baiashvili, T., & Gattini, L. (2020). Impact of FDI on Economic Growth: The Role of Country Income Levels and Institutional Strength. EIB Working Paper, 2020/02.
- Bengoa, M., & Sanchez-Robles, B. (2003). Foreign Direct Investment, Economic Freedom and growth: New Evidence from Latin America. *European journal of political economy*, 19(3), 529-545.
- Breusch, T. S., & Pagan, A. R. (1980). The Lagrange multiplier test and its applications to model specification in econometrics. *The review of economic studies*, 47(1), 239-253.
- Canning, D., & Pedroni, P. (2008). Infrastructure, Long-Run Economic Growth and Causality Tests for Cointegrated Panels. *The Manchester School*, 76(5), 504-527.
- Coşkun, R. (2001). Determinants of Direct Foreign Investment in Turkey. *European Business Review*, Vol.13, No. 4, pp. 221–226.

Duce, M. (2003). Definitions of Foreign Direct Investment (FDI): A Methodological Note. Banco De Espana, background material for the BIS Meeting of the CGFS Working Group on FDI in the financial sector, 11 Mart 2003.

Dunning, J. H. (1994). Re-evaluating the Benefits Offoreign Direct Investment. *Transnational Corporations*, Vol. 3, No. 1, pp. 23–51.

Dunning, J. H., & Lundan, S. M. (2008). *Multinational enterprises and the global economy*. Edward Elgar Publishing, number 3215.

World Bank, World Development Indicators, <http://datatopics.worldbank.org/world-development-indicators/>

Emirmahmutoğlu, F., & Kose, N. (2011). Testing for Granger Causality in Heterogeneous Mixed Panels. *Economic Modelling*, 28, 870–876.

Harun, B. (2004). Geçiş Ekonomilerinde Ekonomik Büyüme ve Dış Finansman. *Proceedings of the First International Conference on the Fiscal Policies in Transition Economies*, Bishkek

Iamsiraroj, S. (2016). The Foreign Direct Investment–Economic Growth Nexus. *International Review of Economics & Finance*, 42, 116-133.

Iliuta, V. C. & Ram R. (2005). Foreign Direct Investment and Economic Growth in Transition Economies: A Panel Data Study. *Economia Internazionale / International Economics*, Camera di Commercio Industria Artigianato Agricoltura di Genova, vol. 58(3), pages 337-352.

IMF (2000). *Transition Economies: An IMF Perspective on Progress and Prospects*. November 3. IMF, Washington D.C.

Kar, M., ve Tatlısöz, F. (2008). Türkiye'de Doğrudan Yabancı Sermaye Hareketlerini Belirleyen Faktörlerin Ekonometrik Analizi. *Karamanoğlu Mehmetbey Üniversitesi Sosyal ve Ekonomik Araştırmalar Dergisi*, 2008 (1), 436-458.

Kinoshita, Y. & Campos, N. F. (2002). *The Location Determinants of Foreign Direct Investment in Transition Economies*. Working Paper, 01/08/2002.

Konings, J. (2001). The Effects of Foreign Direct Investment on Domestic Firms. *Econ. Transit.* 9: 619–33.

Lee, M., & Tcha, M. (2004). The Color of Money: The Effects of Foreign Direct Investment on Economic Growth in Transition Economies. *Review of World Economics*, 140(2), 211-229.

Lyroudi K., Papanastasiou J., & Vamvakidis A. (2004). Foreign Direct Investment and Economic Growth in Transition Economies, *South Eastern Europe Journal of Economics*, 1, pp. 97-110.

Melnyk, L., Kubatko, O., & Pysarenko, S. (2014). The Impact of Foreign Direct Investment on Economic Growth: Case of Post Communism Transition Economies. *Problems and perspectives in Management*, (12, Iss. 1), 17-24.

Miteski, M., & Stefanova, D. J. (2017). The Impact of Sectorial FDI on Economic Growth in Central, Eastern and Southeastern Europe, Working Paper, No. 1/2017, National Bank of the Republic of Macedonia, Skopje

OECD (2017). Estonia Trade and Investment Statistical Note. *International Trade, Foreign Direct Investment and Global Value Chains Note*.

OECD (2002). *Foreign Direct Investment for Development, Maximising Benefits, Minimising Costs. Overview*.

Özcan, B. and Arı, A. (2010). Doğrudan Yabancı Yatırımların Belirleyicileri Üzerine Bir Analiz OECD Örneği. *Istanbul University Econometrics and Statistics e-Journal*, 12, 65 – 88.

Pavlínek, P. (1998). Foreign Direct Investment in the Czech Republic. *The Professional Geographer*, 50: 71-85.

Pesaran, H. M. (2004). General Diagnostic Tests for Cross Section Dependence in Panels. Working Paper No:0435, University of Cambridge.

Pesaran, M. H. (2007). A Simple Panel Unit Root Test in the Presence of Cross-Section Dependence. *Journal of Applied Econometrics*, 22(2), 265-312.

Pesaran, M. H., & Yamagata, T. (2008). Testing Slope Homogeneity in Large Panels. *Journal of Econometrics*, 142(1), 50-93.

Pesaran, M.H., Ullah, A., & Yamagata, T. (2008). A Bias-Adjusted LM Test of Error Cross Section Independence. *Econometrics Journal* 11, 105–127.

Roman, M. D., & Padureanu, A. (2012). Models of Foreign Direct Investments Influence on Economic Growth. Evidence from Romania, *International Journal of Trade, Economics and Finance*, 3 (1), 25-29.

Schoors, K., & van der Tol, B. (2001). The Productivity Effect of Foreign Ownership on Domestic Firms in Hungary. In *EAE Conference in Philadelphia, PA*.

Stanisic, N. (2008). Do Foreign Direct Investments Increase the Economic Growth of Southeastern European Transition Economies? *South-Eastern Europe Journal of Economics*, 1 (1), pp. 29-38.

Szkorupová, Z. (2014). A Causal Relationship Between Foreign Direct Investment, Economic Growth and Export for Slovakia. *Procedia Economics and Finance*, 15(4), 123-128.

Titarenko, D. (2005). The Influence of Foreign Direct Investment on Domestic Investment Processes in Latvia. *Transport and Telecommunication*. 7, 1-9.

Torrise, R. C., Delaunay, C. J., Kocia, A., & Lubieniecka, M. (2009). FDI in Poland: Determinants and Implications for Countries in Transition. *Ekonomia/Uniwersytet Warszawski*, (23), 3-15.

UNCTAD (2020). *World Investment Report: FDI Policies for Development: National and International Perspectives Overview*.

Westerlund, J. (2007). Testing for Error Correction in Panel Data. *Oxford Bulletin of Economics and statistics*, 69(6), 709-748.