# FOREIGN DIRECT INVESTMENTS, EXPORT AND ECONOMIC GROWTH: EVIDENCES FROM SELECTED DEVELOPING COUNTRIES

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**Abstract**

The purpose of this study is to analyze the relationship among foreign direct investments, export and economic growth, and to provide evidence from 44 selected developing countries. Firstly, the data sets consisting of annual data in the period of 2000-2014 were subjected to LLC, IPS and Hadri panel unit root tests and it was concluded that the series did not have unit roots in their level values. The causality relationship among the series was determined using the Dumitrescu-Hurlin Causality Test method. According to the results obtained, it may be argued that there is a two-way relationship of causality among the variables foreign direct investments, export and economic growth in the developing countries in question.

***Key Words:*** FDI, GDP, Export, Economic Growth, Developing Country

***JEL Classification:*** F10, F21, O40

# DOĞRUDAN YABANCI YATIRIMLAR, İHRACAT ve EKONOMİK BÜYÜME: SEÇİLMİŞ GELİŞMEKTE OLAN ÜLKELERDEN KANITLAR

**Öz**

Çalışmanın amacı doğrudan yabancı yatırımlar, ihracat ve ekonomik büyüme arasındaki ilişkiyi analiz etmek; seçilmiş 44 gelişmekte olan ülkeden kanıtlar ortaya koymaktır. Öncelikle, 2000-2014 dönemine ait yıllık verilerden oluşan veri setleri LLC, IPS ve Hadri panel birim kök testlerine tabi tutulmuş ve serilerin düzey değerlerinde birim kök içermedikleri sonucuna ulaşılmıştır. Seriler arasındaki nedensellik ilişki ise Dumitrescu ve Hurlin Panel Nedensellik Testi yöntemiyle tespit edilmiştir. Elde edilen sonuçlara göre, söz konusu gelişmekte olan ülkelerde doğrudan yabancı yatırımlar, ihracat ve ekonomik büyüme değişkenleri arasında çift yönlü nedensellik ilişkisinin varlığından söz edilebilir şeklindedir.

***Anahtar Kelimeler:*** DYY, GSYİH, İhracat, Ekonomik Büyüme, Gelişmekte Olan Ülkeler

***JEL Kodu:*** F10, F21, O40

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*DOI: 10.18092/ulikidince.286749*

*Makalenin Geliş Tarihi (Recieved Date): 20/01/2017*

*Yayına Kabul Tarihi (Acceptance Date): 05/05/2017*

**1. Introduction**

Growth is defined as the increase in an economy's production volume in a period. Economic growth is an important issue for both developed and developing countries (Özel, 2012:64). While relatively impoverished ones among developing countries have very low, even negative growth, the countries that are able to attract investment from outside with their existing production resources and advantages may achieve higher economic growth (Yılmazer, 2010:242).

Foreign direct investments (FDI) are made by firms in a country on firms in another country with the means of buying a firm in a country, supplying the founding capital for a new firm, or increasing the capital of an existing firm, and they bring along technology, business knowledge and the investor's authority of control (Karluk, 2002: 466). In other words, FDI is a business reaching beyond its country's borders and establishing production facilities or buying an existing production unit in another country (Yılmazer, 2010:242). While FDI may take the form of foreign currency transfer, it may also be made in the form of machinery or physical equipping (Şen and Karagöz, 2007).

After WWII, with the Marshall Plan, the USA tried on one hand to fix the destroyed European economies and on the other hand to prevent communism from spreading in these countries, therefore achieved a large amount of resource transfer. These transfers later started to spread with the involvement of European countries and Japan. Resource transfers made by countries owning capital created a political, military and economic burden in time, and the need was felt to institutionalize such operations. Thus, international financing institutions like the International Monetary Fund (IMF), the World Bank (WB), the Organization for Economic Co-operation and Development (OECD) and the European Investment Bank (EIB) started to appear (Erçand Karagöl, 2011: 6-7).

While FDIs were rather made among developed countries in 1970s and 1980s, they started to spread to developing countries with 1990s. The reasons for the importance of FDIs in 1990s may be listed as the liberal market mechanism, economic globalization, increased mobility of prosperity-providing assets, convergence of the economic structures of developed and newly industrializing countries, and better utilization benefits and costs of FDI by governments (Dunning, 1994:3).

While the share of the amount going to developing countries in the total investment volume of the world was lower than 20% in the early 1990s, it exceeded 40% in mid-1990s (EFYDP, ÖİK, 2000:2). International trade became prevalent due to faster globalization by transition to knowledge economy in 1990s and

developments in communication technology. Therefore, mobility of not only goods and services, but also capital increased.

Criteria considered by foreign direct investments while choosing the country to be made in may be economic or political. When there are political reasons, economic utility is usually secondary. On the other hand, the main purpose of investments with priority of economic reasons is to maximize commercial profit (Okuyan and Erbaykal, 2008:48).

**2. The Relationship among FDI, Export and Economic Growth**

In the simple growth model, which we will show as *Q = f (C, L, A)*; *"Q"* represents total production in the economy, *"C"* represents total physical capital stock, L represents labor, and *"A"* represents technologic level. Considering the capital consists of internal and external savings, external savings are significant for growth in cases where internal savings are not sufficient. It is assumed that FDIs will create a positive external effect as they provide entrance of more technology and capital into the country. For example, FDIs had a considerable influence on the growth and increased exports in countries known as the Four Asian Tigers (Göçer et al., 2012:22-23).

It is accepted that technology transfer made via FDI is more advantageous than transfer of technology by other means. It is accepted that FDI stimulates economic growth by increasing usage of resources, infrastructure investments, manufacturing industry and technological advancement (Yılmazer, 2010:242). One of the most important contributions of FDIs to the country they are made in is the they reduce the country's dependence of external resources, increase the knowledge of management and support the accumulation of human capital (Kar and Tatlısöz, 2008:6).

Development priorities of developing countries include achievement of sustainable economic growth, increasing investments, increasing exporting power in world markets, creating more employment opportunities and strengthening technological development. The only alternative for developing countries against deficiency of capital accumulation caused by structural bottlenecks in the financing of their economic development is external financing (EFYDP, ÖİK, 2000:2). In most developing countries, as their domestic savings are low, their gross national products and per capita income levels are low. High consumption leads to resource deficiency because the savings necessary for investment cannot be achieved. Therefore, with the aim of achieving investments and stimulating growth, there is a need for foreign investments in addition to internal savings (Erçakar and Karagöl, 2011: 4). All these things lead developing countries desiring faster growth and a stable economy to see FDI as a solution (Göçer et al., 2012:22).

Foreign capital investments gives advantage by contributing to the increase of fixed capital stock of a country, bringing knowledge of technology and trade, minimizing balance of payments deficit, bringing dynamism into the internal market, minimizing the deficit of technical personnel and managers, and increasing employment opportunities (Tandırcıoğlu and Özen, 2003:105). Therefore, the importance of such investments is even greater for countries that do not have sufficient resources to achieve a high economic development speed (Karluk, 2002:176). Many developing countries competing for a bigger share of capital movements went through various regulations. According to research conducted by the United Nations, while increasingly more countries in 1990s made arrangements regarding their national investment climate (a total of 750 units), 94.2% of these arrangements were in favor of FDIs (EFYDP, ÖİK, 2000:4). Moreover, privileges statuses such as tax privileges in the last 30 years, state guarantees, low price and state subsidies are indicators of this case (Gedikli; 2011:113).

FDI flow among countries appears to be speeded up with the globalization of capital. The investment provides a set of benefits for both the country the capital is coming from and the country where the investment is made. It also leads to sharing the risks between the countries owning the capital and the countries importing capital (Özcan and Arı, 2010:66). Foreign capital may arrive into a country in three was as capital market investment, exportation of the produced goods to foreign countries, and the investor allowing the usage of their technology or brand name in that country. FDIs are real investments rather towards production and made usually by multinational companies (Aydemir et al., 2012:71). While investigating the indicators of FDIs, while researchers generally focus on economic variables (profit, GDP, and/or GNP, balance of payments, price level, efficiency and exchange rates), some researchers study variables like stability and terrorism (Bozkurt and Dursun; 2006:40).

It is seen that export also provides similar contributions for developing countries to those of FDIs. Many thinkers since Adam Smith have emphasized that foreign trade positively influences economic growth and especially export is the main driver of growth, and supported the liberalization of foreign trade (Sandalcılar; 2012:162). David Ricardo's theory of comparative advantages lies in the center of the idea that growth led by export provides positive effects on industrialization and development. Accordingly, specialization and division of labor will lead to a more effective international distribution of limited resources and will provide advantage for countries in trade (Erdoğan; 2006:31).

Foreign currency reserves of developing countries are limited, and it is difficult for these countries to obtain financial resources from international financial markets (Aktaş; 2009:35). Nevertheless, one of the important factors affecting their

economic growth is the foreign currency income they get from exportation of goods and services. The economic growth strategy based on export which started in 1960s and became popular especially after 1980s has been a significant factor in the growth of many developing countries (Değer, 2006:68). The effects of export on economic growth may be listed as the following:

i) It increases competition.
ii) Besides increased efficiency in foreign trade, it increases economic growth rate by providing acquisition and prevalence of new technologies.
iii) It provides opportunities to utilize competitive advantages. Additionally, it creates new opportunities domestically and abroad.
iv) Economies with narrow internal markets obtain the means of production on an economical level only through exports.
v) It reduces foreign currency pressure in foreign payments by increasing foreign currency entry.
vi) Increase in export, at the same time, acts as a pushing force in economic growth by widening import capacity in various inputs and capital goods that are not found in the country and play an important role in domestic production (Şimşek, 2003:43-44).

One of the basic sources of the theoretical development in the export-economic growth relationship is that exportation in developed and developing countries has positive effects, and another is that there has been a global shift experienced towards export-based growth strategies recently (Yapraklı; 2007: 98). The successful economic growth processes that adopt outward-oriented and export-based growth strategies that started in Japan and continued with South Korea, Hong Kong, Singapore, Malaysia, Indonesia, provided speed for commercial liberalization activities in many underdeveloped and developing countries (Genç et al., 2010: 30).

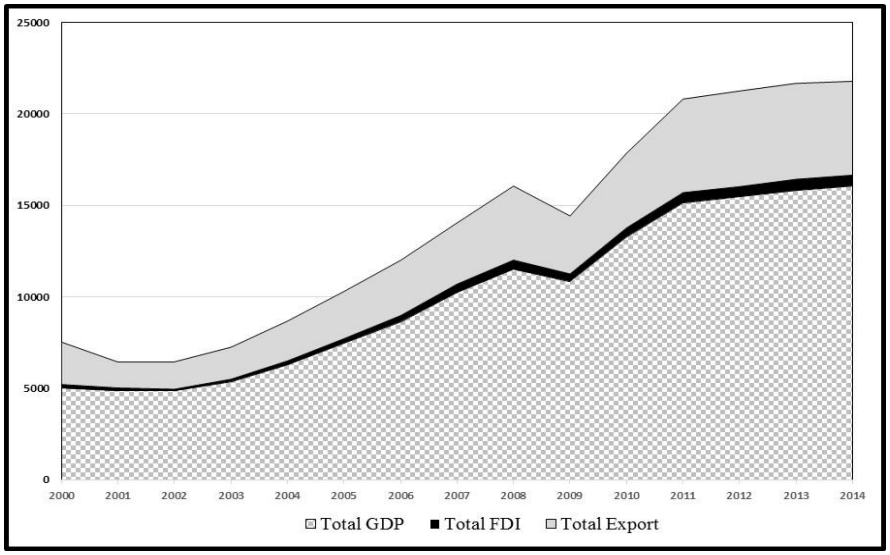
Table 1 shows the GDP, FDI and export data of 44 selected developing countries. According to 2014 data, their share in the total world GDP was 20.58%, their share in total world FDI entries was 32.74% and their share in the total world exports was 27.13%.

Table 1: **GDP, FDI and Export Data of the Developing Countries (2000-2014 Period; Billion US Dollars)**

| Years | Total GDP of The "$D_{ing}C$" | Share in World GDP (%) | FDI Inflow to The "$D_{ing}C$" | Share in World FDI Inflow (%) | Total Export of The "$D_{ing}C$" | Share in World Export (%) |
|---|---|---|---|---|---|---|
| **2000** | 5016,7 | 15,06 | 195,5 | 13,39 | 2316,6 | 36,40 |
| **2001** | 4865,8 | 14,69 | 160,5 | 20,16 | 1413,9 | 22,36 |
| **2002** | 4853,7 | 14,10 | 100,6 | 13,57 | 1496,6 | 22,72 |
| **2003** | 5377,5 | 13,91 | 122,3 | 17,23 | 1752,6 | 22,81 |
| **2004** | 6290,3 | 14,45 | 212,3 | 21,14 | 2173,5 | 23,16 |
| **2005** | 7474,9 | 15,86 | 242,6 | 15,95 | 2580,2 | 24,32 |
| **2006** | 8651,3 | 16,95 | 324,3 | 15,18 | 3022,4 | 24,68 |
| **2007** | 10234,1 | 17,79 | 464,9 | 15,18 | 3346,7 | 23,73 |
| **2008** | 11504,0 | 18,23 | 506,7 | 20,74 | 4047,4 | 24,75 |
| **2009** | 10854,7 | 18,15 | 402,3 | 29,56 | 3170,5 | 25,16 |
| **2010** | 13290,5 | 20,26 | 483,2 | 25,67 | 4081,1 | 26,65 |
| **2011** | 15153,3 | 20,81 | 548,6 | 24,11 | 5113,8 | 27,92 |
| **2012** | 15486,5 | 20,82 | 542,3 | 26,10 | 5228,0 | 28,26 |
| **2013** | 15827,3 | 20,73 | 603,5 | 28,69 | 5244,4 | 27,77 |
| **2014** | 16073,2 | 20,58 | 582,8 | 32,74 | 5132,3 | 27,13 |

**Notes**: The "$D_{ing}C$" refers to developing countries.
**Source:** UNCTADstat Database (2016); ITC Trade Map Database (2016)

Chart 1: **GDP, FDI and Export Data of the Developing Countries**



Some studies in the relevant literature are the following: Berthelemy and Demurger (2000), *China*, the most influential factor on growth is foreign direct investment; Lensink and Morrisey (2001), *71 developing countries*, there is a positive relationship between FDI and growth; Zang (2001), *Latin America and East Asia countries*, FDIs affect growth positively; Campos and Kinoshita (2002), *25 Central and Eastern European countries and former Soviet transition economies*, FDI flows affect economic growth positively; Razin (2002), *64 countries*, FDI has significant effect on capital accumulation and economic growth; Choe (2003), *80 countries*, the direction of causality is from economic growth to FDI; Hunya and Geishecker (2005), *Central and Eastern European countries*, FDIs led to increase in employment in all countries; Chowdhury and Mavrotas (2005), *Newly developing economies*, there is a two-way relationship between GDP and FDI in Malaysia and Thailand; Okuyan and Erbaykal (2008), *9 developing countries*, there are causality relationships from economic growth to FDI in 6 countries, from FDI to economic growth in 1 country, and two-way in 2 countries; Yang (2008), *110 countries,* the effects of FDI on economic growth change based on time and place. Ahmad and Kwan (1991), Ekanayake (1999), Ahmad and Harnhirun (1996), Yapraklı (2007) and Aktaş (2009) studied *the relationship between export and economic growth*.

**3. Econometric Analysis**

The relationship among Foreign Direct Investment, Export and Gross Domestic Product was analyzed in this study for the 44 selected developing countries. In the analysis, indicators of economic growth were categorized in two groups as "*Domestic Dynamics*" and "*Foreign Dynamics*". This may be formulated as follows.

***Economic Growth = f (Domestic Dynamics, Foreign Dynamics)***

In the analysis, starting with the equation above, the relationship among Economic Growth and foreign dynamics of Foreign Direct Investment and Export was investigated. In the empirical analysis, the annual data of the period of 2000-2014 were used. In the model, the Gross Domestic Product data were represented by the variable "GDP"; foreign direct investment data were represented by the variable "FDI", and export data were represented by the variable "EX". For the 44 selected developing countries, the GDP values were taken from the IMF World Economic Outlook Database (2016), FDI data were taken from the UNCTADstat Database (2016), and EX data were taken from the ITC Trade Map Database (2016) in units of US dollars.

Panel data method was used in the analyses. Panel data refers to the combination of observations in a certain time period on horizontal section of economic units such as countries, firms and households. Values for a given year

represent the section dimension of the panel, while the values taken by economic variables in time represent the time dimension of the panel (Baltagi, 2005:11).

$$y_{it} = \propto + X'_{it} + u_{it} \qquad i = 1, \dots, N \quad t = 1, \dots, T$$

The main equation used in panel data analysis is as the equation above. Here, the data are shown for i=1, ... ,N number of countries, firms or households and this forms the horizontal section of the model. The analysis investigated horizontal section data of 44 countries. t=1, …,T; indicates time, that is, the time series part of the model. The investigated time series covered the period of 2000-2014. It was assumed $u_{it}$ error term is distributed independently for all times and units and as $u_{it} \approx IID(0, \sigma^2)$.

As in time series analysis, it should be investigated in panel data analysis whether the variables contain unit roots or not. This is because regression estimations on series with unit root are unreliable, and may provide fake or misleading estimations (Sandalcılar and Altiner, 2012:193). In the study, whether the series contained unit root or not was checked using the tests produced from LLC (2002), IPS (2003) and Hadri (2000) studies, which are widely used in the literature. The results are shown in Table 2. Accordingly, it is seen that the series did not contain unit roots in level values, therefore, they were stable.

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

| Tests | GDP | FDI | EX |
|---|---|---|---|
| **LLC** | -12,4330* (0,00) | -33,8422* (0,00) | -9,9484* (0,00) |
| **IPS** | -3,5605* (0,00) | -21,7735* (0,00) | -2,8848* (0,00) |
| **Hadri** | 15,6921* (0,00) | 11,4174* (0,00) | 8,4317* (0,00) |

**Note:** The values given are the test statistic of the relevant variable; the parentheses indicate probability values and the (*) symbol shows significance at 1% of the coefficient.

After determining that the series were stable in level values, the causality relationship among the series was investigated. In the analysis, the causality relationship was tested using the Panel Causality Test method developed by Dumitrescu and Hurlin (2012). The most important advantages of this method are its usability in cases where the time dimension is larger than the horizontal section dimension or otherwise, and its ability to create effective results in unbalanced panel data sets (Dumitrescu and Hurlin, 2012; Göçer et al., 2014:177). The Dumitrescu and Hurlin test results were calculated by assigning delay lengths of 1, 2 and 3 to the model, and the results are shown in table 3. Accordingly, it was concluded that it is possible to talk about a two-way causality relationship between GDP and FDI.

Considering the causality relationship between EX and GDP, there was a two-way relationship between the variables with a delay length of 1, at 1% significance level. Likewise, at 1% significance level, existence of a causality relationship from EX to FDI was not rejected, while a causality relationship from FDI to EX was seen only in a delay length of 3.

Table 3: **Dumitrescu-Hurlin Panel Causality Test Results**

| Variables | Lag | W-Stat | Zbar-Stat | Probability | Causality Results |
|---|---|---|---|---|---|
| **GDP → FDI** | 1 | 8,4959 | 23,3540 | 0,0000 | YES |
| | 2 | 12,4988 | 17,2937 | 0,0000 | YES |
| | 3 | 2,5153 | -1,6482 | 0,0993 | YES |
| **FDI → GDP** | 1 | 0,1154 | -3,5539 | 0,0004 | YES |
| | 2 | 2,7012 | 0,0608 | 0,9515 | NO |
| | 3 | 1,0932 | -2,5915 | 0,0096 | YES |
| **GDP → EX** | 1 | 0,0683 | -3,7049 | 0,0002 | YES |
| | 2 | 0,0009 | -4,6889 | 2,7468 | NO |
| | 3 | 3,1162 | -1,2496 | 0,2115 | NO |
| **EX → GDP** | 1 | 6,3620 | 16,5027 | 0,0000 | YES |
| | 2 | 2,7434 | 0,1349 | 0,8927 | NO |
| | 3 | 4,9596 | -0,0268 | 0,9786 | NO |
| **FDI → EX** | 1 | 3,8755 | -3,9242 | 8,7033 | NO |
| | 2 | 0,4007 | -3,9856 | 6,7298 | NO |
| | 3 | 0,8363 | -2,7619 | 0,0057 | YES |
| **EX → FDI** | 1 | 13,1605 | 38,3312 | 0,0000 | YES |
| | 2 | 10,0281 | 12,9481 | 0,0000 | YES |
| | 3 | 34,2249 | 19,3856 | 0,0000 | YES |

## 4. Conclusion

The relationship among foreign direct investment, export and gross domestic product variables has been investigated in numerous studies in the literature, and a large ratio of such studies have concluded that there is a significant, positive relationship. In this study, the existence and direction of a relationship among foreign direct investments, export and gross domestic product were tested on 44 selected developing countries. The causality results obtained via the Dumitrescu-Hurlin Panel Causality Test method indicate the existence of a two-way relationship among the variables, and this agrees with the results of previous studies (Ekanayake 1999; Lensink and Morrisey 2001; Zhang 2001; Razin 2002; Chowdhury and Mavrotas 2005; Okuyan and Erbaykal 2008).

Hence, while developing countries are facilitating their economic growth, they aim to do this with external resources by increasing the introduction of foreign direct investments into their limited capital stock. By increasing their exports, resources may be re-allocated from low-efficiency sectors to higher-efficiency sectors, and specialization is pursued by mobilizing good segments with comparative advantage. Export also stimulates increase in efficiency based on economics of scale, and it increases prosperity in the country with rapidly raised domestic investments and especially foreign direct investments.

**The List of Selected Developing Countries:**

Hong Kong, Brazil, Singapore, British Virgin Islands, Mexico, India, Saudi Arabia, Chile, Cayman Islands, Turkey, Republic of Korea, Indonesia, Colombia, United Arab Emirates, Thailand, Argentina, Malaysia, Viet Nam, Peru, Nigeria, Egypt, South Africa, Lebanon, Iran, Venezuela, Morocco, Qatar, Philippines, Pakistan, Panama, Algeria, Dominican Republic, Jordan, Iraq, Uruguay, Ghana, Costa Rica, Congo, Tunisia, Trinidad and Tobago, Libya, Oman, Mongolia, Bahamas.

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