

The Macrotheme Review

A multidisciplinary journal of global macro trends

The Effect of Foreign Direct Investment (FDI) on Economic Growth: The Case of Turkey

Murat ERGÜL, Özgür Bayram SOYLU, Fatih OKUR
Hacettepe University, Institute of Social Sciences, Turkey

Abstract

This paper analysis the relationship between foreign direct investment (FDI) and economic growth in Turkey during the period 1989-2014 within vector autoregressive (VAR) framework. Granger causality and Johansen Co-integration tests are applied to determine causal relationship. The result display that Foreign Direct Investment has no effect on economic growth, that is, there is no directional relationship between foreign direct investment and economic growth.

Keywords: Foreign Direct Investment (FDI), Economic growth, Granger causality test, Johansen co-integration test

1) Introduction

Early after China and India that have the largest populations and fastest growth rates in the world move their attention to Foreign Direct Investment as a main subject for economic development, it started to getting more common to study the effects of FDI on economy in the literature. And so many economists try to detect the relation between Foreign Direct Investment and economic growth (S. Yao, K. Wei).

For this reason, the possible influences of Foreign Direct Investment on the host countries' economy attract the attention of scientists in the expanding literature in recent years. Theoretically, Foreign Direct Investment causes the economic development with the development of investments as volume and as effectiveness in the neo-classic growth models. On the other hand, in the endogenous growth models these Foreign Direct Investments causes the economic growth by causing technology transfer from developed countries to host countries (Xiamung, Liu).

Today, the main reason for the exertion of growing countries to attract the Foreign Direct Investment can be classified as for technology transfer, accessing new processes for domestic markets, managerial capability development, gaining technical information, qualifying the labor force, entering international production, producing new products and gaining an acceleration to technological diffusion. In different cases spreading of technology can be possible with returning domestic labor forces from foreign markets. But these kind of earnings bring in to the open that

the opinion of the attraction of Foreign Direct Investment has the great importance for the modernization and development of domestic economy (L. Alfaro).

In this point, it should be pointed out that technological diffusion has a crucial role on economic development. Even if traditional economic development models take these technological developments as unexplained errors, in recent studies it's defined that economic growth rates of the countries signify a bond between domestic technological developments and other countries' technological improvements. Therefore, in a sense growth rates of the developing countries can be named as the process of catching the level of technology.

In a typical technology diffusion model, the growth rate of relatively less developed country has a positive relation with the interiorizing and applying the technology in a developed country. In this point, Foreign Direct Investments that are made by multi-national corporations has a crucial role for these developing countries to have this technology diffusion. So the main or central resource for Research and Development investments is technologically most advanced firms in the world. Nowadays a number of studies made on Research and Development investments in the world maintained that Foreign Direct Investments have an important contribution on economic growth of developing countries (E. Borensztain).

Rising trend of these studies that try to explain possible effects of the FDI causes lauder debates for reasons and regulations which attract Foreign Direct Investments. At the same time, possible earnings of FDI on economic performances of the countries started to examine. Theoretically, Foreign Direct Investments as inputs seem much more profitable than other financial inputs. On the side of increasing domestic capital stock, FDI has a positive effects on growth of the productivity. Moreover, it is believed that Foreign Direct Investments are more stable than other capital inputs and also create less risks after a sudden input reduction.

2) Literature Review

The effect of foreign direct investment on economic growth is various type. It is expected that foreign direct investment has growth promoting effect in the production process through new inputs and new technological ways. In terms of new inputs Increase of output can be explained by the increase of FDI sourced intermediate goods in production. In terms of technology, it is good to consider that the spillover effect of FDI on local firms increases productivity.

There isn't any consensus in the empirical studies. While some of them found that there is a positive relationship between FID and economic growth, some found negative relationship and also there are some studies that found there isn't any relationship between FDI and economic growth.

Bloomstrom (1996) showed that FDI provides positive growth effect for developing countries.

Balasubramanyam, Mohammed and David (1996), the study examined the relationship between FDI and economic growth by panel data analysis. It is empirically found that FDI has more important results for import-oriented countries than export-oriented countries. This result also shows that the effect of FDI can change by the trade policies of the countries as in the study of Xiamung, Liu (2005).

In the theory, relationship between FDI and economic growth can be bidirectional. The growth hypothesis on FDI state that FDI can increase by growth, capital stock, new jobs creation

rate and technology transfer in the host country (Borensztein, 1998; De Gregorio, 2003; Mello, 1997). On the other hand, Market breadth hypothesis state that stable growth rate in the host country can create new investment opportunities and thus FDI can flow to this country (Mah, 2010; Rodrik, 1999).

In addition, recent studies show that beside the positive effects of FDI also there are negative effects on economic growth, crowding out for domestic investments, increasing external risks (Aitken and Harrison, 1999; Lipsey, 2002). There is a probability that there may not be any relationship between FDI and economic growth. It is called neutrality hypothesis (A.Y. Yalta, 2013). So some studies found that the positive relationship between FDI and economic growth is insignificant. There are even some studies show that there is a negative relationship between FDI and economic growth (Carkovic and Levine, 2005). Crowding out of domestic capital could be one of the possible reasons for the situation above. Some studies found that FDI can effected by developing economies and markets in a positive way. So there is a bidirectional relationship between FDI and economic growth (Hsiao, 2006).

Borenstein, De Gregorio and Lee (1998) used 69 developing countries and found that there is negative relationship between FDI and economic growth. Schneider (2005) and Akinlo (2004), there isn't any relationship between FDI and economic growth. Xiaohui (2002), in his study It is found that there is a bidirectional relationship between FDI and economic growth. Herzer (2008) examined 28 countries and found that there isn't any relationship between FDI and economic growth.

It can also be found some other studies in the table below.

Table 1: Literature review

Author	Sample	Methodology and key findings
Rand and Tarp, (2002)	Developing countries	There isn't any relationship between FDI and economic growth
Menciger,(2003)	Transition economies	Examined relationship between FDI and economic growth in the transition economies by panel data analysis. Found negative relationship
Karimi and Yusop, (2009)	Malaysia	Examined relationship between FDI and economic growth by ARDL. Found there isn't strong relationship between two variables in the long run.
Alagöz et. al	Turkey	Used granger causality test for the relationship between FDI and economic growth in the period of 1992-2007. Found that there isn't any relationship between two variables.
Şen and Ozan (2010)	Turkey	Used panel data analysis for the relationship between FDI and economic growth. Found that here is a positive relationship. It's direction from FDI to economic growth.
Yılmaz (2010)	Turkey	Used granger causality test for the relationship between FDI and economic growth in the period of 1991-2007. Found that there isn't any strong relationship between two variables.

3) Data and Methodology

The aim of this paper to examine the interaction between economic growth, which represented by GDP, and foreign direct investment inflow (FDI) in Turkey during the period 1989-2014. We used annual data from 1989 to 2014. Economic growth (GDP) and foreign direct investment (FDI) data set was obtained from the databank of World Bank.

In this study, firstly we used augmented Dickey-Fuller test to determine the order of stationary of the variables. Then, we used Johansen co-integration test and Granger causality test for analysis the relationship between economic growth and foreign direct investment.

4) Empirical Analysis

4.1. Unit Root Test

The main purpose of using ADF test is determining whether time series are stationary or not. Our variables, foreign direct investment (FDI) and economic growth (GDP), are stationary at first differences. ADF test results are shown in Table 2.

Table 2: ADF test results.

	At Levels	Constant	P-probability
LNGDP		-0,938886	0,7584
LNFDI		-0,873509	0,7796
At First Differences			
DLNGDP		-5,991704	0,0001
DLNFDI		-4,953212	0,0006

4.2. Johansen Co-integration Test

The Johansen co-integration test is useful for check existence of long run relationship between economic growth and foreign direct investment. Before applying Johansen co-integration test we determined the optimum lag length by using Schwarz Criterion (SC). The lag length is 1 for our empirical analysis. The results of Johansen co-integration test is shown in table 3. Table 3 shows that there is no co-integration at the 0.05 level in our model, that is, economic growth and foreign direct investment don't have any relationship in the long run.

Table 3: Johansen Co-integration test results

Hypothesized no.of CE(s)	Eigenvalue	Trace statistic	0.05 critical value	Prob.
Unrestricted co-integration rank test (trace)				
None	0,343284	10,26257	15,49471	0,2611
At most 1	0,007079	0,170491	3,841466	0,6797

Hypothesized no.of CE(s)	Eigenvalue	Max-Eigen statistic	0,05critical value	Prob.
Unrestricted co-integration rank test (maximum eigenvalue)				
None	0,343284	10,09208	14,26460	0,2060
At most 1	0,007079	0,170491	3,841466	0,6791

4.3. Granger Causality Test

In order to applying Granger causality test, the variables have to be stationary. As mentioned above, it is reached that stationary at first differences by using ADF test. In table 4, the results of Granger causality test are shown. According to table 4, there is no causality between economic growth and foreign direct investment in the short run.

Table 4: Granger Causality Test Results

Null Hypothesis	F -Statistic	Probability
DLNFDI does not Granger Cause DLNGDP	0,12284	0,7295
DLNGDP does not Granger Cause DLNFDI	2,00264	0,1717

5) Conclusion

In this study, it is analyzed the effects of Foreign Direct Investment, that is widely studied in literature, on economic growth for Turkish economy. The data contain the period of 1989-2014, annually.

There are some positive effects of Foreign Direct Investment on economic growth. Besides these positive effects of Foreign Direct Investments, there are also some negative effects which can be count as: It crowds out domestic investment and increases the dependency of other

foreign markets. Moreover, it is possible to have some other case as neither positive nor negative effects between Foreign Direct Investment and economic growth. Johansen test has been applied to test if there is any co-integration between two variables. It can be found that there is no co-integration between foreign direct investment and economic growth. Besides, Granger causality test has been applied to detect the way if it is unidirectional, bidirectional or none. This study shows that there isn't any Granger causality between Foreign Direct Investment and economic growth for Turkey.

References

- Alagöz, M., Erdoğan, S., & Topalli, N. (2008). Doğrudan Yabancı Sermaye Yatırımları Ve Ekonomik Büyüme: Türkiye Deneyimi 1992-2007. *Gaziantep Üniversitesi Sosyal Bilimler Dergisi*, 7(1), 79-89.
- Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2004). FDI and economic growth: the role of local financial markets. *Journal of international economics*, 64(1), 89-112.
- Alguacil, M., Cuadros, A., & Orts, V. (2011). Inward FDI and growth: The role of macroeconomic and institutional environment. *Journal of Policy Modeling*, 33(3), 481-496.
- Aitken, B. J., & Harrison, A. E. (1999). Do domestic firms benefit from direct foreign investment? Evidence from Venezuela. *American economic review*, 605-618.
- Ali, Ş. E. N., & Saray, M. O. (2010). Türkiye'de Doğrudan Yabancı Sermaye Yatırımlarının Ekonomik Büyüme Etkisi: Panel Veri Analizi. *Akademik Araştırmalar Ve Çalışmalar Dergisi (Akad)*.
- Balasubramanyam, V. N., Salisu, M., & Sapsford, D. (1996). Foreign direct investment and growth in EP and IS countries. *The economic journal*, 92-105.
- Blomstrom, M., Lipsey, R. E., & Zejan, M. (1993). Is fixed investment the key to economic growth? (No. w4436). National Bureau of Economic Research.
- Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth?. *Journal of international Economics*, 45(1), 115-135.
- Carkovic, M. V., & Levine, R. (2002). Does foreign direct investment accelerate economic growth?. U of Minnesota Department of Finance Working Paper.
- Hsiao, F. S., & Hsiao, M. C. W. (2006). FDI, exports, and GDP in East and Southeast Asia—Panel data versus time-series causality analyses. *Journal of Asian Economics*, 17(6), 1082-1106.
- Gujarati, D. N. (2003). *Basic Econometrics*. 4th. New York: McGraw-Hill.
- Karimi, M. S., & Yusop, Z. (2009). FDI and economic growth in Malaysia.
- Li, X., & Liu, X. (2005). Foreign direct investment and economic growth: an increasingly endogenous relationship. *World development*, 33(3), 393-407.
- Mah, J. S. (2010). Foreign direct investment inflows and economic growth of China. *Journal of Policy Modeling*, 32(1), 155-158.
- Mencinger, J. (2003). Does foreign direct investment always enhance economic growth?. *Kyklos*, 56(4), 491-508.
- Rand, J., & Tarp, F. (2002). Business cycles in developing countries: are they different?. *World development*, 30(12), 2071-2088.
- Schneider, P. H. (2005). International trade, economic growth and intellectual property rights: A panel data study of developed and developing countries. *Journal of Development Economics*, 78(2), 529-547.

Yalta, A. Y. (2013). Revisiting the FDI-led growth hypothesis: the case of China. *Economic Modelling*, 31, 335-343.

Yao, S., & Wei, K. (2007). Economic growth in the presence of FDI: The perspective of newly industrialising economies. *Journal of Comparative Economics*, 35(1), 211-234.

Yılmaz, M. (2010). Doğrudan yabancı yatırımlar, dış ticaret ve ekonomik büyüme ilişkisi: Türkiye üzerine bir deneme. *Celal Bayar Üniversitesi SBE, Sosyal Bilimler Dergisi*, 8(1).

<http://epp.eurostat.ec.europa.eu/>

<http://www.tuik.gov.tr/>

<http://www.worldbank.org>