

DOI Number: 10.30520/tjsosci.687211

**THE EFFECT OF FOREIGN DIRECT INVESTMENTS ON ECONOMIC GROWTH
AND EXPORT: AN EMPIRICAL ANALYSIS ON D8 COUNTRIES**

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ABSTRACT

The level of national income is an indicator for the level of development. Besides, when the population is taken into account for the potential of the country, income per capita becomes also important. Foreign direct investments (FDI), are important for economic growth and foreign trade especially for developing countries. Developing countries try to attract foreign investments to improve their economies. Because, the economic growth theory suggests that accumulation of capital contributes to economic growth. The aim of this study is to investigate the effect of foreign direct investments on economic growth and export in D-8 countries, which is an organization for economic cooperation, namely Bangladesh, Indonesia, Malaysia, Pakistan, Nigeria, Egypt, Iran and Turkey. For this aim the dynamic panel data analysis is used to investigate the effect of foreign direct investments on economic growth and export for those countries over the period 1994-2018 and the findings of this study reveal that foreign direct investments have positive and significant effect on both growth and export.

Key Words: Foreign Direct Investments, Export, Growth, D8

1.INTRODUCTION

Foreign direct investment is a key factor for globalization and it can be defined as to make wealth by the resident of a country from outside their home country. These investments commonly made by multinational companies and thus they contribute to the economy. If the foreign capital investments are in the form of purchasing the financial values as bonds and stocks, it is called international portfolio investment. But if the physical values such as building, factory or land purchased from foreign countries, then it is called foreign direct investment (Seyidoğlu, 1993: 523).

The components of capital flows can be classified by foreign direct investments, net portfolio investments and bank sourced capital flows. It can be said that foreign direct investments coming to developing countries are stable and quite dominant compared to the other two components. (Cengiz, Karacan, 2015: 331). The negative factors such as terror, political confusions, war and uncertainty may cause foreign direct investment to decrease. A study on Saudi Arabia, Turkey, Egypt, has revealed that terrors in these countries has caused the investors to cancel their investments (Altay, v.d., 2013: 278).

Economic growth is an increase in the amount of goods and services produced per head of the population over a period of time. The sources of growth are: increase in capital, increase in labour, increase in both capital and labour and finally technological progress (Yıldırım at al,

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2007: 482-484). According to the Classical and Neo-Classical growth theory, economic growth depends on capital supply as well as labour and technological supply. Also these theories assume that growth is not sustainable due to its stability in the long run. This idea makes the studies in this area limited. The improvements in technology and growth in labour are exogenous in the Neo-classical theory. Theory accepts that FDI's may increase national income per capita only in short run. Since the middle of the 1980's economic growth has become an important field of economic theory again and because of acceptance the technology as endogenous, it is revealed that foreign direct investments have an impact on growth due to technology transferred. The level of national income determines the development level of a country.

2. LITERATURE REVIEW

Although there are few empirical studies defending no correlation or there is a negative correlation between economic growth and FDI's, most studies reveal that foreign direct investments increase economic growth. Thus, the general opinion in economic theory is based on foreign direct investments affect economic growth (Alagöz v.d., 2008). FDI contributes to economic growth via employment, production, balance of payments and welfare level. Besides, foreign capital brings technology together while it contributes to production capacity. With the arrival of foreign capital, internal competition can be increased and this has a positive effect on inflation and unemployment.

De Mello (1997) in his study defined "development threshold" and he argued that this concept explains why the effect of foreign direct investments on economic growth is positive and more significant statistically in the countries that have higher development level. Hsiao and Shen (2003) investigated 23 developing countries and they pointed out a relationship between economic growth and foreign direct investment mutually in home country (Acar, 2016). Alfaro et al (2009) determined a correlation between economic growth and foreign direct investments and the development level of financial sector. According to this, an increase of foreign direct investment causes economic growth much more in the countries in which the financial sector is more developed.

In the literature, the studies searching effect of foreign direct investment on export are less than the studies searching effect of foreign direct investment on economic growth. Foreign direct investments and export may affect each other. There is a causality relation between foreign trade and capital flows. Especially foreign direct investments are effective on export (Delice, Birol, 2011, Terzi, Pata, 2017). Due to foreign investments provide foreign currency savings, FDI increases export and substitutes import. Trading with neighbour countries has a positive effect on foreign direct investments (Dücan, Akal, 2017).

In 2019, global foreign direct investment (FDI) flows continued their slide in 2018, falling by 13 per cent to \$1.3 trillion. FDI flows to developing economies remained stable at \$671 billion (UNCTAD, 2019 Report). There is a positive and significant relationship between FDI inflows and trade openness (Liargovas, Skandalis, 2012: 329). According to UNCTAD (2009), many developing countries have attracted only small amounts of FDI inflows despite their efforts to be a part of global world (UNCTAD, 2009).

When we review the literature specifically on developing eight, we can say that most studies found correlations between FDI, growth and export in mentioned countries. Below, these studies were summarized briefly.

Tabassum and Ahmed (2014) examined the relationship between foreign direct investments and economic growth of Bangladesh during the period 1972–2011. Also Ershad ve Haque (2016) explored foreign direct investment and income per capita. during the period 1972–2011.

Iqbal at al, (2010), found a bidirectional causality between foreign direct investment, export and economic growth, According to their study, foreign direct investment has positive impact on the trade growth in Pakistan (Iqbal, at al, 2010)

Refat (2018) revealed that for Iran, economic growth and foreign direct investment have a positive impact on each other with VAR Analysis. Hence, there is a mutual relationship between them. Also, Granger causality test for GDP growth and foreign direct investment indicate that a mutual relationship exists between these two variables.

Rady (2012) showed the fact that FDI enhances growth, and that market size, openness, human capital, infrastructure, exchange rate, efficient financial sectors, government debt, growth rates.

Otepola (2002) examined the impact of FDI on growth for Nigeria and he revealed that FDI contributes significantly to growth especially through exports. Also Oyatoye at al (2011) proved that there is a positive relationship between direct foreign investment and gross domestic product (GDP) for Nigeria and also they revealed direct foreign investment has led to increase in export in Nigeria.

FDI is viewed as a catalyst for domestic growth in Malaysia. This means that the inflows of capital into the economy in influenced by the growth rate of exports (Haseeb at al, 2014: 1014). Another study showed FDI has a positive and significant effect on growth, but this effect is of lesser magnitude than that of non-FDI domestic investment (Baharumshah, 2009).

Khalic and Noy (2007), investigated the effect of FDI over the period 1997-2006 for Indonesia and the result of the study, FDI is observed to have a positive effect on economic growth.

Tapşın (2016) found a significant relation with the trend from GDP to Foreign Direct Investments, from Foreign Direct Investments to export, from GDP to export and from export to GDP for the period between 1974 and 2011 in Turkey. Ekinçi (2011) also determined that foreign direct investments contribute to economic growth for Turkey. In Turkey an increase of import improves foreign direct investment and this causes higher export level in the long run. Also, an increase of both import and export enhance foreign direct investments together (Altıntaş, 2009). Foreign investment appears to have statistically significant and positive impact on Turkey's export performance (Vural&Zortuk, 2011: 22).

3. METHODOLOGY

In this study we obtained the data of foreign direct investment, growth and export belonging to developing eight countries: Bangladesh, Indonesia, Malaysia, Pakistan, Nigeria, Egypt, Iran and Turkey for the time 1994-2018.

In order to estimate the model we construct a panel data set. We consider a dynamic panel data model of the form

$$y_{it} - y_{i,t-1} = \rho y_{i,t-1} + \beta' X_{it} + \eta_i + \varepsilon_{it}$$

$$i \in (1, \dots, N)$$

$$t \in (1, \dots, T)$$

where y_{it} is the dependent variable for individual i in period t , X_{it} is a vector of explanatory variables other than y_{it} , η_i (observed heterogeneity), γ_i represents unobserved individual-specific factors (unobserved heterogeneity), ε_{it} is the observation-specific disturbance and ρ , β , γ is the vector of parameters to be estimated. It is assumed that y_{i0} is observed. There are two important issues to deal with when estimating a model like this using macroeconomic data: the presence of endogenous and/or predetermined covariates, and the small time-series and cross-sectional dimensions of the typical data set. In what follows, it is briefly discussed the way in which these two problems have been treated in the literature. For future reference, an explanatory variable is called (strictly) exogenous if it is uncorrelated with the observation-specific disturbance at all leads and lags is called predetermined if it is correlated only with past and current observation-specific disturbances (Ciocchini; 2006:1).

There may be some problems about correlation between explanatory variables and the error term and this problem lead to biased estimators. To solve this problem, one way is to use Generalized Methods of Moments (GMM). The concept of GMM is often a simple alternative. If the explicit Maximum-Likelihood functions difficult to derive, the core of the GMM-estimation is the use of orthogonality conditions.

In general GMM can be seen as being especially suited for large data files, while when using only few observations GMM is often less efficient than alternative methods (Behr, 2003:4). In this study, we assess the bias and efficiency of estimators under different data generating process. First one is, the class of instrumental estimators-which is well known GMM estimator and the direct bias correcting estimator - suggested by Kiviet (1995). While in some simulation studies, Judson and Owen (1999), Hansen (2001) a corrected LSDV estimator is found superior compared to GMM-estimators these simulations take no account of System-GMM-estimators proposed by Blundell and Bond (1998) (Behr, 2003:1).

Least Squares Dummy Variable (LSDV) Estimator

This estimator is also known as the fixed-effects or within-group estimator. Suppose, it is assumed that the explanatory variables are strictly exogenous. Estimates of α , β are obtained by applying OLS to the model expressed in deviations from time means: This transformation wipes out the unobserved individual effects, eliminating one possible source of inconsistency: the correlation between x_{it} and η_i . Shortly, it can be concluded that, for panels with a relatively short time dimension, the use of the LSDV estimator may produce poor results (Ciocchini, 2006:3).

The Anderson-Hsiao Estimator

The estimator suggested by Anderson and Hsiao (1982) is based on the differenced form of the original equation:

$$y_{it} = \rho y_{i,t-1} + \beta' x_{it} + \eta_i + \varepsilon_{it}$$

$$y_{it} - y_{i,t-1} = \rho(y_{i,t-1} - y_{i,t-2}) + (x'_{it} - x'_{i,t-1})\beta + \varepsilon_{it} + \varepsilon_{i,t-1}$$

which cancels the individual fixed effects assumed to possibly correlate with the exogenous variables.

The Arellano-Bond Estimator

Arellano and Bond (1991) propose a generalized method of moments (GMM) estimator-henceforth, the AB estimator. They obtain additional instruments from the orthogonality conditions between the lagged values of y_{it} and the disturbances (Ciocchini; 2006:4). In empirical work using firm level or household panel data GMM suggested by Arellano and Bond has become increasingly popular. The estimator is similar to the estimated suggested by Anderson and Hsiao but exploits additional moment restrictions, which enlarges the set of instruments (Behr, 2003:10).

The two-step GMM estimator uses the residuals of the first step estimation to estimate the covariance matrix as suggested by White (1980):

$$\hat{V} = \sum_{i=1}^N W_i' F_T \hat{\varepsilon}_i' F_t' W_i$$

The resulting estimator finally is

$$\hat{y}^{GMM} = (XW\hat{V}W'X)^{-1}X'W\hat{V}^{-1}W'y$$

The results obtained from these different methods are displayed in the Appendix III. We will only report the results of the GMM estimators- both with fixed and random effects- in the following sections. Before analyzing the results of our models, we employ unit root tests.

Unit Root Tests

Even though, we use logarithmic values of all variables, unit root may remain. Before estimating the model and utilize unit root tests, we must analyse the panel data types of variables. In Table, one can see the panel data identification of the variables that are used in the model.

Table 1: Panel Data Type Identification

Variables	Panel Data Type
FDI	Unbalanced Panel
Growth	Unbalanced Panel
Export	Unbalanced Panel

As can be seen above, all variables used in the study have unbalanced panel data type. For the unbalanced panel data, the preferred test in the literature is Im, Pesaran and Shin (IPS) unit root test. For this test the model is;

$$y_{i,t} = \alpha_i + \rho_i y_{i,t-1} + \varepsilon_{i,t}$$

The null and alternative hypotheses are defined as:

$$H_0: \rho_i = 1, i = 1, 2, \dots, N$$

Against the alternatives

$$H_0: \rho_i < 1, i = 1, 2, \dots, N; \quad \rho_i = 1, i = N_1 + 1, N_1 + 2, \dots, N$$

As a result of IPS test, for all variables H_0 is rejected. This means all variable are stationary.

4. EMPIRICAL RESULTS

Before estimating the model, we have to analyze the homogeneity ad correlation between the units. MG and CD tests are used to test the correlation. On the other hand, with Swamy S test we analyze the model’s homogeneity.

Table 2: Correlation Between Units and Homogeneity Test Results

	Model 1
Swamy S Test (χ^2)	120.5 ($p \geq 0.001$)
Pesaran (2015) CD Test-1	5.85 ($p \geq 0.001$)
Pesaran (2015) CD Test-2	2.22 ($p \geq 0.001$)

As we can see above, there is not a problem fort he correlation between units and them model is heterogeneity. So, we can use heterogeny panel data models to estimate of FDI.

Table 3 reports the GMM estimates of the regression. We report the estimates of parameters obtained from two different models. The first model is estimated by using fixed effects and the second model is used with random effects. It is evident from the table that the fixed effects and random effects give similar results. But we only comment on the results of the model obtained from fixed effects.

Table 3: Estimates of Regression

Dependent Variable: FDI			
		Model 1 (GMM-IV-fixed effect)	Model 2 (GMM-IV-random effect)
Growth(-1)	Coefficient	0.233	0.205
	std-deviation	0.001	0.002
	t-value	225.00	108.00
	p-value	0.000	0.000
Export	Coefficient	0.069	0.048
	std-deviation	0.001	0.002
	t-value	69.00	24.00
	p-value	0.000	0.000

In order to sum up, our findings support the literature that finds a positive and highly significant impact of FDI. We could find this result either from fixed effects or random effects.

5. CONCLUSION

Foreign direct investments have always been important for economies especially in developing countries. It contributes both economy and export. Literature on foreign direct investments commonly suggests that these investments contribute economic growth and export. There are plenty of studies searching this relation for developing eight countries individually. However this study investigates these relations for D-8. Basically, in this study the effects of FDI on growth and export are investigated by dynamic panel data analysis for D-8 countries from 1994 to 2018. The findings reveal that foreign direct investments have positive and significant effect on both economic growth and export for all eight countries.

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