



## Effects of Political and Socio-Economic Indicators on Foreign Direct Investments: Stochastic Frontier Analysis<sup>1</sup>

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### Abstract

In this framework, we model economic factors affecting foreign direct investments together with social and political factors. The model includes economic freedom index, openness rate, real effective exchange rate, labor force population, gross domestic product, the commodity price, which reflects global commodity costs, internet users in population that pictures infrastructure level of economy, Gross Domestic Product deflator for inflation rate besides democracy index to measure the influence of social and political indicators. The purpose of working with these models is to determine the influence of economic, social and political indicators on foreign direct investment of selected countries. Stochastic frontier analysis was used in the implementation to achieve the objectives of the study. Proposals for policy implication have been made in the framework of foreign direct investments in order to enable the countries to take advantage of their potential investments and to increase this potential.

**Keywords:** Stochastic Frontier Analysis, Efficiency, Foreign Direct Investments, Political, Socio - Economic Indices. **JEL Classification:** F21, C23, D91, G11

## Siyasi ve Sosyo-Ekonomik Göstergelerin Doğrudan Yabancı Yatırımlara Etkisi: Stokastik Sınır Analizi

### Öz

Bu çalışmada doğrudan yabancı yatırımları etkileyen ekonomik faktörleri sosyal ve siyasi faktörlerle birlikte modellemekteyiz. Modele; ekonomik özgürlük endeksi, dışa açıklık oranı, reel efektif döviz kuru endeksi, işgücünün dinamik yapısını görmek için çalışma çağındaki nüfus, gayri safi yurtiçi hasıla, küresel emtia maliyetlerini gözlemlemek için emtia fiyat endeksi, ekonominin altyapı seviyesini ölçmek için nüfus içinde internet kullanımı sayısı ve enflasyon oranını yansıtan gayrisafi yurtiçi hasıla deflatörü olmak üzere ekonomik göstergeler dahil edilirken sosyal ve siyasal göstergelerin etkisini ölçmek için de demokrasi endeksi dahil edilmektedir. Bu modellemeler ile çalışmanın amacı, seçilmiş ülkelerin doğrudan yabancı yatırımlarına ekonomik, sosyal ve siyasal göstergelerin etkisini belirlemektir. Amaca ulaşmak için çalışmanın uygulamasında stokastik sınır analizi yöntemi kullanılmıştır. Elde edilen sonuçlardan hareketle ülkelerin potansiyel yatırımlarından yararlanabilmesi ve bu potansiyelini daha da artırılabilmesi için doğrudan yabancı yatırımlar çerçevesinde politik önermelerde bulunulmuştur.

**Anahtar Kelimeler:** Stokastik Sınır Analizi, Etkinlik, Doğrudan Yabancı Yatırımlar, Siyasal, Sosyo - Ekonomik Endeksler **JEL Sınıflandırması:** F21, C23, D91, G11

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## Introduction

Foreign direct investments (FDI) is the flow of capital arising from the behavior of multinational corporations. In general, FDI is an international category of investment, which aims to provide a lasting interest to an enterprise located in another country by a resident unit in an economy. (OECD, 1996: 7-8). Countries noticed the importance of FDI since the 1990s, it has turned into a reciprocal competition between countries. According to Dunning (1994), the reasons why FDI gained this momentum are addressed separately in terms of country and firm perspectives. Such as, the liberal market mechanism, economic globalization, increasing mobility of prosperity assets, increasing number of countries taking the take-off stage, convergence of economic structures of developed and some new industrialized countries, better evaluation of the benefits and costs of FDI by countries. On the other hand, the increase in the need for access to the global market, competitive pressures to provide input from the cheapest sources available, regional integration to accelerate investments in search for more efficiency, reduced transportation costs and increased cross-border communication, increased oligopolistic competition among leading firms, the emergence of new spatial opportunities, the need for better balancing the advantages of globalization and localization are among the reasons for the FDI to draw attention and became important in terms of the firm's perspective.

FDI provides benefits, both a home country, where the capital goes and a host country where the capital comes from. As is well known from the theories of growth and trade (Kesgingöz, 2015:85-93), (Kesgingöz ve Oğuz, 2016). FDI is a more important factor in the long-term growth and development programs of countries compared to other forms of capital (Kesgingöz, 2013:1-10), (Kesgingöz and Karataş, 2016:597-610). It plays a role in restructuring global production and in shaping international income distribution among developed and developing countries. Moreover, there is a general unanimity in the literature that foreign technology and management skills are easier for FDI-invested countries (Walsh and Yu, 2010: 3; Dhar and Joseph, 2012: 5-6). In addition, FDI is also provides to risk sharing process between countries that owns capital and imports capital. In short, FDI provides some benefits to countries such as market discipline, job creation, economic growth, transfer of technology and managerial expertise, risk sharing (Özcan and Arı, 2010: 66).

Companies are evaluating a number of economic, social and political factors of the host country when they choose the countries they will invest in. Among the economic determinants that have found the highest occupation in the literature are technology, labor and commodity costs, trade deficit, , trade barriers, openness, exchange rate, taxes, inflation, growth rate, infrastructure investments and market size. In addition to economic factors; corruption, political instability, democracy / freedom and weak institutional



qualities are also influencing foreign direct investment (Primorac and Smoljic, 2011: 178, Gedik, 2013:121-126; Oransay and Mike, 2016: 98-100).

In this framework, the economic factors determining foreign direct investment in this study are modeled by comparing countries with social and political factors. The purpose of the study in this framework, is analyzing the effect of political and socio-economic factors on FDI and its efficiency. In the following section, model and econometric approach are presented, in the last part, analysis results and policy recommendations are given.

### 1. Theoretical framework and empirical literature on FDI determinants

Due to the above mentioned gains, countries have implemented various policies in order to withdraw FDI. Because FDI inflows depends on the provision of certain conditions (Torrise, 1985: 33-36, Coşkun, 2001, Blonigen, 2005: 385-391, Karaege, 2006: 35-36, Holland and Pain, 1998: 4-8 Lim, 2001: 12-13, Özcan and Arı, 2010). Dunning (1993) suggests that three conditions must be met in order for FDI to enter the country, and this is called the OLI paradigm. These are; the advantage of ownership of the firm, spatial advantage of foreign market (Location), and internalization advantages. Ownership advantage, derives from product, technology, patent, brand, etc... factors, which are specific to the company. The advantage of internalization is ensured by individual production in the country, rather than marketing the product or process through international licensing or franchising. The spatial advantage includes factor prices, government trade regulations, exchange rates, institutional and political stability (Bevan and Saul Estrin, 2004: 777-778; Dunning, 1993). In addition to Dunning (1993), many authors in the literature have grouped the elements that define FDI inflows into several perspectives. Tuselman (1999) and Torrise (1985) have classified FDI determinants from both supply and demand side factors, Nunnenkamp (2002) traditional and non-traditional, Kar and Tatlısöz (2008) and Lipsey (2000) are driving and attractive, and Gumro and Hakro (2007) have classified FDI determinants as cost-related and macroeconomic factors. The effect of the determinants and efficiency of FDI, set out in this theoretical framework, can be briefly described as follows:

The first example of the economic model was carried out by Dunning (1981). The main determinants of FDI in this study are market size, unit labor cost, service sector productivity and inflation rate. Root and Ahmed (1979) stated that the social status of the country is also effective in determining FDI. The development of human capital, the quality of life, the adequacy of the health system and the rate of urbanization are some of the variables that constitutes the social status of the country. Similarly, Schneider and Frey (1985) pointed out that human capital can motivate FDI because it informs about the size of labor quality of the country.



Bevan and Estrin (2000, 2004) identified a positive relationship between FDI and market size, and a negative relationship with unit labor cost and the distance between countries. On the other hand, the host country risk is estimated to be insignificant. Similarly, Janicki and Wunnava (2004) found that unit labor costs, market size, and trade openness are key determinants of FDI.

Nunnenkamp (2002) investigated whether there is a change in the factors that determine FDI with globalization. While market size maintained the incentive feature for FDI, it is concluded that the importance of the cost of production factors and trade openness did not increase with globalization as expected. In Onyeiwu and Shrestha (2004); economic growth, inflation, international reserves, economic openness and access to natural resources have been identified as the main reasons behind FDI. Infrastructure level and political rights in the country had no effect on FDI.

Ang (2008) observed that financial development, commercial openness and infrastructure has encouraged investments, while GDP growth has been found to be extremely insignificant. Özcan and Arı (2010) found that FDI affects growth rate, infrastructure level and inflation positively, while openness and current account balance are, as opposed to theoretical expectation. Drabek and Payne (2002) find that non-transparent policies are a very important factors, affecting foreign investors' decisions. Büthe and Milner (2008) have concluded that countries that are members of international trade agreements are more successful than other countries in terms of attracting foreign direct investment. Azam and Khattak (2009) tried to explain the effect of socio-political factors on FDI over human capital and political stability. In the study, positive correlation between human capital and foreign direct investment, and negative correlation with political stability is estimated. Martinez and Allard (2009) found that equality and social protection policies positively contribute to countries' attractiveness of foreign direct investment. Adams (2010) suggests that strengthening of intellectual property rights (IPRs) has a positive effect on foreign direct investments.

Kim (2010) studied the relationship between political stability and foreign direct investment in his work. It is concluded in the study that countries with high political rights have higher capital outflows, while countries with higher corruption and lower democracy have higher capital inflows. However, the findings also show that the performance of foreign direct investment is positively correlated with corruption levels of governments, and negatively associated with political rights.

Julio, Alves and Tavares (2011) addressed geographical, economic and institutional factors in terms of foreign direct investment interaction. In the socio-political sense, the financial system's independence, level of corruption, flexibility of the labor market, power and independence of the legal system, rule of law and labor legislation have played a very important



role in attracting foreign direct investments. Anyanwu (2012), on the other hand, concluded that there is a positive relationship between the rule of law and foreign direct investment. Alexander (2014) also concluded that significant results with the rule of law and foreign direct investment in his work, insignificant with judicial independence and labor rights. Kimono et al. (2007), stated that political conditions and risk factors in the investing country affect foreign direct investment decisions significantly. In countries where a positive investment environment and where political risk is lowest, capital inflows are more easily achieved. However, according to Schneider and Fray (1985), countries with political turmoil are considered more risk and are more successful in attracting FDI relative to other countries with a property right guarantee and political stability.

According to Klerman (2007), the independence of the legal system in general promotes FDI into the country by undertaking important preventive measures in the sense of fulfilling contracts and protecting property rights. According to Drabek and Payne (1999), there is a positive relationship between FDI and transparent economic policies. According to Kennedy (2001), the application of a transparent and efficient competition law or policy can play an important role in enhancing the attractiveness of investing country economies.

Oransay and Mike (2016) modeled socio-political factors which influencing foreign direct investment as ownership rights, independence of the legal system, fairness and suitability of competition conditions, transparency of applied policies and political stability. According to the estimation results; There is a positive relationship between socio-political factors and direct foreign investments. Ay et al. (2016), decrease in the level of corruption and the increase in the level of democracy for developing countries affect foreign direct investments positively. On the other hand, Şanlısoy (2016) investigated the effects of the information economy on the international income distribution by establishing statistical relations between foreign direct investment and information and communication technologies. It is emphasized in the that a partial improvement in the distribution of international income has been achieved due to the fact that foreign direct investment, creates international information convergence.

As well as the above literature, several case studies on Turkey have been conducted. Erdal and Tatoglu (2002) questioned the importance of spatial factors for investments preferring Turkey, and found that Turkey's market size, infrastructure and openness were perceived as positive values for foreigners, while exchange rate and economic stability negatively affected FDI It has. In addition, from the researches on Turkey, Berköz and Türk (2007) evaluated the factors motivating foreign investments by sectors and regions. According to the results, the growth of GDP and population, the



improvement in infrastructure and the increase of bank credits increase the amount of FDI. Coastal areas, on the other hand, seem to be the reason for preference. Berköz and Türk (2009) determined that the availability of infrastructure, input quality and cost, close proximity to the market, communication and transportation quality, as well as accessibility to the infrastructure, are very significant in determining regional FDI, as expected in theory. Armutçuoğlu and Şanlısoy (2016) investigated the co-integration relationship between patent registrations in Turkey and FDI using Gregory-Hansen co-integration method. In the study, it is concluded that, there is a negative relationship between patents and foreign direct investments before 1984, and a positive relationship after 1984 due to the increasing openness.

Considering the above literature on FDI, it seems that there are two types of researchers. A group focuses on the impact of FDI on macroeconomic variables such as technology, growth and labor productivity. Another group of researchers aim to determine the factors behind FDI. The result obtained from the studies in the first group is that foreign investments in general lead to technological diffusion and positively affect growth and labor productivity. In the second group of studies, economic, social and political factors have been extensively studied both country and region levels. These empirical studies often focus on economic variables. The reason why the political and social factors are less preferred is that it is not suitable for implementation because of data incompleteness.

## 2. Data Set and Methodology

Data set of this study includes foreign direct investments (positive net inflow), democracy index that averages of Electoral process and pluralism, Functioning of government, Political participation, Political culture and Civil liberties indices. Another combination index that we used in the model is economic freedom index that averages of property rights, government integrity, tax burden, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom and financial freedom indices. The other variables in this study are respectively, openness rate of economy, exchange rate, labor force population, gross domestic product, the commodity price indices (energy price index and non-energy price index ) which reflects global commodity costs, internet users in population that pictures infstructure level of economy, gross domestic product deflator for inflation rate Also we include year dummy for fixed effects. Democracy index is obtained from The Economist Intelligence Unit, Economic freedom index is from Heritage foundation. Other variables obtained from IMF and World Bank. Time span is 2010 to 2016. Data set includes 57 countries. The selected countries are those with GDP above \$ 50 billion compared to the year 2016. We select 57 counties that have positive net in word flow of FDI and economics that bigger than \$ 50 billion (GDP in 2016 data). We select time span between 2010 and 2016 because of these constraints;



- Negative FDI flows (we use logarithmic form so it gives null. If we use negative FDI flows)
- Because of global financial crisis we don't want to include 2008 and 2009 datas.

All variables are in logarithmic form. Table 1 gives descriptive statistics of variables.

**Table 1.** *The Descriptive Statistics of Variables*

Variable	Observation	Mean	Standart Deviation	Mininum	Maximum
GDP	399	26.5256	1.4024	24.0877	30.5555
Population	399	17.1111	1.2975	14.7638	20.8495
Exchange Rate	399	4.7587	2.8340	- 0.4980	10.3389
Energy Price Index (2010=100)	399	4.5874	0.3281	4.0073	4.8573
Non- Eneyr Price Index (2010=100)		4.5830	0.1331	4.3862	4.7855
Foreign Direct Investment	399	22.8555	1.6598	17.9960	26.9501
Internet Users	399	16.5401	1.2625	13.3966	20.4132
GDP Deflator (2010=100)	399	4.7587	0.2136	4.4038	6.1332
Economic Freedom Index	399	4.1331	0.1625	3.6963	4.5009
Democracy Index	399	1.7411	0.4128	0.5364	2.2213
Trade Openness	399	4.2328	0.5964	2.8225	6.0927
Year	399	2013	2.0025	2010	2016

Basically, efficiency is the rate of observed value to potential value (Kalirajan and Shand, 1999). In this context, measurement of efficiency requires an estimate of the magnitude of potential values , which can not be observed. Several approaches have been developed in order to carry out this estimation process and to measure the technical efficiency. In the literature, nonparametric Data Envelopment Analysis (DEA) and parametric Stochastic Frontier Analysis (SFA) are the most dominant of these approaches (Zhang et al., 2013: 654-655).

Stochastic frontier technique approach were first recommended by Aigner et al. (1977) and Meeusen and van den Broeck (1977) was originally conceived for an analysis of cross-sectional data, but different models to account for panel data have also been presented by Pitt and Lee (1981); Kumbhakar (1990); Cornwell et al. (1990); Kumbhakar and Wang (2005); Kumbhakar et al. (1991); Battese and Coelli (1988); Battese and Coelli (1992); Battese and



Coelli (1995); Lee-Schmidt (1993); and Kumbhakar et al. (2012); (Onder et al. 2003:100). In our study we run Battese and Coelli (1995) model.

Battese and Coelli (1995) model consists of a single step and predicts efficiency values and environmental factors affecting these efficiency values are modeled. Thus, the model provides a significant advantage over the two-stage methods. Therefore, Battese and Coelli (1995) model also takes into account the influence of environmental factors when the SFA parameters are estimated simultaneously with the inefficiency model. (Ekinçi and Kök, 2017: 180)

Stochastic frontier function using the panel data can be expressed as follows;

$$y_{it} = \beta x_{it} + v_{it} - u_{it} \quad (1)$$

$$v_{it} \sim i. i. d. N(0, \sigma_v^2)$$

$$u_i \sim i. i. d. N^+(\mu, \sigma_u^2)$$

where; X represents inputs, y represents output. In the stochastic frontier function, the error term is divided into two parts. The first ( $v_{it}$ ) is the random error term, which makes the frontier function to be stochastic, and the second ( $u_{it}$ ) expresses the inefficiency effects.

In estimating country-specific efficiency scores, Jondrow et al. (1982) proposed the following formula:

$$E(u_i | \epsilon_i) = \sigma_u \frac{\phi(\frac{\mu_{*i}}{\sigma_u})}{\Phi(\frac{\mu_{*i}}{\sigma_u})} + \mu_{*i} \quad (2)$$

The  $\mu_{*i}$  and  $\sigma_u$  parameters in the equation are defined as follows;

$$\mu_{*i} = \frac{-\sigma_u^2 \epsilon_i}{\sigma^2} \quad \text{ve} \quad \sigma_u^2 = \frac{\sigma_v^2 \sigma_u^2}{\sigma^2}, \quad (\sigma^2 = \sigma_v^2 + \sigma_u^2)$$

Using the equation (2) the technical efficiency is calculated as follows;

$$TE_i = \exp(-u_i) \quad (3)$$

### 3. Empirical Findings

Prior to the stochastic frontier regression we run OLS (ordinary least squares) regression. We control the error term skewness from the OLS regression, so that the errors are skewed to the left thus model has inefficiency, the model is appropriate for stochastic frontier model. In addition, Wald test results in stochastic frontier model indicated that model is significant.





The empirical phase of this study takes shape of two parts. Firstly, maximum likelihood based regression estimates of stochastic frontier are introduced. Secondly, country specific FDI efficiency scores are supplied using Jondrow et.al (1982) formula.

**Table 2.** Estimation Results of the Stochastic Frontier Model

Variables	Stochastic Frontier Model
Constant	142.500 (0.90)**
GDP	0.882 (12.67)*
Population	-0.176 (-2.38)*
Energy Price Index	-0.250 (-0.91)
Non- Energy Price Index	0.373 (0.45)
Internet Users	0.243 (2.52)*
GDP Deflator (Inflation)	0.928 (3.72)*
Economic Freedom Index	2.251 (5.69)*
Democracy Index	0.153 (1.35)
Trade Openness	0.703 (9.07)*
Exchange Rate	0.012 (0.90)
Year	-0.079 (-2.23)*
$\sigma^2$ (u)	1.884 (4.29)*
$\sigma^2$ (v)	0.529 (12.66)*
$\gamma$	3.556 (8.07)*
LOG-LIKELIHOOD	-457.4670

**Notes:** 1- () values in parentheses are z scores. 2-\* significance at 5% and \*\* significance at % 10 3 -  $\gamma = \sigma^2$  (u) /  $\sigma^2$  (v) 4-  $\sigma^2$  (v) The variance of the random error term 5-  $\sigma^2$  (u) the variance of the efficiency



Depends on the further studies and theoretical expectations; GDP variable is positive and have significant effect on FDI. A %1 increase in GDP increases FDI % 0.88. Population variable in the study is negative and significant. A %1 increase in population decreases FDI 0.17 percent. Internet users variable is positive and significant. A %1 increase in Internet users increases FDI 0.24 percent. GDP deflator variable is positive and significant so a %1 increase in inflation increases FDI 0.92 percent. Economic freedom index is positive and significant. A %1 increase in economic freedom index increases FDI 2.25 percent. Trade openness variable has impact on FDI flows. It is positive and significant. A %1 increase in trade openness variable increases FDI 0.70 percent. Finally, year variable for observing fixed effect is negative and significant. That means model has a fixed effect but it is so weak in this model. Policy implications and suggestions about variables is shown in conclusion part of study.

FDI efficiency scores were supplied using the results of our model. Estimated efficiency scores of countries for the years 2010-2016 are submitted in Appendix 1. Jondrow et. al. (1982) formula is used in the estimation of Country-specific efficiency scores. Efficiency is estimated to be 57.7 percent on average, maximum 87.8 percent and minimum 4.5 percent.

Countries scored above the average (% 57.7) in every year during 2010-2016 are; Brazil, Chile, China, Colombia, Costa Rica, Dominican Republic, Ethiopia, Guatemala, Hong Kong, India, Indonesia, Ireland, Kazakhstan, Lebanon, Netherlands, Peru, Portugal, Singapore, Vietnam. Except for the Portugal, Ireland, Netherlands and Ethiopia this result shows the success of Asian and Latin American countries for pulling the FDIs. These countries are developing countries. In these development process the role of FDIs are important. It seems that they apply proper social and economic policies for pulling FDIs.

#### 4. Conclusion

This paper analyzes effects of political and socio-economic indicators on FDI by using stochastic frontier regression. The countries in this paper was chosen from countries that have positive net inflow in FDIs and have GDP above \$ 50 billion compared to the year 2016. Following the introduction, we discuss theoretical framework and empirical literature on FDI determinants. Data set and methodology of stochastic frontier regression are explained. Model results are then presented and finally efficiency scores for each country are estimated for the 2010-2016 period. Overall efficiency is estimated to be be 57.7 percent on average, minimum 4.5 percent, and maximum 87.8 percent.

According to the results, gross domestic product, working age population, openness ratio, internet usage, Economic Freedom Index and GDP Deflator were found to have significant effects on foreign direct investments. However, democracy index, energy and non-energy goods prices and exchange rate parameters are statistically insignificant. According to this, it



can be argued that the changes in the democracy index, energy and non-energy goods prices and exchange rates are not very effective in the development of foreign direct investments. Especially the prices of energy / non-energy goods and the effect of exchange rate on FDI are related to changes in the volatility of prices and exchange rates. Short-term movements in price and exchange rates increases FDI inflows, but they can create long-term risk increases and adversely affect FDI inflows.

A significant and positive coefficient on the GDP variable means that production should be able to reach a new frontier with high-tech growth policies. This can be achieved by the policies proposed by the endogenous growth model.

The increase of the working age population (productive population) can be seen as a demographic opportunity. Therefore, it is expected that the countries with growing population and growing local market and increasing labor power will have significant potential to attract FDI. However, in our study, the relationship between working age population and FDI was found to be significant and negative. This situation is in fact compatible with the literature findings (Hisarcıklı, Gültekin-Karakaş and Aşıcı 2009, Vergil and Ayash 2009, Brady and Wallace 2000, Williams 2003). This is because the FDI's are often made to service sub-sectors (finance, communication and transport) with limited employment capacity. Similarly, it has been revealed that FDI does not create positive effects on employment, but rather negatively affects the efficiency and productivity of the working age population. In this context, the results point to two different policy implications. First, shifting Turkey's FDI potential to different areas, such as manufacturing, tourism or mining, may be a more appropriate option. Secondly, the introduction of FDI into the forefront of such fields as technology transfer, exports and prices may become an alternative policy tool.

The free entry and exit of capital to the country and the elimination of trade restrictions are the factors that encourage FDI (Chakrabarti 2001: 91-2). According to Deichmann (2001), trade openness and FDI are complementary to each other. The result of the study was estimated to be positive for foreign direct investment (Culem (1988)), as expected in the theory. Trade liberalization in a country has a positive impact on FDIs.

A significant and positive coefficient on the economic freedom index variable means that an increase in economic freedoms increases FDI. This situation is examined in the context of the other sub-indices constituting the content in the index. Thus, in the host country, labour and business markets, monetary institutions, trade, investment and financial sector have to be more independent. In addition, depending to sub-indices of economic freedom index some applications should be done for increasing economic freedoms.



These are; government expenditures have to be more transparent, government intervention on economy should be reduced, consumer rights should be increased and tax burden should be eliminated.

In this study, internet usage is taken into the model in terms of infrastructure level. It is expected to be positively associated with FDI, as an advanced infrastructure network will provide externalities and economies of scale. The result is positive and statistically significant as expected. Estimation results confirm that foreign direct investments prefer countries that are easily accessible to infrastructure services (telephone, internet, electricity, water, etc.). In addition, countries with an advanced infrastructure will have lower production costs. For this reason, as expected in theory, there is a positive relationship between infrastructure and FDI.

The estimated coefficient of inflation rate is positive and statistically significant. Thus, it can be argued that FDI towards countries are mostly for profit purposes. On the other hand, volatility of the inflation is often a more decisive factor than the magnitude of the inflation rate for investments. This situation arises, primarily because market size and growing economies are seen as attractive for investing, as inflation rates in growing economies increases.

In summary, according to the study, foreign direct investments are significantly affected by GDP, the working age population, trade openness ratio, internet usage, economic freedom index and inflation. For FDI's that are focused on the market and profitability, countries with high economic growth are preferred primarily because they promise high returns both in the short and long run. On the other hand, countries with developed infrastructures have also been found to be in an advantageous position for FDI inflows. The widespread communication and transportation network will produce positive externalities by reducing both production and transportation costs. The inflation rate, on the other hand, has a positive relationship with foreign direct investments. The inflation rate can be seen as an indicator of macroeconomic stability, reflecting the accordance and success of monetary and fiscal policies in the country on the one hand, and high rates of return for investors on the other. Openness ratio, as expected in theory, is estimated to be positively related to foreign direct investment. Therefore, foreign direct investment inflows are influenced by the global market. The increase in trade volume and the success of previous investments will encourage foreign investment in the following years. Economic freedoms have positive influence on FDIs. Governments should be make reforms that increases economic freedoms. Determination of the factors affecting foreign direct investment inflows and presentation of appropriate policies are important in terms of benefiting from the positive effects as a policy tool.



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#### APPENDIX 1 : ESTIMATED EFFICIENCY SCORES OF COUNTRIES

Country/Year	2010	2011	2012	2013	2014	2015	2016
Argentina	77.06	70.11	77.94	70.33	51.16	69.18	25.63
Australia	55.72	66.95	63.03	64.56	63.62	60.89	68.03
Bangladesh	65.71	56.53	61.62	71.02	63.76	63.28	49.81
Brazil	83.80	82.94	81.36	79.12	82.95	81.76	82.55
Bulgaria	56.18	51.78	49.88	54.27	55.98	64.20	40.68
Canada	33.49	38.27	49.38	60.92	60.68	59.97	47.05
Chile	69.01	73.84	77.89	73.10	76.30	74.99	66.31
China	82.13	80.74	79.48	81.05	79.87	78.68	75.29
Colombia	61.98	72.62	72.35	73.83	74.30	70.64	75.37
Costa Rica	67.24	71.40	69.82	74.35	73.95	70.79	69.45
Croatia	51.36	48.16	53.86	40.83	77.29	9.31	66.39
Czech Republic	53.92	25.94	53.55	47.57	49.71	14.14	44.98
Dominican Rep.	67.42	68.70	76.16	62.64	70.30	68.14	69.98
Ecuador	13.89	43.32	37.00	46.59	46.36	65.23	54.52
Ethiopia	70.76	76.67	40.10	78.27	78.66	78.16	81.42
France	45.64	47.43	43.92	43.44	10.33	59.43	54.52
Germany	46.79	48.13	40.76	41.25	12.04	35.90	35.77
Greece	7.53	15.98	32.95	53.62	52.39	37.34	66.09
Guatemala	57.69	60.41	64.01	66.35	60.51	58.98	56.59
Hong Kong	70.46	72.09	67.02	68.42	77.21	80.71	75.94
India	68.02	68.39	57.43	61.47	64.86	71.18	69.06



Indonesia	69.17	70.33	70.87	73.46	74.03	70.33	26.36
Iran	63.29	60.93	56.91	40.36	35.78	36.53	43.95
Iraq	46.64	41.84	52.91	61.09	58.71	61.51	5.26
Ireland	70.14	61.35	75.58	79.34	84.03	87.81	80.82
Israel	54.40	57.22	61.03	69.23	51.11	66.79	67.48
Kazakhstan	74.90	76.94	75.96	70.13	64.00	66.60	82.56
Kenya	21.84	72.10	68.20	64.33	50.99	41.23	25.14
Korea	15.12	13.93	14.65	20.65	15.68	7.81	20.11
Lebanon	79.69	74.38	73.95	72.35	75.27	71.90	74.67
Malaysia	47.68	52.61	38.16	50.12	45.00	44.87	54.70
Mexico	49.73	50.07	43.27	69.71	59.21	62.81	62.91
Morocco	35.07	55.06	59.64	65.94	68.76	66.81	56.29
Netherlands	73.56	84.87	83.68	86.21	77.29	81.26	81.79
Nigeria	67.12	68.65	64.29	63.64	57.97	53.77	67.75
Pakistan	62.38	41.70	29.44	41.02	51.11	43.37	55.70
Panama	68.52	74.45	68.78	73.51	77.70	77.04	79.56
Peru	74.76	68.11	76.80	75.68	62.30	75.46	72.17
Philippines	20.07	33.37	45.49	48.68	58.58	53.97	61.65
Poland	61.90	59.03	34.87	4.51	62.54	56.08	58.72
Portugal	63.80	67.45	82.23	73.69	76.85	34.95	71.81
Romania	46.25	32.65	43.30	48.52	47.67	51.71	57.89
Russia	77.45	75.60	72.92	77.67	54.52	27.43	73.30
Saudi Arabia	75.46	53.34	47.86	42.51	40.36	51.58	54.50
Singapore	64.16	58.32	63.65	67.71	71.19	71.37	70.94
South Africa	34.90	32.29	36.97	56.98	47.29	15.81	24.47
Spain	59.54	50.58	49.49	70.98	63.50	64.83	62.95
Sri Lanka	43.78	54.13	51.99	47.91	45.54	36.44	42.65
Sudan	79.76	76.57	79.84	72.21	60.59	60.63	44.52
Thailand	61.67	13.99	54.26	62.24	31.26	50.02	19.91
Turkey	42.44	54.18	50.66	48.52	46.26	57.71	48.02
Ukraine	78.85	76.68	78.51	68.06	22.99	60.86	60.90
United Arab Emir.	43.56	28.12	31.23	33.82	38.02	36.72	39.84
United Kingdom	49.64	24.46	42.09	47.95	50.42	50.86	82.59
United States	54.34	53.36	55.18	61.67	57.48	73.77	73.95
Uzbekistan	81.20	79.02	54.50	54.05	49.42	6.60	6.85
Vietnam	75.55	66.73	67.68	67.40	66.81	69.16	67.45

**Note:** The logic of reading FDI efficiency scores: for example; Turkey's net positive inward FDI in 2016 has an efficiency score of 48.02%. Observed FDI 12.307.000.000 is dollars. Potential FDI is  $(100 * (\text{Observed FDI}) / 48.02)$ . So it is 25.628.904.623 dollars. **Source:** Authors own.

