



Determinants of foreign direct investment inflows: Case study of Turkey*

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ABSTRACT

Foreign Direct Investments (FDI) are the most important source of international capital, technology, management information and market accessibility. Thus, governments recently assign new provisions and incentives to attract FDI. The purpose of this study is to identify the most important factors that attract FDI. First, a general review of FDI inflows to Turkey is addressed in light of regional and international trend. Second, a review of literature is considered in order to identify determinants of FDI inflows. Third, regression analysis is used to determine the factors that affected FDI inflows to Turkey in 2009 to 2019 period. Results of regression analysis are highly consistent with literature review in which the size of the market and openness of the economy positively affect FDI inflows. Current account deficit and exchange rate are negatively correlated with FDI inflows. On the other hand, regression analysis results revealed that foreign direct investors' decision to invest in Turkey is not significantly affected by cost of labor, cost of capital and inflation rate.

Doğrudan yabancı yatırım girişlerinin belirleyicileri: Türkiye örneği

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ÖZ

Doğrudan Yabancı Yatırımlar (DYY), uluslararası sermaye, teknoloji, pazar erişilebilirliği ve yönetim bilgisinin en önemli kaynağıdır. Bu nedenle hükümetler, DYY'leri çekmek için yeni kurallar ve teşvikleri getirmektedir. Bu çalışmanın amacı, DYY'leri çeken en önemli faktörleri ortaya koymaktır. İlk olarak Türkiye gelen DYY'lerin

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girişlerinin genel bir incelemesi, bölgesel ve uluslararası eğilim ışığında ele alınmaktadır. İkinci olarak, literatür taramasıyla DYY girişlerin belirleyici faktörleri ortaya koymaya çalışılmıştır. Üçüncüsü, regresyon analizi kullanarak 2009-2019 döneminde Türkiye'ye DYY'lerin girişlerini etkileyen faktörler belirlenmiştir. Regresyon analizinin sonuçları, piyasanın büyüklüğünün ve ekonominin açıklığının DYY girişlerini olumlu yönde etkilediği literatür taramasıyla oldukça tutarlıdır. Cari açık ve döviz kuru, DYY girişleriyle negatif korelasyonludur. Öte yandan, regresyon analizinin sonuçları, doğrudan yabancı yatırımcıların Türkiye'ye yatırım yapma kararının işçilik maliyeti, sermaye maliyeti ve enflasyon oranlarından önemli ölçüde etkilenmediğini ortaya konulmuştur.

1. Introduction

The integration and interrelation a mange different nations and governments, beyond the globalization and sophisticated information and communication technologies, lead to intensification of international trade and investments. Moreover, enhancing the appearance of multinational companies leaded to the increase in demand for foreign capital in all continents. Foreign Direct Investments (FDI) are not just the key source of foreign capital, it also significantly contributes to technology development, management approaches, market accessibility and to the growth of economy.

Recently, FDI starts to follow different tracks. Generally, investors desire to invest in developed countries with healthier infrastructure, as they move their investments from capital intense economies (low cost of capital) to invest in labor intense economies (low cost of labor). Furthermore, accessing raw material, markets and customers, tax advantages and other factors play essential role in the international capital movements. Early, most of FDI used to be stationed in developed economies, more recently, it becomes more concentrated in developing economies. In the same regard, UNCTAD report of 2019 indicates that FDI flows to developing economies in 2018 showed 27 per cent decline, meanwhile, the flows to developing economies increased by 2 per cent to reach a share of 54 per cent in the global FDI.

Important and fundamental changes are initiated in the Turkish economy by the 1980s provisions. These changes lead to the introduction of free-floating exchange rate system, and begin a period of modern economic policy instruments, especially monetary policies. In addition, the Public Partnership Administration in 1984, Istanbul Stock Exchange in 1986 and new financial instruments have been introduced (Koç, 2006). At the beginning of the 21st century Turkish government impressive era of urbanization by conducting fiscal policy targeted to open markets for international trade and programs aimed to attract foreign investments. Dramatically, historical changes lead to the integration of Turkish economy along with the global, the reduction of governmental interference and finally lead to the enlargement the inflows of foreign capital to Turkey.

To attract FDI, countries start to legislate and introduce new provisions and lows, in which many researchers work on evaluating the effects of these factors on FDI using different methods. Of these methods are; regression (Özağ, 1994; Kaya and Yılmaz, 2003; Khan and Nawaz, 2010), regression EX post forecasts (Schneider and Frey, 1985), VAR analysis (Shan, 2002; Wijeweera and Mounter, 2008), Panel Data Analysis (Nonnemberg and Mendonca, 2004; Yeo, Yoon, Lee and Lee , 2008; Arik, Akay, and Zanbak, 2014) and other methods all over the world. An examination of these studies showed that there is a general consistency among results, that is, factors generally have the same impact over FDI inflows. For example, most of literature agreed that there is a positive relationship between Gross Demotic Product (GDP) and FDI, as well as, a negative relationship between labor costs and FDI. Situation is the same for Turkey.

In Turkey there are at least two points where FDI dramatically changed; that is 1980 and 2003. As missioned earlier in 1980 Turkey, as many other countries, started to follow an open economy policy and the permitted foreign investments level increased. In that era, flows to Turkey raised from few millions to billions of dollars. After the introduction of law 4875, granting free movement for foreign

investors and equal right as local ones, flows to Turkey increased to reach thirteen billion dollars in 2018. The purpose of this study is to conduct a comprehensive literature review related to FDI and to develop a regression analysis model for identifying the factors affecting FDI in Turkey. And to comment on the general inflows of FDI to Turkey. The purpose of the study includes examining the FDI inflows to Turkey over time and to run regression analysis to understand the general movement and factors affecting the flows.

2. Foreign direct investments (FDI)

The international investment status, one of the important outlines of balance of payment. FDI is a statement that capture the stock value of financial receivables and liabilities of residents of an economy from residents outside the economy as well as financial assets kept as gold at a given point of time (The Central Bank of the Republic of Turkey, 2019). Although, it is the investment in which the investor establishes a production facility, acquires existing production facilities, makes a joint venture with a local firm or extends its existing business operations or obtains at least a 10% share rate in a non-demotic economy or another country (Ulaş, 2008; Gür, 2014).

FDI may be in form of cash capital, tangible or intangible capital such as patent rights, technological innovations, marketing methods, management organization and other form of direct investments that establish either effective control or at least substantial influence over the decision-making of a business (Ergin, 1978).

2.1. Benefits and limitations of FDI

The FDI have a lot of advantages for the host country such as; Increasing the productive capacity, improving infrastructure, creating jobs and minimizing unemployment, flowing fluctuations of foreign currency and enrichment the balance of payments, increasing capital stock, exports power and national income, interchanging cultures, value and technology, transferring and helping to train local business by affording management knowledge. At the same time, it helps to increase the production factors of a country, balance enhancements in current accounts and has a positive impact on the economy and technological development (İpek and Biniş, 2010).

From the other hand, FDI - especially the not well planned- might generate various disadvantages. It may lead to the disruption of economy, creation of political and economic danger, imbalance in the balance of payments due to large profit and foreign currency outflows, in addition, the creation of capital, information and technological dependency may cause unfair competition (Şimşek and Behdioğlu, 2006; İpek ve Biniş, 2010).

2.2. Factors affecting FDI

FDI flows are affected by two main bands; it can be pushed by the country of origin and/or it can be pulled by the host country by several factors. The factors are detailed in Figure 1 (Kutal, 1982; UNCTAD, 1998; Kar and Tatlısöz, 2008; Aydemir and Genç, 2015).

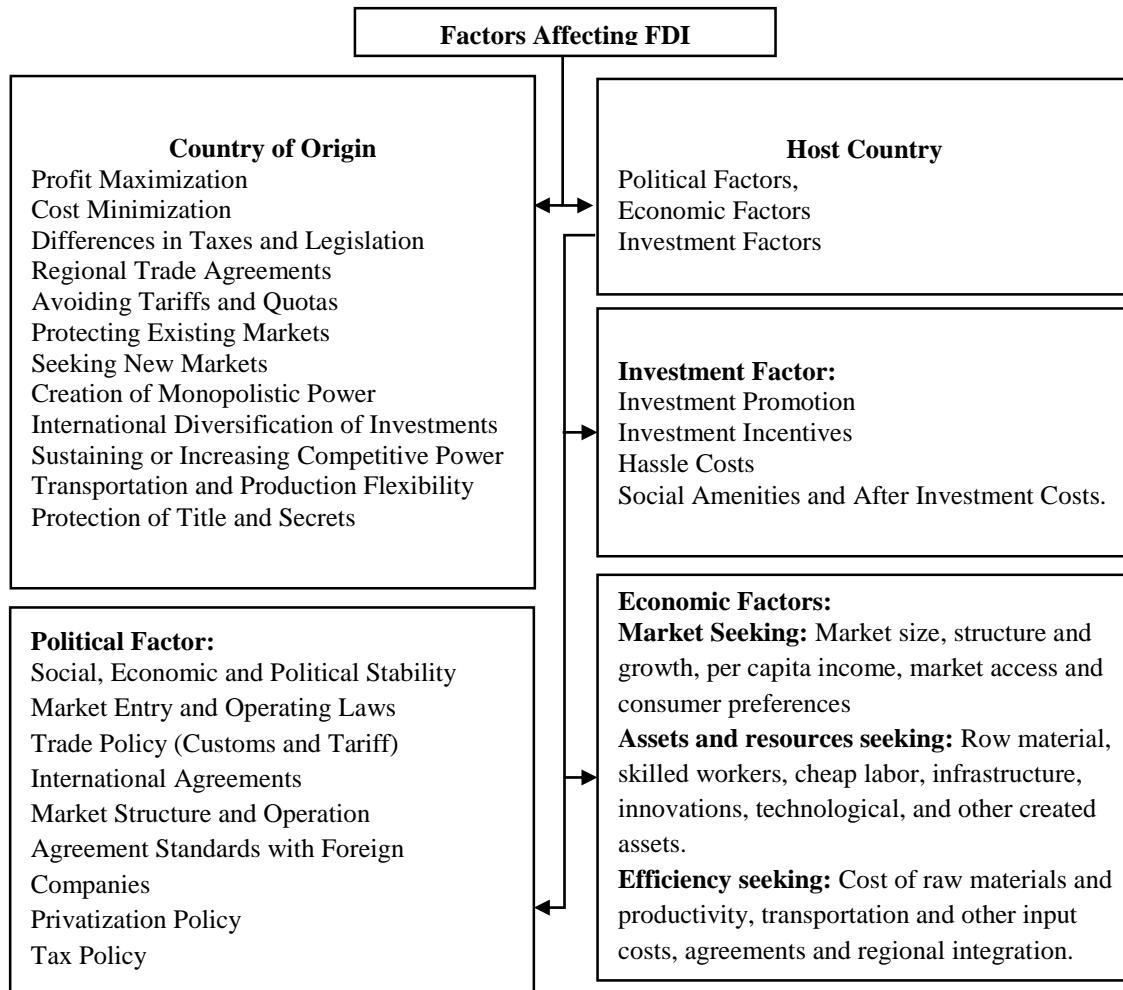


Figure 1. Factors Affecting FDI.

3. FDI in the world and Turkey

According to UNCTAD 2019 report, the global FDI inflows dropped by %13 in 2018 to \$1.3 trillion. Reimbursement from upward trends during the second half of 2018 was insufficient to recover the decline surfaced as consequence of tax reforms introduced at the end of 2017, followed by great repatriations of accumulated foreign earnings by United States Multinational Enterprises at the first half of 2018 (UNCTAD, 2019). In addition, as shown in Figure 2, general decline, which reached their lowest point since 2004, mainly happens in developed economies and transition economies. Meanwhile, FDI inflows to developing economies shows nearly %2 increase, with significant differences among regions.

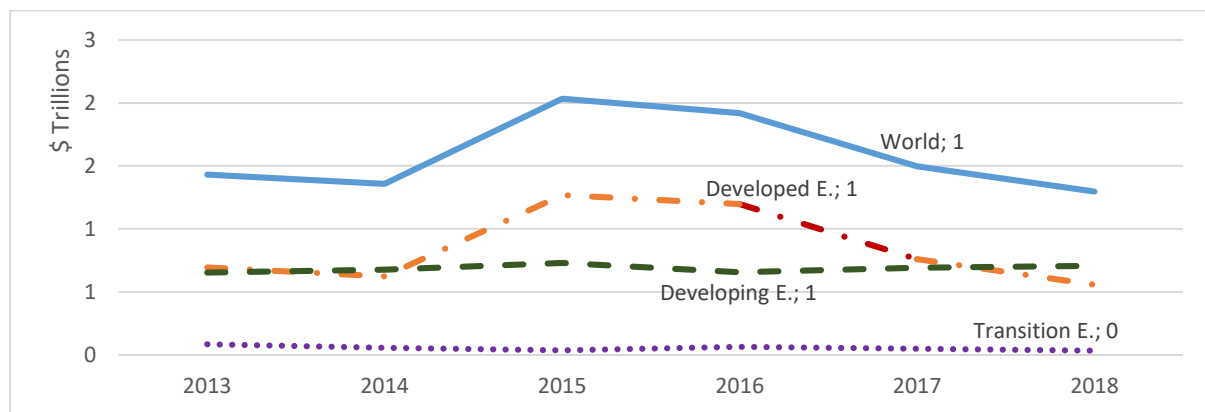


Figure 2. Global Foreign Direct Investments Inflows. Source: UNCTAD, 2019.

The FDI flows to developing economies reached to \$706 billion; developing Asia registered a \$512 billion in 2018 with %4 increase, flows to South-East Asia increased by %3, to Africa rose by %11 and declined by %6 in Latin America and the Caribbean. Furthermore, flows to transition economies declined by %28 to \$34 billion.

In West Asia, nearly %90 of the increase in FDI inflows mainly absorbed by Turkey, the United Arab Emirates, Saudi Arabia and Lebanon. Despite uncertainty surrounding the Turkish lira and slower than usual economic growth of Turkey, it is the largest recipient in the region, with inflows rising by %13 to \$13 billion. The FDI inflows to turkey are shown in Figure 3.

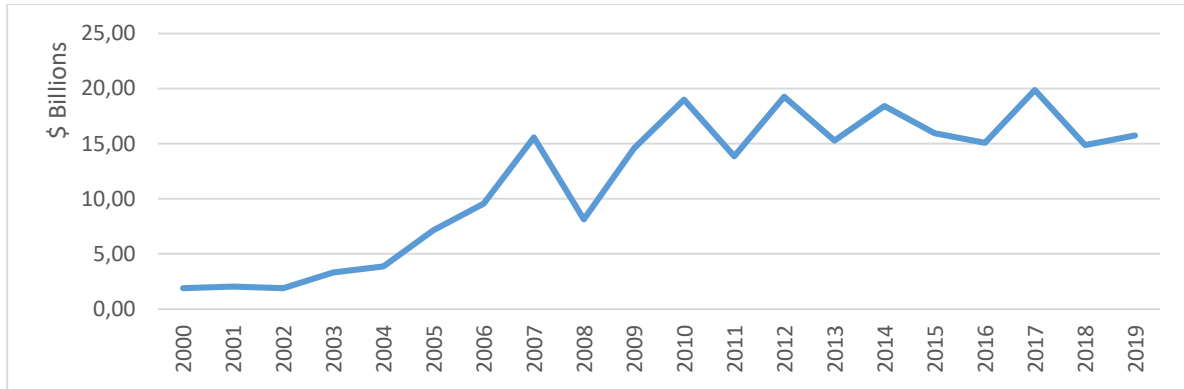


Figure 3. Foreign Direct Investments Inflows to Turkey. Source: The Central Bank of the Republic of Turkey, 2019.

FDI inflows to Turkey before 1980 did not reach the half billion-dollar line because of the previous restrictive policy. Reforms and incentives introduced in the 1980 provisions allowed these flows to reach a new line of a one to three billions dollar. However, inflows were still limited. In 2003 a new provision introduced to end these limitations and provide foreign investors equal treatment as local ones. After which investments increased rapidly and in diverse sectors. UNCTAD (2006) report categorized Turkey as one of the “below potential” countries with high FDI inflows potential but low FDI inflows performance for the period 2002-2004. It also addressed that Turkey is one of the fast-growing and most preferred locations for investors. It also showed a large considerable increase in FDI to Turkey due to large-scale acquisitions and privatizations in services, mainly in banking and telecommunications.

Due to 2004 law that ended some of the foreign ownership restrictions in telecommunications and taxes reforming that followed. The privatization of financial services and the major deals in the telecommunication industry made Turkey the largest recipient of FDI in West Asia in 2006 (UNCTAD, 2008). As an impact of the global crisis, cross-border mergers and acquisitions plummeted, causing a large decrease of flows in 2009. In 2011, the cross-border acquisition of "Türkiye Garanti Bankası" and "Genel Enerji" boosted inflows with %76 increase. In 2016, especially after the failed coup attempt, flows fell by %31 casting doubt on Turkey's political stability and disrupted economic growth. In the same regard, rating agencies have downgraded Turkey's sovereign credit rating, which has acted as a deterrent to investors (UNCTAD, 2012; 2018).

Despite the economic, political and currency instability that created a negative pressure, Turkey is considered one of the most investment encouraging countries due to government incentives and laws that created a free exiting investment arena with highly diversified industrial structure, Figure 4.

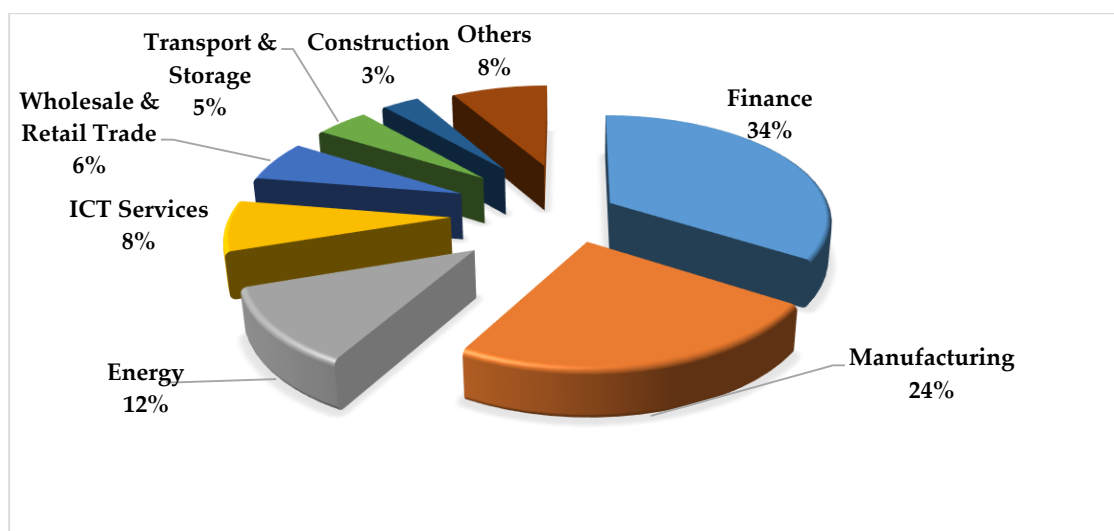


Figure 4. FDI Inflows to Turkey by Sector. Source: The Central Bank of the Republic of Turkey, 2019.

The finance sector has attracted the highest amount of FDI, Followed by manufacturing and energy sectors. There is a general distribution of international capital flows among sectors which suggests that the Turkish market is attractive in most sectors.

4. Literature review and determinants identification

In this study, all researches and papers reached are studied and summarized in Table 1.

Table 1

Literature Review and Determinants Identification

Study/Factor	G D P	O P E N	Infr St	INF	LC	Ex	CA	Other Factors	Date and Area	Method
Schneider and Frey, 1985	P						N	Political Instability N	80 Less Developed Countries	Regression EX Post Forecasts
Özağ, 1994	P	P			N	N		Investment Incentives P	Turkey 1980-1992	Regression
Shan, 2002	R				R	X		Research And Development 16%	1986-1998 China	VAR Approach
Erdal and Tatoğlu, 2002	P	P	P	X			N	Market Attractiveness P	1980-1998 Turkey	Time Series
Kaya and Yılmaz, 2003	P			X	N	N		International Net Reserves P, Political Stabilization X	Turkey 1970-2000	Regression
Nonnemberg and Mendonca, 2004	P	P		N				The Level of Schooling P, Capital Market Growth P	1975-2000 38 Developing Countries	Panel Data Analysis

Study/Factor	G D P	O P E N	Infr St	INF	LC	Ex	CA	Other Factors	Date and Area	Method
Hara and Razafimahefa, 2005	P			I		X		Cost of Investment N, Investment Deregulations P	1980-2001 Japan	
Na and Lightfoot, 2006	P	P			X			Quality of Labor P, Economic Reform P, Agglomeration Effect X	2002 China	Multiple Regression Model
Tsen, 2006			P	N	N			Interest Rate N, Education and Human Capital P	1980-2000 Malaysia	Least Square Method
Yapraklı, 2006	P	P			N	N	N		1976-2006 Turkey	Multiple Cointegration Analysis and Error Correction Model
Batmaz and Tunca, 2007	P	P	P		N	N		Interest Rate N	1990-2003 Turkey	VAR Model And Cointegration Analysis
Karagöz, 2007		R						FDI In Previous Period P, Other Factors Not Important	1970-2005 Turkey	Cointegration, Error Correction Model And Granger Causality
Kar and Tatlısöz, 2008	P	P	P		N	N		International Net Reserves P, Investment Incentives P	1980-2003 Turkey	Least Square Method
Wijeweera and Mounter, 2008	P	P			N	N		Interest Rate N, Political Stability P	Sri Lanka	VAR Approach
Yeo et al., 2008	I	I			I			Cost of Investment and Regulation N, Investment Incentives I	1993-2006 Korea-Service Industry	Panel Data Analysis
Yol and Teng, 2009	P		P			P	N	Exports N	1975-2006 Malaysia	Error Correction Model
Jafarnejad et al., 2009	P	P	P	N				Research and Development (R&D), Education P, Oil Extraction N	1991-2006 Iran	Structural Equation Modelling

Study/Factor	G D P	O P E N	Infr St	INF	LC	Ex	CA	Other Factors	Date and Area	Method
Azam, 2009	P		P	N				Official Development P	1991-2009 Armenia, Kyrgyz Republic and Turkmenistan	Least Square Method
Koyuncu, 2010	P	P		X		X		FDI In Previous Period P, International Net Reserves P	1990-2010 Turkey	Structural Vector Autoregression
Vijayakumar and Sridharan, 2010	I	X	I	X	X	I		Investment Incentives I	1975-2007 BRICS Countries	Panel Data Analysis
Khan and Nawaz, 2010	P						N	Tariff on Imports P, Exports P	Pakistan	Regression
Kurtaran, 2010	P	P			P		N	Election (Political Stability) N, Investment Incentives P	Turkey 1980- 2006	Multi-Regression Analysis
Aytekin, 2011	P						N	International Net Reserves P, Interest Rate P	1998-2010 Turkey	Least Square Method
Anyanwu, 2011	P	P	P					Natural Resource Endowment P, Investment Incentives P	1980-2007 Africa	Least Square Method
Lo et al., 2013	P	X	X			P		Human Capital P	1980-2010 Haiti	Two-Stage Least Squares
Ocaya et al., 2013	L R							Long-Run Equilibrium Relationship	1970-2010 Rwanda	Vector Autoregressive Model
Arık et al., 2014	P	P		N	X	X		Accumulation of Capital X	1990-2011 7 Developing Countries	Panel Data Analysis
Çak and Karakaş, 2015	P	P		N				Tax Ratio and Tax Burden N, Unemployment N	1990-2007 for 8 Countries	Seemingly Unrelated Regression
Parlakıyıldız and Güvel, 2015	P	P	X	X				Population P, Abundance of Natural Resource X	1998-2013 Middle- Income Countries	Panel Data Analysis
Iqbal and Mahmood, 2016	P	N		N		P		Interest Rate P	1961 to 2013 Pakistan	ARDL Approach

Study/Factor	G D P	O P E N	Infr St	INF	LC	Ex	CA	Other Factors	Date and Area	Method
Bal and Akça, 2016	P	P	X	X				Political Stability X, Agglomeration Effects P	2000-2013 Selected East Asian and Pacific Countries	Panel Data Analysis
Eshghi et al., 2016	P	N		N	P			Taxes N	2000-2012 Five Countries (For Germany)	Standard Multivariate Linear Regression
Hoa and lin, 2016	P							Political Stability P	1996-2012 Indochina	Panel Regression
Awolusi et al., 2016 (Asian results)	X	P	P	P				Monetary Union P	1980-2013 81 African and Asian Countries	Granger Causality Test
Zengin et al., 2018	I			X		X	N		Turkey 1988-2015	Multivariate Adaptive Regression Splines (MARS)
Mistura and Roulet, 2019	Reforms liberalizing P Restrictiveness N, reducing foreign equity limitations P								1997-2016 60 Countries	An Augmented Gravity Model
Mahbub and Jongwanich, 2019	Regulatory aspects are the most influential, followed by economic and financial, political, and societal aspects								The Power Sector of Bangladesh	Semi-Structured Interviews And Questionnaires

Note: GDP Gross Domestic Product size and growth, OPEN Openness of the market, InfrSt Infrastructure, INF Inflation, LC Labor Cost, Ex Exchange rate, CA Current account deficit. P Positive relation, N negative relation, R relation, I important relation, X no significant relation exists.

Based on the literature, researchers generally consider the economic factors as determinants of FDI. Most of previous literature agrees on that there is a positive relationship between GDP and FDI, in which investors tend to invest in larger markets with higher growth. Openness of the market and the healthier infrastructure have positive impact on FDI. Investors generally look for healthier infrastructure and market conditions where limitation and restriction are at minimum. Literature also agree on the negative relationship between inflation and labor cost with FDI. This also supports the logic that investors prefer to make investment in stable economy and seek for cost minimization. Foreign currency exchange rate and current account deficit also negatively affect FDI. As current account deficit is a dynamic indicator of market situation, exchange rate is an indicator of currency stability and it has an important effect on profitability.

In general, results are highly consistent with theory, however some factors show an unexpected direction in some studies for instance Iqbal and Mahmood (2016) conclude that there is a negative relationship between openness and FDI. The reason behind this contradiction might be because of higher influence of other factors.

There are also other factors that have been considered such as political stability, investments incentives and agreements, international net reserve and education and quality of labor that has positive impact on FDI. On the other side, taxes, interest rate and costs of investment are negatively affect FDI.

5. Methodology and data

In this section, factors affecting FDI inflows to Turkey is addressed and tested. For this purpose, data have been collected from The Central Bank of the Republic of Turkey (TCMB) and Turkish Statistical Institute (TUIK) for 10 years' period (Quarterly) after the 2008 financial crises starting from 2009 to 2019. And then regression analysis is applied using E-views 10.0 software package.

Based on the above literature review the hypothesized regression model is as follow:

$$FDI = \alpha (GDP, OPEN, IR, Ex, CA, LC, INF) \quad (1)$$

These factors can be explained as:

FDI: The dependent factor that represents the Foreign Direct Investments inflows to the country expressed in logarithm.

α : Is a constant.

While, the independent factors are as follow:

GDP: Gross domestic product which is the measure for country market size.

OPEN: The openness of the country to foreign trade measured as import plus export to market size (market barriers).

IR: The interest rate requested by banks for short term borrowings (capital cost)

Ex: The dollar exchange rate of Turkish lira (currency stability).

CA: Current account deficit as a measure of the trade power of the country.

LC: The cost per hour labor work (labor cost).

INF: The inflation rate measured as the change in consumer price index (stability measure).

To test the heteroskedasticity and autocorrelation both Durbin-Watson and Breusch-Pagan-Godfrey tests are used in this study. Then the least square method is used with HAC standard errors and covariance to correct standard errors for heteroskedasticity and autocorrelation. The final results of analysis are shown in Table 2.

Based on the results, the final model proposed in this study could be formalized as follows:

$$FDI = 132288.5 + 0.000112GDP - 1.380239CA - 24380.42Ex + 1.37 * 10^9 OPEN \quad (2)$$

Table 2

Results of Analysis

Dependent Variable: FDI				
Method: Least Squares				
HAC standard errors and covariance				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	132288.5	27033.26	4.89354595	0.0000
GDP	0.000112	5.40E-05	2.074074074	0.0464
CA	-1.380239	0.565925	-2.43890798	0.0201
Ex	-24380.42	6736.308	-3.61925553	0.0009
IR	-5606	4654.452	-1.20443825	0.2367
OPEN	1.37E+09	6.34E+08	2.160883281	0.0378
INF	-124.3208	577.1828	-0.21539242	0.8307
wage	296.0654	322.9406	0.916779742	0.3657
R-squared				0.628035
Adjusted R-squared				0.551454

These results suggest that:

The size of the market is positively correlated with FDI, which means a unit increase in GDP will raise FDI by 0.000112 unit.

The Current account deficit is negatively correlated with FDI, which means a unit increase in current account deficit will decrease FDI by 1.380239 unit.

The exchange rate is negatively correlated with FDI, which means a unit increase in the exchange rate will decrease FDI by 24380.42 unit.

The openness of the country to foreign trade is positively correlated with FDI, which means a unit increase in the openness (exports plus imports to GDP ratio) will raise FDI by $1.37 \cdot 10^9$ unit.

The adjusted R-square shows that 55.14% of the variability of FDI is explained by the model.

In addition to the previously mentioned factor, the results show that all of LC (labor cost), INF (inflation rate) and IR (interest rate) do not affect FDI, which suggests that foreign direct investors are interested to make investment in Turkey focusing more on the market size, the stability of Turkish lira, the current account deficit and the openness of the market rather than the cost of labor, cost of capital and inflation rate of Turkey. However, it is statistically insignificant, the cost of capital and inflation rate are negatively and cost of labor is positively correlated to FDI. It is important to mention that, in Turkey, labor costs are considered low and thus, investors might be willing to accept the fluctuation in it.

Combining the result of the analysis with literature review in Table 1, the results are highly consistence with the literature and with the theory as investors would prefer to make an investment in lager markets with higher possibility of expansion, where the currency is stable, where the country is not venerable and has no serious deficit in the current account and of course where the economy is open and the trade position of the economy is attractive.

6. Conclusion

Foreign Direct Investments FDI are the most important source of foreign capital, it can also make a significant contribution to technology, management information, market accessibility and the development of economy. Recently, economies and governments work hard to attract these investments. In this study factors and determinants of FDI inflows are studied in two phases; in the first phase studies related to FDI are reviewed to identify factors that generally affect FDI. In the second phase an application on Turkey for the period of 2009 to 2019 is undertaken.

Based on the literature review, researchers generally used the economic factors as determinants of FDI. Most of the studies agreed on that factors such as GDP, Openness of the market, infrastructure, political stability, investments incentives and agreements, international net reserve, education and quality of labor positively affect FDI. While there is a negative relationship between inflation, labor cost, foreign currency exchange rate, current account deficit, taxes, interest rate and costs of investment with FDI. Though, investors tend to make investments in larger markets with higher growth, healthier infrastructure, less limitation and restriction, stable economy and they seek investments with cost minimization.

The regression analysis is made based on the previously proved relations in literature and in the past paragraph. Results of regression analysis are consistent with literature review as it suggests that the size of the market and openness of the economy are positively correlated with FDI inflows and current account deficit and exchange rate are negatively correlated with FDI inflows. All of labor cost, inflation rate and interest rate do not have significant effects on FDI. In other words, foreign direct investors are interested in making investment in Turkey focus on the market size, the stability of Turkish lira, the current account deficit and the openness of the market rather than the cost of labor, cost of capital and inflation rate. The proposed model explains nearly 55.14% of the variability of FDI inflows to Turkey for the period.

The overall results of this study suggest that there are other factors than the economic factors that would affect the international movement of capital and FDI. Factors such as internal culture, citizen

and foreign security, bureaucracy of the systems, corruption level, and other social and cultural factors that have to be considered in future researches. Also, it is important to consider that steps taken by the government in 1980 and 2003 are the most prominent and influencing factors. Thus, governments intend to attract foreign investors shall focus primarily on the regulations, incentives and level of equality offered to foreign investors.

Author statement

1. Research and publication ethics statement

This study has been prepared in accordance with the ethical principles of scientific research and publication.

2. Approval of Ethics Board

Ethics Committee Approval is not required for this study.

3. Conflict of interest

There is no conflict of interest arising from the study for the authors or third parties.

4. Declaration of support

No support has been granted for this study

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