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The distribution and determinants of Turkey's FDI positions in Africa

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Abstract. This study investigates the key determinants of Turkey's FDI positions in Africa by employing the gravity model. The major objective is to identify the core macroeconomic, socio-cultural, political, and governance-related determinants. PMLE is used in order to efficiently test the impact of dummy variables. Besides, three different models are estimated – the whole Africa, SSA and North African countries to investigate the variations in the FDI factors within the continent. The results illustrate that GDP size, per capita income, improvement in economic freedom and corruption levels, sharing common religion, improvement in easiness of doing businesses, and better political stability are attracting FDI from Turkey to Africa in general and SSA in particular. In the North African region, the FDI positions of Turkey are increasing in parallel to the GDP growth of Turkey, its import volume and the macroeconomic conditions of the hosting economies.

Keywords. Turkey-Africa relations, Gravity model, FDI.


JEL. B17, F21, C01, C23.


1. Introduction

In the past couple of decades some important macroeconomic realizations have been recorded in many parts of the world. Africa has many of the fast – growing economies of the world which recorded high rate of GDP growth in the last couple of decades. Turkey is also one of the major emerging economies of the world which recorded vast economic changes in this period. The total GDP of Africa, for example, was around 630 billion dollars in 2001. It reached 2.2 trillion dollars in 2015 recording more than 3.5 folds increment. Similarly, the GDP size of Turkey reached near to 718 billion in 2015 which is again more than 3.5 folds of its GDP size in 2001. On average, in the last 15 years, the growth of the world economy was 2.56%. However, Turkey and Africa recorded a GDP growth of 4.15% and 4.58% in the same period respectively. Moreover, the GDP per capita income of Turkey and Africa reached 9,126 and 1,914 dollars in 2015 from 3,054 and 756 dollars in 2001 respectively.


Based on the UNCTAD figures, the outward FDI stock of Turkey has increased from 4.6 billion in 2001 to 44.6 billion dollars in 2015. Its share of world outward FDI stock improved from 0.065 to 0.178% within 15 years. Its inward FDI stock, in the other hand, reached 145.5 billion in 2015 from 20.3 billion in 2001. The share of Turkey in the world's overall FDI stock doubled in these years to reach 0.58%. Both inward and outward figures prove the remarkable improvement of Turkish FDI in the last couple of decades. Similarly, the inward and outward FDI stock of Africa has significantly increased. The inward FDI stock in Africa improved from 154 billion in 2001 to 740 billion dollars in 2015 while its outward


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FDI stock improved from 26 billion to 249 billion dollars in 2015. The share of Africa in the world inward FDI stock improved from 2.12% to 2.96% while its outward stock reached approximately 1% from 0.37% within 15 years. Moreover, the overall inward FDI stock is almost 32% of Africa's GDP. Such improvements are mainly achieved as a result of continuous and fast economic growth in the continent which produced many emerging and frontier economies.

In terms of trade, the total exports of Turkey reached approximately 142 billion dollars in 2016 from 31 billion in 2001 and 113 billion in 2010. Its share of world exports improved from 0.5% in 2001 to approximately 0.9% in 2016. Similarly, the total imports of Turkey increased from 41 billion dollars in 2001 to nearly 185 billion in 2010 and 199 billion dollars in 2016. Its share of world imports reached 1.2% from about 0.65% in 2001. On the other hand, the exports of Africa have also increased from 139 billion dollars in 2001 to 346 billion last year. Its share of world exports, in fact, did not improve significantly. It was 2.24% in 2010 and reached 3.4% and 2.16% in 2010 and 2016 respectively. However, the imports to Africa have increased significantly from 135 billion in 2001 to more than 500 billion in 2016. In the same span, its share of imports increased by 1% rate.

Because of the economic growth of the continent and its trade an FDI related outcomes, Africa is now attracting new economic partners such as the BRICS and other emerging economies. Turkey is one of these new partners of Africa. The FDI positions of Turkey in the continent has reached above half a billion dollars recently. Besides, its exports to Africa reached roughly 12.5 billion dollars from only 1.5 billion dollars in 2001. Its import of African goods has also increased from 2.8 billion to 5.1 billion dollars in the same period. Therefore, in this study, the major objective is to assess pulling factors, pushing factors and distribution of Turkish FDI positions/stock in Africa. The macroeconomic factors, socio-cultural factors and the overall business environment are assessed. Furthermore, the relationship between the ever increasing trade between African and Turkey and the FDI positions of Turkey in the continent is analyzed.

This paper has six sections. The following section reviews some relevant literature on FDI positions of emerging economies in Africa. Section 3 presents an overview of overall Turkey – Africa relations emphasizing on economic relations – trade and FDI indicators. Section 4 outlines the data and methodology. Using gravity model, section 5, focuses on the results and analysis. The last section draws conclusions based on the main empirical findings of the analysis.

2. Review of related literature

In the last decades, Africa has got new trade and FDI partners. Most of these new partners are the world emerging economies such as BRICS. The literature on this new partnership is growing. However, regarding the FDI inflows into Africa, most of the studies conducted are on China's FDI in the continent. Indian or China-India comparative studies are also available on some related topics implying both nations recently as the biggest investors in Africa. Chakrabarti & Ghosh (2013), for example, investigated the specific outcomes of Indian and Chinese FDI for the economic development of African economies. They identified that the development cooperation between advanced economies and Africa has been declining mainly since the 2008 global economic crisis. As a result, a big opportunity was created for India and China to cooperate with African economies further. This, in return, allowed these nations to take a better share in trade and FDI in the whole continent in general. However, they argue that, both countries attracted many resources-rich African countries with a tough competition between themselves to gain a strategic advantage in the continent.

Chakrabarti & Ghosh (2013) identified the development cooperation and economic engagement model of China and India in Africa as different one. The traditional development cooperation which mainly targets aid as a tool has been diverted by both countries. They emphasized that China and India's model of cooperation does not follow the rich donor - poor recipient approach of the

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Western countries. According to them, both nations have focused on long-term capacity building, working together in consultation giving priorities to the need of African sides, addressing sustainable development and creating smooth interdependence. This is the model through which both nations have invested a lot in the whole continent and supported the economic development of Africans. Their FDI outflow into Africa, they argue, helped an increase in GDP, rapid industrialization and diversification of imports for African states.

Carike *et. al.*, (2012) investigated the status of Chinese FDI in Africa. Their investigation mainly deals with the nature and impact of Chinese FDI in the continent even though the study was limited to the data of the years from 2003 to 2008. In this period, they identified, that Chinese FDI into Africa was concentrated in medium economic growth performers in which South Africa took the leading share. The major sectors in which Chinese FDI outflows to were mining, oil and infrastructural development. In investing in these sectors, they assessed, that the major determinants were availability of agricultural land, availability of oil and market size of the African economies. This implies that Chinese investment was high in countries with bigger economic size than the smaller ones. As a result, they indicated that Chinese investment has supported the economic development of African countries. In the other side, they concluded, China invested in Africa regardless of infrastructural development and level of corruption in the hosting nations.

Sanfilippo (2010) studied the FDI of China in Africa by using a data of 1998-2007 for 41 African states. He concluded that Chinese FDI into Africa is attracted by the availability of natural resources and pushed by the growing demand for natural resources in China. As a result, China created suppliers of crude petroleum and other natural resources to its ever growing demand. He also supported that such attachment helped the country to engage in strong political and developmental cooperation with African countries. Moreover, he investigated that Chinese FDI outflow to Africa is affected by the assumption of China about African states as a good market potential for its low cost production. Chinese multinational corporations got an advantage because of the engagement of the nation in multidimensional developmental cooperation with the continent. He also described the Chinese investment in Africa as an investment which ignores the economic instability, risk and the weak political conditions of the host countries. This argument is similar to the other studies discussed above. However, this strategy is not special for Africa. Rather, he stated that, China used 'going out' strategy considering principally resources endowment and market potential which was planned by the Chinese government.

Cheung *et. al.*, (2012) also supported the claim that China's FDI in Africa is mainly determined by the market size of the hosting African side. Their study (2012) showed that African countries with strong trade and economic cooperation with China have received higher FDI than the others. They also proved the claim that Chinese FDI in Africa is not affected by corruption and risks. China ignored the undemocratic nature, human rights records and political crisis of many nations in Africa. Similarly, they also accepted that Chinese investment in Africa is principally motivated by the need for natural resources, specifically mineral and oil to satisfy the increasing demand in Chinese economy. However, its FDI is not only limited in countries with natural resources. China has reached almost all African countries also to meet the unexploited consumer market through its cheap products. Its FDI in Africa created a new market outlet for its resource-oriented industries. Furthermore, they also claim that such engagement of China in Africa has supported the continent to generate capital for its economy.

Kolstad & Wiig (2012), strongly support the claim by the others on the nature of Chinese FDI in Africa. They argue that the worse the institutional environment of the host African country, the more is Chinese FDI attracted by the nation's natural resources. This shows that China is not only ignoring the undemocratic nature or human rights violations in the African countries, but using it as an open

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space to invest and utilize natural resources. They claim that China is exploiting countries with poor institutions and large natural resources by investing more in these countries. Accordingly, to them this is the policy of the nation since most of the companies engaged in such environment are government owned. This makes the FDI outflow of China into Africa different from other advanced and emerging economies' FDI outflow.

Regarding India's FDI outflow into Africa, on the other hand, Fung & Herrero (2012), investigated the determinants of FDI outflows from China and India in general. Even though, studies on India's FDI in Africa are very limited, their study gives a clue on the overall determinants of both nations' FDI outflow by using the gravity model. They found three sets of results. First they accepted the claim of Kolstad & Wiig (2012) that Chinese investment is more directed to more corrupt countries whereas India is attracted to less corrupt countries. They investigated that this clearly works especially in African economies. Based on their conclusion, the Chinese government is supporting a lot of projects in undemocratic and corrupt African states for the purpose of getting access to oil or petroleum resources. Secondly, they identified that, Chinese FDI is going to countries with larger economies but smaller GDP per capita while Indian investment is mainly in smaller but richer countries. This may be because of Chinese investment in nearby nations unlike India. Finally, just like many similar studies, they concluded that China and India are investing in developing economies to seek fuels but not technology or any other reason. There is no any study conducted on the FDI positions of Turkey in Africa or it is not accessible for the time being.

3. Historical background and status of Turkey - Africa relations

Turkey has a long-time historical relation with Africa, especially with North Africa¹ countries. This is because of the well-built economic, social, cultural and political relations of the Ottoman Empire with the continent. The Ottomans were triumphant to create a strong economic relation with Africa when they reach in the lands of Egypt in 1518. The large population, fertile land and its trade links with Europe of this location gave them strategic and economic advantages. Since this era, in the same manner, their economic connection has extended to Libya, Tunisia, Algeria and other nearby Sub-Saharan African countries such as Sudan, Eritrea, and Ethiopia. Besides, they continued to create economic relations with some Western and Central African countries of present day Nigeria, Niger, and Chad. These all links created a great advantage for both sides to trade freely (Enwere & Yilmaz, 2014).

The relationship started to decline in the 18th century because of the expansion of Europeans and their products. The European capitalism model of production started to replace the traditional Ottoman economic system. Therefore, African countries such as Egypt started to adopt capitalist ideas, values and technological products of Europe. Later, after the collapse of the Ottoman Empire, the economic relations with Turkey reached its lowest level (Enwere & Yilmaz, 2014). Until the end of the WWII, the country's relation with Africa was limited to some diplomatic contacts. However, a new chapter of relations started when Turkey joined the United Nations in 1946 and NATO in 1952 even though there were some political disagreements with some African countries (Ipek & Biltekin, 2013).

Currently, according to the Ministry of Foreign Affairs of Turkey, the relation with the African continent is one of the strategic orientations of Turkish foreign policy. Turkey's opening policy to Africa goes back to the 1998 Action Plan. Later, the Undersecretariat for the Foreign Trade prepared a strategy on Development of the Economic Relations with African Countries in 2003. Then after, the Turkish government declared 2005 to be a "Year of Africa". The relations of both sides have increased again since 2008 after the declaration of Turkey as a strategic partner of Africa by the African Union. The first Turkey-Africa Cooperation

¹ Includes Egypt, Morocco, Algeria, Tunisia, Libya and Sudan.

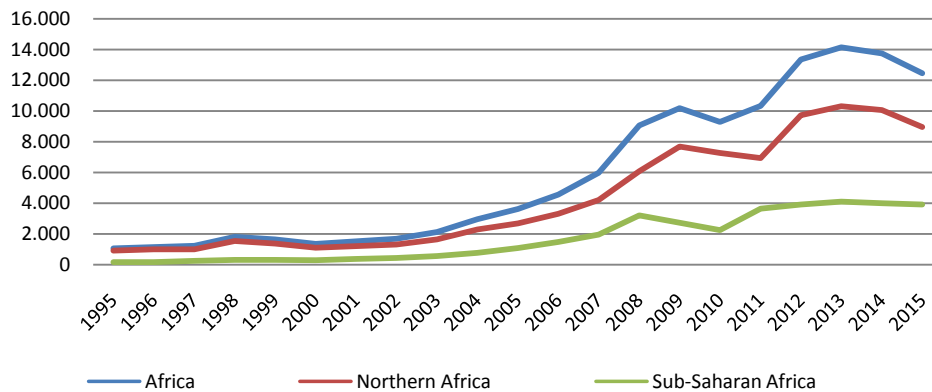
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Summit was conducted in 2008. Subsequently, a follow-up mechanism was developed and high – level meetings conducted in the following years. In 2014, the Second Turkey-Africa Partnership Summit held in Equatorial Guinea.

In terms of diplomatic and development cooperation, their partnership has significantly increased. In the diplomatic side, the number of Turkish Embassies in Africa reached 39 from only 12 in 2009. Similarly, the number of embassies of African countries in Ankara increased from 10 to 32 within five years. In terms of development cooperation, the Turkish International Cooperation and Development Agency (TIKA) is now operating in 15 countries of Africa. Its official development assistance to Africa reached 383.3 million dollars in 2014. African countries are at the top of recipient countries – list of Turkish bilateral assistance. Besides, Turkey is providing academic opportunities for Africans to enhance the educational development of their countries.

When we come to economic relations in the past two decades, the economic presence of Turkey in Africa has been significantly increasing. It opened commercial consulates in 26 African capitals to facilitate economic relations and hosted some economic summits in Istanbul and other cities at high – level of delegates. Such economic partnership can be supported by the trade figures. The exports of Turkey to Africa, for instance, reached approximately 12.5 billion in 2015 from just about 1.5 billion dollars in 2001. Likewise, its imports from Africa increased from 2.8 billion to approximately 6 billion in 2014 and 5 billion dollars in 2015. These indicate that the export volume has increased by more than 8 times and its import has doubled within 15 years.

However, there is an imbalance of Turkey’s trade with Northern Africa countries and Sub-Saharan countries which happened because of long time economic partnerships resulted from historical and cultural ties. In 2015, for example, North African countries covered about 72% of total Turkish exports to Africa and 59% imports from Africa while the rest 28% of export and 41% of import was covered by Sub-Saharan African countries. The overall trend of trade between Turkey and Africa is indicated in Graph 1 and 2.

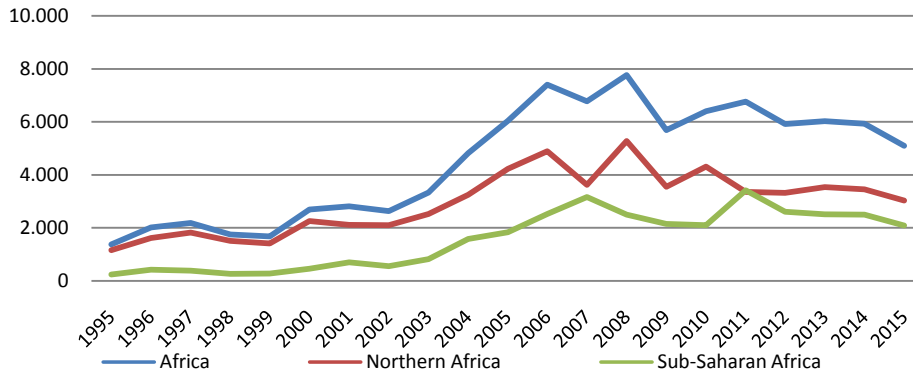


Graph 1. *Export Trends of Turkey to Africa in Million USD, 1995-2015*
Source: *Extracted from UNCTADSTAT database*

The bilateral trade in general and the exports, in particular, has been continuously increasing at increasing rate. However, both imports and exports have a significant declining tendency since the economic crisis period of 2008/9. Apart from this inclination, the trend of the share of Sub-Saharan African countries is slowly increasing while the share of North African countries is running down. For the last 5 years, for instance, the export of Turkey to Sub-Saharan Africa countries is constant while the export to North African countries is declining. The imports have similar declining trends for both groups but with repetitive ups and downs in the imports from North African countries.

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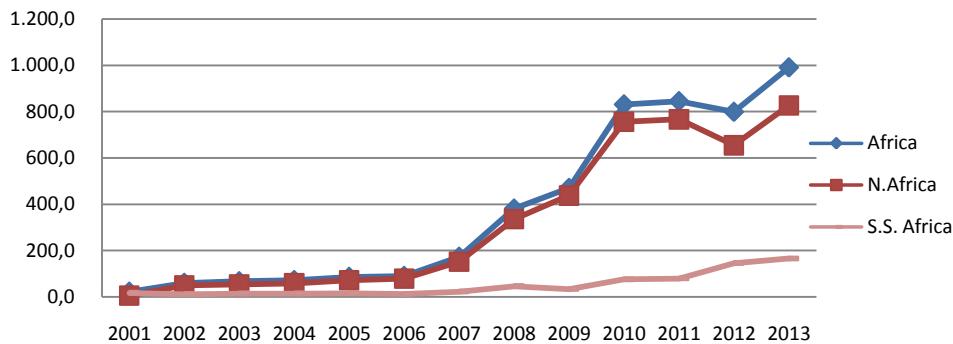
From the trends, we can observe that the exports volume of Turkey to Africa have increased by more than 8 folds within the last 15 years. The exports to North African countries increased by 7.4 folds while the exports to Sub-Saharan Africa increased by 10.6 folds. On the other hand, the imports from Africa to Turkey increased by about 1.8 folds. The increment rate for North Africa and Sub-Saharan Africa are approximately 1.4 and 3 folds respectively. These trends imply that the bilateral trend of Turkey with Sub-Saharan African countries is increasing at a higher rate than North African countries.



Graph 2. Import Trends of Turkey from Africa in Million USD, 1995 - 2015
Source: Extracted from UNCTADSTAT database

Turkey exports mainly manufactured or processed products such as iron and steel bars, meal and flour of wheat, petroleum oil and construction materials. In return, it imports mainly raw products and minerals such as coal, cocoa, oil seeds, copper, aluminum and tobacco products. In 2015, the total exports of Turkey to Africa reached 3.9 billion dollars while its imports were worth of approximately 2.1 billion dollars. The top 10 export items of Turkey to Africa cover 44% of its total exports while the major 10 import items from Africa cover almost 80% of the total imports. This means African exports to Turkey are not diversified.

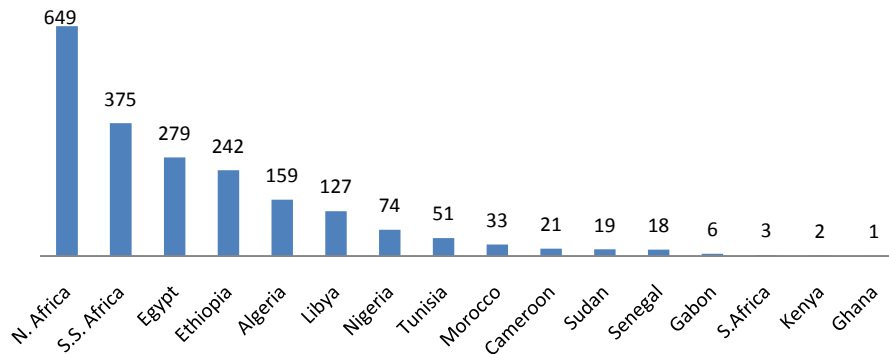
There is a similar increasing trend in the FDI positions of Turkey in Africa. It reached above 1 billion dollars in 2015 from around 22 million dollars in 2001. This means the country increased its FDI presence in Africa by more than 45 times or 2,222%. On the other hand, the FDI positions of African countries in Turkey were about 52 million dollars in 2001. Later, this figure reached 277 million in 2012 and about 182 million in 2015. Here, there are two unbalanced FDI positions. First the inward and outward positions are highly unbalanced and second the FDI positions of Turkey are highly concentrated in North African countries. As shown in Graph 3, only North African countries have much of the FDI positions. However, the share of the other African countries is recently increasing.



Graph 3. The Trend of Outward FDI Positions of Turkey in Africa in Million USD.
Source: UNCTAD Bilateral FDI Statistics, 2014.

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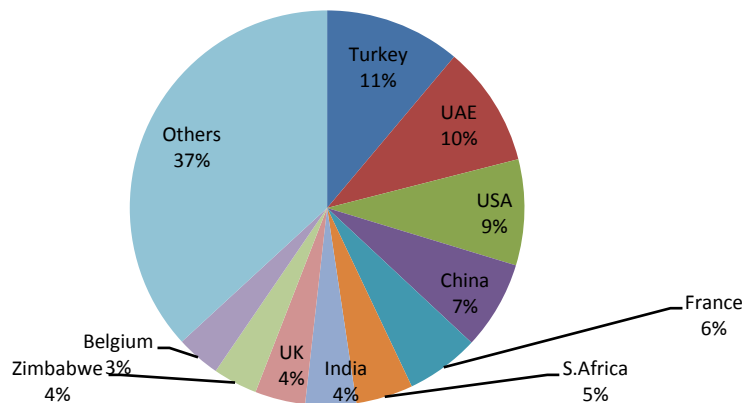
Based on the 2015 figures, six North African countries have above 63% of the total FDI positions of Turkey in Africa considering Sudan as member of both groups. Ethiopia and Nigeria take the biggest share in the Sub-Saharan region while Egypt, Algeria and Libya are the dominant destinations of Turkish FDI in North Africa. Totally, 14 countries have above 1 million Turkish FDI positions in 2015.



Graph 1. Major Destinations and Volume of Turkish FDI in Africa in Million USD, 2015
Source: UNCTAD Bilateral FDI Statistics, 2014

One of the most unexpected results here is the status of Turkish FDI in South Africa. Since South Africa is the most developed market in the continent, it is expected to attract more Turkish FDI. However, the FDI stock of Turkish investors in the country has significantly declined in the last decade while it is significantly increasing in Ethiopia and Nigeria. On the other hand, the FDI positions of African countries in Turkey is limited and dominated by few countries. Libya is the leading country with a total of 130 million dollars FDI positions in Turkey in 2015. South Africa is the other country investing 67 million dollars. Excluding Libya and South Africa, Sub – Saharan African countries have better FDI positions in Turkey than North African countries.

Generally, the FDI positions of Turkey in Africa are drastically mounting. According to the Investment Report of Africa (2015), 149,157 jobs were created for Africans by foreign investors in 2014. Out of this, Turkey was the principal country by creating 16,592 jobs all over Africa. United Arab Emirates, United States and China followed by creating more than ten thousand job opportunities each in the same year. France, South Africa, India, United Kingdom, Zimbabwe and Belgium are the others in the top ten lists. However, Turkey is not in the top countries in terms of number of projects or capital investment. This shows that the country had mainly labor intensive investment projects.



Graph 5. Job Opportunities Created by Foreign investors in Africa, 2014
Source: The Africa Investment Report 2015

4. Methodology

4.1. The Gravity Model

In this study the traditional gravity model of direct and simple equation is employed. This model helps to assess the main determinants of trade and investment between the Africa and Turkey. The basic form of the gravity equation is:

$$FDI_{AB} = \frac{GDP_A^\alpha GDP_B^\beta}{D_{AB}^\theta}$$

where, FDI_{AB} indicates FDI of country A in country B; GDP_A and GDP_B indicate the economic size of country A and B, and D_{AB} indicates the bilateral distance between the two countries. The parameters α , β and θ are often estimated in a log-linear reformulation of the equation.

The theory behind the gravity model is that big nations in economic size have higher foreign trade and FDI between each other. They also have the capacity to attract large shares of other countries' spending because of their range of product types. Moreover, according to the gravity model, it is expected that as distance increases, the trade and FDI amount between any two countries is, other things equal, diminishes (Krugman & Obstfeld, 2009). In this study, an improved gravity model is used with the following equation:

$$\begin{aligned} \ln FDI_{Pos_{TrAft}} = & \beta_0 + \beta_1 \ln GDP_{Trt} + \beta_2 \ln GDP_{Aft} + \beta_3 \ln Dist_{TrAf} + \beta_4 \ln PI_{Aft} \\ & + \beta_5 \ln PI_{Trt} \\ & + \beta_6 \ln NR_{Aft} (\ln Fuel_{Aft} + \ln Mineral_{Aft}) + \beta_7 \ln Reserve_{Aft} \\ & + \beta_8 \ln Time_{Aft} \\ & + \beta_9 \ln GovInd_{Aft} + \beta_{10} \ln BilTrade_{TrAft} (\ln Exp_{TrAft} + \\ \ln Imp_{TrAft}) & \\ & + \beta_{11} \ln ComRelig_{TA} + \beta_{12} \ln ComCons_{Af} + \beta_{13} \ln CPI_t (\ln CPI_{Aft} \\ & + \ln CPI_{Trt}) + \beta_{14} \ln EFI_t (\ln EFI_{Trt} + \ln EFI_{Aft}) \end{aligned}$$

where:

$FDI_{Pos_{TrAft}}$:	FDI position of Turkey in the African country in year t
GDP_{Trt} :	GDP size of Turkey in year t
GDP_{Aft} :	GDP size of African country in year t
$Dist_{TrAf}$:	Distance between the capital cities of the partners
PI_{Aft} :	Per capita income of the African country in year t
PI_{Trt} :	Per capita income of Turkey in year t
NR_{Aft} :	Natural resources production in the African country in year t
$Fuel_{Aft}$:	Fuel production in the African country in year t
$Minerals_{Aft}$:	Minerals and precious stones production the African side in year t
$Reserve_{Af}$:	Total reserves of the African country including gold in year t
$Time_{Aft}$:	Days to start a business and enforce a contract in the African country
$GovInd_{Aft}$:	Government Index of the African country measured by rule of law and political stability in year t
$BilTrade_{TrAft}$:	Bilateral trade between Turkey and African country in year t
Exp_{TrAft} :	Export volume of goods from Turkey to the African country
Imp_{TrAft} :	Import volume of goods from Turkey to the African country
$ComCons_{Af}$:	Commercial consulate of Turkey in the African country (Dummy)
$ComRelig_{TA}$:	Common religion in Turkey and the African country (Dummy)
CPI_t :	Corruption Perception Index of both sides in year t
CPI_{Aft} :	Corruption Perception Index of the African country in year t
CPI_{Trt} :	Corruption Perception Index of Turkey in year t
EFI_t :	Economic Freedom Index of both sides in year t

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EFI_{Afr}: Economic Freedom Index of the African country in year t
EFI_{Tur}: Economic Freedom Index of Turkey in year t

The equation has four groups of variables. The first line indicates the core form of the gravity model with only GDP sizes and distance, and per capita income. In the second line, additional related macroeconomic characters of the African countries such as fuel/petroleum production, minerals production, easiness of doing business, and indicators of governance are denoted. In the third line, dummy variables of having a common religion, opening commercial consulates and the bilateral trade are incorporated. The last line forms corruption and economic freedom indexes of both partners.

Next to the core variables of the gravity model, this study puts emphasis on the socio-cultural and easiness of doing business, the importance of natural resources and governance level of the partners. Accordingly, the variables of a common religion, rule of law, political stability having commercial consulates of Turkey form denote the hypotheses. Moreover, one of the arguments in the literature is that the need for a natural resource in general and petroleum and minerals, in particular, is the major determinant of FDI and trade with Africa both from the old and new partners (Fung & Garcia-Herrero 2012; and Ngouhouo 2013). Therefore, the dummy variables of fuel production and mineral production help to test this hypothesis. Moreover, the economic freedom index (EFI) helps to test if economic freedoms, including property rights, fiscal freedom, government spending, business freedom, trade freedom and some other issues have an impact on the bilateral trade (Yu, 2010; Abidin *et al.*, 2013; and Narayan & Nguyen, 2016).

Generally, the hypotheses of the study are: The gravity model fits to the FDI position of Turkey in Africa (H1); a need for natural resources is one of the reasons of Turkish FDI positions in Africa (H2); Socio-cultural factors, such as language and religion, are important determinants of Turkish FDI in Africa (H3); and Turkish FDI in Africa is related to its trade with the continent (H4).

4.2. Estimation Techniques

Primarily, the Hausman Test is conducted to decide whether the fixed effect or random effect regression of panel data are appropriate. The results pointed out that fixed effect is more suitable for these models. However, using the fixed effect excludes all the dummy variables and distance since they are time-invariant variables. Bearing in mind the importance of including these variables to the study, the Poisson – Pseudo-Maximum Likelihood Estimator is employed. This method was introduced by Silva & Tenreyro in (2006) and provides consistent estimates of the gravity model. This estimator is consistent in the presence of fixed effects and it includes observations with zero value which habitually happens in bilateral trade (Shepherd, 2012).

Considering the limited and unfairly distribute FDI positions of Turkey, different models are tested. The first one is a model which includes all African countries. The second one includes only Sub-Saharan African countries while the last model includes only North African economies.

5. Results

Model -I: Africa

Obviously, distance is the primary determinant of Turkey's investment in Africa. The country's FDI positions are higher in nearby countries such as the North African countries than Western and Southern Africa countries. However, all geographically nearby African countries of any region do not get equal FDI positions of Turkey. The economically larger countries have better stocks than the others because GDP of the host economy is statistically significant. However, the economic size or economic growth of Turkey is not a factor of FDI flow into Africa. This implies that the fast economic growth in some African countries is

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attracting more FDI from Turkey but there are other forces which pushes Turkish investors into Africa other than the country's GDP growth.

Turkey's investment is high in African countries with high GDP per capita income. Even though its impact is low, it has a big z-value to reject the hypothesis that per capita income (PI) has no impact on the Turkish FDI positions in Africa. A 1% improvement in PI, attracts 0.06% additional Turkish FDI. In fact, 1% improvement in the PI of mostly poor African countries which have high population growth is not a simple achievement. The PI improvement in Turkey is not directly related to the FDI positions in Africa just like its GDP.

The other important factors of Turkish FDI positions in the continent are the Economic Freedom Index (EFI) and Corruption Perception Index (CPI) of both sides. A 1% improvement in the rate of Turkey's EFI creates more than 1% FDI positions in Africa. But it needs further study to show the EFI of the country is generating more outward FDI positions throughout the world or at least its level of impact. Similarly, the improvement in the EFI of African countries is motivating Turkish investors even though its impact is significantly lower than that of Turkish EFI improvement. The CPI rate (CPI of Africa plus CPI of Turkey) has a positive relation with the FDI positions. A percentage improvement in CPI, increases FDI positions by more than 1.5%. This indicates that Turkish FDI positions are high in countries where corruption level is declining. A 1% rate improvement in corruption level in both sides is generating 0.16% additional Turkish FDI positions in Africa.

Unlike the claims of some studies in literature on the impact of natural resources for their FDI positions and trade with Africa, Turkish FDI positions are unrelated to natural resources and reserves. Both the coefficients of natural resources (fuel and minerals) and reserves (currency and gold) are negative and statistically significant at 1% level of confidence. Therefore, we can say that Turkish investment is distributed regardless of the petroleum production, precious minerals endowment, foreign currency reserves and gold reserves in the African countries.

However, countries in which the main religion is similar with Turkish people have around 36% additional FDI positions than others controlling the other factors. The huge investment of Turkey in North African countries which share similar religion can be substantiation for this fact. Likewise, in countries where Turkey has commercial consulates, the FDI stock is slightly higher than the other countries without commercial consulates. This means, the commercial consulates have positive influence on Turkish investors to invest in African nations.

Besides, the simplicity of doing business denoted by time is another indicator of the distribution of the Turkish FDI stocks in Africa. As the number of days required to enforce a contract and days required to start a business increase, the FDI volume increase. This indicates that Turkish investors are tolerant enough to invest in countries where starting business and enforcing contracts is time taking. Similarly, Turkish FDI stock is high in countries with better rule of law. A 1% improvement in the level of rule of law, the FDI stock declines by 0.18%. However, political stability is directly related with the FDI stock. Improvement in political stability attracts more Turkish FDI. In this model, bilateral trade, both imports and exports are not statistically important to be related to the FDI positions of Turkey in Africa.

Model -II: Sub-Saharan Africa

The factors of Turkish FDI stock distribution in Sub-Saharan African countries are more or less similar with the first model except two variables. In the African model, distance is a factor of Turkish FDI positions but not in the Sub-Saharan Africa model. Turkey invests in these countries regardless of their distance. In other words, there are nearby and far located countries with high FDI positions. The other different factor in this model is, there is an evidence to support that an improvement in the economic freedom in the Sub-Saharan African countries is motivating Turkish investors. The other variables have the same nature of impact but most of them with higher level of significance. Generally, this shows that the

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determinants of Turkish FDI positions in the continent are expressed by the positions in the majority countries of the Sub –Saharan Africa.

Model -III: North Africa

In this model the determinants are significantly different. Firstly, distance has the expected sign but with little impact. Secondly, unlike the other models, the GDP of the host countries is not important but the GDP size of Turkey is strongly linked with the FDI positions. Similarly, the impact of per capita income of the host economy is very frail. This shows that Turkish investment in the North African countries is not based on their economic size and per capita income but slightly affected by geographic distance. Rather, it is increasing as the GDP of Turkey is growing.

Correspondingly, the economic freedom and corruption perception of the host economies is not significant but the FDI position is increasing in parallel to the economic freedom of Turkey. This implies that economic freedom and corruption are neither pulling nor pushing factors for Turkish investors in the region. However, just like in the first two models, the time to start business and time required to enforce a contract are important factors for the distribution of Turkish FDI in the region. Besides, the political stability is positively linked with the FDI positions even though there is no evidence to support that rule of law is a factor.

In the other side, there is no evidence to say Turkish FDI positions are related to the fuel and minerals production in the host economy. Moreover, it is impossible to test if common religion and having a commercial consulate are factors of FDI because of their collinearity. All North African countries have similar cultural attachment with Turkey and there is a commercial consulate of Turkey in all of them. Finally, we can say that trade have a linkage with FDI positions of Turkey in North Africa. Controlling other factors, a 1% increase in import from North African country to Turkey is linked with 0.065% additional FDI positions. Exports from Turkey to the African sides are not statistically significant.

Table 1: Estimation Results of the Study

Variables	Africa	Sub-Saharan Africa	North Africa
LogDist	-0.0598 (0.0178)***	-0.1312 (0.1053)	-0.0452 (0.0204)**
LogGDP_Af	0.1220 (0.0224)***	0.1735 (0.0357)***	-0.0203 (0.0639)
LogGDP_Tr	-0.0102 (0.1821)	-0.1747 (.2076)	0.3786 (0.0938)***
LogPI_Af	0.0628 (0.0138)***	0.1048 (0.0276)***	0.0507 (0.0279)*
LogPI_Tr	-0.0454 (0.1631)	-0.0213 (0.2069)	-0.1982 (0.1426)
LogEFI_Tr	1.0604 (0.1758)***	0.9933 (0.1541)***	0.8151 (0.4063)**
LogEFI_Af	0.4102 (0.1505)**	-0.1359 (0.4311)	0.1364 (0.1377)
CoReligDum	0.3638 (0.0303)***	0.3619 (0.0378)***	---
ComConsDum	0.0757 (0.0223)***	0.1117 (0.0425)**	---
LogNR	-0.0207 (0.0041)***	-0.0259 (0.0079)***	-0.0262 (0.0249)
LogReserve	-0.0475 (0.0124)***	-0.0793 (0.0280)**	-0.0466 (0.0295)
LogRuleLaw	-0.1889 (0.0323)***	-0.1636 (0.0256)***	-0.0093 (0.0494)
LogPolStable	0.0614 (0.0158)***	0.0896 (0.0203)***	0.0829 (0.0220)***
LogBilTrade	-0.0125 (0.0167)	-0.0153 (0.0169)	---
LogImp	---	---	0.0655 (0.0106)***
LogExp	---	---	0.0953 (0.0998)
LogTime	0.0786 (0.0217)***	0.0446 (0.0171)**	0.1738 (0.0426)***
LogCPI	0.1556 (0.0561)**	0.1666 (0.0626)***	0.0612 (0.0519)
Observations	133	89	44
R-Squared	0.7900	0.7015	0.8459

Source: Authors' Computation

In all models the hypothesis of the core gravity model ($H_0: \text{Dist} = \text{GDP}_{Af} = \text{GDP}_{Tr} = 0$) is rejected. This indicates that the gravity model fits to this study. the second hypothesis ($H_0: \log \text{NR} = 0$) is rejected in all models which means Turkish FDI in Africa is not for the purpose of getting access to natural resources. Likewise, H3 which is denoted by having common religion is rejected to claim that religion is a factor of the FDI positions of Turkey in the continent. Finally, the forth hypothesis ($H_0: \log \text{BilTrade} = 0$) gives a rejection result in the North Africa

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model but not in the Africa and Sub – Saharan Africa models. This leads us to say the FDI position of Turkey only in North Africa is related to its trade.

6. Conclusion

In the last couple of decades, the economic ties of Turkey and Africa are drastically increasing. Their bilateral trade and FDI positions have proved to be sharply rising. Even though the relationship between the bilateral trade and FDI positions of Turkey in Africa is positive only in the North African model, the FDI positions of Turkey have various determinants. GDP size of the host economies, per capita income, economic freedom, common religion, availability of commercial consulate, easiness of doing business, improvement in corruption levels and political stability are a pulling factors of Turkish investors into Africa in general and Sub-Saharan African countries in particular. However, natural resources and the level of rule of law are not attracting factors for Turkish investors. Besides, the GDP size of Turkey or its per capita level is not a factor for its FDI positions in Africa or it signals that the FDI flow to Africa is not proportionally growing with the GDP and per capita income of Turkey.

The case of North African countries has different features. In fact, per capita income and economic freedom, easiness of doing business and political stability in the host economies are common pulling factors of Turkish investors. However, GDP of Turkey rather than the GDP of hosting economies is influencing the FDI positions. Moreover, the imports from Africa are related to the FDI positions of Turkey in the region.

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Appendix

Table 2. Variables and Specific Sources of Data

Variables	Stands for	Sources of Data
LogFDIpos_Tr	FDI positions of Turkey in African countries	elibrary-data.imf.org and unctad Bilateral FDI report, 2014
LogDist	Distance between capital cities	https://www.distancecalculator.net/
LogGDP_Af	GDP of the African country	http://unctadstat.unctad.org/EN/
LogGDP_Tr	GDP of Turkey	http://unctadstat.unctad.org/EN/
LogPI_Af	Per capita income of the African country	http://unctadstat.unctad.org/EN/
LogPI_Tr	Per Capita income of Turkey	http://unctadstat.unctad.org/EN/
LogFuel	Fuel production	http://unctadstat.unctad.org/EN/
LogMinerals	Mineral production	http://unctadstat.unctad.org/EN/
LogEFI_Af	Economic Freedom Index of African country	www.heritage.org/index/
LogEFI_Tr	Economic Freedom Index Turkey	www.heritage.org/index/
LogCPI_Af	Corruption Perception Index of African country	http://www.transparency.org
LogCPI_Tr	Corruption Perception Index of Turkey	http://www.transparency.org
LogCPI	Sum of Corruption Perception Indexes	http://www.transparency.org
ComReligDummy	Major common religion	https://en.wikipedia.org/wiki/Religions_by_country
ComLangDummy	Major common language	https://en.wikipedia.org/wiki/Category:Languages_by_country
ComConsDum	Commercial consulate of Turkey in the African country	http://www.deik.org.tr/turkiye-afrika-is-konseyleri
LogReserve	Currency and gold reserves	http://databank.worldbank.org/data/home.aspx
LogTime	Time required to start business and time required to enforce a contract	http://databank.worldbank.org/data/home.aspx
LogRuleLaw	Rule of law in the African country	http://databank.worldbank.org/data/home.aspx
LogPolStable	Political stability in the African country	http://databank.worldbank.org/data/home.aspx
LogBilTrade	Bilateral trade	http://unctadstat.unctad.org/EN/
LogImp	Imports from Africa to Turkey	http://unctadstat.unctad.org/EN/
LogExp	Imports from Turkey to Africa	http://unctadstat.unctad.org/EN/

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