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Determinants of Foreign Direct Investments in Turkey

A regional-level analysis

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1. INTRODUCTION

FDI (Foreign Direct Investments) play a crucial role for developing and developed countries since they may be beneficial for both. The aim of this dissertation is to analyze the determinants of greenfield foreign direct investments made by MNEs (Multinational Enterprises) in the 2011-2018 period in Turkish regions. Turkey has drawn the attention of investors over the years due to its geographical significance and status as a emerging country.

To assess the importance of local factors in attracting foreign investors, a discrete choice Conditional Logit model is used on a sample of 1192 individual investments. Results suggest that, GDP per capita, bachelor education graduates in the corresponding subregion, existence of harbour and Organized Industrial Zones, are increase the probability of being chosen as an investment location by MNEs. Regarding infrastructure, the probability of being chosen is depended to the industrial sectors of the enterprises. For some sectors, infrastructure of the subregion is an important determinant. However, for some sectors infrastructure is not an important determinant in order to decide location of the investment.

The structure of the dissertation is organized as follows; second chapter is aimed to overview and the definitions of FDI and MNEs as well as their pros and cons. Global and Turkey level FDI trends with investment and FDI types and the Eclectic (OLI) paradigm also mentioned in the first part. Following chapter analyses the regions of Turkey and its economic activities in general. The fourth chapter reviews the literature on the factors that influence MNEs' FDI location choices, and the determinants used in this analysis are thoroughly examined. After considering all of these chapters, one may proceed to the model phase of the research, which includes findings, and finally, the conclusion.

2. OVERVIEW OF FDI AND MNE

A FDI takes place when an investment is made by whether a firm or individual of one country into another country because business interests of the home country are located in the host country.

Traditionally, FDI occurred between developed countries. More recently, FDI have started to target also developing countries, not to mention that developing and emerging countries have also become origin countries for a large amount of FDI.

FDIs are alleged to provide income, employment, new technology, know-how, management skills, marketing contribution and exportation opportunities for the economy of the host country (Baniak et al., 2005; Pavlinek, 2004). Most of the developing countries have been made infrastructural and economic alignments in order to attract foreign investors and to acquire their benefits. Outcome of this kind of alignments concluded in a substantial increase of the share of the developing countries in the 1990s (Erdal & Tatoglu, 2002).

Even though the highlighted outcome of FDI is the financial capital, obtaining organizational, intellectual and technological capital is also an important asset through FDI inflow. Moreover, MNEs would be able to penetrate new markets in new territories by introducing new managerial capabilities, supplying new technologies and human capital and result in yielding a growth in the host market. A multinational enterprise, shortened as MNE and occasionally called as Multinational Corporation (MNC) and Multinational Firm (MNF), is a multinational or international enterprise which conducts business operations in various countries.

2.1. Definitions of FDI and MNE

Foreign Direct Investments (FDI) is a distribution of international income and production between developing and developed countries. (Akinlo, 2004; Girma, 2005; Li & Liu, 2005).

The main goal of economic policy in developing countries is to achieve economic development. In order to achieve economic development, sufficient capital accumulation

must be achieved. However, one of the most important problems of developing countries is the lack of sufficient capital accumulation. Therefore, developing countries such as Turkey, are working to correct this deficiency in the amount of capital with foreign capital.

Foreign capital, which is considered as an alternative way in the economic development process, can enter the country in the form of short and long-term portfolio investments or direct investments. Portfolio investments are the purchase of debt securities, bonds and stocks issued by foreign companies from international capital markets in return for an interest or dividend (İyibozkurt, 1985). Foreign direct investments, on the other hand, provide the investors with the authority to control their investment as well as technology, brand and management knowledge (Karluk, 2001). In this respect, direct investments differ from portfolio investments.

FDI helps the developing countries not just by capital entrance but also with the introduction of more advanced technologies especially in manufacturing, know-how transfer and managerial skills. Furthermore, FDI does clearly have a positive effect on employment by increasing the employment rate and creating new job opportunities and increases the competition and entrepreneurship (Batten and Vo 2009; Reiter and Steensma 2010; Fernandes and Paunov 2012; Lee 2013).

Pavlinek (2004) and Deichmann (2003) have suggested that FDI tends to concentrate on the largest cities of the host country. Such a situation creates regional instability because the distribution among the country is uneven.

Developing countries generally do not have sufficient capital for investing and FDI plays a very crucial effect on the growth of these countries. Furthermore, FDI does clearly have a positive effect on employment by increasing the employment rate and creating new job opportunities and increases the competition and entrepreneurship which are the important tools for the growth of developing countries. (Mallampally and Sauvant 1999; Hermes and Lensink 2003; Batten and Vo 2009; Reiter and Steensma 2010; Fernandes and Paunov 2012; Lee 2013).

MNEs have their headquarters (home country) in one or rarely more than one country. These companies are also operating in the other host countries.

Considering the studies in Turkey, the following ones could be the most important on the subject of FDI locational choices. Erdilek (1982) examined the microeconomic cause and effect relationship of FDI in the Turkish manufacturing sector. Demirbağ et al. (1995), identified factors affecting the locational choice of multinational enterprises (MNEs)
The aim of the research conducted by Berkoz & Turk (2009), is to evaluate the most important regional factors regarding the locational choice of the FDI firms in Turkey. This study was conducted based on a survey consisting of 90 foreign firms located in metropolitan areas.
Capital accumulation is another advantage of FDI inflow, especially in the countries who suffer low saving rates and low volume of investment. Since FDI is a fixed type of flow, it is mainly preferred to the countries where there is a deprivation of capital or savings. However, sometimes the host country also suffers from the repatriation of profits since several MNCs decide to take the profit back to their own country. So, the produced capital would become unable to stay within the borders where it was created. (Duttaray et al., 2008; Thangavelu et al., 2009; Tang et al., 2008; Vadlamannati & Tamazian, 2009).

A solid and functional financial system in terms of resource allocation, risk reduction and mobilization of savings will boost the FDI inflow since it is a substantial part of the economy of a host country.

However, there is the other side of the coin as well. MNCs hold superior resources compared to the countries they are investing in, and this may lead to a distortion of the domestic competition by abusing the regulations and the protective or restrictive applications governments have created. In addition, depending on the foreign resources such as the technology, the labor, the capital and the raw materials can deteriorate the domestic market. By bringing about adverse aftermath in certain industries, this may yield a monopolistic position of MNCs. With their global ownership advantage and extensive power, MNCs may be able to reduce or extinguish the competitive advantage of the domestic market and the country. Domestic enterprises could be forced to crowding out in the long run (Duttaray et al., 2008; Tang et al., 2008; Thangavelu et al., 2009).

2.1.1. Pros and Cons of FDI

FDI creates some advantages and disadvantages to MNEs. This part of the dissertation is to remark these advantages and disadvantages for both the home country and MNEs.

One of the effective ways to enter a foreign market by investors is foreign direct investment. Some countries can severely limit foreign companies' access to their domestic markets. Getting or starting a business in the marketplace is a way to gain access to foreign markets.

These types of investments are also an effective way of obtaining important natural resources such as precious metals and fossil fuels. Oil companies, for example, often make enormous FDIs to develop their oil fields in foreign countries.

Another advantage of FDI for investors is to reduce the production cost if the labor market is cheaper and regulations are less restrictive in the host country. For example, it is common knowledge that moving manufacturing activities to developed countries will dramatically reduce production costs in the footwear and apparel industries.

On the other hand, FDI also offers some advantages for host countries. FDI offers an external source of capital and increased income. It can be an enormous source of foreign capital for a developing country that can lead to economic development. In addition, tax revenues from the products and activities of the factory established, taxes on the incomes and purchases of the factory employees, taxes on income and purchases are generated due to the additional economic activity created by the factory. Developing governments can use this capital income from economic growth to build and improve their physical and economic infrastructure, such as roads, communication systems, educational institutions, and support the creation of new indigenous industries (Koyun, 2020).

There may also be some disadvantages for foreign direct investment. From the MNE point of view, unstable economic condition is one of the disadvantages among others. Since most of the FDI occurs in developing countries, market conditions of these developing countries can be quite unstable and unpredictable. Another problem can be unstable or underdeveloped political and legal systems. A company may need to deal with a corrupt

or unstable political system in the host country. Also, the legal system may be underdeveloped. For example, contracts and property rights may not be easily enforced (Koyun, 2020).

Discussions on the advantages and disadvantages of FDI are encountered in the literature, and these debates still continue. (Acharyya, 2009; De Mello, 1997, 1999; Fan, 2002; Lim, 2001). These investments provide new tech, income, employment, marketing contribution, management skills, exportation opportunities. According to Basu et al. (2003) know-how transfers and accumulation of capital are considered to have a positive effect on the economic growth of the countries in the long run.

Study of Chowdhury and Mavrotas (2005) indicates that FDI creates new business opportunities, encourages domestic investment and is an important source of capital for these reasons. These effects can be considered as positive effects of FDI. However there exist some studies related to the disadvantages of the FDI. Carkovic and Levine (2005) state that FDI could crowd out domestic capital, besides worsening national competitiveness since it spoils the balance of payments (Oztürk and Kalyoncu, 2007).

2.2. FDI Trends

This chapter is dedicated to the global and Turkish FDI trends. Furthermore, subregional distribution of the investments in Turkey and most popular industry sectors will be analyzed with descriptive analysis.

2.2.1. Global FDI Trends

FDI involves offshore production, cross-border know-how and technology exchange. It has grown significantly since the 1990s. These investments have become one of the key elements for integrating national economies into a globally interdependent network of production and services (Fischer P., 2000).

Figure.1 shows the evolution of FDI during the 2007-2018 period worldwide, distinguishing between inflows in developed, developing and transition countries. According to the UNCTAD report, global FDI flows declined 13 percent from $1.5 trillion in 2017 to $1.3 trillion in 2018.

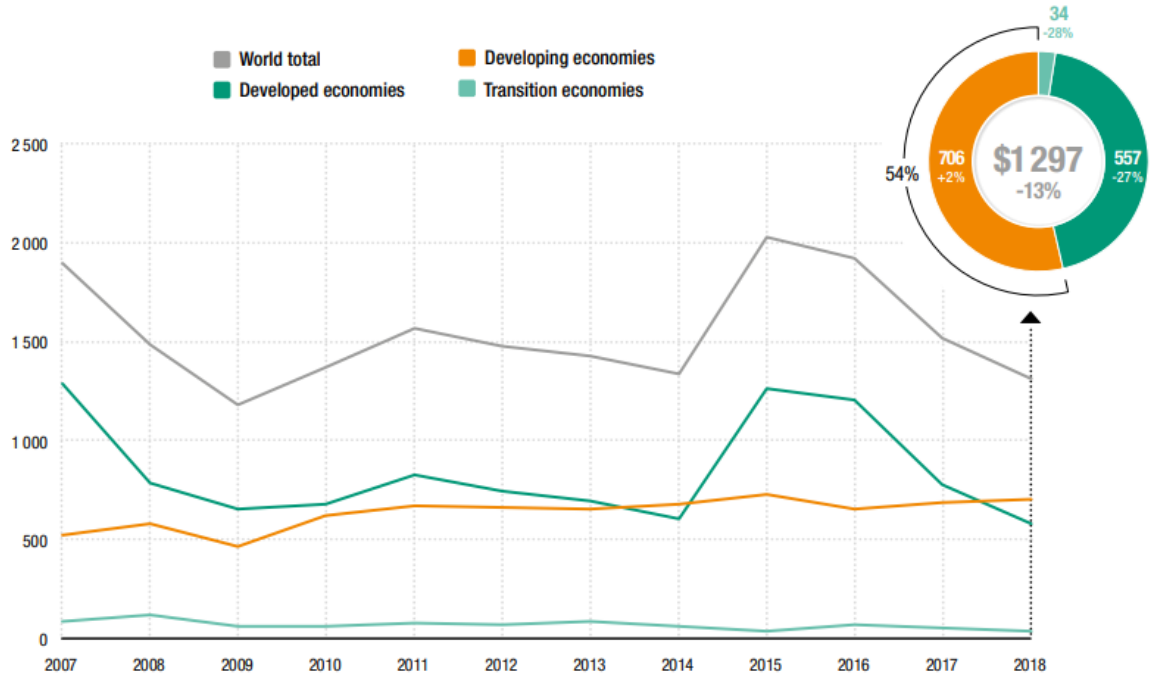


Figure.1 - Global FDI Inflows 2007–2018 (Billions of dollars and percent)

Source: UNCTAD, FDI/MNE database (www.unctad.org/fdistatistics).

FDI flows declined seriously in developed countries by 27 percent and economies in transition by 28 percent. However, for developing countries it increased by 2 per cent. Correspondingly, developing economies gained a higher share of global FDI amount of 54 per cent in 2018.

2.2.2. FDI Trends in Turkey

Figure 2 depicts the total 1192 recorded FDI inflows into Turkey between 2011 and 2018. The increase of the investments in 2017, 2018 and the decrease in 2014 will be explained in the following chapters by external factors. Until the increase in 2017, the investments appeared to vary between 150 (year 2015) and 97 (year 2014).

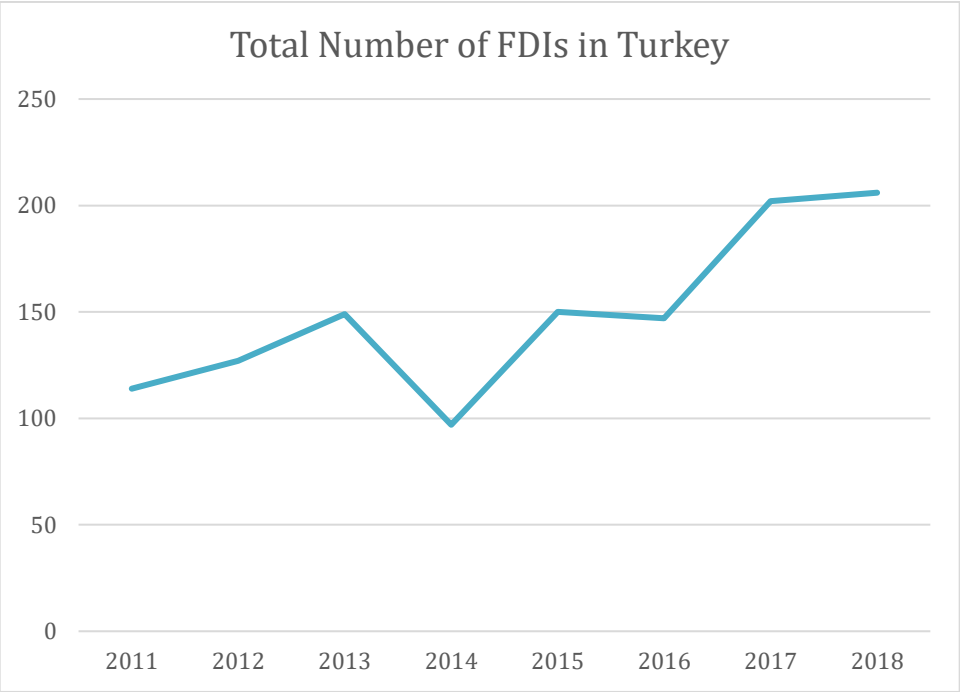


Figure.2 - FDI Trends in Turkey, years

(Source: FDI markets data, own elaboration.)

These subregions are the mergence of adjacent cities that have similar properties by means of culture, population, education level etc. Some subregions are studied as only one province like İstanbul, Ankara and İzmir since they are the biggest cities respectively. However, other regions include two or more cities.

Three subregions out of twenty six, did not receive an FDI in the given years. These subregions are; 'Zonguldak, Karabük, Bartın', 'Ağrı, Kars, Iğdır, Ardahan' and 'Mardin, Batman, Şırnak, Siirt'. All these subregions that did not receive FDI, belong to the east side of Turkey.

İstanbul had the highest number of FDIs followed by 'Kocaeli, Sakarya, Düzce, Bolu, Yalova', 'Bursa, Eskişehir, Bilecik', İzmir and Ankara respectively.

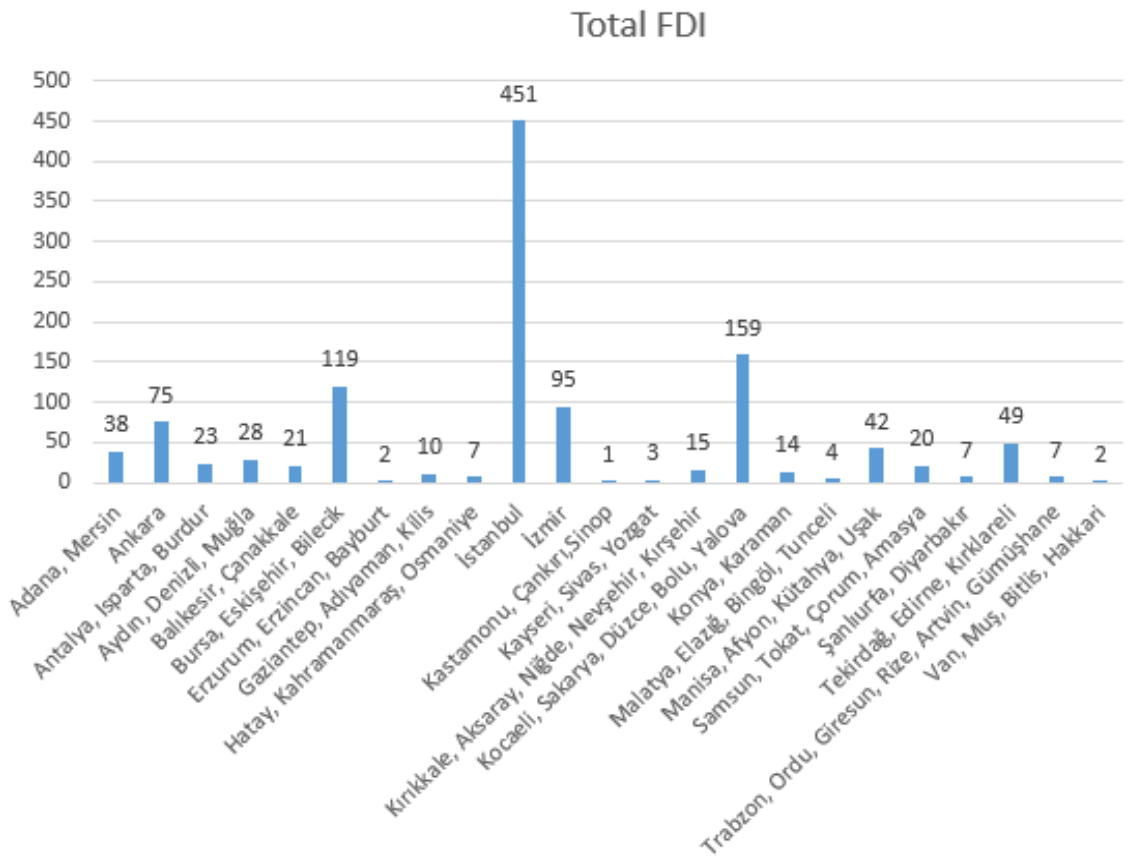


Figure.3 - Total Number of FDI Inflows in Subregions

(Source: FDI markets data, own elaboration.)

The table below shows the total number of FDI inflows (1192) in years between 2011 and 2018 as well as their related industry activities.

As one can see from the table, 'Manufacturing' industry is the most popular one among other industries according to FDI inflows data. 'Sales, Marketing & Support', 'Business Services' and 'Retail' industries follow the 'Manufacturing' industry and they are analyzed in detail in the following figures. Other sectors, besides these four, are mentioned in Table 1.

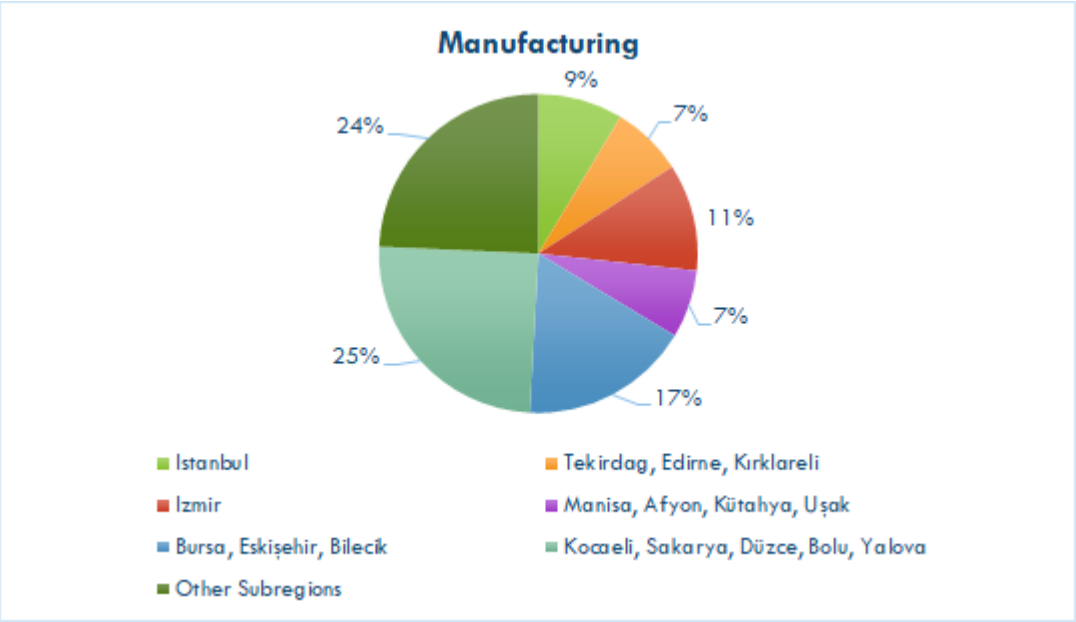
Table.1 - Industry Activities in Turkey

IndustryActivity	Number of FDIs
Manufacturing	580
Sales, Marketing & Support	226
Business Services	131
Retail	56
Electricity	36
Design, Development & Testing	35
Logistics, Distribution & Transportation	31
Construction	26
Headquarters	16
Customer Contact Centre	13
Maintenance & Servicing	12
Extraction	8
ICT & Internet Infrastructure	4
Research & Development	7
Education & Training	5
Recycling	4
Shared Services Center	2
TOTAL	**1192**

(Source: FDI markets data, own elaboration.)

If one needs to analyze the most important ones one by one, the first four industry activities are worth further detail. Following Figure.4, Figure.5, Figure.6 and Figure.7, visualize the sectors belonging to subregions with a pie chart.

Manufacturing industry investments are concentrated in the subregion including the provinces of Kocaeli, Sakarya, Düzce, Bolu, and Yalova. The provinces of Bursa, Eskişehir, and Bilecik came in second. Finally, as shown in the Figure.4 below, İzmir is the third most important manufacturing province. While Istanbul does not have a large share of the manufacturing sector, the following figures show that it comes first for the other significant industrial activities. As a result of this situation, Istanbul received the majority of FDI inflows in general.



(Source: FDI markets data, own elaboration.)

Figure.4 - Manufacturing Sector with their Subregional Percentages

With a significant majority in the given years, the Sales, Marketing, and Support industry is most evident in Istanbul. As shown in Figure.5, Ankara and İzmir come in second and third position, respectively, after Istanbul.

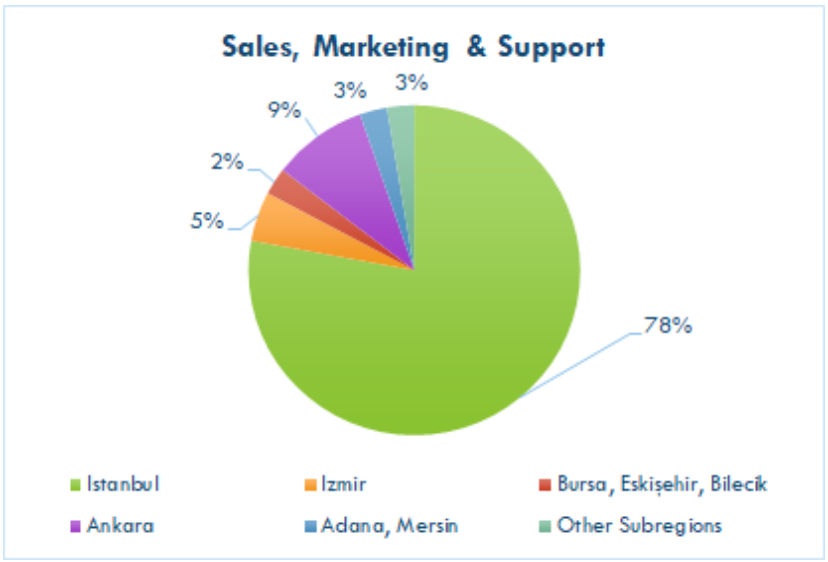


Figure.5 - Sales, Marketing & Support Sector with their Subregional Percentages

(Source: FDI markets data, own elaboration.)

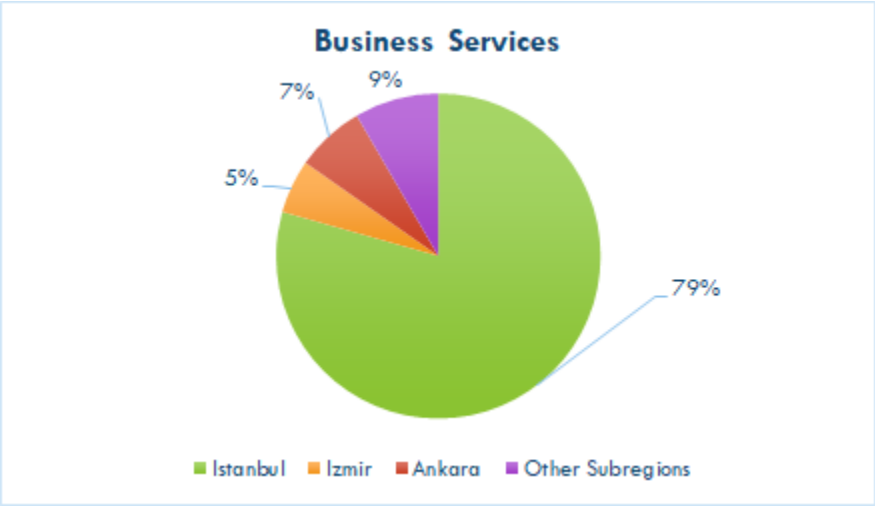


Figure.6 - Business Services Sector with their Subregional Percentages

(Source: FDI markets data, own elaboration.)

The Business Services sector is primarily found in Istanbul, with Ankara and İzmir keeping pace behind. The retail sector is largely concentrated in Istanbul. With 12%, Ankara is in second place after İstanbul. These results are coherent with the Figure. 3 - Total Number of FDI Inflows in Subregions, with respect to the regions that own the highest number of FDI.

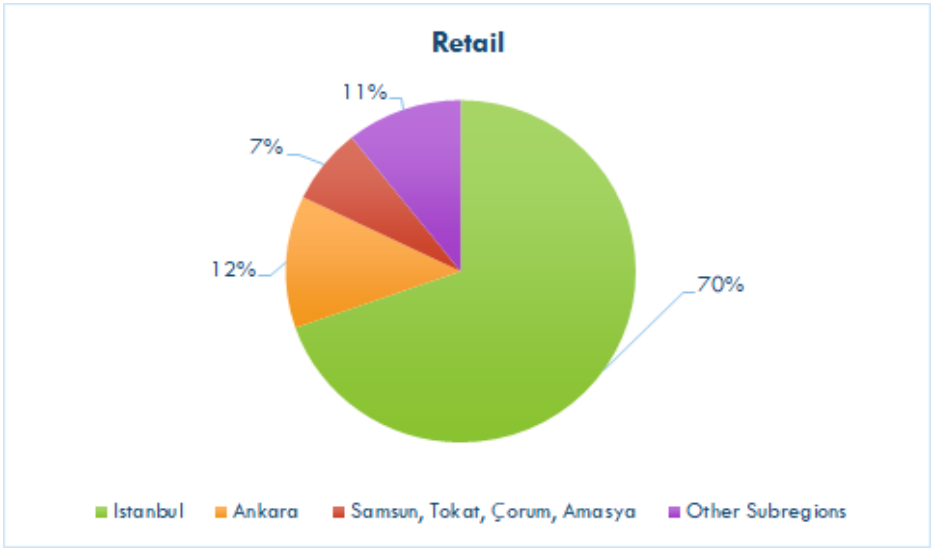


Figure.7 - Retail Sector with their Subregional Percentages

(Source: FDI markets data, own elaboration.)

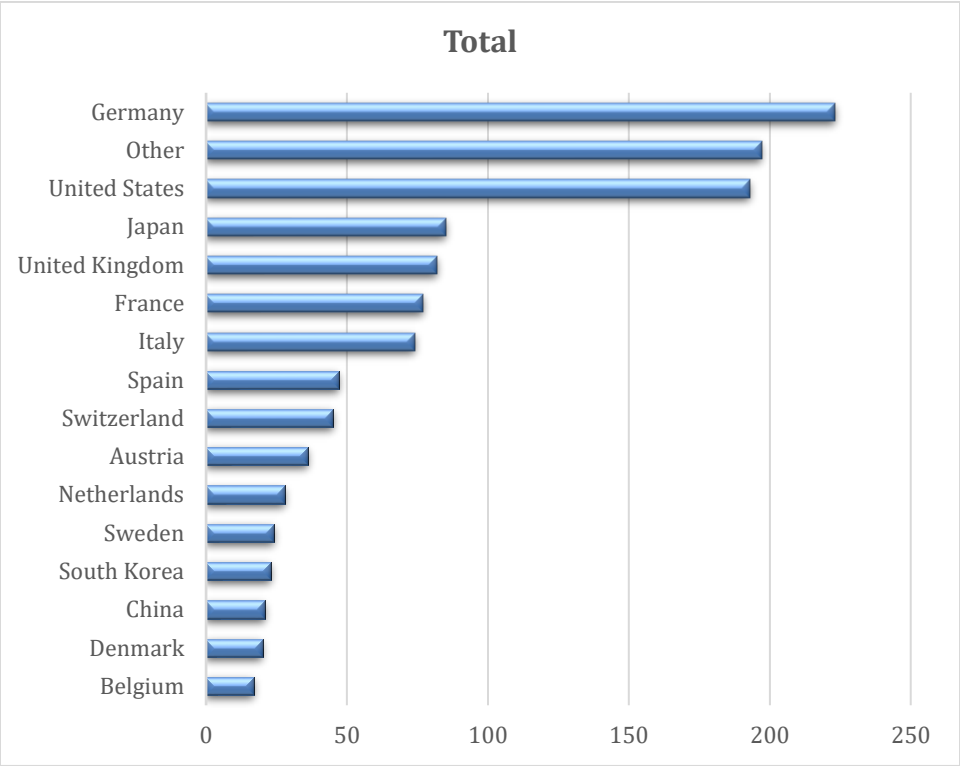


Figure.8 – FDI Country of Origins

(Source: FDI markets data, own elaboration.)

Another descriptive analysis studied in order to find the country of origins that belong to the total of 1192 FDI inflows. Figure.8 shows the country of origins between years 2011 and 2018. Germany and United States are the first two countries who invested mostly in Turkey in specified years with 223 and 193 FDIs respectively.

Japan (85 FDIs), United Kingdom (82 FDIs), France (77 FDIs) and Italy (74 FDIs) follows Germany and United Kingdom with the number of FDI inflows to Turkey. Other countries include total of 44 different countries worldwide. However, because of these 44 countries investments are not as high as the countries shown in the figure, combining them as other countries is decided.

2.3. Greenfield vs. Brownfield Investments

Entering into a foreign market could be done by market entry modes such as Brownfield Investment (acquisition) and Greenfield Investment. Brownfield refers to the activities acquiring existing local firms however Greenfield is related to setting up a new venture. Both Greenfield and Brownfield Investments involve companies and production plants in different countries. This paper focuses on the Greenfield Foreign Direct Investments by MNE as a market entry mode.

In a Greenfield investment, a company carries out its production and operations (manufacturing, sales office, quality control etc.) in another country other than its headquarters. Foreign automotive companies such as Ford, Fiat and Toyota, by way of partnerships factories and other investments in Turkey, are an appropriate example of a greenfield investment.

Figure.9 - Greenfield Investment

(Source:https://corporatefinanceinstitute.com/resources/knowledge/strategy/greenfield-investment/)

Greenfield Investments have plenty of advantages to the invested company like a high degree of control over quality of business operations such as manufacturing and sale of products or services. MNE's can achieve economies of scope and economies of scale by means of production activities, R&D activities, marketing, etc. One of the main motivations of setting up a new facility is to create flexibility in order to satisfy the planned projects or productions needs properly. In addition to the advantages created by Greenfield

Investment to invested companies, it is beneficial for the host country as well. Because as mentioned before, FDI can have a crucial role in economic development of developing countries by creating new job opportunities. Advantages of FDI are explained in the chapter 2.1.1. in detail.

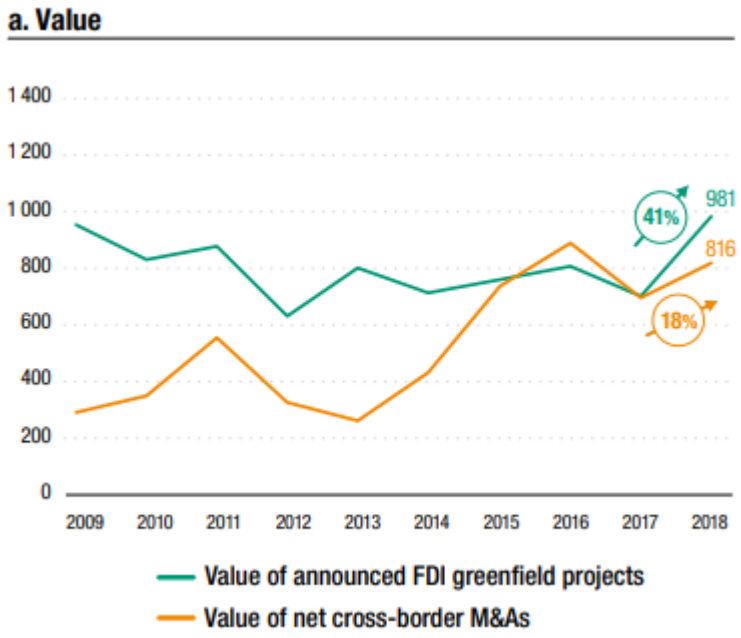


Figure.10 - Value of net cross-border M&As and announced greenfield FDI projects, 2009–2018 (Billions of dollars)

(Source: UNCTAD, cross-border M&A database (www.unctad.org/fdistatistics) and information from the Financial Times Ltd, fDi Markets (www.fDimarkets.com) for announced greenfield projects.)

The value of announced greenfield projects worldwide increased to $981 billion by 41 per cent from 2017 to 2018. UNCTAD World Investment Report 2019 announced that greenfield projects in the manufacturing sector rose to $466 billion by 35 per cent, and the services sector rose to $473 billion by 43 per cent growth rate. Lastly, the remaining $41 billion of the increase belongs to the primary industry according to the Figure.10.

An investment conducted by an enterprise through purchasing or leasing an already existing facility in another country in order to start its own new operations falls into Brownfield Investments. That is to say, Brownfield Investment is basically a purchasing or leasing of the pre-existing facility in the host country. MNEs may choose this type of

investment when they do not want to go to the expense of high start-up costs and time related with Greenfield Investments. However, companies should consider maintenance costs of pre-existing facilities as well as be stuck in the present design which reduces flexibility significantly. Finding a facility that properly fits to MNEs activity based on equipment, technology or layout is a hard task. Higher costs may occur in Brownfield rather than setting up new facilities, if companies consider all the factors affecting profitability.

Figure.11 - Brownfield Investment

(Source: https://corporatefinanceinstitute.com/resources/knowledge/strategy/brownfield-investment/

2.4. Horizontal and Vertical FDI

One can find the types of FDI in the literature such as Horizontal FDI and Vertical FDI. These definitions are crucial to understand FDI properly.

What is the difference between horizontal and vertical? Even though there exists an increase in Vertical FDI lately, horizontal FDI still represents the most relevant fact of the foreign direct investment concept. Alexander Protsenko (2003) defines the former one as a duplication of the same activities of MNCs in different countries. However, the latter one refers to separation of the production chain of MNEs vertically which means outsourcing some production processes from abroad. One can see a fragmented production process in vertical FDI.

Why horizontal FDI? Because exportation could be very costly for the companies who want to serve foreign markets since the existence of transportation costs and trade barriers such as transaction costs. In summary, horizontal could be seen as a copy of the whole production in another country but vertical could be seen as a transfer of a specific manufacturing process from another country.

There exists a trade-off among fixed costs of the plants and trade costs of the products. In accordance with this trade-off, horizontal FDI decisions are made (Markusen, 1984). The size of the targeted country is an important factor. If the host country for investment is small, the cost of establishing a production facility there may be high. For this reason, export should be preferred instead of FDI. Nevertheless, if the target country is large enough to cover the fixed costs of the facility established, it would be better to make an FDI instead of exportation. The model of Markusen (1984), outlined as the “Proximity – concentration hypothesis”.

Production costs are high in developed countries. Because of this reason, they are looking for developing countries in order to execute their productions. Countries which have to do with horizontal FDI, do not represent an important difference in size however in Vertical FDI, the size of the host country is much less than the home country. Therefore, the decision of facility location is crucial so as to cost minimization.

2.5. Eclectic Paradigm (OLI Paradigm)

The eclectic paradigm is an economics concept that is also known as the OLI Model or OLI Framework (OLI stands for Ownership, Location, and Internalization). John H. Dunning published it in 1979 as a continuation of the internalization theory. Dunning's eclectic paradigm provides an approach to explain the level and pattern of international production (Dunning, 1988a, b). It applies "ownership benefits" to the location and internalization advantages implied by the internalization theory, while also allowing for the MNE activity's operational and transaction cost shortcomings.

Dunning (1997), has proposed an eclectic paradigm model in order to identify motivations of MNEs whether to invest in a foreign country. The model has three important conditions to be met which are ownership, location and internalization.

Advantages of ownership; particular advantages lead to the comparative advantages of businesses pursuing foreign direct investment (FDI). The larger the investing firms' economic advantages, the more likely they are to participate in international manufacturing. Locational advantages are foreign countries or areas where MNEs can perform value-added operations. The more immobile, available, or generated opportunities that firms must use in combination with their own competitive advantages prefer a presence in a foreign area, the more firms may choose to complement or leverage their existing advantages by FDI. Firms may coordinate the production and utilization of their core competencies thanks to internalization benefits (Dunning, 2000).

The eclectic paradigm finds answers to three fundamental questions. These concerns include whether companies engage in international investments, the international trade (direct investment or export) is favoured, and where this investment should be made if the company chooses direct investment. Dunning stressed that multinational corporations' international investments would be largely dictated by the mutual relations of these three problems and the benefits they represent (Oxelheim et al., 2001).

According to Navaretti and Venables (2006), companies should evaluate which sunk costs should be incurred in order to start their production abroad. Additionally, they should evaluate all the trade-offs that might arise. Most commonly, low-efficiency firms produce only for the domestic market and medium-productivity firms enter export trade. However, high-efficiency firms are willing to pay extra costs raised by their FDI investments.

Foreign investments, according to Dunning, can be classified into four groups. The first are acquisitions made for overseas markets, which are demand-driven. The second type of investment is supply-based investments in the input factors required by the manufacturing process. The third form of investment consists of investments that develop as a result of the first two types of investments, with the goal of increasing the productivity of the firm's resources (labor) and encouraging the development of multinational firms' portfolios, which include both domestic and international resources. Finally, the fourth form of foreign investment is strategic investment, which firms plan to make so as to protect and retain their advantages in the future (Dunning, 2000).

In order for a company to make foreign investment, it must have certain advantages that will allow the company to be successful in comparison with the other companies in the target market. Three factors will improve a company's ability to make foreign investments. These are the advantages of ownership, location, and internalization, also known as OLI benefits as mentioned previously.

3. TURKEY AND ITS REGIONS

Turkey is located at the junction of Caucasia, Middle East and Eastern Europe. One can see regional imparities clearly in economy and social life. GDP, GDP per capita and education levels are higher on the west side of the country. The coastal and western areas are evidently more attractive than the rest of Anatolia.

The aim of this paper is to recognize the determinants of FDI at a regional level in order to understand the role of inflow FDI that create these disparities. In other words, to understand MNEs' locational choices for investing in Turkey.

Nationwide study tries to explain the geographical advantage Turkey is able to possess which it functions as a linkage to Turkic countries in Caucasia, EU and Middle East.

Tatoglu and Glaister (1998a, 1998b) states that the main factors attracting the foreign investors are economic growth, market size and government policy towards FDI.

Figure.12 - Regions of Turkey

(Source, https://www.allaboutturkey.com/regions.html)

Turkey has seven geographical regions which are Marmara, Aegean, Blacksea, Mediterranean, Central Anatolia, Eastern Anatolia, Southeastern Anatolia. These regions were divided in conformity with some factors like their location, climate, human habitat, agricultural activities, transportation, topography and so on.

3.1. Marmara Region

Presence of İstanbul is attractive for investors since they seek connection availability to urban areas and info costs are known to be less in the central cities, İstanbul holds the major capital city effect.

The suitability and wide area of agricultural land, climate diversity, suitability of climate have increased the diversity and yield in agricultural products.

Figure.13 - Marmara Region

(Source, https://www.allaboutturkey.com/regions.html)

It is the region where the industry is most developed. Istanbul, Izmir, Sakarya and Bursa are the main industrial centers. Automotive, petrochemical, electronics, food, textile, shipbuilding, tire are the most developed industries. Marmara is the region that exports the most to abroad.

Since the Marmara Region is highly established in the fields of manufacturing, agriculture, service, tourism, and animal husbandry, it also has the largest number of immigrants and the highest population in Turkey.

The Marmara Region is in the northwestern corner of the country and connects Europe and Asia. Istanbul is the most famous city in this region and is where multinational companies mostly invest.

Due to its location close to Europe and its location on the Trans-European highway, the presence of the Bosphorus and Dardanelles Straits as a transition from the Black Sea to the Aegean Sea, the ports in the Black Sea and Aegean Sea and many other advantageous

factors made become Marmara one of the most important regions. It is highly developed in industry, trade, tourism and transportation.

The main industrial establishments are in the triangle of Istanbul - Bursa - Kocaeli and especially produce processed food, textiles, cement, paper, petrochemical products, automotive, home furniture, leather and shipbuilding.

3.2. Aegean Region

It is the region where agriculture is most developed due to its fertile and wide plains as well as suitable climate. It is also rich in agricultural products like olive, grape, cotton, fig, vegetable, fruit, poppy, wheat cultivation is common. Small cattle breeding in the inner parts, poultry farming in big cities and beekeeping activities are carried out in the Menteşe district which belongs Muğla.

Figure.14 - Aegean Region

(Source, https://www.allaboutturkey.com/regions.html)

The ease of industrial transportation, capital stock and high raw material opportunities have enabled the industry to develop. It ranks second after the Marmara Region. Industry has developed, especially in Izmir-Manisa. Trade from the region to abroad has also developed.

The region is also rich in underground resources. Turkey is the first in lignite. Apart from that, copper, chromium, gold, mercury, granite, and salt are among the most valuable underground resources. In tourism, the favorable climate and the long rainless summer months have enabled the development of sea tourism.

Because of the ease of sea transportation and tourism, the majority of the population and towns are clustered along the coast. In addition to being industrialized, the Aegean region is also agriculturally developed. Textiles, leather, carpet spinning, food, equipment and

spare parts, marble, tobacco, sugar, olive and olive oil are the main products as mentioned before. Lastly, this region contains about half of Turkey's overall olive trees.

3.3. Blacksea Region

Figure.15 - Blacksea Region

https://www.allaboutturkey.com/regions.html

The region's economy is based on agriculture. Being mountainous, the scarcity of flat areas has affected agriculture. Tea, corn, hazelnut, vegetables and fruit cultivation is the most performed agricultural activity in accordance with the climate. Corn, kiwifruit, beans, and potatoes are some of the most popular agricultural products. Tobacco and rice cultivation is also carried out in the interior areas.

Fishing and beekeeping are the most common forms of animal husbandry. The coast has long been isolated and access to the interior from the coast is limited to a few narrow valleys. People and towns are located around the coast.

The industry is not very developed since the transportation problem is the most influential reason there. However, tea, hazelnut, and forest products industry based on agriculture has developed. Samsun, Karabük, Zonguldak are cities where industry is developed. Lastly, most of Turkey's heavy industry is located in the western Black Sea area.

This region, like the Marmara, Aegean, and Mediterranean, has a variety of harbours since it is located along the coast. The relevance of providing a harbor for an area will be thoroughly explained in the determinants section.

3.4. Mediterranean Region

The agricultural potential is high due to the fertility of the agricultural land and the favorable climate. The warm winter season has facilitated the production of out-of-season vegetables and fruits. Bananas, citrus fruits, cotton, sesame, peanuts, soybeans are the most produced products.

Figure.16 - Mediterranean Region

(Source, https://www.allaboutturkey.com/regions.html)

The industry has developed in this region. Especially Mersin, Adana and İskenderun are the cities where industry is most developed. Textiles, food, fertilizers, iron and steel, petroleum products are the most important industrial activities. Chrome, sulfur, lead, zinc and bauxite mines are mined in the region as underground resources.

Tourism is the most important source of income in the region. With the effect of the climate along the coastline, sea tourism has developed considerably. Antalya is the tourism center of the region. The population is concentrated mostly in areas that are conducive to agriculture, tourism, industry, and trade.

Although there are few major cities along this stretch of coastline, the Antalya triangular plain is large enough to accommodate the city and port of the same name, Antalya harbour, which is a major trade hub.

3.5. Central Anatolia Region

The foundation of the economy is based on agriculture and animal husbandry. Konya Plain has wide plains such as Ankara Plain. Wheat, barley, potato, sugar beet, grape apple are the most important agricultural products depending on the climate. Industry has mostly developed in Ankara-Eskişehir-Kayseri and Konya.

Figure.17 - Central Anatolia Region

(Source, https://www.allaboutturkey.com/regions.html)

Carpet weaving, particularly in Cappadocia and Konya, is another important source of income for small country mans. Food, machinery, cement, railway vehicles, oil exploration facilities are the main industrial facilities. Underground resources are lignite, iron, chrome, zinc, boron and mercury.

3.6. Eastern Anatolia Region

Livestock is the most important source of income in the region. The mountainous terrain, very cold climate and long winter season prevented the development of agriculture. The abundance of pastures enabled the development of animal husbandry.

Figure.18 - Eastern Anatolia Region

(Source, https://www.allaboutturkey.com/regions.html)

But still tobacco, potatoes, sugar beet are produced as agricultural products. Malatya is the first in apricot production and the most developed province in industry among other provinces. However, it is the richest region in terms of mineral diversity and reserves in terms of underground resources. The most mined resources are iron, chrome, copper, lead, zinc, and lignite.

The local economy relies heavily on stockbreeding. Wheat, rye, cotton, and tobacco are the only crops grown. Turkey's unemployment rate is highest in this area.

Winters are extreme, with plenty of snow, and can shut roads to small villages for weeks or months. The population and ecosystems are sparse due to the harsh atmosphere and high mountains.

3.7. Southeastern Anatolia Region

Agriculture and animal husbandry are the main sources of income in the region. The suitability of the land has increased the use of machinery in agriculture. The industry has developed mostly in Gaziantep.

Figure.19 - Southeastern Anatolia Region

(Source, https://www.allaboutturkey.com/regions.html)

Food-based industry, clothing, textile, oil refinery are the most important industrial enterprises. Economy of the region is also dependent on stockbreeding and agriculture, with maize, barley, lentils, tobacco, cotton, and pistachio nuts as the major crops and goods.

When we look at underground resources, almost all of the oil production in Turkey is provided from this region. In addition, chromium, natural gas, and lignite are other important underground resources.

4. FDI DETERMINANTS

FDI determinants stands for the factors that affect locational investment decisions by MNEs. In this chapter of the dissertation, literature review, external factors affecting FDI inflows and finally descriptive analysis of these determinants in subregional and Turkey level will be described in detail respectively.

4.1. Literature About Determinants

There exists a considerable amount of research by several authors in the literature about FDI and their determinants. In this section, the literature studying the determinants is analyzed deeply.

According to Chakrabarti (2003), market size is one of the most important determinants of FDI since if the market size in the specific territory expands, the demand for FDI will also be expected to increase. When GDP is considered as the market size, it is considered as the most important determinant of the host country to attract FDI. Large market size reflects the efficient utilization of resources and exploiting economies of scale (Scaperlanda and Mauer, 1969). Larger host markets reflect a greater demand and lower cost due to economies of scale.

Agglomeration refers to the incident of firms being located close to one another that creates positive externalities. Head et al. (1995) has found there exists evidence supporting that MNEs tend to invest in a territory which is already occupied by other MNEs firms which they are familiar with. According to the study conducted by He (2002), industrial clusters attract FDI firms because of the advantageous circumstances for the investors. Infrastructure, specialized labour, local suppliers are some of the promising factors for firms' locational decisions.

Furthermore, agglomeration relates to the professional and business services of the host country as well as MNEs usually get use of financial services to carry out payments of the employees and other credit-based banking operations (Woodward, 1992; Guimaraes et al., 2000).

He (2002) also emphasizes the significance of infrastructure as an important decision factor. Better infrastructure denotes higher inward FDI for countries.

Speaking about the infrastructure, the road network is not always significant but weak at the same time. Airport is not significant even though it revealed a positive sign at the end of the analysis. The coastal areas also did not show a strong relationship with the decision of FDI allocation in the study of Yavan (2010), which is contradictory with several empirical studies like Deichmann et al. (2003). Friedman et al., (1992), He, (2002). However, consistent with Cies´lik's findings (2005).

Another study by Chien-Hsun (1996) and Dunning, (1988a, 1988b) suggested that coastal regions are favored by firms. Purpose of this choice is to keep information costs as low as possible.

The European Economic Survey, ESE, (2001) shows that FDI flows are mainly dependent on economic fundamentals. Political stability and growth prospects can be shown as examples of these economic fundamentals. Liberalization, skilled manpower, infrastructure as well as location are also reasons for investment for MNEs according to ESE (2001).

Exchange rate on the other hand, is controversial since there are some papers which have found a relevance between FDI and exchange rates, whereas some papers did not find a statistical significance between them.

Comparatively low prices in the host country able to expand FDI inflows to the country. The reason for this inflow is an increase in purchasing power because of exchange rate (Walsh and Yu, 2010). Love and Lage-Hidalgo (2000) and Froot and Stain (1991) state that currency depreciation in the host country increases FDI inflows. On the other hand, appreciation in currency decreases FDI inflows. In spite of these results, studies in the literature by Blonigen (1997) and Tuman and Emmert (1999), could not find any statistical significance among exchange rate and FDI.

Tax rate may be considered as one of the determinants of FDI. As expected, high tax rate is an intimidating factor mostly since high tax rate reduces the profitability of companies,

MNE's do not want to invest in countries where there is a high tax rate. Studies of Cassou (1997) and Kemsley (1998) support that FDI and tax rate are negatively correlated. In spite of these works, Porcano and Price (1996) could not find any correlation among FDI and tax rate variables.

Regarding the labor cost, there is neither always a positive relationship nor a negative correlation between labor cost and FDI. Although it usually reflects a reinforcing determinant, low labor costs sometimes mean other costs may be higher, such as transportation (Miller, 1993).

The results of the study of Tatoglu and Glaister (1998a) show that the most decisive location specific influences are the size of the market, the growth rate of Turkish economy, availability to repatriate profit and the policy of the government towards FDI. The relative factors which define those influences are mainly; mode of entry (acquisition or greenfield), the country of origin of the FDI, the size of the venture and the corresponding industry. Until the late 70s, Turkey had an inward oriented economy, which started to shift to an outward economy bringing a more liberated economy, starting from the 80s.

Turkey has experienced a large rise in global capital inflows. Prior to the 80s, in other words before the liberal economy had decided to be pursued, the number of foreign entities in the country were only in two digits. However, after the new economic plan has emerged, it is obvious that the number of foreign ventures increased rapidly by multiplying the previous numbers quite quickly. For many MNEs, besides the changing economic stance, Turkey's criticality has been perceived in terms of the young population, the strategic geography and the economic growth.

According to the results of the paper of Tatoglu and Glaister (1998a), the host country selection is mainly influenced by the origin of the investing country, moderately influenced by the market entry mode, and a little bit less influenced by the industry and the size of the foreign equity venture. However, there is no strict correlation between the significance of pattern of ownership and choosing the host country. Despite the findings, it's still not crystal clear to identify which factor is the most dominant and decisive one

for the investing countries, and in order to do that, a multivariate analysis or an econometric analysis which is more formal shall be conducted.

Deichmann et al. (2003) using a conditional logit model, suggested that the choice of investors between regions and locations are made upon the expected present value of the profits from investing location. Profitability of the companies depends on some variables such as firm specific and location specific characteristics. Another factor affecting the investment decision of the MNEs is the geographical features of the region. It has been observed that the investments made in coastal provinces are higher than in the provinces surrounded by land.

Empirical outcomes of Deichmann et al. (2003) show that GDP per capita is the most crucial determinant, which is followed by the level of infrastructure. Furthermore, even though agricultural settlement is a sign of reduced level of competition, anyway the study of Deichmann et al. (2003) shows that there is a negative correlation between FDI and economic structure of the region. The investors seek a minimum level of industrial infrastructure in that sense. Even if not as influential as the first two determinants, agglomeration economies are found to be statistically dependent with FDI inflow. Financial market development which is measured with bank credits and the quality of labor which is measured with the level of education are also positively correlated with FDI. Moreover, firm-specific agglomeration effect has appeared to be statistically significant with the FDIs since the MNFs really care about previous settlement of their competitors in the selected area. Government spending does not affect the attitude neither in supporting nor discouraging direction. In other words, the government's actions do not necessarily encourage investors since it sometimes comes short to suffice the lack of competitive advantage in this region. It may be interpreted in such a way that the private sector’s involvement is a more addressing signal than the involvement of the public sector. Lastly, coastal areas have appeared to be a more suitable choice compared with the non-coastal areas due to the accessibility and other advantages the coastal areas can possess.
As the findings of the paper are representing, the provincial and national governments should focus on improving the quality of education, trying to eliminate the disparities of income, infrastructure and education (Deichmann et al., 2003).

There exist some studies in the Turkish FDI literature. The study of (Eryiğit and Eryiğit, 2008) is about interest rate, distance of location, GDP, employment and budget deficit. Openness of Turkey and exchange rate has been studied by Erdal and Tatoğlu (2002), Karagöz (2007), Yapraklı (2006). Furthermore, increase in per capita GDP (Özer and Saraç, 2008), and the effect of subsidies (Özağ, 1994) has been found to be significant determinants of FDI in Turkey.

Study of Yavan (2010), agglomeration economies show strong significance statistically, hence as expected they appear as a strong determinant for locational choice to invest. Previous investment in the area is a very decisive factor for the MNCs who consider or assess where to invest. Moreover, cumulation of domestic industry and manufacturing facilities encourage the MNCs to choose that specific region. Agglomeration variables show that service-specific agglomerations are more important than industry-specific agglomeration (foreign or domestic). This result is in line with a study by Deichmann et al. (2003) Head et al. (1999), Guimaraes et al. (2000), He (2002), Li & Park (2006), Hilber & Voicu, (2007), Cies´lik (2005). Following the previous factor, information costs are very significant as well. More specifically, the provinces with borders to foreign countries are actually more valuable for foreign investors among the location specific factors. There is also the principal city effect, which for Turkey, it is İstanbul. There is statistical evidence which says İstanbul is able to influence foreign investors by its presence. The investors seek connection availability to urban areas and information costs are known to be less in the central cities, İstanbul holds the major capital city effect. These results confirm the findings of earlier studies by Mariotti and Piscitello (1995), Guimara˜es et al. (2000) and He (2002).

Regarding the market structure, the provinces of Turkey with a comparably higher market growth potential attracts more foreign capital (Mariotti and Piscitello, 1995; Meyer and Green, 1996; Yavan, 2010).

Moreover, the high quality of education is also a strong determinant of inward FDI. Not surprisingly, foreign investors are trying to attain their investments in the provinces with a high level of education and skilled labor force Yavan (2010). Additionally, many empirical studies suggested the relationship among the quality of labour force and FDI is

positive (Smith & Florida, 1994; Broadman & Sun, 1997; O'Hagan & Anderson, 2000). One can consider the study conducted by Deichmann et al. (2003) that resulted in the same.

There are also some variables that do not exhibit a statistical correlation with the location selection for FDI in Turkey. To be exact, labor cost and productivity, unionization and unemployment are insignificant and negatively related with FDI inflow but except productivity Yavan (2010), Guimara˜es et al. (2000) and Zhang (2001).

Another factor investigated in the socio-geographic environment which is assessed under several items, the first is the variable of quality of life, and it shows a weak support for the claim of high life standards attracting more investors. Hence, the hypothesis claiming a secure and high social standard of life will attract more FDI is going to be rejected (Meyer and Green (1996), Deichmann (2002) and Cheng (2006)). Although in many studies, political study was a decisive factor, in the study of Yavan (2010), did not show a strong correlation with the decision making of FDI target location.

Speaking of nature and climate, milder climates have appeared to be a better choice for foreign investors (Broadman & Recanatini, 2001; Iwasaki & Suganuma, 2005; Yavan, 2010).

Territorial borders also play an important role, which is supported by the outcome that larger areas are capable of attracting more foreign investment compared to the smaller areas (List, 2001; Zhou et al., 2002; Yavan, 2010).

FDI in Turkey seems to have an impulsive effect on economic growth with a long run perspective. The analysis includes the time frame starting from the 1980s but concentrating specifically on the period after the new millennium. The aim is to investigate the relationship between economic growth and FDI by cointegration and stability analysis (Balkanlı, 2019).

According to the Balkanlı (2019), the biggest increase in the FDI inflow in Turkey occurred in the service sector, more detailed speaking, in the finance/insurance market. This is followed by the manufacturing sector. Considering the time between 1985-2017,

there is solid evidence that shows the positive relationship between the FDI inflow and economic growth.

Until 1980, 87% of the foreign capital entered into Turkey was in the industrial sector, while as of 2005, the rate has decreased to 45%. Meanwhile, the service sector has shown a great expansion by reaching to 45% from 13% since 1980. The studies also underline the fact that FDI is not evenly dispersed along the host country. Rather it's mainly concentrated in the major capital city of the country which is receiving foreign investments. In Turkey's case, this is İstanbul, who is able to attract 75.39% of the total investments in Turkey by hosting 63.29% of the total number of firms within its borders. Especially by the firms who operate in the service sector, İstanbul is the most preferred city of Turkey. As of the end of 2003, İstanbul was hosting 6174 foreign capital ventures (Turk & Berköz, 2006).

4.2. Other Factors Affecting FDI Inflow in Turkey

Politic and economic instability, lack of confidence and insecurity in the society may affect FDI inflows. In this part of the dissertation, some external factors have been analyzed.

July 15 Impact Initiative, in other words, attempted military coup in Turkey in 2016, is the military coup attempt in Turkey between 15-16 July 2016 by a group of soldiers, who are the members of FETÖ (Fetullah Terrorist Organization), within the Turkish Armed Forces. The official website of the Turkish Armed Forces and the declaration published in TRT (Turkish Radio and Television Association) stated that the army had taken over the administration and that martial law and curfews were declared in the country. On the morning of July 16, as a result of the operations carried out by the personnel of the Turkish Armed Forces and the General Directorate of Security, the military coup attempt suppressed and the soldiers surrendered with their weapons. As a result of the events, more than 300 people lost their lives, 104 of whom were pro-coup soldiers, 1491 people were injured, and 8036 soldiers of different ranks were detained. The total number of detentions, including members of the judiciary and civil politics, reached 10,000 as of 22

July. In addition, many people were dismissed from military, administrative and judicial institutions (Diken, 2020).

Table.2 - Total FDI inflow in Turkey

Years	Total Number of FDIs in Turkey
2011	114
2012	127
2013	149
2014	97
2015	150
2016	147
2017	202
2018	206

(Source: FDI markets data, own elaboration)

After the coup attempt, as shown in Table.2, FDI inflows increased in 2017 and 2018. This may be due to the political stability after prohibiting activities of FETÖ terror organizations in every region of Turkey. Before the coup, there was more ambiguity because Erdogan's position was questioned, but after the coup, Erdogan's power became greater, and MNEs expanded their inflow into Turkey.

Furthermore, the decrease of the FDI inflow in year 2014, could be linked to "the Gezi Park protests" which happened between 28 May – 30 August 2013. The reason for these protests is the disproportionate use of force by the police against environmental activists in the park to block the Taksim Barracks, which is planned to be built in a part of Taksim Gezi Park. Even if started in İstanbul, the protests spread all over the Turkey as a resistance to the misbehavior of the police. According to the Ministry of Interior's statement on 23 June, 2.5 million people participated in the protests organized in 79 provinces, excluding Bayburt and Bingöl, and more than that expressed their views through social networks (Şardan, 2013). As a result of these protests, 8 civilians and 2 police officers lost their lives, 9063 people were injured. The events had a negative effect on the stock market, tourism, the economy, and tradespeople in the area (HaberTurk, 2013).

As a result of the incidents, the Istanbul stock exchange fell 10.47% on June 3. On foreign markets, Turkish government bonds have lost value. With the weakening of the TL on June 3 and the shares in Borsa Istanbul rapidly depreciating, the dollar and euro grew quickly (BBC News, 2013).

These incidents have been widely reported in both domestic and international media. Protesters include some of Turkey's most prominent and well-known figures. One of the reasons why foreign investors decreased their investments in 2014 may be because of the country's chaos and insecurity.

Other external factor that affects the FDI inflow is terror attacks of PKK (Kurdistan Workers' Party). The PKK, in Turkey's eastern and southeastern, northern Iraq, northeastern Syria, aims to establish a state in the region covering the northwest of Iran. The region is considered unsafe as there are conflicts with the terrorist organization in this region and foreign investments are very low. Even between 2011 and 2018 those regions did not receive any FDIs. Those are ‘Mardin, Batman Şırnak, Siirt’. Sporadic clashes reported from the region frequently. Also, in these regions and subregions, education level, GDP per capita, population is considerably low with respect to other subregions. Geographical distance is another important factor for these areas. The regions are far away from coastal areas and also far away from İstanbul which is considered as a very important connection between Asia and Europe.

4.3. Descriptive Analysis of the FDI Determinants at Subregional and Turkey Level

The data used in order to analyze determinants retrieved from ‘Turkish Statistical Institute (TUIK)’. The aim of this part is to analyze the determinants at the level of Turkey and subregions with the light of some descriptive analysis. This study investigates these determinants at a subregional level (regional level 2). In Turkey there exist 26 subregions. Following determinants are chosen to be the most important ones that affect firms' locational decisions with the light of FDI literature. The determinants are education, GDP per capita, industry type, transportation, harbours and organized industrial zones of the subregions.

4.3.1. Education

Education is one of the main pillars of the development level of the countries. Just as the future of a person is shaped by these qualities of the education he receives, the future of the society created by people is shaped by the qualities of the education given to people.

If we have a look at the education situation of both developed and undeveloped countries today, we can see that their development is directly proportional to the size, quality and quantity of their education.

So, education constitutes the indispensable basis of the development of the individual and the development of society. In the world we live in, societies need to survive and develop, and since this development can only be achieved with educated people; education is one of the most important elements for societies. Therefore, education is seen as the most important investment in the future of human and society.

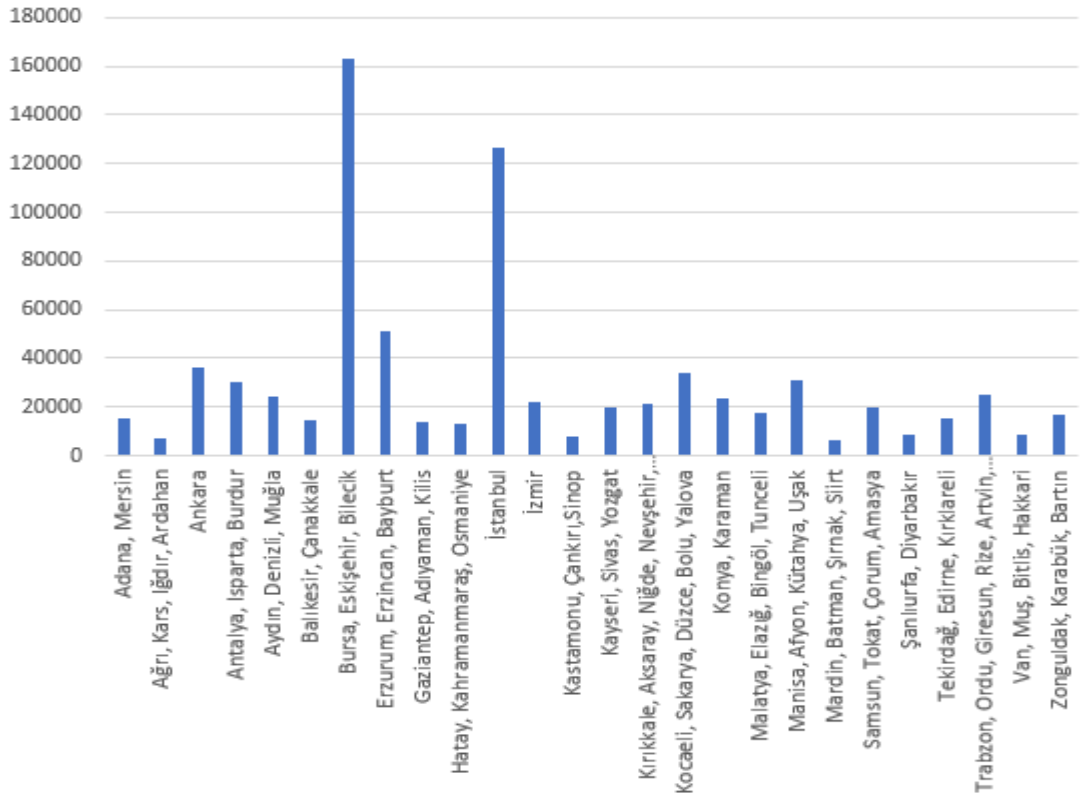


Figure.20 - Bachelor Graduates

(Source: Data received from TUIK, own evaluation)

Figure.20 shows the total number of graduate students at Bachelor for years between 2011 and 2018. As the graph illustrates, İstanbul, Ankara, İzmir have the greatest shares. These provinces are also considered as the three biggest provinces of Turkey.

4.3.2. GDP per capita

The total monetary or market value of all finished goods and services produced within a country's boundaries in a given time period is known as GDP. It serves as a detailed scorecard of a country's economic welfare because it is a broad measure of overall domestic production. GDP is the most widely used measure of economic growth and is a valuable method for tracking a country's economic health.

The GDP per capita is a measure of a country's GDP per person. It reflects how much output or income is generated per person in a given economy, which may imply average productivity or living standards. GDP per capita is a key measure of economic growth and a useful unit for measuring overall living conditions and economic well-being across countries.

Table.3 - GDP and GDP per capita

Time	GDP (constant LCU)	GDP per capita (constant LCU)
Units	constant LCU	constant LCU
2011	1,213,393,967,701.820	16,521.380
2012	1,271,497,249,381.170	17,032.095
2013	1,379,394,179,144.920	18,166.999
2014	1,447,532,322,531.180	18,742.672
2015	1,535,607,237,071.460	19,554.550
2016	1,586,636,758,670.260	19,877.255
2017	1,705,666,208,538.010	21,031.152
2018	1,756,136,304,071.960	21,333.117

(Source: https://knoema.com/WBWDI2019Jan/world-development-indicators-wdi)

Table.3 shows GDP and GDP per capita with constant local currency. GDP per capita of Turkey increased from 16,521.38 in 2011 to 21,333.12 in 2018 which grew at an average annual rate of 3.84%. GDP of Turkey increased from 1,213,393 million in 2011 to 1,756,136 million in 2018 increased at an average annual rate of 5.55%.

With the light of these definitions and literature we can conclude that GDP per capita is one of the crucial determinants for MNEs' locational choices. Following tables demonstrates the descriptive analysis of the determinant in Turkey level. In the following Conditional Logit Model and Results chapters, subregional values of these determinants analysis in STATA by using conditional logit analysis will be mentioned.

Figure. 21 demonstrates total GDP per capita by regions in 2018. As it can be seen from the graph, for that year, İstanbul had the highest contribution to GDP per capita. Since İstanbul gained highest GDP per capita for year 2018, it is worthwhile to analyze GDP per capita of İstanbul for years between 2011 and 2018 (Figure.22). In addition to this, "Kocaeli, Sakarya, Düzce, Bolu, Yalova" subregion have the second highest GDP per capita and the distribution of GDP per capita among years shown in the Figure.23.

"Ankara", "İzmir", "Bursa, Eskişehir, Bilecik", "Tekirdağ, Edirne, Kırklareli" subregions have higher distribution with respect to other subregions after "İstanbul" and "Kocaeli, Sakarya, Düzce, Bolu, Yalova". This situation is consistent with the FDI inflow distribution of Turkey among subregions. In the Figure.3, it is obvious that, these subregions gained highest FDI inflows.

In addition to the descriptive analysis, the conditional logit model results, which will be described in the following chapter, shows us GDP per capita are crucial determinants for MNEs locational choices. Both descriptive and statistical evaluations show these determinants importance is also in accordance with the literature review of the most authors that specified positive relation between FDI inflows and GDP.

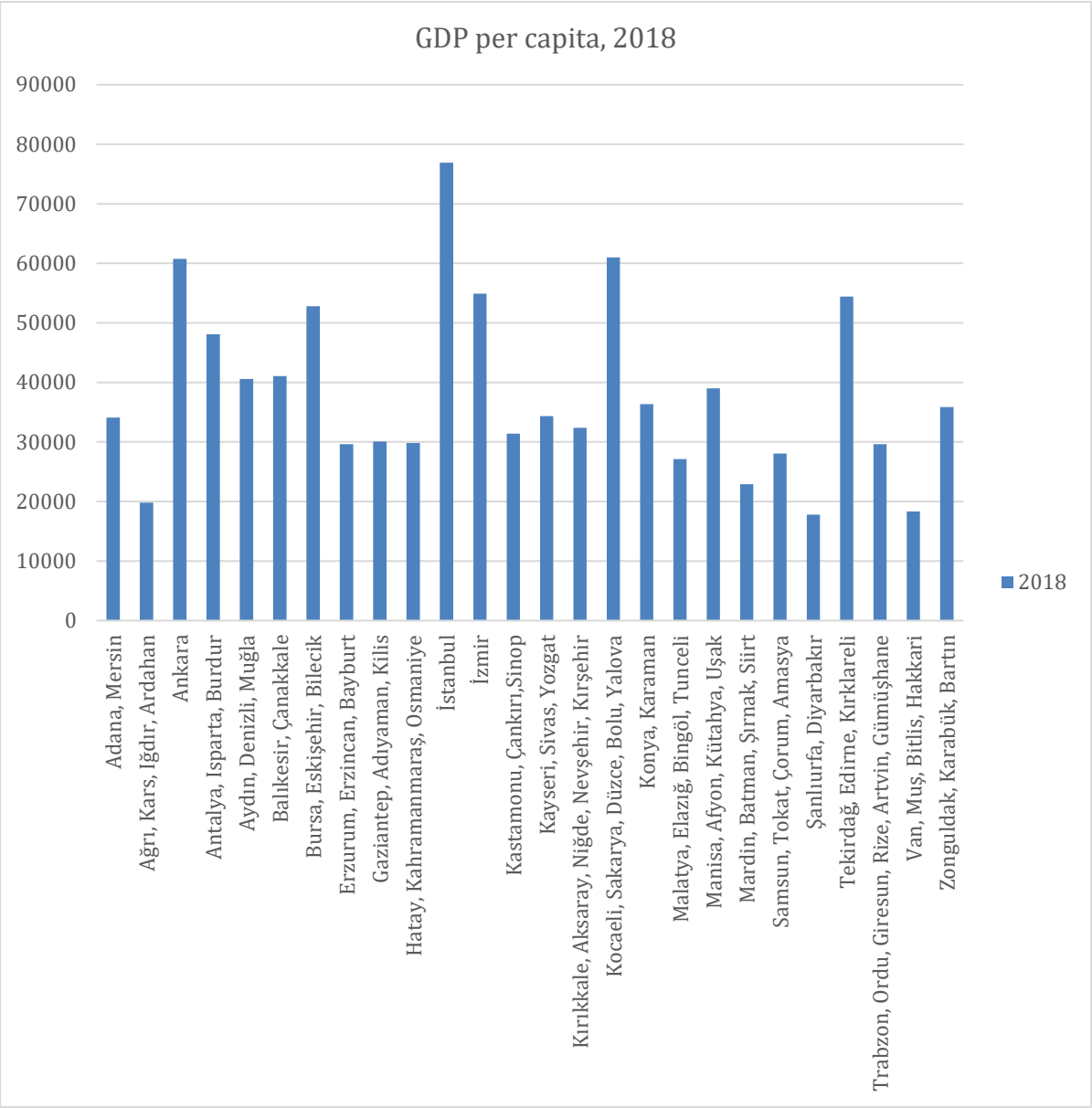


Figure.21 - Gross Domestic Product Per Capita by Regions (TL), 2018

(Source: Data received from TUIK, own evaluation)

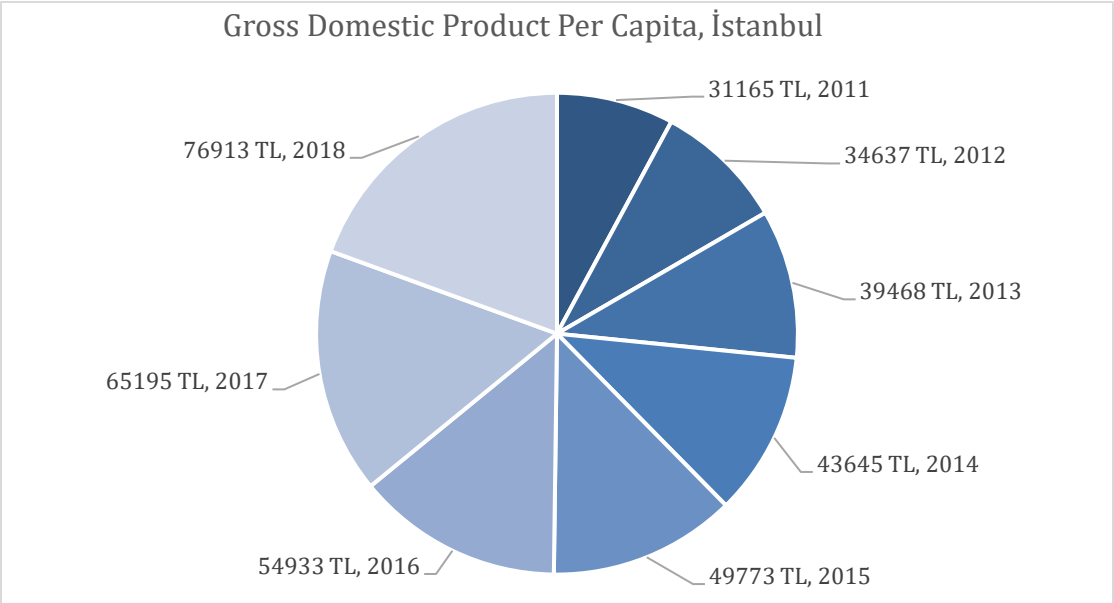


Figure.22 - GDP Per Capita of İstanbul Subregion Between 2011-2018

(Source: Data received from TUIK, own evaluation)

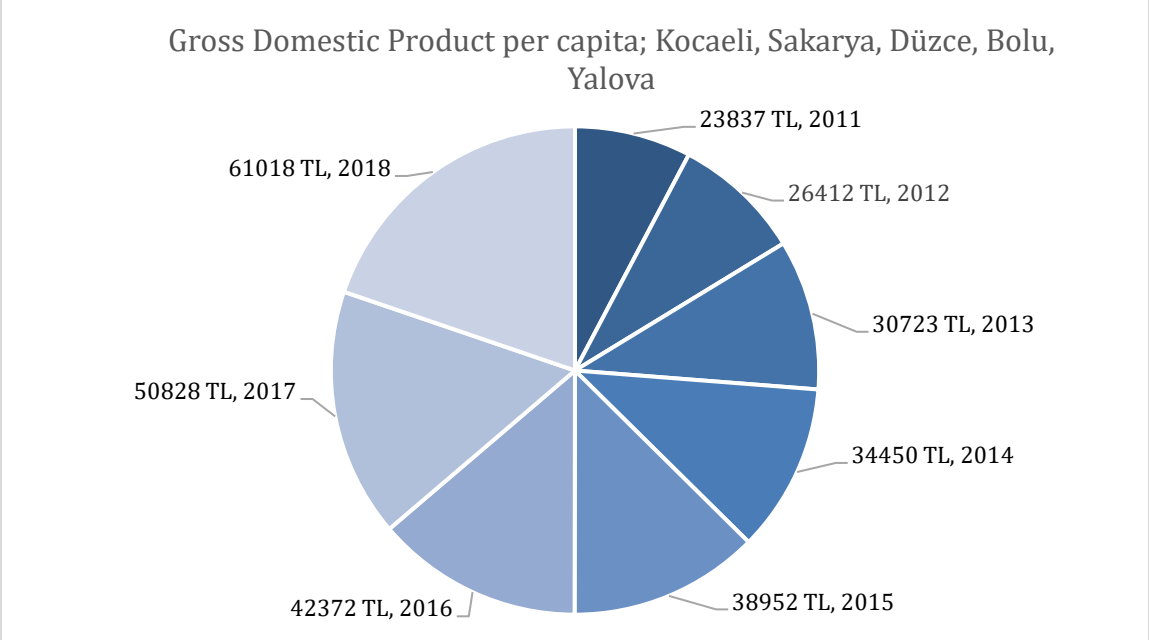


Figure.23 - GDP Per Capita of "Kocaeli, Sakarya, Düzce, Bolu, Yalova" Subregion Between 2011-2018

(Source: Data received from TUIK, own evaluation)

4.3.3. Industry

This category of determinant shows the total number of enterprises according to business records. Industry determinants might have an effect on the agglomeration. In some regions specific industries prevail due to the economic activities, while in other regions other specific industries may dominate.

Data set received from the TUIK, includes number of enterprises following sectors; “Manufacturing”, “Agriculture, forestry and fisheries”, “Electricity, gas, steam and air conditioning production and distribution”, “Construction”, “Information and communication”, “Finance and insurance activities”, “Professional, scientific and technical activities”, “Human health and social service activities”.

In the FDI inflows data set, the FDI distribution of various sectors have been analyzed as demonstrated in the “1.2.2. Descriptive Analysis of FDI Trends in Turkey” chapter.

4.3.4. Infrastructure

The transportation system, which is regarded as an essential component of our everyday lives, has a framework that has a continuous impact on society through its economic and social inputs. The demand for transportation has increased as a result of increased development, making goods transportation particularly significant.

In terms of being an integral part of the manufacturing process and the economic consequences of the significant investments necessitates, the transportation sector plays a significant role in society's economic structures.

Transportation is related to the infrastructure of the locations. In the literature there exist many studies about the importance of infrastructure and better infrastructure affects FDI inflow positively in host countries which was mentioned in the literature review.

It is difficult to provide transportation, particularly in mountainous areas. Since the mountains run parallel to the sea in the Black Sea and Mediterranean, transportation from the coast to the interior is more difficult than in the Aegean and Marmara, as mentioned in Chapter.3. Furthermore, Eastern Anatolia is surrounded by high mountains, making travel challenging.

4.3.5. Harbours

Coastal areas are substantial for overseas transportation. Presence of harbors is also one of the important determinants for attracting FDIs. İstanbul plays a crucial role by means of transportation. As shown in the '1.3 FDI Trends in Turkey', transportation sector investments mostly appeared in İstanbul. Presence of harbours also affects the transportation variable positively.

Number of harbours in these zones is another important factor for MNEs but the existence of Organized Industrial Zones enough for investing in that specific subregion. Rather than numbers, the existence of harbour may be enough for the investor, therefore this determinant is created as a dummy variable in STATA which has only '1' or '0' values. '1', stands for if there exist any zones in the subregion and '0', stands for there is no zone in the specific subregion. Existence of harbours (dummy variable) analyzed in STATA software. Following Table.4 shows the total number of harbours in the provinces that belong to subregions located on coastal areas.

Table.4 - Number of Harbours

Provinces	Number of Harbours
İstanbul	8
Tekirdağ	3
Balıkesir	8
İzmir	5
Muğla	7
Bursa	1
Kocaeli	5
Antalya	4
Adana	6
Hatay	1
Zonguldak	3
Kastamonu	2
Samsun	1
Ordu	9

(Source: Data received from TUIK, own evaluation)

4.3.6. Organized Industrial Zones

Organized industrial zones gather industrial facilities in order to ensure the efficiency of the industry and regular settlement in the city. In this way, it combines the facilities and needs of industrial organizations such as transportation, energy, soil, fuel, water, industrial wastewater treatment plants, raw materials. In addition to this, it is the type of zone that implements waste management policies in order to minimize the negative effects of the industry on the environment. These zones are specially planned and are also included in the development plans by the government. The construction of an organized industrial zone is decided by the public authority.

Positive network externality is one of the crucial determinants for investing by foreign companies. Existence of other firms nearby creates some advantages to the firms as mentioned above since companies are clustered in these specific zones by means of the government incentives. This situation positively affects the locational investment decisions by MNEs.

As the Table.5 illustrates even if İstanbul received most of the FDIs, the number of zones in İstanbul is less than some subregions. It is not a contradiction because zones already exist in İstanbul and this is enough for investing according to MNEs even if there exist other subregions which have larger zone numbers. Since this is not the only factor affecting inflow of FDI, looking at the total number of Organized Industrial Zones and conclude it like "being Kocaeli, Sakarya, Düzce, Bolu, Yalova subregion has highest number of zones, it should get higher investments" would be a false statement. Because there exist other factors affecting. Even if 'Kocaeli, Sakarya, Düzce, Bolu, Yalova' subregion has the highest number of zones, İstanbul may have other positive factors affecting the investing decision of MNEs.

Firms' decisions do not belong to only one variable but their most logical combination. Even 'Mardin, Batman, Şırnak, Siirt' did not receive any FDI in the given years, there exist 6 Organized Industrial Zones in this subregion as Table. 5 illustrates.

Table.5 - Number of 'Organized Industrial Zones'

SubregionCode	Subregion Name	Organized Industrial Zone Number
TR42	Kocaeli, Sakarya, Düzce, Bolu, Yalova	31
TR33	Manisa, Afyon, Kütahya, Uşak	24
TR41	Bursa, Eskişehir, Bilecik	24
TR21	Tekirdağ, Edirne, Kırklareli	19
TR83	Samsun, Tokat, Çorum, Amasya	17
TR31	İzmir	13
TR51	Ankara	12
TR63	Hatay, Kahramanmaraş, Osmaniye	12
TR90	Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhar	12
TR32	Aydın, Denizli, Muğla	11
TR71	Kırıkkale, Aksaray, Niğde, Nevşehir, Kırşehir	11
TR52	Konya, Karaman	10
TR82	Kastamonu, Çankırı,Sinop	10
TRC1	Gaziantep, Adıyaman, Kilis	9
TR72	Kayseri, Sivas, Yozgat	9
TR10	İstanbul	8
TR61	Antalya, Isparta, Burdur	8
TRB1	Malatya, Elazığ, Bingöl, Tunceli	7
TRC2	Şanlıurfa, Diyarbakır	7
TR22	Balıkesir, Çanakkale	7
TRC3	Mardin, Batman, Şırnak, Siirt	6
TRA1	Erzurum, Erzincan, Bayburt	5
TRA2	Ağrı, Kars, Iğdır, Ardahan	5
TRB2	Van, Muş, Bitlis, Hakkari	5
TR62	Adana, Mersin	5
TR81	Zonguldak, Karabük, Bartın	4

(Source: Data received from TUIK, own evaluation)

5. CONDITIONAL LOGIT MODEL

The main concern of the economy is to understand the behaviors of humans when they are making choices. In other words, understanding the kind of motivations based on their choices. Since econometrics cannot observe all the factors which affect human behaviors, they should make a statistical presumption of the individual choice behavior based on the data obtained from the sample of the population (McFadden, 1973). Conditional logit is a discrete economic model proposed by McFadden (1973) and used in locational choice studies.

McFadden (1973) developed the conditional logit model, which is built on a model analogous to logistic regression. The distinction is, instead of individual characteristics, characteristics of the various alternatives offered to the entities would be used.

The conditional logit model, which is based on random utility maximization, has proved to be a valuable method for modeling firm position decisions (Guimarães et al.,2003).

The model is used to assess the effect of the multiple determinants discussed in the previous chapter on a MNEs decision to invest in a certain subregion.

5.1. Variables of the Model

All the data belonging to the following variables are obtained from Turkish Statistical Institute (TUIK). They represent the 26 subregional NUTS2 level in Turkey.

- **Education**

Education variable measures the share of people who attained bachelor level of education; "bachelor_edu_sh". Share value (percentage) is obtained by taking the number of bachelor graduates on the population.

- **Enterprises**

These variables include the total number of enterprises in each subregion according to their sectors. They are as follows; "Manufacturing", "Services", "R&D", "Retail", "Infrastructure", "Construction", "Electricity" and "Other".

- **GDP per capita**

"lgdppc", stands as Gross Domestic Product per capita (based on 2009). The variable is created as logarithmic. There exist two reasons behind it. The first one is related to the statistical distribution of the variables since normal distribution has some desirable properties for regression. Skewness is a measure of symmetry around the mean and normal distributions have 0 skewness. However, GDP per capita variable is right-skewed. This means that its skewness is not 0 but higher than 0 with having a high number of observations to the right of the mean. Changing this kind of variables to logarithmic is useful for obtaining a normal distribution. Another reason, using logarithm, allows

interpretation as a percentage change in variables since the difference in logarithm is approximately equal to a % change. The interpretation is, assessing the probability of being chosen as an FDI destination in response to 1% of GDP per capita more, rather than 1 TL of GDP per capita more.

- **Infrastructure**

Variable "highway_km", represents total highway road lengths. Variable "cargo_aiport", represents total number of cargos carried by aircraft landing and taking off at airports and transportation on domestic and international lines. These two variables combined with PCA (Principal Component Analysis) so as to predict the "infra" variable which stands for the infrastructure of the subregions.

- **Harbour**

Variable "harbour"; is a dummy variable which takes "0" for false (if there is no harbour in the subregion) and "1" for true (if there exists harbour in the subregion).

- **Organized Industrial Zones**

Variable "OIZ_n" represents the number of organized industrial zones in the given subregion.

6. RESULTS

This chapter includes the results obtained from STATA Analytics and Data Science software by using the Conditional Logit Model. In this study as mentioned in the 'determinants' chapter, 6 different determinants used and those data are retrieved from "Turkish Statistical Institute'.

A Conditional Logit econometric model was developed and evaluated using STATA by generating some Conditional Logit Regressions. The regressions interpreted by examining their coefficient signs and p-values.

	(1)	(2)	(3)	(4)	(5)
choice					
lgdppc	3.942***	4.015***	4.148***	4.068***	3.956***
	(0.108)	(0.112)	(0.193)	(0.196)	(0.205)
bachelor_e~h		0.0959***		0.0618***	0.0507**
		(0.0220)		(0.0236)	(0.0245)
harbour			0.600***	0.550***	0.510***
			(0.0892)	(0.0914)	(0.0944)
infra			-0.0612**	-0.0384	-0.0157
			(0.0257)	(0.0271)	(0.0300)
OIZ_n					0.00787*
					(0.00444)
N	24794	24794	24794	24794	24794

Standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

Figure.24 – Results (1)

Source: (STATA, own evaluation)

Figure on the above shows the first conditional logit regression results of some determinants. These variables are respectively, “lgdppc”, “bachelor_edu_sh”, “harbour”, “infra” and “OIZ_n”.

First regression includes only “lgdppc” variable with “choice”. As one can see from the table above, choice with lgdppc is positively correlated since coefficient value is positive and p-value< 0.01 which means it is statistically significant with 99%. From this analysis, GDP per capita appears to be a factor attracting FDI among subregions in line with the empirical outcomes of Deichmann et al. (2003).

Second regression include “choice”, “lgdppc” and “bachelor_edu_sh” variables, both variables are statistically significant at 99% and positively correlated with choice. Interpretation of these two regressions can be conclude like, both lgdppc and bachelor_edu_sh variables affects MNEs locational choices positively. Adding

“bachelor_edu_sh” variable to the first regression did not change the significance of “lgdppc”, which presents GDP per capita.

Third regression has “choice”, “lgdppc”, “harbour” and “infra” variables. The result of this regression says that, “lgdppc” and “harbour” are positively correlated with “choice” variable as well as they are significant at 99%. However, “infra” variable is negatively correlated with “choice” because of the negative coefficient. The significance of this is variable is 95%. Adding “harbour” and “infra” did not change the significance of “lgdppc”.

Fourth column of the Figure.24 belongs to the fourth regression which have “bachelor_edu” additional to the third regression. The results are as expected since “choice” variable is positively correlated with lgdppc, bachelor_edu and harbour variables except “infra” variable which was negative also in the third regression. About their significance, first three variables are statistically significant at level 99%. However, “infra” variable is not statistically significant with variable “choice”.

Finally, the last regression has all the variables in the table, “choice”, “lgdppc”, “bachelor_edu_sh”, “harbour”, “infra” and “OIZ-n” variables. Again, the first three variables and “OIZ_n” are positively correlated with “choice” but “infra” variable not positively correlated. Means that this variable does not influence the locational decisions of MNEs. Adding the variable related to number of organized industrial zones did not change the correlation and their significance for location choice.

The variables “harbour”, and “OIZ_n”, whose have positive and significant coefficient means that having a harbour and Organized Industrial Zone in the subregion, increases the probability of being chosen as an FDI destination by MNEs. This result is coherent with the studies conducted by Head et al. (1995), He (2002) and Yavan (2010) since they are suggesting agglomeration is increase the probability of being chosen as investment location. “lgppc” and “bachelor_edu_sh” variables also have positive coefficient sign as well as their significance can be concluded as, higher GDP per capita and higher bachelor education level increases the probability of locational choice of the related subregion.

For all these five regressions, results are consistent with each other by means of, adding or discarding variables did not change the effect of significant variables which is important for the stability of the model.

	(1) Manufactur~g	(2) Services	(3) R&D	(4) Retail
choice				
lgdppc	2.740***	5.256***	6.606***	3.591***
	(0.286)	(0.633)	(1.785)	(1.162)
bachelor_e~h	0.0530*	0.248**	0.458***	0.0181
	(0.0277)	(0.117)	(0.159)	(0.302)
harbour	0.329***	0.0228	0.511	0.0919
	(0.125)	(0.248)	(0.656)	(0.569)
infra	-0.0893*	0.315***	-0.0549	0.446*
	(0.0484)	(0.115)	(0.211)	(0.238)
OIZ_n	0.0650***	-0.110***	-0.0796*	-0.0611
	(0.00565)	(0.0239)	(0.0474)	(0.0409)
N	12765	6946	828	1035

Standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

Figure.25 – Results (2)

Source: (STATA, own evaluation)

In Figure.25 and Figure.26, industrial sectors are analyzed based on the variables described in the Figure.28, which are “choice”, “lgdppc”, “bachelor_edu_sh”, “harbour”, “infra” and “OIZ_n”. Industrial sectors are categorized as, Manufacturing, Services, R&D, Retail, Infrastructure, Construction, Electricity and Other sectors.

As one can see from the Figure.29, “lgdppc” variable is positively correlated with choice for the sectors Manufacturing, Services, R&D and Retail since coefficient sign is positive. Furthermore, “bachelor_edu_sh” and “harbour” variables are also positively correlated with choice as expected. For “infra” variable, its correlation and significance depend upon

the industry sectors. Even if "infra" is negatively correlated for sectors Manufacturing and R&D, it is positively correlated for sectors Services and Retail.

Since Organized Industrial Zones generally have production factory clusters, it is expected to have positive coefficient sign for Manufacturing sector which is significant at 99%. GDP per capita is highly significant at 99% for all the sectors given in Figure.29. Having a harbour in the subregion is significant at 99% for Manufacturing industry and not significant for other sectors. This result is expected and may be in relation with the need of raw materials for factories, in order to perform production activities, are outsourced.

Regarding the significance levels, infrastructure is significant at 99% for Services sector when MNEs making locational choices for investment. Manufacturing and Retail services are significant at 90%. However, infrastructure is not significant with respect to MNEs locational choices for R&D sector.

	(1) Infrastruc~e	(2) Construction	(3) Electricity	(4) Other
choice				
lgdppc	4.292***	0.835	1.041	1.453**
	(1.481)	(0.936)	(0.838)	(0.690)
bachelor_e~h	-0.155	0.296	-0.0761	0.140
	(0.219)	(0.277)	(0.187)	(0.176)
harbour	0.656	0.953	0.520	0.607
	(0.685)	(0.627)	(0.410)	(0.429)
infra	0.156	0.256	-0.273	0.310***
	(0.195)	(0.168)	(0.214)	(0.118)
OIZ_n	0.0314	-0.122**	-0.0317	-0.0704**
	(0.0254)	(0.0568)	(0.0340)	(0.0330)
N	759	529	736	1196

Standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

Figure.26 – Results (3)

Source: (STATA, own evaluation)

“lgdppc” and “harbour” variables are positively correlated for the sectors; Infrastructure, Construction, Electricity and Other as expected. “bachelor_edu_sh”, “infra” and “OIZ_n” variables depend upon the sector chosen for investments. Bachelor education is negatively correlated for Infrastructure and Electricity sectors since higher education do not needed in order to perform this kind of activities. “infra” variable is positively correlated with location choice for all the sectors specified in Figure.30 except Electricity. It is logical to have positive impact of infrastructure of the subregions on the sectors related to Infrastructure and Construction.

Lastly, since the existence of Organized Industrial Zones is especially important for Manufacturing sector, the variable “OIZ_n” are negatively correlated for all the sectors except Manufacturing and Infrastructure. However, the existence of Organized Industrial Zone in the subregion with respect to location choice, is not significant.

7. CONCLUSION

Foreign direct investments (FDI) are essential for both emerging and developed countries because they can support both. In this dissertation the factors that affected foreign direct investments made by MNEs (Multinational Enterprises) in Turkish regions between 2011 and 2018 is investigated. A conditional logit model used to determine the role of local variables in attracting international investors on a set of 1192 individual investments.

The findings indicate that GDP per capita, bachelor's degree graduates share in the corresponding subregion, the presence of a harbor, and the presence of Organized Industrial Zones all increase the likelihood of MNEs choosing that area as an investment location as expected from the literature. In terms of infrastructure, the likelihood of being selected is determined by the industrial sectors of the companies. The subregion's infrastructure is a determining factor in certain industries. However, in some industries, infrastructure is not a major factor in determining where an investment can be made by MNEs. For the sectors of Manufacturing, Services, R&D, Retail, Infrastructure, Construction, Electricity and other sectors, infrastructure is not important only for Manufacturing, R&D and Electricity sectors.

He (2002) also highlights the importance of infrastructure as a key decision driver in his study. With the light of this study one can expect that subregions with better infrastructure should attract more foreign direct investment. However as discussed in the literature review part, there exist also some contradictory studies by Yavan (2010) and Cies´lik (2005).

This study rather than concluding as infrastructure is not an important and significant factor for investment decisions as shown in the Figure.24, further study conducted in order to analyze the infrastructure determinant by different industrial sectors. Results show that it depends upon the industrial sectors of the investor.

Moreover, this further analysis for industrial sectors shows that, bachelor education share for sectors Infrastructure and Electricity is not an important factor for MNEs. In other words, bachelor education share does not increase the probability of being chosen as an investment location.

From other results of this paper, presence of harbour positively influences the locational choices. This result may be linked to the coastal areas in line with the studies by Chien-Hsun (1996) and Dunning (1988a, 1988b) who suggested that coastal areas are favored by firms.

Last but not least, Organized Industrial Zones are appeared to be an important locational decision factor Manufacturing and Infrastructure industries. These zones creates positive network externalities and agglomeration economies as in the studies of Woodward (1992), Guimaraes et al. (2000), Head et al. (1995) and He (2002).

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