LOCATIONAL DETERMINANTS OF FOREIGN INVESTMENT FIRMS IN TURKEY

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The fact that relationships at global level have increased necessitates redefinition of the roles of nations, regions and metropolitan areas. The location of FDI activities is of interest to researchers, especially, in light of rapidly changing economic structures in many regions of the world. In this study, the objective is to ascertain the determining characteristics of decisions about location choice by foreign direct investors in metropolitan areas in Turkey. The study is based on a sample of 90 companies that were surveyed in metropolitan areas in Turkey in 2005. Location determinants of foreign investment firms in Turkey have been analyzed by using factor analyzing and logit regression model.

Keywords: Foreign direct investment, Turkey, metropolitan areas, locational determinants.

1.INTRODUCTION

Providing employment and job opportunities, application of skills and new technologies, transfer of capital , increase in productivity , enhancing exports, spread of domestic firms, and acceleration of economic growth (Li and Liu,2005; Girma, 2005; Akinlo,2004) in the developing countries are among the most important benefits of foreign direct investment (FDI).Since the 1990's foreign direct investment has been considered as the "development motor" for the developing countries by United Nation Commission of Trade and Development (UNCTAD, 2004), and thus it has been encouraged to create the conditions attracting investment. At the beginning of the 1990's the investments directed to the developing countries had a share below 20% of the world's investment capacity. However in the middle of the 1990's this share increased to 40 %.

With policies implemented since the early 1980s, Turkish government have aimed at developing a free market economy, and have replaced the country's traditional inward-oriented import- subsition policies with an export- oriented development strategy. (Tatoglu and Glaister, 1998). As a result of these policies which were made in order to increase the FDI inflows the number of FDI firms increased 29 times (Berköz 2001). Although in 1990 Turkey was the second developing country to attract the highest FDI with a foreign capital investment of 1 billion USD, after China, it has not been able to maintain this benefical position in the world. Increase in FDI especially in Turkey after 1990 is less than expected compared to other developing countries (Table1). With a total share of 807 billion USD of foreign investment it reached until 1998, Turkey has obtained of 0.15% of the total sum. This share is 27.4% for China, 17.3% for Brazil, 6.2 % for Mexico, 4.2% for Thailand, and 3.4% for Argentina (UNCTAD, 1999, p.477). According to the findings of 2003, with 0.10%, Turkey has a share of 575 million Dollars of the total foreign investment of 560 billion Dollars in the world (Table 2). This appears a necessity to examine and understand the characteristics and spatial distribution of FDI firms in Turkey, especially by focusing period after 1990.

In the general perspective of Turkey related to FDI, Istanbul has an importance. Because Istanbul attracts the highest level of foreign investment in Turkey. 75.39% of Turkey's total capital investment, and 63.29% of the total number of firms in Turkey are in Istanbul. Istanbul has attracted 59.63% of the firms which have made investment in industry in Turkey with 55.22% of this capital, and 66.35% of the firms making investment in the service sector with

92.33% of the capital (Berkoz and Eyuboglu,2005) According to the report of YASED, Istanbul held 6174 foreign capital investment in 2003 (Table1). There is imbalance in the distribution of FDI in Turkey. To prevent this uneven structure, some precautions should be taken.

In this paper, the objective is to assess the extent to which location specific factors are related to the choice of Istanbul over the other cities within Turkey. Understanding of location specific factors influencing location decisions and explaining the determinants and pattern of FDI is essential to produce right policies on this subject in Turkey.

Previous studies related to FDI location in Turkey have usually been made at national or regional levels. Erdilek (1982) analyzed the micro economic cause and effect relationship of FDI in Turkish manufacturing sector in the early 1980s. Demirbağ (1995) specified certain factors which influence the location choice of MNCs in Turkey. The findings of Erden's study (1996) indicate that Turkey is an appealing country for multinational firms because of its market potential, geographic proximity, and low labour costs. Tatoglu and Glaister determined the characteristics of spatial choice of multinational enterprises in Turkey, using factor analysis (1998a) and binominal logit regression models (1998b). Tokatlı and Erkip (1998) discussed about the increasing involvement of foreign capital producer service firms in Turkish economy. Deichmann, Karidis and Sayek (2003) studied the factors determining the spatial decisions of MNFs in Turkey with specific reference to policy implications. Despite some studies related to FDI firms in Istanbul, it is clear that there is a lack of empirical studies on intrametropolitan FDI location. Özdemir (2002) analyzed the distribution of FDI in the service sector in Istanbul. Berkoz and Eyüboglu (2005) examined spatial preferences of FDI firms in Istanbul. Berkoz (2005) examined criteria to which the foreign- owned investments in the industrial and service sector attach significance in location are set for each sector in Istanbul.

The article is organized in six sections. The next section reviews the relevant theoretical literature which seeks to explain regional determinants and sector of investment. The third part develops a regression model. Forth part gives information related data and methodology of the study. The statistical results are reported in the fifth section. The final section provides conclusions.

2. LITERATURE FRAMEWORK

2.1 Regional Deteminants

Host country locational choices of FDI can be considered in two different types in literature. First type explains the locational choices with some traditional locational factors like market potential, labour costs, economic growth, government policies. Second type highlights a range of environmental variables that act as a function of political, economic, legal and infrastructural factors of a host country. In this study, population growth, urban density, GDP growth, change in the number of telephone, port facility, coastal region, previous foreign investment, bank credit, public investment for each provinces. So far, several locational variables have been identified in literature as important determinants of FDI.

Market Size

Market size is one of determinants of FDI. According to Chakrabarti (2003), an expansion in the market size of a location leads to an increase in the amount of direct investment in that location through an increased demand. This is consistent with the market size hypothesis. Foreign investors are likely to be attracted by large markets allowing them to internalize profits from sales within the host countries. According to Woodward (1992), Japanese–affiliated manufacturing investments in the USA during the 1980s to conclude that investors prefer states with strong markets and low unionization rates. The effect of specific market and regional growth characteristics are also taken into consideration in the spatial analysis of FDI in the United States, by Bagchi-sen and Wheeler's study. In this paper population growth rate is a measure of the market size and it indicates the economics dynamics of a location and states market growth potential (Bagchi-sen and Wheeler,1989). Population growth rate are expected to have a positive sign.

Agglomeration

The other important determinant of FDI is existence of agglomeration economies. Agglomeration economies are important to attract foreign direct investment. Agglomeration

economies refer to the positive externalities and economies of scale associated with spatial concentration activities and co-location of related production facilities (Chadwick, 1989; Krugman,1991; Smith and Florida, 1994). There is systematic evidence suggesting that multinationals are attracted to clusters of economic activities in their own and in closely related industries and activities (Glickman and Woodward, 1988; Wheeler and Mody, 1992; Head and Ries, 1996; Devereux and Griffith, 1998; Guimaraes et. al., 2000; Driffield and Munday, 2000) According to Coughlin, Terza and Arromdee (1991), the density of manufacturing activity was the important one of factors in location decisions of foreign firm in the US during 1981-1983. Head, Ries and Swenson (1995), examined the location choice of 751 Japanese FDI and observed strong agglomeration effects at the industry level. In the other study, the total number of industrial enterprises in a province attract FDI since the existence of industrial cluster signal a set of favourable conditions for investors such as the presence of local suppliers, specialized labour and developed infrastructure (He, 2002). The other variable in this study related to agglomeration economies is population density. Population density represents urbanization economies. It is founded that both number of foreign –funded enterprises and population density have a positive effect on FDI.

Infrastructure

The other important determinant of FDI is infrastructure. There are a positive relationship between infrastructure and inward FDI. Empirical studies support for the importance of infrastructure in FDI location decisions is provided by Wei and et al. (1998), Mariotti and Pischitello (1995), Broadman and Sun (1997) and He (2002). A location with good infrastructure is more attractive than the others (Wei and others,1999; He,2002). Two variables are used to measure significance of infrastructure for FDI in this study: the change in the number of telephones in 1990-2003 period, port facility. All of them are expected to have a positive sign.

Information Cost

To minimizing information costs, foreign investors are expected to tend to coastal areas (Dunning 1998). Coastal cities is geographically closer to the major sources of FDI and more open to international markets (Wei and the others,1999). The coastal region is geographically closer to major sources of FDI and more open to international markets . Public information is

readily available along the cost (Wei et al.,1999) Chien (1996) finds evidence for preference of coastal areas multinational firms. Similarly, coastal location is used as a measure of information cost in this study. This variable is expected to have positive effects on foreign direct investment.

Labour Cost

Glickman and Woodward (1988) found that there was a negative relation between the interstate distribution of the value of foreign manufacturing investment and the index of state labor costs. Ondrich and Wasylenko (1993) found no evidence that wages affected the foreign new plant location. Although would be interesting to conform the importance of labour costs, but regional data on labour cost are unavailable. So, this variable are not included to the model.

Investment Incentives

There is controversy over the role played by investment incentives in attraction of FDI. Lim (1983) finds a negative relationship between investment incentivies and presence of FDI in 27 developing countries. So, This variable is expected to have a positive sign.

3. DATA AND METHODOLOGY

The data in this study have been acquired through questionnaires with 90 foreign investment firms selected from provinces in Turkey. 90 FDI firms were choosen as proportional to the number of FDI firms in first 10 provinces which have the highest FDI capital amount (see Table 3). The questionnaire survey was carried out between December 2005 and April 2006. The questions on the form are inclusive of closed-end ones and questions on a four point scale (varying between 1,2,3,4 values). The meaning of this score has been taken the following procedure: 4=decisive, 3=of major importance; 2=of some importance; and 1= unimportant.

4. MODEL SPECIFICATION

After the completion of survey, the data obtained from these questionnaires was transferred into the SPSS 10.5 program. Descriptive analysis, factor analysis have been used in the analysis of the obtained data from questionnaires of foreign investment firms. In this study,

factor analysis was used for summarizing many variables by a few factors. Each of factors acquired from these analyses presents location specific factors and then these factors were used input variables for logistic regression (Table 4).

According to Dunning (1993), MNFs are motivated by net worth maximization. The firm maximizes its net worth by maximizing the current discounted value of profits. Therefore the choice between two location sites is driven by the relative present value of discounted profits the firm expects from investing in two sites.

The *i*th firm derives profits after investing in the jth district according to the following function (Deichmann, Karidis and Sayek, 2003, pp.1770):

$$\Pi_{ij} = \beta z_j + \varepsilon_j \qquad (1)$$

If it decided to invest in the kth district, its profit function becomes:

$$\Pi_{ik} = \beta z_j + \varepsilon_k \qquad (2)$$

Where z is a vector of characteristics for particular district defined in below. If the the firm's choice to invest in district j instead of district k is denoted by=1 then:

$$\text{Prob}\,[Y = 1|z] = \text{Prob}\,[\pi_{ij} > \pi_{ik}|\, z] \qquad (3)$$

The logistic estimate provides information on which of characteristics included in vector z plays an important role on the firm's location choice. According to the model, the dependent variable takes the value of "1" for Istanbul where company chooses to invest and the value of "0" for the rest of cities. The logistic model is very widely used in economics and market research. If is is assumed that Y_i is a random variable that indicates the choice made, then McFadden (1974) has proven that under certain assumptions:

$$\text{Prob}\,(Yi=j) = \frac{e^{\beta zij}}{\sum_{j=1}^{i} e^{\beta zij}} \qquad (4)$$

Profitability will depend on a set of variables that includes characteristics specific to the potential locations. For example, if a specific firm decided to invest in Istanbul, the dependent variable Y takes the value of "1" for Istanbul, and the value of "0" for the others. This decision of the firm to invest in one city instead of another depends on the locational specific factors. The logistic regression model performs a maximum likelihood estimation of models with dependent variables coded as 0/1.

5- SAMPLE CHARACTERISTICS

The respondents of the questionnaire have the following ranks: 12.5% are CEOs, 17.0% are executive managers, 35.2% are department managers, 35.2% (7) are other personnel. While 47.8 % of the surveyed firms operate in service, their 51.1% operate in industry sector. The amount of annual average business volume is US$ 0-25 million for 14.9% of the surveyed firms, US$ 25-50 million for 9.2, US$ 50-100 million for 19.1% , US$ 50-100 million for 8.0% , US$ 100-250 million for 19.5%, US$ 250-500 million for 19.5%, and over US$ 500 million for 28.7%. 35.6% of the surveyed firms got 0%-25% of their business volume from the international market, 23.35 got 25%-50% from the international market, 14.4% derived 50%-75% from the international market, and 10% derived 100% of their business volume from the international market. The total number of employees working in 66.7% of the surveyed FDI firms is above 200, between 100-200 employees in 7.8 % of the firms, between 50-100 employees in 7.80% of the firms, between 20-50 employees in 10.0% of the firms, between 10-20 employees in 0.% of the firms, and between 1-10 employees in 5.6% of the firms.

6. EMPIRICAL RESULTS

The results of the model were given in Table 5. According to results of the model, infrastructure and labour are effective in the choice of Istanbul over the other cities within Turkey. The quality of communication network and existence of the communication network is important factor in preference of Istanbul for FDI investors to locate. Moreover, locally availability of technical training and quality of local basic schools and employment agencies are the other important factors in preference of Istanbul by investors. However, on accessibility to international maritime port, accessibility to developed rail network, suitability of transportation cost, investors prefer to the other cities. According to results of the model,

scale economy factors are not important. Also, agglomeration is not a reason in the choice of Istanbul over the other cities within Turkey. The other result in the model, the existence of incentives is not effective in making decision to FDI investments. Because, the existence of incentives is not found statistically significant in the model.

7. CONCLUSION

Such an approach in location analysis can aid formulation of specific growth strategies by policy makers as they plan to attract FDI to particular locations. According to this paper, policy makers in Turkey should improve infrastructure quality for foreign investors especially in provinces that have the market size and growth potential. These lead to make provinces more attractive. To attract some investments particular locations in Turkey, infrastructure has been only given the priority as general tendency, especially communication infrastructure. The other important policy in Turkey to attract the investor to the other cities, It is clear that this tendency is not sufficient solely to attract FDI to particular locations.

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Table 1 FDI Inflows to Turkey

Years	No of Foreign Capital Firms	Realized FDI ($)
1980	78	35
1981	109	141
1982	147	103
1983	166	87
1984	235	113
1985	408	99
1986	619	125
1987	836	115
1988	1172	354
1989	1525	663
1990	1856	684
1991	2123	907
1992	2330	911
1993	2554	746
1994	2830	636
1995	3161	934
1995	3582	914
1997	4068	852
1998	4533	953
1999	4950	813
2000	5328	1707
2001	5841	3288
2002	6280	1042
2003*	6511	575

* By June 2003
Source: Department of Treasury in Turkey, 2005

Table 2. Turkey's share in the world on FDI

Turkey' share in the World	1995	1999	2000	2001	2002	2003
Inward	0.29%	0.07%	0.07%	0.40%	0.15%	0.10%
Outward	0.01%	0.06%	0.07%	0.07%	0.03%	0.08%

Source: Berkoz and Eyuboglu, 2005.

Table 3. First 10 provinces in distribution of FDI in Turkey

Rank	Province	Number of FDI firms	Percentage	Capital (YTL)
1	Istanbul	6.174	63.3%	19.892.086.507
2	Ankara	863	8.85%	2.508.260.425
3	Kocaeli	145	1.49%	1.116.227.400
4	İzmir	449	4.61%	585.306.734
5	Bursa	197	2.02%	581.304.243
6	Sakarya	35	0.36%	489.961.540
7	İçel	340	3.49%	299.023.037
8	Manisa	39	0.40%	279.071.018
9	Tekirdag	57	0.58%	199.290.520
10	Antalya	427	4.35%	130.463.501

Source: Berkoz and Eyuboglu, 2005.

Table 4. Factors for choice of Location by service sector firms

Factors	Factor loading	Eigen-values	Percentage of variance	KMO	Barlett Test
Existence of Infrastructure				**0.564**	**343.038*** **
Infrastructure 1		2.110	26.38		
Close to international maritime port	0.701				
Access to developed highways network	0.727				
Access to developed rail network	0.701				
Suitability of transportation cost	0.755				
Infrastructure 2		1.990	24.869		
Existence of communication network	0.953				
Quality of communication network	0.956				
Infrastructure 3		1.895	23.689		
Number of international airport	0.925				
Access to international airport	0.932				
Labour				**0.581**	**92.192*** **
Labour 1		2.073	41.455		
Quality of local basic schools	0.840				
Locally available technical training	0.894				
Employment agencies	0.709				
Labour 2		1.288	25.766		
Labour with required skills	0.755				
Plentiful and cheap labour	0.829				
Scale Econmy				**0.646**	**151.027*** **
Scale Economy 1		2.381	39.682		
Access to inputs	0.841				
Existence of low cost inputs	0.783				
Existence of inputs with required quality	0.704				
Close to raw material sources	0.636				
Scale Economy 2		1.698	28.305		
Existence of FDI firms in same sector	8.92				
Existence of Domestic firms in same sector	8.52				
National Policies				**0.685**	**289.256*** **
National Policies 1		2.412	40.193		
Turkish government policies	0.743				
Turkish economic stability	0.950				
Turkish politic stability	0.935				
National Policies 2		2.086	34.771		
Existence of tax advantage	0.829				
Existence of incentives	0.874				
Return of profits to own country	0.737				

Notes: *** Significant at the 0.1 level, ** Significant at the 0.5 level, * Significant at the 0.10 level.

Table 5. Location specific factors are related to the choice of Istanbul over the other cities within Turkey

Dependent Variable is Choice
Istanbul :1
Others:0
LR= 64.501

Variable	**Coefficient (Wald stat)**
Infrastructure 1	-1.1610 (4.2461)**
Infrastructure 2	0.6567 (3.3543)*
Infrastructure 3	-0.4480 (1.4322)
Labour 1	0.7905 (4.1355)**
Scale economy 1	0.4548 (0.9229)
National Policies 2	-0.0693 (0.0388)

Notes: *** Significant at the 0.1 level, ** Significant at the 0.5 level, * Significant at the 0.10 level