FACTORS INFLUENCING THE CHOICE OF FDI LOCATIONS IN TURKEY

Lale BERKOZ*
Sevkiye SenceTURK**

Istanbul Technical University*
Faculty of Architecture
Department of Urban and Regional Planning
34437, Taşkışla, Taksim, Istanbul/TURKEY
Tel: 90 212 293 13 00/ 2299
Fax: 90 212 251 48 95
e-mail: lberkoz@itu.edu.tr

Istanbul Technical University**
Faculty of Architecture
Department of Urban and Regional Planning
34437, Taşkışla, Taksim, Istanbul/TURKEY
Tel: 90 212 293 13 00/ 2319
Fax: 90 212 251 48 95
e-mail: turkss@itu.edu.tr

ABSTRACT

Turkey adopted neo-liberal policies in order to increase economic integration into international relation after 1980. As a result of these policies, foreign direct investment (FDI) inflows increased greatly. In 1980 there were 78 FDI firms in Turkey whereas the number increased by 6511 at the end of 2003. Turkey has become a hub of vast hinterland that extends from Balkans to Caucasus and represented a prime focus for foreign investment. For this reason, it is very important to know the characteristics and spatial distribution of FDI firms in Turkey. This study analyzes the spatial distribution of FDI (foreign direct investment) firms among the provinces in Turkey from 1990 to 2003. A model is developed to test the agglomeration economies as a demand, urbanization economies, market size, employment structure, government incentivies, information cost, locational wealth and infrastructure. Location decisions of foreign investors are generally determined by agglomeration economies as population growth in the provinces and previous investment, infrastructure, amount of bank credit and local market growth.

Keywords: Foreign direct investments, agglomeration economies, market size, information cost, infrastructure.

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 appears to examine and understand the characteristics and spatial distribution of FDI firms in Turkey, especially by focusing period after 1990.

Firstly, this paper analyses the determinants of regional distribution of FDI in Turkey in province level by focusing the period 1990-2003. Secondly, the article seeks to explain the pattern of FDI in Turkey by focusing to sector of investments in the same period. Understanding of regional characteristics influencing location decisions and explaining the

determinants and pattern of FDI is essential to produce right policies on this subject in Turkey.

Previous studies of spatial patterns of FDI in Turkey can be divided into two groups. The first groups provide detailed descriptive analysis. Tokatlı and Erkip (1998) discussed about the increasing involvement of foreign capital producer service firms in Turkish economy. 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. The second group of studies focuses on econometric estimation. 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 choic of multinational enterprises in Turkey, using factor analysis (1998a) and binominal logit regression models (1998b). Deichmann, Karidis and Sayek (2003) studied the factors determining the locational decisions of MNFs in Turkey with specific reference to policy implications.

The article is organized in six sections. The next section reviews the relevant theoretical literature which seeks to explain regional determinants. The third part develops a regression model and research hypotheses. 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 : REGIONAL DETERMINANTS

Studies on the locational choices of FDI can be classified into two 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 them. 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) The total number of industrial enterprises in a city, is expected to significantly attract FDI since the existence of industrial clusters signals a set of favourable condition for foreign investors such as the presence of local suppliers, specialized labour and infrastructure (He, 2002).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 this study, the total number of industrial enterprises in a province, is expected to significantly 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. Both number of foreign –funded enterprises and population density are expected to have a positive effect on FDI. Economists and geographers have pointed out that the role of agglomeration economies in industrial activities is very significant. The locational attractiveness to foreign investments is likely to improve through agglomeration effects related to the infrastructure quality, the availability of specialized service suppliers and of skilled labour, location-related reputation effects and the development of industrial clusters (Porter, 1990; Wheeler and Mody, 1992; Dunning 1998).

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.

GDP Growth

The other important determinant of FDI is local market measures. These measures are defined as GDP, GDP per capita and annual change in GDP. While GDP defines local market size, GDP per capita represent the strength of local market. Annual change in GDP states the growth local market. In this paper, annual change in GDP in defined period is selected. The foreign investors are expected to tend to areas that have high annual in GNP, because these areas are dynamic view points of economy. This variable is expected to have a positive sign.

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. MODEL SPECIFICATION

The foreign direct investment in a province is assumed to be a function of the number of urban attributes, which are likely to influence its location choices. The location model is specified as:

FDI = exp (a+ bPGR+c DEN+ dGDPg+ e TEL+ fCRE + g INVEST + hPORT+ kCOAS+l PRE)

where FDI represents the cumulative realized of foreign direct investment in a province in the period 1990-2003. FDI is a function of variables associated with market size (PGR) agglomeration economies (DEN, PRE), infrastructure (TEL, PORT) and information cost (COAS) and GDP growth (GDPg), public investment (INVEST) and bank credit (CRE) for each provinces. These variables are defined in Table 3.

4. DATA AND METHODOLOGY

The department of Treasury in Turkey collects data related to multinational firm activity in Turkey since 1954. This source is published every year. It gives information related to FDI firms that includes the origin of firm, location of firm, sector of investment, value of investment, firm's initiate year, the share of foreign ownership. The other data that used in the model are obtained from the State Office of Statistics in Turkey.

The location models are specified as:

$$Y_1=\alpha+\beta_i X_i+\gamma_i Z_i+\varepsilon \qquad i= 1,2,\ldots\ldots, 47 \qquad (1)$$

$$Y_2=\alpha+\beta_i X_i+\gamma_i Z_i+\varepsilon \qquad i= 1,2,\ldots\ldots, 39 \qquad (2)$$

$$Y_3=\alpha+\beta_i X_i+\gamma_i Z_i+\varepsilon \qquad i= 1,2,\ldots\ldots,35 \qquad (3)$$

where; Y_1 is the dependent variable, which is the cumulative realized FDI in a province in the 1990-2003 period; Xi is a explanatory variables including PGR, DEN, GDPg, TEL, CRE and INVEST ; Zi is dummy variables including PORT, COAS, PRE; β and γ are regression coefficients; ε is error term , respectively. Location factors have been shown to vary according to the sector of investment. Therefore, the robustness of model is tested according to the sector of the investment and two models are developed. While dependent variables in two models are different, the same independent variables are used. The dependent variable in model 2 is the cumulative realized FDI in a province in service sector in the period 1990-2003. The dependent variable in model 3 is the cumulative realized FDI in a province in industry sector in the period 1990-2003.

In all three models, a log-linear functional form is adopted to transform a likely nonlinear relationship between FDI and the independent variables into a linear one. It also decreases the outliers, non-normality and heteroscedasticity. Models take the following forms:

Model 1

$$\ln FDI_1 = ß_1 + ß2\ln PGR + ß_3\ln DEN + ß_4\ln GDPg + ß_5\ln TEL + ß_6\ln CRE + ß_7\ln INVEST + ß_8 PORT + ß_9 COAS + ß_{10} PRE + \varepsilon \quad (4)$$

Model 2

$$\ln FDI_2 = ß_1 + ß2\ln PGR + ß_3\ln DEN + ß_4\ln GDPg + ß_5\ln TEL + ß_6\ln CRE + ß_7\ln INVEST + ß_8 PORT + ß_9 COAS + ß_{10} PRE + \varepsilon \quad (5)$$

Model 3

$$\ln FDI_3 = ß_1 + ß_2\ln PGR + ß_3\ln DEN + ß_4\ln GDPg + ß_5\ln TEL + ß_6\ln CRE + ß_7\ln INVEST + ß_8 PORT + ß_9 COAS + ß_{10} PRE + \varepsilon \quad (6)$$

5. EMPIRICAL RESULTS

Table 4 gives the pearson correlation coefficients among all variables. LnDEN and LnTEL, COAS and PORT, Ln TEL and LnGRT, LnTEL and PRE are significantly correlated, with a Pearson corrrelation coefficient of 0.745, 0.660, 587 and 0.560 respectively. These high correlations among independent variables may cause to multicollinearity. Other coefficients among the independent variables are fairly low.

The location model 1 is estimated using ordinary least squares regression. The estimated equation is shown below with t values indicated in parentheses:

$$\ln FDI_1 = \underset{}{-5.747} + \underset{(1.714)}{0.0024\ln GRT} + \underset{(1.820)}{0.06\ln GDPg} + \underset{(3.291)}{1.778\ln TEL} + \underset{(3.291)}{0.666\ln CRE} + \underset{(1.761)}{1.149\ PRE} + \underset{(3.521)}{\varepsilon} \quad (7)$$

The model performs very well with R squares with 0.759 (F= 17.534 , %99 confidence level). Regression estimation is given in Table 5**.** According to result of regression analysis, lnDEN, LnINVEST and PORT are excluded from the model. As expected, in model 1 the coefficients

for the population growth, GDP growth, the change in the number of telephones, bank credit and previous investment in province are positive. Model 1 is consistent with expectations. The coefficients of five explanation variables are correctly signed and statistically significant at the % 1, %5 and 10%. The estimated coefficient on lnTEL indicates that, other things remaining constant, a 1% increase the change in number of telephone would raise the cumulative realized FDI in a province in Turkey in the period 1990-2003 by 1.778%. The positive relationship between the change in number of telephone and the cumulative realized FDI in a province in Turkey in the period 1990-2000 supports the hypothesis that FDI favours cities better infrastructure, especially communication infrastructures. According to model 1, all coefficients on the variables of agglomeration economies (lnPRG and PRE) are positive and significant at 10% and 1% level indicating that agglomeration economies attract foreign direct investment. The coefficient on local market measures is significant at the 5% level. GNP growth in a province is important to attract foreign investor. The coefficient on coastal region is not statistically significant. According to the results of regression, there is not relationship between coastal region and the cumulative realized FDI in a province in the period 1990-2003. The statistical results indicate that foreign investor doesn't prefer coastal region in this period in Turkey.

Evidence from model 1 shows that a region with higher GDP growth, higher urban growth, faster advances in agglomeration, quicker improvement in infrastructure, higher bank credit attract relatively more cumulative realized FDI in a province.

Table 6 gives the pearson correlation coefficients among all variables. LnTEL and LnDEN, PORT and COAS , LnDEN and PRE are significantly correlated, with a Pearson corrrelation coefficient of 0.734, 0.627 and 0.533 respectively. These high correlations among independent variables may cause to multicollinearity. Other coefficients among the independent variables are fairly low.

$$\ln FDI_2 = -3.661 + \underset{(2.716)}{0.0037 \ln GRT} + \underset{(2.219)}{0.04 \ln GDPg} + \underset{(1.793)}{1.074 \ln TEL} + \underset{(2.901)}{1.120 \ln CRE} + \varepsilon \quad (8)$$

The model performs very well with R squares with 0.727 (F= 14.220 , %99 confidence level). Regression estimation is given in Table 5. As expected, in model 1 the coefficients for the population growth, GDP growth, the change in the number of telephones, and bank credit in

province are positive. Model 2 is mostly consistent with expectations. The coefficients of four explanation variables are correctly signed and statistically significant at the %5 and 10%. The estimated coefficient on lnCRE indicates that, other things remaining constant, a 1% increase in amount of bank credit would lead to 1.120% increase in the cumulative realized FDI in a province in service sector Turkey in the period 1990-2003. The positive relationship between amount of bank credit and cumulative realized FDI in a province in service sector supports the hypothesis that high volumes of bank credit has a positive effect on cumulative realized FDI in service sector. According to result of regression, although the estimated coefficient on population growth is statistically significant (at the 5%), the estimated coefficient on previous foreign investment is not statistically significant. This may explain that agglomeration economies especially previous foreign investments have not effect on the cumulative realized FDI in service sector. The other estimated coefficient on lnTEL indicates that, other things remaining constant, a 1% increase the change in number of telephone would lead to 1.07 % increase in the cumulative realized FDI in a province in service sector Turkey in the period 1990-2003. The coastal region also is not as an explanatory factor in the level of FDI in the second model. According to the result of model 2, foreign investor prefer the province that has higher amount of bank credit, higher GDP growth, better infrastructure, higher population growth in explaining of cumulative realized FDI in service sector in a province.

Table 7 gives the pearson correlation coefficients among all variables. LnIND and LnELEC, LnDEN and LnIND, LnDEN and LnELEC, PORT and COAS are significantly correlated, with a Pearson corrrelation coefficient of 0.889, 0.685, 0.628 and 0.786 respectively. These high correlations among independent variables may cause to multicollinearity. Other coefficients among the independent variables are fairly low.

$$\ln FDI_3 = -5.752 + 0.077 \ln GDPg + 2.310 \ln TEL + 0.838 PRE + \varepsilon \qquad (9)$$
$$(-2.005) \quad (2.566) \quad (3.479) \quad (2.108)$$

The model performs very well with R squares with 0.612 (F= 9.160 , %99 confidence level). Regression estimation is given in Table 5. As expected, in model 1 the coefficients for GDP growth, the change in the number of telephones, previous foreign investment in province are positive. The coefficients of three explanation variables are correctly signed and statistically significant at the %5 and 10%. The estimated coefficient on lnGDPg indicates that, other

things remaining constant, a 1% increase in GDP growth would lead to 0.777% increase in the cumulative realized FDI in a province in industry sector Turkey in the period 1990-2003 . The growth of local market is important feature for foreign investor in industry sector. According to result of regression, although the estimated coefficient on population growth is not statistically significant, the estimated coefficient on previous foreign investment is statistically significant (at the 5%). This may explain that agglomeration economies especially previous foreign investments have effect on the cumulative realized FDI in industry sector, the opposite of service sector. The other estimated coefficient on lnTEL indicates that, other things remaining constant, a 1% increase the change in number of telephone would lead to 2.310 % increase in the cumulative realized FDI in a province in indusrt sector Turkey in the period 1990-2003. FDI favours province that with better infrastructure, especially communication infrastructures.

The white test does not indicates the existence of heteroscedasticity in three models. Moreover, according to condition index, the level of multicollinearity can be omitted**.** All condition indices are above a threshold value (30) and collinearity levels are shown for coefficients for three models.

6. CONCLUSION

The study presents empirical evidence to support the hypothesis that location decisions of foreign investors are generally determined by agglomeration economies as population growth in the provinces and previous investment, infrastructure, amount of bank credit and local market growth. However, when the preference of foreign investors according to sector of the investment is examined, some findings differ from results in general. For example, while previous foreign investment is important for cumulative realized FDI in service sector, the same variable have not effect on the cumulative realized FDI in industry sector. According to Coughlin and et al. (1991), once the decision to invest has been made, the regional locational determinants clearly vary by industry. Generally, service firms access to markets is important, industry sector prefers access to resources, low wage labour (Hayter,1997). Deichmann, Karidis and Sayek (2003) find that foreign investment determinants differ according to sector of the investment in Turkey until 1995. In Turkey, 87% of foreign investment until 1980 was made on industry sector. Today the rate has decreased to 45.45%. As opposed this, service sector with its 13 % share in 1980 has revealed a dramatic growth, now having a share of

52.52% (Berkoz and Eyuboglu, 2005). Based on this profile, there is clear domination by service firms in Turkey.

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 the business services and create investment opportunities 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. It is clear that this tendency is not sufficient solely to attract FDI to particular locations.

REFERENCES

Akinlo, A.E. (2004) " FDI and growth in Nıgeria: An empirical investigation", Journal of Policy Modelling, 26 (5) pp. 627-639.

Bagchi-sen, S; Wheeler, J.O. (1989) "A spatial and temporal model of foregin direct investment in the united states", Economic Geography, XX, 113-129.

Berköz, L. (2001) "The Interregional location of foreign investors in Turkey", *European Planning Studies*, Vol. 9, No.8, pp. 979-994

Berköz,L.; Eyuboglu,E. (2005) Locational Preferences of FDI firms in Istanbul, Report for ITU, Research Project, Istanbul (in Turkish).

Blomstrom, M.; Kokko,A. (1997) How foreign investment affects host countries, World Bank Paper, no: 1745.

Chakrabarti, A. (2003) "A theory of the spatial distribution of foreign direct investment", *International Review of Economics and Finance* 12, 149-169.

Chien-Hsun,C. (1996) Regional determinants of foreign direct investment in mainland China, *Journal of Economic Studies*, 23 (2), 18-30.

Coughlin,C.C.;Terza, J.V. and Arromdee,V. (1991) "State characteristics and the location of foereign direct investment within the United States", *Review of Economics and Statistics* 73, 675-683.

Deichmann, J.; Karidis,S. and Sayek,S. (2003) " Foreign direct investment in Turkey: regional determinants", *Applied Economics* 35 (16), 1767-1778.

Deichmann,J.; Karidis, S.; Sayek, S. (2003) " Foreign direct investment in Turkey: regional determinants", *Applied Economics*, 35, 1767-1778.

DPT (2000) Dogrudan yabancı sermaye yatırımları özel ihtisas komisyonu raporu, Sekizinci Beş Yıllık Kalkınma Planı, Ankara.

Dunning , J. (1998) " Locational and the multinational enterprise: a neglected factor?" Journal of International Business Studies 29, 45-66.

Eng, I. And Lin, Y. (1996) "Seeking competitive advantage in an emergent open economy: foreign direct investment in Chinese industry", *Environment and Planning A*, 28, 113-1138.

Erden, D. (1996) A survey of foreign direct investment firms in Turkey, Bogazici University Printhouse, Istanbul.

Friedman, J; Gerlowski, D.A. and Silberman, J. (1992) "What attracts foreign multinational corporations? Evidence from branch plant location in the United States", *Journal of Regional Science 32,* 403-418.

Glickman, N., and Woodward, D. (1988) "The location of foreign direct investment in the US: patterns and determinants", *Int. Reg. Sci. Rev*. 11(2), 137-154.

Girma,S (2005) " Technology transfer from acquisition FDI and absortive capacity of domestic firms: An empirical investigation, *Open Economies Review,* 16 (2) pp.175-187.

Hayter, R. (1997) The dynamics of Industrial location: The factory,the firm, and the production system,John Wiley & Sons Chichester.

He, C. (2002) " Information costs, agglomeration economies and the location of foreign direct investment in Chine", *Regional Studies*, 36 (9), 1029-1036.

Head, K.C.; Ries, J.C. and Swenson, D.L. (1995) " Agglomeration benefits and location choice:evidence from Japanese manufacturing investments in the United States, *Journal of International Economics,* 38, 223-247.

Hill, S. And Munday, M. (1995) "Foreign Manufacturing investment in France and the UK: a regional analysis of locational determinants", *Tijdschfift voor Economische en Sociale Geografie*, 86, 311-327.

Krugman,P. (1991) *Geography and Trade,* MIT University Press, Cambridge, MA.

Leung, C. K. (1996) "Foreign manufacturing investment and regional industrial growth in Guangdong Province, China", *Environment and Planning A*, 28, 513-536.

Lim, D (1983) " Fiscal incentives and direct foreign investment in less developed countries", *Journal of development Studies*, 19, 207-12.

Little, J. S. (1978) "Locational decisions of foreign direct investors in the US, New England", *Econ. Rev*., July/August, 43-63.

Little, J. S. (1980) "Foreign Direct Investment in the U.S. : Recent Locational Choices of Foreign Manufacturing", *New England Economic Review, November/ December*, 5-22.

Little, J. S. (1983) "Foreign Investors Locational Choices: An Update", *New England Economic Review, January/February,* 28-31.

Li,XY.; Liu,XM. "Foreign direct investment and economic growth: an increasingly endogenous relationship", *World Development* , 33(3) pp. 393-407.

Mariotti, S.; Piscttello,L.(1995) “Information cost and location of FDIs within the host country :empirical evidence from Italy, *Journal of International Business Studies,* 26,815-40.

Ondrich, J. And Wasylenko, M. (1993*) Foreign direct investment in the United States*, Kalamazoo:W.E. Upjohn Institute for Employment Research, Kalmazoo, MI.

Smith, D.; Florida, R. (1994) “ Agglomeration and industrial location: an econometric analysis of Japanese- affiliated manufacturing establishments in automotive-related industries, *Journal of Urban Economics* 36, 23-41.

Tatoglu, E.; Glaister, K. (1998a) “Western MNCs FDI in Turkey : an analysis of locational specific factors”, Management International Review, 40(3),278-314.

Tatoglu, E.; Glaister, K. (1998b) “Determinants of foreign direct investment in Turkey”, Thunderbird International Business Review, 40(3), 278-314.

Tokatlı,N. ; Erkip,F. (1998) “Foreign investment in producer service”, TWPR, 20 (1)87-106.

UNCTAD (2002) World Investment Report 2002, United Nations, New York/Geneva.

UNCTAD (2004) World Investment Report, The Growth of FDI, New York.

Wei, Y.; Liu, X.; Parker, D. and Vaidya, K. (1999) “ The regional distribution of foreign direct investment in Chine”, *Regional Studies* 33, 857-867.

Woodward, D.P. (1992) “Locational determinants of Japanese manufacturing start-ups in the United States”, *Southern Economic Journal* 58, 690-708.

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 Description of variables and hypotheses

Variable	Measurement	Expected Sign
LnDEN	Urban population density (person/km2)	+
LnPGR	Urban growth rate in latest ten years (%) (1990-2000)	+
LnGDPg	GDP growth in province (1990-1997)	+
LnTEL	Change in number of telephones between 1990-2000	+
PORT	1 port cities; 0 for the others	+
PRE	Previous investment in a province (1/0)	+
COAS	1 for coastal cities, 0 for inland cities	+
CRE	Bank Credit in a province in 2000	+
INVEST	Public Investment in 2000	+

Table 5. Results of stepwise regression analyses

	Model 1	Model 2	Model 3
Constant	-5.747	-3.661	-5.752
	*(-1.714)**	*(-1.690)**	*(-2.005)**
LnDEN			
LnPGR	0.0024	0.0037	
	*(1.820)**	*(2.716)***	
LnGDPg	0.006	0.070	0.777
	*(2.235)***	*(2.219)***	*(2.566)***
LnTEL	1.778	1.074	2.310
	*(3.291)***	*(1.793)**	*(3.479)***
PORT			
PRE	1.149		0.838
	*(3.521)***		*(2.108)***
COAS			
CRE	0.666	1.120	
	*(1.761)**	*(2.901)***	
INVEST			
Observations	47	39	35
R^2	0.759	0.727	0.612
Adjusted R^2	0.716	0.676	0.545
F	17.534	14.220	9.160

Note: * p < =.10; ** p< 0.05;*** p<0.01.

T statistics in paranteheses.

Table 4 Pearson correlation efficient for model 2

	LNDEN	LNPGR	LNGDPg	PRE	PORT	COAS	LNTEL	LNIVEST	LNCRE
LNDEN	1,000	,487**	-,152	,424**	,519**	,451**	,745**	,226	,401
LNPGR		1,000	-,244	,260	,227	,134	,587**	,223	,141
LNGDPg			1,000	-,179	-,064	-,090	-,250	-,054	-,069
PRE				1,000	,299*	,272	,560**	,283	,472
PORT					1,000	,660**	,481	,086	,342
COAS						1,000	,344**	,176	,351
LNTEL							1,000	,301**	,528**
LNIVEST								1,000	,297
LNCRE									1,000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 6 Pearson correlation efficient for model 2

	LNDEN	LNPGR	LNGDPg	PRE	PORT	COAS	LNTEL	LNIVEST	LNCRE
LNDEN	1,000	,452**	-,198	,734**	,533	390**	,408**	-,268	,303**
LNPGR		1,000	-,274	,585**	,368	,209	,101	,043	,191
LNGDPg			1,000	-,325	-,130	-,108	-,144	-,084	-,138
PRE				1,000	,623	,434**	,380	-,290	,511**
PORT					1,000	,218	,169	-,472**	,287
COAS						1,000	,627**	,045	,292
LNTEL							1,000	-,165	,291
LNIVEST								1,000	-,427
LNCRE									1,000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 7 Pearson correlation efficient for model 3

	LNDEN	LNPGR	LNGDPg	LNTEL	PREVIOUS	PORT	COAS
LOGDEN	1,000	,476**	,214	,751**	,296	,568**	,447
NUFGROWT		1,000	,378*	,560**	,193	,355	,315
LNGDPGRO			1,000	,188	-,143	,097	,137
LNTEL				1,000	,317	,485**	,504**
PREVIOUS					1,000	,190	-,037
PORT						1,000	,691**
COAS							1,000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).