A SPATIAL MODEL OF CHANGE OF FDI FIRM POPULATION IN ISTANBUL

Sevkiye SenceTURK*
Lale BERKOZ**

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

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

ABSTRACT

Within the context of the foreign capital- orientation programme having been implemented since 1980, the regulation concerning the foreign investments in Turkey were freed and this has paved the way for important developments in terms of the entrance of foreign capital into the country and foreign investments. As a result of this, there was a dramatic increase in number of foreign investment firms in Turkey and, especially, Istanbul. The increase in foreign investments had major impacts on the spatial transformation of Istanbul Metropolitan Area.

In this paper, change in FDI firm population in Istanbul has been viewed between 1990-2004. An explanatory model has been applied to determine causes factors affecting change at the district level.

1.INTRODUCTION

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. 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.

Istanbul is a metropolitan city in Turkey, which attracts the highest level of foreign investment. 75.39% of Turkey's total capital investment, and 63.29% of the total number of firms in Turkey are in Istanbul. Also, 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 2004 (Table1). 2.53% of these foreign invetments were in agriculture, 25.79% in industry, and 71.69% in the service sector. Looking at the years of establishment of foreign capital investment companies, it is observed that 1.25% the

companies were established during the period of 1961-1989, 24.13 % during the period of 1981-1990, and 74.62 % started their operations after 1991.

In terms of cpital investment, while the Netherlands,England and Germany are first ranking EU countries making the highest investments, regarding the number of companies, the list contains Germany, the Netherlands and England respectively. In terms of the number of countries, it is observed that Germany (809) is followed by Iran (426) among theMiddle East countries. Although Iran ranks second in the list of overall countries, its capital amount is quite low. In this repect, it is apperent that apparent that Iranian origin shareholders are small capital companies.

The first aim of this article is to the study the spatial determinants of FDI in Istanbul Metropolitan Area at the distict level by focussing the period 1990-2003. The second aim of the article is to analysis relationship between FDI motivation and the following sample characteristics ownership pattern of the investment, the sector of investment and country of origin in Istanbul.

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 spatial decisions of MNFs in Turkey with specific reference to policy implications.

The article is organized in seven sections. The next section reviews the relevant theoretical literature. The third part develops a regression model and research hypotheses. Forth part gives information related data and methodology of the study. Five parts defines the characteristics of sample. The statistical results are reported in the sixth section. The final section provides conclusions.

2. LITERATURE FRAMEWORK

This study bases on two basic literature frameworks. First is related to regional determinants affect the preferences of FDI firms. Second is related to the eclectic paradigm of Dunning.

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 related to Istanbul. 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.

Dunning's Eclectic Paradigm

Dunning's eclectic paradigm, which as its name suggests, set out a holistic approach to explain the level of pattern of international production (Dunning, 1988a,1988b). Dunning simply combines several factors that offer a greater explanation of MNE or FDI activity in open markets than any single approach does. Dunning's approach consists of an attempt to analyze the who, where, and why of FDI activity in terms of ownership, location and internalization advantages.Ownership advanges are those that specific to a particular firm and that enable it to take advantage of investment oportunities abroad.

Locational advantages are those advantages specific to a country which dictate the choice of production site. Internalization advantages determine foreign production will be organized through markets or hierarchies.

3. MODEL SPECIFICATION

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

$$\Pi_{ij} = \beta z_j + \varepsilon_j \tag{1}$$

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

$$\Pi_{ik} = \beta z_j + \varepsilon_k \tag{2}$$

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:

$$\text{Prob } [Y = 1|z] = \text{Prob } [\pi_{ij} > \pi_{ik}| z] \tag{3}$$

The conditional logit 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 district where company chooses to invest and the value of "0" for the rest of zones. The conditional logit 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:

$$\text{Prob } (Y_i=j)= \frac{e^{\beta z_{ij}}}{\sum_{j=1}^{i} e^{\beta z_{ij}}} \qquad (4)$$

Profitability will depend on a set of variables that includes characteristics specific to the firm as well as to the potential locations. For example, if a specific firm decided to invest in a zone in Istanbul, the dependent variable Y takes the value of "1" for a zone in Istanbul, and the value of "0" for the other regions in Istanbul. This decision of the firm to invest in one specific zone instead of another depends on the aspects of the firm and the particular zone. The conditional logit model perform a maximum likelihood estimation of models with dependent variables coded as 0/1.

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 sample consists of 610 foreign firms in Istanbul who decided to invest in Turkey the period 1990-2003. This accounts for approximately 10% of the total number of the firms who invested that year, and it is randomly selected. In order to determine the distribution of FDI firms in Istanbul, the study accepts the tri-concentric zone pattern to Istanbul. The division has determined the following zones:

- Eminönü and Beyoglu comprise the first zone with a radius of three kilometers at the core of the city. This zone is also known as the old CBD.
- The second zone is deployed on a 12- kilometer radius including the districts of Besiktaş, Eyüp, Fatih, Kadiköy, Şişli, Üsküdar and Zeytinburnu.
- The peripherial area beyond the second zone constitutes the third zone.

5. CHARACTERISTICS OF SAMPLE

The sample is composed of 610 foreign firms. Of this sample, 20.1%, 57.7% and 22.2% take place in zone 1, zone 2 and zone 3 respectively. While 75.5% of the sample is foreign firms in service sector, 24.5% of the sample is foreign firms in industry sector. Of this sample, 7.7 % are WOS s and 92.3% are JVs. The country of origin of firms is as follows: USA (4.9%), EU (46%), Middle East (16.6%), Asia (6.5%). The time dimension of study 25.5 % of firms established in 2002, 17.5 % and 9.3% of firms established in 2001 and 2000 respectively. The others of firms are distributed between 1990 and1999 in different proportion.

6. EMPIRICAL RESULTS

The results of the model are shown in Tables 3 and 8. According the result of Table 3, FDI firm's investment decision in Zone 1 affects coastal areas. However, density, GDP per capita, previous investment and port affects in negative way the decisions of investment for Zone 1. The existence of infrastructure is not important for investment. Coastal areas increase 1.4 times the preferences of the investment in Zone 1.

According to the result of Table 4, FDI firm's investment decision in Zone 2 affects density, GDP per capita, Infrastructure and Coastal areas. Previous investment and port doesn't affect the decision of preference in positive ways.

According to the result of Table 5, FDI firm's decision in Zone 3 affects the existence of infrastructure and port. However, the population density and previous investment in same zone doesn't affect in positive ways. In decisions of preference in Zone 3, GDP per capita and coastal areas are not important.

Location factors in Istanbul have been shown to vary according to several taxonomies of investor, including origin country, extent of internalization within the MNF and the sector of the investment.

The findings on the sector of the investment are presented in Table 6. Foreign investors in Istanbul are primarily attracted by GDP per capita, the existence of port and coastal areas in service sector. Previous investment is important for foreign investors in Istanbul in the industry sector.

Location factors also vary by degree of foreign ownership. The industrial organizational approach asserts that the ownership of intangible assets lead to the emergence of multinational firms. While the existence of these intangible assets explains why a firm chooses to become multinational, the extent of such ownership explains the choice of participation mode by these multinationals (Deichmann, Karidis and Sayek, 2003, pp.11775). According to the result of Table 7, MNFs investing in Turkey as Joint venture prefer coastal areas. Regression related to the locational decision of wholly-owned subsidiary firms is not statistically meaningful.

Origin-spesific locational preferences among investors are given in Table 8. Firms from the European Union are clearly attracted by agglomeration effects (density, previous investment, GDP per capita). Firms from EU do not prefer Zone 1. The firms from Asia are attracted by agglomeration and infrastructure. For the transition countries, GDP per capita is important to locational preference in Istanbul. Firms from Middle East give priority to information cost and the existence of port in locational preferences in Istanbul.

7. CONCLUSION

This paper uses a conditional logit model to investigate the determinants of FDI in Istanbul at the district level. The findings support the primacy of agglomeration variables in location decision making by foreign firms in Zone 2 in Istanbul. Infrastructure and information cost are important determinants to attract to Zone 2. To attract foreign investor to Zone 3, infrastructure and the existence of port are important.

The use of sub-samples allows the international location decision to be examined with reference to firm's the sector of the investment, level of internalization, county of origin

and origin county characteristics. According to these findings, there are important differences among firms grouped by the aforementioned categories.

REFERENCES

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.

Dunning, J. (1988a) The Eclectic Paradigm of International Production: A Restatement and Some Possible Extensions, Journal Of International Business Studies, 19, 1, pp.1-31.

Dunning, J. (1988b) Explaining International Production, Boston: Unwin Hyman.

Dunning, J. (1991) The Eclectic Paradigm of International Production : A Personal Persfective, in Pitelis,C. and Sugden,R. (eds.) The Nature of Transnational Firm, pp. 117-136.

Dunning , J (1993) Multinational Enterprises and the Global Economy, New York: Addison-Wesley.

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.

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. Distibution of FDI firms in Turkey and Istanbul

Sectors	TURKEY		ISTANBUL	
	number of firms	%	number of firms	%
Agriculture and Mining	414	4.25	156	2.53
Industry	2670	27.39	1592	25.80
Service	6665	68.37	4422	71.67
TOTAL	9749	100	6174	6170

Source: Berköz,L.; Eyuboglu,E. (2005)

Table 2 Variables related to models

Variable	Description
Choice	The binary dependent variable denoting the firms's choice
DENSITY	Population density in districts
GDPPER	GDP per capita (1997 Prices)
PRE	Previous FDI investment in district
INFRA	Roads as a percentage of district total
PORT	District that have port
COAS	Coastal district
ZONE 1	Eminönü and Beyoglu (the old CBD)
ZONE 2	Besiktaş, Eyüp, Fatih, Kadiköy, Şişli, Üsküdar and Zeytinburnu.
ZONE 3	The peripherial area

Table 3 Performance of variables for Zone 1

	Dependent Variable is Choice for zone 1 LR= 3712,218
Variable	Coefficient (z-stat)
DENSITY	-1,000 (12.9757)**
GDPPER	-1,000 (28.4567)***
PRE	-1,0014 (4,2002)**
INFRA	-0,9998 (1.1809)
PORT	-0,7416 (2.8589)*
COAS	1,4148 (4.8045)**

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

Table 4. Performance of variables for Zone 2

	Dependent Variable is Choice for zone 2 LR=1721,162
Variable	Coefficient (z-stat)
DENSITY	1,000 (57.3180)***
GDPPER	1,000 (25.7666)***
PRE	-0.9655 (22.7758)***
INFRA	1.0016 (28.1672)***
PORT	-0.4907 (4.5235)**
COAS	1,5546 (2.7144)*

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

Table 5. Performance of variables for Zone 3

Variable	Coefficient (z-stat)
DENSITY	-1,000 (7.8518)**
GDPPER	1,000 (1.9375)
PRE	-1.0038 (24.1259)***
INFRA	0.9975 (30.0547)***
PORT	2.5543 (14.8790)**
COAS	1.0718 (0.7051)

Dependent Variable is Choice for zone 3
LR=3480,097

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

Table 6. Performance of the sector of the investment

Dependent Variable is Choice
LR=3480,097

Service		Industry	
Variable	Coefficient (z-stat)	Variable	Coefficient (z-stat)
DENSITY	-1,000 (0.2976)	DENSITY	1,000 (0.6120)
GDPPER	1,000 (8.2495)**	GDPPER	1,000 (0.0302)
PRE	0.9993 (0.2221)	PRE	1,0018(5.7144)**
INFRA	1.0003 (0.6596)	INFRA	0.9998 (0.2910)
PORT	0.5400 (4.0003)**	PORT	1.0081(0.0015)
COAS	1.8741 (5.0590)**	COAS	1.1512 (0.6092)

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

Table 7. Performance of variables by degree of foreign ownership

Dependent Variable is Choice

Joint Venture	(LR:330.963)	Wholly-owned subsidiary (4223.003)[1]	
Variable	Coefficient (z-stat)	Variable	Coefficient (z-stat)
DENSITY	1.000(0.9386)	DENSITY	1.000 (0.0082)
GDPPER	1.000(2.2291)	GDPPER	1.000 (0.5399)
PRE	1.0006 (0.0353)	PRE	1.0013 (3.8078)**
INFRA	1.0004 (0.1246)	INFRA	1.0001 (0.1743)
PORT	0.0006 (0.9630)	PORT	0.9898 (0.0033)
COAS	3.3316 (4.2231)**	COAS	1.1699 (0.9595)

Notes: *** Significant at the 0.1 level, ** Significant at the 0.5 level, * Sign
1.   Chi – Square is statistically meaningless

Table 8. Performance of variables by region of origin

	Dependent Variable is Choice						

EU (LR:2462.964)		ASIA (LR: 4262,486)		Transition (LR:4374.889)		Middle East (LR:3826.497)	
Variable	Coefficient (z-stat)	Variable	Coefficient (z-stat)	Variable	Coefficient (z-stat)	Variable	Coefficient (z-stat)
DENSITY	1.0000 (6.0947)**	DENSITY	1,000 (9.1855)**	GDPPER	1,000 (5.9815)**	DENSITY	-1.0000 (9.2449)**
GDPPER	1.0000 (1.0000)**	GDPPER	1,000 (4.1183)**	ZONE		GDPPER	-1.0000 (28.5991)***
PRE	1.0016 (3.4815)*	PRE	1,0006(0.5891)	ZONE 1	-0.1055 (3.6670)*	PRE	1.0004 (0.2220)
INFRA	1.0000 (0.0126)	INFRA	1.0007 (4.9115)*	ZONE 2	-0.5494 (0.3534)	INFRA	1.0002 (0.7820)
ZONE		ZONE		ZONE 3	-0.4239 (0.7232)	COAS	1.4219 (4.6909)**
ZONE 1	-0.0303 (7.3116)**	ZONE 1	-0.1000 (3.7687)**	PRE	1.0003 (1.6005)	PORT	-0.5983(7.1406)**
ZONE 2	-0.2043 (2.4206)	ZONE 2	-0.5235 (0.4065)	INFRA	1.000 (6.4840)**		
ZONE 3	-0.1686 (3.0461)*	ZONE 3	-0.3861 (0.8863)				

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