The Locational Determinants of Taiwanese High-Technology Firms’ Investment in China

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ABSTRACT

This paper describes location consideration of high-technology firms’ foreign direct investment (FDI) in China in conjunction with specific industrial features; further, this study applies the issue to an investing country, namely, Taiwan. In the 1990s most of the foreign high-technology firms, including the Taiwanese information technology firms, concentrated in the southeast coastal area of China; however, in the early 2000s, these firms tended to invest in the Yangtze River Delta area of China. Using binary logistic regression analysis, infrastructure availability, human resources quality, and basic factor supply are important determinants that induce Taiwanese information technology firms producing high-end products to choose the Yangtze River Delta area as their investment location. Conversely, the market condition of the host region encourages Taiwanese information technology firms that manufacture low-end products to choose the southeast coastal area as their investment location.

Keywords: Foreign direct investment; Industrial features; High-technology firms

INTRODUCTION

The choice of location is one of the important issues affecting foreign direct investment (FDI). For a country to attract FDI, it should possess a number of location-specific advantages. In general, these advantages include resource availability, cheap labor costs, transportation costs, infrastructure availabilities, and market characteristics. Some scholars insist that the location factor is often neglected when analyzing multinational enterprise (MNE) activity, and has to be reintegrated into the analyses (Dunning, 1998). Moreover, Giddy and Young (1982) observed that the possession of firm-specific assets together with favorable overseas location factors may allow even small firms in developing countries to undertake FDI. In this case, the choice of location can be classified based on country level (Wheeler and Mody, 1992) and region level (Coughlin, Terza and Arromdee, 1991; Head, Ries and Swenson, 1995; Zhou, Delios and Yang, 2002). In order to gain competitive advantage, firms should choose a location that is best suited to their operational features and operation strategies. However, most of these literatures analyze the aggregate industry or the aggregate manufacturing industry. To the best of our knowledge, only a limited amount of research has been undertaken to explore firms’ choice of location in combination with specific industrial features. Unlike previous empirical studies, this study focuses on the choice of location from the managerial point of view of firms’ FDI decision-making faculty.

The business dictionary and the US government define high-tech industries as those that are involved in biotechnology, computers, audio-video equipment, electronic components, aircraft parts, spacecrafts, scientific instruments, medical instruments, and photographic instruments (Neelankavil and Alaganar, 2003). With technological advancement in high-technology industries increasing at a rapid rate, the operation strategy plays a key functional role in many firms. Decisions pertaining to the choice of location significantly affect the operation and profitability of multinational firms (Makino, Isobe and Chan, 2004; Aulakh and Teegen, 2000). This is because the relevance or importance of a particular firm-specific advantage is perhaps contingent upon the characteristics of the host location (Erramilli, Agarwal and Kim, 1997). Since investment policies aim at the development of higher technology, the Chinese government has also incorporated many investment incentives to attract FDI from high-technology firms.

The sample used in this study comprises firms from one of the high-technology industries, namely, the information technology (IT) industry; these firms are based in Taiwan and were studied from the years 1991 to 2005. The Taiwanese IT industry plays an important role in the global information hardware industry. In 2004, Taiwanese IT
products such as notebooks, motherboards, LCD monitors, and CDT monitors accounted for 72%, 78%, 68%, and 54%, respectively, of the global market share. Industrial development in Taiwan confronts several serious challenges, including wage hikes, labor shortages, demands for better environmental protection, and competition from other developing countries. As a result of these factors, Taiwanese firms are shifting their production facilities offshore. Since 1991, the Taiwanese government has allowed the entry of FDI from Taiwanese firms’ into China. Therefore, the last few years have witnessed an explosive growth in Taiwanese investment in China. In the 1990s, most of the foreign high-technology firms, including Taiwanese IT firms, concentrated in the southeast coastal area of China; however, in the early 2000s, these firms tended to invest in the Yangtze River Delta area of China. Moreover, according to statistical data, Taiwanese IT firms in China mainly manufactured low-end products in the 1990s. However, recently, most of the Taiwanese IT firms locate in the Yangtze River Delta area have been manufacturing more high-end products. Since the Yangtze River Delta area recently becomes one of the main developing areas in China, this study aims to analyze whether the aspects of this location can attract Taiwanese IT firms and induce them into transferring their investment location from the southeast coastal area to the Yangtze River Delta area. In contrast to existing researches, this study attempts to combine industrial features and the advantages of location to elucidate the Taiwanese IT firms’ choice of location in China. The empirical results are expected to present some valuable information for the government of the host country as well as other high-technology firms that are considering FDI.

This paper is divided into the following sections: Section 2 presents a literature review; section 3 discusses the hypotheses; section 4 describes the data used in this empirical study; section 5 presents the empirical results and discusses the main findings of the analysis; and section 6 summarizes the main conclusions, derives several implications, and indicates some suggestions for future research.

**LITERATURE REVIEW**

The propensity of enterprises of a particular nation to engage in FDI will vary depending on the economic and other specific characteristics of their home country and the country in which they propose to invest, the range and types of products they intend to produce, and their underlying management and organizational strategies (Dunning, 1993). If market imperfections and transaction costs explain why FDI occurs, then the locational characteristics of host areas will influence the specific location of FDI. There is abundant empirical evidence indicates that the location-specific decisions made by firms are determined essentially by the incentives of value-maximizing, which necessitates taking into account not only the supply-side factors such as costs but also the demand-side factors such as economies of scale or product differentiation (Thomas, 1980; Caves, 1996). Braunerhjelm and Svensson (1996) analyzed the influence of host country characteristics on the location of foreign production. The results suggested that the effects of agglomeration are predominantly present in technologically advanced industries. Moreover, it indicated that the market size, skilled labor supply, and earlier export pattern affect the location of Swedish multinationals’ overseas production.

Location factors are pronounced in China, where there are wide regional differences in socioeconomic development and many internal barriers to resource mobility (Wei, Liu, Parker and Vaidya, 1998). Pan and Tse (2000) indicated that these specific regions in China (typically along the coast) are preferable not only because they are prioritized but also, more importantly, because a majority of them have traditionally been commercial and industrial centers. The Chinese government provides incentives for FDI in areas such as special economic zones and open cities. Moreover, these areas have a long history of international trade and contact with the outside world (Wei, Liu and Liu, 2005).

Although modern MNEs extend their activities across national boundaries, they are bound by network relationships that are confined to specific localities (Ohmae, 1990). According to the network model, the individual firm is dependent on resources controlled by other firms through its network position in relation to its counterparts in foreign networks (Johanson and Mattsson, 1988). These resources include market opportunities, natural resources, labor, capital, technology, and other strategic assets that are essential to the investor’s long-term survival (Chen, 1998). With regard to the network approach, while the complementarities between local resources and internal capabilities remain important, local factors that minimize the transaction or coordination costs of markets, or those that are specific to the functioning
of network activities, are equally important in the decision concerning location for FDI (Dunning, 1995). Considering the importance of the industrial network, industrial features should also be incorporated into this analysis.

**HYPOTHESES**

It is difficult to establish a benchmark for the choice of location for FDI because it is possible that this is affected by a wide variety of factors, many of which are difficult to measure or observe. Porter (1998) argued that better access to employees, suppliers, and specialized infrastructure would provide important competitive advantages to the productivity of a firm. In order to develop the research framework, the present study is based on the conclusions of some previous theoretical and empirical literatures. This study divides the important factors into the following seven categories: infrastructure availability, industrial environment, investment environment, human resources quality, direct labor supply, basic factor supply, and market conditions. This study considers the structural variables in the regions as the basis for analyzing the factors influencing the choice of location of Taiwanese IT firms in China. The following research hypotheses are generated to guide the subsequent analysis.

**Infrastructure Availability**

The infrastructure conditions play a positive role in attracting FDI because they can help international business by performing better (Rioja, 1999). The availability of well-developed infrastructure represents a firm’s ease of operations in a location and allows producers to transport the related materials, parts, and products to the designated area without any difficulty. Transportation infrastructure is associated with the nature of production, which necessitates the availability of proper roads, railways, ports, and other facilities for the purpose of operational efficiency (Zhou, Delios and Yang, 2002). Many countries have recently experienced acceleration in technological innovation and the potential for developing and exporting high technology products; basic telecommunications is undoubtedly an important factor that contributes to this development (NSF, 2000). Loree and Guisinger (1995) found that telecommunication and transportation infrastructure positively affects the intensity of FDI inflows in the U.S. Moreover, past research has indicated the importance of energy supply on the choice of location in China (Li, 2004). According to the 2004 survey on the investment environment and risk in China, conducted by the Taiwan Electrical and Electronic Manufacturers Association (TEEMA), infrastructure in China is one of the important factors that attract investment. The infrastructure includes transportation facilities (land, sea, and air), the supply of energy (water and electricity), communication facilities (Internet, post, and telecommunication), etc. One of the characteristics of Taiwanese IT firms in China is that most of their products are for export purposes. Therefore, the logistics supporting system is important in order to ensure that these firms have a competitive advantage over other IT firms. At this point, this study proposes the following hypothesis on the choice of location:

*Hypothesis 1*: Compared to the southeast coastal area, the infrastructure is better developed in the Yangtze River Delta area.

**Industrial Environment**

The recent location theory emphasizes some pecuniary externalities that are associated with demand and supply linkages, such as the possibility of using joint networks of suppliers and distributors (Krugman, 1991). Firms in the same industry may be drawn to the same locations because proximity generates positive externalities or the “agglomeration effect” (Head, Ries and Swenson, 1995). In an attempt to explain industry localization, economists propose agglomeration effects in the form of both pecuniary and technological externalities. Some of the externalities are knowledge spillovers from competitors and the use of joint networks of suppliers and distributors. Porter (1990) indicates that within a particular industry in a country, if the related and supporting industries are well developed, the industry will have more of a competitive advantage than its counterpart in another country. The cost side consideration is vital, taking into consideration the industrial features of Taiwanese IT firms. This consideration can save operation costs in several ways such as business, transportation, access to materials and parts, and the gathering of information. Moreover, empirical study indicates that regions with more agglomeration economies tend to attract more foreign
investment (Gong, 1995). Therefore, the industrial environment such as the agglomeration effect is important. Further, “client following” investment involves a company that protects its existing relationships by following-up with its existing customer base abroad (Erramilli and Rao, 1990; Terpstra and Yu, 1988). If the main customers of Taiwanese IT manufacturing firms are in other countries, the factory of the company locates in China can be viewed as a “plant.” Hence, the entry of the first wave of international, large IT-related brand firms tends to act as a magnet, “pulling” other supplier organizations, such as Taiwanese IT firms, into these markets. Here, this study arrives at the following hypothesis:

Hypothesis 2: Compared to the southeast coastal area, the industrial environment is better developed in the Yangtze River Delta area.

Investment Environment

The government policy has generally been viewed as a key variable that can alter the flow of FDI across regions. Host governments have incentives to attract those efficiency-seeking FDIs because they promote growth in exports (Moon and Lado, 2000) and employment (Somlev and Hoshino, 2005). Government intervention in the form of taxes or assistance to foreign investors is an important characteristic of a location according to country or region circumstances (Dunning, 1993). Coughlin, Terza and Arromdee (1991) found that a larger promotional expenditure was associated with increased inward FDI, while higher taxes deterred FDI in the U.S. The Chinese government has offered various investment incentives to attract the inflow of FDI. Some of these investment incentives are corporate tax rates and the lengths of tax holidays. In addition, Zhang (2001) observed that the regional distribution of FDI in China appears to have been determined largely by the FDI incentive policy. Further, Estrin, Hughes and Todd (1997) found that inefficiencies in developing economies led to substantial extra costs and delays with regard to FDI. However, the efficiency of the policies and commercial administration presents large differences within regions in China. Hsiao and Gastanaga (2001) indicated that the improvement of policy transparency and administration efficiency in China will attract more potential foreign investors. Therefore, this study proposes the following:

Hypothesis 3: Compared to the southeast coastal area, the investment environment is better in the Yangtze River Delta Area.

Human Resources Quality

The availability of human capital is a locational advantage for foreign investors since it implies the existence of a soft infrastructure. Industries that are more technology-intensive require better quality in human resources. Taiwanese IT firms in the Yangtze River Delta area mainly manufacture high value-added products such as notebooks and displays, while those in the southeast coastal area mostly manufacture low-end products. Therefore, this study proposes the following hypothesis:

Hypothesis 4: Compared to the southeast coastal area, the quality of human resources is better in the Yangtze River Delta Area.

Direct Labor Supply

Chen, Ku and Liu (1995) suggested that Taiwanese FDI in low-wage countries is mainly aimed at cutting production costs and restoring competitiveness in the export market. A previous study (Wei, Liu, Parker and Vaidya, 1998) shows that provinces in China with lower wage rates attract relatively more pledged FDI. Direct labor implies production concerned labor, especially at the blue-collar level. Additionally, the cost and supply of a basic labor force are vital factors for most manufacturing firms. According to the 2003 survey conducted by the Ministry of Economic Affairs in Taiwan, the Taiwanese IT firms in China are motivated by the cost-side of production factors. Therefore, this study hypothesizes the following:

Hypothesis 5: Compared to the southeast coastal area, the supply-side of direct labor is better in the Yangtze River Delta area.
Basic Factor Supply

In economics, the factor conditions are called the basic factors and include labor, land, and natural resources. Previous studies also revealed that labor and rental costs often account for a large proportion of the total costs in foreign operations (Summary and Summary, 1995; Bajo-Rubio and Sosvilla-Rivero, 1994). Owing to the fact that the southeast coastal area was developed much earlier for FDI purposes, the land supply in that region is saturated. In addition, the agglomeration effect of Taiwanese IT firms in the Yangtze River Delta area facilitates the supply of production factors. Therefore, this study also considers the basic factor supply and hypothesizes the following:

Hypothesis 6: Compared to the southeast coastal area, the availability of land, raw materials, and parts is higher in the Yangtze River Delta area.

Market Conditions

The learning benefits of having an increased knowledge of the foreign country reduce both the cost and the uncertainty of operating in a foreign market (Johanson and Vahlne, 1977). Host country-specific experience, gained through operations in a particular host country over time, helps the firm develop effective organizational routines and capabilities that it can utilize to handle future opportunities and threats in that host country (Barkema and Vermeulen, 1998). However, compared to general international business experience, the value of host country-specific experience tends to be narrower and more location-specific (Cho and Padmanabhan, 2005). If agglomerations such as the users and suppliers of intermediate inputs are located at very close proximity to each other, it will reduce the total transportation cost and generate sufficiently high levels of demand to warrant efforts to produce highly specialized components. This will attract assemblers, which in turn will encourage new arrivals and further specialization (Head, Ries and Swenson, 1995). In addition, a firm can reach out to an extensive network by developing relationships with customers, distributors, suppliers, etc. Such indirect relationships could be very important (Johanson and Mattsson, 1987). Most of the Taiwanese IT firms have set up in China due to cost factors because their products are sold back to Taiwan and other countries. If the host market keeps growing, economies of scale can be exploited and large-scale production can commence. Thus, this study also considers the local market to be vital for the Taiwanese IT firms. Erramilli and Roa (1990) suggested that most other firms tend to expand internationally in order to serve their existing client base. Further, Terpstra and Yu (1988) stated that “because of their knowledge about their home country client firms, firms may be able to better service them in foreign countries than local firms or firms from other countries can.” From the viewpoint of industrial features, the market conditions mentioned here implies the agglomeration of firms in the central-satellite system. Therefore, this study proposes the following hypothesis:

Hypothesis 7: Compared to the Yangtze River Delta area, the market conditions are more attractive in the southeast coastal area.

DATA

In order to verify the hypotheses proposed above, this study conducts a survey that including a number of Taiwanese IT firms with the choice of location for FDI in China. On the basis of the research framework, the empirical variables in this study include seven dimensions and sixteen items. The infrastructure availability dimension comprises the availability of transportation (sea, land, and air), energy (electricity and water) supply, and communication (Internet, post, and telecommunication) facilities. The industrial environment dimension comprises the agglomeration of the same industry and the request for investing in China from other international IT firms. The investment environment dimension consists of investment incentives and commercial administration efficiency. The human resources quality dimension includes the supply and the quality of skilled labor. The direct labor supply dimension comprises the cost and supply of the direct labor force. The basic factor supply dimension consists of the availability of plant land and access to materials and parts. Finally, the market conditions dimension includes the market potentiality, economic development, and demand of central-satellite firms.

In order to construct the formal questionnaire, this study interviewed several Taiwanese IT firms that have invested in China. The questionnaire was created to measure several components, of which seven were selected.
Initially, this study considered conducting a mail survey; however, mail response rates have been proven to be very low. In addition, the sample in this study was limited to firms that had already participated in the process of choice of location for FDI. Therefore, the data for this study are generated through personal interviews conducted with a sample of investment-related project managers or faculty involved with investment decisions.

According to the classification by TEEMA, the Yangtze River Delta area includes Shanghai, Nankin, Jiangsu, and Zhejiang, while the southeast coastal area includes Guangdong, Fujian, and Hainan. The research sample includes Taiwanese IT firms that have already invested in China in the period between 1991 and 2005. These IT firms include computer and computer peripherals related firms manufacturing notebooks, PCs, motherboards, servers, CDT monitors, LCD monitors, optical storage devices, mouse, keyboards, digital cameras, projectors, etc. The data of the firm list is obtained from the Firms’ Name List of Investment in Mainland China, Investment Commission, Ministry of Economic Affairs, Republic of China. Of the 106 investment decision-making faculty in each firm, who were contacted by telephone, 41 confirmed their willingness to participate in the interview. Since this study focuses on the binary locations of the southeast coastal area and the Yangtze River Delta area, samples from other locations were excluded. A total of 37 usable questionnaires were completed.

**EMPIRICAL RESULTS**

This study analyzes the information using a confirmatory factor analysis in order to assess and confirm the reliability of each multi-item subscale. Before any further analysis, all questions that are found to be unreliable are excluded from the scales. Table 1 summarizes the Cronbach alpha coefficients for each multi-item subscale.

<table>
<thead>
<tr>
<th>Determinant</th>
<th>Cronbach's α</th>
</tr>
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<tbody>
<tr>
<td>Infrastructure availability</td>
<td>0.66</td>
</tr>
<tr>
<td>Industrial environment</td>
<td>0.71</td>
</tr>
<tr>
<td>Investment environment</td>
<td>0.71</td>
</tr>
<tr>
<td>Human resources quality</td>
<td>0.78</td>
</tr>
<tr>
<td>Direct labor supply</td>
<td>0.80</td>
</tr>
<tr>
<td>Basic factor supply</td>
<td>0.65</td>
</tr>
<tr>
<td>Market conditions</td>
<td>0.68</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.87</strong></td>
</tr>
</tbody>
</table>

Source: This study

This study finds that not only each dimension but also the total measurement uniformly attained the accepted reliability level (Guilford, 1965). A set of items is generated for each component, accounting for a total of 16 items. These items are measured using a 5-point Likert scale (1 represents “strongly disagree” and 5 represents “strongly agree”).

After ensuring the reliability of our measures, the average scales are calculated in order to create new variables for the regression analysis. This study applies the principal component analysis to test the explanation variance in each dimension. This study extracts the integrated indication in order to reduce the 16 location factors to seven dimensions. In this study, the dependent variable represents the nominal and binary variables. If the most important investment location of the Taiwanese IT firms is the Yangtze River Delta area, then these firms will be defined by “1,” while those in the southeast coastal area will be defined by “0.” Of the 37 firms, 20 (54%) are mainly investing in Yangtze River Delta area. A binary logistic regression model is fitted in order to test the abovementioned hypotheses.

Table 2 presents the results of the binary logistic regression analysis. A positive coefficient means that the factor has an effect on the Taiwanese IT firms’ decision to choose the Yangtze River Delta area as their investment location. Conversely, a negative coefficient implies that the factor has an effect on the Taiwanese IT firm’s decision to choose the southeast coastal area as their investment location.
Table 2. The Results of Binary Logistic Regression

<table>
<thead>
<tr>
<th>Determinant</th>
<th>Coefficient</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure availability</td>
<td>1.98</td>
<td>0.062**</td>
</tr>
<tr>
<td>Industrial environment</td>
<td>0.682</td>
<td>0.47</td>
</tr>
<tr>
<td>Investment environment</td>
<td>0.622</td>
<td>0.45</td>
</tr>
<tr>
<td>Human resources quality</td>
<td>5.183</td>
<td>0.021***</td>
</tr>
<tr>
<td>Direct labor supply</td>
<td>1.037</td>
<td>0.287</td>
</tr>
<tr>
<td>Basic factor supply</td>
<td>2.424</td>
<td>0.046***</td>
</tr>
<tr>
<td>Market conditions</td>
<td>-1.748</td>
<td>0.118*</td>
</tr>
</tbody>
</table>

Note: "***", "**", and "*" indicate statistical significance at the 5%, 10%, and 15% level, respectively.

Source: This study

Infrastructure refers to the physical structure of the Yangtze River Delta area and the southeast coastal area. Based on Table 2, this study finds that the dimensions of transportation facilities, energy supply, and communication facilities significantly affect the decision of the Taiwanese IT firms to choose the Yangtze River Delta area as their investment location. This result confirms Hypothesis 1. Based on the basic information obtained from the research sample, this study finds that locally manufactured products which are mainly for sale in Taiwan or other countries. Therefore, in the case of IT firms that manufacture products that have a short product life, proper transportation infrastructure is extremely important in order to reduce transportation time. A review of past research reveals that in their decisions, most of these firms only consider land transportation facilities. However, this study considers land, sea, and air transportation facilities, taking into account the features of the IT industry. Energy supply, including electricity and water supply, is also considered. Further, a majority of the previous studies have only considered telecommunication facilities as part of the communication infrastructure. However, in this study, the Internet, post, and telecommunication facilities are included in our analysis. A well-developed communication infrastructure allows the Taiwanese IT firms to reduce their administration costs.

Porter (1998) identifies several agglomerative factors that attract firms and make them cluster at certain locations; some of these factors are access to specialized information and the existence of complementary businesses. However, in this study, the empirical result of the dimension of industrial environment indicates that this is not an important factor affecting the Taiwanese IT firms’ decision to choose the Yangtze River Delta area as their investment location. In other words, Hypothesis 2 cannot be supported. Although this may seem like an insignificant result, the agglomerative trend in the Yangtze River Delta area is one of growth.

The investment-related policies in China attract a lot of foreign capital (Zhou, Delios and Yang, 2002). However, investment incentives by the government and policy transparency and commercial administration efficiency of the government are not important determinants affecting the Taiwanese IT firms’ decision to choose the Yangtze River Delta area as their investment location. In other words, since there are many specific investment-related policies in each region, this is not unique to the Yangtze River Delta area. Therefore, Hypothesis 3 cannot be supported.

The workers who provide the brainpower for the operation of the firms are important in high-technology firms. The empirical result of the human resources quality shows that this is a significant determinant in the firms’ choice of location of the Yangtze River Delta area. The human resources quality dimension includes the supply and quality of skilled labor. Therefore, Hypothesis 4 can be confirmed. A comparison between the products manufactured in the Yangtze River Delta area and the southeast coastal area reveals that in the former, mainly high-grade products such as notebooks, LCD monitors, digital cameras, and projectors are manufactured; on the other hand, in the latter, mainly traditional monitors, mouse, keyboards, and desktop computers are manufactured. Therefore, the demand for skilled labor quality differs in these regions. This indicates that the supply and quality of skilled labor are important factors affecting the Taiwanese IT firms’ decisions to choose the Yangtze River Delta area as their investment location.

According to Table 2, the direct labor supply dimension displays no statistical significance between these two regions. At the country level, labor cost is one of the location advantages that China has over other countries. However, at the region level, labor cost is still not a significant location advantage (Zhang, 2001). According to the data offered by
the Institute for Information Industry in Taiwan in 2003, the labor cost in both the Yangtze River Delta area and the southeast coastal area is similar. Thus, Hypothesis 5 cannot be supported.

With regard to the dimension of basic factor supply, the supply of land, raw materials, and parts show a statistical significance in the Taiwanese IT firms’ decision to choose the Yangtze River Delta area as their investment location. Owing to the fact that, historically, the development of foreign capital occurred in the southeast coastal area for a longer period of time, the industrial land is saturated at present. Therefore, the Taiwanese IT firms that enter China at a later stage will opt for other regions such as the Yangtze River Delta area. Moreover, several agglomerative factors attract firms and make them cluster in certain locations (Porter, 1998). Considering the dimension of the supply of raw materials and parts, the Yangtze River Delta area has a well-developed IT-related supporting industry. Therefore, in this research, Hypothesis 6 can be supported.

The regression result reveals that the market conditions is the vital factor influencing the Taiwanese IT firms’ decision to choose the southeast coastal area in China as their investment location. IT-related products that are manufactured by the Taiwanese IT firms in this area are mainly low-end products. However, these firms increasingly seek local markets in China because of their earlier FDI in the country. Clustering behavior is observed in a number of different strategic contexts. Firms from the same country and industry often enter international markets in lockstep (Head, Mayer and Ries, 2002). Business relationships are likely to be complex and long-term and their current form is the outcome of previous interactions among business units. A range of previous research has studied the existence of tangible relationships between firms that are connected to form a “quasi organization” (Laage-Hellman, 1997; Naude and Turnbull, 1998). Agglomeration provides a means of gathering information on the local environment (Mariotti and Piscitello, 1995). Guimaras, Figueiredo and Woodward (2000) indicated that firm-specific agglomeration effects are important, especially for foreign firms, because an existing concentration of foreign-owned firms demonstrates the potential of the location. From the viewpoint of industrial features, the longer the FDI operation in the host region, the more robust will be the industrial network, including suppliers and distributors from the related industry. However, the well-developed agglomeration of suppliers and distributors has a significant relationship with the industry’s operation experience. By calculating the duration of operation in China from the sample, it reveals that the Taiwanese IT firms in the southeast coastal area have been operating here for an average of 6.22 years, while those in the Yangtze River Delta area have been operating for an average of 3.05 years. The demand from central-satellite firms encourages the Taiwanese IT firms to operate in the southeast coastal area. In other words, the market-side factor is important for other Taiwanese IT firms to choose the southeast coastal area as their investment location.

CONCLUSION

With regard to the locational determinants of high-technology firms’ FDI, this study focuses on the binary choice of the Taiwanese IT firms between the Yangtze River Delta area and the southeast coastal area. Using the binary logistic regression analysis, this study observes that infrastructure (including transportation facilities, energy supply, and communication facilities), human resources quality (including the supply and quality of skilled labor), and basic factor supply (including the availability of land and the supply of raw materials and parts) are the important determinants that induce Taiwanese IT firms—producing high-end products—to choose the Yangtze River Delta area as their investment location. Conversely, market conditions (including market potentiality, economic development, and the demand from central-satellite firms) of the host region promote the Taiwanese IT firms—producing low-end products—to choose the southeast coastal area as their investment location. This study has explored the interaction between the industrial features of the Taiwanese IT industry and the location advantages in China. For experienced MNEs that already have an established presence in the host region, decisions for international expansion are increasingly determined by other factors. The empirical results of this study provide further information about the investment decisions of high-technology firms in China.

The results have several implications. The empirical study on the choice of location for FDI, which takes into consideration specific industrial features, will provide more meaningful information for future academic research. For example, a previous study reveals no significantly positive effect of labor quality on FDI in China by aggregate industry
level (Cheng and Kwan, 2000). However, through an analysis of individual IT industry, this study presents the significant effect of labor quality on Taiwanese FDI in the Yangtze River Delta area. Industrial features and location factors influence each other. Moreover, from the managerial perspective, the empirical results of this study offer some valuable information concerning FDI for the Taiwanese IT firms. Well-developed, related, and supporting industries and economies of scale are the main competitive advantages for the Taiwanese IT firms. Therefore, an important future direction for the Taiwanese IT firms is to develop their own brands for their products so that they can maintain their competitive advantage. When formulating national FDI promotion policies, the Chinese government and the governments of other developing countries should reintegrate the industrial features into their deliberations.

In this study, our sample, including investment-related project managers or faculty concerned with investment decisions, has limitations due to the willingness of our sample to participate in the interview. The survey sample does not cover all the firms that meet our research requirement. Since this research focuses only on the Taiwanese IT firms’ choice of location, future research needs to deal with other strategic considerations. Further, in our opinion, future research should incorporate the industry features of IT firms from other countries for further comparison and analysis.

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