

## **Local Embeddedness, Market Focus, and Productivity: Evidence of Taiwanese Manufacturing MNE Subsidiaries in China**

CHUN-SHENG JOSEPH LI, TSER-YIETH CHEN, AND PHIL YIHSING YANG

**ABSTRACT** There has been considerable literature discussing the characteristics and importance of location-specific factors in the context of Foreign Direct Investment (FDI), but very little literature linking location-specific factors to productivity. This study explores, for each location-specific factor, the relationship between the degree of local embeddedness and the labor productivity. We contribute to the body of literature on location-specific factors by arguing that market focuses play a pivotal role in determining the impact of local embeddedness on productivity. Based on their strategic choices, we categorize Taiwanese manufacturing multinational enterprise (MNE) subsidiaries in China into two groups: the local-market-focus group and the export-market-focus group. The paper fits the Ordinary Least Squares (OLS) regression models to the export-market-focus group and the local-market-focus group separately. For these two groups, each local-embeddedness variable exerts different effect on labor productivity. Results also suggest that local-market-focus FDI is more affected by the host country's local business environment than is export-market-focus FDI. Although this study cannot represent all foreign companies in China, its dynamism offers a rich context in which to explore a deeper understanding of foreign companies' business activities in China.

In recent years, emerging markets have enjoyed the highest economic growth rates in the world. Economic growth and liberalization provide remarkable new business opportunities for international companies. With regional economic conditions booming, the outlook for global FDI flowing into emerging markets is expected to be promising in the coming future (Pacek and Thorniley 2007; UNCTAD 2007). This study focuses on the local business activities conducted by multinational enterprise (MNE) subsidiaries investing in an emerging market. MNEs undertake FDI to exploit external resources to improve operation efficiencies and firm competitiveness (Chen and Chen 1998). According to Dunning's (1988a,b,) "eclectic" paradigm, MNEs that possess ownership-specific advantages (O) internalize (I) these advantages to invest overseas to seek location-specific factors (L). Location-specific factors play a crucial role in the context of FDI. For MNEs, several major types of location-specific factors are particularly important: (1) markets, (2) resources, (3) production costs, (4) political conditions, and (5) cultural/linguistic affinities (Peng 2009).

In global business, what happens after the initial entry stage of investment may be critical to the success of a MNE subsidiary. The process of local embeddedness and adaptation to the host economy is likely to be influential in productivity. MNEs respond to the host country's location-specific factors and then adapt their local investment activities accordingly. For MNEs, location-specific factors are different kinds of crucial resources that can be accessed and used in a host country through

*Chun-Sheng Joseph Li is an Assistant Professor in the Department of International Business, National Taichung University of Education, Taiwan. His e-mail address is: d1211114@yahoo.com.tw. Tser-Yieth Chen is a Professor in Graduate Institute of International Business, National Taipei University, Taipei, Taiwan. His e-mail address is chenty@mail.ntpu.edu.tw. Phil Yihsing Yang is an Associate Professor in Master Program of Business Administration, National Taichung University of Education, Taichung, Taiwan. His e-mail address is: ysyang@ntcu.edu.tw*

Submitted February 2014; revised September 2014; accepted October 2014.

© 2016 Wiley Periodicals, Inc

FDI. Location-specific factors such as the host country's local employment, local capital resources, local procurements, local market, and political conditions are all likely to affect MNEs' business behaviors, management operations, and productivity.

There has been considerable literature discussing the characteristics and importance of location-specific factors in the context of FDI (Campa and Guillén 1998; Erramilli, Agarwal, and Kim 1997; Jensen and Pedersen 2011; Sethi et al. 2003; Tatoglu and Glaister 1998), but very little linking location-specific factors to productivity. Many MNEs have utilized localization as a global business strategy. Using the survey results of 111 MNE subsidiaries in China, Lam, and Yeung (2010) analyze the impact of local staff on the subsidiary performance. Moreover, Law et al. (2009) sample 229 MNEs operating in China to explore the antecedents of successful localization. In Law et al.'s (2009) study, localization in the company setting is defined as the degree to which expatriate managers are replaced by local workers. It can be seen that these two papers (Lam and Yeung 2010; Law et al. 2009) solely concentrate on the analysis of local staff (managers) and performance. More importantly, they do not address the effect of market focus on the relationship between localization and subsidiary performance.

MNEs operating in various areas pursue various local linkages to maintain or reinforce their core relationships in the home countries. Chen, Chen, and Ku (2004) brought to our attention the research on local linkages. The determinants, features, and importance of local linkages in host countries have been examined in their studies. Using Taiwanese MNE subsidiaries operating overseas as the sample for their study, Chen, Chen, and Ku (2004) suggested that the local linkage intensity of a MNE subsidiary varies by investment area, entry mode, firm size and the nature of the local network in which a MNE subsidiary is *embedded*. More local linkages will be developed by a MNE subsidiary if it is seeking distinctive and inimitable resources as opposed to homogeneous and reproducible resources. Foreign companies in local linkages usually start with the linkage that carries the least risk to the primary business system. In addition, Yeung and Li's (2000) case study in Shanghai confirms the critical role of local MNE embeddedness in regional networks against the background of international business. Together with enlarging local involvement in production linkages and management and technology transfer, growth has been extended to numerous local firms. It is noted that the theories used by these scholars (Chen and Chen 1998; Chen, Chen, and Ku 2004; Yeung and Li 2000) are Dunning's "eclectic" paradigm and local linkage theory.

However, what is missing in these papers (Chen and Chen 1998; Chen, Chen, and Ku 2004; Yeung and Li 2000) is the analysis that relates subsidiary productivity to local linkages. Given the strategic importance of location-specific factors to MNE subsidiaries (Campa and Guillén 1998; Erramilli, Agarwal, and Kim 1997; Jensen and Pedersen 2011; Sethi et al. 2003; Tatoglu and Glaister 1998), this lack of theoretical and empirical attention to the local linkage-productivity relationship seems particularly surprising. This study seeks to add to and complement prior research. The purpose of this study is to fill this vacuum by providing empirical evidence to analyze, for each location-specific factor, the effect of the degree of local embeddedness (the intensity of the local linkage) on the subsidiary productivity. We also intend to contribute to the literature on location-specific factors by arguing that market focuses play a pivotal role in determining the impact of local embeddedness on the productivity.

To verify our propositions regarding MNE subsidiaries investing in an emerging market, we chose Taiwanese investment in China as a case study. China is the largest emerging market and remains the fastest growing economy. In addition, China is one of the top destinations of global FDI. Therefore, MNEs definitely need to explore a deeper understanding of China's domestic business circumstances.

As early as the 1990s, based on concern for comparative costs and profits, Taiwanese companies have been making large investments in China. Besides the geographical proximity, the cultural distance between Taiwan and China is small (the similar customs and shared language, etc.). FDI plays a critical role in economic interaction across the Taiwan Strait. According to Taiwan government statistics, from 1991 to April 2011, the accumulated Taiwanese outward FDI in China was over \$100 billion (Taiwan Executive Yuan 2011). As Taiwan has been one of the main contributors to China's recent economic development, a study focusing on the productivity of Taiwanese FDI in China is timely.

## Theory and Literature

**Local embeddedness and local linkages.** In terms of location-specific advantages, Dunning's (1988a,b) "eclectic" theory explained that for FDI, the advantages originate from exploiting local resource endowments or factors that a host country provides and that a MNE considers valuable to combine with its own competitive advantages. MNEs will opt for one motivation or another to invest more and/or choose higher-equity modes in those countries which provide greater location-specific advantages.

Location-specific factors represent the special advantages accruing to MNEs investing in a particular host country. For MNEs, "the locational configuration of a firm's activities may itself be an ownership-specific advantage as well as affect the modality by which it augments, or exploits, its existing ownership advantages" (Dunning 1998: 60). Therefore, location-specific factors are likely to substantially affect MNE subsidiaries' firm competitiveness and future development in the host country (Campa and Guillén 1998; Erramilli, Agarwal, and Kim 1997; Narula and Dunning 2000; Peng 2009; Tatoglu and Glaister 1998). Several scholars suggested that the local business environments and political systems of emerging markets are relatively less developed (Filatotchev et al. 2007; Meyer and Nguyen 2005; Pacek and Thorniley 2007). It is important to examine, for each location-specific factor, how the degree of local embeddedness influences the performance of MNE subsidiaries operating in emerging markets.

MNEs should not be presumed just as bounded units and owners of resources, but also as institutions with permeable and very blurred boundaries (Benito, Lunnan, and Tomassen 2011; Dicken and Malmberg 2001). MNEs create local linkages to utilize location-specific factors and support their foreign business activities in the host country (Chen and Chen 1998; Chen, Chen, and Ku 2004; Dicken 2004). The nature of local linkages must be understood from the concept of a business network. Ghoshal and Bartlett (1990) developed an inter-organizational network theory of the MNEs. In Ghoshal and Bartlett's study (1990), a MNE is regarded as an inter-organizational system rather than as an organization. Hakansson (1992) suggested that a business network is shaped through interactions which occur in accordance with the perceptions of the network held by individual firms.

To penetrate a foreign market and improve operational efficiency, all MNEs in the host country need to be *embedded* in one or more networks via local linkages (UNCTAD 2001). MNEs in the host country set up local linkages with local partners, suppliers, distributors, customers, government agencies and so on, to exploit the local resources (Dicken 2004).

In this study, a local network is defined as a web of interdependent relationships upon which business exchange transactions between organizations are undertaken locally. "Embeddedness" represents the fact that business development is influenced "by actors' dyadic relations and by the structure of overall network of relations" (Grabher 1993: 4). The "local embeddedness" of a MNE subsidiary means the network of relationships between a MNE subsidiary and its suppliers, competitors, consumers, and public units where it operates (Granovetter 1985; Harrison 1992; Yeung and Li 2000),

and especially the degree to which local business is integrated into the MNE subsidiary's network. As regards the definition of "the degree of local embeddedness," we refer to the definition of "the intensity of the local linkage" (Chen, Chen, and Ku 2004). In this study, "the degree of local embeddedness"—or "the intensity of the local linkage"—is measured as "the ratio of local operations relative to the total operations." Moreover, we suggest that for MNE subsidiaries, "the extent of local embeddedness" indicates the strategic importance of local operations through FDI. In the empirical models, we measure the extent of local embeddedness in four categories (Chen, Chen, and Ku 2004). They are defined as:

1. Local sales ratio: the proportion of final products that are sold in the host country's local market (sales linkage);
2. Local employment ratio: the proportion of the workforce that is accounted for by local workers (worker linkage);
3. Local capital ratio: the proportion of financial resources are obtained from local financial institutions (financial linkage);
4. Local content ratio: the proportion of materials, components, and parts that are procured from local suppliers (supplier linkage).

***Local-market-focus FDI vs. export-market-focus FDI.*** The market focus of foreign subsidiaries represents a critical strategic choice for MNEs to operate in emerging markets (Luo and Park 2001; Pan and Chi 1999). Thus, based on their strategic choices, we can categorize Taiwanese MNE subsidiaries in China into a local-market-focus group and an export-market-focus group. The ultimate purposes and operation types of these two FDI strategies are significantly different. This study attempts to explore the impact of local embeddedness on the productivity of export-market-focus MNE subsidiaries and on the productivity of local-market-focus MNE subsidiaries respectively.

In terms of local-market-focus MNE subsidiaries, as pointed out by Luo (2003), MNEs establish subsidiaries in different host countries based on the comparative advantages. In other words, the motive to manufacture abroad arises from factor price differences across the borders. Export-market-focus MNEs' vertical FDI strategy, in which the production process is fragmented into several stages, is to utilize cross-nation absolute and comparative advantages by locating firms in different nations that specialize in different stages of production (Woodward and Rolfe 1993).

Due to the lower-cost input factors in China, many export-market-focus MNEs exploit their Chinese subsidiaries as assembly and export bases. Cost-cutting requirements often prompt export-market-focus (efficiency-seeking) MNE subsidiaries to move to new low-cost production areas (Sethi et al. 2003). Export-market-focus FDI generally reflects a trend toward global sourcing in intermediate production (Woodward and Rolfe 1993).

In contrast, some scholars suggested that the main goal of local-market-focus MNEs is trade substitution and to access the host country market by replicating abroad the production of final goods (Odagiri and Yasuda 1996; Pan and Chi 1999; Zhang et al. 2007). Luo (2003) assumed that local-market-focus MNE subsidiaries sell a high proportion of their production in the host country market.

The strategy for local-market-focus MNE subsidiaries is to gain larger economies of scale by selling more products to more customers in the host country's local market and increase their performance. This type of investment is also called horizontal-FDI strategy because the MNEs conduct the same (or similar) activities (e.g., manufacturing and selling products) in each country. Many MNEs consider China as a potentially promising market because of the large population and continuous high-economic-growth prospect (Liu 2006; Luo 2003).

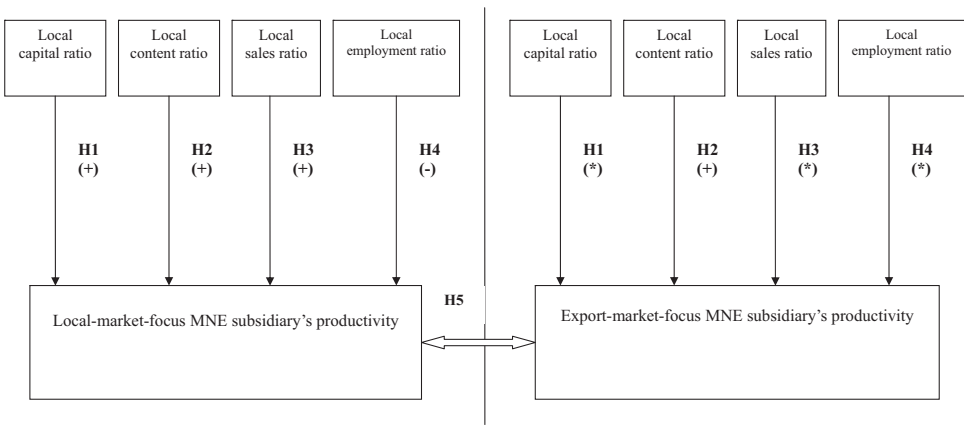


FIGURE 1. CONCEPTUAL FRAMEWORK.

**Research Hypotheses**

Local linkages drive FDI because MNEs can gain access to location-specific factors in the host country via network connections (Holm, Eriksson, and Johanson 1999). MNEs create local linkages to exploit location-specific factors that further contribute to productivity. Local linkage formation by MNEs is usually very variable (Hallen, Johanson, and Seyed-Mohamed 1991). Therefore, it is presumable that the nature of local networks and the intensity of local linkages (the degree of local embeddedness) are likely to affect the utilization efficiency of location-specific factors and consequently influence the productivity. Based on the discussions given above, a conceptual model of the mechanism of local embeddedness to impact the productivity of MNE subsidiaries in a host country can be established (Figure 1).

In the empirical models, various subsidiary-specific variables are included to test several hypotheses of interests. As regards firm performance, general speaking, returns on sales (ROS) or returns on assets (ROA) is frequently used by managers and financial analysts to measure corporate management effectiveness. However, MNEs are usually reluctant to give correct financial data associated with their overseas subsidiaries (Brouthers, Brouthers, and Werner 1999; Chiao, Yu, and Peng 2009; Gong et al. 2005; Nitsch, Beamish, and Makino 1996); they generally underreport their foreign profits in newly industrialized economies (NIEs) (Hoskisson et al. 2000). Some scholars point out that, in an emerging economy, labor productivity (sales per employee) perhaps is a more reliable measure of performance (Seung, Li, and Tse 2006). Therefore, we employ a sales-based measure: productivity as the dependent variable. The logarithm of sales per employee is a widely used indicator of performance (e.g., Ding, Zhang, and Zhang 2008; Gong 2006; Seung, Li, and Tse 2006).

**Local capital ratio.** As regards working capital, MNEs can source capital from their parent company or from the host countries. However, in China, as top managers are appointed by the government, China's banks are obligated to conduct government policy, and never have been fully market-oriented institutions. In reality, China's four state-owned banks (SOBs) (Industrial & Commercial Bank of China, Bank of China, China Construction Bank, and Agricultural Bank of China) function with the role of governmental policy banks (OECD Economic Survey of China 2005).

Significant reforms have been introduced to China's banking sector. Improved risk regulation practices have been conducted by the banking regulator and the classification system for NPLs (non-performing loans) has been modernized. Nevertheless, a move to private ownership and changes in management is not likely to occur in the near future (OECD 2005). In practical terms, because the

Chinese government owns both the SOBs and state-owned enterprises (SOEs), the former usually are required to grant loans to the latter, due to political pressure (from the Chinese government) rather than based on commercial factors. Besides, SOBs in China usually view private companies as carrying relatively higher loan risks (Si and Jing 2011). A study undertaken by the Fujian provincial government suggested that 86 percent of private small and medium-sized enterprises (SMEs) in its province have difficulty in obtaining loans from SOBs (Jiang 2005). Therefore, for MNE subsidiaries in China, the local capital ratio could be regarded as a proxy of the extent of political support from (*guanxi* with) the Chinese government.

In China, many Chinese local governments usually conduct protectionist measures to reduce competition from other areas of the country and abroad (Lieberthal and Lieberthal 2004, Luo, Xue, and Han 2010). Therefore, for local-market-focus Taiwanese MNE subsidiaries in China, not surprisingly the great extent of capital localization (high degree of political support from local Chinese government) will result in a positive impact on productivity. By contrast, export-market-focus Taiwanese subsidiaries investing in China usually are likely to move to new low-cost production areas (even move out of China and invest in other countries) due to cost-cutting economic pressure. Therefore, it is much more difficult for them to establish local financial linkages with local Chinese banks. Hence we have the following hypothesis:

H1 For a local-market-focus Taiwanese MNE subsidiary in China, the local capital ratio is positively associated with productivity. Nevertheless, for an export-market-focus Taiwanese MNE subsidiary in China, the local capital ratio is not related to productivity.

**Local content ratio.** In Dunning's (1988a,b) "eclectic" paradigm, local resource endowments and local production costs in the host country are two major types of location-specific factors in the explanation of MNEs' global investment activities. Moreover, Porter (1985) points out three generic competitive strategies, (1) cost leadership, (2) differentiation, and (3) focus. A cost leadership strategy indicates that a company's theory of how to compete successfully centers on low costs and prices. A cost leader can charge lower prices and make larger profits than higher cost rivals. For Taiwanese MNEs in China, utilizing China's lower-cost local procurement is of a cost leadership strategy.

The study of Dyer (1996) suggests that the establishment of local supplier linkages requires relation-specific investments. In general, for export-market-focus MNE subsidiaries in emerging markets, to access low-cost input factors and serve as part of the parent company's global production system, a high local content ratio is likely to help to save input factor costs. Nevertheless, local-market-focus MNE subsidiaries will also be able to improve their productivity if they can successfully develop local supplier linkages (Peng 2009).

Lower-cost local procurement could reduce the input factor costs per unit product. A cost leadership strategy suggests that providing the same product value at a lower price is likely to attract more customers (Porter 1985). Therefore, for both export-market-focus and local-market-focus MNE subsidiaries in China, the productivity (sales per worker) is likely to positively vary with the local content ratio. Such logic suggests the following hypotheses:

H2 For a local-market-focus Taiwanese MNE subsidiary in China, the local content ratio is positively associated with the productivity. For an export-market-focus Taiwanese MNE subsidiary in China, the local content ratio is also positively related to the productivity.

**Local sales ratio.** For local-market-focus FDI, the location-specific advantage is the existence of fast-growing market demand and customers willing to pay (Peng 2009). Therefore, market size is one of the most important considerations in making investment location decisions. Van Hoesel (1999) suggests that companies from newly industrialized economies (NIEs), exploring new market

opportunities abroad, tend to invest in countries with huge market potential more than in countries where market potential is small.

In the initial period (the early 1990s), Taiwanese MNEs were not permitted to access China's domestic market due to the Chinese government's protectionist policies (except some firms with special permission). Therefore, in the beginning stage, almost all Taiwanese companies in China exported all their output to the international market. After the mid-1990s, this situation changed as China's domestic market gradually opened to international companies. Taiwanese companies began to gradually increase their local sales in China (Liu 2006).

For local-market-focus MNE subsidiaries, which are established to enlarge local sales successfully in the host country; the local sales ratio is an important indicator for the degree of expansion (Luo 2003; Luo and Peng 1999). Greater local sales expansion is likely to benefit the productivity (Gamble 2010). Conversely, export-market-focus Taiwanese MNE subsidiaries in China usually are set up to employ lower-cost input factors and serve as export bases to other countries. In other words, the export-market-focus group has a strategy that is not associated with China's domestic market, and is unlikely to benefit from local market expansion. Therefore, for the export-market-focus group, the effect of Chinese local sales on labor productivity (sales per worker) is likely to be insignificant. In light of the above, we hypothesize:

H3 For a local-market-focus Taiwanese MNE subsidiary in China, the Chinese local sales ratio is positively associated with the productivity. Nevertheless, for an export-market-focus Taiwanese MNE subsidiary in China, the Chinese local sales ratio is not related to the productivity.

**Local employment ratio.** MNEs conducting FDI activities usually hire large numbers of local employees in both developed and developing countries (Peng 2009). In this study, we define the employment effect created by a Taiwanese subsidiary, in China, as the total number of local Chinese workers employed within the Taiwanese subsidiary (Chen, Chen, and Ku 2004).

MNEs, both export-market-focus and local-market-focus, to lower wage costs and increase their profitability, need to take advantage of the lower-cost local labor forces in China. Although in recent years the wage costs in China (especially in the coastal areas) are going up, they are still significantly lower than the wage costs in Taiwan. Therefore, Taiwanese MNE subsidiaries in China are inclined to employ a high percentage of local Chinese workers. Because the marginal local Chinese labor productivity is likely to diminish, the labor productivity is negatively related to the local employment ratio.

Conversely, for the export-market-focus group, their Chinese subsidiaries usually serve as companies which take on one or more stages of production as part of the parent companies' global production system. Thus the local employment ratio is not significantly associated with labor productivity. Their labor productivity mostly hinges on the sales in the international market. Thus we hypothesize:

H4 For a local-market-focus Taiwanese MNE subsidiary in China, the local employment ratio is negatively associated with the productivity. Nevertheless, for an export-market-focus Taiwanese MNE subsidiary in China, the local employment ratio is not related to the productivity.

**The impact of local embeddedness.** In general, local-market-focus subsidiaries in host countries, to promote local sales, need to put forth much more effort to establish local marketing channels, local distribution networks and local sales linkages (Hakansson 1992; Hallen, Johanson, and Seyed-Mohamed 1991). In contrast, the FDI of export-market-focus MNE subsidiaries is primarily serving international buyers rather than local customers. Local responsiveness in the host country is weighed much less than the important resources owned by their parent companies in the home country. Therefore, the operations of local-market-focus MNE subsidiaries in the host countries are more *embedded* in local linkages than those of export-market-focus MNE subsidiaries. Such logic suggests the following hypothesis:

H5 The impact of local embeddedness on the productivity of a local-market-focus Taiwanese MNE subsidiary is larger than its impact on the productivity of an export-market-focus Taiwanese MNE subsidiary in China.

## Methods

**Data and sample.** The data for this study originate from the survey for the project “The Year 2004 Annual Report: Analysis of the Operations of Taiwanese Subsidiaries Investing in China.” This annual project is initiated and sponsored by the Investment Commission (IC), the Ministry of Economic Affairs (MOEA), Taiwan Executive Yuan. This project is conducted by the Chun-Hua Institute for Economic Research (CIER) in Taipei. Of this project, the sample list, drawn from the “Directory of Enterprises Investing in Mainland China,” compiled by MOEAIC consists of 3,050 companies (investment capital in China, over \$1 million US dollars) officially registered to MOEAIC. According to Taiwanese government regulations, Taiwanese banks and insurance companies were not allowed to invest in China until 2010; therefore this study is focusing on an analysis of the manufacturing sector.

The survey of “The Year 2004 Annual Report” includes: (1) static data: based on the operation of the respondent Taiwanese MNE subsidiaries investing in China on 31 December 2004, (2) dynamic data: based on the operation of the respondent Taiwanese MNE subsidiaries investing in China from 1 January to 31 December 2004. The CIER mailed the survey questionnaires directly to the top managers of these sample companies and began the telephone follow-ups in September 2005. After several telephone follow-ups, 981 samples filled out by these top managers were successfully collected (response rate about 32.16 percent) with satisfactory data quality and validity. Enterprises are in both manufacturing and services sectors. This annual report was finished in June 2006. After we check the CIER’s dataset and delete all the samples in the services sector or with missing values, 201 valid samples from the survey were obtained, which constitute the basis of the following empirical analysis.

As regards classification of subsidiaries, several papers suggest that the market focus should be measured by its export intensity (the percentage of the value of a subsidiary’s export sales relative to its total sales). A high export intensity indicates a greater export market focus, whereas a low export intensity indicates a greater local market focus (Odagiri and Yasuda 1996; Pan and Chi 1999; Zhang et al. 2007). We therefore chose 50 percent as the cut-off point (Fischer, Dier, and Snickars 2001; Katos, Lawler, and Seddighi 2000). In this study, we categorize Taiwanese manufacturing MNE subsidiaries with high export intensity (over 50 percent) as the export-market-focus group (the valid sample is 96 firms), while we classify Taiwanese manufacturing MNE subsidiaries with low export intensity (less than 50 percent) as the local-market-focus group (the valid sample contains 105 such firms). In regards to export intensity, we then conducted a *t*-test to examine if a statistically significant difference exists between the export-market-focus group and the local-market-focus group. The T-test result shows that there is a statistically significant difference between these two groups ( $p < 0.05$ ). In other words, this *t*-test result supports our firm group categorization.

**Measurement of variables.** In terms of independent variables, four explanatory variables will be employed in this empirical analysis: local employment ratio (local worker linkage), local capital ratio (local financial linkage), local sales ratio (local sales linkage), and local content ratio (local supplier linkage) to measure the scope and extent of local embeddedness. In addition, to the extent that the company size reflects a company’s possession of such benefit-yielding assets, large-sized companies are more likely to predict better performance, therefore we control the variable: subsidiary size (share capital). Some scholars suggest that, MNE subsidiaries with more experience usually have more information about the local circumstances and are more likely to improve their productivity (Carlsson,



TABLE 1. MEASURES AND PREDICTED SIGNS (LOCAL-MARKET-FOCUS VS. EXPORT-MARKET-FOCUS GROUP).

		Predicted signs	
Variables	Measures	Local-market-focus MNE subsidiaries	Export-market-focus MNE subsidiaries
Dependent variable			
Subsidiary productivity	Ln(Sales per employee)		
Independent variables			
Local employment ratio	Local Chinese workers/ total workers	—	*
Local capital ratio	Local Chinese capital/ total working capital (except share capital)	+	*
Chinese local sales ratio	Sales in China’s local market/total sales	+	*
Local content ratio	Procurement in China/ total procurement of raw materials, components, and intermediate products	+	+
Control variables			
Firm size	Ln(Share capital)	*	+
Electronic-industry dummy variable		*	*
Firm’s age	Years of the subsidiary investing in China	+	*
Ownership dummy variable	Joint Venture (JV) = 1, Wholly Owned Subsidiary (WOS) = 0	*	*

Note: In the questionnaire, sales are reported in China RMB or new Taiwan dollar. They are converted to US dollar.

Axel, and Fredrik 2005; Li 1995). Therefore, the firm's age (the firm's experience), in this study, is also included as one of the control variables. In addition, we also control for the electronic-industry dummy effect by using an electronic-industry dummy variable. Finally, ownership type is defined as a dummy variable, with 1 if joint venture (JV) and 0 for wholly owned subsidiary (WOS). Table 1 presents the definitions of variables and the predicted signs according to the stated hypotheses.

TABLE 2. CORRELATION COEFFICIENTS (LOCAL-MARKET-FOCUS GROUP VERSUS EXPORT-MARKET-FOCUS GROUP).

Variables	1	2	3	4	5	6	7
1. Labor productivity	1.00	0.33	0.04	-0.15 <sup>†</sup>	0.10	0.11	0.17*
2. Size	0.40	1.00	0.17*	-0.01	-0.16 <sup>†</sup>	0.27**	0.12
3. Firm's age	0.12	0.39**	1.00	0.00	0.02	0.13	0.03
4. Local employment ratio	-0.18*	0.09	0.13 <sup>†</sup>	1.00	0.06	0.03	-0.20
5. Local content ratio	0.12	-0.02	0.29**	-0.03	1.00	-0.24*	-0.14
6. Local capital ratio	0.22*	0.20*	0.31**	0.20*	0.33**	1.00	0.21*
7. Chinese local sales ratio	0.17*	-0.08	-0.08	-0.07	0.22*	0.15 <sup>†</sup>	1.00

Notes: (1) Significant levels: <sup>†</sup> $p < 0.1$ , \* $p < 0.05$ , \*\* $p < 0.01$ .

(2) Labor productivity:  $\text{Ln}(\text{Sales per worker})$ , Size:  $\text{Ln}(\text{Share capital})$ .

(3) Above the diagonal is the export-market-focus group; below the diagonal is the local-market-focus group.

### Empirical Results

Table 2 presents the correlation coefficients between all variables included in this study. Above the diagonal is the export-market-focus group; below the diagonal is the local-market-focus group. In the export-market-focus group, none of the variables included in the same model has a correlation coefficient that exceeds 0.35. Moreover, in the local-market-focus group, none of the variables included in the same model has a correlation coefficient that exceeds 0.40. The correlation matrix suggests a low degree of correlation between these variables, and so we could employ them all in the models. In the empirical analysis, we conduct hierarchical OLS regression models to compare the impact of local embeddedness on the subsidiary productivity of Taiwanese local-market-focus MNEs with export-market-focus MNEs in China. The multicollinearity is checked by testing the VIF values of all independent and control variables in the models. In this empirical study, the results (1.04–3.99) suggest the absence of multicollinearity (Belsely, Kuh, and Welsch 1980).

Table 3 reports all the results of hierarchical OLS regression models. In Table 3, Model 1 examines the relationship between the control variables (firm's age, subsidiary size, electronic-industry dummy variable, and ownership-type dummy variable) and productivity. In Model 2, besides control variables, we include four local-embeddedness variables (local employment ratio, Chinese local sales ratio, local capital ratio, and local content ratio). Moreover, we have fitted the OLS regression models to the export-market-focus group and the local-market-focus group separately.

**Taiwanese export-market-focus MNE subsidiaries in China.** In Table 3, the results show that for Taiwanese export-market-focus MNE subsidiaries in China, the variance explained by Model 1 is 0.12, indicating 12 percent of the variance for productivity could be explained by these four control variables. In Model 1, only subsidiary size is positively related to the productivity ( $p < 0.01$ ). The statistical results from Model 2 also show a strong, significant positive relationship between subsidiary size and productivity ( $p < 0.01$ ). However, the firm's age, electronic-industry dummy variable, and ownership-type dummy variable do not produce a significant impact on productivity respectively.

TABLE 3. HIERARCHICAL OLS REGRESSION ANALYSIS OF THE IMPACT OF LOCAL EMBEDDEDNESS ON THE SUBSIDIARY PRODUCTIVITY.

Variables	Model 1		Model 2	
	Export-market-focus group	Local-market-focus group	Export-market-focus group	Local-market-focus group
Constant	2.96 (1.44)	10.28 (6.61)**	9.48 (1.46)	12.96 (5.80)**
Control variables				
Size	0.34 (3.37)**	0.02 (0.01)	0.34 (3.26)**	-0.06 (-0.56)
Firm's age	-0.03 (-0.31)	0.15 (1.25)	-0.04 (-0.39)	0.22 (1.99)*
JV	0.03 (0.30)	-0.08 (-0.73)	0.04 (0.38)	-0.11 (-1.08)
Electronic-industry dummy variable	-0.09 (-0.85)	0.01 (0.09)	-0.04 (-0.34)	0.07 (0.70)
Local-embeddedness variables				
Local employment ratio			-0.12 (-1.19)	-0.25 (-2.67)**
Local content ratio			0.19 (1.78) <sup>†</sup>	0.30 (2.87)**
Local capital ratio			0.04 (0.39)	0.36 (3.26)**
Chinese local sales ratio			0.12 (1.21)	0.17 (1.83) <sup>†</sup>
<i>F</i>	3.10*	0.49	2.36*	3.26**
<i>R</i> <sup>2</sup>	0.12	0.02	0.18	0.21
$\Delta R^2$			0.06	0.19

Notes: (1) Significant levels: <sup>†</sup> $p < 0.1$ , \* $p < 0.05$ , \*\* $p < 0.01$ ; figures in parentheses represent *t*-values.

(2) Wholly owned subsidiary (WOS) is the reference ownership type.

Moreover, Model 2 reaches statistical significance ( $F = 2.36$ ,  $p < 0.05$ ) and accounts for 18 percent of the variance for productivity. Compared to that of Model 1, the local-embeddedness variables explain an extra 6 percent of the variance for productivity (the change in  $R^2$  is 0.06). The empirical result of Model 2 suggests that, for these four local-embeddedness variables, only local content ratio is modestly positively associated with productivity ( $p < 0.1$ ). In other words, for the export-market-focus group, the result supports **Hypothesis 2**. For the other three local-embeddedness variables (local employment ratio, Chinese local sales ratio, and local capital ratio), we see no significant direct effects from the regression of productivity on them. Overall, for the export-market-focus group, the Model 2 results support all the hypotheses (**Hypothesis 1** to **Hypothesis 4**) about the effect of the local embeddedness variables on the labor productivity.

**Taiwanese local-market-focus MNE subsidiaries in China.** As regards Taiwanese local-market-focus MNE subsidiaries in China, in Table 3, the variance explained by Model 1 is 0.02. Only 2 percent of the variance for productivity could be explained by these four control variables. As shown in Model 1, the subsidiary productivity level does not vary significantly with the firm's age. However, in Model 2, the subsidiary productivity is positively related to the firm's age ( $p < 0.05$ ). In addition, the subsidiary size, electronic-industry dummy variable, and ownership-type dummy variable do not have a significant effect on subsidiary productivity respectively.

We found that Model 2 reaches statistical significance ( $F = 3.26$ ,  $p < 0.01$ ) and accounts for 21 percent of the variance. It can be seen that in Model 2, the local-embeddedness variables explain an extra 19 percent of the variance for subsidiary productivity (the increase in  $R^2$  is 0.19). This suggests that for the local-market-focus group, the four local-embeddedness variables have relatively higher explanatory power. As mentioned before, for the export-market-focus group, the four local-embeddedness variables only explain an extra 6 percent of the variance for productivity. Therefore, the aggregate impact of the local-embeddedness variables on the productivity of local-market-focus Taiwanese MNE subsidiaries, investing in China, is larger than the impact on the productivity of export-market-focus Taiwanese MNE subsidiaries. These results support Hypothesis 5.

The empirical results of Model 2 also show that, for these four local-embeddedness variables, subsidiary productivity varies significantly positively with local capital ratio ( $p < 0.01$ ). This result supports Hypothesis 1. Moreover, the local content ratio exerts a significantly positive effect on the subsidiary productivity ( $p < 0.01$ ). Hypothesis 2 is supported. The relationship between the local employment ratio and the subsidiary productivity is significantly negative ( $p < 0.01$ ). Hypothesis 4 is also supported. It can be seen that the Chinese local sales ratio has a weak positive association with the subsidiary productivity ( $p < 0.1$ ). In other words, the result supports Hypothesis 3. For the local-market-focus group, the Model 2 results support Hypothesis 1 to Hypothesis 5.

### Comparison and Discussion

In this study, we suggest that local-market-focus FDI is more influenced by the host country's local business environments than is export-market-focus FDI. The strategic goal of export-market-focus Taiwanese MNE subsidiaries is to exploit the host subsidiary as a lower-cost production platform and export final products to other countries. They are usually less enthusiastic about creating local linkages in China, nevertheless, are much more active about maintaining the relationships with their international buyers.

On the perspective of local financial linkage, for local-market-focus Taiwanese MNE subsidiaries, the greater the degree of capital local-embeddedness (the degree of political support from the local Chinese government) is, the higher their labor productivity (sales per worker) is likely to be. For local-market-focus international companies, political support from (*guanxi* with) the Chinese government is definitely a key component leading to success in China. Nevertheless, for the export-market-focus group, the subsidiary productivity does not vary significantly with the local capital ratio. It is not easy for Taiwanese export-market-focus subsidiaries to create local financial linkages in China. They mainly depend on the investment capital provided by Taiwanese parent companies to support their operations in China. It can be seen that for the export-market-focus group, the effect of *guanxi* on the productivity is less significant.

Moreover, as regards local supplier linkage, for the local-market-focus group, the subsidiary productivity is positively associated with the local content ratio. They are able to decrease the price per unit of product due to the lower-cost local procurement in China. The competition for China's domestic market share is very fierce (Lieberthal and Lieberthal 2004); and to many local Chinese consumers, "brand loyalty is not that important, and price is very much the deciding factor" (China-Britain Business Council 2005). Therefore, for the local-market-focus group, the subsidiary productivity is likely to improve. Conversely, the ultimate purpose of Taiwanese export-market-focus MNE subsidiaries in China is to serve international buyers rather than penetrate China's local market. Li et al. (2011) contend that the major features of China's cheaper local procurement are: unreliable

product quality; not-punctual goods delivery; and lower level technology. Thus, for the export-market-focus group, the local content ratio produces a weak positive impact on the productivity.

Regarding local worker linkage, our empirical results indicate that for the local-market-focus group, the sales per employee is likely to be negatively associated with (diluted by) the local employment ratio. In other words, as more local Chinese workers are hired, the labor productivity per employee is decreased. However, for the export-market-focus group, the local employment ratio is not significantly related to the productivity. Their productivity is mainly counting on the sales in the global market.

In addition, for the local-market-focus group, on the perspective of local sales linkage, we suggest that the Chinese local sales exert a weak positive effect on the subsidiary productivity. In reality, China is a huge, highly protected and complicated market. To enlarge their local sales, local-market-focus subsidiaries need to create expansive local marketing and distribution networks (a vast number of local Chinese workers is hired). Therefore, the contribution of Chinese local sales ratio to labor productivity (sales per employee) is easily to be neutralized by the numerous local Chinese workers.

For the export-market-focus group, it can be seen that the effect of Chinese local sales ratio (local sales linkage) on the productivity is insignificant. This also confirms our previous explanation that because their strategic choice is targeting most sales on the international market, Chinese local sales are not likely to affect remarkably their productivity.

The control variables also provide some interesting implications. As regards the impact of the firm's age, the above findings indicate that for the local-market-focus group, the firm's age (firm's experience) is positively associated with sales per employee. Local-market-focus MNE subsidiaries in host countries tend to perform better when they operate for a longer period. Moreover, the results suggest that for large-sized local-market-focus MNE subsidiaries in China, the advantage lying in larger economies of scale does not necessarily contribute to their productivity. It is likely that, rather than simply enlarge production scale, they need to utilize more effective marketing strategies to promote their local sales due to the complexity of China's large and multifaceted domestic market (Björkman and Kock 1995). However, large-sized Taiwanese export-market-focus MNE subsidiaries operating in China, owning more benefit-producing assets, are better able to gain larger economies of scale and increase productivity because they mainly serve international buyers.

## Conclusion

It is critical to understand the nature of a host country, as MNE subsidiaries investing in different locations undertake different local linkages in an attempt to access location-specific factors. Local embeddedness of MNE subsidiaries as an element of accelerating globalization has been explored from different angles. Local embeddedness drives FDI because MNE subsidiaries are able to gain access to strategic assets in a host nation via local network linkages. Local embeddedness also facilitates FDI because, via local network linkages, MNE subsidiaries can overcome entry obstacles to develop themselves in a host nation, and can decrease uncertainties when running cross-country business. Thus a host nation needs to provide not only distinctive resources to MNE subsidiaries, but also a "friendly" business environment, to create desirable local linkages (Chen and Chen 1998; Chen, Chen, and Ku 2004; Yeung and Li 2000).

Moving beyond prior emphasis on the *characteristics* of local linkages, this study provides novel managerial implications on the *consequences* by analyzing how local embeddedness (the intensity of the local linkage) influence productivity in MNE subsidiaries. It is noted that the ultimate purpose for MNEs to invest abroad is to enhance performance. In this study, extended models of analysis have been used to tackle the issues surrounding different behaviors dependent on strategies employed by

the subsidiaries. By classifying Taiwanese MNE subsidiaries investing in China into two groups, this study intends to address the effect of market focuses on the relationship between local embeddedness and productivity.

It is well known that in recent years, the local business environment of China is changing remarkably. We suggest that further research could extend the mechanism and models developed in this study to examine how the extent of local embeddedness associated with the productivity of MNE subsidiaries in China (or in other emerging markets). Such research may shed some light on the investment climate of an emerging market and offer a better understanding of adaptations that foreign companies need to make in emerging markets in the coming years.

## REFERENCES

- Belsely, D., E. Kuh, and R. Welsch. 1980. *Regression diagnostics: Identifying influential data and sources of collinearity*. New York: John Wiley & Sons.
- Benito, G., R. Lunnan, and S. Tomassen. 2011. Distant encounters of the third kind: Multinational companies locating divisional headquarters abroad. *Journal of Management Studies* 48: 373–394.
- Björkman, I., and S. Kock. 1995. Social relationships and business networks: The case of Western companies in China. *International Business Review* 4(4): 519–535.
- Brouthers, L., K. Brouthers, and S. Werner. 1999. Is Dunning's eclectic framework descriptive or normative? *Journal of International Business Studies* 30(4): 831–844.
- Campa, J., and M. Guillén. 1998. The internalization of exports: Firm- and location specific factors in a middle-income country. *Management Science* 45(11): 1463–1478.
- Carlsson, J., N. Axel, and S. Fredrik. 2005. International experience and the performance of Scandinavian firms in China. *International Business Review* 14: 20–40.
- Chen, H.M., and T.J. Chen. 1998. Network linkages and location choice in foreign direct investment. *Journal of International Business Studies* 29: 445–468.
- Chen, T.J., H.M. Chen, and Y.H. Ku. 2004. Foreign direct investment and local linkage. *Journal of International Business Studies* 35: 320–333.
- Chiao, Y.C., C.J. Yu, and J.A. Peng. 2009. Partner nationality, market focus and IJV performance: A contingent approach. *Journal of World Business* 43: 238–249.
- Dicken, P. 2004. *Global shift*. London: Sage.
- Dicken, P., and A. Malmberg. 2001. Firms in territories: A relational perspective. *Economic Geography* 77(4): 345–363.
- Ding, Y., H. Zhang, and J. Zhang. 2008. The financial and operating performance of Chinese family-owned listed firms. *Management International Review* 48(3): 297–318.
- Dunning, J. 1988a. *Explaining international production*. London: Unwin Hyman.
- . 1988b. *Multinationals, technology, and competitiveness*. London: Unwin Hyman.
- . 1998. Location and the multinational enterprise: A neglected factor? *Journal of International Business Studies* 29(1): 45–66.
- Dyer, J. 1996. Specialized supplier networks as a source of competitive advantage: Evidence from the auto industry. *Strategic Management Journal* 17: 271–291.
- Erramilli, M., S. Agarwal, and S.S. Kim. 1997. Are firm-specific advantages location-specific too? *Journal of International Business Studies* 28: 735–757.
- Filatotchev, I., R. Strange, J. Piesse, and Y.C. Lien. 2007. FDI by firms from newly industrialized economies in emerging markets: Corporate governance, entry mode and location. *Journal of International Business Studies* 38: 556–572.
- Fischer, M., J. Dier, and F. Snickars. 2001. *Metropolitan innovation systems: Theory and evidence from three metropolitan regions in Europe (advances in spatial science)*. Berlin: Springer.
- Gamble, J. 2010. Transferring organizational practices and the dynamics of hybridization: Japanese retail multinationals in China. *Journal of Management Studies* 47: 705–732.
- Ghoshal, S., and C.A. Bartlett. 1990. The multinational corporation as an interorganisational network. *Academy of Management Review* 15(4): 603–625.

- Gong, Y. 2006. The impact of subsidiary top management team national diversity on subsidiary performance: Knowledge and legitimacy perspectives. *Management International Review* 46: 771–789.
- Gong, Y., S. Oded, Y. Luo, and M.K. Nyaw. 2005. Human resources and international joint venture performance: A system perspective. *Journal of International Business Studies* 36: 505–518.
- Grabher, G. 1993. *The embedded firm: On socioeconomics of industrial networks*. London: Routledge.
- Granovetter, M. 1985. Economic action and social structure: The problem of embeddedness. *American Journal of Sociology* 91: 481–510.
- Hakansson, H. 1992. Evolution process in industrial networks. In *Industrial networks: A new view of reality*, eds. B. Axelsson and G. Easton. London: Routledge.
- Hallen, L., J. Johanson, and N. Seyed-Mohamed. 1991. Interfirm adaptation in business relationships. *Journal of Marketing* 55(2): 29–37.
- Harrison, B. 1992. Industrial district: Old wine in new bottle? *Regional Studies* 26(5): 469–483.
- Holm, D., K. Eriksson, and J. Johanson. 1999. Creating value through mutual commitment to business network relationships. *Strategic Management Journal* 20: 467–486.
- Hoskisson, R., L. Eden, C.M. Lau, and M. Wright. 2000. Strategy in emerging economies. *Academy of Management Journal* 43: 249–267.
- Jensen, P., and T. Pedersen. 2011. The economic geography of offshoring: The fit between activities and local context. *Journal of Management Studies* 48: 352–372.
- Jiang, Y. 2005. Size matters. *China daily: Business weekly*, October 24, 4.
- Katos, A., K. Lawler, and H. Seddighi. 2000. *Econometrics: A practical approach*. London: Routledge.
- Lam, S.S.K., and J.C.K. Yeung. 2010. Staff localisation and environmental uncertainty on firm performance in China. *Asia Pacific Journal of Management* 27(4): 677–695.
- Law, K.S., L.J. Song, C.S. Wong, and D. Chen. 2009. The antecedents and consequences of successful localization. *Journal of International Business Studies* 40: 1359–1373.
- Li, J. 1995. Foreign entry and survival: Effects of strategic choices on performance in international markets. *Strategic Management Journal* 16: 333–351.
- Li, C.S.J., J. Henley, J. Ansell, and T.P. Dong. 2011. Location-specific factors, localisation strategy, and firm performance: A case study of Taiwanese manufacturing MNE subsidiaries investing in China. *Tijdschrift voor Economische en Sociale Geografie* 102(4): 426–440.
- Lieberthal, K., and G. Lieberthal. 2004. The great transition. In *Harvard business review on doing business in China*, 1–31. MA: Harvard Business School Press.
- Liu, M.C. 2006. *The year 2004 annual report: Analysis of the operations of Taiwanese subsidiaries investing in China*. Taipei: The Chun-Hua Institute for Economic Research (CIER), (in Chinese).
- Luo, Y. 2003. Market-seeking MNEs in an emerging market: How parent-subsidiary links shape overseas success. *Journal of International Business Studies* 34: 290–309.
- Luo, Y., and S.H. Park. 2001. Strategic alignment and performance of market-seeking MNCs in China. *Strategic Management Journal* 22(2): 141–155.
- Luo, Y., and M.W. Peng. 1999. Learning to compete in a transition economy: Experience, environment, and performance. *Journal of International Business Studies* 30(2): 269–295.
- Luo, Y., Q. Xue, and B. Han. 2010. How emerging market governments promote outward FDI: Experience from China. *Journal of World Business* 45: 68–79.
- Meyer, K.E., and H.V. Nguyen. 2005. Foreign investment strategies and sub-national institutions in emerging markets: Evidence from Vietnam. *Journal of Management Studies* 42: 63–93.
- Narula, R., and J. Dunning. 2000. Industrial development, globalization and multinational enterprises: New realities for developing countries. *Oxford Development Studies* 28(2): 141–167.
- Nitsch, D., P. Beamish, and S. Makino. 1996. Entry mode and performance of Japanese FDI in Western Europe. *Management International Review* 36: 27–43.
- Odagiri, H., and H. Yasuda. 1996. The determinants of overseas R&D by Japanese firms: An empirical study at the industry and company levels. *Research Policy* 25(7): 1059–1079.
- OECD. 2005. *Economic survey of China, Chapter 3*. Geneva: OECD.
- Pacek, N., and D. Thorniley. 2007. *Emerging markets: Lessons for business success and the outlook for different markets*. London: The Profile Books Ltd.

- Pan, Y., and P.S.K. Chi. 1999. Financial performance and survival of multinational corporations in China. *Strategic Management Journal* 20(4): 359–374.
- Peng, M.W. 2009. *Global strategy*. Manson, Ohio, USA: Thomson South-Western.
- Porter, M. 1985. *Competitive advantage*. New York: The Free Press.
- Sethi, D., S.E. Guisinger, S.E. Phelan, and D.M. Berg. 2003. Trends in foreign direct investment flows: A theoretical and empirical analysis. *Journal of International Business Studies* 34: 315–326.
- Seung, H.P., S. Li, and D.K. Tse. 2006. Market liberalization and firm performance during China's economic transition. *Journal of International Business Studies* 37: 127–147.
- Si, C.Y., and Y.J. Jing. 2011. The loaning for private small and medium-sized enterprises in China. *Cooperative economy and science*. July 2011 (in Chinese).
- Tatoglu, E., and K.W. Glaister. 1998. Western MNCs' FDI in Turkey: An analysis of location specific factors. *Management International Review* 38(2): 133–159.
- UNCTAD. 2001. World investment report 2001: Promoting linkages. United Nations.
- . 2007. World investment report 2007. United Nations.
- Van Hoesel, R. 1999. *New multinational enterprises from Korea and Taiwan: Beyond export-led growth*. New York: Routledge.
- Woodward, D., and R. Rolfe. 1993. The location of export-oriented foreign direct investment in the Caribbean Basin. *Journal of International Business Studies* 24: 121–144.
- Yeung, Y.M., and X. Li. 2000. Transnational corporations and local Embeddedness: Company case studies from Shanghai, China. *Professional Geographer* 52: 624–635.
- Zhang, Z., H. Li, M.A. Hitt, and G. Cui. 2007. R&D intensity and international joint venture performance in an emerging market: Moderating effects of market focus and ownership structure. *Journal of International Business Studies* 38: 944–960.