Sourcing of multinational enterprises in China

ABSTRACT

Theoretical and practical considerations suggest not only that there are potential benefits for foreign subsidiaries to establish local inter-firm linkages, but also that these inter-firm linkages can positively impact the development of the host economy. On the basis of a dataset of foreign subsidiaries in Guangdong (China), a number of characteristics of their linkages in the regional economy are analyzed. The results suggest that despite the successful attraction of FDI since China's open door policy –in particular in Guangdong province-, inter-firm linkages and their regional impact have been limited. China needs to adapt its policies given its accession to WTO and the new realities of globalization. Chinese governments need to upgrade domestic supply industries, e.g. by working together with private industries to identify and supplement the areas where key supporting suppliers of goods and services are urgently needed but not sufficiently provided by the market.

Filip De Beule

Lessius University College, Korte Nieuwstraat 33, 2000 Antwerpen, Belgium

and

LICOS Centre for Institutions and Economic Performance, Catholic University of Leuven, Debériotstraat 34, 3000 Leuven, Belgium

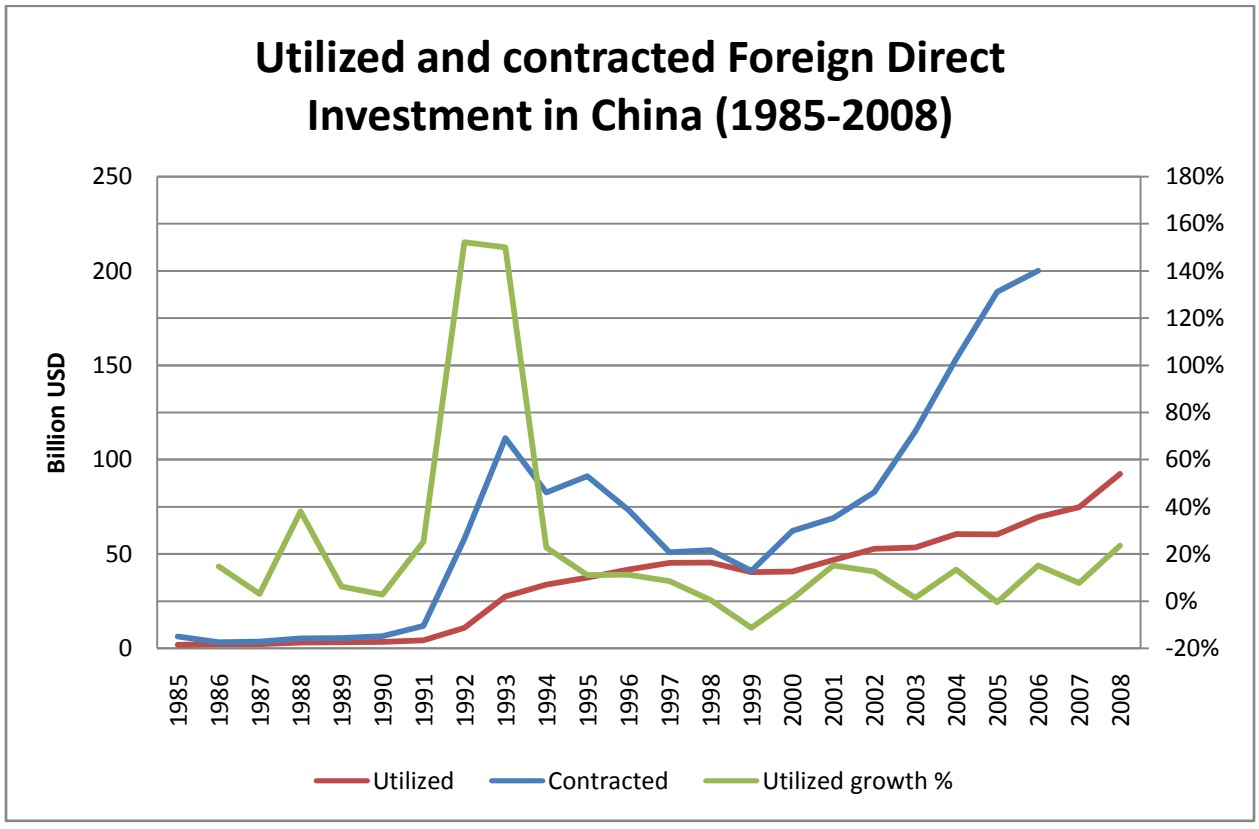
filip.debeule@lessius.eu

Sourcing of multinational enterprises in China

INTRODUCTION

This paper examines evidence with regard to the linkages of foreign invested enterprises (FIEs) in Guangdong Province of China. In general, host countries seek not just more foreign direct investment, but are increasingly interested in its quality in terms of benefits for sustainable economic development. One of the most important ways to tap these benefits is through production linkages between foreign affiliates and domestic firms, backward or forward (UNCTAD, 2001). Backward linkages refer to the purchases of primary (raw materials, such as agricultural products, minerals, etc.), secondary (parts, components, semi-finished products, etc.) and tertiary supplies (services, packaging, etc.). Forward linkages imply the marketing, sale and distribution of goods and services in the local economy.

Since the late 1970s, the Chinese government has pursued policies aimed at opening up the economy and attracting foreign participation in the domestic economy. FDI inflows in China have grown continuously, and rapidly at times, from its low levels in the 1980s to around US$ 50 billion annually at the end of the 1990s. With the opening of its service sector, China was well on its way to outstrip most countries with annual inflows of over US$ 100 billion. It attracted, for instance, US$ 92.4 billion in the year 2008, before the global financial crisis put the brakes on investment. Preliminary figures indicate a drop of around 25 per cent in the first two months of 2009 as compared to 2008.



China has made truly remarkable economic strides by opening its doors to foreign direct investment and engaging in policy reforms at the end of the 1970s. Leading China's bold and ambitious drive towards modernization and development has been Guangdong province, which has applied a range of reform policies that have yielded astonishing results. Guangdong is located in the Pearl River Delta of southern China, adjacent to Hong Kong and Macau. Guangdong province was transformed into an export-oriented manufacturing-based economy through processing and assembling-induced industrialization and outward-oriented commercial agriculture during the early 1980s. After investing heavily in the construction and improvement of its infrastructure, in particular transport, power suppliers and telecommunications, Guangdong increasingly focused on the development of higher value-added and technology-intensive industries and their supporting service sectors since the mid 1990s.

Although foreign investors may now be found in almost every corner of China, they are highly concentrated in the coastal provinces. While about 40 per cent of China's population lives in the coastal region, it harbors more than 80 per cent of its FDI. This uneven regional distribution of FDI is the result of a variety of factors (Chen, 1997). First, the early opening up policy explicitly encouraged FDI in coastal provinces. Inland cities and border areas were only encouraged to open up in the 1990s. In early 2000 the Chinese government announced a program aimed at restoring a more balanced regional development when it decided to apply preferential policies to attract FDI in western or inland China. The new company income tax bill has, however, abolished most investment incentives to foreign firms. Besides, preferential policies have been only one of the advantages that coastal provinces offered to foreign investors (Chen, 1997). They also have better economic endowments which give them advantages over inland provinces, such as geographic proximity to international markets, better infrastructure, more and better skilled labor. Furthermore, many coastal provinces have advanced rapidly in economic liberalization, have developed a dynamic non-state sector, and have thus provided a more favorable environment to foreign investors. Finally, as they have recorded higher economic growth, they have also provided foreign business with larger and rapidly expanding local markets (Van Den Bulcke, Zhang and Esteves, 2003). From the beginning of the so-called 'opening up' policy, Guangdong has attracted the highest amount of FDI in China. For this reason, Guangdong is sometimes called the Fifth Dragon (Sung et al., 1995), next to the better known Asian cases of Taiwan, Singapore, Hong Kong and South Korea.

Although a large number of countries have made investments in China, the primary sources of FDI have been highly concentrated among a small number of investor countries (Chen, 1997). The largest proportion of the FDI received by China does not come from the so-called Triad economies, namely the US, Japan and EU-countries, but from "Overseas Chinese." The initial policy objective of the Chinese authorities was to attract Overseas Chinese business to the mainland. The Special Economic Zones Shenzhen and Zhuhai were created next to Hong Kong and Macao, while the Shantou and Xiamen SEZs were created across the Taiwan Straits. Despite restrictions imposed by Taipei on FDI in China, this policy has proven to be a success.

China has had a hybrid policy of allowing imports but also requiring local content. On the one hand, it has allowed foreign manufacturers to import intermediate inputs on the condition that they export their output. There was also an implicit assumption that such imports would be gradually replaced by local

sourcing. On the other hand, firms that wanted to invest for market-seeking purposes were forced to source inputs in China. Local content requirements typically specified that some percentage or absolute amount of production inputs had to be purchased from local sources or had to be produced domestically. In some cases, a list of specific parts was issued by the government for mandated localization (Battat, Frank and Shen, 1996). For instance, foreign affiliates in the automotive industry had to source 40 to 50 percent of inputs locally. Several foreign affiliates reached this target, many by inducing their foreign suppliers to invest in China (Xia and Lu, 2001).

MULTINATIONAL COMPANIES AND LINKAGES

When a firm sets up shop, it has to decide whether to perform in-house production for the various production steps or to procure from outside suppliers. This is not a once-for-all decision and sometimes firms subcontract parts of the production process until they have built-up the necessary credibility or capacity to start up in-house production. More recently, however, there seems to be a general trend to focus more on core competencies allowing for increased specialization and more outsourcing (Battat, Frank and Shen, 1996). If a firm takes on activities outside its main field of specialization, it may overextend its organization and reduce the efficiency and innovativeness of the internalized activity (Penrose, 1959). Independent suppliers on the other hand can enjoy significant scale economies by selling to a large number of users (Richardson, 1972).

When an affiliate is started up in a foreign host country, a large proportion of its supplies are likely to consist of imports, since it does not yet have an existing network of suppliers. Besides, the existing suppliers to that firm in the country of origin benefit from an advantage when it comes to negotiating contracts for the delivery of e.g. parts to the subsidiary. And as the extant supplier base may either hesitate to start production in the new host country of its client and will need time to actually do so, it is not altogether surprising that foreign direct investors choose to import semi-finished products and parts from their existing suppliers or group affiliates abroad (De Beule and Van Den Bulcke, 1997).

However, as plants generate their own routines, they will consider alternative suppliers in the host country both in terms of equipment and consumables (Emmott, 1992). Over time, firms will be inclined to buy from local suppliers, either domestic ones or foreign companies that have followed the company that invested abroad (bandwagon effect, follow the leader, or sequential investment). MNCs will try to localize operations, as this will promote their competitiveness, for instance, by creating a cost advantage by sourcing locally instead of importing components, parts and equipment. Local sourcing can also increase flexibility of the local operations, as procurement is easier from suppliers nearby. It allows for better and faster adaptation of technologies and products to local market conditions and consumer preferences. The access to pools of external technological and human skill resources can also feed their own innovative efforts (UNCTAD, 2001). However, local sourcing can be constrained by the lack of suppliers of key inputs; either because they are simply not present, cannot fulfil the qualitative production standards or are not competitive in terms of price (Halbach, 1989, Crone, 2000). These

benefits can be derived from domestic suppliers as well as for follow-the-leader suppliers. Although possibly irrelevant to the multinational affiliate, ceteris paribus, not all linkages are equally beneficial for the host economy.

Foreign firms can assist prospective local or foreign suppliers to launch production, in order to provide better, cheaper or more reliable components, or to act as alternative sources so as to avoid excessive dependence on a few suppliers (Lall, 1980). Locally established suppliers or subcontractors and consequently the host country can benefit from the linkages with foreign invested enterprises in terms of employment. Local purchases by multinational affiliates of material inputs and services in the host country increases sales for local manufacturing firms, which in turn generates an additional number of jobs in the supply chain. Although the employment impact is the most important for first-tier suppliers, there does exist a trickle-down effect to lower-order suppliers in the supply chain.

A less tangible, but perhaps more important advantage for local suppliers is the diffusion of knowledge and skills (Blomström, Kokko and Zejan, 2000). Although the most innovative relationships between firms are the ones where there are reciprocal flows of knowledge in new technologies, products and organizational methods, the technologically weaker suppliers in developing countries are likely to benefit more from those technological transfers, at least if they have sufficient absorptive capacity or the MNCs themselves engage in efforts to develop this capacity.

The interactions of MNCs with suppliers can also increase the productivity and efficiency of local suppliers and consist of: helping prospective suppliers set up production facilities; demanding reliable, high quality products that are delivered on time, while providing necessary technical assistance and information to improve the products or facilitate innovations; providing training and help in management and organization; assisting suppliers to find additional customers including other affiliates of the same group in other countries or independent external purchasers, thereby stimulating exports (UNCTAD, 2001). Other firms can also enjoy (third party) externalities and spillovers from the collocation of firms. There may also be positive demonstration effects on local firms, enterprise spin-offs, competition effects and mobility of trained employees (Marshall, 1890, Markusen, 1994, Baptista, 1998). As a result there are likely to be increases in production efficiency, productivity, technological and managerial capabilities and market diversification.

However, linkages may also entail disadvantages for a host economy, related to the size and market power of foreign affiliates. The danger exists that sourcing will limit itself to unsophisticated items for mature products. As the most advanced suppliers interact increasingly with customers in developing new technologies and products, it is essential that local companies upgrade products, processes and technologies to get into the game and achieve world production standards. They can either procure new know-how from another organization, such as a government-supported research institute, or undertake innovative activities themselves and develop the know-how internally, possibly with the assistance or guidance of foreign affiliates (White, 2000). However, the dependence on foreign companies may also stifle innovation, competition and new firm development in the host economy. If the local suppliers are dependent upon monopsonistic “flagship” affiliates, this can lead to anti-competitive practices and unfair terms and conditions for suppliers (Altenburg, 2000). This lock-in to footloose multinational

affiliates can ultimately also force local suppliers to close or relocate their production activities in order to follow the lead firm to a new location.

RESEARCH HYPOTHESES

Investment motive

The propensity of foreign subsidiaries to forge local linkages will probably be affected by the motive of the MNC to invest in the host country. Foreign affiliates that are part of global production systems are likely to be more dependent upon centralized corporate sourcing policies and less able to choose suppliers freely (UNCTAD, 2001). Multi-domestic multinationals generally invest in host countries for market seeking purposes and leave more decision-making autonomy to their subsidiaries. As local market-seeking subsidiaries are established to serve local customers, they are more likely to adapt products to local tastes and circumstances. Domestic suppliers may also find it easier to serve companies that sell in the local market, because they are better acquainted with local consumer preferences and might allow foreign affiliates to adapt their products better to the local situation. This might explain that domestic market-oriented affiliates generally purchase more locally than export-oriented firms (Belderbos, Capannelli and Fukao, 2001; Giroud and Mirza, 2006).

Hypothesis 1: The level of importing is positively correlated to exporting.

Entry mode

Although the reasons for setting up a joint venture (JV) or a wholly owned subsidiary (WOS) are multiple and diverse, including control, commitment, finance and risk (Hill et al., 1990), having a partner will likely increase local ties. A Chinese partner company will have a better knowledge of the local industry and market place, which could result in a significant impact on the degree of local sourcing. Belderbos et al., 2001, Chen et al. (2004) and Eberhardt et al. (2004) report that JVs have better local linkages, but Driffield and Mohd Noor (1999) and Giroud and Mirza (2006) fail to find any difference in sourcing patterns of JVs and WOS.

Hypothesis 2: The degree of foreign ownership is positively related to the level of importing.

Country-of-origin

The location choices of investments by Chinese firms from Hong Kong, Macau and Taiwan were largely influenced by the historical and cultural links between investors and the sites that were chosen, i.e. the so-called hometown connections. For instance, Hong Kong investors mainly selected Guangdong

province as their preferred location of investment, not only because of their geographical proximity but also because of the cultural and other connections (Zhang, 2001). Given the fact that these Chinese investors are geographically closer to the Chinese market and have a greater affinity for its cultural environment, have hometown connections, use the same language, etc., they will demonstrate a higher local sourcing activity than the investors from the US, EU and Japan (Schroath, Hu and Chen, 1993). However, Giroud and Mirza (2006) found little evidence that US, Japanese and EU firms have significantly different local sourcing strategies in ASEAN Countries.

Hypothesis 3: Triad investors will source significantly less locally than Chinese investors.

Sector

Obviously, the potential for linkages is not the same for all industries. First, the potential for local sourcing may be different according to the sector or sub-sector. In services, the possibility of local sourcing and subcontracting to domestic firms is relatively limited, although some service industries such as construction offer considerable potential for linkages with physical input suppliers (UNCTAD, 2001). In the manufacturing sector, there will be important differences according to the labor-, capital-, resource- or technology-intensity of the sub-sector. Second, Chinese industrial policy is bound to have affected sourcing patterns. Resource intensive industries (including food, beverages and tobacco, wood, petroleum refining, non metallic mineral products and non-ferrous metals) will have a higher share of local sourcing. Labor intensive industries (covering textiles, apparel and leather, metal products and other manufacturing) will most likely demonstrate a lower percentage of local souring. Specialized supplier industries, such as non-electrical and electrical machinery, communication equipment and semiconductors, will have the lowest local sourcing. Scale intensive industries (including paper, chemicals, rubber and plastics, iron and steel, shipbuilding, motor vehicles and other transport equipment) will demonstrate an intermediate level of local sourcing, while R&D or science based industries (aerospace, computers, pharmaceuticals and scientific instruments) will have a low level of local purchases.

Hypothesis 4: Significant differences exist between firms according to the sector, depending on its labor, capital, resource or technological intensity.

Firm characteristics

Age

It is generally recognized that there are potential benefits for foreign affiliates to source locally, but also that it takes time to identify domestic suppliers, especially when the needs of the MNC for the level of quality, price, quantity and other requirements have to be taken into account. This applies also for foreign suppliers establishing in the host country in order to maintain their privileged relationship with the MNC, although the issue of quality will be less relevant for those firms. One would therefore expect

the percentage of local procurement to increase along with the age of the foreign subsidiary (Driffield and Mohd Noor, 1999, Turok, 1997, Halbach, 1989).

Hypothesis 5: The percentage of local sourcing will increase over time.

Size

As large foreign affiliates are able to internalize operations better, i.e., they will produce relatively more within their own plants, and local suppliers find it difficult to supply very large volumes, size might be negatively correlated to local sourcing (Barkley and Mcnamara, 1994, Halbach, 1989). However, Chen et al. (2004) find that large firms are more active than small firms in pursuing local linkages and argue that their larger capacity implies that they are more able to absorb risks involved in supplier integration. Finally, Giroud and Mirza (2006) and Tavares and Young (2006) find no significant relationship between sourcing and firm size.

Hypothesis 6: Larger foreign affiliates will have a lower percentage of local procurement.

Research and development

Subsidiaries that carry out research and development will demonstrate a higher propensity to adapt to local circumstances. MNEs and their subsidiaries with a greater autonomy to network and better ability to learn may find it easier to identify and train suitable local suppliers to minimize costs.

Hypothesis 7: Subsidiaries that carry out research and development will have higher local sourcing.

DATA SET, CONSTRUCTS AND RESULTS

This paper uses data from subsidiaries of American, Japanese, European and Chinese investors located in Guangdong province. The sample was drawn from the official fiscal database of foreign invested enterprises (FIEs) in the province of Guangdong. The sample was selected on the basis of the country of origin of the foreign parent and the industry, such that the data set approximately has the same percentage distribution across home countries and industries as the population. The overall sample consists of 417 firms, of which 282 were Chinese firms from Hong Kong, Taiwan, Macao, 45 had their parent companies in Europe, 36 in Japan and 52 in the US.

The overall geographical pattern of sourcing is illustrated by the percentage of material inputs obtained from suppliers in the host region (Guangdong province), the rest of China or abroad. A fourth but overlapping category is sourcing from other foreign invested enterprises in China. Local sourcing is therefore defined as the percentage of total inputs that are sourced from other firms in Guangdong

province. Domestic sourcing is defined as the percentage of total inputs that are sourced from firms in Guangdong and the rest of China. This also includes purchases from other locally-based multinationals. These latter purchases can, however, be separated out from other foreign subsidiaries in China. Belderbos et al. (2001), Görg and Ruane (2000, 2001) and Giroud and Mirza (2006) use the share of inputs sourced in the host country which ignores the distinction between indigenous and multinational suppliers.

Table 1. Descriptive statistics of model variables.

	Variable	Obs	Mean	Std. Dev.	Min	Max
Sourcing & Sales	SourcM	417	35.39	41.25	0	100
	SourcFIE	164	32.56	34.78	0	100
	SalX	296	50.17	42.69	0	100
Country of origin	US	416	.125	.3311171	0	1
	EU	416	.1105769	.3139851	0	1
	JP	416	.0913462	.2884476	0	1
Firm traits	Age	394	10.21	3.56	4	22
	Empnow	396	592.25	1610.711	4	20000
	R_D	363	.5041	.5006	0	1
Sectors	LI	401	.2493766	.4331926	0	1
	SS	401	.1296758	.3363661	0	1
	SI	401	.2119701	.4092143	0	1
	RND	401	.0299252	.1705938	0	1

As the dependent variable is limited between zero and one hundred, a two-limit Tobit model is applied. Most previous studies have erroneously used OLS. This may be questionable as the value of the dependent variable lies between 0 and 100 per cent, and the implied model of the conditional mean places inappropriate restrictions on the residuals, which means that OLS estimates are biased and inconsistent. Although a Tobit model is appropriate, a balanced distribution of lower-censored and upper-censored observations should give better results. The dependent variable has therefore been chosen to be the percentage of importing, as local sourcing gave a lower-limit (zero) skewed distribution of observations. The dependent variable is therefore measured as the percentage of inputs, by value, obtained from suppliers abroad.

The following variables were included as independent variables: the age of the foreign subsidiary; dummy variables for the different sectors, including labor intensive, scale intensive, specialized suppliers and R&D intensive industries; a dummy variable for investors from the EU, Japan and the US; total

employees as a proxy for the size of the subsidiary; the percentage of exports; a dummy for research and development; and the percentage of foreign capital ownership.

Table 2. Tobit regression results, dependent variable percentage of importing.

Variable	Model 1	Model 2	Model 3	Model 4
US	6.6187828	11.90084	28.19437**	16.55439
EU	40.03204**	14.97241	24.33011*	48.59952***
JP	5.329907	11.40854	36.70125**	21.7157
SalX	.5132376***	.4852101***	.6129423***	.6222409***
SourcFIE		-.2434539*	-.1949389*	
Forownca	.6432721***	.4815379***		
R&D	-6.198939	2.714528	.8803295	-10.03326
Age	-1.096428	-.2919485	-2.133494*	-2.004952
Empnow	.0027837	.0033487	.0026545*	.0022361
LI	27.29123*	23.96732**	21.08559*	30.06854**
SS	48.00361***	38.56568*	29.37936**	26.90213*
SI	32.49847**	34.09084	24.23996**	26.38131**
RND	45.84536	22.67223	1.73152	46.50974*
C	-27.81259	-35.38237	10.18821	19.08868

DISCUSSION

Despite both theoretical and practical considerations, local sourcing in Guangdong has not increased over time. On average, 50 per cent of parts, components and equipment come from abroad. Guangdong province and the rest of China each account for approximately 25 per cent of sourcing of FIEs. Although resource intensive industries source most within Guangdong province itself, local sourcing is rather limited in most sectors.

There are obviously different reasons not to engage in local sourcing. Overseas Chinese, especially from Hong Kong or Taiwan, are mostly resource (cheap labor) seekers in China. They have relocated most, if not all, of their labor-intensive and export oriented activities to China and import the most (two thirds of inputs). Specialized suppliers, such as Japanese keiretsu firms, have invested in China to supply other foreign firms. Although they import most inputs, they do source substantially from other FIEs in China as well. For R&D-based firms, local sourcing is the lowest, suggesting that local sourcing capabilities for these industries are not yet sufficiently available in Guangdong. It is here that both foreign owned companies and the authorities could join their efforts in order to foster more intensive links with domestic suppliers as well as other foreign owned firms that are already established in China. To identify potential technologically advanced local firms should be of great interest to western firms, as it would allow them to cut costs not only for their own subsidiaries in China, but possibly also –at a later stage–

for the multinational group as a whole. As advocated by UNCTAD (2001), countries that have achieved a certain level of attractiveness for foreign investors and have successfully marketed their qualifications in the rest of the world, should move to some kind of third generation FDI promotion that is geared to the development of closer links between foreign and domestic companies by intensifying cooperation for sourcing purposes with suppliers and other firms in the host country. Given the precarious position of many of its state-owned enterprises, this suggestion should definitely be heeded by Chinese provinces like Guangdong.

The average share of foreign ownership is 70 per cent. This is somewhat higher for western investors and lower for Overseas Chinese investors. Firms from Overseas Chinese are often in the early stages of internationalization. They may have rather limited financial and technological capabilities, are more dependent on the local resources and consequently have less bargaining power in their negotiations with the Chinese authorities and potential partners. As such, they are less likely to succeed in obtaining a high equity stake. Also, as the labor intensive export processing activities of Asian firms are often influenced by rapid changes in the export markets, non equity arrangements (e.g. contractual joint ventures and subcontracting) or minority EJVs are often preferred to the less flexible majority EJVs and WFOEs (Van Den Bulcke and Zhang, 1998).

The specific activity of the subsidiary and the degree of its integration within the value chain of the parent company can also affect the ownership control. Since many firms from Hong Kong and Taiwan relocated practically all their manufacturing activities to China and only kept their trade and marketing activities in the 'home' base, they have less need for full ownership to control and coordinate the intra-firm integration between the offshore processing activities of the subsidiaries and the parent company's value added chain (Zhang and Van Den Bulcke, 1998).

During the 1980s, EJVs were also the preferred mode of entry for many Western firms. As a result of the improved performance of the Chinese market mechanism, the diminishing need to rely on Chinese partners because of the acquired experience on how to do business in China, and the relaxation of the foreign ownership control by the Chinese government, WOS have become a first-best option for many western multinationals. It is likely that Chinese officials, who looked at joint ventures as a way to assure a high degree of integration in the Chinese economy and maximize the benefits of the transfer of technology, will interpret this shift to WOS as an evolution towards less embeddedness. To avoid a possible restrictive backlash by national and local authorities, western multinational firms should try to find other means of closer integration with the domestic enterprises, e.g., by linking up more with local suppliers.

CONCLUSION

China has had a hybrid policy of allowing imports but also requiring local content. It has allowed foreign manufacturers to import intermediate inputs on the assumption that such imports would be gradually

replaced by local sourcing. Local content requirements typically specified that some percentage or absolute amount of production inputs had to be purchased from local sources or had to be produced domestically. In some cases, a list of specific parts was issued by the government for mandated localization (Battat, Frank and Shen, 1996). Admittedly, although about half of the inputs are imported, on average, the empirical evidence presented above has shown that local input linkages of MNC affiliates in Guangdong province, China, –and hence the benefits transmitted to this host region through the supply chain– are at best limited in the majority of cases. In view of China's entry into the WTO, which prohibits the use of internal regulations to discriminate in favor of domestic production, the question can be raised whether there is scope for increasing the level of local sourcing through other policy interventions.

One of the primary barriers to higher local sourcing is obviously the limited availability of qualified suppliers. It follows that local sourcing by MNC affiliates might be increased by policies designed to fill the gaps in the local supply base. Either an indigenous local supply base must be developed, if feasible and efficient; or else inward investment in specific supply industries may have to be targeted. Even if the latter path is chosen, domestic companies should benefit directly or indirectly from the presence of foreign technology, capacity, etc. as was discussed above.

The capacity of local suppliers is another important influence on the extent of local sourcing by foreign firms. This suggests that the level of local sourcing by MNCs could be increased by assisting smaller suppliers to allow them to expand their capacity. Domestic firms can either be helped on an individual basis, or by a consolidation of the indigenous supply industries. Given the increased openness of the Chinese central and local governments towards mergers and acquisitions, the latter choice might be the best policy option.

The success of policies designed to increase local sourcing will ultimately depend on whether local suppliers can remain competitive on price while meeting the necessary standards for quality and timely delivery. A development initiative that may help local suppliers to move towards world class standards is the creation of a supplier association based around major local buyers (usually inward investors) with the aim of encouraging the dissemination of key technologies and best practices through the local supply chain (Crone and Roper, 1999).

However, the policies to increase local sourcing by multinational affiliates are inherently intertwined with the strategies of the multinational firms. Given the increasing importance of multinational networks, local sourcing of multinational subsidiaries can be seriously hampered by their linkages with other affiliates from the same group elsewhere in the world. Multinationals are also increasingly sharing knowledge with suppliers throughout the multinational group. This has also led to a change in the relation with the suppliers from one based on adversarial arm's length transactions with multiple suppliers to one based on closer partnerships with a reduced number of key suppliers (Imrie and Morris, 1992, Cooke and Morgan, 1993, Phelps, 1997). Policy makers need to understand the environment within which individual MNC affiliates 'make' their sourcing decisions and strive to enable local suppliers to compete for business in such an environment (Crone, 2000).

China has, since its open-door policy during the last two decades of the previous millennium, increasingly sought to attract FDI. It has thereby relied on traditional policies, such as joint venturing and local content requirements. Given, for instance, that, on the one hand, joint ventures are losing ground to wholly owned subsidiaries because of, among other things, the increased knowledge about the market environment in China by western investors, and, on the other hand, China's accession to WTO, it needs to adapt its policies. With regard to linkages, China needs to emphasize the need to upgrade domestic supply industries, and must provide strong infrastructure, both physical and institutional, to support that need. This requires the government to work closely with private industries to identify and supplement the areas where key supporting suppliers of goods and services are urgently needed but not sufficiently provided by the market. Although the national government has a decisive role to play, so has the provincial government, which may also resort to special promotion programs to accelerate the development of backward linkages. Such programs can be most successful if they work closely with both multinationals and domestic suppliers, reflecting their mutual needs and interests and incorporating their available resources.

REFERENCES

Altenburg, T. (2000) “Linkages and spillovers between transnational corporations and small and medium-sized enterprises in developing countries: opportunities and policies” in UNCTAD, *TNC-SME Linkages for Development: Issues, Experiences, Best Practices*. New York and Geneva: United Nations.

Baptista, R. (1998) “Clusters, Innovation, and Growth” in Swann, P., Prevezer, M. and D. Stout (eds) *The Dynamics of Industrial Clustering: International Comparisons in Computing and Biotechnology.* Oxford: Oxford University Press, 13-51.

Barkley, D.L. and K. Macnamara (1994) “Local input linkages: A comparison of foreign-owned and domestic manufacturers in Georgia and South Carolina”, *Regional Studies*, 28 (7): 725-737.

Battat, J., Frank, I. and X. Shen (1996) “Suppliers to Multinationals: Linkage Programs to Strengthen Local Companies in Developing Countries”, Foreign Investment Advisory Services, Occasional Paper 6. Washington, D.C.: The World Bank.

Belderbos, R., Capannelli, G. and K. Fukao (2001) “Backward vertical linkages of foreign manufacturing affiliates: Evidence from Japanese multinationals”, *World Development*, 29 (1): 189-208.

Blomström, M., Kokko, A. and M. Zejan (2000) Foreign Direct Investment: Firm and Host Country Strategies. Houndmills and London: Macmillan Press Ltd.

Chen, T. J., Chen, H. and Y.H. Ku (2004) Foreign direct investment and local linkages, *Journal of International Business Studies*, 35: 320-33.

Cooke, P. and K. Morgan (1993) “The network paradigm: new departures in corporate and regional development”, *Environment and Planning D: Society and Space*, 11: 543-564.

Crone, M. (2000) *Local sourcing by multinational enterprise plants: Evidence from the UK regions and its policy implications,* Working Paper Series 48. Belfast: Northern Ireland Economic Research Centre.

Crone, M. and S. Roper (1999) *Knowledge transfers from multinational plants in Northern Ireland: Local learning in the supply chain*, Report Series 15. Belfast: Northern Ireland Economic Research Centre.

De Beule, F. and D. Van Den Bulcke (1997) *Japanese Subsidiaries in the Belgian Manufacturing Industry: Changing Characteristics.* Discussion Paper E 31. Antwerp: University of Antwerp.

Driffield, N. and A. H. Mohd Noor (1999) “Foreign Direct Investment and local input linkages in Malaysia”, *Transnational Corporations*, 8 (3): 1-24.

Eberhardt, M., McLaren, J., Millington, A. and B. Wilkinson (2004) Multiple forces in component localization in China, *European Management Journal*, 22(3): 290-303.

Giroud, A. and H. Mirza (2006) Factors determining supply linkages between transnational corporations and local suppliers in ASEAN, *Transnational Corporations*, 15(3): 1-32.

Görg, H. and F. Ruane (2000) An analysis of backward linkages in the Irish electronics sector, *Economic and Social Review*, 31 (3): 215-35.

Görg, H. and F. Ruance (2001) Multinational companies and linkages: panel data evidence from the Irish electronics sector, *International Journal of Economic of Business*, 8(1): 1-18.

Halbach, A.J. (1989) "Multinational enterprise and subcontracting in the third world: a study of inter-industrial linkages", Working Paper 58. Geneva: ILO.

Hill, C. W.L., Hwang, P., and Kim, W. C. (1990) "An eclectic theory of the choice of international entry mode", *Strategic Management Journal*, 11: 117-28.

Imrie, R. and J. Morris (1992) "A review of recent changes in buyer-supplier relations", *Omega International Journal of Management Science*, 20: 641-652.

Lall, S. (1980) "Vertical inter-firm linkages in LDCs: an empirical study", *Oxford Bulletin of Economics and Statistics*, 42: 203-226.

Lan, Y. (1997) *Foreign Direct Investment and Economic Development in Guangdong: Problems and Prospects.* Working Paper 97/8. Adelaide: University of Adelaide.

Lardy, N. (1995) "The role of foreign trade and investment in China's economic transformation", *China Quarterly*, 144: 1065-82.

Markusen, A. (1994), "Studying regions by studying firms", *The Professional Geographer*, 46: 477-90.

Penrose, E.T. (1959) *The Theory of the Growth of the Firm*. Oxford: Basil Blackwell.

Richardson, G.B. (1972) "The organization of industry", *Economic Journal*, 82 (327): 883-896.

Schroath, F. W., Hu, M.Y. and H. Chen (1993) "Country-of-Origin Effects of Foreign Investments in the People's Republic of China", *Journal of International Business Studies*, Second Quarter: 277-290.

Turok, I. (1997) "Linkages in the Scottish electronics industry: further evidence", *Regional Studies*, 31 (7): 401-417.

UNCTAD (1999) *World Investment Report 1999: Foreign Direct Investment and the Challenge of Development*. New York and Geneva: United Nations.

UNCTAD (2001) *World Investment Report 2001: Promoting Linkages*. New York and Geneva: United Nations.

Van Den Bulcke, D. and H. Zhang (1998a) *European Direct Investment in China: Some salient and evolving features.* Discussion Paper 1998/E/35. Antwerp: CIMDA, University of Antwerp.

Wells, L.T., Jr. (1993) "Mobile Exporters: New Foreign Investors in East Asia" in K. Froot, *Foreign Direct Investment*, Chicago: University of Chicago Press.

White, S. (2000) "Competition, Capabilities, and the Make, Buy, or Ally Decisions of Chinese State-Owned Firms", *Academy of Management Journal*, 43 (3): 324-341.

Xia, Y. and Y. Lu (2001) “FDI and host country linkages: assessing the effectiveness and development impact of the policy measures: The case of the automobile industry in China” in UNCTAD, World Investment Report 2001, New York and Geneva: United Nations.

Zhan, X. James (1995) “Transnationalization and outward investment: the case of Chinese firms”, *Transnational Corporations*, 4 (3): 67-100.

Zhang, H. and D. Van Den Bulcke (1998) “Foreign Direct Investment in China: Interactions between Government Policies and Multinational Investment Strategies”, in P.K.M. Tharakan and D. Van Den Bulcke (eds) *International Trade, Foreign Direct Investment and Economic Environment.* Basingstoke: MacMillan.

Zhang, K. H. (2001) “What attracts foreign multinational corporations to China?”, *Contemporary Economic Policy*, 19 (3): 336-46.