Inter-firm linkages and regional impact of foreign subsidiaries in Guangdong, China: Sourcing Characteristics and Policy Options

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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 analysed. 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 globalisation. 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.

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INTRODUCTION

It is common to use the size of foreign direct investment (FDI) to indicate its regional economic impact (Singh and Coo, 1981, Murphy, 1992, O’Malley, 1994, Buckwalter, 1995). Multinational corporations (MNCs) exercise their impact on the economic development of host countries and regions through FDI. However, the size of FDI is not always commensurate with its real impact on regional economic development (Li and Yeung, 1998). This impact can be found in many aspects of the host economy, such as capital, technology, trade, industrial structure, employment (Dicken, 1992), comparative advantage, resource allocative efficiency, economies of scale and scope (Young et al., 1994), infrastructure improvement (Kueh, 1992), and economic, institutional, and legal reforms (Zhan, 1993, Lardy, 1994, Porter, 1995). The regional economic impact can be extended through industrial linkages, particularly backward linkages by supplying materials, components, and services, with TNCs’ subsidiaries. The importance of such indirect impact has been highlighted by many studies (e.g., Dicken, 1992, Kueh, 1992, Young et al., 1994, Williams, 1996, UNCTAD, 2001).

The paper will first give some insight into the characteristics of FDI in China and Guangdong province, in particular. Next, it will focus on the theoretical insights with regard to the impact of linkages of multinational subsidiaries on the local economy. Research hypotheses are put forward with regard to differences among foreign subsidiaries in terms of age, sector, origin, size, investment motives and entry mode. These hypotheses are consequently checked against a dataset of foreign subsidiaries in Guangdong province, China. A number of conclusions and policy options are discussed on the basis of the characteristics of these subsidiaries.

FDI IN GUANGDONG PROVINCE, CHINA

Since the late 1970s, the Chinese government has pursued policies aimed at opening up the economy and attracting foreign participation in the domestic economy. Foreign direct investment was, at least initially, seen as a means to an end. China believed its state owned industry would be its bedrock of industrial development but needed foreign direct investment to modernise its manufacturing technology. However, state owned enterprises have instead turned out to be China’s Achilles heel. This constitutes the paradox of China’s open-door policy: market-oriented economic reforms have exposed the inefficiencies and debts of state-owned enterprises (Benson and Zhu, 1999), while the booming private sector has been able to
pick up some of the slack. However, in order to alleviate the social tensions, a lot more investment and economic development is needed (Huang, 2002). FDI inflows in China have grown continuously, and rapidly at times, from its low levels in the 1980s to over US$ 50 billion annually in recent years. It attracted, for instance, US$ 52,700 million in the year 2002. According to Goldman Sachs, China may outstrip most countries in the near future with annual inflows of over US$ 100 billion (UNCTAD, 2002).

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 harbours 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 programme aimed at restoring a more balanced regional development when it decided to apply preferential policies to attract FDI in western or inland China. However, 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 labour. Furthermore, many coastal provinces have advanced rapidly in economic liberalisation, have developed a dynamic non-state sector, and have thus provided a more favourable 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 et al., 2003).

Table 1. FDI Inward in China, according to Region and Period (1987-2000).

<table>
<thead>
<tr>
<th>Year</th>
<th>National total</th>
<th>Coastal region</th>
<th>Beijing</th>
<th>Tianjin</th>
<th>Shanghai</th>
<th>Hebei</th>
<th>Liaoning</th>
<th>Shandong</th>
<th>Jiangsu</th>
<th>Zhejiang</th>
<th>Fujian</th>
<th>Guangdong</th>
<th>Hainan</th>
<th>Guangxi</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987-1990</td>
<td>10,413</td>
<td>77,439</td>
<td>1,194</td>
<td>243</td>
<td>1,175</td>
<td>90</td>
<td>512</td>
<td>345</td>
<td>388</td>
<td>154</td>
<td>800</td>
<td>4,129</td>
<td>331</td>
<td>157</td>
</tr>
<tr>
<td>1991-1994</td>
<td>171,168</td>
<td>149,273</td>
<td>14,927</td>
<td>8,298</td>
<td>15,048</td>
<td>1,413</td>
<td>6,717</td>
<td>8,985</td>
<td>6,983</td>
<td>2,943</td>
<td>14,745</td>
<td>22,269</td>
<td>2,550</td>
<td>1,900</td>
</tr>
<tr>
<td>1995-1998</td>
<td>81,034</td>
<td>70,461</td>
<td>7,099</td>
<td>4,85%</td>
<td>5,997</td>
<td>2,42%</td>
<td>3,659</td>
<td>5,404</td>
<td>8,815</td>
<td>3,27%</td>
<td>5,106</td>
<td>22,058</td>
<td>3,49%</td>
<td>2,43%</td>
</tr>
<tr>
<td>1999-2000</td>
<td>298,557</td>
<td>28,340</td>
<td>14,435</td>
<td>3,62%</td>
<td>7,997</td>
<td>2,12%</td>
<td>4,522</td>
<td>11,16%</td>
<td>11,38%</td>
<td>15,43%</td>
<td>13,06%</td>
<td>22,938</td>
<td>1,13%</td>
<td>1,43%</td>
</tr>
<tr>
<td>1999-2000</td>
<td>348,345</td>
<td>23,275</td>
<td>14,398</td>
<td>3,81%</td>
<td>8,340</td>
<td>2,12%</td>
<td>4,13%</td>
<td>6,06%</td>
<td>8,14%</td>
<td>6,284</td>
<td>6,797</td>
<td>33,510</td>
<td>3,13%</td>
<td>1,99%</td>
</tr>
</tbody>
</table>

Source: MOFTEC, several years.

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. However, the share of contracted FDI from the Triad has more than tripled between 1992 and 2000. Inversely, the share of Greater China has dropped significantly over the last ten years from more than three quarters of contracted FDI in 1992 to a third in 2000 (UNCTAD, 2002).

Figure 1. FDI In China (Million USD): Major Economies Of Origin, 1986 Through 2001.

[Diagram showing FDI in China by major economies from 1986 to 2001]

Note: Data for Taiwan are only included from 1989.
Source: MOFTEC, several years.

Hong Kong has been the largest investor in China since 1979, accounting for approximately 50 per cent of all inward foreign direct investment. However, as FDI statistics are registered as coming from the place where the investing firm is incorporated, this may not coincide with the actual home country of the invested funds (Chevalierias, 1998). In fact, it is difficult to have a precise picture of the actual patterns of FDI by country of origin, due to the role of Hong Kong. First, some of the reported Hong Kong DI (HKDI) was carried out by mainland Chinese subsidiaries located in Hong Kong. Chinese firms thereby transfer money to Hong Kong and then invest it back in the mainland, sometimes involving fund-raising in the Hong
Kong stock market or after a tax haven routing\(^\text{2}\) (Zhan, 1993). These Red Chip firms can then take advantage of preferential treatments for foreign investors in China, such as tax holidays (UNCTAD, 1996). Estimations suggest that this so-called round-tripping foreign direct investment could account for about 25 to 30 per cent of HKDI in China (Harold and Lall, 1993; World Bank, 2002).

Second, Hong Kong operates as an intermediary between China and the rest of the world for capital flows, as much as it does for international trade. Therefore, HKDI in China includes flows from third countries which pass through Hong Kong. This is the case of investment by Taiwanese firms for political reasons, especially during the 1980s. This is also the case of western firms which invest in China through regional headquarters in Hong Kong to take advantage of their better experience and knowledge of how to do business with the mainland. In fact, the importance of flows passing through Hong Kong is not precisely known, nor is the amount of “truly Hong Kong” direct investment (Zhang and Yuk, 1998).

The location choices of investments by Overseas Chinese from Hong Kong 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. In fact, they contributed over 90 per cent of FDI in Guangdong province, not only because of their geographical proximity but also because of the cultural and other connections (Zhang, 2001). Consequently, Guangdong province is the largest recipient of foreign investment. Guangdong cumulatively received FDI amounting to 100 billion USD between 1979 and 2000, or approximately 30 per cent of all FDI in China. In the 1980s, FDI in Guangdong was concentrated in the three Special Economic Zones (Shenzhen, Zhuhai and Shantou) and the Pearl River Delta region. During the 1990s, FDI has been spreading further into the eastern, western and northern areas of Guangdong province, resulting in an increasing share of these sub-regions in the total provincial FDI (Lan, 1997). Although foreign direct investment in Guangdong province dropped more than 10 percentage points in the 1990s as compared to the 1980s, it still attracts more than a quarter of all direct investment into China.

Unlike Asian investors, western investors from industrialised countries do not possess geographic proximity or close cultural ties with particular regions in China (Schroath, Hu et

\(^{2}\) Some investment is also carried out directly through these tax havens, such as the Cayman Islands and the Virgin Islands. The actual country of origin, however, cannot be determined either.
Therefore, their investment distribution is not significantly influenced by geo-cultural factors. Investors from industrialised countries have therefore not opted so extensively for the Zhujiang Delta around Guangzhou, however (Schroath, Hu and Chen, 1993). Rather, their investment distribution is affected primarily by industrial and technological factors. Western investors usually require a suitably developed industrial base and relevant supplier industries. In the case of China, large cities are relatively more advanced in industrial structure and technology, and therefore fit the requirements of American and European investment in technological conditions and industrial linkages (Zhao and Zhu, 2000).

MULTINATIONAL COMPANIES AND LINKAGES

This study attempts to examine some evidence with regard to the linkages of foreign invested enterprises (FIEs) in 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, either backward, forward or horizontal (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. Horizontal linkages involve interactions between firms engaged in competing activities and may either have a negative or a positive impact on local business activities.

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 specialisation and more outsourcing (Battat, Frank and Shen, 1996). If a firm takes on activities outside its main field of specialisation, it may overextend its organisation and reduce the efficiency and innovativeness of the internalised 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 a greenfield 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 localise 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 organisational 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 organisation; 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 organisation, 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**

It is generally recognised 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 1: The percentage of local sourcing will increase over time.

Obviously, the potential for linkages is not the same for all companies and 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 labour-, capital-, resource- or technology-intensity of the sub-sector. As multiple hypotheses could be advanced here, only a more open research question will be put forward.

Hypothesis 2: Significant differences exist between firms according to the sector, depending on its labour, capital, resource or technological intensity.

Second, given the fact that the Overseas 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).

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

As large foreign affiliates are able to internalise 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 Menamara, 1994, Halbach, 1989).

Hypothesis 4: Larger foreign affiliates will have a lower percentage of local procurement.

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 centralised 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. This might explain that domestic market-oriented affiliates generally purchase more locally than export-oriented firms (Belderbos,
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.

Hypothesis 5: The level of local sourcing is positively correlated to local sales.

Although the reasons for setting up a joint venture or a wholly owned subsidiary are multiple and diverse, including control, commitment, finance and risk (Hill et al., 1990), having a partner will definitely increase local ties. A Chinese partner company will have a better knowledge of the local industry and market place, which will result in a significant impact on the degree of local sourcing.

Hypothesis 6: Wholly foreign owned enterprises (WFOEs) will have substantially less local sourcing than joint ventures, either equity joint ventures (EJVs) or contractual joint ventures (CJVs).

DATA SET, CONSTRUCTS AND RESULTS

This paper uses data from subsidiaries of American, Japanese, European and (overseas) Chinese investors located in Guangdong province. The sample was originally drawn from the official fiscal database of foreign invested enterprises (FIEs) in the province of Guangdong. In order to have a representative sample, a selection was made based on 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. The overall sample consists of 417 firms, of which 282 were (Overseas) Chinese firms from Hong Kong, Taiwan, Macao or the PRC itself (so-called round-tripping FDI, see above), 45 had their parent companies in Europe, 36 in Japan and 52 in the US. The top managers in these firms were interviewed in 1998 on the basis of a questionnaire, involving background data on the company and its foreign parent(s), linkages of the subsidiaries, technology, and management and organisation of the firm. Although the questionnaires were filled in during the interview, the number of replies for some specific questions were sometimes lower than the total sample, because of the confidential nature of some questions or the non availability of the information.

The overall geographical pattern of sourcing is illustrated by the percentage of material inputs obtained from suppliers in the host region, the rest of China or abroad. A fourth but overlapping category is sourcing from other foreign invested enterprises in China. The dependent variable of local sourcing by MNC plants is measured as the percentage of inputs, by value, obtained from suppliers in the host region, i.e. Guangdong province.
The classification of manufacturing companies was carried out on the basis of the OECD method (OECD, 1987). Resource intensive industries include food, beverages and tobacco, wood, petroleum refining, non metallic mineral products and non-ferrous metals. The labour intensive industries cover textiles, apparel and leather, metal products and other manufacturing. Specialised supplier industries are non-electrical and electrical machinery, communication equipment and semiconductors. Scale intensive industries include paper, chemicals, rubber and plastics, iron and steel, shipbuilding, motor vehicles and other transport equipment, while R&D or science based industries are aerospace, computers, pharmaceuticals and scientific instruments.

A regression was run with the percentage of sourcing of material inputs, by value, in Guangdong province as the dependent variable to determine patterns and significant relationships with regard to the hypotheses put forward. The following variables were included as independent variables: the age of the foreign subsidiary, dummy variables for the different sectors, including labour intensive, scale intensive, resource intensive and R&D intensive industries, and the service sector; a dummy variable for investors from the EU and the US; total employees as a proxy for the size of the subsidiary; the percentage of sales in Guangdong province; and a dummy variable for the wholly foreign owned enterprises. The Pearson correlation table indicates no significant problems with the variables. Descriptive statistics are sometimes reported for the different geographical patterns of sourcing (sourcing in Guangdong province, sourcing in the rest of China, an overlapping category of sourcing from other foreign invested enterprises, and sourcing from abroad) for the different factors, including: time periods, investors, sectors, and forms.

The findings of the analysis are organised around the hypotheses presented above. Table 2 presents the regression results, which are used as analysis tool.

**Table 2. Regression Results**

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Coefficients</th>
<th>t values</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>24.098</td>
<td>2.895</td>
<td>.004</td>
</tr>
<tr>
<td>Age</td>
<td>-0.0177</td>
<td>-0.030</td>
<td>.976</td>
</tr>
<tr>
<td>Labour intensive industries</td>
<td>-6.097</td>
<td>-0.945</td>
<td>.346</td>
</tr>
<tr>
<td>Scale intensive industries</td>
<td>-7.614</td>
<td>-1.162</td>
<td>.246</td>
</tr>
<tr>
<td>Resource intensive industries</td>
<td>16.286</td>
<td>2.255</td>
<td>.025</td>
</tr>
<tr>
<td>R&amp;D intensive industries</td>
<td>-19.428</td>
<td>-1.519</td>
<td>.130</td>
</tr>
<tr>
<td>Service sectors</td>
<td>11.909</td>
<td>1.359</td>
<td>.175</td>
</tr>
<tr>
<td>Western investors</td>
<td>-8.258</td>
<td>-1.526</td>
<td>.128</td>
</tr>
<tr>
<td>Total employees</td>
<td>-0.0014</td>
<td>-1.127</td>
<td>.261</td>
</tr>
<tr>
<td>Local sales</td>
<td>0.170</td>
<td>2.543</td>
<td>.012</td>
</tr>
<tr>
<td>Wholly foreign owned enterprise</td>
<td>-9.685</td>
<td>-2.006</td>
<td>.046</td>
</tr>
</tbody>
</table>
Table 3. Pearson Correlation Table of Dependent and Independent Variables.

<table>
<thead>
<tr>
<th></th>
<th>Local sourcing</th>
<th>Age of subsidiary</th>
<th>Labour intensive industries</th>
<th>Scale intensive industries</th>
<th>Resource intensive industries</th>
<th>R&amp;D intensive industries</th>
<th>Service sectors</th>
<th>Western investors</th>
<th>Total employees</th>
<th>Local sales</th>
<th>Wholly foreign owned subsidiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local sourcing</td>
<td>1.000</td>
<td>-0.005</td>
<td>-0.173</td>
<td>-0.139</td>
<td>0.300</td>
<td>-0.099</td>
<td>0.119</td>
<td>-0.062</td>
<td>-0.098</td>
<td>0.314</td>
<td>-0.125</td>
</tr>
<tr>
<td>Age of subsidiary</td>
<td>-0.005</td>
<td>1.000</td>
<td>-0.044</td>
<td>0.072</td>
<td>-0.008</td>
<td>-0.036</td>
<td>-0.004</td>
<td>0.036</td>
<td>0.243</td>
<td>0.010</td>
<td>-0.137</td>
</tr>
<tr>
<td>Labour intensive industries</td>
<td>-0.173</td>
<td>-0.044</td>
<td>1.000</td>
<td>-0.380</td>
<td>-0.307</td>
<td>-0.114</td>
<td>-0.203</td>
<td>-0.229</td>
<td>0.009</td>
<td>-0.380</td>
<td>0.086</td>
</tr>
<tr>
<td>Scale intensive industries</td>
<td>-0.139</td>
<td>0.072</td>
<td>-0.380</td>
<td>1.000</td>
<td>-0.282</td>
<td>-0.104</td>
<td>-0.186</td>
<td>0.106</td>
<td>0.020</td>
<td>-0.033</td>
<td>-0.098</td>
</tr>
<tr>
<td>Resource intensive industries</td>
<td>0.300</td>
<td>-0.008</td>
<td>-0.307</td>
<td>-0.282</td>
<td>1.000</td>
<td>-0.084</td>
<td>-0.150</td>
<td>0.093</td>
<td>-0.082</td>
<td>0.334</td>
<td>-0.005</td>
</tr>
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<td>R&amp;D intensive industries</td>
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<td>-0.036</td>
<td>-0.114</td>
<td>-0.104</td>
<td>-0.084</td>
<td>1.000</td>
<td>-0.056</td>
<td>0.179</td>
<td>-0.036</td>
<td>0.043</td>
<td>-0.098</td>
</tr>
<tr>
<td>Service sectors</td>
<td>0.119</td>
<td>-0.004</td>
<td>-0.203</td>
<td>-0.186</td>
<td>-0.150</td>
<td>-0.056</td>
<td>1.000</td>
<td>0.125</td>
<td>0.081</td>
<td>0.206</td>
<td>0.142</td>
</tr>
<tr>
<td>Western investors</td>
<td>-0.062</td>
<td>0.036</td>
<td>-0.229</td>
<td>0.106</td>
<td>0.093</td>
<td>0.179</td>
<td>0.125</td>
<td>1.000</td>
<td>0.051</td>
<td>0.099</td>
<td>0.001</td>
</tr>
<tr>
<td>Total employees</td>
<td>-0.098</td>
<td>0.243</td>
<td>0.009</td>
<td>0.020</td>
<td>-0.082</td>
<td>-0.036</td>
<td>0.081</td>
<td>0.051</td>
<td>1.000</td>
<td>-0.102</td>
<td>-0.026</td>
</tr>
<tr>
<td>Local sales</td>
<td>0.314</td>
<td>0.010</td>
<td>-0.380</td>
<td>-0.033</td>
<td>0.334</td>
<td>0.043</td>
<td>0.206</td>
<td>0.099</td>
<td>-0.102</td>
<td>1.000</td>
<td>-0.147</td>
</tr>
<tr>
<td>Wholly foreign owned subsidiary</td>
<td>-0.125</td>
<td>-0.137</td>
<td>0.086</td>
<td>-0.098</td>
<td>-0.005</td>
<td>-0.098</td>
<td>0.142</td>
<td>0.001</td>
<td>-0.026</td>
<td>-0.147</td>
<td>1.000</td>
</tr>
</tbody>
</table>
Age And Size
There is a marginal indication that size is negatively correlated to local sourcing, although the regression coefficient is very small and hardly significant. The analysis found neither support for the hypothesis that the length of time a foreign invested enterprise has been operating in China would positively affect its local sourcing. If any conclusion can be drawn, it would be that local sourcing does not automatically increase over time. Sourcing from abroad seems rather stable, with approximately half of the inputs being imported. In policy terms, this can be interpreted that central and local investment promotion agencies can not only rely upon the management of the affiliates as such to increase local sourcing and that a more active role will be required from these organisations.

Table 4. Average Sourcing of FIEs in Guangdong Province over time.

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Sourcing from Guangdong province Mean (Std Dev)</th>
<th>Sourcing from Rest of China Mean (Std Dev)</th>
<th>Sourcing from other FIEs in China Mean (Std Dev)</th>
<th>Sourcing from abroad Mean (Std Dev)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979-1985</td>
<td>21.47 (27.43)</td>
<td>30.83 (33.66)</td>
<td>45.83 (41.22)</td>
<td>48.89 (39.39)</td>
</tr>
<tr>
<td>1986-1988</td>
<td>28.31 (33.33)</td>
<td>35.38 (34.79)</td>
<td>35.29 (35.90)</td>
<td>41.16 (39.13)</td>
</tr>
<tr>
<td>1989-1992</td>
<td>24.76 (34.22)</td>
<td>21.17 (29.47)</td>
<td>34.95 (34.02)</td>
<td>58.45 (40.73)</td>
</tr>
<tr>
<td>1993-1996</td>
<td>25.43 (33.81)</td>
<td>27.94 (34.02)</td>
<td>28.92 (32.65)</td>
<td>51.20 (39.88)</td>
</tr>
<tr>
<td>1997-1998</td>
<td>33.08 (35.91)</td>
<td>13.46 (24.78)</td>
<td>61.71 (43.05)</td>
<td>52.00 (41.48)</td>
</tr>
</tbody>
</table>

Note: Percentages may not add up due to response differences.

Sector
Although the results do not statistically underpin differences for every industry, a number of interesting conclusions can be drawn from the sectoral analysis. Affiliates in the service sector source more locally than most manufacturing industries. This is linked to the type of affiliates that China has attracted in the service sector so far, such as in construction, tourism, trading, technical services, and transport, where the potential for local sourcing is considerable.

Resource intensive affiliates register a significantly higher local procurement than other manufacturing affiliates, as these subsidiaries were probably set up where the required resource is abundantly available. Resource intensive industries, including food, and beverages, wood, and non metallic mineral products source almost half of their material inputs in Guangdong province. R&D intensive industries, on the other hand, source very little in Guangdong province, but source more from other parts of China, even though more than half of the inputs are imported. Given the Chinese policy to try to attract more higher-value added activities, this result indicates that much leaves to be desired from the point of view of the Guangdong provincial authority.

Nationality of investor
Although it was assumed that MNCs from the Triad would source significantly less locally than (Overseas) Chinese investors, the regression results did not confirm this. After some data mining, it
was found that the Japanese subsidiaries behaved significantly different from those from the EU and the US in terms of local sourcing. On the one hand, Japanese firms have substantially higher importing percentages than the investors from the West. On the other hand, they registered higher local sourcing than western companies. As Japanese firms have a tendency to form long-term links with their existing keiretsu suppliers, they show a high import ratio. However, when Japanese firms do decide to source domestically, they demonstrate stronger tendencies to have suppliers nearby (De Beule and Van Den Bulcke, 1997), making a clear-cut hypothesis impossible. Following these observations, the variable was revamped into a dummy for investors from the West (EU and US), yielding a substantially lower percentage of local sourcing and confirming the hypothesis. Again, with the rising importance of FDI from other sources than Overseas Chinese, this leaves a lot of room for improvement of FDI and industrial organisation policies in terms of linkages.

**Investment Motives and Strategies**

Local sales turn out to be a significant reason for localising procurement. Affiliates that were set up for market seeking reasons, apparently have a lot to gain by adapting products to local tastes and demand, and hence source significantly more locally. The increasing opening up of the Chinese market bodes well in this respect.

**Ownership**

Wholly foreign owned enterprises (WFOEs) source substantially less from local companies than joint venture companies. Statistically, they source 10 percent less locally than joint ventures. On average, WFOEs source less than 20 percent locally. They also source less in the rest of China than joint ventures, while they procure substantially more from other foreign invested enterprises in China. Consequently, importing is much higher for wholly foreign owned companies than it is for joint ventures. WFOEs source about two thirds of material inputs from abroad. The differences between equity joint ventures (EJVs) and contractual joint ventures (CJVs) are most pronounced in the sourcing from other FIEs in China, in which CJVs have significantly lower linkages to other foreign affiliates.

**Table 5. Average sourcing of FIEs in Guangdong province by form.**

<table>
<thead>
<tr>
<th>Form</th>
<th>Sourcing from Guangdong province</th>
<th>Sourcing from Rest of China</th>
<th>Sourcing from other FIEs in China</th>
<th>Sourcing from abroad</th>
</tr>
</thead>
<tbody>
<tr>
<td>EJV</td>
<td>Mean (Std Dev) Mean (Std Dev)</td>
<td>Mean (Std Dev) Mean (Std Dev)</td>
<td>Mean (Std Dev) Mean (Std Dev)</td>
<td></td>
</tr>
<tr>
<td>27.87 (34.18)</td>
<td>29.68 (33.96)</td>
<td>34.13 (35.08)</td>
<td>45.53 (38.78)</td>
<td></td>
</tr>
<tr>
<td>CJV</td>
<td>34.28 (38.39)</td>
<td>29.13 (33.39)</td>
<td>23.90 (29.67)</td>
<td>38.98 (40.56)</td>
</tr>
<tr>
<td>WFOE</td>
<td>17.84 (27.39)</td>
<td>20.37 (29.58)</td>
<td>40.82 (36.97)</td>
<td>67.31 (37.84)</td>
</tr>
<tr>
<td>Total</td>
<td>25.65 (33.38)</td>
<td>26.27 (32.69)</td>
<td>33.80 (34.85)</td>
<td>52.05 (40.28)</td>
</tr>
</tbody>
</table>

Note: Percentages may not add up due to response differences.
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 –even more so than service affiliates–, 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 labour) seekers in China. They have relocated most, if not all, of their labour-intensive and export oriented activities to China and import the most (two thirds of inputs). Specialised 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.

On average, equity joint ventures are still the preferred mode of entry as more than half of the foreign subsidiaries in Guangdong province are EJVs. 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 internationalisation. 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 labour 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).

Figure 2. Actual FDI Utilisation By Mode Of Investment, 1986 Through 2001

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, WFOEs 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 WFOEs 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: POLICY INTERVENTION

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 localisation (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). Admittedly, although “only” 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 favour 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

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3 Trade related investment measures (TRIMS) recognise that local content and trade balancing requirements are the functional equivalent of quantitative restrictions on imports, and that they therefore distort the level and pattern of international trade and investment by causing inefficiencies in the worldwide allocation of resources.
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 is 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).

Using and strengthening linkages to attract FDI calls for new approaches, going beyond the first and second generations of investment promotion policies. The third generation of investment promotion policies proceeds to target foreign investors at the level of industries and firms to meet their specific locational needs at the activity and cluster level, in light of a country's development priorities. A critical element of such investment promotion is to improve –and market– particular locations to potential investors in specific activities. However, such a targeted approach, especially the development of locational "brand names", is difficult and takes time. It requires fairly sophisticated institutional capacities.

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 loosing 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 programmes to accelerate the development of backward linkages. Such programmes 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


