Japanese Direct Investment in China and Other Asian Countries

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1. Introduction

Japan and China are the two largest economies in Asia. The economic relationships between these two countries are tight. For example, in 2000, Japan is the third largest direct investor in China, behind only Hong Kong and the United States.[1] With China's accession to the World Trade Organization (WTO), it is expected that the economic linkages will further intensify. It is thus important to study the nature and evolution of such links between these two countries.

In this paper, we shall focus on an examination of various trends and characteristics of Japanese direct investment in China. As a comparison, we will also study similar features of Japanese direct investment in other Asian economies, including the NIEs (Newly Industrializing Economies—Hong Kong, Singapore, Taiwan and South Korea) and selective members of the ASEAN (Association of Southeast Asian Nations—Malaysia, Indonesia, Thailand and the Philippines. In particular, we aim to study the following questions: *In what industries and sectors do Japanese companies invest? Why do Japanese multinationals invest in China and other parts of Asia? Where do Japanese affiliates sell their products and where do they procure their inputs and supplies? Do Japanese affiliates located in China behave differently compared to those in the NIEs and in ASEAN? What are the geographic determinants of Japanese direct investment in China?*

[1] Data are from the Almanac of China's Foreign Economic Relations and Trade, 2001. We ignore Virgin Islands as a separate source country for direct investment since most, if not all of such investments are originally from other regions.

Our study can be divided into two main parts. The first part focuses on the use of qualitative and survey data in providing us with information concerning the various characteristics of Japanese direct investment in China as compared to those in the NIEs and in member countries of ASEAN. In the second part, our study presents a statistical analysis to investigate the geographic determinants of Japanese direct investment within China. As a comparison, we also assess the relative importance of these same factors for the most important direct investor in China—Hong Kong.

The paper is organized as follows. In the next section, we present an overview of recent Japanese direct investment in general. Then in section 3, we focus our examination on Japanese direct investment in Asia. In section 4, we study the characteristics of Japanese direct investment in China. In section 5, we present survey data related to the motives of Japanese direct investment in China, the NIEs and in members of ASEAN. In section 6 and 7, we examine the destinations of sales and the sources of procurement of supplies of Japanese affiliates in China and other Asian economies. We then present our econometric results concerning the geographic determinants of Japanese and Hong Kong direct investment within China in section 8. Concluding remarks are provided in section 9.

2. Recent Trends and Characteristics of Japanese Direct Investment in the World

During the 1980's, Japanese outward direct investment started to grow rapidly. This investment boom continued until 1989. As a result, the ratios of nominal Japanese foreign direct investment (FDI) outflow to Gross Domestic Product (GDP) grew from 0.4% in 1980 to 2.4% in 1989. In 1989, Japanese direct investment became the largest in

the world, reaching $67.5 billion, accounting for 29.5% of the world total outward FDI on a value basis. However, the share declined considerably throughout the 1990's. The corresponding share in 2000 was only 4.2%. Several striking features of Japanese outward direct investment since the 1980's can be identified.

First, although outward direct investment from Japan grew sharply during the 1980's, inward direct investment to Japan had been stagnant (Figure1). Such an imbalance between outward and inward FDI of Japan continues until the late 1990's. Table 1 shows the ratio of Japanese outward direct investment to its inward direct investment for 1991-2000.[2] The table also shows a significant increase in inward FDI to Japan since 1998. Such increases in inward FDI are due to the ongoing structural reforms in Japan. From 1997 to 1998, the yen value of inward FDI increased approximately 89%. The corresponding figure for 1998 to 1999 was 105%. In 2000, FDI inflow hit yet another new high, growing 31% from the previous year. The particularly strong growth was seen in the telecommunications, banking and insurance industries. FDI inflow also increased in the manufacturing sector during the period.

Second, FDI outflow from Japan reflects the cyclical movements of the Japanese yen and the growth of the Japanese economy. As can be seen in Figure 1, changes in Japanese outward direct investment appear to reflect movements in the value of the Japanese yen. In particular, the steep appreciation of the yen after the Plaza Agreement in 1985 is regarded as the most important macroeconomic factor explaining the expansion of Japanese direct investment during the latter half of the 1980's. The appreciation of the yen caused the relative price of Japanese products to be more

[2] The investment figures are given in yens and are based on statistics from the Ministry of Finance, Government of Japan.

expensive, thereby resulting in a reduction in the volume of exports.[3] Japanese manufacturing firms interpreted the yen appreciation as irreversible and shifted their production overseas to improve the competitiveness of their products in the international markets. As pointed out by Urata and Kawai (2001), Japanese outward direct investment during the period was also stimulated by the "wealth" effect induced by the appreciation of the yen. Japanese firms that became relatively "wealthy" in terms of increased collateral and liquidity due to the appreciation of the yen were able to finance their direct investment more cheaply relative to their foreign competitors. Another factor that pushed the Japanese direct investment to expand is the bubble economy of the late 1980's. The rapid expansion of the Japanese economy resulted in a labor shortage, which led to a hike in the Japanese wage rate. This in turn further decreased the competitiveness of Japanese products, particularly for labor-intensive manufactured products.

The boom in Japanese outflow of direct investment came to an abrupt end in 1990, however. This sudden downturn was contributed mainly by the burst of the bubble economy and the depreciation of the yen. After 1993, Japanese direct investment once again started to expand, however at a steadier pace than it did during the latter half of the 1980's. As before, the unprecedented level of yen appreciation was the main factor for the expansion. Between 1990 and 1995, the yen appreciated more than 50% and Japanese firms were pressed to improve their competitiveness by going overseas.

Thirdly, there has been a notable shift in the regional distribution of Japanese outward direct investment. Table 2 demonstrates the regional share of Japanese direct investment for the period 1980-2000. The 1980's witnessed the rapid increase of Japanese direct investment in the developed economies. North America, which absorbed

[3] We are assuming that the real yen exchange rate shows a similar pattern as the nominal yen rate.

about one third of Japanese investment in the first half of the 1980's, increased its share to more than 40% during the latter half of the 1980's with a peak share of 50% in 1989. The growing international trade link between the United States and Japan during the early 1980's was accompanied by an ever-worsening U.S. trade deficit with Japan. This phenomenon led to heated trade disputes, particularly in the U.S. automobile industry and in the general and electrical machinery industry. To cope with protectionist trade measures imposed by the United States, Japanese firms turned to FDI and established their subsidiaries within the U.S. to keep their market shares in those industries. As a result, the share of Japanese direct investment among developing countries decreased substantially. In 1981, the share of Japanese direct investment among developing countries (including Asia) was 53.7% and that figure shrank to 27.9% in 1989. However, the trend shifted during the 1990's. Japanese direct investment moved away from developed countries toward developing countries, particularly towards Asia until just before the Asian financial crisis. The share of Japanese direct investment going to developed countries declined from 72.9% in 1990 to 60.4% in 1997, whereas that of developing countries increased from 27.1% to 39.6% for those years. Among the developing countries, Asia's share increased from 43.7% in 1990 to 57% in 1997. Asia became a strategic manufacturing base for Japanese companies during the period of the strong yen and the collapse of the "bubble" economy in the early to mid 1990's. But in 1998, there was a notable increase of Japanese direct investment to Europe. The increase was caused mainly by the growth in Japanese investment in the U.K., establishing new plants for making automobiles and automobile parts. There was also a centralization of European operations in the U.K. by financial institutions and trading companies (JETRO

2000.) The upward trend was further fueled by the economic recovery in Europe and the introduction of a single currency in the European Union (EU) in 1999. In 2000, Europe alone accounted for 50% of total outflow of Japanese direct investment.

Finally, the composition of Japanese outward direct investment has also changed significantly over the years. The 1980s witnessed a spectacular growth in Japanese direct investment in the non-manufacturing sectors, including banking and insurance, services, and real estate. The share of non-manufacturing sector for the period 1980-1989 was approximately 75%. Coincided with the increase in FDI to developing countries in the 1990's, the share of FDI outflows in manufacturing started to rebound. Table 3 shows the composition of Japanese outward direct investment for the period 1989-2000. The share of manufacturing sectors which was less than one-fourth of total outflow of Japanese direct investment in 1989 increased to 42.2% in 1996 and remained at 35.8% in 1997. In 1999, the share of manufacturing sectors jumped to 63.4%. This increase was mainly contributed by several large-scale investments in the electrical machinery industry in the U.S. and investments in the food industry in Europe.

3. Recent Trends and Characteristics of Japanese Direct Investment in Asia

In the last section, we provide an overview of the broad trends of Japanese direct investment in the world. In this section we examine the different characteristics of Japanese direct investment outflow to various Asian economies. During the late 1980's, as the Japanese yen sharply appreciated and trade frictions with the United States and worsened, Japanese firms shifted their production out of Japan. Some Japanese firms invested in developing countries, especially in the Asian developing countries, at least

initially, to take advantage of lower wage costs and to reduce their production cost. Among the Asian countries, Japanese direct investment was concentrated in East Asia, including the Asian NIEs (Newly Industrializing Economies), ASEAN (Association of South East Asian Nations) countries and China. From 1986-1989, Japanese direct investment increased in the Asian NIEs. Rising costs prompted Japan to shift its electronics-manufacturing base to the NIEs of Asia. The pull factors included the FDI promotion policies of these economies, investment opportunities created by the high rates of economic growth, and the liberalization of trade in goods and services that occurred in those countries. As the level of wage rates increased in the Asian NIEs, Japan shifted its investments to the ASEAN countries during 1988-1990. In addition, as China opened up further its economy, Japan started investing heavily in China since 1989.

Table 4 shows the share of Japanese outward direct investment in Asia. It highlights the significant changes in the distribution of Japanese direct investment within the region. In 1989, the Asian NIEs, ASEAN countries, and China accounted for 98.5% of total investment from Japan to the Asian countries. The share of the Asian NIEs in 1989 alone accounted for 59.4% of total Japanese direct investment in Asia. In the 1990s, however, the share of the Asian NIEs started to decline and shrank to 26.2% by 1995. In 1999, Korea emerged as one of the top destinations for Japanese direct investment in Asia. The relative share of the Asian NIEs was on the rise since 1999 mainly because of the spectacular increase in Korea's relative share. After the economic crisis of 1997, Korea underwent a dramatic change in its approach toward FDI. Korea launched a series of reforms in its foreign investment laws and policies and has relaxed controls on foreign capital. These changes make the investment environment in Korea

much more favorable to foreign firms. As seen in the table, this led to a jump in Korea's relative share from 4.6% in 1998 to 13.7% in 1999 and in 2000.

The shares of ASEAN countries experienced a significant increase during the early 1990's, surpassing that of the Asian NIEs. However, ASEAN countries too faced rising wages and shortages of labor. The relative share of ASEAN countries started to decline. Total FDI inflows into the region from Japan declined markedly from 1997 to 2000. Although, Japanese direct investment grew in absolute yen terms in all ASEAN countries in 1997, the amount has been declining rapidly since then. The total Japanese direct investment in absolute yen terms in the ASEAN4 in 2000 was less than one third of that in 1997.

FDI in China has also grown dramatically over the past two decades, since China initiated its 'open-door' policy in 1979. Throughout the 1980's, Chinese government has taken great strides in attracting FDI by promulgating various regulations to improve the investment environment. China's rapid economic growth was another pull factor for FDI from the rest of the world[4]. In 1993, following the new policies and reforms that opened more regions and sectors to FDI, FDI inflow to China from Japan continued to climb higher. As seen in Table 4, the relative share of China in Asia increased from 9.7% in 1992 to 25.5% in 1993. But in 1994, the Chinese central government tightened its control over foreign investors' activities. At the same time, tax reforms were implemented and there was an attempt to unify the income tax systems faced by domestic firms and foreign firms. This modification of tax policies marked the beginning of China's effort to create a more equal environment for both foreign and domestic

[4] China had experienced an average growth rate in real GNP of approximately 10% a year. In 1988, it had risen to 11.2%, and industrial growth was at nearly 18%

investors. Although Japanese direct investment steadily increased in 1994 and 1995 with its relative share peaking at 36.2%, there was a drastic drop in 1996. In April 1996, China reduced the average tariff level by a large margin, however, at the same time; the State abolished the preferential policies of import tariff exemption and reduction enjoyed by many multinational enterprises (MNEs). This was seen as the main reason for the drop in Japanese direct investment. In 2000, Japanese investment in China increased in total value for the first time since 1995, due partly to Chinese government's revision of preferential policies for foreign multinationals and to anticipation of China's joining the World Trade Organization (WTO). China's relative share increased to 16.8%, making China the largest recipient of FDI from Japan as a single country in Asia.

An equally notable change occurred in the sectoral distribution of Japanese FDI in Asia. Table 5 shows the share of Japanese direct investment in the manufacturing sector for the world and for Asia. As mentioned before, a large share of Japanese direct investment in the world occurs in the service sector. As seen in the table, one of the distinct characteristics of Japanese direct investment in Asia is the relatively large share of manufacturing sector in comparison to the world on average. The difference was magnified in the year 2000. The relative share of manufacturing sector in Asia was 257% larger than that in the world on average. Within Asia, a variation in the relative share can also be observed in the table. Figure 2 highlights the variation for 1989 – 2000. Generally, the relative share of manufacturing sector in the Asian NIEs is much lower than that of the rest of Asia. Between 1990 and 1996, it actually stayed below the average share of manufacturing sector in the world. ASEAN4 has the highest

manufacturing share among the Asian countries until 1992. From 1993 to 1999, China has the highest share of direct Japanese investment in manufacturing.

4. Sectoral Composition of Japanese Direct Investment in China

Table 6 contains data for the sectoral composition of Japanese direct investment in China for 1989-2000. The relative share in manufacturing sector in China has been much higher than that of the Asian countries on average. A breakdown of inflow of Japanese direct investment to China shows an interesting feature—it is highly concentrated in *electrical machinery*. Throughout most of the 1990's, the electrical machinery industry appears to be a target for Japanese investors. Such a trend was particularly strong in the year 2000. The industry grew to account for 32.4% of Japanese direct investment. Japanese investment in the textile industry has always been strong in terms of the number of cases. Japan has lost its competitiveness in labor-intensive industries in early years and shifted its production overseas. In terms of yen value, Japanese direct investment in the industry peaked in 1995 and started to decline. The year 1998 saw a sharp drop in yen value as well as the number of cases of Japanese investments in the textile industry.

In the non-manufacturing sector, Japan actively invested in the tertiary sector during the early 1990s and broadened their fields of investment. Major retailers, such as Japan's Yaohan aggressively invested in China. Japan's large trading companies established China's first foreign-owned trading companies. Furthermore, Japan's investment in real estate grew rapidly between 1991 and 1992. However, during recent years, Japanese direct investments are less prominent than their competitors from the rest

of the world, particularly in China's growing sectors such as banking and insurance. In 2000, according to JETRO (2002), while U.S. and European insurance firms actively pursued their businesses in China as a result of China's accession to the WTO, only two Japanese firms were operating in China's insurance market.

5. Motives Behind Japanese Direct Investment in China and in Other Asian Economies

In this section we examine the motives behind Japanese direct investment in various Asian economies. Table 10 shows the results of the survey conducted by Ministry of Economy, Trade and Industry (METI) of the government of Japan on the motives of Japanese direct investment in the manufacturing sector in 1999. Unfortunately, the survey does not report the results for all the relevant separate countries. It only allows us to examine the motives of Japanese direct investment for China and Hong Kong together, ASEAN4 together (Thailand, Indonesia, Malaysia and the Philippines) and the NIEs3 together (Taiwan, Singapore and South Korea). However, since Hong Kong does not have much manufacturing left in its economy, most of the responses about the motives for investing in China and Hong Kong should be directed towards investing in China.

For Japanese direct investment to the world, 24.3% of the firms surveyed ranked "expanding the firm's share in the host country" first. Out of twelve industries in the manufacturing sector, only two industries, textiles and wood and pulp picked another reason as the prime motive of FDI. Although "expanding the firm's share in the country" is a common motive for Asia as well, an equally important motive for Japanese

FDI in Asia is "to take advantage of lower cost". Indeed, firms in labor-intensive industries such as textiles as well as firms in relatively capital- and technology- intensive industries such as electrical machinery and precision machinery ranked "to take advantage of lower cost" as their most important motive of FDI in Asia. This reflects a business strategy by Japanese firms to increase the competitiveness of their products by moving their relatively labor-intensive and lower-technology portion of their operation process to Asia.

Motives behind Japanese direct investment in various Asian countries and regions also differ from each other. In China, more than 22% of Japanese firms picked "taking advantage of lower cost" as their main motive for undertaking FDI. The industries ranked the lower cost motive first include textiles, general machinery, electrical machinery and precision machinery. In 1979, China established the legal framework for processing and assembly arrangements. Since then, China has built up considerable strengths in assembling and processing of industrial parts and components. It covers a wide range of industries such as electrical machinery, automobile, aerospace, and shipbuilding. In response, many Japanese firms in the machinery industry shifted the production of parts and components to China. "Expanding their share within China" was the second most popular motive, accounting for 20.9% of the Japanese firms surveyed. An interesting feature of the Japanese direct investment in China is that relatively small number of firms undertook their investment to expand their market shares in the third country either in the region or outside of the region. On the other hand, almost 9% of the firms invested in China to re-export their products back to Japan.

The lower cost motive is also the largest motive for Japanese firms undertaking FDI in ASEAN4. Besides textiles and machinery, food, wood and pulp, and others ranked this motive first. "Expanding their market share in the country" ranked second, but a smaller percentage of firms picked this motive compared to that for China. Relative to Japanese firms in China, many more firms that are operating in ASEAN4 appear to be motivated in expanding their shares in the third country especially within the region than motivated by re-exporting their products back to Japan.

The survey for NIE's3 shows slightly different results. Japanese firms in the Asian NIE's3 appears to be targeting more towards their local markets compared to those in China or ASEAN4. Almost one out of four firms indicated that expansion in the host country is the largest motive of FDI. The share is almost the same as the share for the world on average. Another feature that is specific to the region is that "expanding their market share in the third country" is a much more important motive, with a share of 14.7%. At the same time, "to re-export to Japan" is a much less important motive, accounting for only 5.7% of the firms surveyed. Industries undertaking FDI in order to lower their costs are limited to textiles and precision machinery. We turn next to examine the pattern of trade of Japanese firms and see how these different motives behind the Japanese FDI are reflected in their trading behavior.

6. Patterns of Sales of Japanese affiliates in China and Other Asian Economies

Table 8 shows the geographic distribution of sales of Japanese overseas affiliates in the manufacturing sector for 1999. An interesting feature of the patterns of sales of Japanese affiliates in Asia can be observed in comparison with those in the world on

average. In Asia, only less than half of their products are distributed locally, whereas the corresponding figure of Japanese affiliates worldwide is 70.0%. Furthermore, for the remaining of the goods produced by Japanese affiliates in Asia that are exported to other countries, half is re-exported back to Japan and the other half is exported to third countries. For the world, the goods that are re-exported to Japan only amounts to 9.6%, and 20.3% of the goods are exported to third countries. These observations indicate that Japanese affiliates in Asia are more motivated to use the host country of their FDI as an export base relative to the affiliates in the world on average. Moreover, as for the destination of their exports among the third countries, other Asian countries are by far the most important market for Japanese affiliates operating in Asia, accounting for 66.3% of their total exports to third countries. In contrast, for the world as a whole, Europe is the leading third market for goods produced by Japanese affiliates, accounting for 43.2%. The contribution of Japanese affiliates in Asia at creating intra-regional trade appears to be much larger than those operating in other regions of the world.

Within the manufacturing sector in Asia, there is a wide variation in pattern of Japanese affiliate's trade. Several Asian countries implemented policies to attract FDI in certain high-technology industries. They also encourage foreign firms in these industries to export to generate foreign exchange. Japanese affiliates in industries such as electrical machinery tend to have relatively high export ratio either to Japan or to third countries. On the other hand, a number of Asian governments targeted and protected the transportation machinery industry. As a result, Japanese affiliates sell a high share of their goods locally. The chemicals and ferrous metal industries tend to show a high local sales ratio in Asia as well. The Japanese affiliates in resource-based industries, such as

oil and coal products, tend to export their products back to Japan since those products are in short supply in Japan. Precision machinery is another industry that displays high export ratio to Japan due to a large home demand.

Among the Asian countries, Japanese affiliates in the NIEs3 are selling more locally while those in ASEAN4 are exporting more to both Japan and to third countries, with China positioned between the two regions. This observation of trade pattern of Japanese affiliates in different region of Asia is consistent with the survey about the motivation of FDI in the previous section. In the manufacturing sector on average, Japanese affiliates in ASEAN4 appear to contribute the most towards intra-regional trade among the Asian countries. Japanese firms in the ASEAN4 exported 65.1% of the goods destined for third countries to Asia. This means that they exported more than 20% of their goods to Asia. Japanese affiliates in China exported 16.6% of their goods to Asia, while affiliates in NIEs3 sent 14.4% of their goods to Asia. The common phenomenon for all three regions is that Japan is the largest export market for their products. However, the dependency on Japan to absorb their goods is much smaller for the NIEs3.

For Japanese affiliates in China, the share of export to Japan is particularly high in general machinery and precision machinery, accounting for 55.0%, 49.1%, respectively. This high export ratio can be attributed to China's FDI promotion policies. Foreign enterprises were able to import raw materials, components and production machinery duty-free, as long as they are engaged in export production. These policies resulted in a large number of foreign enterprises specialized in "processing trade", in particular "process with imported materials." The share of foreign firms in China's total exports skyrocketed to 26% between 1991 and 1995 and to 44% between 1995 and 2000 (Fung,

Iizaka, and Tong 2002). Japanese affiliates in China appear to be the largest suppliers of textile among Asian countries.

One distinctive characteristic of Japanese affiliates in ASEAN4 is its low ratio of local sales in electrical machinery. Japanese affiliates in the electrical machinery industry in ASEAN4 export almost 42% of their products to Japan. The share is much higher than the average share in Asia, which is 33%. Another industry that stands out for relatively low ratio of local sales is transportation machinery. The flip side of this is the high ratio of their exports particularly to Japan. The liberalization policies of the government of the host country appear to have played a role in this. For example, Japanese affiliates have a large presence in the automobile industry in Thailand[5]. The Thai government in the 1990's gradually abolished protection measures on automobile industry, and the production of the industry started to shift toward exports. As a result, Thailand's automobile exports have been increasing steadily.

In contrast to China and ASEAN4, the share of local sales is much higher in the NIEs. The share of goods exported to Japan only accounts for 16.9%, which is much lower than the average share of that in Asia at 25.1%. The high share of local sales particularly outstands in the general, electrical and precision machinery sectors, where the rest of the Asia tends to display high export share.

7. Patterns of Procurement of Japanese affiliates in China and in Other Asian Economies

[5] In 2000, FDI undertaken by Japanese affiliates in Thailand's transportation industry amounts to close to 20%.

In this section, we examine the patterns of procurement of Japanese affiliates in different regions. The rise in FDI results in an increase in induced exports from the home country to the host country. At the initial stage of the foreign production, one can expect an increase in the exports of capital goods required for the production from Japan to the host country of their FDI. Once the production is set up, the export of intermediate goods from Japan will increase. The extent of Japanese affiliates' dependence on Japan relative to the local market or the third country as a source for procurement can differ substantially for different regions and different industries. Industries that are technology-intensive such as machinery require specific parts and components. They tend to import their intermediate goods from Japan. However, as technology gets transferred and as the host country establishes its own high technology intermediate goods industry, the share of local procurement is expected to rise. The share of local procurement can also be high due to local content requirement imposed by the host country's government.

Table 9 shows the share of procurement of Japanese affiliates in different regions in 1999. Combining Table 9 with Table 8, we can examine both the source of the intermediate goods as well as the destination of the final products. First let us look at the pattern for Japanese firms worldwide. Japanese affiliates import on average 36.6% of their intermediate goods from Japan, whereas they only sell 9.6% of their products back to Japan. Furthermore, as we saw in the previous section, their sales are highly concentrated locally at 70.0%, yet the share of local content in the manufacturing sector only amounts to 46.9%. With respect to third countries, Japanese affiliates import 16.5% of their intermediate goods and export 20.3% of their final products.

In Asia, in contrast, the dependence of Japanese affiliates on the local markets and Japan as procurement sources is slightly lower than that of the world average, accounting for 43.9% and 34.8% of the total procurements, respectively. The dependence on the third country as a procurement source on the other hand is much higher than the world average, at 21.3%. Furthermore, the difference between the share of Japanese affiliates' procurement from Japan and their sales to Japan is much smaller in Asia relative to the world average. Among the regions that are supplying intermediate goods to Japanese affiliates in Asia, the Asian countries have by far the largest share, confirming the strong tendency for Japanese affiliates in Asia to increase intra-regional trade.

China appears to have become a firmly established procurement source for Japanese companies. The share of local procurement by Japanese firms in China's manufacturing sector is 46.8%, which is almost as high as the worldwide average. China's strength as a procurement source can be seen particularly in both general and electrical machinery. The shares of local procurement in those industries are 66.5% and 42.1%, respectively, and are much higher than the corresponding figures from any other regions of Asia in those industries. The largest share of procurement imports from Japan is seen in the ferrous sector at 67.6%

Among ASEAN4, there is a relatively low share of procurement from Japan and a high share from the third countries. In comparison to their sales to Japan, the share of imports from Japan is only 1.4% larger, which is the smallest procurement to sales margin among the Asian countries. Consistent with the sales pattern, Japanese companies in ASEAN4 are major contributors to intra-regional trade. They imported over 20% of their procurement from other Asian countries. This may partly be explained by the drastic

exchange rate depreciations following the Asian crisis in all ASEAN4 countries[6]. For Japanese affiliates in the ASEAN, Exchange rate depreciation increases the cost of intermediate goods from Japan significantly, which may have led Japanese affiliates to substitute away to import intermediate goods from the third countries. The share of local procurement in petroleum and coals in ASEAN4 is among the highest, amounting to 81.7%. This reflects the resource abundant nature of the region.

The dependence of Japanese affiliates on Japan as a procurement source is the highest in the NIEs. On average Japanese affiliates in NIEs3 are importing 39.1% of their intermediate products from Japan, although Japan is only absorbing 16.9% of their products as we have shown in previous section. Among the various industries, ferrous metals, electrical machinery and precision machinery are the three industries which have the highest shares of procurement from the home country, Japan.

8. Geographic Determinants of Japanese and Hong Kong Direct Investment in China

8.1 Model specification

In this section, we assess econometrically the relative importance of factors in determining the flow of direct investment into each region of China from Japan and Hong Kong for the period from 1990 to 2000. We pick Hong Kong as a benchmark of comparison with Japan since Hong Kong is the largest direct investor in China. In 2000, Hong Kong accounted for 38.1% of foreign direct investment in China, while Japan came in third, with a share of 7.2%.

[6] Between June 1997 to September 1998, bilateral exchange rate for Indonesia, Malaysia, Philippines, and Thailand versus Japanese yen depreciated by 73.8%, 29.2%, 27.5%, and 25.6%, respectively.

We start with a basic model derived from a reduced form specification for demand for inward direct investment. Let FDI_i be the foreign direct investment from Japan to region i. Then, the relationship between FDI and its determinants can be written as $FDI_i = f(X_i,)$, where X_i is a vector of variables that captures the overall attractiveness of region i to FDIs. The variables included in this vector are dependent only on the regional characteristics of China.

The basic regression model can be written as a linear specification in the following form:

$$\ln(FDI_{i,t}) = \alpha_i + \beta_1 \ln(GDP_{i,t}) + \beta_2 \ln(LAGWAGE_{i,(t-1)}) + \beta_3 \ln(HE_{i,t}) + \beta_4(INFRA_{i,t}) + \beta_5(SEZD_{i,t}) + \beta_6 \ln(ETDZD_{i,t}),$$

where the subscripts i and t stands for China's region i and period t and the variables used in this analysis are given below.

$FDI_{i,t}$: FDI from Japan to region i at time t,

$GDP_{i,t}$: GDP of region i at time t,

$LAGWAGE_{i,(t-1)}$: average wage of region i at time t-1,

$HE_{i,t}$: the ratio of the number of students enrolled in higher education in region i to its population at time t,

$INFRA_{i,t}$: kilometers of both high quality roads and railway in region i per square kilometer of land mass at time t,

$SEZ_{i,t}$: the number of Special Economic Zones in region i at time t,

$OCC_{i,t}$: the number of Open Coastal Cities in region i at time t,

$ETDZ_{i,t}$: the number of Economic and Technological Development Zones in region i at time t

Many papers have investigated the determinants of the geographic choice of FDI. The above variables have been identified as important factors in much of the existing literature.

To examine the importance of size of the local market, gross domestic product (GDP) of each region is used. The importance of market size has been confirmed in many empirical studies. For foreign investors, the size of the host market, which represents the host country's economic conditions and the potential demand for their output, should be an important element in their FDI decision-makings. Since this variable is used as an indicator of the market potential for the products of foreign investors, the expected sign is positive. Furthermore, the more that foreign investors target the local market, instead of exporting the produced goods, the larger should be the magnitude of the positive coefficient.

Since labor cost is a major component of cost, wage variables are frequently considered in the literature. A high nominal wage, other things being equal, deters inward FDI, particularly for that firms that engage in labor-intensive production activities. Therefore, the expected sign for this variable is negative. However, regional wages may be high because of high local inflows of FDI. To avoid the potential simultaneity bias between investment and wages, we elect to use the nominal wage lagged one period.

The variable HE is included in the equation to capture the average level of human capital in each region. Although the expected sign of the variable is positive, the

importance of this variable should be higher for technology- and capital-intensive industries than for labor- intensive industries. Furthermore, the coefficient should be large for Japanese firms, which practice job rotation and demand their workers to make decisions at the shop floors (Aoki 1988, Friedman and Fung 1996).

The hypothesis that well-developed regions with superior transportation facilities are more attractive to foreign firms is examined by including the proxy, density of roadway and railway. The model also includes three variables to examine the effects of policy incentives to attract FDI in SEZs, OCCs (Special Economic Zones and Open Coastal Cities), and ETDZs (Economic and Technological Development Zones). These areas are granted preferential tax and other policies and can deal flexibly with foreign businesses. The expected signs for both variables are positive. [7]

8.2 Panel Estimation

The estimation used is a random effects model specified as follows:

$$y_{it} = \alpha + \beta' x_{it} + \varepsilon_{it} + u_i ,$$

where the disturbance term, ε_{it} is associated with both time and cross-sectional units, which are the regions in this analysis, and u_i is the random disturbance that is associated with the ith region and assumed to be constant over time. In another words, the region-specific constant terms are assumed to be randomly distributed over cross-sectional units. y_{it} is the dependent variable, which is foreign direct investment inflow from a source country into region i at time t. x_{it} is the set of characteristics in each region i at time t. Further assumptions on the error terms are: $E[\varepsilon_{it}] = E[u_i] = 0$, $Var[\varepsilon_{it}] = \sigma^2_{\varepsilon}$, $Var[u_i] = \sigma$

[7] Data for the regression analysis are obtained from Almanac of China's Foreign Economic Relations and Trade, various years, China Statistical Yearbook, various years, China Foreign Economic Statistical Yearbook 1994 and China Regional Economy: A Profile of 17 Years of reform and Opening-Up, 1996.

^2_u, $Cov[\varepsilon_{it}, u_j] = 0$ for all i, t, and j, $Cov[\varepsilon_{it}, \varepsilon_{js}] = 0$ if $t \neq s$ or $i \neq j$, and $Cov[u_i, u_j] = 0$ if $i \neq j$.

The regression disturbance, w_{it}, can be written as; $w_{it} = \varepsilon_{it} + u_i$. The variance and covariance of all disturbances are: $Var[w_{it}] = \sigma^2 = \sigma^2_{\varepsilon} + \sigma^2_u$, and $Cov[w_{it}, w_{is}] = \sigma^2_u$.. Therefore, the disturbances in different periods are correlated for a given i, because of their common component, u_i. Hence, the efficient estimator is generalized least squares (GLS). The two-step estimators are computed by first running ordinary least squares (OLS) on the entire sample. Then, the variance components are estimated by using the residuals from the OLS. Finally, these estimated variances are used in the second step to compute the parameters of the model.

Estimation results of the model are presented in Table 10 for Japanese direct investment and Hong Kong direct investment.

The size of nominal regional GDP is an important factor in determining outward FDI for both countries. The coefficients for the variable are positive and statistically significant at the 1% level, confirming the hypothesis that the amount of FDI inflow is positively related to the host region's market size. Table 10 indicates that a one-percent increase in regional GDP is associated with a 0.80 percentage increase in Japanese direct investment and 0.82 percentage increase in Hong Kong direct investment.

The lagged wage variable is also a promising determinant in the analysis. This negative impact of the wage variable is consistent with the findings of Cheng and Kwan (2000), although the magnitude of the impact is smaller in our finding. The coefficient for the lagged wage variable for Hong Kong was found to be negative and significant at 1% level indicating that the higher wage impedes the inflow of Japanese direct investment.

The coefficient for Japan was found to be significant, but only at the 5% level. This seems to show that direct investment from Hong Kong is more sensitive to labor costs than those from Japan.

Unlike previous studies by Cheng and Zhao (1995) and Cheng and Kwan (2000) using the aggregate amount of FDI as the dependent variable, we find strong evidence of a positive effect of labor quality (captured by the variable HE) for both Japan and Hong Kong. In addition, the effect of the proxy for the average level of labor quality on Japanese investment is approximately 44% larger than that for Hong Kong. The finding of a significant impact of labor quality and education attainment on Japanese direct investment is consistent with previous studies by Woodward (1992), and Smith and Florida (1993). The importance of labor quality may further be explained by the forms of information structure for coordinating operating activities of Japanese firms[8]. The typical Japanese firm relies on horizontal communication among functional units. Workers acquire skills through learning-by-doing rather than by performing the specific task assigned to them. Hence, workers must be more versatile and flexible in job demarcation. Furthermore, the integrative skills of workers are vital to utilize effectively on-site information. The practice of just-in-time production and job rotation by Japanese firms at home and abroad leads to a greater emphasis on workers' education. Thus, the fact that Japanese firms require educated workers explains the size of the coefficient and the level of significance of the coefficient for HE in our finding.

Furthermore, the above findings of a large significant negative impact of the lagged wage and a much smaller impact of the labor quality variable on Hong Kong

[8] Aoki (1988), and Friedman and Fung (1996) identify the essential difference between American firms and Japanese firms, i.e. hierarchical coordination in American firms and horizontal coordination in Japanese firms.

direct investment may reflect the difference in the characteristics of investment projects from Hong Kong and those from Japan. Hong Kong investment projects concentrate more in labor-intensive industries such as electrical appliances, food processing, footwear, textiles, and so on, where relatively lower level of skill is required. The impact of the labor skill variable on Hong Kong direct investment in China may be smaller.

The panel regression shows some evidence that the quality of infrastructure, proxied by the density of roadways and railways, has a significantly positive influence on direct investment inflow in China from Hong Kong. On the other hand, the evidence is weaker on Japanese direct investment. Among the three policy variables examined in the analysis, EDTZ appears to be the most influential determinant for Japanese direct investment. Except for the constant, the magnitude of the impact of the variable is found to be the second largest among all the variables examined in the analysis. The results support the hypothesis that regions designated as ETDZ have the advantage of attracting Japanese direct investment by implementing special policies favorable to Japanese investors. These areas are designed for enhancing FDIs from foreign firms that are technologically advanced. They are often located in or near provincial capitals or transport hub cities. Close to one third of Japanese direct investment in China in 2000 was in electrical machinery. The ETDZ may be more suitable for Japanese firms due to the nature of the characteristics of their investment and production. On the other hand, the impact of SEZ on Japanese direct investment is absent and the effect of OCC is only marginal. In contrast, for Hong Kong direct investment, the effect o SEZ is highly influential. SEZs are often said to have lost its competitive edges in attracting FDI as preferential treatment spread throughout China (from the south to the north and from the

coastal areas to the interior), however this study shows unambiguously the significant positive effect of those areas in case of Hong Kong direct investment. The regression coefficients for OCC is also found to have significant positive effects in attracting investment from Hong Kong, although the magnitude of the impact of the variable is much smaller than that of SEZ. On the other hand, the impact of ETDZ is absent for Hong Kong direct investment. This may be due to the fact that Hong Kong invests in more labor-intensive industries compared to those from Japan.

9. Concluding Remarks

China and Japan are the two most influential economies in Asia. With China joining the World Trade Organization in December 2001, it is expected that the economic links between the two countries will intensify. In this paper, we study one important facet of the links between these two large Pacific economies—the direct investment relationships. In particular, we examine the recent trends, characteristics and determinants of Japanese direct investment in China. To provide a basis for comparisons, we also examine Japanese direct investment in other Asian economies, including the Asian NIEs (Hong Kong, Singapore, Taiwan and South Korea) and selective members of the ASEAN (Thailand, Malaysia, Indonesia and the Philippines). Furthermore, we provide a statistical study of the geographic determinants of Japanese direct investment among the different regions of China. Results from the panel regression are then compared to those done for Hong Kong, the largest foreign direct investor in China.

Until 1998, Japan has a large outflow of foreign direct investment to the world and very little inflow from the world. But this picture is changing. In 1995, the ratio of direct investment outflows to inflows is 13.2, but in 2000, this ratio drops to 1.72. Among the various countries, Japan consistently invests about 2/3 of its direct investment in developed countries and only 1/3 in developing countries. In 2000, half of Japan's direct investment goes to Europe, 25% goes to North America and only 12% goes to Asia. Generally, roughly 2/3 of Japan's direct investment abroad is in non-manufacturing. Throughout the years, only roughly 1/3 goes to manufacturing. In 2000, 24% of Japan's outward direct investment is in manufacturing and 75% is in non-manufacturing.

Within Asia, China is the largest single recipient of Japanese direct investment, at 16.8% in 2000. Hong Kong and Thailand come in second and third, with 15.8% and 15.7% respectively. We also see a recent surge of investment to South Korea. Japanese direct investment in Asia is unusual in that it is mostly concentrated in manufacturing, with a share of 61.8% (compared with 24% for Japanese direct investment to the world). Japanese direct investment in China is even more concentrated, with 76.5% in manufacturing. In this regards, China is most like the members of the ASEAN, which has 76.8% of Japan investment in manufacturing.

Within China, Japan in 2000 has a very large share of its investment in electrical machinery. Almost 1/3 (32.4%) of Japanese direct investment is in that sector. According to a survey by the Ministry of Economy, Trade and Industry of the Japanese government, in 1999, 40.1% of the firms surveyed say that they invest in China for cost reasons, while 20.9% say that they invest in China to expand their market shares in

China. For Japanese companies in electrical machinery, 42.4% state that their motive for investing in China is for costs, while 21.4% for market shares in China. These percentages are similar to those for members of the ASEAN. But Japan also seems to invest in the ASEAN to provide parts to firms that are already established there. Generally, this motive is not as important for Japanese firms investing in China.

A large share of products produced by Japanese affiliates in China is sold locally. Close to half (47%) of goods produced in China by Japanese companies is sold in China. In electrical machinery, this percentage is 41.7%, while in transportation machinery; the corresponding share is 88.2%. 31.2% of the goods produced in China by Japanese firms are shipped back to Japan for sales, while 21.8% is exported to a third country. Within the third countries, a very large share goes to Asia—76.2%. Only 13.2% goes to North America and 8% goes to Europe. This gives a sense of the importance of intra-regional trade in Asia.

In addition, Japanese affiliates in China procure 46.8% of their inputs and supplies from China. The extent of local procurement in China is very similar to the procurement pattern of Japanese affiliates elsewhere. In ASEAN, the corresponding share is 41.9%, while for Japanese investment in the world; the procurement ratio is 46.9%. For Japanese firms in the electrical machinery sector in China, the procurement ratio is not too different from the overall figure, at 42.1%. The local procurement share is higher in transportation machinery, with a ratio of 52.2%.

The survey data show the twin motives for Japanese multinationals investing in China. First, Japan invests in China for the growing Chinese market. They procure supplies locally and sell these goods to Chinese consumers. This motive is bound to

increase in importance as growth of the Chinese market is spurred by China joining the World Trade Organization and continued economic reforms. Second, Japanese companies invest in China to save costs. As global competition intensifies and Japanese wages other costs remain high, Japanese corporations need to choose low cost sites for their production. They use the cheap Chinese labor, land and supplies and export the goods from China. But only 5.2% of the goods exported by Japanese affiliates go to a non-Asian destination. 94.8% of the goods exported outside of China are shipped to either Japan or other Asian countries.

We also study the determinants of where Japanese corporations invest within China. We use a regional data set of Japanese direct investment in different regions of China over the years 1990 to 2000. Our panel regressions show that preferential incentives in the Economic and Technological Development Zones (ETDZs) are important factors in explaining the geographic choice of Japanese investment in China. Other important factors are local demands and the quality of labor in each region. To form a basis of comparison, we run similar regressions for the largest foreign direct investor in China-Hong Kong. We find that unlike Japan, Hong Kong direct investment does not respond to the incentives in ETDZs. Rather, they respond to incentives in the Special Economic Zones (SEZs). Local demands play a similar role in determining where Hong Kong companies locate. But in contrast to Japanese multinationals, Hong Kong companies place a stronger emphasis on labor costs and a smaller emphasis on labor quality. These results can be explained by the characteristics of Japanese and Hong Kong direct investment in China. Japanese investments tend to be more technology- and capital-intensive compared to those from Hong Kong. Thus Japan values the quality of

labor more and labor costs less than companies from Hong Kong. In addition, the Japanese business management and production systems tend to demand more intellectual and learning skills from their workers and so Japanese firms tend to locate where labor quality is high.

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Table 1
The ratio of outflows to inflows of Japanese FDI
(in US$million)

	Outflows	Inflows	Ratio
1991	41,586	4,339	9.58
1992	34,138	4,084	8.36
1993	36,025	3,078	11.70
1994	41,051	4,155	9.88
1995	50,694	3,837	13.21
1996	48,019	6,841	7.02
1997	53,972	5,527	9.77
1998	40,747	10,469	3.89
1999	66,694	21,510	3.10
2000	48,580	28,276	1.72

Source: Ministry of Finance, Government of Japan

Table 2
Regional Shares of Japanese Direct Investment

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
World	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Asia	25.3%	37.4%	18.0%	22.7%	16.0%	11.7%	10.4%	14.6%	11.8%	12.2%	12.4%
Latin America	12.5%	13.2%	19.5%	23.1%	22.6%	21.4%	21.2%	14.4%	13.7%	7.8%	6.4%
Middle East	3.4%	1.1%	1.6%	2.1%	2.7%	0.4%	0.2%	0.2%	0.6%	0.1%	0.0%
Africa	3.0%	6.4%	6.3%	4.5%	3.2%	1.4%	1.4%	0.8%	1.4%	1.0%	1.0%
North America	34.0%	28.2%	37.7%	33.2%	34.9%	45.0%	46.8%	46.0%	47.5%	50.2%	47.8%
Europe	12.3%	9.8%	11.4%	12.2%	19.1%	15.8%	15.5%	19.7%	19.4%	21.9%	25.1%
Oceania	9.5%	4.7%	5.5%	2.3%	1.5%	4.3%	4.4%	4.2%	5.7%	6.8%	7.3%
Developed countries	46.3%	38.0%	49.1%	45.3%	54.0%	60.8%	62.3%	65.7%	66.9%	72.1%	72.9%
Developing Countries	53.7%	62.8%	50.9%	54.7%	46.0%	39.2%	37.7%	34.3%	33.1%	27.9%	27.1%
Asia/developing	47.1%	59.5%	35.3%	41.5%	34.8%	29.9%	27.7%	42.6%	35.7%	43.7%	45.7%

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
World	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Asia	14.3%	18.8%	18.5%	23.6%	24.0%	24.2%	22.6%	16.0%	10.7%	12.2%
Latin America	8.0%	8.0%	9.4%	12.8%	7.5%	9.3%	11.7%	15.9%	11.2%	10.8%
Middle East	0.2%	2.0%	0.6%	0.7%	0.3%	0.5%	0.9%	0.4%	0.2%	0.0%
Africa	1.8%	0.7%	1.5%	0.9%	0.7%	0.9%	0.6%	1.1%	0.8%	0.1%
North America	45.3%	42.8%	42.4%	43.3%	45.2%	47.9%	39.6%	26.9%	37.1%	25.3%
Europe	22.6%	20.7%	22.2%	15.2%	16.7%	15.4%	20.8%	34.4%	38.7%	50.2%
Oceania	7.9%	7.0%	5.5%	3.5%	5.5%	1.9%	3.8%	5.4%	1.3%	1.4%
Developed countries	67.9%	63.5%	64.5%	58.5%	61.9%	63.3%	60.4%	61.2%	75.8%	75.5%
Developing Countries	32.1%	36.5%	35.5%	41.5%	38.1%	36.7%	39.6%	38.8%	24.2%	24.5%
Asia/developing	44.4%	51.4%	52.1%	56.8%	63.1%	65.9%	57.0%	41.3%	44.4%	49.8%

Source: Ministry of Finance, Government of Japan

Table 3
Sectoral Distribution of Japanese Direct Investment

The share of each industry in total value of Japanese FDI

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
food	2.0%	1.4%	1.5%	1.5%	2.3%	3.1%	1.6%	1.5%	1.1%	3.1%	22.4%	0.5%
textiles	0.8%	1.4%	1.5%	1.3%	1.4%	1.6%	2.0%	1.3%	1.8%	0.8%	0.4%	0.5%
Wood and pulp	0.8%	0.5%	0.8%	1.3%	1.0%	0.3%	0.7%	1.3%	0.7%	1.7%	0.2%	0.3%
Chemicals	3.1%	4.0%	3.9%	5.8%	4.9%	6.3%	4.2%	4.3%	5.6%	5.5%	2.5%	3.9%
Ferrous and non-ferrous metals	2.3%	1.8%	2.2%	2.4%	2.1%	2.5%	3.0%	5.1%	2.6%	3.0%	2.2%	1.5%
General machinery	2.6%	2.6%	3.1%	3.2%	3.3%	4.0%	3.7%	3.0%	2.4%	2.0%	1.5%	2.9%
Electrical machinery	6.6%	10.0%	5.5%	5.3%	7.5%	6.4%	10.5%	13.6%	12.4%	8.4%	24.5%	6.3%
Transportation machinery	3.0%	3.3%	4.8%	3.5%	2.6%	5.0%	3.9%	8.1%	5.4%	3.9%	7.2%	6.5%
Other manufacturing	2.8%	2.1%	6.5%	5.1%	5.5%	4.5%	7.2%	4.1%	4.0%	1.7%	2.6%	1.7%
Manufacturing total	**24.1%**	**27.2%**	**29.8%**	**29.4%**	**30.8%**	**33.7%**	**36.8%**	**42.2%**	**35.8%**	**30.1%**	**63.4%**	**24.0%**
Agriculture	0.2%	0.3%	0.7%	0.4%	0.2%	0.4%	0.3%	0.3%	0.1%	0.1%	0.1%	0.1%
Fishery	0.1%	0.1%	0.2%	0.3%	0.2%	0.5%	0.1%	0.2%	0.2%	0.0%	0.0%	0.3%
Mining	1.9%	2.3%	2.4%	3.7%	2.6%	1.2%	2.1%	3.3%	5.0%	2.1%	1.4%	1.3%
Construction	0.9%	0.5%	1.0%	1.6%	0.8%	0.9%	0.8%	0.7%	0.8%	0.7%	0.3%	0.2%
Commerce	7.6%	10.8%	12.6%	10.8%	14.3%	10.7%	10.4%	10.0%	8.1%	9.3%	5.8%	6.9%
Banking and insurance	22.6%	14.1%	12.0%	13.5%	17.5%	16.1%	10.6%	16.2%	22.2%	40.2%	14.8%	17.3%
Services	16.0%	20.0%	13.0%	19.3%	9.9%	16.8%	20.9%	8.4%	12.0%	5.0%	6.5%	3.6%
Transportation	4.3%	3.8%	6.0%	5.0%	6.1%	6.4%	4.5%	3.7%	4.3%	4.7%	4.2%	45.0%
Real estate	21.0%	19.4%	21.3%	15.1%	17.0%	12.6%	11.7%	12.9%	10.3%	6.9%	3.2%	0.8%
Other non-manufacturing	0.3%	0.0%	0.0%	-	0.0%	-	-	-	0.1%	0.0%	0.0%	0.0%
Non-manufacturing total	**74.8%**	**71.4%**	**69.1%**	**69.5%**	**68.5%**	**65.4%**	**61.3%**	**55.7%**	**63.1%**	**69.1%**	**36.3%**	**75.4%**

Source: Ministry of Finance, Government of Japan

Table 4
Distribution of Japanese Direct Investment in Asia

		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
NIE's	Hong Kong	22.7%	25.2%	15.5%	15.5%	18.9%	11.7%	9.3%	12.8%	5.7%	9.2%	13.6%	15.8%
	Taiwan	6.0%	6.3%	6.8%	6.8%	4.5%	2.9%	3.7%	4.5%	3.7%	3.4%	4.0%	8.6%
	Singapore	23.4%	11.9%	10.3%	10.3%	9.6%	10.9%	9.6%	9.6%	15.0%	9.7%	13.4%	7.1%
	Korea	7.3%	4.0%	4.4%	4.4%	3.8%	4.2%	3.6%	3.6%	3.6%	4.6%	13.7%	13.7%
NIE's Total		**59.4%**	**47.5%**	**37.1%**	**37.1%**	**36.7%**	**29.7%**	**26.2%**	**30.5%**	**28.0%**	**27.0%**	**44.7%**	**45.2%**
ASEAN 4	Thailand	15.5%	16.4%	13.7%	13.7%	8.9%	7.4%	10.0%	12.1%	15.3%	21.0%	11.4%	15.7%
	Indonesia	7.6%	15.6%	20.1%	20.1%	12.4%	17.9%	13.0%	20.8%	20.6%	16.5%	12.8%	7.0%
	Malaysia	8.2%	10.3%	14.8%	14.8%	11.6%	7.7%	4.7%	4.9%	6.5%	7.9%	7.3%	3.9%
	Philippines	2.4%	3.7%	3.4%	3.4%	3.1%	6.8%	5.8%	4.8%	4.3%	5.8%	8.6%	7.7%
ASEAN 4 Total		**33.8%**	**46.0%**	**52.0%**	**52.0%**	**36.0%**	**39.8%**	**33.5%**	**42.6%**	**46.8%**	**51.2%**	**40.2%**	**34.3%**
	China	5.3%	4.9%	9.7%	9.7%	25.5%	26.6%	36.2%	21.6%	16.3%	16.3%	10.5%	16.8%

Source: Ministry of Finance, Government of Japan

Table 5
The share of Japanese Direct Investment in the Manufacturing Sector in Asia

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
NIEs4	28.0%	23.9%	29.1%	22.6%	30.0%	29.7%	36.7%	34.9%	54.9%	35.9%	51.9%	43.8%
ASEAN4	55.9%	62.5%	63.3%	56.3%	60.4%	57.8%	75.4%	63.8%	57.9%	60.1%	66.7%	76.8%
China	47.0%	46.4%	53.4%	60.7%	81.2%	72.4%	78.0%	71.9%	76.2%	75.4%	72.0%	76.5%
ASIA	39.5%	43.5%	49.5%	48.0%	54.5%	53.5%	65.5%	57.1%	60.1%	56.6%	61.2%	61.8%
World	24.1%	27.2%	29.8%	29.4%	30.8%	33.7%	36.8%	42.2%	35.8%	30.1%	63.4%	24.0%

Source: Ministry of Finance, Government of Japan

Table 6
Japanese Direct Investment in China by Industry, 1989-2000

(value in %)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
food	3.1%	2.6%	3.3%	2.7%	3.9%	5.1%	3.2%	7.3%	4.9%	7.7%	3.5%	2.1%
textiles	2.5%	6.0%	12.1%	11.2%	13.7%	13.0%	10.5%	7.5%	11.2%	3.5%	3.7%	2.7%
Wood and pulp	0.3%	0.4%	0.2%	0.3%	2.5%	0.4%	1.6%	1.6%	1.5%	0.8%	0.4%	0.5%
Chemicals	2.6%	3.3%	1.8%	1.8%	5.6%	4.0%	3.2%	3.5%	6.6%	11.2%	11.9%	6.0%
Ferrous and non-ferrous metals	1.4%	4.0%	2.0%	2.7%	4.6%	6.1%	8.0%	7.2%	7.4%	6.9%	5.7%	4.2%
General machinery	9.8%	14.5%	5.0%	4.7%	13.5%	5.1%	10.7%	11.3%	9.5%	8.4%	5.2%	8.6%
Electrical machinery	18.2%	6.4%	21.2%	17.8%	19.7%	19.2%	20.9%	15.7%	21.2%	12.0%	8.9%	32.4%
Transportation machinery	0.3%	0.4%	1.5%	3.0%	5.0%	8.7%	8.6%	9.9%	5.0%	13.0%	12.4%	9.0%
Other manufacturing	8.9%	8.8%	6.1%	16.4%	12.5%	10.8%	11.2%	7.9%	8.9%	11.9%	20.4%	10.8%
Manufacturing total	**47.0%**	**46.4%**	**53.4%**	**60.7%**	**81.2%**	**72.4%**	**78.0%**	**71.9%**	**76.2%**	**75.4%**	**72.0%**	**76.5%**
Agriculture	0.1%	0.4%	0.4%	0.5%	0.2%	0.1%	0.4%	-	-	-	-	
Fishery	1.3%	1.3%	0.5%	1.2%	0.4%	0.3%	0.2%	0.2%	0.0%	-	0.1%	-
Mining	1.1%	5.6%	0.2%	0.2%	-	-		0.2%	0.2%	0.0%	-	-
Construction	0.9%	2.1%	0.0%	0.7%	0.4%	3.0%	2.0%	2.4%	3.3%	6.0%	0.2%	0.3%
Commerce	2.0%	0.9%	1.2%	2.2%	3.3%	5.8%	5.8%	5.2%	5.1%	3.2%	8.6%	5.6%
Banking and insurance	2.3%	0.7%	1.8%	0.0%	0.6%	0.0%	-	0.8%	-	2.8%	-	0.4%
Services	40.1%	38.9%	32.4%	20.5%	7.3%	8.0%	4.0%	10.1%	7.3%	7.1%	12.2%	15.2%
Transportation	3.3%	0.2%	0.2%	2.5%	1.5%	0.9%	1.1%	0.8%	1.3%	0.5%	2.2%	0.5%
Real estate	1.9%	2.8%	2.8%	6.1%	2.4%	5.4%	6.0%	6.9%	5.4%	3.3%	0.4%	1.3%
Other non-manufacturing	-	-	-	-	-	-	-	-	-	-	-	-
Non-manufacturing total	**52.8%**	**52.8%**	**39.6%**	**33.8%**	**16.1%**	**23.6%**	**19.7%**	**26.5%**	**22.5%**	**23.0%**	**23.7%**	**23.3%**

Source: Ministry of Finance, Government of Japan

Table 7
Motives Behind Japanese Direct Investment in 1999

China + HK	Number of Firms	%	food	textiles	wood and pulp	chemicals	ferrous	non-ferrous	general machin.	elect. machin.	trans. machn.	precious machn.	oil coal	others
1	136	5.2%	17.1	8.2-		4.3	2.1	5.3	2.6	2.7	1.5	7.1	15.4	6.6
2	583	22.2%	21.9	28.7	9.8	18.9	16.8	18.4	23.6	21.6	17.2	31.0	15.4	19.9
3	472	17.9%	11.4	24.6	2.4	9.4	13.7	26.3	19.7	20.8	11.3	22.6	7.7	14.1
4	202	7.7%	1.0	4.1	22.0	5.2	15.8	14.5	4.3	8.4	19.2	3.6	7.7	6.6
5	550	20.9%	22.9	10.2	26.8	27.0	31.6	17.1	22.3	21.4	30.0	13.1	23.1	23.5
6	137	5.2%	5.7	2.7	4.9	12.4	3.2	5.3	4.7	4.8	3.9	3.6	7.7	6.3
7	101	3.8%	1.9	2.0	2.4	6.4	2.1-		2.1	5.6	3.0	1.2-		5.8
8	233	8.9%	9.5	16.2	4.9	5.6	3.2	10.5	10.7	6.1	6.4	9.5	7.7	7.1
9	138	5.2%	6.7	1.8	19.5	6.9	10.5	2.6	4.3	4.8	5.4	1.2	15.4	7.8
10	51	1.9%-		1.2	2.4	2.1-	-		4.3	2.0	1.5	7.1-		1.8
11	9	0.3%-		0.2-		0.4-	-		0.4	0.8	0.5-	-	-	
12	19	0.7%	1.9	0.2	4.9	1.3	1.1-		0.9	0.9-	-	-		0.5
13														
14	2631													

ASEAN4	Number of Firms	%	food	textiles	wood and pulp	chemicals	ferrous	non-ferrous	general machin.	elect. machin.	trans. machn.	precious machn.	oil coal	others
1	115	3.7%	17.2	4.3	18.9	5.5	2.2	0.8	2.1	2.0	0.7-		8.3	4.7
2	670	21.6%	18.2	24.9	18.9	18.6	15.8	19.8	23.6	23.6	20.5	34.3	8.3	22.3
3	496	16.0%	8.1	19.7	9.5	8.4	10.3	15.3	16.9	22.1	13.2	25.7	8.3	16.2
4	406	13.1%	3.0	2.6	8.1	10.7	20.7	17.6	11.3	15.0	20.3-		8.3	11.1
5	602	19.4%	18.2	18.0	12.2	25.5	30.4	22.1	21.0	13.9	24.0-		16.7	18.3
6	249	8.0%	9.1	10.3	1.4	13.6	6.5	9.9	8.2	6.1	6.8-		25.0	8.2
7	128	4.1%	5.1	4.3	5.4	4.6	2.2	2.3	4.6	4.4	2.3	2.9	8.3	5.4
8	208	6.7%	12.1	8.6	13.5	4.6	1.6	3.8	7.7	6.4	5.5	20.0	8.3	8.0
9	138	4.5%	5.1	4.7	12.2	7.5	9.2	6.9	2.6	1.7	4.3	2.9	8.3	3.8
10	64	2.1%	3.0	2.6-		0.6-	-		1.5	3.9	1.4	14.3-		1.5
11	19	0.6%-	-	-		0.3	1.1	1.5	0.5	0.9	0.7-	-		0.5
12	3	0.1%	1.0-	-	-	-	-	-		0.1	0.2-	-	-	
13														
14	3098													

NIE's 3	Number of Firms	%	food	textiles	wood and pulp	chemicals	ferrous	non-ferrous	general machin.	elect. machin.	trans. machn.	precious machn.	oil coal	others
1	77	4.2%	8.0	-3.3	-	5.3	-2.0	-	3.9	5.2	2.2	2.7	33.3	4.5
2	331	18.0%	16.0	23.3	-	14.5	16.3	10.5	16.3	19.3	16.8	26.0	-3.0	21.0
3	238	13.0%	4.0	16.4	-	11.6	10.2	13.2	11.6	15.6	9.8	11.0	33.3	15.2
4	175	9.5%	-2.0	2.7	25.0	5.9	10.2	28.9	9.0	12.2	15.1	4.1	-3.0	8.1
5	442	24.1%	28.0	17.8	25.0	26.7	24.5	21.1	25.3	22.6	27.4	24.7	33.3	21.6
6	171	9.3%	14.0	11.0	12.5	12.8	10.2	13.2	9.9	7.7	3.9	6.8	-3.0	9.7
7	99	5.4%	6.0	12.3	-2.5	8.0	4.1	2.6	5.6	4.1	4.5	6.8	-3.0	3.5
8	104	5.7%	10.0	5.5	-2.5	3.0	6.1	-2.0	7.7	5.4	5.0	8.2	-3.0	7.4
9	113	6.2%	14.0	11.0	37.5	8.3	10.2	5.3	4.3	1.9	9.5	4.1	-3.0	6.8
10	38	2.1%	-2.0	-	-	0.6	2.0	-2.0	3.9	2.9	2.8	2.7	-3.0	1.6
11	29	1.6%	-2.0	-	-	2.4	6.1	5.3	0.9	1.7	2.2	-3.0	-	0.6
12	18	1.0%	-2.0	-	-	0.9	-2.0	-	1.7	1.5	1.1	2.7	-3.0	-
13														
14	1835													

Asia	Number of Firms	%	food	textiles	wood and pulp	chemicals	ferrous	non-ferrous	general machin.	elect. machin.	trans. machn.	precious machn.	oil coal	others
1	338	4.3%	15.1	6.4	10.9	5.1	2.0	2.0	2.9	3.0	1.1	4.0	14.3	5.3
2	1656	21.0%	19.0	27.1	16.3	17.2	16.6	18.0	21.2	22.0	18.5	29.9	10.7	21.4
3	1252	15.9%	8.5	22.8	7.0	9.6	10.6	18.4	16.1	19.8	11.9	19.4	10.7	15.4
4	819	10.4%	1.6	3.5	14.0	7.5	16.9	18.4	8.2	11.9	19.3	3.0	7.1	8.7
5	1678	21.3%	22.5	12.9	17.8	26.4	30.1	20.4	23.1	18.9	26.5	14.9	21.4	20.8
6	571	7.2%	8.5	5.5	3.1	12.9	5.7	9.0	7.3	6.1	5.4	4.0	14.3	7.8
7	338	4.3%	4.3	3.6	3.9	6.1	2.3	1.6	3.9	4.7	3.0	4.0	3.6	4.9
8	564	7.1%	10.5	13.2	9.3	4.4	2.6	5.3	8.8	6.0	5.3	10.4	7.1	7.6
9	421	5.3%	7.8	3.3	15.5	8.2	10.9	5.3	3.8	3.0	6.1	2.5	10.7	5.8
10	158	2.0%	1.2	1.5	0.8	0.9	0.3	-2.0	3.4	3.0	1.5	7.0	-3.0	1.6
11	58	0.7%	-2.0	0.1	-2.5	1.1	1.7	1.6	0.6	1.0	0.9	-3.0	-	0.4
12	41	0.5%	1.2	0.1	1.6	0.6	0.3	-2.0	0.9	0.7	0.4	1.0	-3.0	0.2
13														
14	7894													

World	Number of Firms	%	food	textiles	wood and pulp	chemicals	ferrous	non-ferrous	general Machin.	elect. machin.	trans. machn.	precious machn.	oil coal	others
1	519	4.2%	15.7	7.1	19.2	5.0	2.4	4.6	2.0	2.6	1.0	3.5	15.9	4.6
2	2093	17.1%	16.3	25.6	17.9	12.7	16.1	16.2	14.5	18.4	15.1	19.7	9.1	18.2
3	1577	12.9%	6.9	20.9	9.6	8.1	10.6	16.2	11.1	15.3	12.4	11.6	13.6	13.0
4	1256	10.3%	1.4	3.2	8.3	7.8	16.1	16.2	7.2	11.0	20.4	2.9	9.1	9.2
5	2975	24.3%	25.1	14.5	13.1	27.6	29.4	22.3	27.9	23.0	27.7	21.7	18.2	23.8
6	1121	9.2%	8.0	6.1	3.1	14.2	6.4	7.6	11.2	8.6	8.1	8.7	9.1	9.0
7	590	4.8%	3.9	4.1	3.1	6.8	2.4	1.5	4.9	5.4	2.7	7.5	2.3	5.6
8	716	5.8%	11.4	12.4	11.8	3.7	2.6	5.2	5.7	5.0	3.3	10.4	9.1	5.9
9	657	5.4%	7.3	3.9	10.9	8.2	9.9	7.3	5.6	2.8	4.7	2.0	13.6	6.0
10	339	2.8%	0.8	1.6	1.3	2.2	0.4	0.3	6.0	3.3	1.8	6.1	-	2.9
11	183	1.5%	0.4	0.1	-	1.1	3.1	2.1	2.3	2.4	1.6	0.6	-	0.6
12	217	1.8%	2.7	0.5	1.7	2.5	0.4	0.3	1.6	2.4	1.1	5.5	-	1.2
13														
14	12243													

1:to secure raw materials
2:to take an advantage of lower cost
3:to lower the cost
4:to provide parts to firms that are already established
5:to expand their shares in the country
6:to expand their shares in the third country in the region
7:to expand their share in the third country
8:to re-export to Japan
9:to receive profits such as dividend
10:to avoid exchange rate risks
11:to avoid the trade conflict
12:for research and development
13:others
14:total

Source: METI, Government of Japan

Notes: NIE's 3 includes Taiwan, Singapore and South Korea
ASEAN4 includes Thailand, Indonesia, Malaysia, and the Philippines.

Table 8
Destination of Sales of Japanese Affiliates in 1999

				the third country						
China+HK	locally	exported to Japan	the third country	North America	South America	Asia	Middle East	Europe	Oceania	Africa
Manufacturing total	47.0	31.2	21.8	13.2	1.0	76.2	1.1	8.0	0.5	0.1
food	73.0	25.5	1.5	36.3	-	63.7	-	-	-	
textile	34.6	51.4	14.0	21.3	1.8	40.4	0.9	34.7	0.5	0.4
wood and pulp	92.1	4.5	3.3	44.0	-	56.0	-	-	-	
chemicals	77.9	15.5	6.6	-	-	93.6	4.4	1.9	0.2	-
ferrous	92.0	3.3	4.7	8.9	35.4	49.3	-	6.4	-	
non-ferrous	82.5	12.4	5.1	10.5	-	88.7	-	0.8	-	
general machinery	19.6	55.0	25.4	23.7	0.8	50.2	0.9	22.1	2.2	0.0
electric machinery	41.7	28.7	29.6	8.3	1.0	85.5	1.3	3.5	0.3	0.0
transportation machinery	88.2	8.1	3.7	62.5	-	37.0	-	0.5	0.0	-
precision machinery	19.2	49.1	31.7	3.2	0.1	89.8	0.1	6.8	-	
oil and coals	72.5	8.0	19.5	-	-	100.0	-	-	-	
others	62.2	25.2	12.6	59.6	-	35.2	-	5.2	-	

				the third country						
ASEAN4	locally	exported to Japan	the third country	North America	South America	Asia	Middle East	Europe	Oceania	Africa
Manufacturing total	37.8	31.2	30.9	18.1	2.4	65.1	1.9	10.4	1.7	0.5
food	49.0	19.7	31.4	25.0	0.1	41.2	0.7	27.2	5.7	0.0
textile	40.2	14.5	45.3	13.9	3.4	54.2	3.9	23.4	0.6	0.7
wood and pulp	21.8	47.8	30.4	12.4	3.2	77.8	6.4	0.2	-	
chemicals	71.4	6.8	21.8	2.7	1.4	82.6	1.5	9.7	1.2	0.8
ferrous	89.8	1.5	8.7	43.1	21.0	35.8	-		0.1	4.8
non-ferrous	52.1	20.1	27.8	5.4	0.4	84.9	1.6	7.2	-	0.5
general machinery	29.9	40.3	29.8	8.3	0.6	78.6	1.4	7.9	1.4	1.8
electric machinery	17.2	41.9	40.9	16.6	2.5	69.2	1.6	8.1	1.6	0.4
transportation machinery	60.1	25.1	14.8	51.3	2.1	24.1	3.9	14.8	3.9	0.0
precision machinery	31.8	42.2	26.0	11.1	1.1	72.5	1.1	12.1	0.6	1.4
oil and coals	98.1	1.1	0.8	-	-	100.0	-	-	-	
others	50.6	32.7	16.7	15.2	0.4	66.5	0.4	15.8	1.5	0.2

				the third country						
NIEs 3	locally	exported to Japan	the third country	North America	South America	Middle Asia	East	Europe	Oceania	Africa
Manufacturing total	60.2	16.9	22.9	21.5	1.0	63.1	1.4	11.1	1.3	0.7
food	83.6	11.5	4.9	8.1	-	55.7	16.4	8.4	3.3	8.0
textile	68.2	4.6	27.2	86.0	0.3	12.4	0.1	0.6	0.6	0.0
wood and pulp	88.9	9.5	1.5	-	-	100.0	-	-	-	
chemicals	72.9	7.0	20.1	3.5	0.2	84.5	0.9	7.3	1.5	2.1
ferrous	67.5	6.2	26.3	10.2	10.6	70.3	1.1	0.2	7.6	-
non-ferrous	37.9	10.5	51.6	0.3	0.0	98.9	0.1	0.0	0.6	-
general machinery	54.5	15.5	30.0	21.0	1.6	50.4	6.3	14.1	2.3	4.3
electric machinery	44.4	24.8	30.7	17.9	0.7	66.1	0.9	13.2	1.0	0.2
transportation machinery	91.2	2.9	5.9	37.2	2.3	49.8	1.8	7.2	0.7	1.0
precision machinery	44.7	40.0	15.3	12.5	0.9	78.8	0.8	5.4	0.6	0.9
oil and coals	3.9	82.3	13.8	-	-	5.4	-	94.6	-	-
others	68.6	15.5	15.9	15.4	0.3	66.2	2.7	12.1	3.0	0.4

				the third country						
Asia	locally	exported to Japan	the third country	North America	South America	Middle Asia	East	Europe	Oceania	Africa
Manufacturing total	49.8	25.1	25.1	17.9	1.8	66.3	1.6	10.5	1.4	0.5
food	69.1	16.1	14.7	22.4	0.1	43.8	3.2	23.9	5.2	1.3
textile	47.7	22.2	30.1	36.1	2.2	39.9	2.4	18.3	0.6	0.4
wood and pulp	58.9	26.7	14.3	14.9	2.9	76.2	5.9	0.2	-	
chemicals	72.4	7.6	20.0	2.8	1.0	82.9	1.3	8.4	2.3	1.3
ferrous	85.3	3.0	11.8	22.5	16.5	55.7	0.6	0.6	4.1	-
non-ferrous	55.9	15.6	28.6	3.1	0.2	91.9	0.8	3.4	0.3	0.2
general machinery	32.4	40.6	27.0	20.3	1.0	54.9	2.7	17.2	2.1	1.7
electric machinery	32.3	33.0	34.7	15.4	1.7	71.6	1.4	8.5	1.1	0.3
transportation machinery	81.1	11.0	7.9	43.9	3.1	27.7	2.9	18.7	2.7	0.9
precision machinery	27.2	46.0	26.8	5.6	0.4	85.9	0.3	7.3	0.2	0.3
oil and coals	21.2	65.7	13.1	-	-	21.9	-	78.1	-	-
others	59.8	24.9	15.3	26.5	0.3	58.2	1.2	12.0	1.6	0.3

				the third country						
World	locally	exported to Japan	the third country	North America	South America	Asia	Middle East	Europe	Oceania	Africa
Manufacturing total	70.0	9.6	20.3	23.2	2.7	28.1	1.2	43.2	1.0	0.5
food	76.7	11.6	11.7	12.3	0.9	21.6	1.3	60.2	2.9	0.9
textile	57.6	16.6	25.9	32.6	2.4	33.5	2.7	27.7	0.7	0.4
wood and pulp	37.7	34.4	27.9	43.2	2.3	28.3	0.8	23.0	1.6	0.8
chemicals	76.1	4.5	19.5	11.4	4.8	32.1	2.7	47.2	0.9	0.8
ferrous	91.7	1.3	6.9	32.2	21.5	31.5	0.8	9.8	2.2	2.0
non-ferrous	63.0	14.6	22.4	12.5	0.4	42.6	0.3	44.0	0.1	0.1
general machinery	65.4	10.8	23.8	19.4	5.5	18.3	1.6	51.8	1.4	2.1
electric machinery	57.9	15.4	26.7	14.9	1.9	43.2	1.2	37.4	1.1	0.3
transportation machinery	81.2	2.6	16.2	40.7	1.9	3.0	0.5	53.0	0.8	0.2
precision machinery	46.5	27.6	25.9	22.9	4.1	50.7	1.3	20.2	0.4	0.4
oil and coals	18.9	63.3	17.8	0.8	6.0	9.2-		84.0-	-	
others	81.3	7.2	10.8	28.1	2.3	21.1	0.4	46.3	1.0	0.7

Source: METI, Government of Japan

Notes: NIE's 3 includes Taiwan, Singapore and South Korea
ASEAN4 includes Thailand, Indonesia, Malaysia, and the Philippines.

Table 9
Source of Procurement of Japanese Affiliates in 1999

				the third country						
China + Hong Kong	locally	imported Japan	the third country	North America	South America	Asia	Middle East	Europe	Oceania	Africa
Manufacturing total	46.8	34.9	18.3	3.4	0.1	95.4	0.1	0.8	0.2	-
food	92.3	2.3	5.4	14.8	-	85.2	-	-	-	
textile	41.6	44.9	13.5	5.3	0.8	89.5	-	1.4	3.0	-
wood and pulp	56.3	31.0	12.7	7.6	-	92.4	-	-	-	
chemicals	46.7	32.5	20.8	6.3	-	89.1	-	4.6	-	
ferrous	24.6	67.6	7.7	-	-	100.0	-	-	-	
non-ferrous	51.7	43.8	4.5	-	-	98.7	-	1.3	-	
general machinery	66.5	28.2	5.3	0.7	-	97.6	-	1.7	-	
electric machinery	42.1	31.4	26.4	1.9	0.0	97.6	-	0.4	-	
transportation machinery	52.2	43.1	4.7	60.1	-	37.4	-	2.5	-	
precision machinery	39.5	44.3	16.2	0.1	-	99.7	-	0.1	0.0	-
oil and coals	9.2	2.2	88.5	-	-	90.6	9.4	-	-	
others	58.1	27.0	14.9	3.4	2.2	90.5	-	3.9	0.1	-

				the third country						
ASEAN4	locally	imported Japan	the third country	North America	South America	Asia	Middle East	Europe	Oceania	Africa
Manufacturing total	41.9	32.6	25.5	9.3	0.1	82.0	2.8	3.0	1.7	1.1
food	92.6	1.0	6.4	-	-	1.2	-	5.3	93.5	-
textile	47.7	18.1	34.3	9.6	-	48.4	29.2	3.9	4.9	4.0
wood and pulp	85.6	2.8	11.7	4.7	-	67.6	-	27.8	-	
chemicals	54.5	13.2	32.3	28.5	0.0	48.0	10.0	7.9	1.4	4.2
ferrous	24.1	65.3	10.6	0.7	0.3	93.0	-	1.7	3.8	0.4
non-ferrous	39.2	31.8	29.1	2.4	1.4	68.7	4.1	7.9	1.2	14.3
general machinery	32.5	40.8	26.7	0.0	0.1	98.1	-	1.8	-	
electric machinery	35.8	33.8	30.4	1.4	-	95.9	0.2	1.5	1.0	-
transportation machinery	46.4	40.8	12.8	35.7	-	61.5	-	2.8	-	
precision machinery	54.2	24.1	21.7	61.0	-	27.4	-	11.7	-	
oil and coals	81.7	15.0	3.4	55.0	-	45.0	-	-	-	
others	50.1	22.7	27.2	15.0	0.5	77.6	0.9	3.1	0.4	2.7

			the third country							
		imported	the third	North	South		Middle			
NIEs 3	locally	Japan	country	America	America	Asia	East	Europe	Oceania	Africa
Manufacturing total	41.4	39.1	19.5	6.5	1.7	86.2	0.2	3.4	1.9	-
food	38.0	22.3	39.8	2.5	22.4	72.3	-	2.8	-	
textile	74.7	13.4	12.0	43.2	-	20.6	-	0.6	35.7	-
wood and pulp	85.6	10.5	3.8	100.0	-	-	-	-	-	
chemicals	56.0	24.5	19.5	26.4	0.4	63.1	-	10.1	0.0	-
ferrous	7.3	79.8	12.9	0.0	-	98.1	-	1.9	-	
non-ferrous	46.6	25.6	27.8	0.3	-	90.2	9.5	0.1	-	
general machinery	52.4	36.5	11.1	31.4	0.0	56.6	-	12.1	0.0	-
electric machinery	29.8	47.0	23.2	1.5	-	97.6	0.1	0.2	0.6	-
transportation machinery	61.4	31.1	7.5	4.7	-	82.1	-	4.1	9.2	-
precision machinery	18.9	52.2	29.0	0.0	0.1	68.0	-	31.9	-	
oil and coals	6.2	20.9	72.9	19.2	-	73.3	-	7.5	-	
others	52.8	39.6	7.6	5.5	-	78.6	-	14.9	1.0	-

			the third country							
		imported	the third	North	South		Middle			
Asia	locally	Japan	country	America	America	Asia	East	Europe	Oceania	Africa
Manufacturing total	43.9	34.8	21.3	7.4	0.3	85.5	1.8	2.9	1.5	0.6
food	78.8	6.6	14.6	2.4	15.5	55.0	-	3.4	23.7	-
textile	52.9	26.1	21.0	13.9	0.2	53.2	18.0	3.0	9.3	2.4
wood and pulp	76.8	12.4	10.7	9.2	-	71.5	-	19.3	-	
chemicals	54.4	18.6	27.1	26.1	0.1	54.5	7.3	8.1	1.0	2.9
ferrous	19.2	70.0	10.8	0.4	0.2	95.9	-	1.5	1.8	0.2
non-ferrous	44.1	31.7	24.2	1.4	0.8	78.5	6.2	4.5	0.7	8.0
general machinery	57.7	32.2	10.1	8.3	0.0	87.3	-	4.4	0.0	-
electric machinery	35.7	37.0	27.3	1.5	0.0	96.8	0.1	0.9	0.6	0.0
transportation machinery	53.7	37.0	9.3	26.4	-	64.7	0.4	7.6	0.8	-
precision machinery	40.2	41.2	18.6	14.1	0.0	77.9	-	8.0	0.0	-
oil and coals	21.7	18.0	60.4	17.0	-	75.3	1.3	6.4	-	
others	52.8	29.7	17.4	10.2	0.7	81.8	0.5	4.9	0.4	1.5

				the third country						
World	locally	imported Japan	the third country	North America	South America	Asia	Middle East	Europe	Oceania	Africa
Manufacturing total	46.9	36.6	16.5	19.4	1.3	49.0	0.7	28.1	1.0	0.4
food	81.7	4.1	14.2	12.6	6.1	70.7	0.1	1.8	8.8	-
textile	56.2	23.2	20.6	15.1	2.2	46.0	13.6	11.8	8.4	2.9
wood and pulp	94.5	2.2	3.3	8.3	-	39.0	-	52.8	-	-
chemicals	64.0	20.7	15.3	26.0	0.2	33.9	5.3	30.4	0.6	3.6
ferrous	63.2	29.9	6.8	27.5	13.6	54.3	-	3.5	1.0	0.1
non-ferrous	71.7	13.2	15.1	10.2	0.5	41.0	3.2	40.7	0.3	4.1
general machinery	38.6	44.1	17.3	15.3	3.2	16.3	0.0	65.1	0.2	-
electric machinery	36.8	44.1	19.0	5.0	1.2	80.8	0.1	12.5	0.4	0.0
transportation machinery	50.2	35.8	14.0	43.9	0.3	14.3	0.0	39.9	1.5	-
precision machinery	39.0	45.2	15.7	13.6	0.1	78.4	-	7.8	0.0	-
oil and coals	21.0	15.2	63.9	5.0	-	42.7	0.4	52.0	-	-
others	49.6	32.1	18.3	11.9	1.4	45.0	0.1	40.7	0.5	0.3

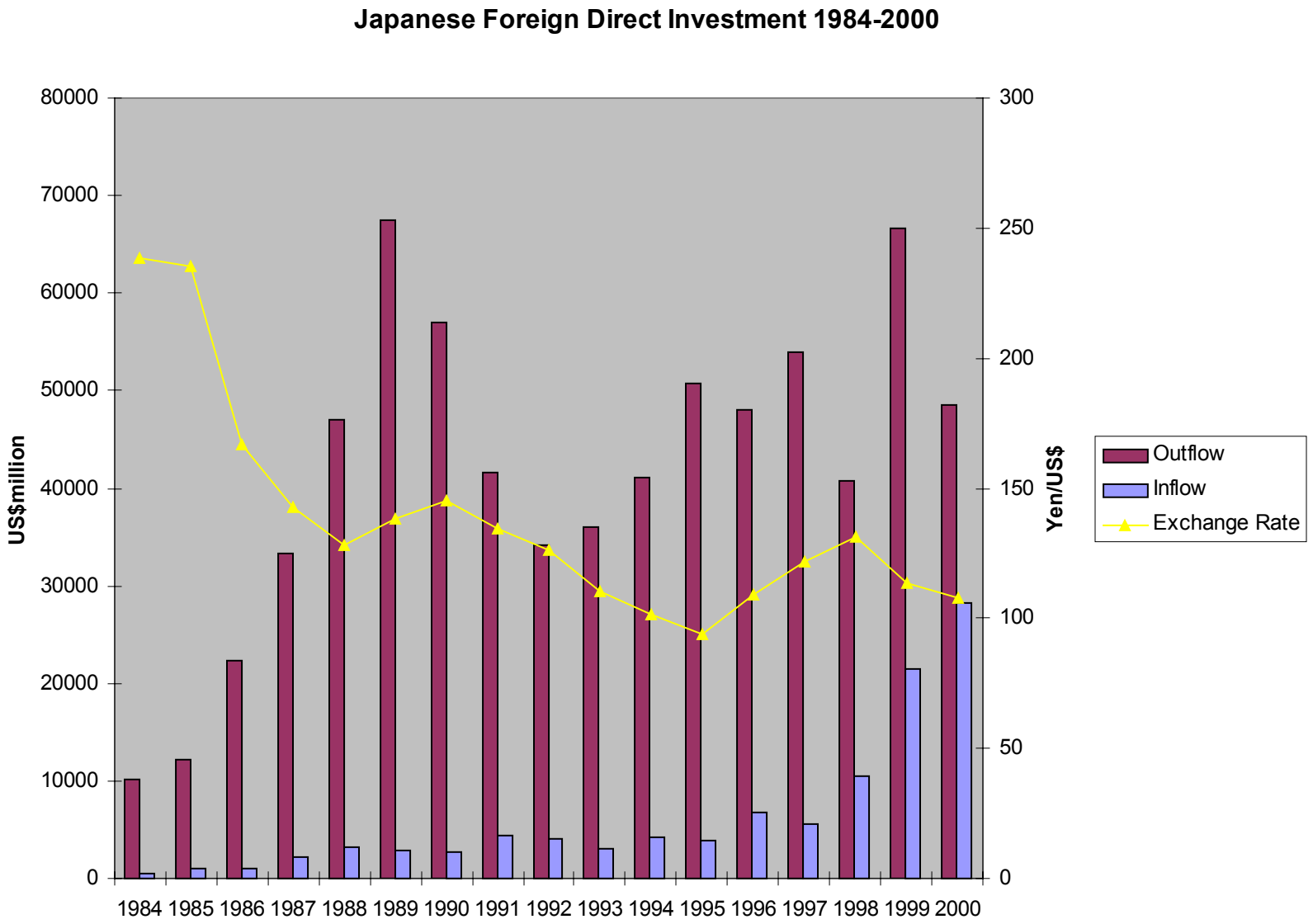
Source: METI, Government of Japan

Notes: NIE's 3 includes Taiwan, Singapore and South Korea
ASEAN4 includes Thailand, Indonesia, Malaysia, and the Philippines.

Table 10
Determinants of Direct Investments from Japan and Hong Kong in China, 1990 – 2000

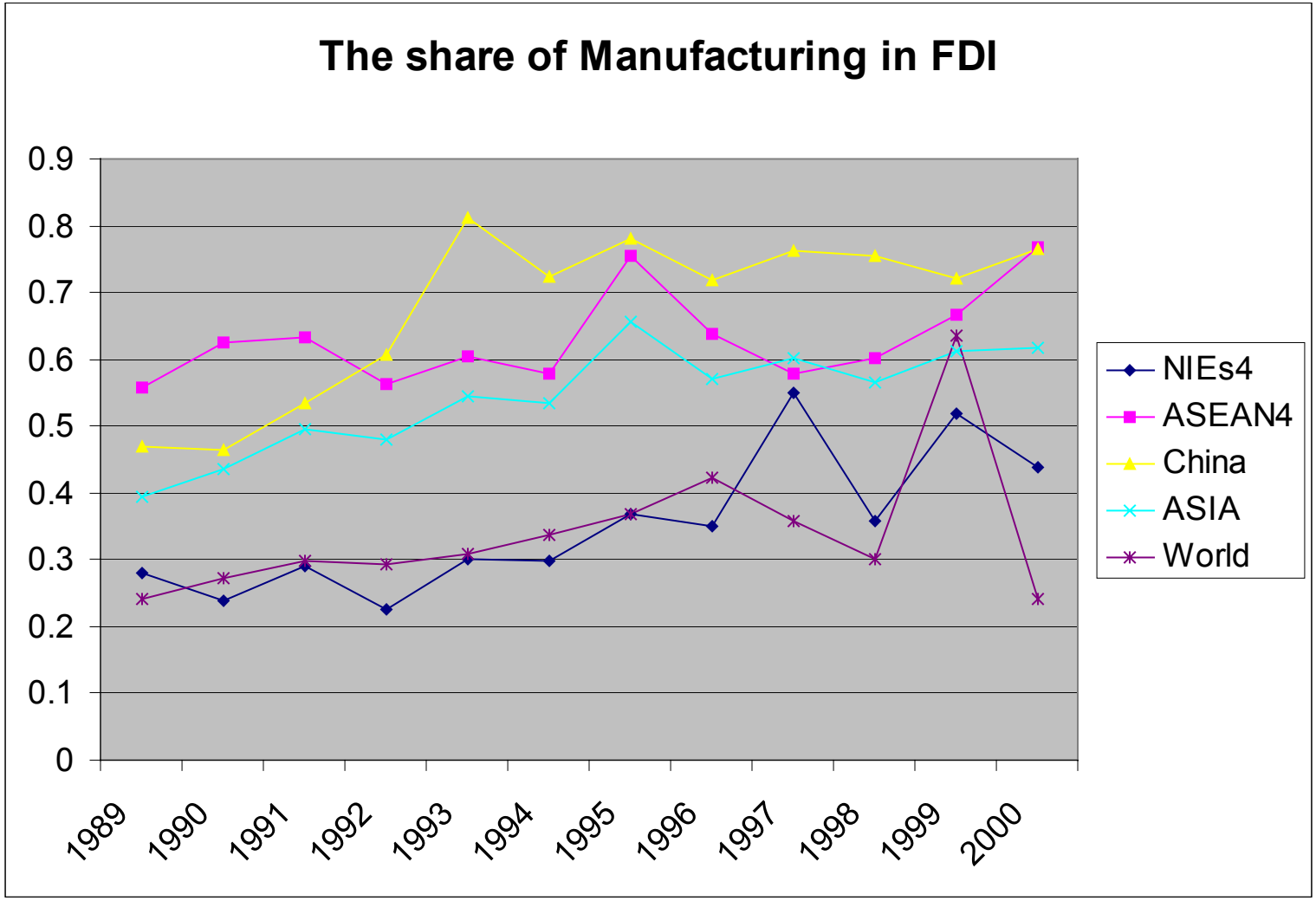
variable names	Japan			Hong Kong		
	coefficient	t-stat	level of significance	coefficient	t-stat	level of significance
CONSTANT	3.94	1.55	10%	7.39	4.00	1%
GDP	0.80	4.21	1%	0.82	7.40	1%
LAGWAGE	-0.41	-1.68	5%	-0.65	-3.86	1%
HE	0.59	2.36	1%	0.41	2.59	1%
INFRA	0.34	1.73	5%	0.36	2.99	1%
SEZ	0.32	0.60		1.57	5.29	1%
OCC	0.88	1.65	10%	0.80	2.39	1%
ETDZ	0.98	2.58	1%	0.22	0.80	
d.f.	260			296		
ad. R2	0.67			0.67		
LM test	41.58(1%)			2.02(5%)		

Figure 1



Source: Ministry of Finance, Government of Japan
Bank of Japan

Figure 2



Source: Ministry of Finance, Government of Japan