

# **Japanese Multinational Corporations in East Asia: Status Quo or Sign of Changes?**

Chunji Yun

**Berichte aus dem Weltwirtschaftlichen Colloquium  
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Hrsg. von  
Andreas Knorr, Alfons Lemper, Axel Sell, Karl Wohlmuth



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**Bezug: IWIM - Institut für Weltwirtschaft  
und Internationales Management  
Universität Bremen  
Fachbereich Wirtschaftswissenschaft  
Postfach 33 04 40  
D- 28334 Bremen  
Telefon: 04 21 / 2 18 - 34 29  
Telefax: 04 21 / 2 18 - 45 50  
E-mail: [iwim@uni-bremen.de](mailto:iwim@uni-bremen.de)  
Homepage: <http://www.iwim.uni-bremen.de>**

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## Abbreviations

ASEAN4:	The four main members of the Association of Southeast Asian Nations (ASEAN), i.e. Indonesia, Malaysia, the Philippines, and Thailand
FDI:	Foreign Direct Investment
ILP:	Industrial Linkage Programme
JASME:	Japan Finance Cooperation for Small and Medium Enterprise
JBIC:	Japan Bank of International Cooperation
JEITA:	Japan Electronics and Information Technology Association
JETRO:	Japan External Trade Organization
METI:	Ministry of Economy, Trade and Industry
MHLW:	Ministry of Health, Labour and Welfare
MITI:	Ministry of Trade and Industry
MECSST:	Ministry of Education, Culture, Sports, Science and Technology
MNCs:	Multinational Corporations
MOF:	Ministry of Finance
NBR:	National Bureau of Asian Research
NIEs:	Newly Industrializing Economies, i.e. South Korea, Hong Kong, Singapore, and Taiwan
OEM:	Original Equipment Manufacturing
SMEs:	Small and Medium Enterprises
VDP:	Vendor Development Programme



## 1. Introduction

The Japanese economy, which has led the post-war East Asian industrialization, provides an exemplar of 'early internationalization' of a late comer as well as 'late industrialization'. Actually, Japanese firms already started foreign direct investment (FDI) in neighbouring East Asian countries in the late 1960s, organizing the region as their markets and production sites. Particularly since the mid 1980s, in response to changes of internal and external conditions (exchange rate adjustment, intensified trade conflicts, rising wage etc.), Japanese multinational corporations (MNCs) have created systematic production networks through accelerating FDI. They are not only sources of competitiveness of Japanese firms, but they have also contributed to *de facto* integration of East Asian and its 'regionalization of production'. The process, synchronizing its own catching-up industrialization and internationalization, was formulated as 'Japanese-style direct investment', while the synergy effect, linking industrial upgrading of the Japanese economy to late industrialization in the East Asian host economies, has been told with the 'flying geese paradigm'<sup>1</sup>[Kojima 1978; 1995]. However, in reality, their East Asian production networks have been characterized by 'hierarchy' and 'closeness', reflecting the peculiar industrial and firm structure. Their decision making is highly centralized and they have continued to rely on Japanese hierarchical supplier structure both at home and abroad.

Recently in changing competitive environment, there are some signs of changes in the network structure of Japanese MNCs. Combined with the prolonged deflationary recession, intensified competitive pressures from globalizing economy make it difficult to maintain its full-set type industrial structure holding technological intensive and capital-intensive sectors, as a matter of course, and even labour-intensive ones at home, while the Japanese style firm structure, in which most of production processes are completed within Japanese subordinate networks, is losing the previous competitive advantages. These necessarily enhance potential for transformation of their East Asian networks.

The paper aims at exploring the possibilities of change of Japanese production networks, based mainly on three questionnaire surveys conducted by Japanese Ministry of Economy, Trade and Industry (METI; the former Ministry of Trade and Industry, MITI), Japan Bank of International Cooperation (JBIC) and Japan External Trade Organization (JETRO). Among them, METI (MITI) has annually conducted comprehensive survey (*Basic Survey of Overseas Business Activities*) since 1970, providing aggregate data of Japanese MNCs. Another two focus on the strategic aspects not covered by METI survey.

The paper is organized as follows; in next section, it will make a brief survey of presence of Japanese MNCs in East Asia. In the following section, the basic features of the previous production networks will be explained in terms of evolutionary process and input-output structure focusing on the two largest sectors, electronics and automobile. And in section four, referring to the survey results of JETRO and JBIC, it will explore how Japanese MNCs try to deal with changes of

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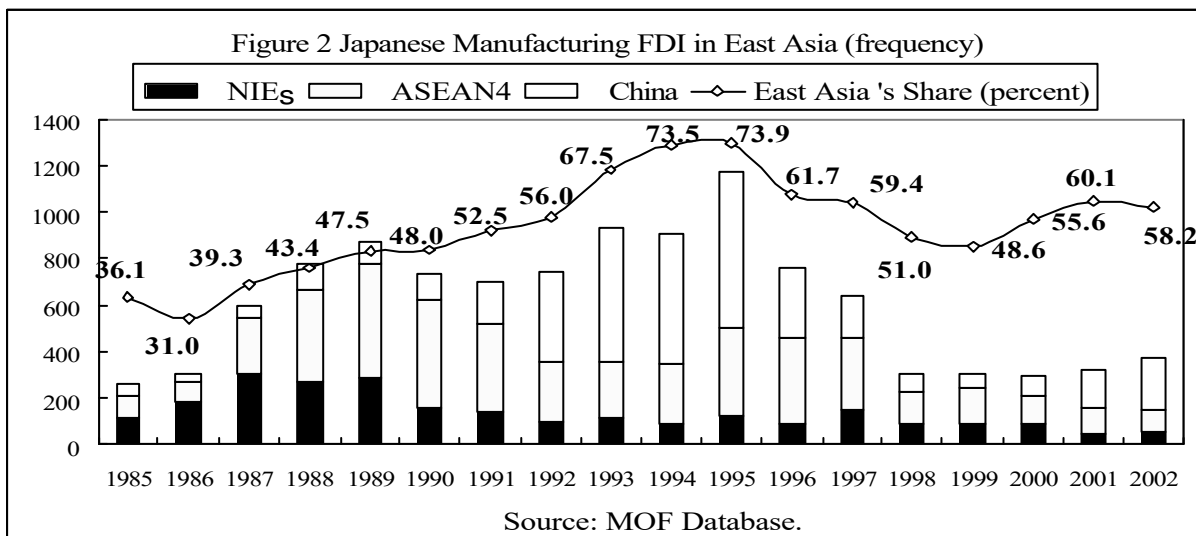
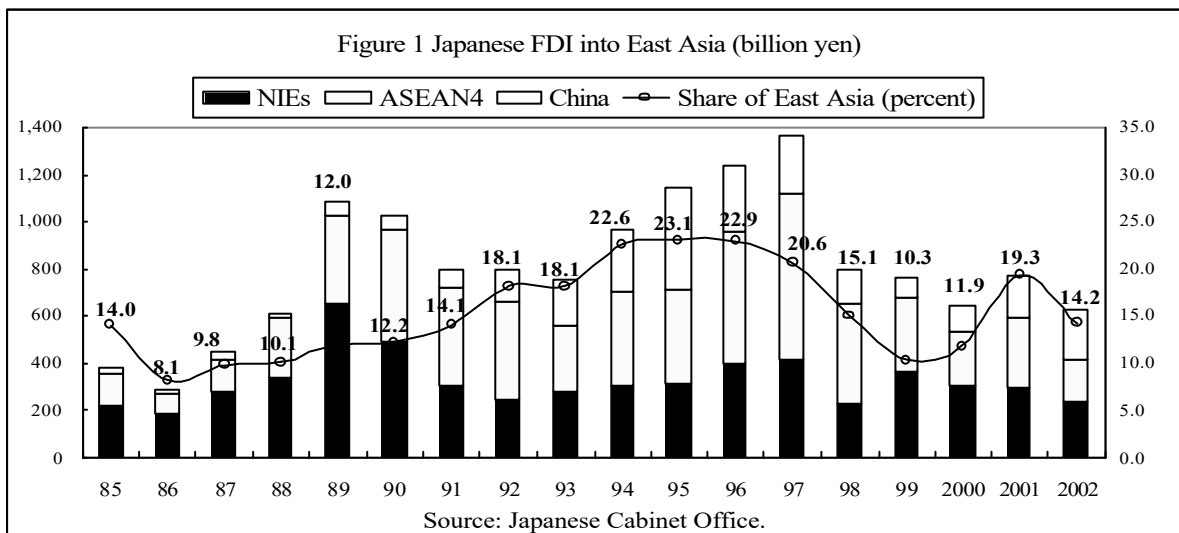
<sup>1</sup> The flying geese theory was originally formulated as an explanatory theory for the Japanese developmental path and its creation of national economic substance, not emphasizing this kind of synergy effect between Japan and the East Asian economies. However, through the penetration of Japanese firms into the region, the theory is applied to Japanese FDI in order to justify the developmental strategy of Japanese bureaucracies and multinational corporations. With this regard, refer to Yun (2003) and Yun (2004).

internal and external conditions, and the possibility for reconfiguration of the production networks will be suggested.

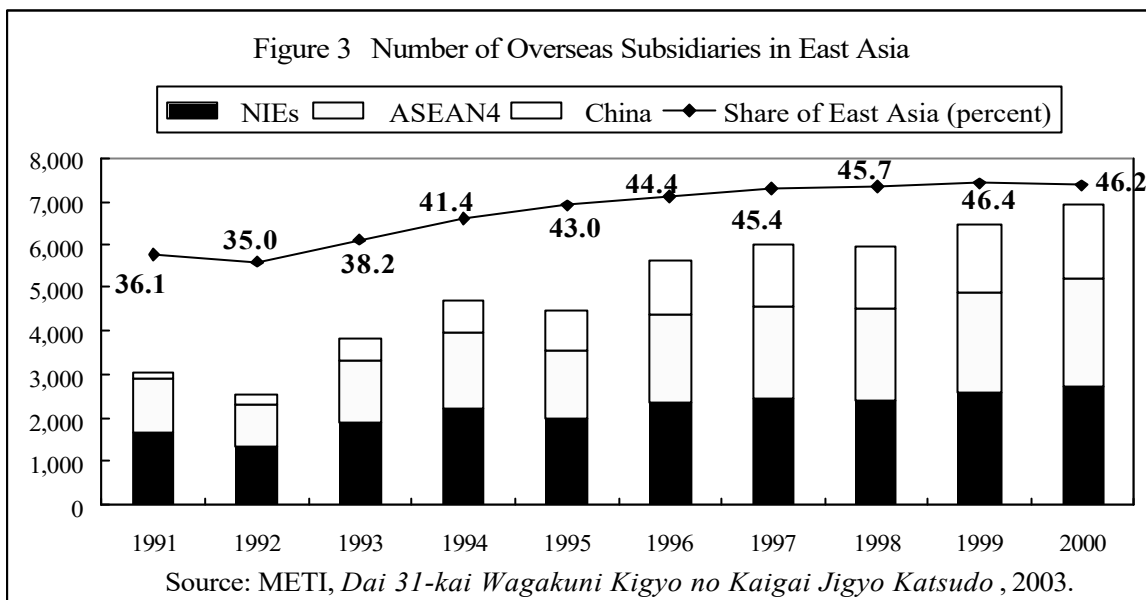
## 2. Overview of Japanese MNCs in East Asia

### 2.1. Geographical and Sectoral Distribution of Overseas Subsidiaries

Japanese firms have established their strong footing in East Asia. Especially, during the period between 1985 and 1997, their foreign direct investments (FDI) jumped up first in NIEs, second in ASEAN4 and third in China (Figure 1). The region absorbed 15.7 percent of total Japanese cumulative FDIs between 1980 and 2002. By economies, ASEAN4 is the most important host region with 44.0 percent of Japanese FDI stock in the region, followed by NIEs with 40.4 percent and China with 15.6 percent [Ministry of Finance data]. Preeminent in East Asia is manufacturing FDI: in terms of number of projects, the region accounts for more than 50 percent of total manufacturing investments during the 1990s. The share reached more than 70 percent in 1994 and 1995, (Figure 2).



The statistical data on FDI could not show the exact picture of Japanese MNCs in East Asia, because of its lack of 'indirect investment' by their foreign affiliates<sup>2</sup>. Then, seeing the number of their overseas subsidiaries (including non-manufacturing), we can find that those in the world reached 14,991 in 2000, 46.2 percent of which agglomerate in East Asia<sup>3</sup> (Figure 3).



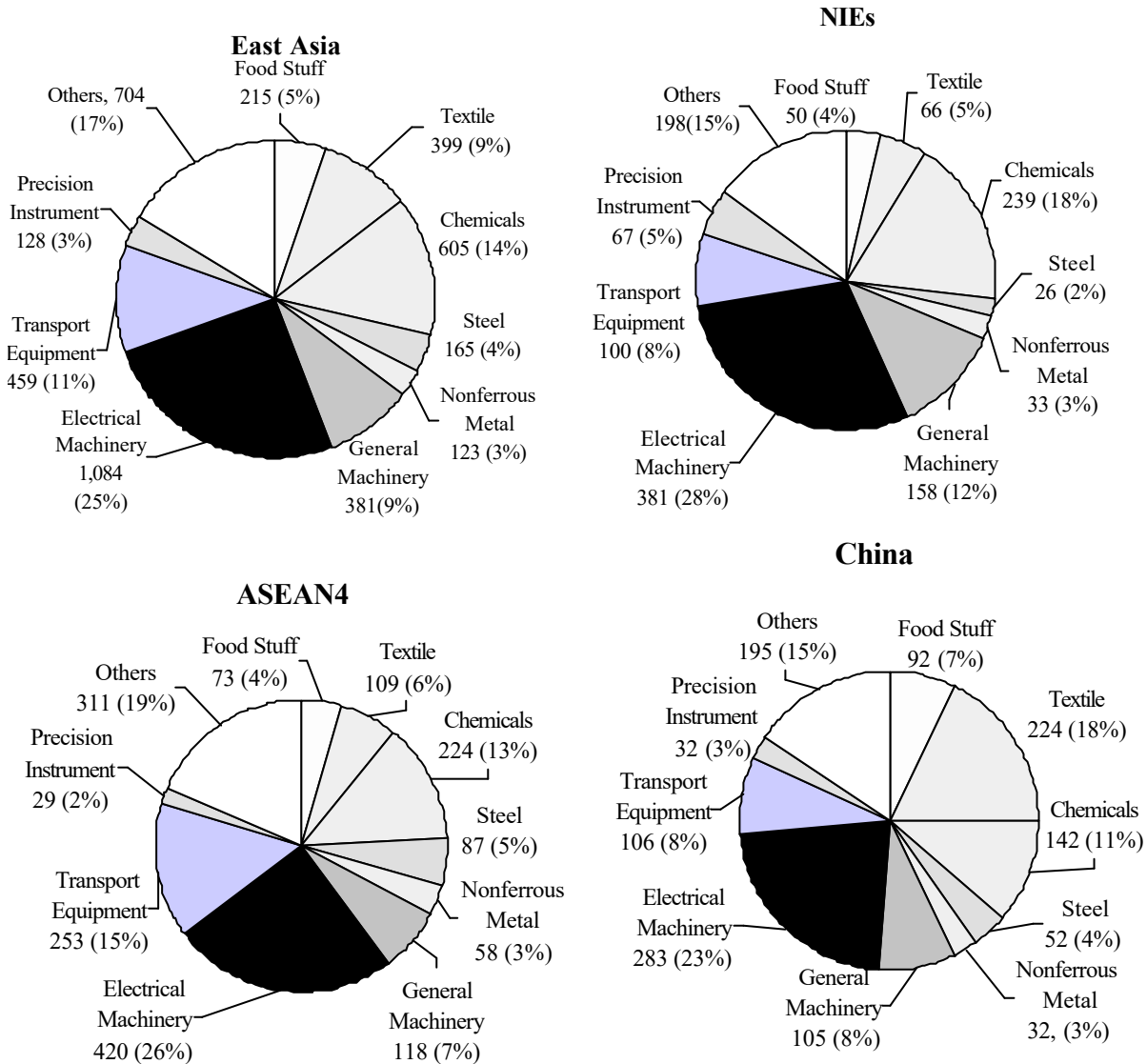
Specifically, during just a decade between 1991 and 2000, they more than doubled from 3,071 to 6,919 in the region; the number of subsidiaries increased from 1,693 to 2,729 in NIEs and from 1,194 to 2,478 in ASEAN4, while surprisingly China-based affiliates increased more than nine fold from 184 to 1,712. Thus, Japanese networks have spread from NIEs and ASEAN4 to China, fully covering the region [METI 2003b]. Their activities have concentrated on manufacturing sectors; manufacturing subsidiaries account for 61.1 percent of total regional affiliates, which is equivalent to 57.1 percent of total manufacturing overseas affiliates all over the world. By locations, the percentage of manufacturing affiliates is highest in China with 73.8 percent, following ASEAN4 with 67.9 percent and NIEs with 47.3 percent [METI 2003b]. Above all, machinery sectors account for nearly half of them, with the percentages of electrical machinery, transport equipment and general machinery 25 percent, 11 percent and 9 percent respectively. In addition, a lot of affiliates belong to capital-intensive sectors such as textile and chemical products. By economies, there is some variation in sectoral distribution of subsidiaries; in NIEs, they have established more affiliates in chemical product sector, with the share 18 percent, while in ASEAN4, transport equipment is the

<sup>2</sup> Certainly Japanese FDI into East Asia declined since the late 1990s. This is partly because of the East Asian crisis and the depression at home, and partly because Japanese MNCs have largely completed their transplanting process by the mid 1990s, and they use reinvestment of retained profit and lending from local banks to renew and expand their production capacities. In addition, they invest in China through their affiliates based on Hong Kong (and Taiwan) and, to a lesser extent, in ASEAN4 through those located in Singapore. Especially in the former, owing to advantageous treatment of Hong Kong, they have utilized this kind of 'indirect investment' method. Therefore, the amount of above-mentioned Japanese FDI is underestimated.

<sup>3</sup> The number and distribution of Japanese overseas subsidiaries are those of the respondents to the questionnaire survey conducted by METI in 2001. Hence, though they are not the exact number of Japanese MNCs, too, the survey is most comprehensive and reliable.

second most important sector, following electrical machinery. And in China, the share of textile sector is second largest (Figure 4).

Figure 4: Sectoral Distributions of Japanese Overseas Subsidiaries in East Asia



Sour

ce: METI (2003b).

Thus, 59.6 percent of total Japanese overseas affiliates belonging to electrical machinery sector agglomerate in East Asia, while the shares are 44.3 percent in transport equipment, 57.3 percent in chemical product, and 76.1 percent in textile. Among the regional economies, ASEAN4 is the largest location, where 23 percent of overseas subsidiaries in electrical machinery, 22.4 percent in transport equipment, and 20.8 percent in textile are established<sup>4</sup> [METI 2003b].

Overseas production ratio of Japanese firms, though it tends to increase, remains at low levels, compared to those of other developed economies such as the US and Germany. However, reflecting the geographical concentration of their manufacturing affiliates, East Asia plays the pivotal roles as an off-shore production site; the region accounts for 34.0 percent of Japanese

<sup>4</sup> 42.7 percent of Japanese overseas subsidiaries in textile concentrate on China.

overseas production in 2000, following North America with the share of 41.6 percent. The activities concentrate on some specific sectors. The percentages of the region are especially high in textile (73.4 percent), nonferrous metal (49.1 percent), electrical machinery (47.5 percent), and precision instrument (46.7 percent) (Table 1).

Table 1: Overseas Production by Regions in 2000 (percentage figures)

	Overseas Production Ratio by Sectors	Regional Distribution					
		East Asia			North America	Europe	
		NIEs	ASEAN4	China			
Food Stuffs	2.8	27.2	13.7	7.6	5.9	45.9	11.4
Textile	9.6	73.4	36.4	22.8	14.1	10.7	10.7
Wood, Paper & Pulp	4.0	16.5	3.3	9.4	3.8	59.3	n.a
Chemical	13.4	31.9	16.9	12.2	2.8	38.8	24.1
Iron & Steel	16.3	29.1	11.0	13.1	5.1	61.3	1.3
Non-ferrous Metal	10.4	49.1	13.4	27.6	8.0	30.6	5.7
General Machinery	12.1	28.9	14.1	7.7	7.1	41.5	27.2
Electrical Machinery	21.9	47.5	23.0	18.5	5.9	30.0	19.9
Transport Equipment	31.1	17.8	5.0	9.8	3.0	55.8	13.4
Precision Instrument	12.6	46.7	26.3	10.8	9.6	29.3	22.5
Manufacturing	13.4	34.0	15.1	13.8	5.1	41.6	17.6

Source: METI (2003b).

By locations, the largest production site in East Asia is, of course, ASEAN4 also in terms of sales performance. The affiliates locating in ASEAN4 account for 40.5 percent of total sales by Japanese manufacturing subsidiaries in the region, while the shares in NIEs3 (Korea, Taiwan and Singapore) and in China (including Hong Kong) are respectively 32.9 percent and 26.6 percent in 2000. In terms of value added, Japanese manufacturing affiliates in the region produced 43.3 billion dollars of value added in the same year, 42.5, 46.7 and 10.8 percent of which are attributable respectively to ASEAN4, NIEs and China [METI 2003b]. Moreover, their operating profit margins in the East Asian locations are higher than those of domestic firms in most of manufacturing sectors, meaning that overseas production is now the significant profit source (Table 2).

Table 2 Operating Profit Margin of Sales of Overseas Affiliates and Domestic Firms (percent)

	Overseas Affiliates						Domestic Firms	
	World	North America	Asia			Europe		
			China	ASEAN 4	NIEs 3			
Manufacturing	5.1	5.8	5.2	5.3	5.2	5.1	2.7	3.6
Food Stuffs	8.6	10.1	5.9	7.0	11.5	6.5	4.4	3.9
Textile	6.4	-6.0	7.5	4.9	9.5	9.5	8.4	2.1
Wood., Paper & Pulp	11.2	8.0	7.8	6.4	9.8	2.4	15.4	2.3
Chemical	8.6	14.5	3.2	7.5	-1.2	5.3	5.2	7.9
Iron & Steel	-0.5	-3.5	5.2	4.3	6.0	3.7	10.6	3.0
Non-ferrous Metal	5.4	1.4	5.9	5.6	4.9	8.0	5.3	3.2
General Machinery	3.0	-0.6	6.2	5.5	5.5	8.0	2.7	3.1
Electrical Machinery	3.4	2.4	4.1	5.5	4.1	2.3	2.6	2.2
Telecom. Equipment	10.4	19.9	2.8	2.1	3.2	2.9	0.6	3.6
Transport Equipment	3.2	2.8	6.1	7.2	6.3	6.3	0.5	5.1
Precision Instrument	4.8	4.7	4.2	1.9	5.9	7.5	5.5	1.4
Oil & Coal	3.0	4.3	1.6	-10.6	11.9	1.0	x	4.5
Other	7.8	6.1	10.2	10.3	9.9	8.1	5.8	x

Note: 1. The ratio are averages between 1999 and 2001.

2. The ratio of telecom. equipment is that of 2001.

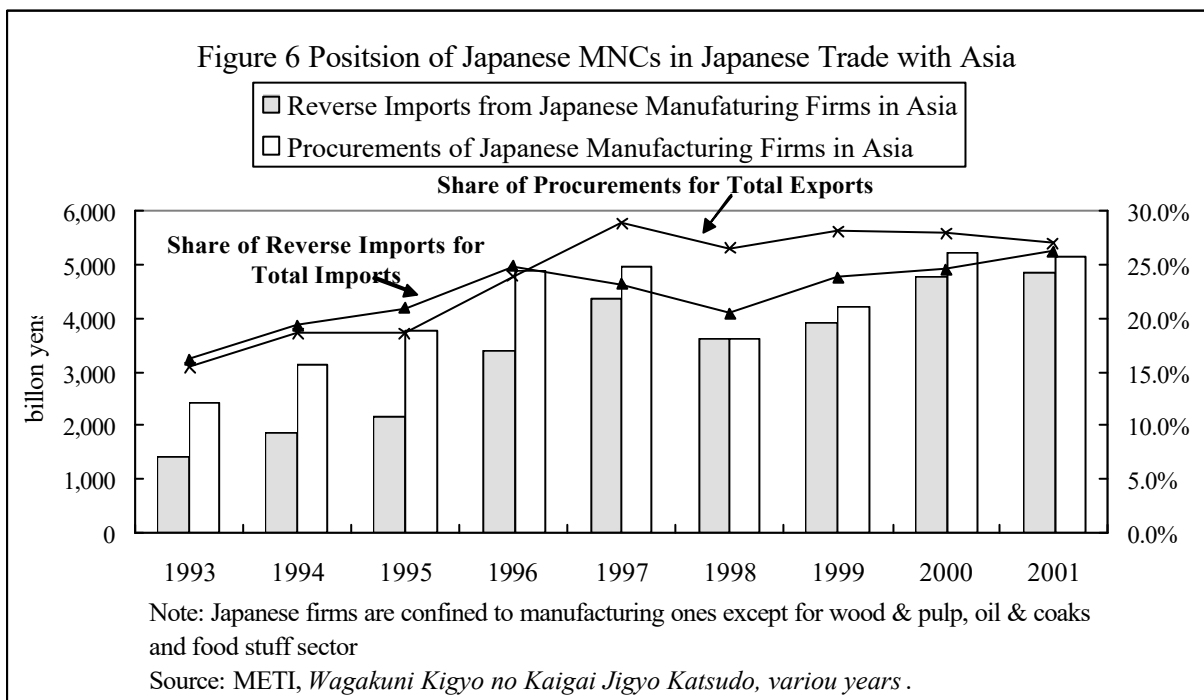
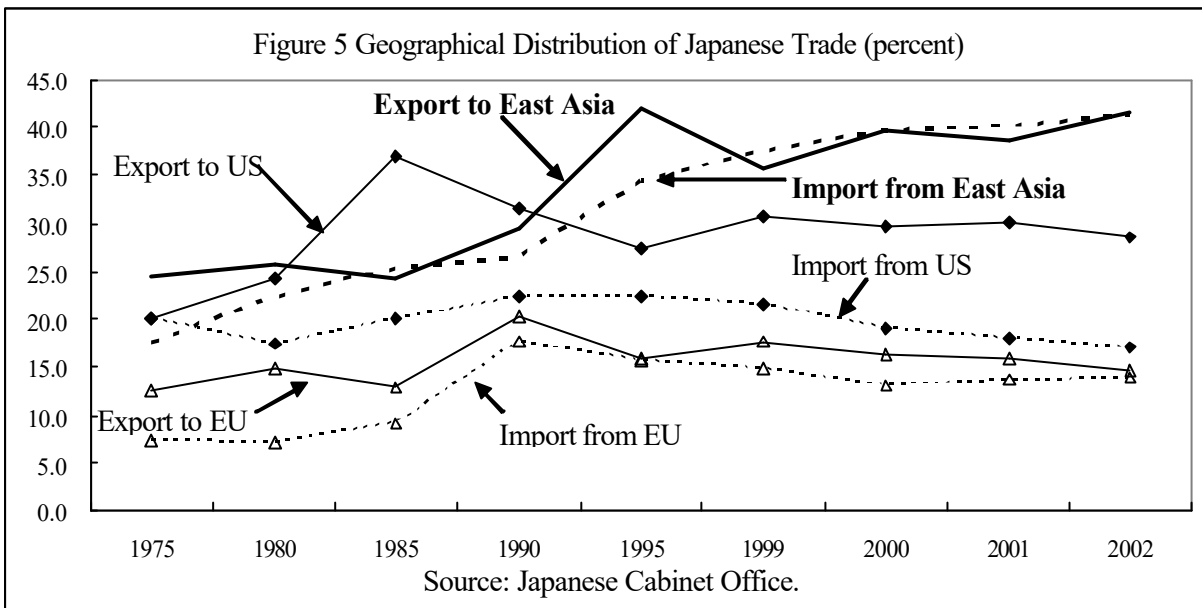
Source: METI, *Kagai Jigyo Katsudo Kihon Chosa*, various years; *Hojin Kigyo Tokei*, various years.

## 2.2. Presence of Japanese MNCs in East Asia

Through the long-standing penetration process, Japan has widened and deepened their economic ties with the East Asian countries. Most of them have been driven by Japanese MNCs. They have formed dense production networks in various sectors throughout the region, organizing it into their procurement sites as well as markets.

Actually, East Asia is the largest trading partner for Japan, with the shares 41.5 percent in exports and 41.4 percent in imports in 2002, exceeding those of the US and EU15 (Figure 5). Among the regional economies, the largest destination is NIEs (22.7 percent), followed by ASEAN4 (9.3 percent) and China (9.6 percent), while Japan imported 18.3 percent from China, 12.5 percent from ASEAN4 and 10.5 percent from NIEs [*METI Trade Database*]. A large percentage of trade between Japan and Asia is attributable to transactions of Japanese MNCs. First on the import side, reverse imports by Japanese manufacturing affiliates in Asia rapidly increased more than threefold from 1.4 in 1993 to 4.8 trillion yen in 2001. The amount is equal to 86.3 percent of total Japan-destined exports of their manufacturing subsidiaries spreading all over the world. Second, on the export side, in parallel with the upsurge of reverse imports from Asia, their procurement of inputs from Japan also more than doubled, with the amount from 2.4 to 5.2 trillion yen during the same period [*METI database*]. Thus, the share of their reverse imports for total imports from Asia is 26.1

percent and the share of their inputs procured from Japan for total Japanese exports to the region is 26.9 percent in 2001 (Figure 6).



From the viewpoint of the East Asian economies, the presence of the Japanese MNCs is also significant in their trade, particularly with Japan. Japanese manufacturing affiliates account for 7.9 percent of total exports and 6.9 percent of total imports of East Asia, while 31.7 percent of East Asian exports to and 22.9 percent of their imports from Japan are attributable to transactions of them; the percentage in trade of ASEAN4 is highest with 47.0 percent in exports and 42.1 percent in imports, while even in NIEs including Korea and Taiwan, which have established their industrial structure largely based on indigenous firms, the share of Japanese MNCs for total exports to

Japan reaches more than 30 percent (Table 3). It should be noted here that these figures are confined to the manufacturing subsidiaries. In addition to them, Japanese general trading companies (*Sogoshosha*) and retailers also engage in trade between Japan and East Asia in the forms of developmental import (e.g. of agricultural and aqua-cultural products), contract manufacturing (e.g. of apparel, footwear, daily commodities) and so on. If they are included, a larger part of their trades are organized by Japanese firms.

Table 3: Trade Presence of Japanese MNCs in East Asia in 2000 (in million US\$)

	Total	NIEs	ASEAN4	China
Total Export: A	1,176,339	659,869	267,275	249,195
To Japan: B	143,285	58,665	42,966	41,654
Japanese MNCs' Exports: C	92,700	36,757	43,964	11,979
Share(C/A)	<b>7.9%</b>	<b>5.6%</b>	<b>16.4%</b>	<b>4.8%</b>
To Japan: D	45,395	18,312	20,210	6,873
Share(D/B)	<b>31.7%</b>	<b>31.2%</b>	<b>47.0%</b>	<b>16.5%</b>
	Total	NIEs	ASEAN4	China
Total Import: A	1,082,552	648,443	209,013	225,096
from Japan: B	204,754	119,172	44,070	41,512
Japanese MNCs' Imports: C	74,749	35,962	29,599	9,188
Share(C/A)	<b>6.9%</b>	<b>5.5%</b>	<b>14.2%</b>	<b>4.1%</b>
from Japan: D	46,870	21,352	18,549	6,969
Share(D/B)	<b>22.9%</b>	<b>17.9%</b>	<b>42.1%</b>	<b>16.8%</b>

Note: Using the yearly average exchange rate of yen against the dollar during the period of 2000.

Source: Estimation based on UNCTAD, *Handbook of Statistics* and METI (2003b).

By sectors, the position of Japanese MNCs is overwhelming in machinery sector. Focusing on their exports to Japan, the shares for total machinery exports reach 88.6 percent in ASEAN4 and 60.1 percent in NIEs. Even in China, where the presence of Japanese MNCs is relatively small, more than 30 percent of its machinery exports to Japan are attributable to reverse imports by Japanese MNCs<sup>5</sup>. In East Asia, they have created a production and trade structure linking their home to the host economy (Table 4).

Moreover, the production activity of Japanese MNCs has substantial impacts on value added creation in the East Asian host economies. Total manufacturing value added of their affiliates is equal to 5.8 percent of that of the regional economy. Especially, the percentage in ASEAN4 reaches 14.7 percent (Table 5). Most preeminent in ASEAN4 is machinery and transport equipment sector, where 53.2 percent of total value added is produced just by Japanese manufacturing subsidiaries in 2000 [*estimation based on data from World Bank, World Development Indicators 2003; ADB, Key Indicators; METI (2003b)*]. This means that the most growing sector in ASEAN4 is virtually dominated by Japanese MNCs. The growth dynamics are attributable to them<sup>6</sup>.

<sup>5</sup> These figures do not also include re-export via Hong Kong, where Japanese firms located there largely engage in outward processing and/or contract manufacturing with China-based firms.

<sup>6</sup> As of the year of 2000, Japanese affiliates account for 3.7, 4.3 and 0.3 percent of total employed persons in manufacturing sector respectively in NIEs, ASEAN4 and China. Especially, in Hong Kong, Singapore and



Table 4: Japanese MNCs Position in Japan's Imports from East Asia in 2000  
( in million yen)

	East Asia			NIEs		
	Total Import	MNC Export	Share	Total Import	MNC Export	Share
<b>Textile</b>	2,075,783	211,046	10.2%	196,383	29,789	15.2%
<b>Chemical</b>	785,107	156,428	19.9%	299,363	65,107	21.7%
<b>Machinery</b>	6,368,161	3,141,707	49.3%	2,784,032	1,672,683	60.1%
	ASEAN4			China		
	Total Import	MNC Export	Share	Total Import	MNC Export	Share
<b>Textile</b>	143,472	41,771	29.1%	1,735,928	151,093	8.7%
<b>Chemical</b>	309,070	71,294	23.1%	176,674	20,027	11.3%
<b>Machinery</b>	2,030,311	1,798,879	88.6%	1,553,818	489,987	31.5%

Source: Estimation based on *MOF trade database* and METI (2003b).

Table 5 Value added of Manufacturing in East Asian Economies  
(as of the year 2000, million US\$)

	Total	Japanese MNCs	
East Asia	748,803	43,340	5.8%
China	363,883	4,674	1.3%
NIEs	259,902	20,250	7.8%
ASEAN4	125,018	18,416	14.7%

Note: Calculated by the average exchange rate of the year.

Value added of Japanese MNCs = Operating Profit + Rental Fee + Wage

Source: Estimation based on World Bank, *World Development Indicators* 2003, ADB, *Key Indicators* and METI (2003b).

### 3. Basic Features of Japanese Regional Production Networks in East Asia

#### 3.1. Regionalization of Keiretsu System

##### 3.1.1. Changing Purpose of Overseas Production

Over last decades, Japanese firms have steadily organized Asia as their own markets by transplanting production capacities. Through the process, the type of their off-shore production has also considerably transformed. In general, in terms of purpose, it has gone through the following stages in response to the shift of industrialization strategy of the East Asian host nations and the changing external and internal circumstances.

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Malaysia, the shares are respectively 25.7, 12.0 and 11.0 percent [calculated based on data from ADB, *Key Indicators* and METI 2003b].

**(1) Import-Substitutive or Market-Seeking Production (before the 1980s):**

Northeast Asian countries, particularly Korea and Taiwan had finished the primal import-substitution phases during the 1950s and the mid 1960s, and then they had simultaneously driven export-promotion of labour-intensive industries and further import substitution of capital-intensive heavy industries such as electrical and electronics, shipbuilding, steel and chemicals. On the other hand, at least by the 1970s, ASEAN4 had maintained overall import-substitution industrialization strategy, and they started full-swing export-oriented strategy not until the 1980s [Dicken 2003; Yun 2003]. Apart from firms moving on export processing zones, at least until the mid 1960s in Korea and Taiwan, and until the 1970s in ASEAN4, off-shore production by Japanese MNCs had, by and large, been import-substitutive, aiming at serving to the protected local markets.

**(2) Expansion of Export-Oriented Production (since the mid 1980s):**

The changes of external circumstances around the Japanese economy since the mid 1980s gave a new momentum to overseas production of Japanese MNCs. Specifically, intensified trade conflicts between Japan and the US and the consequentially forced appreciation of yen made it difficult to export directly from Japan to its largest market, the US, accelerating FDIs into East Asia. After that, Japanese manufacturers started to utilize their East Asian production sites as the platforms for their roundabout exports to the western market.

**(3) Increasing Reverse-Import Orientation (since the mid 1990s):**

The prolonged recession after the bust of the bubble economy has added a new role to the East Asian plants. Since the mid 1990s, the prevalent deflation, combined with the further yen appreciation and higher labour share, squeezes profits of Japanese manufacturers and prevails low-price preference for consumer goods among the Japanese consumer. Thus, Japanese MNCs now rapidly strengthen their East Asian low-cost plants as the production sites for reverse imports.

Figure 7a: Sales Activity of Japanese MNCs in Manufacturing Sector in 2000 ( in billion Yen)

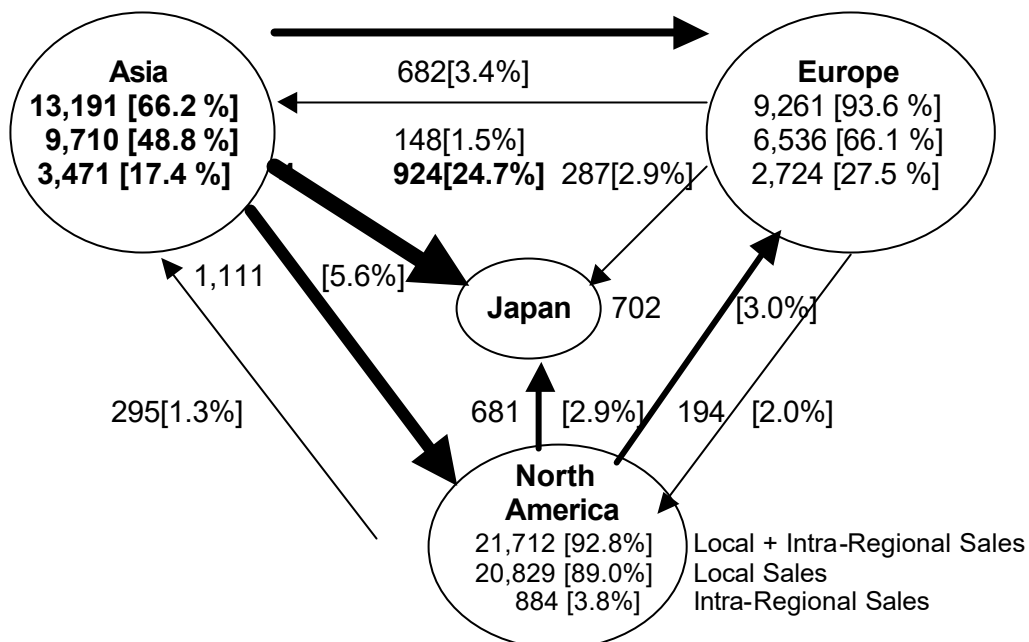
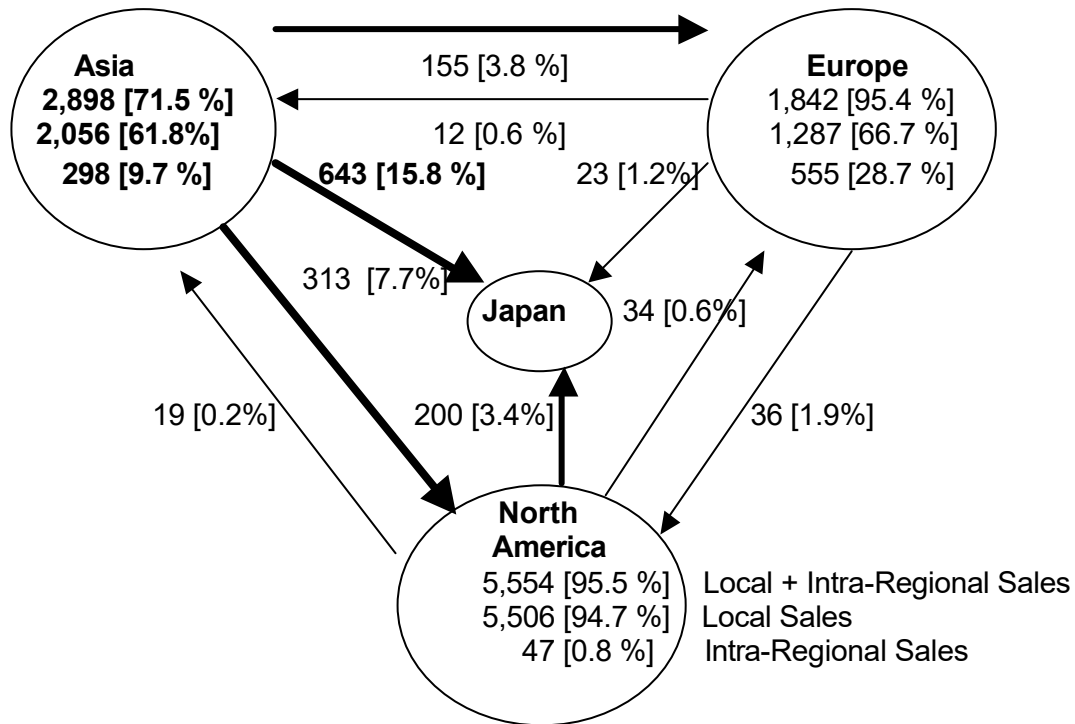


Figure 7b: Sales Activity of Japanese MNCs in Manufacturing Sector in 1987 ( in billion Yen)

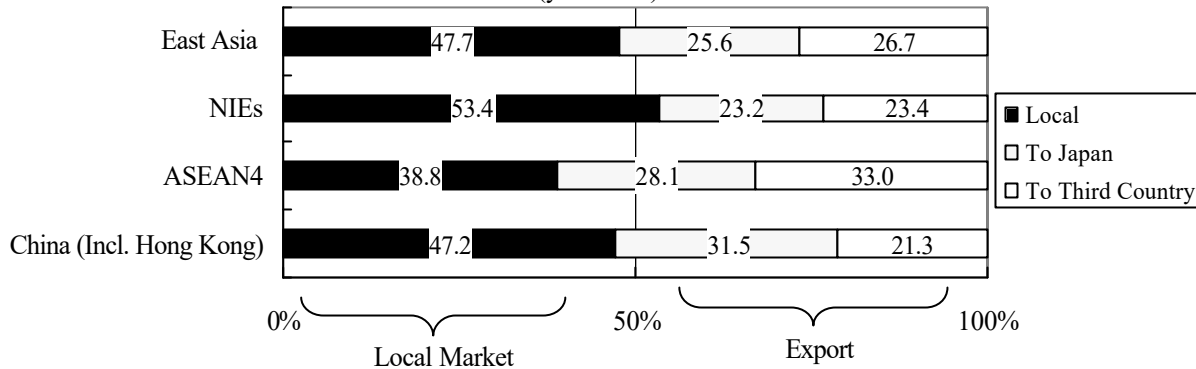


Source: METI, *Waga Kuni Kigyo-no Kaigai Jigyo Katsudo Hokoku*, 1998 and 2003.

We can confirm the change of production purpose since the mid 1980s with the data of sales activities of their overseas affiliates. The percentage of local sales decreased from 61.8 percent in 1987 to 48.8 percent in 2000, while the joint share of exports to North America and Europe, after rising from 11.5 to 15.5 percent (more than 40 percent of total exports) between 1987 and 1990, decreased down to 9 percent (nearly 17 percent of total exports). Instead, first, the share of intra-Asian exports and then that of reverse imports shot up: the former, with less than 10 percent in 1987, increased up to 17.4 percent and the latter accounts for about one quarter of total sales in 2000. Consequently, the joint share of local market, intra-Asia and Japan reaches more than 90 percent, meaning that the sales activities of East Asian affiliates are largely completed within the region (Figure 7).

There is some variation among locations. In NIEs with higher income levels, Japanese affiliates sell more products in local markets, with the percentage of local sales 53.4 percent, while in ASEAN4 and China including Hong Kong, they manage export-oriented production to a more extent, with the share of export sales outpacing 50 percent. Among them, ASEAN4 is not only the largest production site for reverse imports, accounting for 44.5 percent of total exports from all East Asian affiliates to Japan, but also the most important roundabout export site, accounting for 50.2, 48.9 and 47.5 percent of total exports respectively to third countries, intra-Asia and North America. On the other hand, in China (including Hong Kong), the ratio of reverse imports is relatively high with 31.5 percent owing to geographical proximity to Japan, accounting for 32.7 percent of total reverse imports from the region (Figure 8) [METI 2003b].

Figure 8 Geographical Destination of Sales of Japanese Manufacturing MNCs in East Asia (year 2000)



Source: METI, *Dai-31 Kai Wagakuni Kigyo no Kaigai Jigyo Katsudo*, 2003.

### 3.1.2. Evolution of Single-Standing Operation to More Complicated Web

Japanese manufacturers have substantially extended their production activities in East Asia, establishing the region-wide systematic production beyond the bilateral relationship between the home and the hosts. The evolutionary process can be divided into three phases; first is the period before the mid 1980s, second between the mid 1980s and the early 1990s, and third since the mid 1990s. *Hatch & Yamamura (1996)* named each networking pattern as hub, cluster and web.

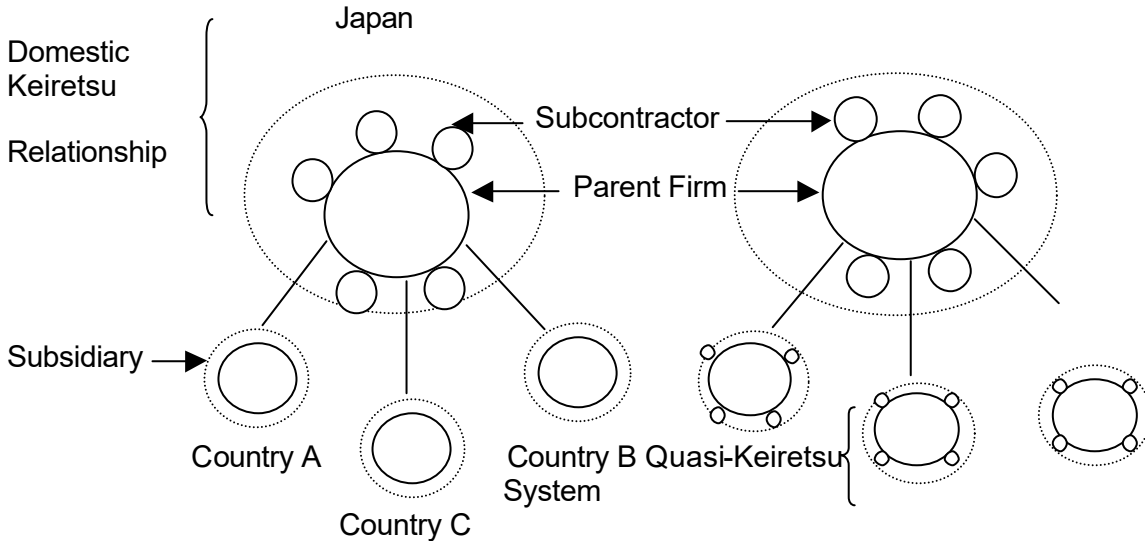
First, **hub networks** refer to collections of regional affiliates tying themselves closely and exclusively to the parent firm without interaction much with one another. At this stage, the subsidiaries within a network engaged in a *screwdriver* operation, largely depending on parts and component imported from Japan. Second, **cluster networks** are based on a denser set of inter-firm relationships. Most of the big assemblers managed to request their subcontractors at home to move on to the same location, creating supplier clusters in the host economy. They have created peculiar inter-firm relationships or company groups, so called **Keiretsu** system at home<sup>7</sup>. The creation of cluster networks means region-wide diffusion of *quasi-keiretsu-type* business relationships. And third, **web networks** are vertically integrated networks uniting the scattered subsidiaries and mutually procuring less sophisticated components from other affiliates in the region. Manufacturing activities are strategically placed in technologically appropriate sites according to a firm's own division of labour, realizing a kind of region-wide just-in-time system (Figure 9).

<sup>7</sup> Originally, the Japanese keiretsu system refers to the subcontracting system peculiar to automotive industry, in which large assemblers such as Toyota, Nissan, and Mitsubishi have established multilayered and hierarchical structure in collaboration with both small number of first tier suppliers such as Denso, Aishin Seiki etc and myriad of small-and medium sized ones [*Dicken 2003: 229-30*].

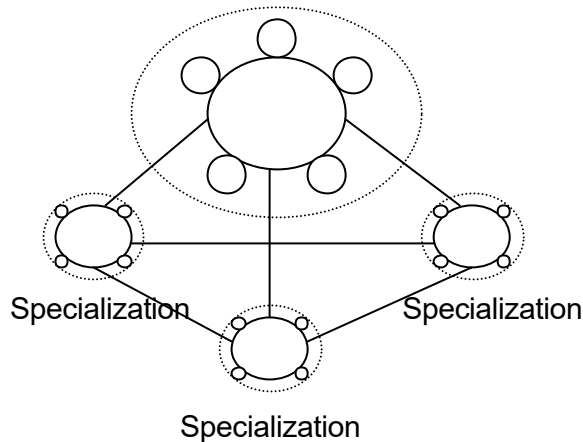
Figure 9: Evolution of Japanese Production Networks in East Asia

(1) *Hub Network* (before the mid-1980s)  
Typical Parent-Subsidiary Relation

(2) *Cluster Network* (since the mid-1980)  
Export of Keiretsu Relation



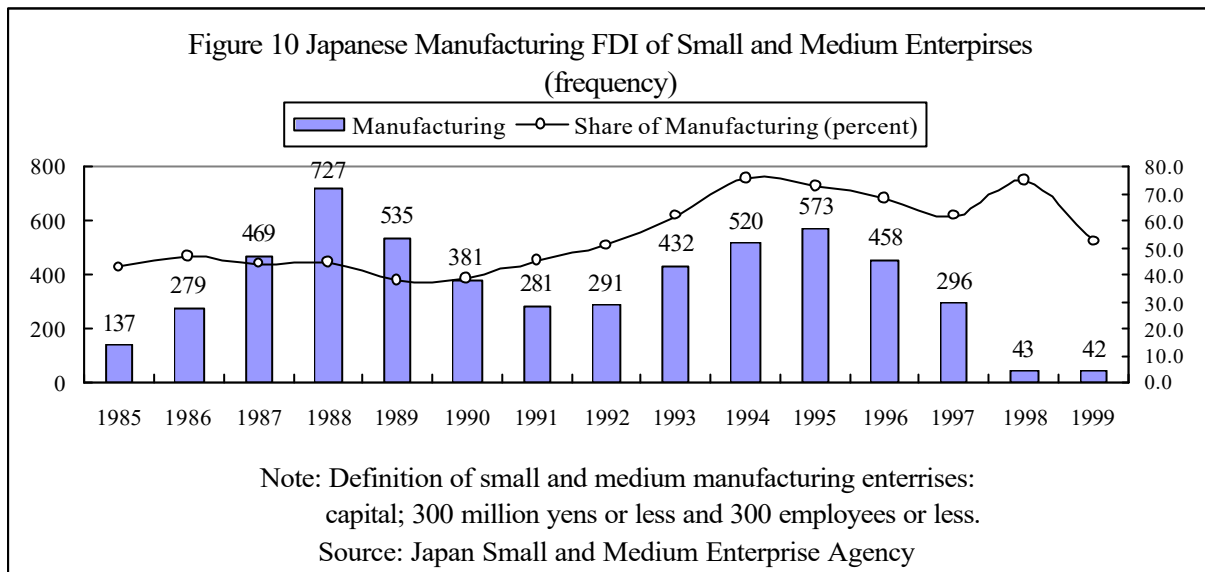
(3) *Web Network* (since late 1990s)  
Creation of Region-Wide Procurement Relationship



Source: Revised the Figure of Hatch and Yamamura (1996).

Throughout the process, Japanese general trading companies, *Sogoshosha*, have played intermediary roles. At the initial phase of the economic penetration, using their human and information connections inherited from the colonial age, they organized markets for Japanese goods, while they mediated material imports for domestic manufacturers. At the same time, they have deeply committed in so-called 'ODA (official development aid)' business. In building infrastructure based on ODA, they have worked as an arranger for relevant parties such as constructors, plant suppliers (most of them are Japanese firms) etc. Additionally in moving on overseas production, they find a good local partner for a joint venture; they have provided a link between local production units and those in Japan, introducing new machinery and techniques and

arranging for Japanese technicians to provide ongoing training to long-term clients<sup>8</sup> [Bernard 1994; Hatch and Yamamura 1996; 1997; Kojima and Ozawa 1984]

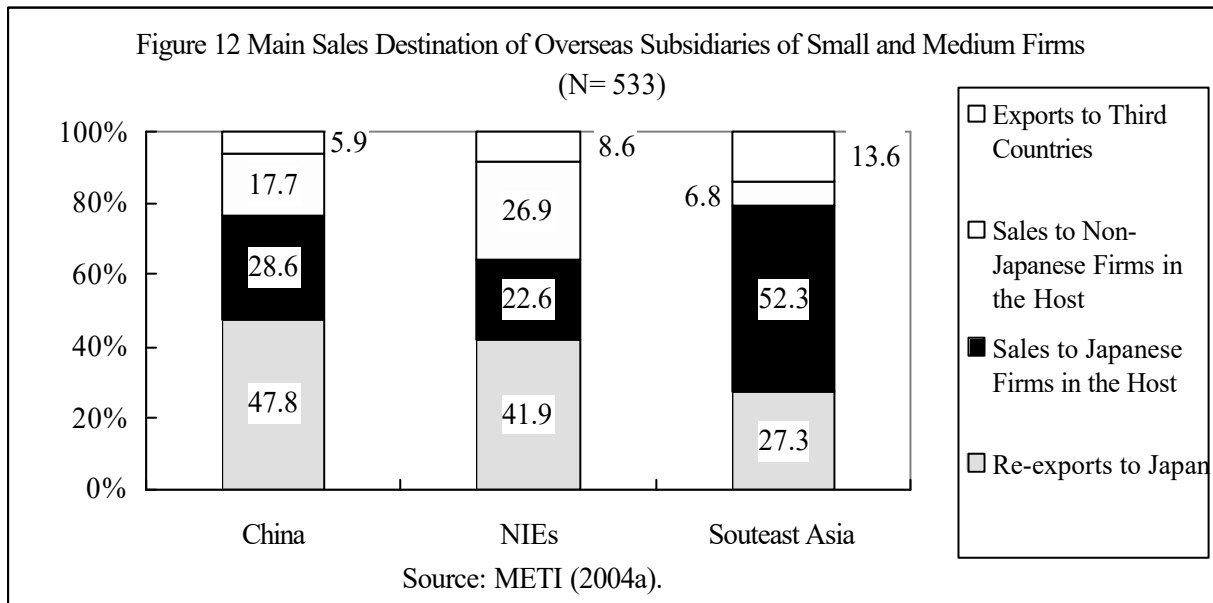
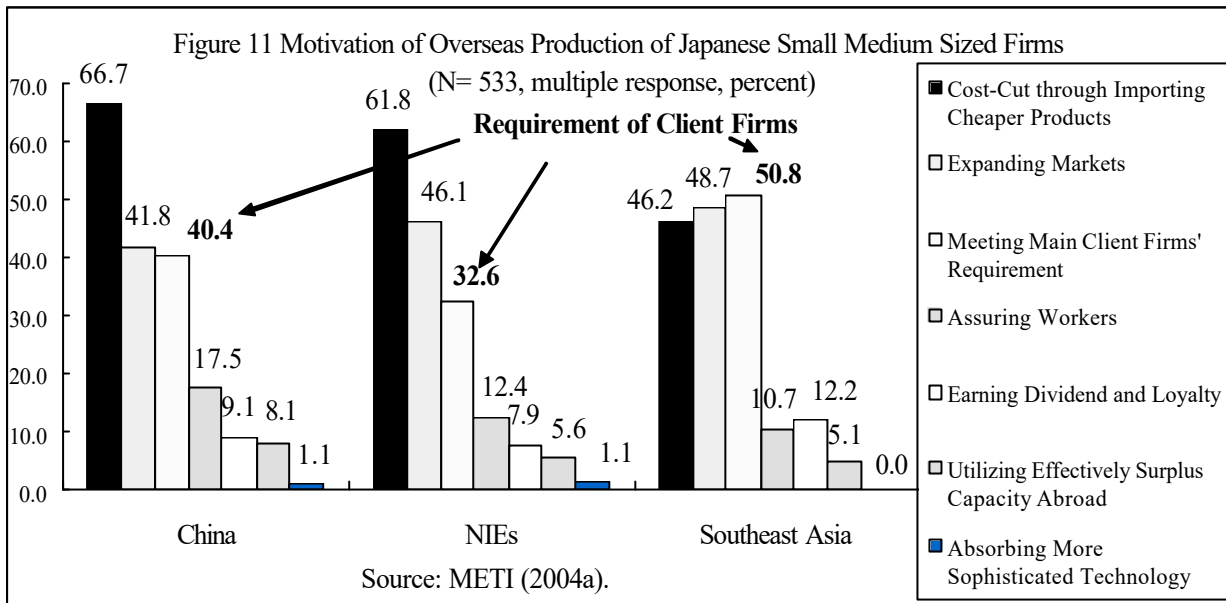


The network evolution is a result of various efforts for Japanese manufacturers to establish more efficient production system, adapting themselves to changing external circumstances. The most important factor is the exchange adjustment from the mid 1980s onwards. The sharp appreciation of yen made it expensive for Japanese overseas assembling sites to import parts and component from the home. Faced with the difficulty of screw-driver-type operation, Japanese assemblers required or promoted their subcontracting suppliers to move on to the host economy, creating the supplier clusters similar to those at home. As shown by Figure 10, FDI frequency of small and medium manufacturers rapidly increased in the late 1980s and in the mid 1990s, when Japanese firms suffered from sharp yen appreciation. According to Japan Small and Medium Enterprise Agency, about 60 percent of overseas subsidiaries of Japanese small and medium enterprises (SMEs) concentrated on East Asia, especially on Southeast Asia in 2001, while most of them were established by 1995 [METI 2003a].

On the other hand, according to the questionnaire survey conducted by Japan Small Business Research Institute in November of 2003<sup>9</sup>, the most important motivations of overseas production for SMEs are 'cost reduction' and 'expanding markets', while especially in Southeast Asia and China, 'meeting customer firms' requirement' is the significant factor (Figure 11). This is reflected on the result of a question on main sales destination; in China, about 30 percent of affiliates pointed out Japanese firms locating in the host economy and the share in Southeast Asia reached more than 50 percent (Figure 12). These facts imply that at latest by 1995, Japanese MNCs had transplanted into the host economies the networks similar to the long-standing domestic supply relationships among the SMEs and the large firms.

<sup>8</sup> Moreover, in order to coordinate the distribution system, using Singapore or Hong Kong as their logistical headquarters, *Sogoshosha* manages a regional distribution network that stores and sorts goods at several warehouses, pushes them through customs, and then acting as a broker, purchases discount space on container ships heading to the desired port [Bernard 1994: 9; Hatch & Yamamura, 1996, 1997].

<sup>9</sup> The number of sample firms is 983, 533 of which are effective respondents.



Reflecting the evolutionary process, procurement activities of Japanese MNCs in Asia have significantly changed. While the percentage of inputs imported from Japan, which was 47.7 percent in 1986, decreased down to 36.6 percent in 2000, local procurement ratio increased from 39.6 percent to 41.6 percent during the same period (Figure 13).

Figure 13a: Procurement Activities of Japanese MNCs in Manufacturing Sector in 2000

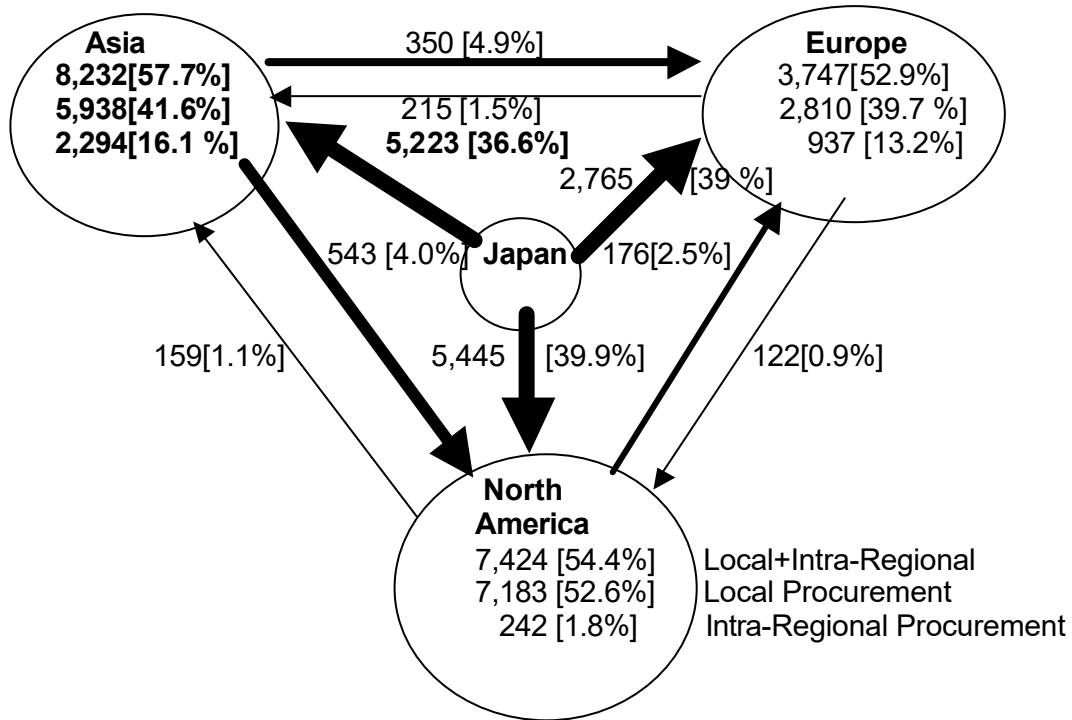
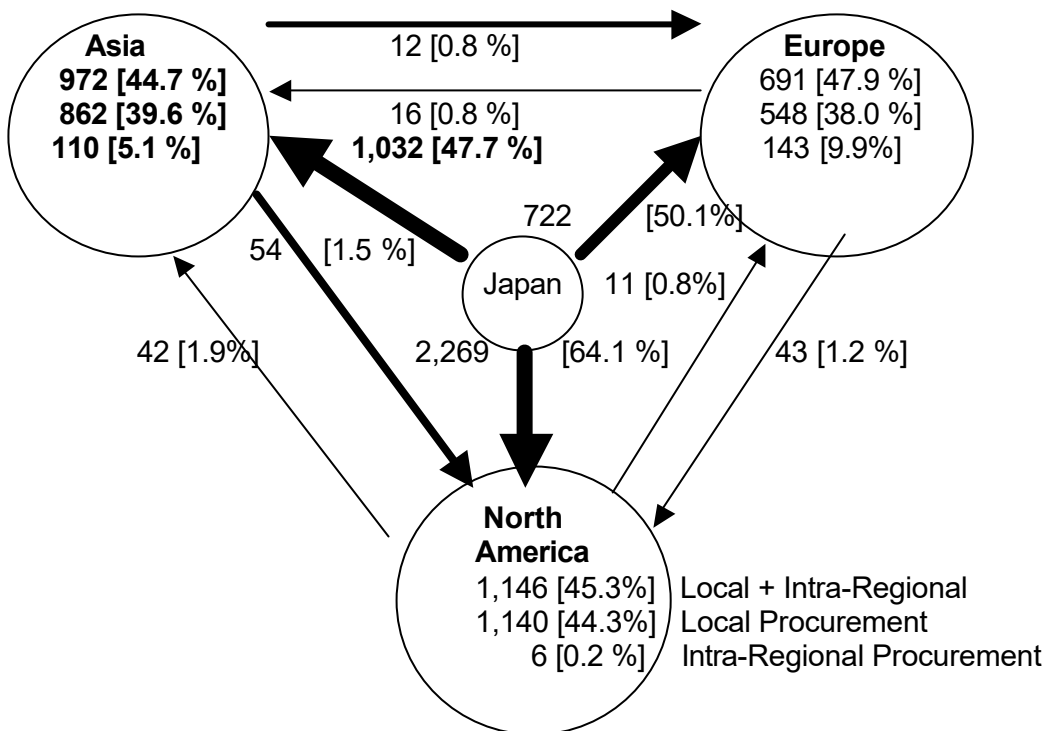


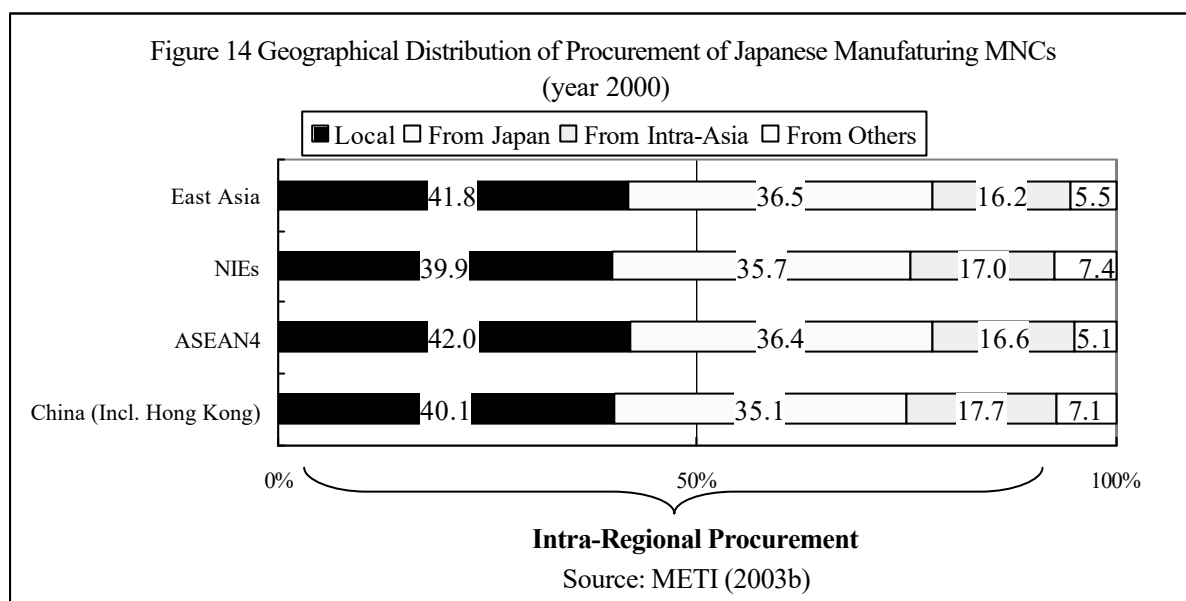
Figure 13b: Procurement Activities of Japanese MNCs in Manufacturing Sector in 1986



Source: METI, *Waga Kuni Kigyo-no Kaigai Jigyo Katsudo Hokoku*, 1997 and 2003.



Particularly, since the 1990s, intra-regional procurement surged: it changed from 5.1 percent in 1986 to 16.1 percent in 2000. Focusing on East Asia, the ratios of local procurement, import from Japan, and import from third countries are respectively 41.8, 36.5 and 21.7 percent (Figure 14). Out of imports from third countries, 74.4 percent are attributable to intra-Asian transactions. As a result, their procurement activities are also completed within the region including Japan, with the East Asian content ratio reaching about 95 percent [METI 2003b].



### 3.2. Sectoral Typology: Japanese Electronics and Automotive Sector Networks

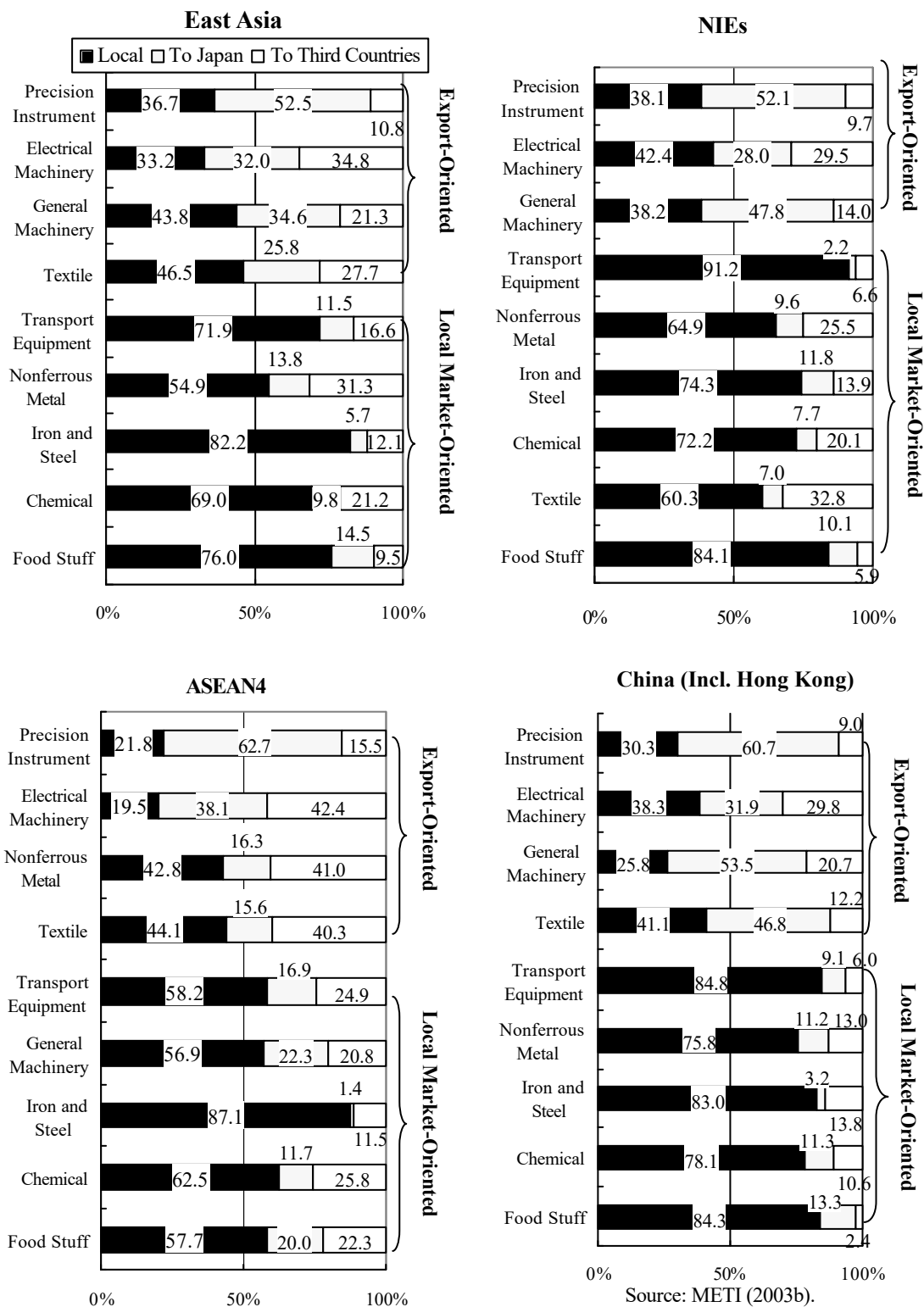
#### 3.2.1. Sector Specificity and Concentration of Networks

Japanese MNCs have developed and diversified the role and function of their East Asian production sites. However, this is only a general trend confirmed by aggregate data on their sales and procurements. Focusing on sub-sectors of manufacturing, their activities have been characterized by sector specificity and concentration.

In fact, if we define overseas production with more than 50 percent of local sales ratio as 'local demand oriented', and that with more than 50 percent of export sales ratio as 'export-oriented', the sectors, which can be regarded as export-oriented, are just electrical machinery and precision instrument in all locations. If the industrial relocation were based on the product life cycles hypothesis, the export ratio, especially reverse import ratio would be higher in resource-intensive sectors such as wood, paper & pulp, and food stuff, capital-intensive sectors such as steel and

chemical products. However, overseas productions of those sectors are still largely local market-oriented<sup>10</sup> (Figure 15).

Figure 15: Geographical Distributions of Sales of Japanese MNCs in 2000



Source: METI (2003b).

<sup>10</sup> By locations, in general machinery sector in NIEs and China, Japanese MNCs largely engage in export, particularly reverse import oriented production, while their textile production is export-oriented to third countries in ASEAN4 and reverse import oriented in China

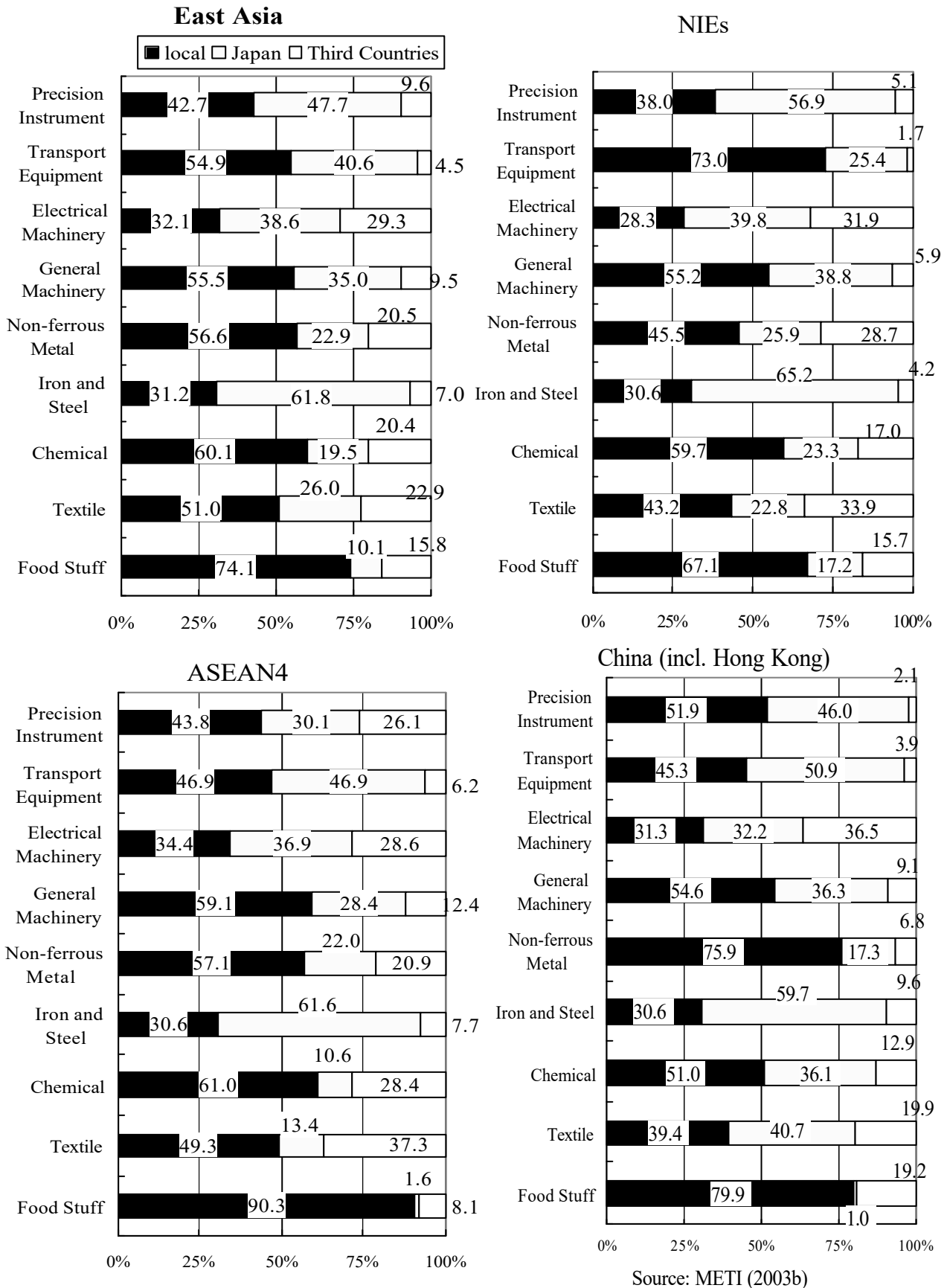
By sectors, their East Asia affiliates largely concentrate on electrical machinery and transport equipment, with the joint share more than 60 percent of their total sales in East Asia, NIEs3 (Korea, Taiwan, Singapore), ASEAN4 and China (including Hong Kong) in 2000. Especially, electrical machinery is the single largest sector for their export activities in every location and for local sales excepting in ASEAN4. It accounts for 60.9 percent of reverse import, 63.5 percent of exports to third countries and 33.8 percent of local sales in East Asia [METI 2003b]. The general shift from local market orientation to export orientation has been driven by massive exports in electrical machinery sector.

On the other hand, Japanese automakers have a long history of overseas production since the 1960s, persistently aiming at serving to the local markets. In this sector, they export from Japan to the world market, meeting domestic demands by domestic production, while they have carried out local production for local markets. Their East Asian affiliates are also committed in production for the potential growing local markets, not for roundabout exports or reverse imports. Actually, it is the largest sector where Japanese MNCs have conducted local market oriented production in the region. They sell more than 70 percent of their products in local markets in every location (see again Figure 15). The share for total local sales is 33.8 percent, followed by that of electrical machinery sector. Particularly in ASEAN4, the percentage is higher (31.5 percent) than in other locations, outpacing electrical machinery [METI 2003b].

We can find similar sector specificity and concentration in the procurement activities. As shown by Figure 16, the sectors, in which Japanese MNCs have created region-wide procurement networks, are electrical machinery in every location, textile, chemical products and precision instruments in ASEAN4, and textile and non-ferrous metal in NIEs. In other sectors, their input linkages are completed within bilateral relationships between Japan and the host economy, with the joint share of local content and imports from Japan more than 75 percent. Also with regard to procurement activities, electrical machinery is the single largest. It accounts for 40.6 percent of local procurement, 56.0 percent of inputs imported from Japan, and 71.5 percent of inputs imported from third countries. By contrast, in the second largest sector, transport equipment, they procure more than 90 percent from the host economy and Japan (Figure 16), while the sector accounts for 19.4 percent of total local procurement and 16.4 percent of inputs from Japan [METI 2003b].

Thus, the Japanese production networks in East Asia mainly are characterized by two types of networking; '**extensive one**', where Japanese MNCs spread input linkages throughout the region, and '**inclusive one**', where input linkages are largely completed within relationship between local supplier clusters and suppliers in Japan. The former is exemplified by electrical machinery sector and the latter type of networks can be found in automotive sector. This network diversification does not only derive from the difference of quality of good, but also technological innovation.

Figure 16: Geographical Distribution of Procurement of Japanese MNCs in 2000



### 3.2.2. Extensive Network and Dual Production System in Electronics Sector

Electrical machinery in East Asia is the sector where Japanese MNCs concentrate and have formed most systematic production. The production networks have extended throughout the region, and they have been deeply embedded in the local economies. The above-mentioned evolutionary process exclusively represents their electronics networks.

Table 6 shows the development of location and main activities of Japanese electronics firms in East Asia. In the 1960s and 1970s, Japanese electronics firms themselves increased exports to the US market as original equipment manufacturers (OEM), while they penetrated first into NIEs and then into ASEAN4 in the form of joint venture in response to import-substitution strategy<sup>11</sup>. In the 1980s, they broke up joint ventures with Korean and Taiwanese firms and converted into OEM transactions. At the same time, they transplanted their manufacturing facilities into ASEAN and accelerated export-oriented production. Furthermore, since the late 1990s, they have expanded production sites into China.

As a result of this development, now, by sales destinations, there are some functional specializations among the regional economies. Specifically, affiliates in NIEs3 account for 44.4 percent of total local sales in East Asia, suggesting that they relatively engage in production for local markets. The most prominent export platform for Japanese MNCs is ASEAN4. The export ratio reached more than 80 percent (Figure 15); the shares of ASEAN4-based affiliates for total exports are more than 45 percent in all destinations (to Japan, third countries, intra-Asia and North America) (Figure 17). On the other hand, characteristically, Japanese electronic firms have formed region-wide procurement networks. In fact, the sector accounts for 74.4 percent of intra-Asian procurements by the affiliates in East Asia, 73.4 percent in NIEs-based subsidiaries, 72.2 percent in those located in ASEAN4 and 82.1 percent in those in China [*METI 2003b*].

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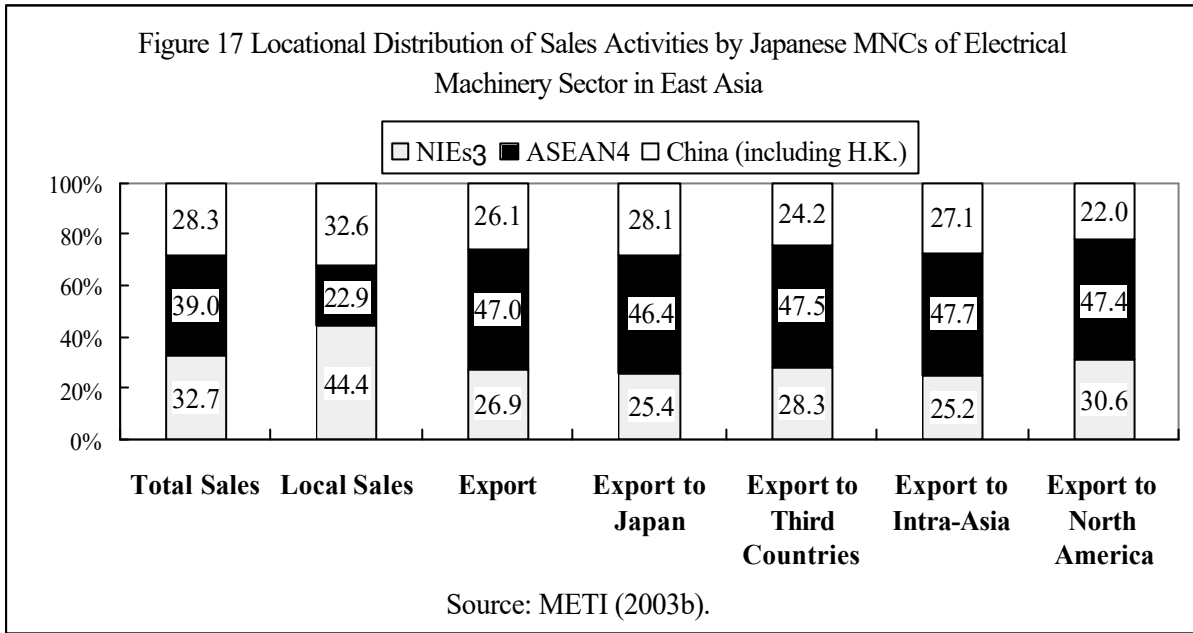
<sup>11</sup> Especially to Korean firms such as Samsung, Anam and Goldstar (later LG) and Taiwanese firms such as Tatung and Sanpo, Japanese firms transferred technologies through licensing arrangements and utilized them as their own OEM suppliers. However, this bought about the former's long-standing technological dependence on the latter, which has increased parts and component imports from Japan [*Hayter and Edington 2003; Nabeshima 2006: 404*].

Table 6 Historical Development of Main Japanese Electrical and Electronics Firms in East Asia Until 1990s

	<b>Import-Substitution</b>	<b>Shift to Export Orientation</b>	<b>Export Orientation</b>	
	1960s	1970s and early 1980s	late 1980s and early 1990s	since late 1990s
Korea	<b>Toshiba</b> (H.A.), <b>Sanyo</b> (TV)	<b>Sony</b> (H.A.), <b>Sanyo</b> (VTR), <b>Matsushita</b> (TV)		
Taiwan	<b>Matsushita</b> (H.A.), <b>Hitachi</b> (CTV, A.C.) <b>Sanyo</b> (CTV, A.C., CRT) <b>Toshiba</b> (H.A., Ref.)	<b>Sony</b> (VTR) <b>Sharp</b> (H.A.)	<b>Toshiba</b> (Com.)	
Hong Kong		<b>Matsushita</b> (H.A.)		
Singapore	<b>Sanyo</b> (H.A., Re.)	<b>Hitachi</b> (H.A., TV, CRT) <b>Toshiba</b> (H.A.), <b>Matsushita</b> (Com.)	<b>Sanyo</b> (A.C., CTV, Com.), <b>Sharp</b> (CTV) <b>Sony</b> (CTV), <b>Toshiba</b> (CTV, VTR)	<b>Sony</b> (CRT), <b>Sanyo</b> (CTV) <b>Hitachi</b> (CTV)
Malaysia	<b>Matsushita</b> (H.A.)	<b>Matsushita</b> (A.C.), <b>Hitachi</b> (TV) <b>Sharp</b> (CTV)	<b>Sharp</b> (H.A., VTR, Re., W. M.), <b>Hitachi</b> (Com., VTR, TV, A.C.), <b>Mitsubishi</b> (VTR), <b>Sony</b> (CTV, VTR) <b>Matsushita</b> (CTV, Com., A.C., CRT)	
Thailand	<b>Sanyo</b> (H.A.), <b>Toshiba</b> (H.A.) <b>Matsushita</b> (H.A.), <b>Mitsubishi</b> (H.A., TV, Re., W.M.)	<b>Hitachi</b> (H.A., TV, A.C., Re.) <b>Matsushita</b> (H.A.)	<b>Toshiba</b> (CRT, A.C., Re.), <b>Hitachi</b> (VTR), <b>Mitsubishi</b> (CRT, Com., A.C.), <b>Sony</b> (CTV) <b>Sharp</b> (H. A., Re., A.C.), <b>Matsushita</b> (A.C.)	<b>Sanyo</b> (Com., Re.) <b>Hitachi</b> (Com., Re., W.M.) <b>Toshiba</b> (W.M.)
Indonesia		<b>Sanyo</b> (H.A.) <b>Matsushita</b> (H.A.)	<b>Sanyo</b> (VTR), <b>Sharp</b> (CTV) <b>Matsushita</b> (VTR), <b>Mitsubishi</b> (H.A.)	<b>Sanyo</b> (Com., Re., CTV), <b>Sony</b> (CTV), <b>Toshiba</b> (CTV) <b>Hitachi</b> (CTV), <b>Sharp</b> (Re., CTV)
Philippines	<b>Matsushita</b> (H.A.)	<b>Sharp</b> (CTV, W.M.)		<b>Hitachi</b> (Re., Com.), <b>Sony</b> (CRT, CTV)
China		<b>Sanyo</b> (CTV, A.C.) <b>Hitachi</b> (CTV)	<b>Matsushita</b> (CRT, H.A., W.M.) <b>Hitachi</b> (CRT)	<b>Sanyo</b> (Re., W.M., H.A., Com., A.C.), <b>Matsushita</b> (CTV) <b>Sharp</b> (Re., H.A., W.M., CTV) <b>Matsushita</b> (H.A., Com., A.C., VTR) <b>Hitachi</b> (Com., A.C., W.M.) <b>Toshiba</b> (Com., CTV) <b>Mitsubishi</b> (H.A., Com.)

Note: A.C.=air conditioner, Com.=compressor, CRT=Cathode Ray Tube, CTV= Color TV, H.A.= home appliances, Re.=refrigerator, VTR= video tape recorder, W.M.= washing machine.

Source: JASME (2001) and Hayter and Edington (2003).



It is technological innovation, specifically *modularization*, and agglomeration of parts suppliers that enable the region-wide division of labor. In electronics production, junctions among parts and components are largely standardized, so that functions of finished goods largely depend on incorporated integrated circuits (ICs). Therefore, as far as ICs are available, the assembly process itself is considerably simplified and labor-intensive. Given this, the most important competitiveness factor in production of standardized parts and components is to actualize economy of scale. Thus, depending on imports from Japan for core components, Japanese electronics MNCs have established the regional production system, in which their suppliers specialize in specific parts and components for scale merits and they mutually exchange their products [*Hatch 2003: 29-30; Takeuchi 2004*].

Another significant feature of Japanese firm structure is that large assemblers have established very broad and hierarchical supplier bases. The *keiretsu* system is typical in the Japanese automotive industry, but it is not confined to the industry. Large electronics firms also have a lot of parts and component suppliers in their own groups.

Table 7 shows the supplier clusters of Matsushita in the East Asian countries. The largest electronics firm establishes their assembling plants in each country, and around them relocates the parts and component factories belonging to its group firms (Matsushita Electronic Component, Matsushita Kotobuki, and Matsushita Battery). Their products cover most of parts and components ranging from less sophisticated to middle-end. The similar clustering can be found in other electronics firms such as Sanyo, NEC, Hitachi, Sony, Canon, Fujitsu etc. Their agglomeration has augmented parts and components production in the East Asian countries.

Table 7: Manufacturing Sites of the Matsushita Group in East Asia

<b>China</b>		<b>Indonesia</b>	Panasonic Industrial Company
Beijing Matsushita Color CRT	Panasonic AVC Networks Shandong	PT Panasonic Manufacturing Indonesia	<b>Thailand</b>
Panasonic Home Appliances Washing Machine (Hangzhou)	Panasonic System Solutions Suzhou	PT.Matsushita Gobel Battery Industry	Panasonic Industrial
Panasonic Putian Mobile Communications Beijing	Beijing Matsushita Seiko	PT.Matsushita Kotobuki Electronics Industries	Matsushita Electronic Components
Panasonic Wanbao Home Appliances Electric Iron (Guangzhou)	Panasonic Refrigeration Devices (Wuxi)	PT.Batam Matsushita Battery	Panasonic Automotive Systems
Zhuhai Matsushita Electric Motor	Zhuhai Matsushita Battery	PT.Matsushita Lighting Indonesia	Matsushita Battery
Matsushita-Wanbao (Guangzhou) Compressor	Panasonic Home Appliances & System (Hangzhou)	PT.Panasonic Gobel Electronic Components	Panasonic Ecology Systems
Guangzhou Matsushita Air-Conditioner	Jian Song Electric (Xiamen)	PT.Matsushita Semiconductor	Panasonic Communications
Beijing Matsushita Electronic Components	Qingdao Matsushita Electronic Components	PT.Matsushita Kotobuki Electronics Peripherals Indonesia	Matsushita Industrial Equipment
Panasonic AVC Networks Xiamen	Panasonic Home Appliances Rice Cooker (Hangzhou)	PT.Matsushita Electronic Components (Batam)	Panasonic AVC Networks
Shanghai Matsushita Battery	Shanghai Matsushita Plasma Display	PT. MT Picture Display Indonesia	Matsushita Technology
Qingdao Matsushita Electronic Components	Panasonic Communications Zhuhai	PT. Display Devices Indonesia	Matsushita Home Appliance
China Hualu Panasonic AVC Networks	Beijing Matsushita Lighting	PT. Panasonic Gobel Indonesia	Matsushita Reiki Refrigerator
Tangshan Matsushita Industrial Equipment	Beijing Matsushita Lighting		Panasonic Refrigeration Devices
Panasonic Home Appliances Microwave Oven (Shanghai)	Panasonic Home Appliances (Hangzhou)		MT Picture Display
Shanghai Matsushita Electronic Instrument	Suzhou Matsushita Semiconductor	<b>Malaysia</b>	<b>Philippines</b>
Shenyang Matsushita Storage Battery	Universal Communication Technology (Hangzhou)	Matsushita Electric Co.	Matsushita Electric Philippines Corporation
Hangzhou Matsushita Motor	Hangzhou Matsushita Motor (HA)	Panasonic HA Air-Conditioning	Panasonic Mobile Communications Corporation
Shanghai Matsushita Semiconductor	Panasonic Factory Solutions Suzhou	Panasonic Compressor Malaysia	Panasonic Communications Imaging Corporation
Panasonic Automotive Systems Dalian	Panasonic Home Appliances (Hangzhou)	Matsushita Electronic Components	Panasonic Communications Corporation
Beijing Matsushita Precision Capacitor	Panasonic Home Appliances (Hangzhou)	Matsushita Electronic Devices	<b>Singapore</b>
Xinhui Matsushita Industrial Equipment	Precision Machining	Panasonic AVC Networks Kuala Lumpur	Matsushita Semiconductor
Panasonic Home Appliances Refrigerator (Wuxi)	<b>Hong Kong</b>	Matsushita Precision Capacitor	Matsushita Electronic Components
Anyang Matsushita Carbon	Panasonic Ecology Systems Hong Kong	Panasonic Foundry Malaysia	Matsushita Technology
	Matsushita Electronic Components	Panasonic Refrigeration Devices	Matsushita Electric Motor
	<b>Taiwan</b>	MT Picture Display	Matsushita Refrigeration Industries
	Taimatsu Industrial	Panasonic AVC Networks Johor	Matsushita Kotobuki Electronics Industries
	Panasonic AVC Networks Taiwan		

Author's Constriction based S Source: Author's Construction on Information of the Homepages.



Moreover, the Japanese electronics network in the region has functioned as a ‘*dual production system*’. In terms of finished goods, Japanese firms have created a product differentiated division of labor between their home and East Asian production sites; they have specialize in or upgraded their facilities at home towards high-end and higher-value added production, while they have transplanted low- and/or middle-end production into the region. For instance, Japanese electronics firms still keep the high shares of the world markets of color TV, car stereos, VCRs and DVD players, more than 80 percent of which are produced by overseas subsidiaries. In contrast, more than 70 percent of the higher value-added products such as car navigation system, digital camera, note PCs, and PDAs (personal digital assistance) are manufactured in Japan (Table 8).

Table 8: Shares of Japanese Firms for Total World Electronics Production  
(the year of 2001, percent)

	World Share	Ratio of Domestic Production	Ratio of Overseas Production
Color-TV	45.2	3.7	96.3
VCR	53.6	3.6	96.4
DVD Player	58.2	18.4	81.6
Car Stereo	54.7	19.2	80.8
Car Navigation	67.6	100.0	0.0
Digital Camera	86.3	78.9	21.1
Mobile Phone	18.2	69.5	30.5
Note PC	26.8	70.7	29.3
Desktop PC	3.4	39.4	60.6
HDD	27.4	13.1	86.9
PDA	18.1	90.1	9.9

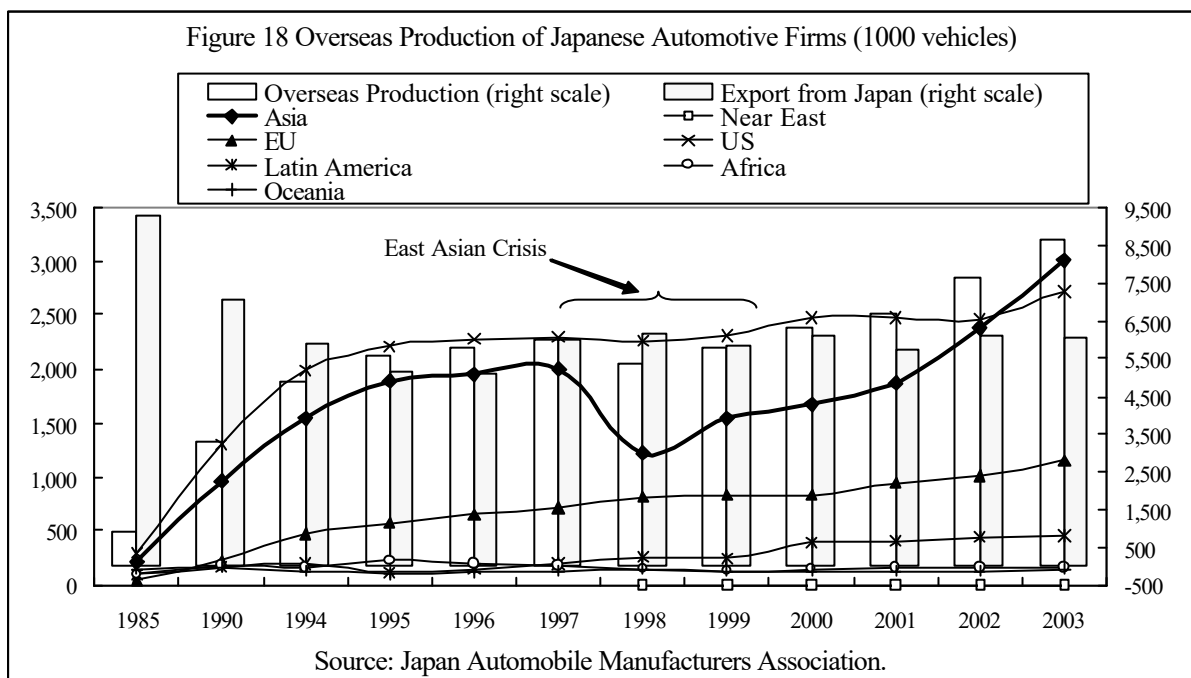
Source: JEITA.

Through the system, they have maintained strong international competitiveness especially in consumer electronics, without suffering from hollowing out of its domestic industrial bases. In low- and middle-end segments of consumer electronics, the affiliates import high-tech parts and components from their parent companies, mutually exchange their own produced parts, assemble them and sell finished goods to Japan and extra-region as well as local market<sup>12</sup>. On the other hand, in high-end segments, their home factories procure low- and middle-end parts and components from their regional subsidiaries and combine them with home-made high-tech parts into finished goods.

<sup>12</sup> The production shares of Japanese firms are dominant in ASEAN and to a lesser extent China. According to JEITA estimation, the shares of main products in 2001 are as follows; in ASEAN4, DVD player: 100 percent, car stereo: 90 percent, CTV: 87 percent, VCR: 81 percent, note-type PC: 87 percent, digital camera: 79 percent, HDD: 31 percent; and in China, digital camera: 100 percent, VCR: 81 percent, DVD player: 47 percent, car stereo: 38 percent [data from JEITA].

### 3.2.3 Inclusive Local Cluster and Intra-ASEAN Network in Automotive Sector

Unlike electronics firms, Japanese automotive MNCs have hardly replaced their home production bases with their East Asian operations. In the sector, they have expanded overseas production sites exclusively serving to local markets, maintaining their home bases. Rather, most of the domestic demands are met by the domestic production. Given the trade conflicts with developed countries and the existing high trade barriers against vehicle importation, they have substituted exports from Japan with local production. Actually, their vehicle exports gradually declined, while overseas production increased, outstripping export volume in 2000 (Figure 18). This is true of their East Asian operations. The reverse import ratio of their East Asian affiliates is quite low, while most of their products are sold in the local markets of the host economies (see again, Figure15).



Among the regional economies, ASEAN4 is the most significant location for Japanese automotive firms to agglomerate in. Transport equipment accounts for more than 30 percent of local sales in ASEAN4, while 55 percent of total sales of East Asian affiliates in the sector are attributable to those in ASEAN4 [METI 2003b]. According to the Japanese Automobile Manufacturers Association, 44 of 91 overseas assembling sites of Japanese car makers were located in East Asia, with 27 sites in ASEAN4 in 1999. And about 28 percent of overseas production sites of Japanese suppliers agglomerated in ASEAN4, accounting for 55 percent of those in East Asia. As a result, in the ASEAN4 markets, the presence of Japanese firms is dominant; except for Malaysia with national car assemblers, the market shares are more than 90 percent. Certainly, their share in China is relatively low with about 25

percent<sup>13</sup>. This is because they got a later start in Chinese operation than western, especially European automotive firms such as Volkswagen (VW), Citroen and DaimlerChrysler. However, from 2000 onwards, all of Japanese assemblers have expanded their production sites in the form of joint venture with the big Chinese automakers.

As already described above, Japanese automotive MNCs in East Asia have established supply linkages which complete within their home bases and overseas production sites<sup>14</sup>. Most of inputs are procured in the host economies and from Japan, while in contrast to electrical machinery sector, transport equipment accounts for less than 5 percent of total procurements from intra-Asia [METI 2003b]. Combined with the high ratios of local sales, these facts suggest that Japanese automotive networks in the region are not regionally extensive, but *inclusive* ones within the host economies.

Though modularization is proceeding in the sector, as far as it is not complete knock-down (CKD) production, automotive manufacturing process still requires high compatibility among parts and components, which enhances clustering of suppliers around assemblers [Lester and Sturgeon 2004: 62; METI, MHLW and MECSST 2004]. In addition, Japanese car assemblers have traditionally made sense of long-term relationships with subordinate suppliers at home; assemblers have established the 'just-in-time' delivery system of inputs and used their *keiretsu* suppliers as the buffer for cost-reduction, while the subordinate suppliers have assured outlets of their products and upgraded their production capacities through technological transfers from and cooperation with assemblers. Also in overseas operations, Japanese assemblers more heavily rely on their *keiretsu* type assembler-supplier relationship than electronics firms [Hatch 2004: 158]. Especially in ASEAN4 and China, they have established Japanese supplier clusters. Table 9 shows main group members and their East Asian production sites of Toyota and Honda. For instance, Toyota establishes total 19 of its own assembly and part plants in ASEAN4 and China and along with it its domestic *keiretsu* suppliers set up total 88 parts and component plants there. A similar situation can be found in Honda group. To make it clearer, take for instance, the supplier networks of Toyota in Thailand, the most important location. Toyota Thailand relies on procurements from various Japanese suppliers, which cover from low-end parts to more sophisticated electrical parts and component and most of which belong to its domestic *keiretsu*. This kind of local clusters of Japanese suppliers are established by other auto assemblers such as Honda, Mitsubishi and Nissan. As a result, they have created the production systems which are almost completed within Japanese firm relations (Table 10).

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<sup>13</sup> The market shares of Japanese autos were 42.3 percent in Malaysia and 26.0 percent in China in 1999. The latter includes the autos with just technical cooperation with Japanese makers [data from Japanese Automobile Manufacturers Association].

<sup>14</sup> The percentages are different in various locations; in NIEs, the procurement ratio from Japan and the local content ratio are respectively 25.4 and 73.0 percent; in ASEAN4, both of them are 46.9 percent; and in China (including Hong Kong), they are 50.9 and 45.3 percent respectively (Figure 16). This reflects their developmental stages and extent of agglomeration of suppliers.

Figure 9: Production Sites of Keiretsu Group of Toyota and Honda

Japan	Korea	Taiwan	Thailand	Malaysia	Indonesia	Philippines	China
<b>Toyota</b>		1	4	1	2	2	10
Toyota Industry							3
Aichi Seiko			1		1		1
Toyoda Machine Works			1				
Toyota Autobody			2				1
Aisin Seiki		1	7		2		11
Denso	4	1	6	2	3	1	12
Toyoda Boshoku		1	7	1	1	1	10
Toyoda Gosei			3		2		9
<b>Number of Production Sites</b>	4	4	31	4	11	4	57
Japan	Korea	Taiwan	Thailand	Malaysia	Indonesia	Philippines	China
<b>Honda</b>		1	3	2	3	3	10
Aichi Kiki					1		
Asama Giken					2		
Atsumitech			1		1		
F.C.C.		1	1		1	1	2
F. Tech						1	1
Kyusyu Yanagawa Seiki							2
Keihin		1	2		1	1	4
Goshi Giken			1				
Showa		1	1		1		3
Steel Center			1				1
Takao			2				1
Tanaka Precision			1				
Tsuzuki					1		
TS Tech			1		1	2	4
Nissinkogyo			3		1	1	2
Hirata Technical			1				1
Honda Foundry	1		1		1	1	1
Honda Lock Manufacturing			1		1		1
Musashi			1		1		1
Yachiyo Industry			2				1
YSK (Yanagawa Seiki)			2				1
Yamada Seisakusho			1				1
Yutaka Giken			1		1	1	2
<b>Number of Production Sites</b>	1	4	27	2	17	11	39

Source: Author's construction based on information the homepages of Toyota and Honda.

Table 10: Toyota's Supplier Networks in Thailand

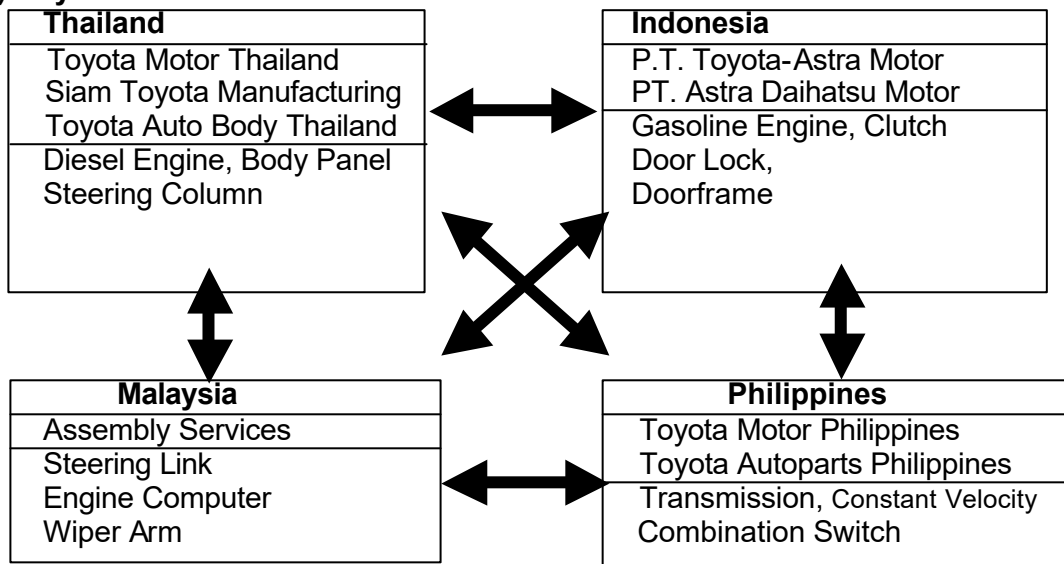
Name of Thai Affiliate	Products	Name of Japanese Parent	Keiretsu Supplier
Aoyama Thai	Metal Fastener	Aoyama	?
Bangkok Foam	Interior	Inoue Corporation	?
Thai Bridgestone	Tires, Tubes	Bridgestone	?
CI-Hayashi	Carpeting	Hayashi	?
Denso Thailand	Alternators, Regulators	Denso	?
Enkei Thai	Aluminum Wheels	Enkei	
Siam GS Battery	Batteries	Nihon Denchi	?
Inoue Rubber	Industrial Rubber Parts	Inoue Corporation	?
Kallawis Autoparts	Wheels	Chuo Hatsujo	?
NHK Spring Thailand	Seats, Springs	Nihon Hatsujo	?
Nippon Paint Thailand	Paint	Nippon Paint	?
National Thai Co.	Car Radios	Matsushita	?
Ogihara Thailand	Pressed Parts	Ogihara	
Pioneer Electronics	Car Stereos	Pioneer	?
Sunstar Chemical	Pressed Parts	Sunstar Engineering	
Siam Aishin	Brake Drums	Aishin	?
Siam Furukawa	Batteries	Frukawa Denchi	?
Siam Kayaba	Shock Absorber	Kayaba	?
SNC Soundproof	Soundproofing	Nihon Tokusyu Tokyo	?
Thai Auto Works	Body Parts	Toyota Autobody	?
Thai Arrow Products	Wire Harness	Yazaki	?
TCH Suminoe	Upholstery	Suminoe Orimono	?
TG Pongpara	Steering Wheels	Toyoda Gosei	?
Thai Kointo	Head Lamps	Koito	?
Thai Kansai Paint	Paint	Kansai Paint	?
Thai Parkerizing	Metal Coating	Nihon Parkerizing	
Thai Seat Belt	Seat Belts	Tokai Rika Denki	?
Thai Steel Cable	Control Cables	Nihon Cable System	?
Thai Stanley Electric	Signal Lamps	Stanley	?
Thai Safety Glass	Windshield, Windows	Asahi	?
Toa Shinto	Paint	Shinto Toryo	?
Yuasa Battery	Batteries	Yuasa	?

Source: citation from Hatch (2004: 164)

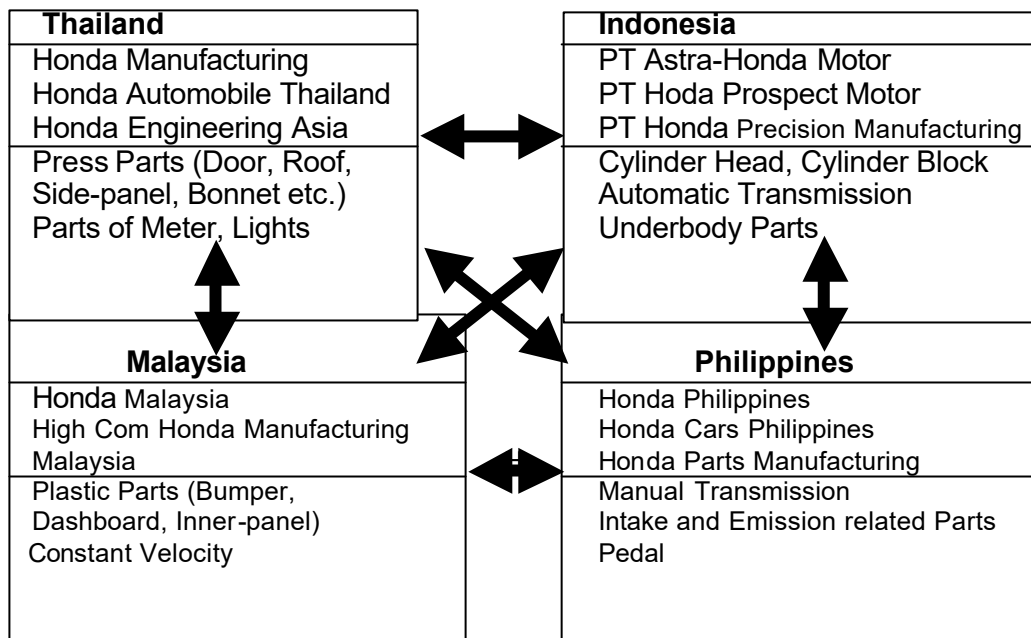
In this manner, Japanese automotive networks in East Asia have not regionally extended unlike electronics ones. Nevertheless, this does not mean that the former has never regional extensity. As far as the intra-ASEAN4 is concerned, a degree of regional division of labour has been established.

Figure 19: Complimentary Systems of Japanese Automobile Firms in ASEAN4

(1) Toyota



(2) Honda



Source: Author's construction based on Information of the Homepages.

As shown by Figure 19, large Japanese auto makers locate their assembly plants in each ASEAN4 countries and at the same time are managed in different parts and component production in different locations. For example, Toyota produces diesel engines, steering columns, and body panels in Thailand, gasoline engines, door locks, door frames, and clutches in Indonesia, steering links, engine computers, and wiper arms in Malaysia, and transmissions, constant velocities, and combination switches in the Philippines. The Toyota's subsidiaries in ASEAN4 exchange their own parts and components with each other, combine them with those procured from their *keiretsu*-like cluster in each location and Japan, and assemble vehicles. ASEAN, after the failure of various national car projects, has promoted the regional industrial complementation through the Brand-to-Brand Complementation (BBC) scheme and the ASEAN Industrial Cooperation (AICO)<sup>15</sup>. This is a product of the strategy of Japanese firms to seek for scale economy and such ASEAN-wide industrial policies [*Hatch 2004: 151; Mori 2004; Shimokawa 2004*].

### 3.3. Closeness of the Regional and Local Networks

Though there are sector specific features, Japanese production networks in East Asia as a whole become locally embedded, moving to establish a regional supply base. However, a creation of locally embedded clusters and the region-wide spread of value chains do not mean that Japanese MNCs have established decentralized and open systems in the region. The governance structure of the Japanese networks is still characteristically centralized and closed; the parent firms exert exclusive power over their subsidiaries without permitting autonomy of the latter [*Ernst 2000; Ernst and Ravenhill 2000; Hatch 2004: 170*].

Table 11: Percentages of Intra-firm Transactions of Japanese MNCs in East Asia in 1998

	Sales (percent)				Procurement (percent)			
	To Local	To Japan	To Others	To Intra-Asia	From Local	From Japan	From Others	From Intra-Asia
Manufacturing	16.1	95.7	60.2	58.9	17.3	83.2	58.7	58.5
Textile	11.2	83.4	52.4	52.2	22.1	85.1	52.3	54.8
General Machinery	10.8	98.5	87.4	84.4	3.9	93.5	80.5	89.7
Electrical Machinery	20.5	96.3	64.0	66.4	8.6	80.8	57.9	58.8
Transport Equipment	11.5	96.9	84.8	56.7	13.4	86.7	79.3	66.2
Precision Instrument	58.3	98.4	20.8	19.1	39.1	95.5	33.8	28.3

Source: METI/METI, *Dai-29 kai Wagakuni Kigyono Kaigai Jigyo Katsudo*, 2001.

Indeed, most of their exports and procurements are largely completed between the parents and subsidiaries or within their subsidiaries. Particularly, more than 80 percent of transactions between Japan and the host economies in both sales and procurement were attributable to intra-firm trades. Also in export sales and procurements from other countries

<sup>15</sup> About details of BBC and AICO, refer to Shimokawa (2004).

and intra-Asia, intra-firm transactions accounted for more than half to nearly 90 percent of all machinery sectors except for precision instrument and textile (Table 11).

More importantly, their *local activities* are still featured by *non-locality*. Through the 1990s, their local content ratio shows a downward trend owing to increasing intra-regional procurement, but even so, it remains more or less than 40 percent of total procurements. However, procurements from '*purely local*' firms remain insignificant; a large part of the '*local*' inputs are purchased from Japanese suppliers in the host economies. The '*local*' content is mostly supplied by the off-shore plants of domestic *keiretsu* suppliers [Hatch, 2001; MITI/METI, 2001; Wong, 2000].

Certainly, more recently, the tight *keiretsu*-type linkages are losing. Once the suppliers produce relatively complex and high value-added components in East Asia, they are less inclined to adhere to their traditional clients. In order to amortize their substantial sunk costs as quickly as possible and to utilize economies of scale, they are now actively searching for new clients, so that they frequently supply both a number of non-*keiretsu* firms as well as *keiretsu* members. This is also illuminated by the low ratios of intra-firm transactions in local sales and procurement (Table 11). But *keiretsu*-like networks are not confined to intra-firm transactions of the affiliates belonging to the same company group, but those of other Japanese firms with non-equity relation should be considered. Including the latter, external transactions and local procurement of Japanese affiliates are almost completed within supply-driven intra-firm or inter-firm networks consisting of Japanese firms [Ernst 2000; Hatch & Yamamura 1996; Wong 2000; Linden 2000].



Table 12: Percentages of Japanese Subsidiaries Which Procures More Than 51 Percent of Local Procurement from Local Firms or Japanese Firms

		Manufacturing				Electrical Machinery				Electronics Parts				Automotive (Vehicle)				Automotive Parts			
		Local		Japanese		Local		Japanese		Local		Japanese		Local		Japanese		Local		Japanese	
		N	share	N	share	N	share	N	share	N	share	N	share	N	share	N	share	N	share	N	share
<b>ASEAN4</b>	Effective Respondent	765	<b>40.9</b>	766	<b>44.3</b>	55	<b>27.3</b>	55	<b>52.7</b>	137	<b>23.4</b>	137	<b>63.5</b>	12	<b>16.7</b>	12	<b>75.0</b>	92	<b>33.7</b>	93	<b>52.7</b>
		313		339		15		29		32		87		2		9		31		49	
Thailand	Effective Respondent	279	39.1	280	49.6	23	30.4	23	65.2	35	22.9	35	60.0	6	0.0	6	100.0	49	28.6	50	56.0
		109		139		7		15		8		21		0		6		14		28	
Malaysia	Effective Respondent	223	45.3	223	38.1	17	17.6	17	47.1	60	31.7	60	56.7	1	100.0	1	0.0	8	62.5	8	25.0
		101		85		3		8		19		34		1		0		5		2	
Indonesia	Effective Respondent	157	42.0	157	40.2	5	20.0	5	60.0	20	5.0	20	70.0	2	0.0	2	50.0	21	47.6	21	47.6
		66		43		1		3		1		14		0		1		10		10	
Philippines	Effective Respondent	106	34.9	106	45.9	10	40.0	10	30.0	22	18.2	22	81.8	3	33.3	3	66.7	14	14.3	14	64.3
		37		72		4		3		4		18		1		2		2		9	
<b>China</b>	Effective Respondent	545	<b>54.9</b>	543	<b>26.2</b>	64	<b>45.3</b>	64	<b>29.7</b>	93	<b>26.9</b>	92	<b>46.7</b>	7	<b>85.1</b>	7	0.0	34	<b>58.8</b>	34	<b>26.5</b>
		299		142		29		19		25		43		6		0		20		9	
Singapore	Effective Respondent	107	35.5	107	40.2	10	10.0	10	50.0	27	29.6	27	55.6	0	0.0	0	0.0	3	33.3	3	0.0
		38		43		1		5		8		15		0		0		1		0	
Korea	Effective Respondent	35	91.4	35	2.9	2	100.0	2	0.0	4	75.0	4	0.0	0	0.0	0	0.0	5	100.0	5	0.0
		32		1		2		0		3		0		0		0		5		0	
Taiwan	Effective Respondent	115	87.0	116	10.3	5	100.0	5	0.0	25	68.0	25	28.0	4	75.0	4	25.0	19	89.5	19	5.3
		100		12		5		0		17		7		3		1		17		1	

Note: Upper stand of each item is the number of total respondents.

Source: JETRO (2002).

In 1994, Japanese electronics affiliates located in NIEs procured only 25 percent of their inputs from truly locally owned suppliers, while the procurement ratio from Japanese affiliates accounted for 66 percent. In the case of their ASEAN4 based affiliates, the ratios were respectively 18 percent and 78 percent<sup>16</sup> [*Hatch and Yamamura 1996*]. Even now, this situation is pre-eminent in ASEAN4. According to the JETRO's questionnaire survey (2002), 52.7 percent of electrical machinery and 63.5 percent of electronics parts affiliates locating in ASEAN4 purchased more than 51 percent of their local contents from Japanese firms, with the percentage 75 percent in automotive assemblers and about 55 percent in automotive parts suppliers (Table 12)<sup>17</sup>. The affiliates, whose parent firms belong to vertical *keiretsu* in Japan, contribute considerably to local content ratio of Japanese MNCs. These facts suggest that Japanese production networks, in spite of their increasing region-wide and local procurements, still remain so much exclusive to outsiders and that they are still organized in the form of regionalizing of their domestic *keiretsu* system [*Belderbos, Capannelli and Fukao 2001; Hatch and Yamamura 1996; Hatch 2003; 2004*].

In ordinary circumstances, such close supplier linkages as *keiretsu* tend to stimulate technological upgrading in the supply base. However, these spillover effects are confined to within the linkages. Japanese MNCs heavily rely on Japanese rather than indigenous or native suppliers, but have not tried to maintain long-term relationships with locally owned suppliers. Therefore, their agglomeration does much to create jobs and to train workers in the host economies, but has fostered little technological linkages between Japanese firms and local suppliers. The net effect is to impede the otherwise rapid diffusion of technical know-how from Japan to the East Asia economies [*Hatch, 2001: 10-22; Hatch and Yamamura, 1996: 178; Lester and Sturgeon, 2002: 57; Nabeshima 2004: 401-402*].

Additionally, whereas Japanese affiliates in East Asia have increased their reliance on regional and local procurement sources, this has not prevented a further rapid growth of component imports from Japan. The increase of the intra-regional procurement has not pushed down the amount of procurement from the home economy. In fact, the amount increased from 1,508 billion in 1990 to 5,445 billion yen

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<sup>16</sup> For instance, Sony Malaysia locally procured 50 percent of inputs, just 20 percent of which came from locally owned firms, while the local content ratio of Cannon High-Tech Thailand met was 64 percent, more than 90 percent of which were procured from Japanese firms. Even in Toyota Thailand with the pride of higher local content, nearly 70 percent of locally procured inputs were attributable to its Japanese suppliers [*Hatch and Yamamura 1996; Author's interview*].

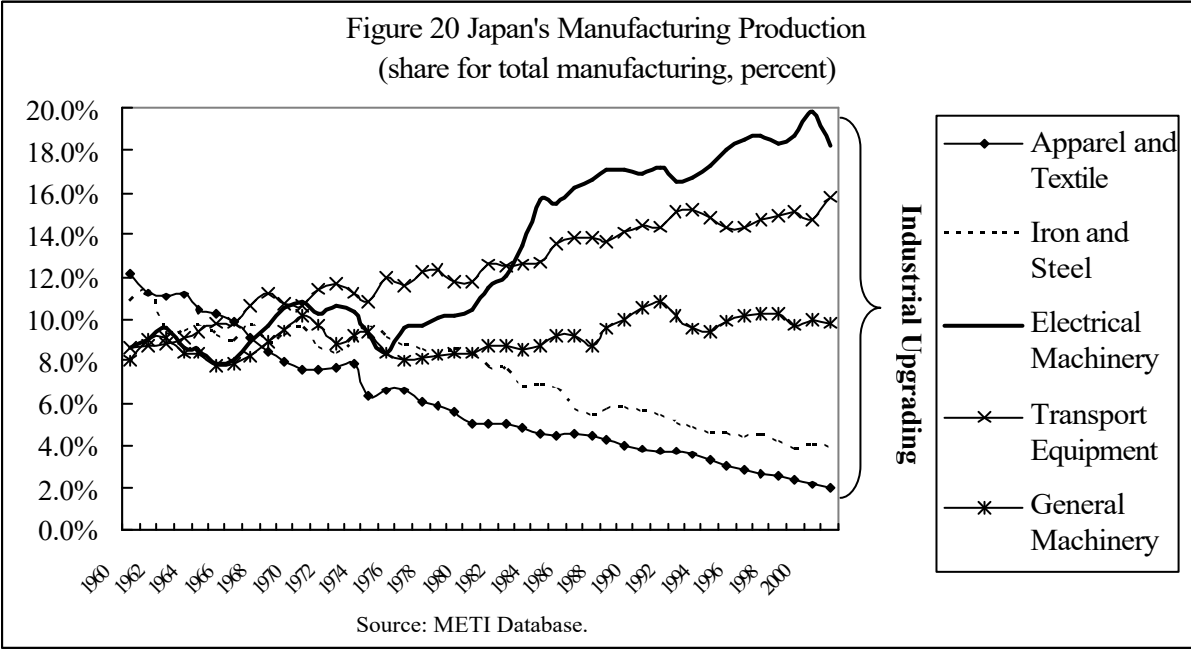
<sup>17</sup> According to the questionnaire survey on Japanese small and medium machine parts suppliers (140 firms) in ASEAN4 by Japan Finance Corporation for Small and Medium Enterprise, 60 percent of total sales were sold in local markets, while 90 percent of local sales were shipped to Japanese firms locating there. On the other hand, the sample firms procured 54 percent of their inputs in the host countries, about 60 percent of which were purchased from Japanese firm [*JASME 2001: 26-27*].

in 2000. The main reason is that core technological inputs are exclusively sourced from Japan. And the more components are sourced within the region, the more capital equipment has to be imported from Japan to produce those components. Thus, growth of one industry does not generate its linkage effects within the national economy, but most of them could leak out into Japan, strengthening the stratified ties with Japanese suppliers.

#### 4. Changing Conditions and Reconfiguration of Production Networks

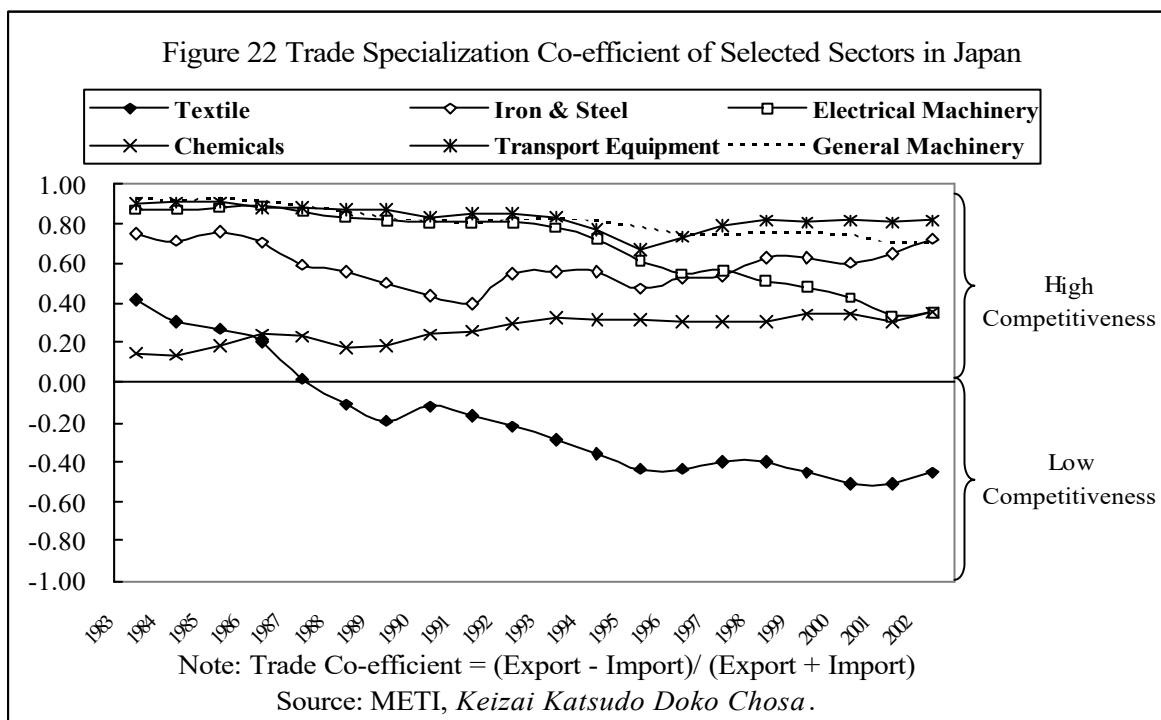
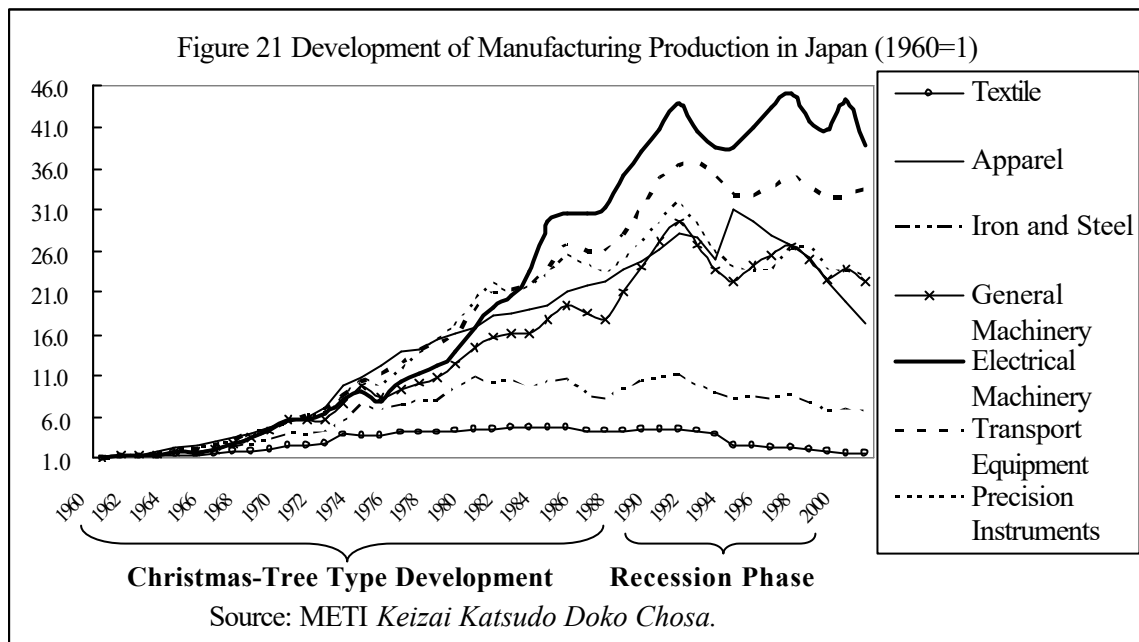
##### 4.1. Full-Set Type Industrial Structure and Deepening Deflation

As a result of the above-mentioned development, the Japanese economy had thus far maintained a self-contained full-set type industrial structure. First, focusing on the supply side, the manufacturing sector has experienced steady industrial upgrading. The share of apparel and textile for total manufacturing output decreased from 12.2 percent in 1960 to only 2.0 percent in 2001, while the high-tech sectors, electrical machinery and transport equipment increased the shares respectively from 8.6 and 8.7 percent to 18.2 and 15.8 percent during the same period (Figure 20).



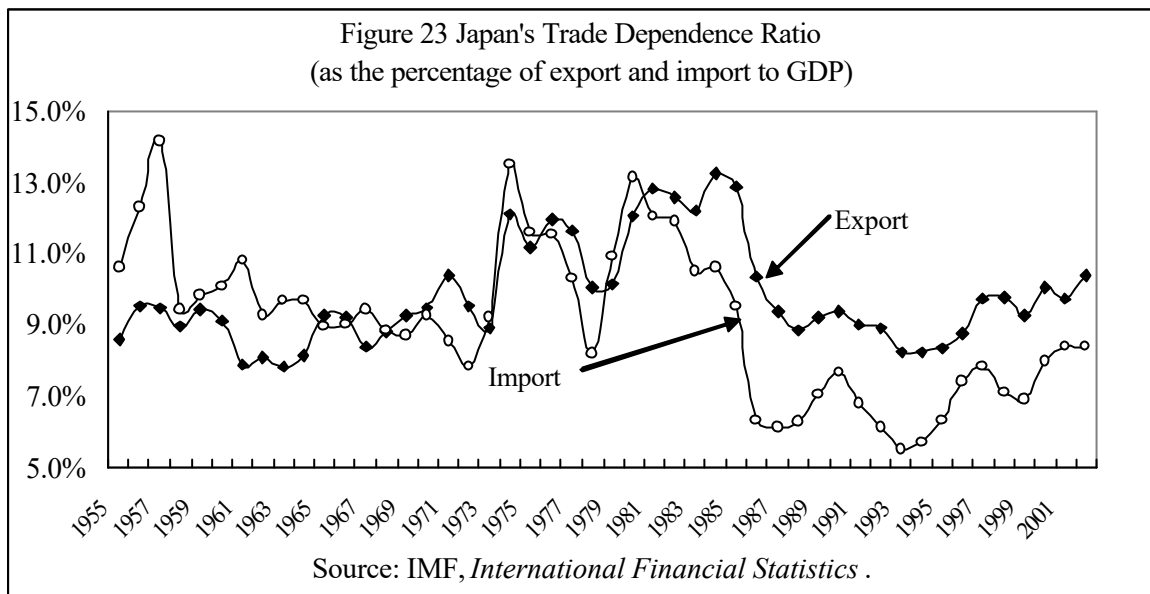
However, the process is not step by step upgrading but rather characterized as a 'Christmas-tree type' development, where most of sectors grow simultaneously (see Figure 21). In fact, production of most manufacturing sectors, except for textile and iron and steel, continued to expand by the early 1990s, just before the Japanese economy fell into the long-standing recession phase. Based on such overall

production growth, Japan has kept high export competitiveness of all of sectors except for textile (including apparel) sector (Figure 22).



On the demand side, though its growth path is regarded as export-led, its trade dependence ratio remains at low level; especially the export dependence ratio has been more or less than 10 percent (at highest 13.2 percent in 1984) (Figure 23). Most of sectors are largely dependent on the domestic market; the sectors with more than 30 percent of export ratio are just three sector, electrical machinery, transport equipment and general machinery. Particularly, the image of the export-led growth of

the Japanese economy derived from developmental pattern of electrical machinery sector<sup>18</sup> [data from MITI].

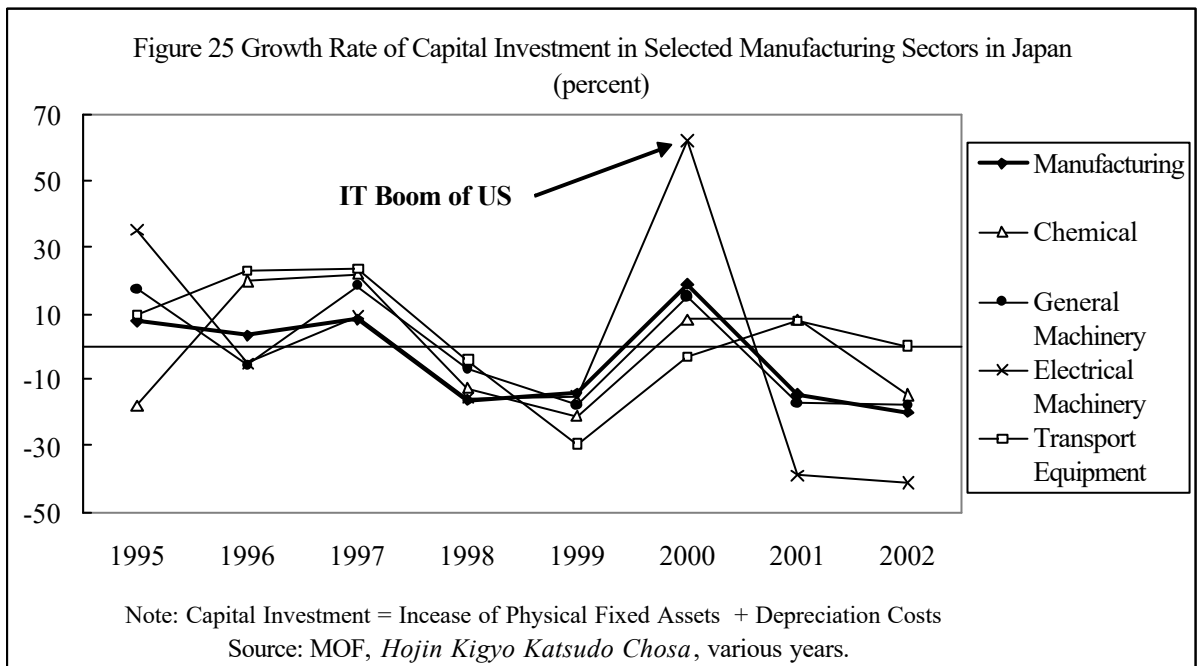
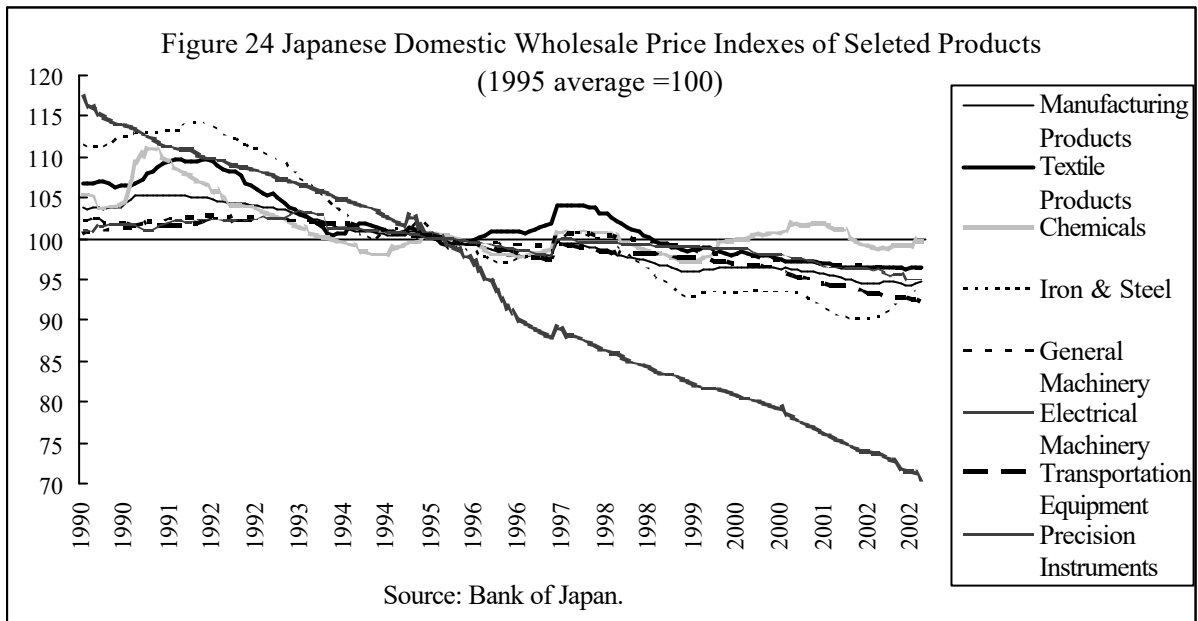


At least until the late 1990s, the expansion of overseas production had not undermined the full-set type industrial structure, but rather made it sustainable and strengthened it. Japanese MMCs have relocated production of low- and middle-end product segments (especially in electronics) and organized the host economies into their own market through local production (especially in automobile), while they have upgraded their products and functions of the domestic operations. At the same time, relocation of production plants into East Asia have encouraged exports of technologically sophisticated parts and components as well as capital equipments, which have enabled them to concentrate their domestic activities on high value-added segments of value chains. Overseas production and the full-set type industrial structure have been two sides of the same coin of high competitiveness of Japanese manufacturers.

However, recently, this situation is changing owing to internal and external conditions. The most significant factor is the deflationary recession of the Japanese economy as a whole. In the deflationary economy, Japanese consumers show high propensity for lower price consumer goods, and therefore manufacturing firms, especially of products for general purpose, have to manage cost-reduction. Whole sale prices of manufacturing products gradually declined. Among them, whole sale index (with the average price in 1995 the basis) of electronics goods sharply falls from 117 as of January 1990 to 70.7 as of November 2002 (Figure 24). These depreciations of manufacturing goods, combined with high labour share, squeeze their profits, which in turn makes it difficult to expand their capital investment, though the demand spilt over from the IT boom in the US increased growth rate of capital investment in 2000

<sup>18</sup> In fact the export ratio of electrical machinery sector showed an exceptional high ratio of more than 50 percent between 1992 and 1995 [data from MITI].

(Figure 25). The stagnation of capital investment is eroding the international competitiveness of Japanese manufacturers.



This is particularly serious in electronics sector. Take semiconductor and liquid crystal devices for instance. As a result of systematic development of equipment, manufacturing of these high-tech devices is no longer technology or knowledge intensive, but turns out to be capital intensive, meaning that massive capital investment is the most critical competitiveness source. Indeed, Korean, Taiwanese and revived US manufacturers concentrate their activities on specific products, such as DRAM (dynamic random access memory) and increase their shares of the markets through extensive capital investments. By contrast, most of large Japanese

electronics firms have a full-set of product lines ranging from consumer electronics, electronics devices and their equipment in house, which in turn constrains their investment capacity. In the intensified competitive environment, they sharply decrease their market share. In addition, recently in the sector, contract manufacturers, so-called EMS (electronics manufacturing services) firms such as Solectron, Flextronics, Nat Steel and so on rapidly grow, intensifying international competition and threatening the position of Japanese firms<sup>19</sup>. Against the declining international competitiveness and/or intensified competition, main Japanese manufacturers accelerate restructuring of the existing business<sup>20</sup>.

Then, would the dynamics around the Japanese economy reorganize the existing structure of the East Asian networks established by Japanese MNCs?

More specifically, the following questions should be asked; first, whether their production networks would turn out to be a factor to cause hollowing-out of the Japanese industrial bases or not; second, whether changing economic geography could be accompanied with any reconfiguration of overseas production sites or not; and third, whether the intensified competition pressures could increase the chance to open Japanese closed local clusters, or not.

## **4.2 Is Overseas Production Undermining the Domestic Industrial Bases?**

### **4.2.1 Accelerating Overseas Production and Import Penetration**

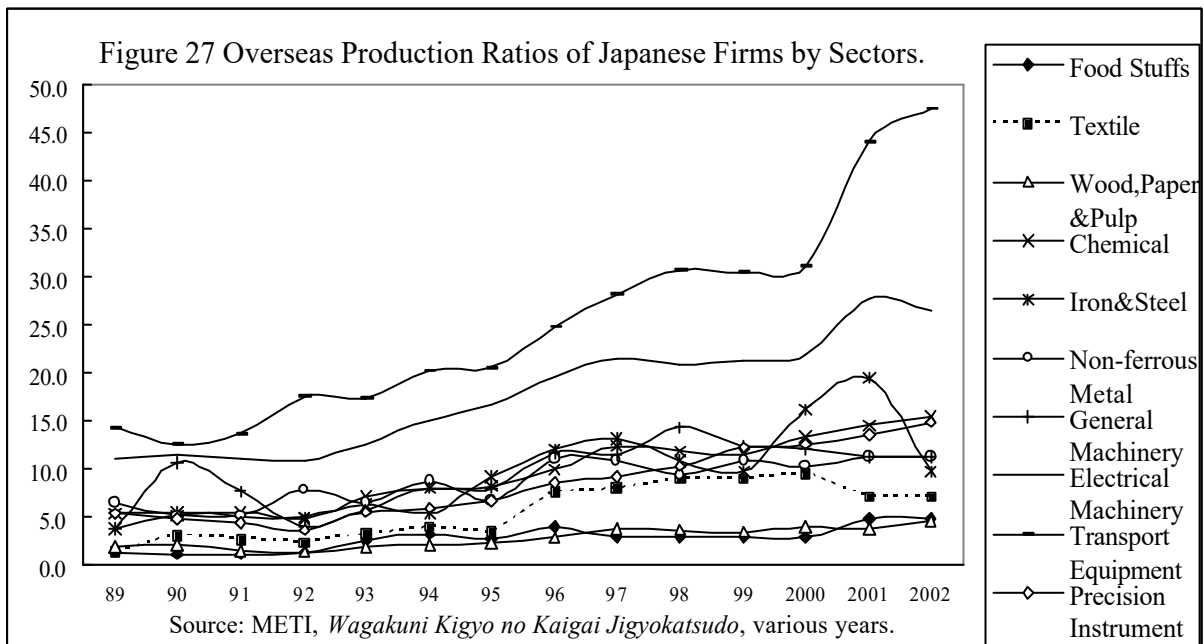
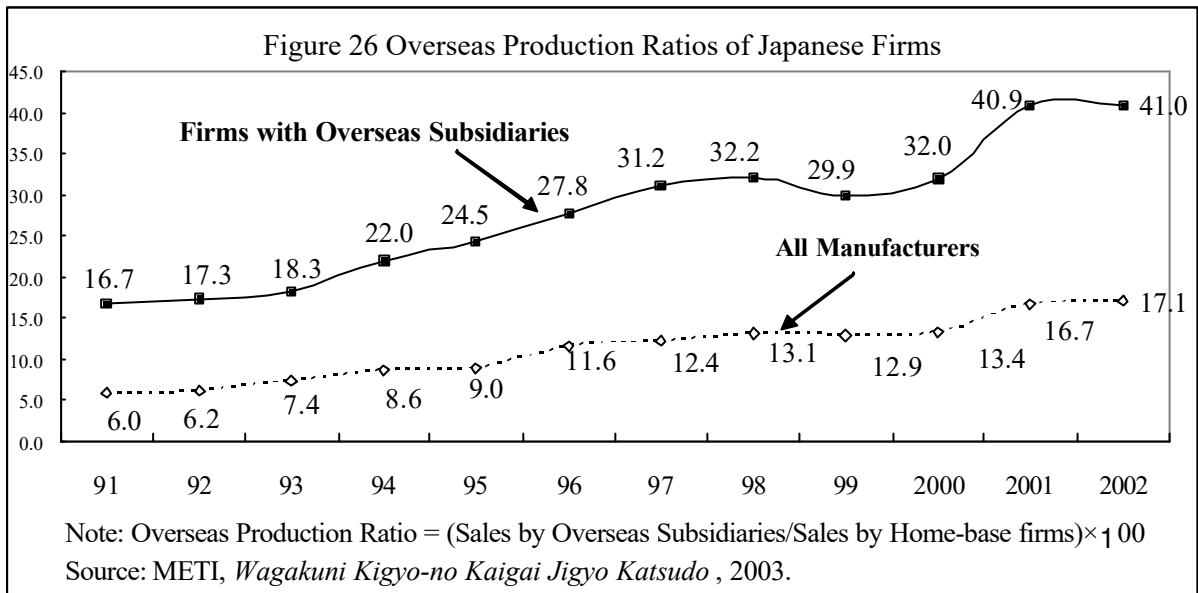
Indeed, Japanese MNCs are rapidly expanding their overseas operations. Certainly, overseas production ratio of Japanese manufacturers remains 17.1 percent even in 2002. However, focusing on firms with overseas subsidiaries, it jumped up to 41.0 percent (Figure 26). The rising overseas production ratio is driven by specific sectors; while most of sectors are still at lower level ranging from 5 to 15 percent, the ratios of transport equipment and electrical machinery sectors reached respectively more than

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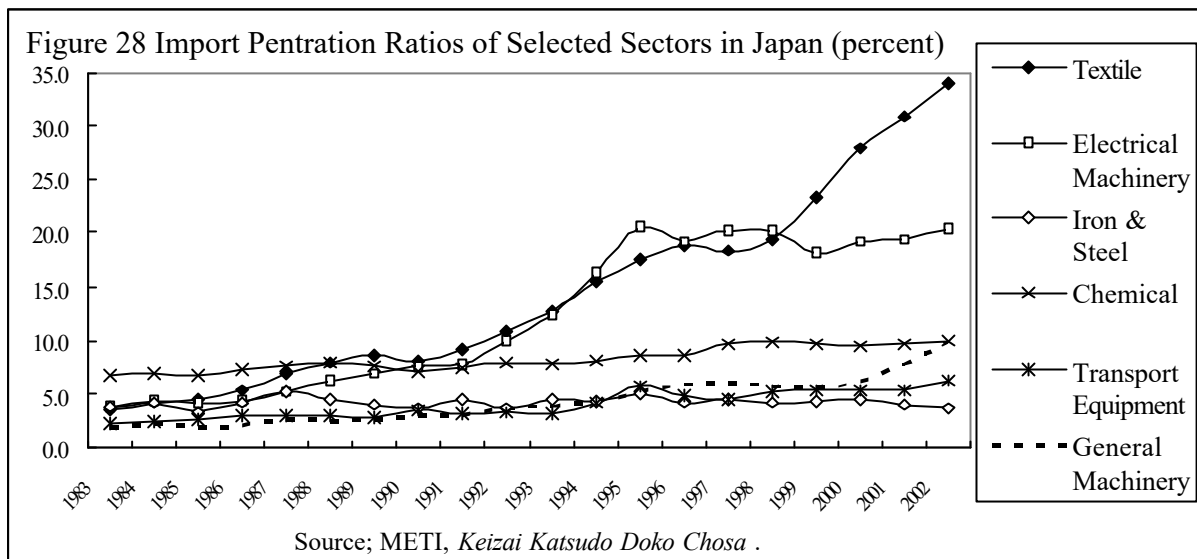
<sup>19</sup> More recently, global PC makers, Dell, Gateway, and Hewlett Packard, entered into consumer electronics markets, also threatening Japanese electronics firms which have kept the dominant share in the world markets in this sector.

<sup>20</sup> For example, in semiconductor sector, Matsushita, Fujitsu and Toshiba exited from DRAM production and converted into outsourcing from Korean and Taiwanese firms, while Hitachi and NEC integrated their DRAM business and established a joint venture company, ELPIDA Memory in 1999. And most of big firms reinforce system LSI (large scale integration) business, while Hitachi and Matsushita set up Renaissance Technology and Fujitsu and Toshiba made broad-based alliance in the business. The similar development can be found in LCD (liquid crystal display) business. The restructuring does not confined to electronics sectors, extending into others such as chemical product, iron & steel, cement [METI, MHLW and MECSSST 2004].

45 percent and more than 25 percent, (Figure 27). Manufacturing sectors other than the two still maintain production structure firmly based on their domestic operations.



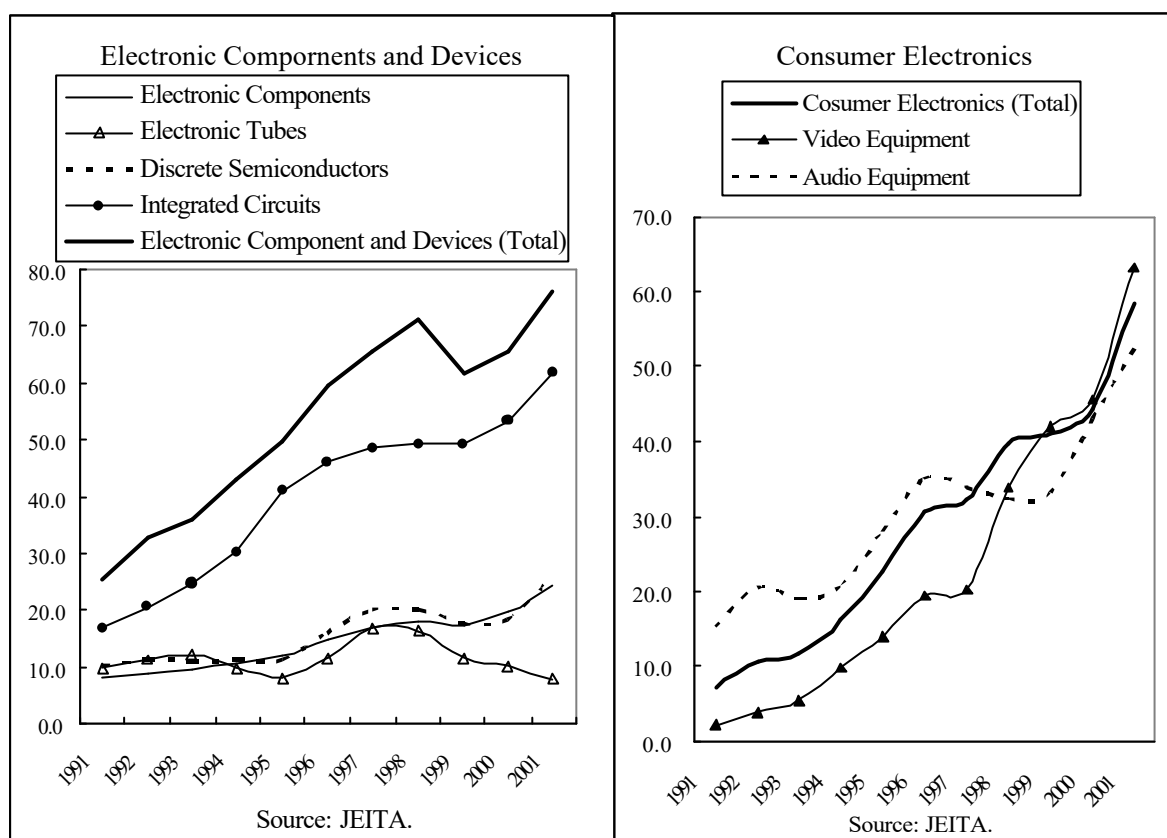




On the other hand, the impacts of expanding overseas production on the domestic industrial bases should be distinguished between electrical machinery and transport equipment sector. In fact, the import penetration ratio (as the percentage of import for domestic demand) of the latter remains just 10 percent even in 2002, and 90 percent of the domestic demand are met by the domestic production. This means that the basic structure of the automotive networks described in the former section has not changed; Japanese automotive MNCs utilize their overseas production sites to serve to local markets, not replacing their domestic production. By contrast, the ratio of electrical machinery sector has shot up since the early 1990s, reaching 20.5 percent in 2002 (Figure 28). Above all, those of electronic components and devices and consumer electronics are extremely high; as of 2001, that of the former is 75.8 percent and that of the latter is 58.4 percent<sup>21</sup> (Figure 29).

<sup>21</sup> By contrast, the ratio of industrial electronics including personal computers and mobile phones remains 24.1 percent in 2001. And the share for total electronics production is 49.9 percent in that year. This is because the heavy weight of industrial electronics pushes down the import penetration ratio of electronics sector as a whole [data from JEITA and METI Trade Database].

Figure 29: Import Penetration Ratios of Electronics Products in Japan (percent)



A large part of electronics imports come from East Asia. Take for instance consumer electronics products with high import ratios such as color televisions (CTV), video tape recorders (VTRs) and refrigerators. In terms of import volume, nearly 100 percent of those products are imported from the region in 2002. Specifically, 56 percent and 35 percent of imported CTVs are respectively from ASEAN4 and China, while the percentages of VTRs and refrigerators are 73 percent (ASEAN4) and 25 percent (China), and 48 percent (ASEAN4) and 37 percent (China) [data from METI Trade Database]. This suggests that the surging import penetration ratio is brought about by reverse imports from Japanese overseas affiliates. On the other hand, among electronic components and devices, the products with higher penetration ratio are integrated circuits (IC) (Figure 29). Also here Japanese MNCs play the important role. With regard to memories units such as DRAM, Japanese firms increase procurements from Korean and Taiwanese indigenous firms, which is reflected on the higher import shares of Korea and Taiwan in MOS(Metal Oxide Semiconductor)-type memory units (their joint share is 52.1 percent). But in MOS-type microcomputers, ASEAN4 (especially Malaysia and the Philippines) shows the higher share with 52.3 percent in 2002 [data from METI Trade Database]. Japanese electronics firms have relocated assembly and testing segments in those countries, keeping wafer fabrication segments at home. Reverse imports from those overseas plants accounts for most of IC imports from ASEAN4.

#### 4.2.2 Hollowing-out or Upgrading?

Then, is the expansion of overseas production and increasing import penetration ratio accelerating hollowing-out of the domestic industrial bases?

The answer is 'no' for the manufacturers with overseas subsidiaries. According to METI's questionnaire survey on the impacts of overseas production on domestic operation, 83.1 percent of 2,787 Asia-based manufacturing subsidiaries made a reply that there was no change and/or no plan for change in their domestic factories and employment (response 1, 2 and 3). Focusing on the most transformative sector, electrical machinery, the number of firms, which have already reduced production and employment (response 4) or closed factories (or plan to do so) at home (response 5), reached 140. Even so, 80.4 percent of respondents have kept or upgraded the existing domestic operations (Table 13).

Table 13: Relation between Overseas Production and Domestic Production Activities (Percent)

	Response 1		Response 2		Response 3		Response 4		Response 5		Total N
	N	share	N	share	N	share	N	share	N	share	
Manufacturing	1,515	54.4	574	20.6	227	8.1	326	11.7	145	5.2	2,787
Food Stuffs	105	82.7	16	12.6	5	3.9	1	0.8	-	-	127
Textile	63	28.6	51	23.2	18	8.2	50	22.7	38	17.3	220
Wood, Paper & Pulp	25	78.1	5	15.6	-	-	2	6.3	-	-	32
Chemical	264	73.7	52	14.5	12	3.4	26	7.3	4	1.1	358
Iron & Steel	49	69.0	13	18.3	4	5.6	4	5.6	1	1.4	71
Non-ferrous Metal	51	58.6	19	21.8	7	8.0	8	9.2	2	2.3	87
General Machinery	146	57.5	49	19.3	21	8.3	36	14.2	2	0.8	254
Electrical Machinery	298	41.1	199	27.4	86	11.9	86	11.9	56	7.7	725
Transport Equipment	252	68.3	49	13.3	36	9.8	27	7.3	5	1.4	369
Precision Instrument	16	18.8	34	40.0	11	12.9	21	24.7	3	3.5	85
Oil & Coal	7	77.8	-	-	-	-	-	-	2	22.2	9
Others	239	53.1	87	19.3	27	6.0	65	14.4	32	7.1	450

**Response 1:** There is no change and/or plan for change of production activity at home, because overseas production serves to demands of host and neighbouring economies.

**Response 2:** There is no change and plan for change of the previous factory and employment, because overseas production aims at shifting of the parent firm to high value-added activities.

**Response 3:** There is no change and/or plan for change of employees in parent firm, because of shift of domestic activity to non-manufacturing activities in spite of production reduction and incidence of excess work force at home.

**Response 4:** There is already any production reduction and/or cut in work force in parent firm and there is any plan to do so.

**Response 5:** Closing some of factories at home or planning to do so.

Source: METI (2003b)

Overseas production in East Asia, especially ASEAN4 and China, concentrates on labour-intensive assembly segments of value chains. Even if overseas plants can procure parts and components for general purpose such as connector, switches, power supply etc, they, in order to complete manufacturing process, still need high-tech and high-value added core parts components such as system LSI, optical parts for DVD, image pickup devices for digital camera (charge coupled device) etc., most of which are produced in Japan. In fact, exports of those core parts and component from Japan increase, which in turn gives incentive for upgrading domestic operations<sup>22</sup>. This means that one of the previous ingredients of production networks, the win-win situation between overseas and domestic operation, is still maintained.

#### 4.2.3 Different Impacts on Small and Medium Firms

It should be noted here that the strategy of upgrading domestic operation is possible just for the firms with capacity to develop overseas operations, especially large firms, not for most of small and medium enterprises (SME)<sup>23</sup>. The firm structure of the Japanese economy is characterized as a very broad base, which is one of the foundations of competitive manufacturing. In fact, 99.6 percent of total business establishments of Japanese manufacturing firms are small and medium sized, and micro business establishments with less than 10 employees account for 50.9 percent in 2001, whereas the percentages of firms with overseas subsidiaries are 28.5 percent in large firms and only 13.0 percent in manufacturing SME in 2002 [METI 2004a]. According to Bank of Japan, overseas production ratio of large firms is 19.0 percent in 2000, while that of SMEs is just 2.0 percent. Most of SMEs lack enough financial resources to establish overseas plants and personnel to dispatch. Thus, the above-mentioned shift to overseas production is exclusively attributable to large firms and some medium sized firms with capacity to do so.

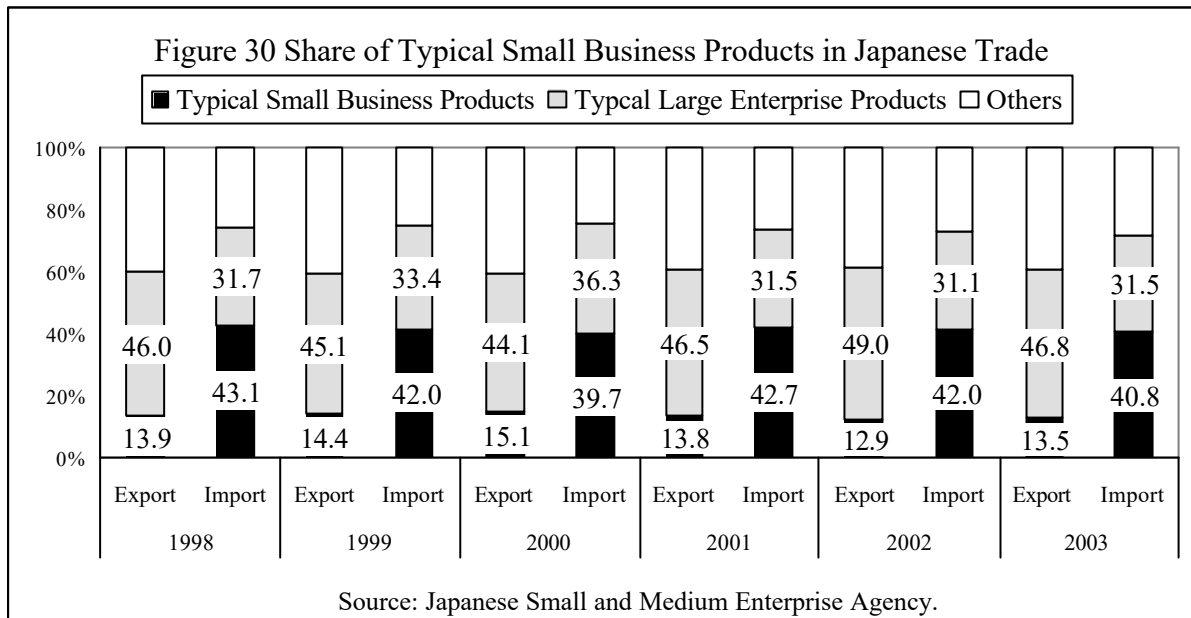
The increasing import penetration ratio directly damages SMEs which have to stay at home. Japanese Small and Medium Enterprise Agency defines '*typical small business products*' as products that account for at least 70 percent of the value of shipments of small and medium business establishments, and '*typical large enterprise products*' as products that account for at least 70 percent of the value of shipments of s large business establishments. Figure 30 shows the percentages of both products for total imports and exports. From the figure, we

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<sup>22</sup> Japanese MNCs increasingly tend to specialize on design and development of new products at home. Unlike PC and consumer electronics whose manufacturing processes are largely modularized, new products such as organic electroluminescence display, plasma display panel (PDP) are assembled with various parts and components which mutually affect one another. Therefore, assemblers could not rely on outsourcing of those parts but they have to make close collaboration and coordination with parts and equipment makers. Also in this case, they need domestic industrial bases [METI, MHLW and MECSST 2004]. In addition, more recently, there are some cases of returning the overseas (labour-intensive) production to the home-based factories. For example, Canon announced this kind of policy.

<sup>23</sup> According to the definition of Small and Medium Enterprise Basic Law, a SME in manufacturing sector is a firm with less than 300 employees and with 300 million yen or more capital. And a small and medium business establishment is defined as a firm with less than 300.

can find that the percentages of typical small business products are much higher in imports than in exports. This implies that the increase of exports with expansion of overseas production is confined to those from large firms, whereas the increase of manufactured good imports gives negative impacts on small business.



For example, the most serious is apparel sector, in which the weight of SMEs for total value added is more than 50 percent. The import penetration ratio reached 87.7 percent in 2001, while 87.3 percent of apparel imports come just from China. Indeed, apparel imports are not only organized by Japanese apparel and textile manufacturers, but also by Japanese trading companies and retailers in the form contract manufacturing. Even so, it is enough to illustrate how serious situation overseas development of Japanese firms brought about in SMEs. Thus, between 1996 and 2001, the number of business establishments decreased by 111,129, 99.4 percent of which belonged to SMEs, while manufacturing employees decreased by 1,795,889, 73.9 percent of which are attributable to them [METI 2004a]. Hollowing-out of the Japanese industry steadily proceeds in the SME sectors.

### 4.3. Shifting to China or Status Quo?

As well-known, the recent pre-eminent change of the economic geography in East Asia is the rise of China. In many electronics products, some industrial materials, and two wheel automobile, China has already outstripped ASEAN4 and in some products even Japan in terms of production share. As shown by the above analysis, the most important production site for Japanese MNCs has thus far been ASEAN4.

A next question is whether the same shift to China will occur in their East Asian production networks.

Table 14: Destinations with Promising Prospects for Business Operations within Three Years or so (multiple responses; the respondents are parent companies)

Rank	All Sector (N=490)			General Machinery (N=55)			Electrical Equipment and Electronics (N=98)			Automobiles (N=86)		
		N	Ratio		N	Ratio		N	Ratio		N	Ratio
<b>1</b>	<b>China</b>	<b>456</b>	<b>93.0</b>	<b>China</b>	<b>50</b>	<b>90.9</b>	<b>China</b>	<b>94</b>	<b>95.9</b>	<b>China</b>	<b>79</b>	<b>91.9</b>
<b>2</b>	<b>Thailand</b>	<b>143</b>	<b>29.0</b>	<b>Thailand</b>	<b>12</b>	<b>21.8</b>	<b>Thailand</b>	<b>25</b>	<b>25.5</b>	<b>Thailand</b>	<b>29</b>	<b>33.7</b>
<b>3</b>	U.S.	106	22.0	U.S.	11	20.0	U.S.	24	24.5	U.S.	19	22.1
<b>4</b>	<b>Vietnam</b>	<b>88</b>	<b>18.0</b>	<b>Vietnam</b>	<b>9</b>	<b>16.4</b>	<b>Vietnam</b>	<b>22</b>	<b>22.4</b>	<b>Indonesia</b>	<b>16</b>	<b>18.6</b>
<b>5</b>	India	70	14.0	India	9	16.4	Indonesia	14	14.3	India	14	16.3
<b>6</b>	Indonesia	63	13.0	Korea	6	10.9	India	9	9.2	Vietnam	7	8.1
<b>7</b>	Korea	44	9.0	Russia	6	10.9	Korea	8	8.2	Mexico	6	7
<b>8</b>	Taiwan	35	7.0	Taiwan	5	9.1	Russia	8	8.2	Brazil	4	4.7
<b>9</b>	Malaysia	31	6.0	Malaysia	5	9.1	Hong Kong	7	7.1	France	3	3.5
<b>10</b>	Russia	25	5.0	Indonesia	4	7.3	Malaysia	7	7.1	Czech	3	3.5

Source: JBIC (2004).

According to the JBIC's questionnaire survey on Japanese parent companies with at least three overseas affiliates, more than 90 percent of respondents pointed China as the most promising production site in medium term (Table 14).

The main reasons were predictably '*inexpensive labour force*' and '*potential for growth as a market*'; the ratios of respondent were 74.9 percent and 82.3 percent respectively (Table 15). This result suggests that the weight of Japanese MNCs might shift to China in near future.

Nevertheless, at the moment, many Japanese MNCs are not thinking about downsizing their ASEAN4 operations, but rather expanding them. In fact, according to the JBIC survey, 42.7 percent of 954 ASEAN4-based affiliates have some prospects for expanding their operations, while 53.4 percent of them are to hold the status quo. ASEAN4 could still provide inexpensive labor force as well as markets. Among them, Thailand is the second most promising sites, and about 60 percent of the 331 subsidiaries are thinking about expanding their activities. In the country, suppliers for assemblers do not only agglomerate, but also political and social conditions are stable, which also enhance attractiveness for Japanese manufactures (see Table 15 and Figure 31).

Table 15 Main Reasons of Promising Prospects (all sectors, multiple responses; the respondents are parent companies)

		China		Thailand		Indonesia		Korea		Taiwan		Malaysia		Vietnam	
		N=447		N=141		N=62		N=42		N=33		N=30		N=85	
Production	Excellent human resources	108	24.2%	26	18.4%	3	4.8%	9	21.4%	6	18.2%	5	16.7%	30	35.3%
	Inexpensive labor force	<b>335</b>	<b>74.9%</b>	<b>81</b>	<b>57.4%</b>	<b>42</b>	<b>67.7%</b>	3	7.1%	1	3.0%	<b>12</b>	<b>40.0%</b>	<b>63</b>	<b>74.1%</b>
	Low-cost parts and raw materials	153	34.2%	16	11.3%	8	12.9%	3	7.1%	2	6.1%	4	13.3%	11	12.9%
	Supply base for final assembly manufacturers	128	28.6%	48	<b>34.0%</b>	17	27.4%	2	4.8%	5	15.2%	7	<b>23.3%</b>	12	14.1%
	Industrial concentration (concentration of sources, buyers and partners).	64	14.3%	30	21.3%	7	11.3%	8	19.0%	8	24.2%	1	3.3%	2	2.4%
	For risk diversification	20	4.5%	18	12.8%	5	8.1%	3	7.1%	2	6.1%	7	23.3%	27	31.8%
	Base for exports to Japan	100	22.4%	28	19.9%	9	14.5%	1	2.4%	1	3.0%	7	23.3%	21	24.7%
	Base for exports to third countries	98	21.9%	42	29.8%	17	27.4%	4	9.5%	6	18.2%	4	13.3%	18	21.2%
	Present local market size	88	19.7%	24	17.0%	11	17.7%	<b>17</b>	<b>40.5%</b>	<b>19</b>	<b>57.6%</b>	2	6.7%	5	5.9%
Sales	Potential for growth as a market	<b>368</b>	<b>82.3%</b>	<b>72</b>	<b>51.1%</b>	<b>35</b>	<b>56.5%</b>	<b>28</b>	<b>66.7%</b>	<b>10</b>	<b>30.3%</b>	<b>9</b>	<b>30.0%</b>	<b>35</b>	<b>41.2%</b>
	Product development tailored to the local needs	35	7.8%	9	6.4%	2	3.2%	4	9.5%	2	6.1%	2	6.7%	1	1.2%
	Local infrastructure (electric power, communications, transport etc.)	42	9.4%	33	23.4%	4	6.5%	15	35.7%	6	18.2%	8	26.7%	4	4.7%
Infrastructure & Systems	Tax incentives for investment	78	17.4%	35	24.8%	4	6.5%	2	4.8%	2	6.1%	7	23.3%	12	14.1%
	Policies to attract foreign capital are stable	20	4.5%	21	14.9%	2	3.2%	3	7.1%	1	3.0%	7	23.3%	6	7.1%
	Progress towards regional integration (reduction of tariffs)	6	1.3%	13	9.2%	6	9.7%	0	0.0%	0	0.0%	2	6.7%	2	2.4%
	Stable political and social conditions	18	4.0%	<b>48</b>	<b>34.0%</b>	0	0.0%	5	11.9%	6	18.2%	<b>10</b>	<b>33.3%</b>	17	20.0%

Source: JBIC (2004).

In addition, although Japanese manufacturing FDI flows in China outstripped those in ASEAN4 in 2002, capital investments by overseas affiliates are persistently more in ASEAN4 than in China (Figure 32). This means that in China new plants are set up through FDIs and in ASEAN4 the existing production capacities are renewed or expanded by using retained earnings or bank loans. The wage levels of ASEAN countries remain at low level; that of factory labour is as low as, or even lower in Indonesia than in Southern China. Japanese MNCs have a long history of operation in Thailand and Malaysia. Given these facts, it is difficult to think that Japanese Manufacturers immediately shift their production sites in ASEAN4 to China.

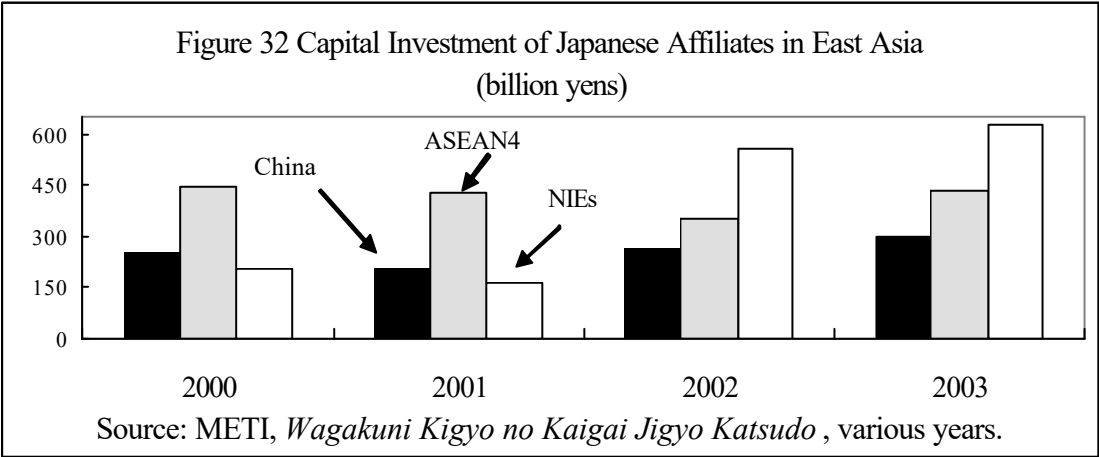
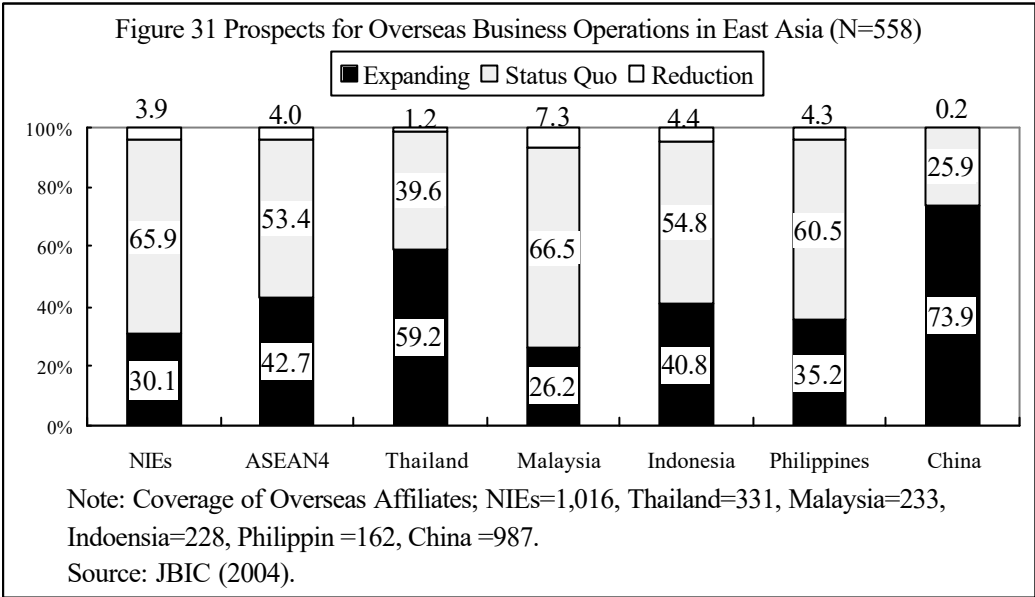




Table 16: Main Issues of Promising Destinations (multiple responses; the respondents are parent companies)

		China		Thailand		Indonesia		Korea		Taiwan		Malaysia		Vietnam	
		N=427		N=106		N=52		N=31		N=24		N=21		N=71	
Laws & taxation systems	Local legal system is under-developed	128	30.0%	4	3.8%	8	15.4%	0	0.0%	2	8.3%	0	0.0%	26	36.8%
	Opaque operation of the local legal system (frequent changes etc.)	<b>280</b>	<b>65.6%</b>	10	9.4%	13	25.0%	1	3.2%	0	0.0%	0	0.0%	28	39.4%
	Complexity of local tax collection systems	103	24.1%	9	8.5%	5	9.6%	0	0.0%	0	0.0%	0	0.0%	4	5.6%
	Opaque operation of local taxation systems (frequent changes etc)	<b>175</b>	<b>41.0%</b>	10	9.4%	5	9.6%	2	6.5%	1	4.2%	0	0.0%	12	16.9%
	Strengthened local taxation (income taxation, transfer price taxation)	67	15.7%	15	14.2%	4	7.7%	2	6.5%	1	4.2%	4	19.0%	5	7.0%
Administration, overall	Restrictions on foreign capital (restrictions on controlling shares and business types, frequent changes etc.)	<b>141</b>	<b>33.0%</b>	12	11.3%	1	1.9%	3	9.7%	0	0.0%	5	23.8%	19	26.8%
	Complexity and opacity of local investment permit procedures	115	26.9%	8	7.5%	4	7.7%	1	3.2%	0	0.0%	0	0.0%	18	25.4%
	Difficulty of obtaining local working visas	15	3.5%	5	4.7%	4	7.7%	0	0.0%	0	0.0%	1	4.8%	1	1.4%
	Insufficient local protection of intellectual property rights	<b>197</b>	<b>46.1%</b>	11	10.4%	10	19.2%	5	16.1%	5	20.8%	0	0.0%	14	19.7%
	Local restrictions on currency exchange and remittance	<b>175</b>	<b>41.0%</b>	4	3.8%	1	1.9%	4	12.9%	3	12.5%	4	19.0%	10	14.1%
	Local import restrictions (components, raw materials etc.)	70	16.4%	5	4.7%	3	5.8%	1	3.2%	0	0.0%	0	0.0%	11	15.5%
	Local anti-dumping measures (abuse of safeguards etc.).	19	4.4%	1	0.9%	1	1.9%	2	6.5%	0	0.0%	0	0.0%	1	1.4%
	Difficulty in securing local personnel (management level)	111	26.0%	39	36.8%	12	23.1%	3	9.7%	3	12.5%	2	9.5%	25	35.2%
Labor Problem	Increase in local labor costs	85	19.9%	31	29.2%	10	19.2%	11	35.5%	6	25.0%	5	23.8%	3	4.2%
	Local labor difficulties (labor and management relationship, etc.)	60	14.1%	12	11.3%	20	38.5%	8	25.8%	2	8.3%	3	14.3%	8	11.3%
	Intense local competition with other firms	159	37.2%	47	44.3%	14	26.9%	22	71.0%	14	58.3%	10	47.6%	6	8.5%
General problems	Local demands for technology transfer and performance	34	8.0%	6	5.7%	3	5.8%	2	6.5%	0	0.0%	1	4.8%	4	5.6%
	Difficulty in collecting receivables	<b>176</b>	<b>41.2%</b>	2	1.9%	1	1.9%	2	6.5%	0	0.0%	0	0.0%	7	9.9%
	Difficulty in local procurement of funds	38	8.9%	3	2.8%	3	5.8%	0	0.0%	0	0.0%	2	9.5%	8	11.3%
	Lack of local development of peripheral industries (procurement of raw materials and components etc. is difficult)	54	12.6%	5	4.7%	11	21.2%	0	0.0%	0	0.0%	2	9.5%	20	28.2%
	Local currency and price instability	17	4.0%	6	5.7%	17	32.7%	2	6.5%	0	0.0%	1	4.8%	5	7.0%
	Local infrastructure (electric power, communications, transport etc.) is under-developed	67	15.7%	9	8.5%	13	25.0%	0	0.0%	0	0.0%	1	4.8%	33	46.5%
	Unstable local political and social conditions	47	11.0%	3	2.8%	28	53.8%	2	6.5%	0	0.0%	0	0.0%	5	7.0%
	Insufficient information concerning the investment destination	21	4.9%	4	3.8%	3	5.8%	2	6.5%	1	4.2%	0	0.0%	27	38.0%

Source: JBIC (2004).

Actually, **a lot of Japanese MNCs regard concentrating their operations in China as considerably risky**. In the JBIC survey, to the question on main issues in China, more than 40 percent of respondents made a reply that there were problems regarding legal and taxation system, intellectual property rights, collection of receivables and regulations on currency exchange and remittance in doing business in the country (Table 16). Therefore, not a few Japanese MNCs adopt or are thinking about adopting so called '**China plus one**' strategy, which means they they strengthen their business operation in China, while they select another strategic site among ASEAN countries as diversification of **China risks**. The leading candidate is Thailand, and a lot of firms choose Vietnam, followed by Indonesia and Malaysia<sup>24</sup>. Thus, it is likely that reconfiguration of Japanese production networks take place not in the form of shifting from ASEAN4 to China, but rather of realignments among their ASEAN-based sites.

#### 4.4. Opening-up Japanese Networks?

Another feature of the production networks of Japanese MNCs is a creation of clusters of Japanese suppliers in the host economies or a transplantation of quasi-*keiretsu* type supplier networks. Recent intensified competition in the region enhances a possibility to open up such closed networks.

In fact, most of Japanese overseas subsidiaries are aware of intensification of competition both in the local and international markets. According to JETRO (2002), 93.4 percent of 894 Japanese manufacturing affiliates located in ASEAN4 made a reply that competition was intensified in the local market and/or international markets, while so did 94.9 percent of 613 affiliates in China. Of course, this includes competition among Japanese firms. However, the survey also reports that 46.6 percent of 536 ASEAN4-based subsidiaries regard indigenous firms as their competitors and the percentage in China is 68.9 percent of 486 affiliates. Outstanding in ASEAN4 is competitions with made-in-China products in the local markets and with Chinese indigenous firms in international markets. The percentage of the former is 56.2 percent of 297 Japanese overseas affiliates and that of the latter is 42.9 percent of 651 affiliates. Most of them point out low price as the factor of competition [JETRO 2002].

As far as Japanese MNCs are essentially to hold the *status quo* of their ASEAN4-bases or expand them, the intensified competition with local firms, made-in-China products and Chinese firms forces them to re-examine and improve their production system in the host economies.

How will those pressures influence their previous local supplier cluster?

Table 17 shows the probable countermeasures of Japanese overseas affiliates against the intensified competition. It should be noted that 49.8 percent of them in ASEAN4 and 52.8 percent in China pointed '*upgrading of their products*' as their competition policy, while 37.2 percent of the former and 56.1 percent of the latter are thinking about '*raising local content*

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<sup>24</sup> As a matter of fact, after the East Asian crisis and tariff reduction (down to 0 to 5 percent) with realization of the ASEAN Free Trade Area (AFTA) in 2002, in automotive sector, for example, they have consolidated their production to a considerable degree in Thailand, which they utilize as an export production site for intra-ASEAN area [Mori 2004; Takayasu and Mori 2004].

*ratios*'. A lot of Japanese MNCs in both regions try to upgrade their local operations for product differentiation, and at the same time reduce production cost by increasing local procurement.

If so, the final question is how they will increase local procurement.

Interestingly with this regard, both in China and ASEAN4 except for the Philippines, more than 60 percent of Japanese affiliates are thinking about '**fostering indigenous suppliers and procuring from them**'. The percentage is especially high in China with more than 70 percent (Table 18). This suggests a possibility that they could be more embedded in the local economies and that the previous closed local networks between Japanese assemblers and suppliers will be opened up to outsiders, local firms.

Table 17: Policy against Intensified Competition of Japanese Subsidiaries (multiple response)

		Upgrading of Products	Strengthening Marketing	Raising Local Procurement	Rationalizing Management	Localizing Personnel	Logistics	Relocation of Production
ASEAN4 (N=817)	N	407	333	304	312	285	138	47
	share	<b>49.8</b>	<b>40.8</b>	<b>37.2</b>	<b>38.2</b>	<b>34.9</b>	<b>16.9</b>	<b>5.8</b>
Thailand (N=287)	N	141	109	136	104	106	46	4
	share	<b>49.1</b>	<b>38.0</b>	<b>47.4</b>	<b>36.2</b>	<b>36.9</b>	<b>16.0</b>	<b>1.4</b>
Malaysia (N=250)	N	133	100	71	107	71	41	26
	share	<b>53.2</b>	<b>40.0</b>	<b>28.4</b>	<b>42.8</b>	<b>28.4</b>	<b>16.4</b>	<b>10.4</b>
Indonesia (N=164)	N	75	85	60	49	60	25	6
	share	<b>45.7</b>	<b>51.8</b>	<b>36.6</b>	<b>29.9</b>	<b>36.6</b>	<b>15.2</b>	<b>3.7</b>
Philippines (N=116)	N	58	39	37	52	48	26	11
	share	<b>50.0</b>	<b>33.6</b>	<b>31.9</b>	<b>44.8</b>	<b>41.4</b>	<b>22.4</b>	<b>9.5</b>
China (N=579)	N	306	217	325	208	230	90	6
	share	<b>52.8</b>	<b>37.5</b>	<b>56.1</b>	<b>35.9</b>	<b>39.7</b>	<b>15.5</b>	<b>1.0</b>

Source: JETRO (2002).

The intensified competition in overseas operation might extend room for local firms to enter into production process of Japanese MNCs that has been largely completed within transactions among Japanese firms. Of course, they are not absolutely benevolent and this is not automatic. And we should also, on the other hand, recognize the fact that most of Japanese MNCs still regard local subcontractors as inferior to those at home. Their basic vision for East Asian operations is to establish a production system with the same level with that of Japan [METI 2003b]. Therefore, their demand standard for local firms is still high in quality and delivery as well as price and cost. In addition, as shown by Table 18, more than 40 percent of respondents in ASEAN4 are thinking about expanding procurement from Japanese suppliers in the host economies and strengthening the previous local clusters.

These facts imply that it is still necessary to enhance the capacity of local firms to internalize the possibility. This is particularly important subject for the ASEAN economies. It would be the strong foundation for future competition against the rising China, if they expand their industrial bases and incorporate Japanese MNCs more deeply into the host economy through entering of local firms in Japanese networks.

Table 18: Policy for Expanding Local Procurement in ASEAN4 and China (multiple response)

		ASEAN4		Thailand		Malaysia		Indonesia		Philippines		China	
		N	Share	N	Share	N	Share	N	Share	N	Share	N	Share
<b>Manufacturing</b>	Total	517	100	223	100	130	100	100	100	64	100	479	100
	<b>Local</b>	<b>319</b>	<b>61.7</b>	<b>141</b>	<b>63.2</b>	<b>88</b>	<b>67.7</b>	<b>63</b>	<b>63.0</b>	<b>27</b>	<b>42.2</b>	<b>354</b>	<b>73.9</b>
	Japanese	219	42.4	89	39.9	54	41.5	37	37.0	39	60.9	143	29.9
<b>Electrical Machinery</b>	Total	53	100	24	100	17	100	6	100	6	100	63	100
	<b>Local</b>	<b>29</b>	<b>54.7</b>	<b>11</b>	<b>45.8</b>	<b>13</b>	<b>76.5</b>	<b>4</b>	<b>66.7</b>	<b>1</b>	<b>16.7</b>	<b>48</b>	<b>76.2</b>
	Japanese	25	47.2	10	41.7	8	47.1	1	16.7	6	100.0	10	25.4
<b>Electronics Parts</b>	Total	101	100	34	100	40	100	14	100	13	100	98	100
	<b>Local</b>	<b>56</b>	<b>55.4</b>	<b>22</b>	<b>64.7</b>	<b>23</b>	<b>57.5</b>	<b>6</b>	<b>42.9</b>	<b>5</b>	<b>38.5</b>	<b>70</b>	<b>71.4</b>
	Japanese	57	56.4	17	50.0	22	55.0	7	50.0	11	84.6	33	33.7
<b>Automotive (Vehicle)</b>	Total	13	100	6	100	1	100	3	100	3	100	6	100
	Local	11	84.6	6	100.0	1	100.0	2	66.7	2	66.7	4	66.7
	Japanese	7	53.8	3	50.0	0	0.0	2	66.7	2	66.7	1	16.7
<b>Automotive Parts</b>	Total	74	100	39	100	7	100	16	100	12	100	36	100
	<b>Local</b>	<b>42</b>	<b>56.8</b>	<b>23</b>	<b>59.0</b>	<b>7</b>	<b>100.0</b>	<b>8</b>	<b>50.0</b>	<b>4</b>	<b>33.3</b>	<b>28</b>	<b>77.8</b>
	Japanese	37	50.0	16	41.0	4	57.1	9	56.3	8	66.7	15	41.7

Source: JETRO (2002).

## 5. Concluding Remarks

Japanese MNCs have established the deep-rooted production networks in East Asia through their long-standing penetration process. The production networks have provided markets for their massive industrial capacity and contributed to industrial upgrading of the Japanese economy. On the other hand, their East Asian production networks, reflecting their peculiar firm structure at home, have been characterized by *hierarchy* and *closeness*.

Recent intensified competitive environment raises possibilities for change of these constitutive features of their production networks embracing Japan and East Asia.

Certainly, against concerns about hollowing out of the domestic industrial bases deriving from expanded overseas production, large Japanese firms make various efforts to upgrade their home operations, strengthening high value added manufacturing, design and product development activities. However, hollowing-out is steadily proceeding in small and medium enterprises (SMEs) without capacity to engage in overseas development. Increasing imports of low-and middle-end manufactured products, parts and components from East Asia, especially China, seriously damage the SMEs which have already been weakened owing to stagnated SME finance in addition to popularization of higher education and successor problem. The SMEs have been one of the foundations of Japanese competitive manufacturing and their basic technologies have supported it. It is likely that the hollowing-out of the SME sector could transform the Japanese manufacturing structure.

On the other hand, focusing on the East Asian networks, though we could not deny a possibility that the rise of the Chinese economy might bottle up the ASEAN economy, at least at the moment, Japanese MNCs are not thinking about shifting their production bases of ASEAN4 to China, but maintaining and reorganizing them with realization of the AFTA. Rather, promoted by the intensified competition with made-in-China products and Chinese firms, they bring it into view that they foster indigenous suppliers and increase procurement from them.

The East Asian countries have thus far made some efforts to promote linkages between MNCs and local firms such as Vendor Development Programme (VDP) and Industrial Linkage Programme (ILP) in Malaysia. However, especially in ASEAN, Most of them did not so much succeed. Today's global competition opens up a new possibility though reorganizing the previous international production networks. Whether such possibility for change will become a reality depends on local capacity<sup>25</sup>.

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<sup>25</sup> Given recent conditions, one possible way might be to absorb human resources and technology of Japanese SMEs facing with difficulty. Indeed, some Chinese firms acquired Japanese SME to absorb its basic technology, while Japanese apparel retailers dispatch retired designers and factory managers to their contract manufacturers in China and improve product quality and manufacturing management. Furthermore, Korean large firms also move to hire Japanese engineers who forced to retire before age limit. Japanese manufacturing technologies are often built in craft-workers and engineers and have been succeeded through on the job training and learning by doing. There is enormous pool of these technology and skill in the Japanese SMEs. In fact, though the negotiations of free trade agreements with Japan, Korea and the ASEAN countries, typically Thailand require such SME cooperation against Japan.

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Annex I: Table Overview of Questionnaires Surveys

	Implementation Date	Respondent		Response Rate	Definition
		Parents	Subsidiaries		
METI (2003b) of which East Asia of which Manufacturing	March 2001	2,039	14,991 6,919 4,263	62.9%	Subsidiary: 10 % or More Equity
JBIC (2004) of which East Asia of which Manufacturing	July to Sep. 2003	571	9,838 4,975 4,975	61.3%	Subsidiary: 10 % or More Equity
JETRO (2002) of which East Asia of which Manufacturing	Nov. to Dec. 2001	N.A.	2,073 1,894 1,894	31.5%	Subsidiary: 10 % or More Equity

Note 1: The parent firms of JBIC are those with more than two overseas subsidiaries.

Note 2: The sample firms in China of JETRO (2002) include Hong Kong- based subsidiaries engaging in contract manufacturing in Southern China.

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