

Chapter 4

Vertical Production Networks in East Asia: An Evidence from Survey of Japanese Firms

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Abstract

This paper, interim report of 2-years study, examines characteristics of production networks of Japanese firms in East Asia, focusing on regional breakdown of their corporate purchases and sales. The production networks of Japanese firms have well developed in East Asia, with increasing transactions of intermediary inputs across the border. The networks involve the third countries as well as host and home countries in Asia for procurements. Such intra-regional purchases of intermediary goods by Japanese affiliates are observed in Europe also, however, not in other developing world like Middle and South America. The Japanese affiliates seem to shift weights of procurement origin from Japan to overseas locations gradually after the Asian financial crisis. However, the formulation is different among industrial sectors, especially between electric machinery and transport machinery. And there also seems a difference between US affiliates and Japanese ones that Japanese affiliates are more likely to relay intermediary supplies on their mother country than US affiliates, regardless of the locations of affiliates.

Keywords: Production network, Japanese affiliate, Purchases and sales

1. Introduction

1.1. Background and objectives

This paper is the interim (first year) report of the 2-years study, which is a part of the IDE research project titled as “Vertical Specialization and Economic Integration in East Asia”. My study aims to examine characteristics of vertical production networks in East Asia by analyzing activities of Japanese firms, leading player in the region, focusing on purchases of intermediary inputs and sales of products.

1.2. Literature

We have some interesting literature on vertical specialization (Table 1). Hummels, Ishii and Yi (2001) assessed the level of vertical specialization of OECD countries by input-output table. Hanson, Mataloni and Slaughter (2003) examined determinants of vertical specialization. They assumed the share of import of intermediary inputs from US over production cost indicated level of vertical specialization and carried out regression analysis based on micro data of US multinationals. The results indicated that low transportation cost, low wage level of unskilled labor, low corporate tax rate had positive influence over vertical specialization. With regards to Japanese multinationals, similar studies were conducted, although they focused on local purchase of intermediate inputs rather than import from mother country. Belderbos, Capannelli and Fukao (2000) examined determinants of local procurement ratio in intermediate inputs for Japanese affiliates by regression analysis based on micro data of Japanese firms. Kiyota, Matsuura, Urata and Wei (2005) reanalyzed determinants of local procurement ratio based on extended period of micro data. Ando and Kimura (2005) recalculated sales and purchases of Japanese multinationals based on micro data and concluded international production/distribution network developed sophisticatedly in east Asia and intra-firm intermediate inputs from Japan was replaced by local arm’s length purchases in host country. Ito and Fukao (2006) analyzed the effects by a progress of local procurement to corporate profitability. There are so many literature, however, there still seems a room left to study for the purchases from the third countries in the same region, which expand across East Asia.

1.3. Research question

As mentioned above, the 2-years study aims to examine characteristics of vertical production networks of Japanese firms in East Asia. We are focusing on purchases of intermediary inputs as well as sales of products for analysis of vertical specialization. Our final destiny is what factor has influence on production network and how the network in East Asia will develop. An analysis based on micro data may be required to

answer them, which is expected to be conducted in the second year, because of preparation of data subject to government permission. In the first year, some questions on features of Japanese production networks are examined based on aggregated statistics. A first question is how the historical development of procurements and sales are. A second is whether the features are different among Asia and the other regions, both developed world like North America or Europe as well as developing world like South America. A third is whether the features are different among industrial sectors. A fourth is whether characteristics of Japanese firms are different from those of the other nationalities like the United States.

1.4. Main findings

Main findings are as follows. First, business activities, sales and purchases by Japanese manufacturing affiliates have remarkably expanded in Asia. Second, the share of Japan in origin of intermediary purchase seems to decline after the Asian financial crisis while local share increase although their total values still maintain an increasing trend. Third, the share of Japan as sales destiny used to increase until the Asian financial crisis. Forth, a large share of intermediary inputs from the third countries in the same region is the typical pattern in Asia as well as in Europe. Such feature cannot be observed in the other developing region like Middle and South America, which may imply Asia has successfully developed production networks in the region. Fifth, the purchases and sales pattern is different among industries. A large portion of intermediary inputs comes from the third countries in Asia as well as Japan and host country in electrical machinery including information and communication equipments, while a major share comes from only Japan and host countries in transport machinery. Sixth, while US affiliates seem to use local supplies of intermediary inputs in remote locations from home country, Japanese affiliates are likely to import a certain percentage of intermediary inputs from home country regardless of the distance.

1.5. Structure of paper

The next chapter presents an overview of the deployments of Japanese overseas affiliates and their purchase/sales activities. In chapter 3, the features among industrial sectors are examined. In chapter 4, the features of production networks in Asia are discussed by comparing with the other regions. In chapter 5, the characteristics of US affiliates are observed. Chapter 6 is closing.

2. Overview of activities of Japanese overseas affiliates

2.1. Deployments of Japanese overseas affiliates

We start with an overview on deployments of Japanese overseas affiliates. An explanation on data is useful with some notes. The analysis on this paper will be based on the data of “Kaigai Jigyō Katsudō Kihon Chōsa” (Basic Survey on Overseas Business Activities), which is an annual survey conducted by Ministry of Economy, Trade and Industry (METI), Japan, concerning activities of Japanese overseas affiliates.¹ The survey is comprehensive including basic financial statistics as well as sales/purchases data with regional breakdown. However, we have to be aware that responding rate is around 60-70% as the survey is not mandatory but voluntary to answer. It may warn the possibilities of bias and change in responding firms among research years. The meaning of aggregated figures should be translated carefully. Nonetheless, the research is still informative and we have no alternative for sales/purchases data of Japanese affiliates with regional breakdown.

As Table 2 shows, the total number of Japanese overseas affiliates in the world is 15,850, of which manufacturing affiliates is accounted to 8,048 in the year of 2005 according to the survey. And 67.7% (5,449 companies out of 8,048) of manufacturing affiliates are located in Asia followed by North America (16.2% or 1,306 companies) and Europe (10.9% or 877 companies). With regards to sales and purchases, total sales and purchases are 185.0 and 146.8 trillion yen respectively, 87.4 and 64.8 trillion yen of which is conducted by manufacturing. Asia has a share of 41.4% (42.9%) of manufacturing sales (purchases). Those figures suggest Asia is the major place Japanese overseas productions are operated.

The operations of Japanese overseas affiliates were promoted by appreciation of yen after the Plaza Accord in mid 1980's. Figure 1 shows an increase in sales of products of Japanese manufacturing affiliates in Asia, which is accompanied by the increase in purchases of intermediary goods, especially the growth is remarkable in 1990's and 2000's. However two interruptions are observed, which are year 1998 and year 2001, seemingly reflected by the Asian financial crisis and the end of IT bubble in the United States. We had better bear in mind the possibilities that some structural changes could happen in sales and purchases pattern of Japanese affiliates at those occasions.

2.2. Conceptual preparation

We focus on corporate purchase of intermediary inputs in order to analyze production networks, because the flows of intermediary inputs across boarder should be reflected to link production locations in various countries. Some indicators can be utilized as the index of vertical specialization. We have to consider some conceptual preparation - what is the image of vertical specialization or how we can assess the level of it. We may be aware that the authors of each literature used the different indicator.

Figure 2 shows some different aspects. The results of analysis may be different if we choose different aspects. In this paper, we will pay attention to all the procurements outside Japan (intermediary inputs from Japan, from the third country as well as from host country), assuming they are just different types of vertical specialization as far as production processes are located outside Japan and intermediate inputs are involved.

And we are also aware that vertical specialization involves inter-industry transactions as well as intra-industry ones. For the standpoint of individual company, only intra-industry transaction may be the matter of vertical specialization, because goods traded in inter-industry transactions are not the products which should be produced by such corporations in nature. Figure 3 shows some cases. Case 1, intra-industry transaction, is vertical specialization for an automobile company located in country B. However, Case 2 and Case 3, inter-industry transaction, are not. As an automobile company is not expected to run an iron furnace or a rubber plantation, these cases are not the subject of vertical specialization or outsourcing for this company.

Nevertheless, because of data availability, we cannot distinguish between intra- or inter transaction for purchases and sales. In this paper, we just bear this note in our mind.

2.3. Development of origin of intermediary inputs and destination of products

Now we examine the historical development of purchase origin and sales destination. Figure 4 shows the long-term development in value and share of corporate purchase of Japanese manufacturing affiliates in Asia, with regional breakdown of origin.^{2, 3, 4, 5}

The Japanese manufacturing affiliates increase their purchases from each region in terms of value, with a tentative decline at the Asian financial crisis. Especially, the purchase values from host country increase tremendously. And the purchase from the third country in Asian also increases although the value is smaller than local purchase.

We pay attention to the historical development of share of each origin. The share of Japan stays at the same level until middle of 1990's, however, it declines in 1997 and 1998, which implies the Asian financial crisis has a trigger for shrinking of imports from Japan because of a rapid increase in exchange rate for yen to local currencies. On the contrary, the share of local purchase seems to expand after the crisis especially in 2000's. However, we should take a note on possibility of double counting in purchase of intermediary goods among Japanese affiliates located in the same country. The share of third country in Asia increases gradually. Surprisingly the shares of North America and Europe stay at very low level.

Then how about is the development of corporate sale? Figure 5 shows the long-term development.

Same as purchase, Japanese affiliates expand their sales to all the destinations in terms of value. With regard to the share, local sale was the largest, followed by Japan and the third country in Asia. The share of local sale decreased suddenly in 1997, which could be resulted by the depreciation of local currency at the crisis. However, the decline got moderate and turned to increase after 2001. The share of Japan increased from early 1990's to 1997 and decreased gradually in 2000s, which suggested the reverse imports of assembled products to Japan expanded until the Asian financial crisis. The share of the third country in Asia increased in 1990's and maintained a constant level in 2000's. It is surprising that the shares of North America and Europe were small, which was contradiction to the occasionally-referred common sense that Japanese firms heavily relied on the demands of the United States as well as Europe. One possibility is that the features are different among industrial sectors and the sectors which seek export opportunities are sometimes highlighted strongly. Another possibility is the overestimate of local share by double-counting in sales of intermediary goods among Japanese affiliates, which cannot be checked by present statistics. And also exports to North America and Europe may be conducted by parents companies in Japan, which import products from affiliates in the region.

2.4. Purchase and sales map

Let us pay a glance over a current world flow of purchases and sales of Japanese affiliates (Figure 6). We use data in 2004, which hold a detailed breakdown of Asia (namely ASEAN4, NIEs3 and China) ⁶.

Some features are observed for purchase activities. The purchases from Japan are huge regardless of the location of affiliates. The local purchases also have important scale. The purchases from the third country in Asia link economic areas, such as ASEAN4, NIEs3 and China mutually. The scales of purchases from North America and Europe are relatively small. It seems the production processes are extended in regional level. And we also make observations for sales activities. The sales to Japan from Asia seem large and local purchases are large also. Sales to North America and Europe from Asia (ASEAN4, NIEs3 and China) are not so big, as mentioned above.

3. Difference among locations of affiliates

Next, we examine the difference (or similarity) of purchase activities as well as sales among the Japanese affiliates in different locations. We compare Asia with both

developed area like US/ Europe and developing area like Middle and South America. Before comparison, we pay a glance to the scale of activities in each region (Table 3). Roughly speaking, three areas including Asia, US and Europe cover 90% of world total in number of affiliates, purchase and sales value. Asia, US and Europe have around 40%, 30%, 20% share, respectively, for purchase and sales value (Relatively small companies are located in Asia), while Middle and South America holds only a small share around 3%.

We see the comparison. Figure 7 shows regional share of purchase origin by Japanese affiliates located in Asia, US, Europe and Middle and South America. Unexpectedly, the current share of Japan in case of affiliates located in Asia (31.5% in 2005) is lower than in US (34.8%) and in Europe (42.4%) in spite of its advantage for short distance of delivery. The share of rest of region (host country and third country in the same region) is larger in Asia. It suggests Japanese affiliates procure intermediary inputs from all over Asia. If we see the case of developing region like Middle and South America, one of most striking contrasts is the fact the share of the third country in the region is very low in Middle and South America (2.3% in 2001)⁷. The share is much higher in Asia (14.8% in 2005) although still lower than in Europe (21.0%). This contrast may suggest Middle and South America has not developed the intra-regional production network as Asia has.

Next, we check the features of sale (Figure 8). The share of Japan is high in case of affiliates located in Asia (21.5% in 2005), while a very small share is exported to Japan from affiliates in US and in Europe (2.7%, 2.2% respectively). The large share of Japan in Asia has two possibilities. One is that the assembled products are imported back to Japan, whose purchase power is large. The other possibility is that intermediary goods like parts and components are imported to be assembled in Japan. The both seem true, considering a large Japanese import of final products as well as parts and components from Asian countries on the trade data. Another important feature in Asia is the large share of third country in the region, which is observed in Europe also. In case of affiliates in US, the main target of sale seems the local market. And in Europe, third country in the region has the importance together with local market. In case of Middle and South America, the share of North America expands remarkably, which seems a heavy dependence on demands in United States.

4. Difference among industrial sectors

4.1. Purchase side

We see some features in Asia that purchase from third country has large portion and the share of Japan decrease recently. Then, such features are the same across all the industrial sectors. Next, we examine the difference among industrial sectors.

Before focusing difference in features, we see the scale of individual industrial

sectors. Figure 9 indicates size of purchase activities of Japanese affiliates in Asia. Two leading sectors, namely electrical machinery⁸ and transport machinery, have large share. We focus on these two sectors first.

Figure 10 indicate the strong contrast of regional structure of purchase origin between them.. In case of electric machinery, the most striking feature is that the share of purchase from third country gradually increased, which may imply parts and components supply expanded across the countries in Asia. On the contrary, almost all the supply (94.8% in 2005) come from Japan and host country in case of transport machinery, especially recent share of local purchase show a drastic increase. What makes such difference? It is said transportation cost and coordination/adjustment are involved. One possibility is that the electric parts can be imported from neighboring countries because transportation cost for electric parts, relatively small-sized and light-weighted, is moderate. On the contrary, automobile parts, bulky and heavy, cost much. It is logical that assembler purchase from suppliers in host countries. And another possibility is part-manufacturers are required to locate near assembler for coordination and adjustment of manufacturing in automobile industry, in which assembler need coordinate and adjust a vast number of parts and components. And the procurement from local suppliers is convenient for reduction of holding stocks of parts and components, like “just in time system”.

Then, we will see the other industrial sectors. We examine some major sectors (Figure 11). We should keep in mind that some sectors produce both intermediary and final goods (like general machinery, precision machinery and textile seem so), while the others produce mainly intermediary inputs to the other sectors (like chemical and iron/steel). The features of general machinery are likely to those of transport machinery, which is characterized with a small share of third country of region and a declining share of Japan. In case of precision machinery, a major portion of supply comes from Japan, which may be reflected by the level of technology in Japan. On the contrary, a major portion is originated in local purchase in textile industry, whose intermediary inputs, such as string and cloth, are easily produced in host country. In case of chemical industry, local purchase holds a majority. The major portion comes from Japan although the statistics is not stable in iron and steel industry.

The features are different among industrial sectors, which seem reflected by transportation cost, production arrangement, level of required technology and so on.

4.2 Sales side

We move to sales activities for the same industries as purchase. Two biggest sectors in terms of scale, electric machinery and transport machinery (Figure 12), are focused on first.

The features of both sectors are contrasting like the case of purchase (Figure 13).

In electric machinery, the share of third country is large, which may suggest a possibility that Japanese affiliates supply parts to another Japanese affiliates in Asia, considering features of purchase activities. And another feature is that the sale to Japan has a large portion, which suggests affiliates may export assembled product back to Japan. On the contrary, in transport machinery industry, a major portion is sold in host country although the shares of third country in Asia increased recently.

How about the other sectors? An increase of Japan until middle of 1990s and a stay after that are observed in general machinery, precision machinery (Figure 14). The local share is high in textile although Japanese share seem increase. The major portion is sold in host country in chemical and iron.

5. Difference between US and Japanese affiliates

5.1. Deployments of US foreign affiliates

Next, we will see features of US foreign affiliates. The total sale of US foreign manufacturing affiliates in the world is 2.0 trillion dollar in 2005, which is about 2.5 times as that of Japanese overseas manufacturing facilitates (87.4 trillion yen nearly to 0.8 trillion dollar), according to the research conducted by US Department of Commerce⁹ (Figure 15). One quarter of the sale is made in North and South America (namely Canada, Latin America and other Western Hemisphere), another quarter in Asia and a half in Europe. US affiliates put importance in Europe as well as North and South America while Japanese ones relay more on Asia.

To analyze features of US production network, we use the statistics of affiliates' trade with the United States. Figure 16 show some features on the share of transactions with the mother country, the United States, against total sale. First, the transaction share with US seems strongly influenced by distance. The transaction share with US is high for affiliates in Mexico and Canada, neighboring countries to US, while the share is much lower for affiliates in Asia and Europe. Second, the transaction share with US is declining in both purchases and sales for world average, although the development may be different among individual country. The share of purchase from US declined 10.8% in 1999 to 7.3% in 2005, and the share of sales to US decreased from 13.2% to 11.4% among the same period. This trend is similar to Japanese affiliates and it suggests multinational firms of both countries expanded their activities to worldwide rather than focusing on their mother country, which may be the reflection to development of emerging economies.

5.2. Difference between US and Japan

Next, we will compare level of transaction share of mother country between US and Japanese affiliates (Table 4). In case of US affiliates, the transaction share with mother

country seems to be influenced by distance in both purchase and sale, as mentioned above. However, in case of Japanese affiliates, purchase share from mother country does not seem different among affiliates in different locations, while sales share may be influenced by distance same as US affiliates.

6. Closing

This paper examines the feature of Japanese overseas affiliates focusing their regional breakdown of corporate purchase and sale. It illustrates some interesting features of production network across countries in Asia, including the difference from the other regions, the difference among industrial sectors and the difference between nationalities of affiliates. More detailed analysis is expected the next year, if the micro data is available.

Notes

1. "Overseas affiliate" refers to (1) overseas companies in which a Japanese company(s) make a 10% or greater investment ("overseas subsidiary") and (2) those in which an overseas subsidiary, in which a Japanese company(s) make a 50%, make a more than 50% investment ("overseas sub-subsidiary") in the survey.
2. The research on regional breakdown of sales and purchases started in 1980, followed by 1983 and 1986. It was conducted every year in and after 1987. The format of statistics sometimes changed.
3. Some estimation is carried out in recent published statistics because the responses are not always consistent. For example, as some respondents reply the total sale but no (or inaccurate) regional breakdown, the regional figures of sales are estimated by multiplying (1)the total sales based on all replies by (2)the regional share, which is calculated on only replies holding both total amount as well as accurate regional breakdown. As such estimation seems not conducted in the initial period of research (data of 1995 and before), the author tried tentatively a simple estimation using the published statistics as far as possible.
4. The purchase includes only material inputs such as parts and component, not including wage.
5. Some affiliates manufacture intermediate inputs such as parts and components. The total sale and purchase may hold double-counting of intermediate goods, if you concern the final goods. It may imply the share of local sale or purchase is overestimated if the affiliates in the same country supply intermediate inputs among them. Note2-5 apply also the following Figures and Tables.
6. Those regional groupings are based on the published statistics. ASEAN4 includes Indonesia, Malaysia, Philippines and Thailand. NIEs3 includes Korea, Singapore

and Taiwan.

7. Transaction with Middle and South America is researched only in specific years. The latest available data for Middle and South America is for the year 2001.
8. Because of historical continuity of data, electric machinery includes information and communication equipment although those two sectors are divided in the present statistics.
9. The research is conducted every year. A US foreign affiliate is defined as a foreign business enterprise in which there is US direct investment, that is, in which a US person owns or controls 10 percent of the voting securities or the equivalent. The questionnaire includes export amount to US and import from US as well as total sale, however, it does not include regional breakdown of purchase or sale other than home country, US.

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Table 1. List of main literature

Author	Title	Topic	Data	Period	Index	Company	Inter- or intra-?	Main results
Hummels, Ishii and Yi (2001),	The Nature and Growth of Vertical Specialization in World	Assessment of magnitude of VS.	OECD I-O table	1970-1990	Industry basis (intermediary import / production) * export	All	inter-industry	VS share in OECD exports increased from 16.5% in 1970 to 21% in 1990.
Hanson, Mataloni and Slaughter (2003)	Vertical Production Networks in Multinational Firms	What factor determines VS of US multinationals.	Industrial survey by US Department of Commerce (micro data)	1994	Company basis (import of intermediary inputs from US / production cost)	US multinational	inter-industry	VS is positively influenced in following cases -Transportation cost is low. -Wage of unskilled labor is low.
Belderbos, Capannelli and Fukao (2001)	Backward Vertical Linkages of Foreign Manufacturing Affiliates : Evidence from Japanese Multinationals	What factor determines local purchase ratio of Japanese multinationals.	METI "Basic Survey on Overseas Business Activities"(micro data)	1992	Company basis (local purchase of intermediary inputs / production cost)	Japanese multinational	inter-industry	Share of local purchase is positively influenced by -Duration of operation, J/V, weak R&D activities -Infrastructure, size of local supporting industries, regulations for mandatory local purchase
Kiyota, Matsuura, Urata and Wei (2005)	Reconsidering the Backward Vertical Linkages of Foreign Affiliates : Evidence from Japanese Multinationals	What factor determines local purchase ratio of Japanese multinationals.	METI "Basic Survey on Overseas Business Activities"(micro data)	1994-2000	Company basis (local purchase of intermediary inputs / production cost)	Japanese multinational	inter-industry	Duration of operation has a positive influence in China, however, not confidence in developed countries. Expensive transportation cost has a positive influence.
Ando and Kimura (2003)	The Formation of International Production and Distribution Networks in East Asia	What type of parent company which holds overseas affiliate? Share of sales destination and purchase origin of Japanese multinationals in Asia	METI "Basic Survey on Overseas Business Activities"(micro data)	1995				Parent companies which hold overseas affiliates are large-scaled, capital intensive, active in R&D. Those holding affiliates in Asia are relatively smaller-sized and less active in R&D than those in US/Europe.
Ando and Kimura (2005)	Global Supply Chains in Machinery Trade and the Sophisticated Nature of Production/Distribution Networks in East Asia	Various aspects in vertical specialization in Asia.	METI "Basic Survey on Overseas Business Activities"(micro data)	1992-2001				International production/distribution network has developed in Asia. Japanese share in purchase origin decreased while that in sales destiny increased.
Ito and Fukao (2006)	Does Localization of Procurement, Sales, and Management Matter ?	Whether localization of Japanese multinationals, especially in China, affects profit rate?	METI "Basic Survey on Overseas Business Activities"(micro data)	1989-2000				

Note: The table is just outline. Please refer individual papers for exact contents.

Source: Made by author based on individual papers.

Table 2. Number of overseas Japanese affiliates by sector (2005)

Total	15,850			
Manufacturing	8,048	→	Regional breakdown of manufacturing	
Food	393		Manufacturing total	8,048 100.0%
Textile	399		Asia	5,449 67.7%
Wood	144		China	2,476 30.8%
Chemical	1,089		ASEAN4	1,761 21.9%
Petroleum and coal	35		NIEs3	959 11.9%
Iron & steel	203		North America	1,306 16.2%
non-ferrous metal	221		M & S America	251 3.1%
General machinery	848		Middle East	13 0.2%
Electric machinery	665		Europe	877 10.9%
Information and communication machinery	1,183		Oceania	118 1.5%
Transportation machinery	1,375		Africa	34 0.4%
Precision machinery	273			
Others	1,220			
Non-manufacturing	7,802			
Agriculture	114			
Mining	142			
Buiding	269			
Information and communication	385			
Transportation machinery	1,006			
Wholesale	3,763			
Retail	503			
Services	939			
Others	681			

Source : METI “Basic Survey on Overseas Business Activities”

Figure 1. Sales and purchases of Japanese manufacturing affiliates in Asia

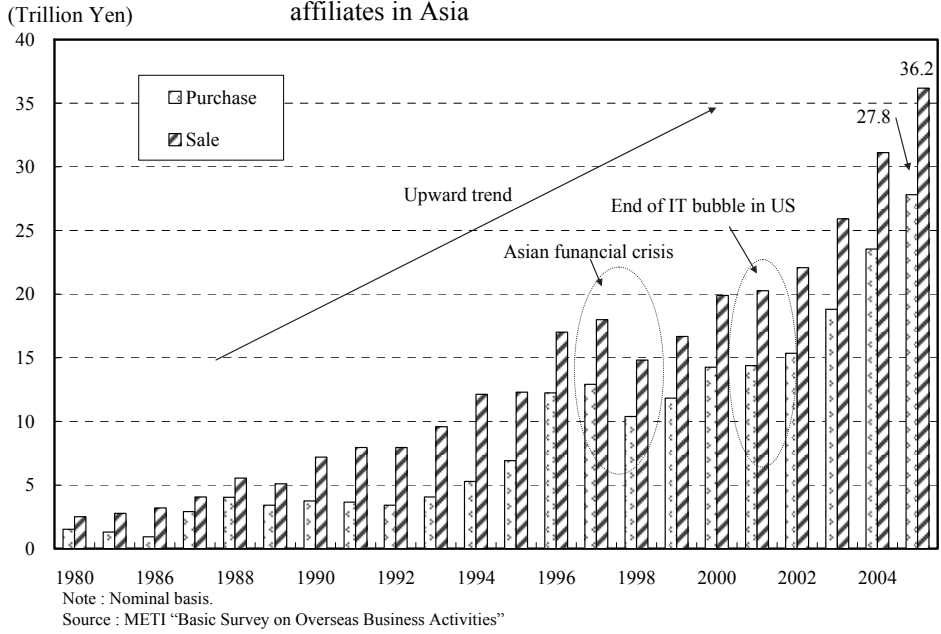
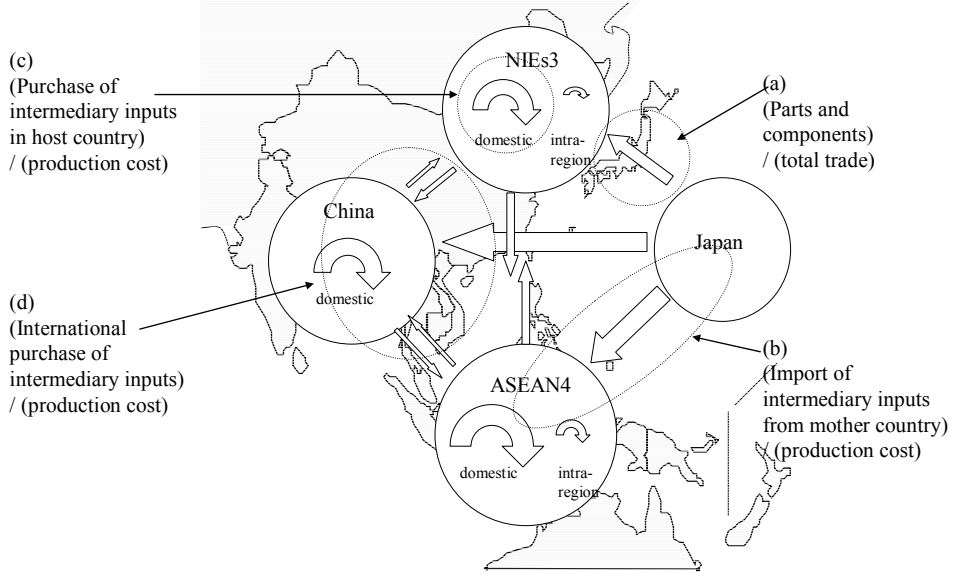
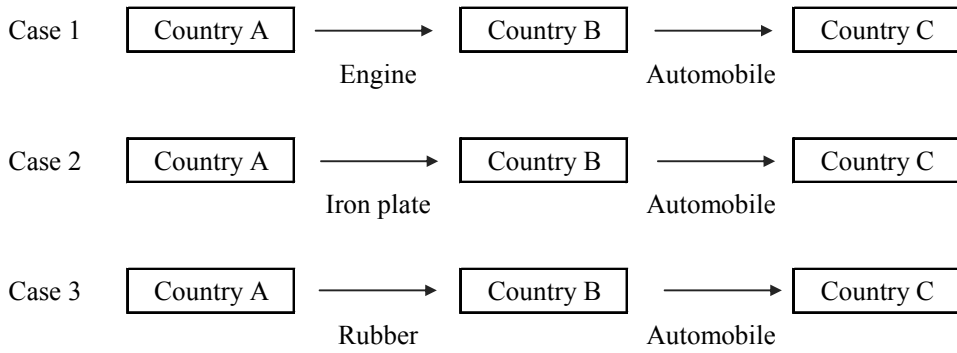


Figure 2. Various aspects of vertical specialization



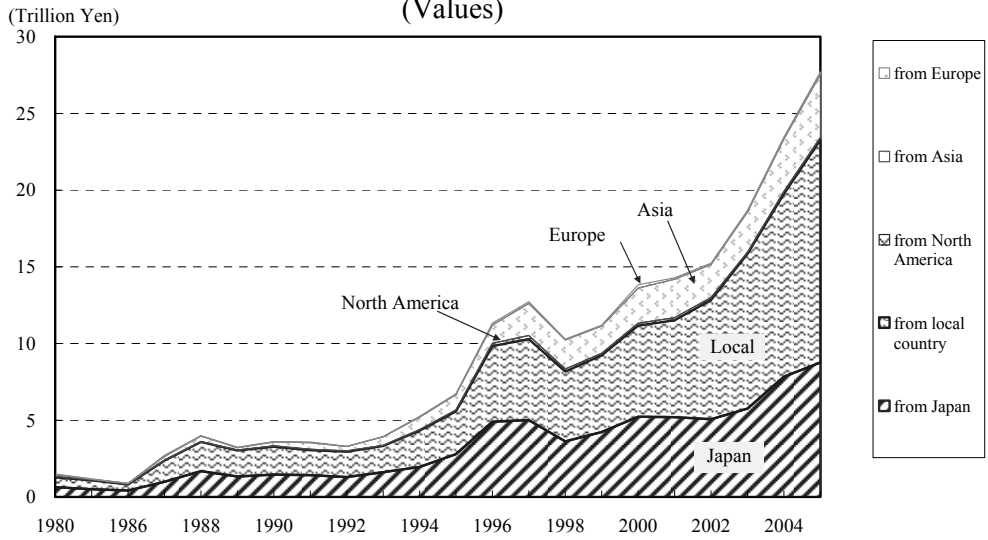
Source: Made by author.

Figure 3. Intra-industry or inter-industry

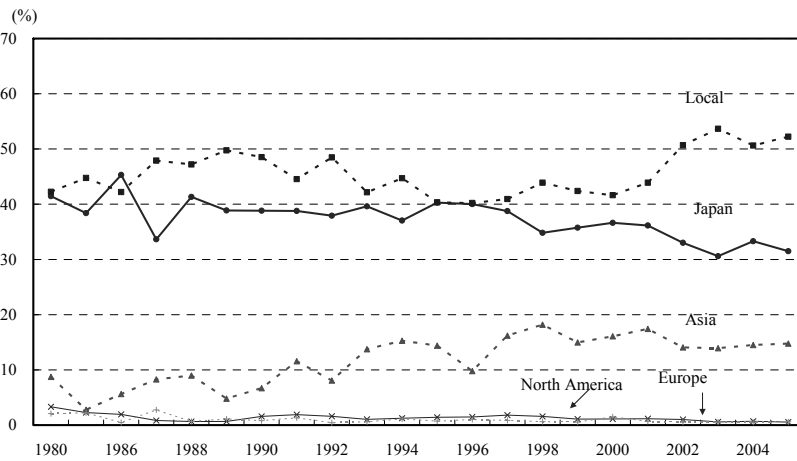


Source: Made by author.

Figure 4. Purchase of Japanese manufacturing affiliates in Asia
(Values)

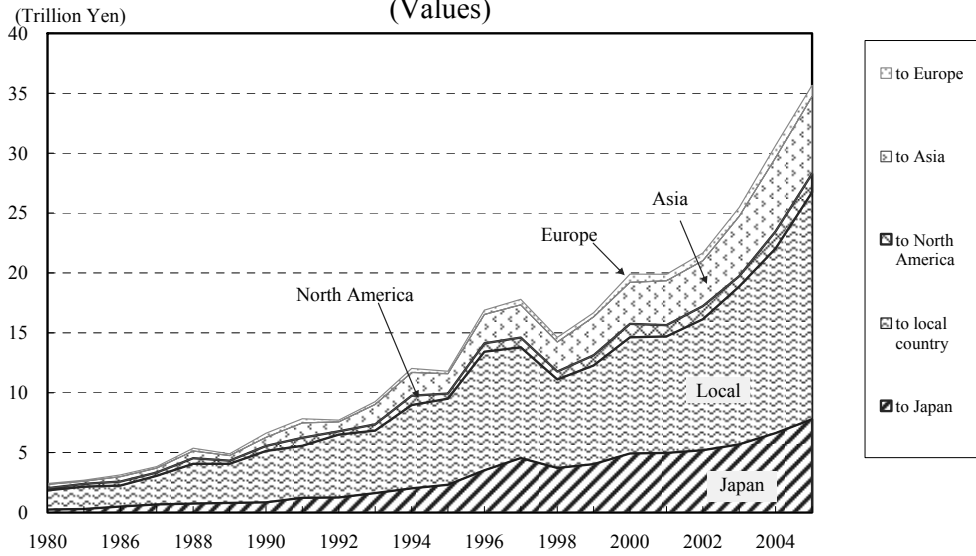


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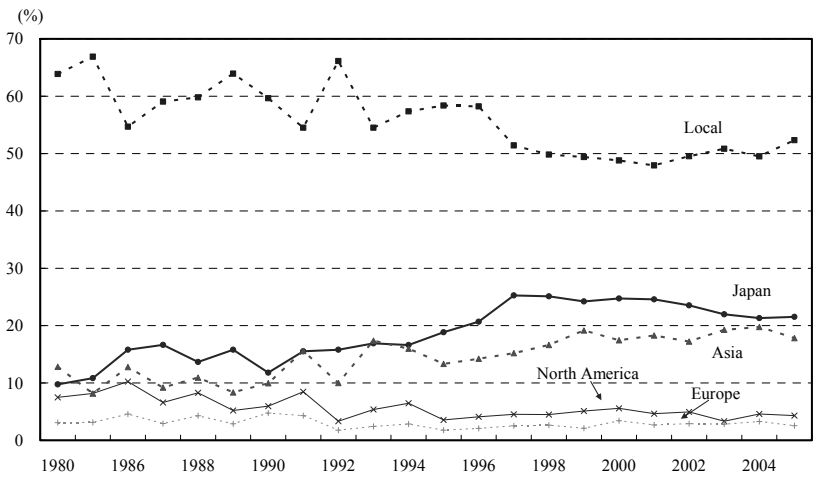


Note : Nominal basis.
Source : METI "Basic Survey on Overseas Business Activities"

Figure 5. Sales of Japanese manufacturing affiliates in Asia
(Values)

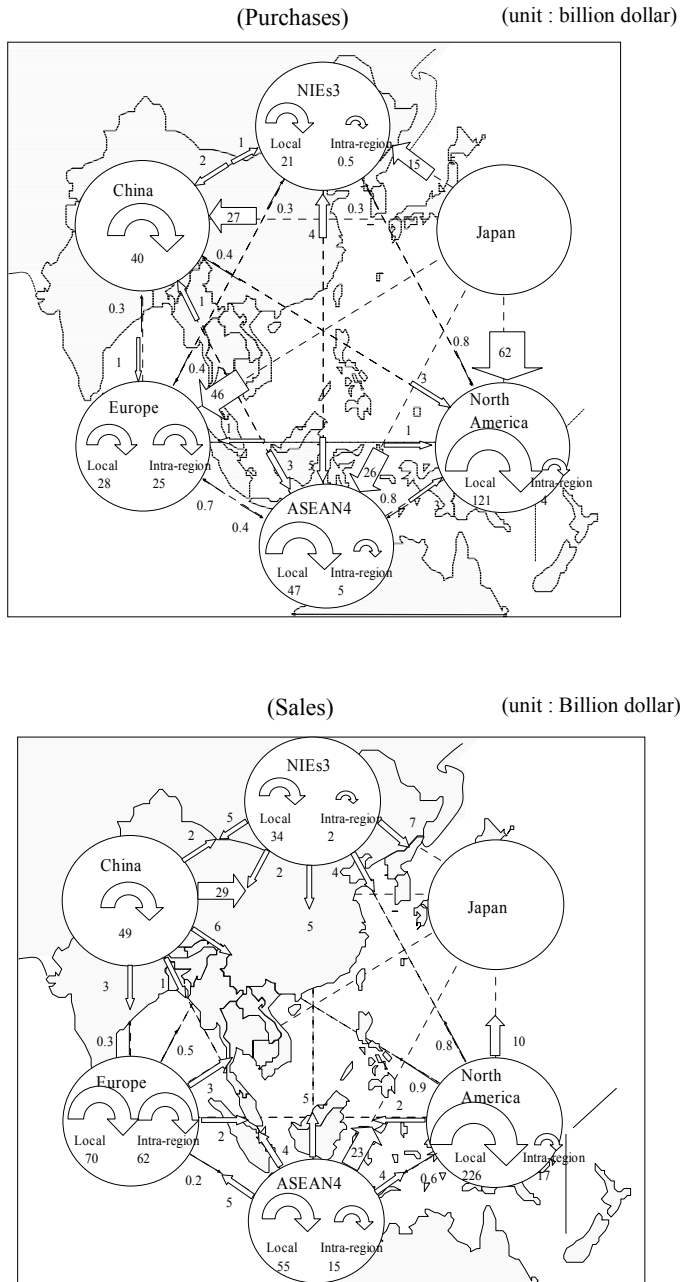


(Shares)



Note : Nominal basis.
Source : METI "Basic Survey on Overseas Business Activities"

Figure 6. Purchase and sales map by Japanese affiliates (Manufacturing / 2004)



Note : NIEs3 includes Korea, Singapore and Taiwan. ASEAN4 includes Indonesia, Malaysia, Philippines and Thailand. Hong Kong is included in China. North America includes Canada and United States.
 Source : METI, "Basic Survey on Overseas Business Activities".

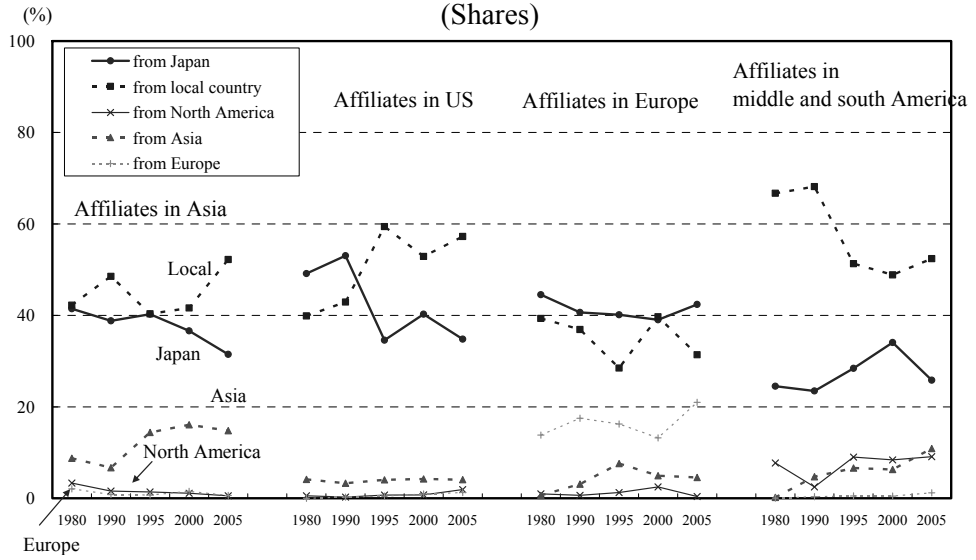
Table 3. Scale of activities of Japanese manufacturing affiliates (2005)

(Unit: company, trillion yen)

	Number of affiliates	(share)	Purchase	(share)	Sale	(share)
Asia	5,449	67.7	27.8	42.9	36.2	41.4
US	1,221	15.2	19.3	29.7	27.3	31.2
Europe	877	10.9	11.5	17.8	15.9	18.2
M&S America	251	3.1	2.0	3.1	2.7	3.1
World total	8048	100.0	64.8	100.0	87.4	100.0

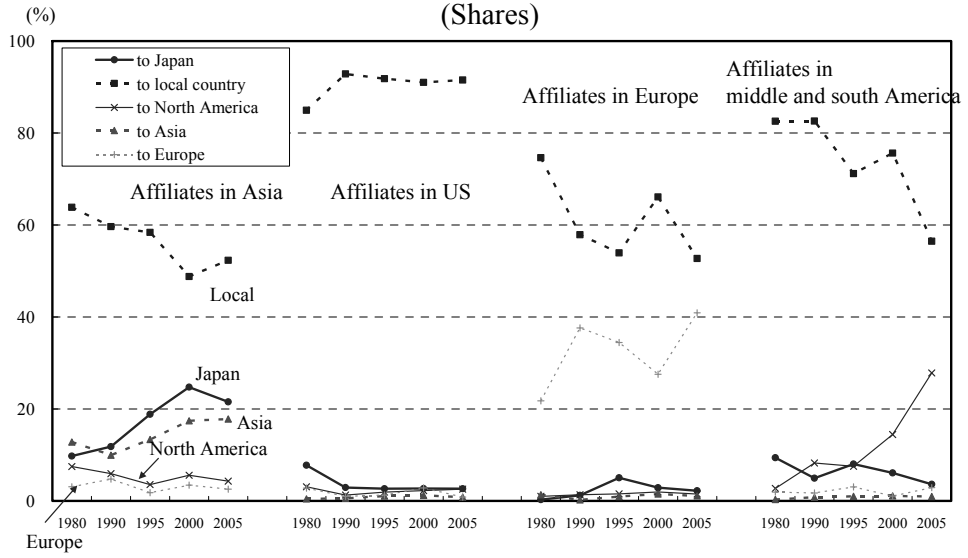
Sources : METI “Basic Survey on Overseas Business Activities”

Figure 7. Purchase of Japanese manufacturing affiliates
(Shares)



Sources : METI "Basic Survey on Overseas Business Activities"

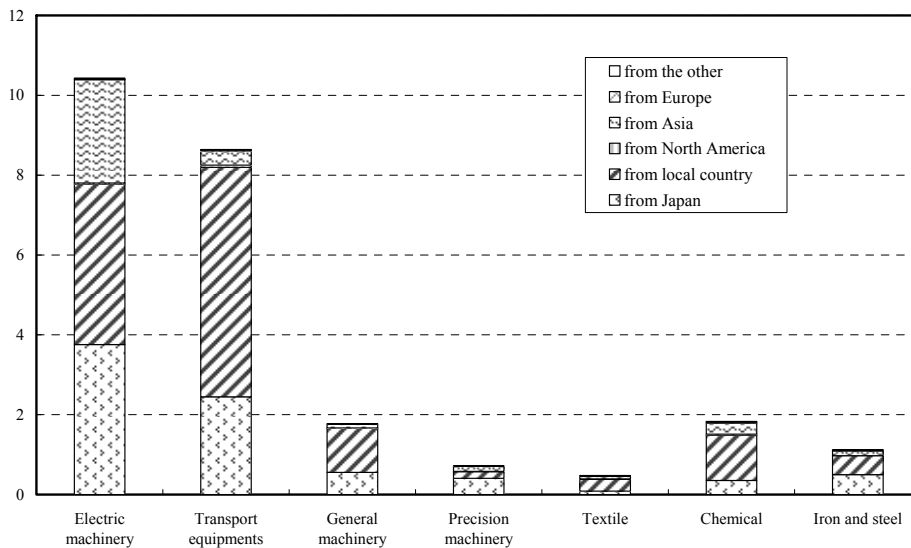
Figure 8. Sales of Japanese manufacturing affiliates
(Shares)



Source : METI "Basic Survey on Overseas Business Activities"

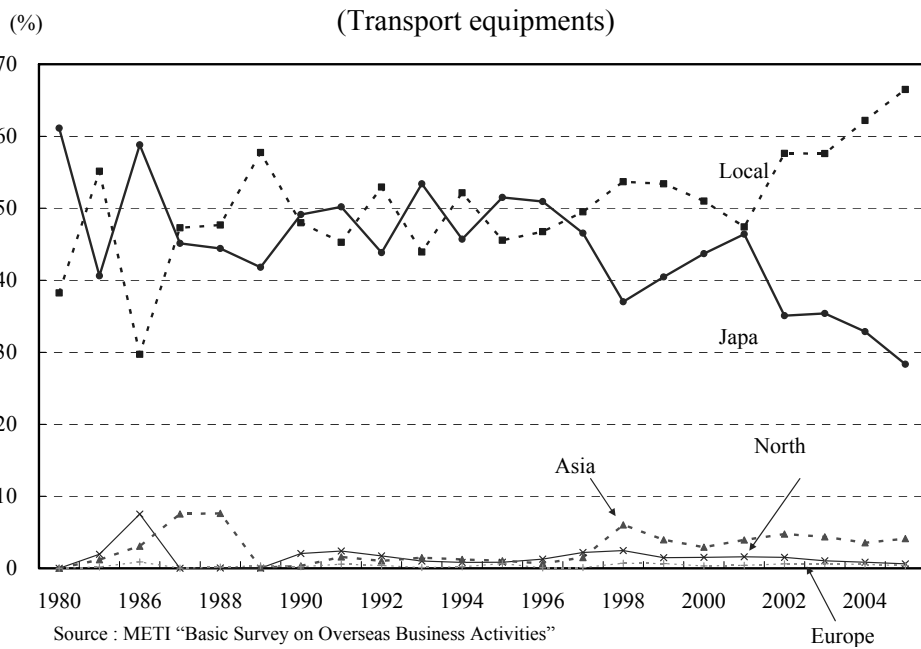
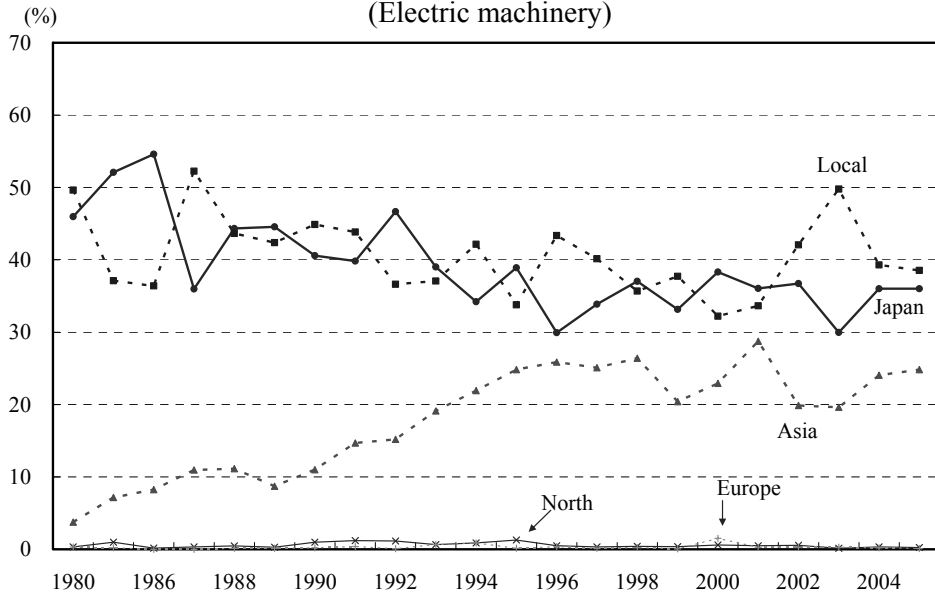
Figure 9. Purchase origin of Japanese affiliates in Asia (2005)

(Trillion Yen)



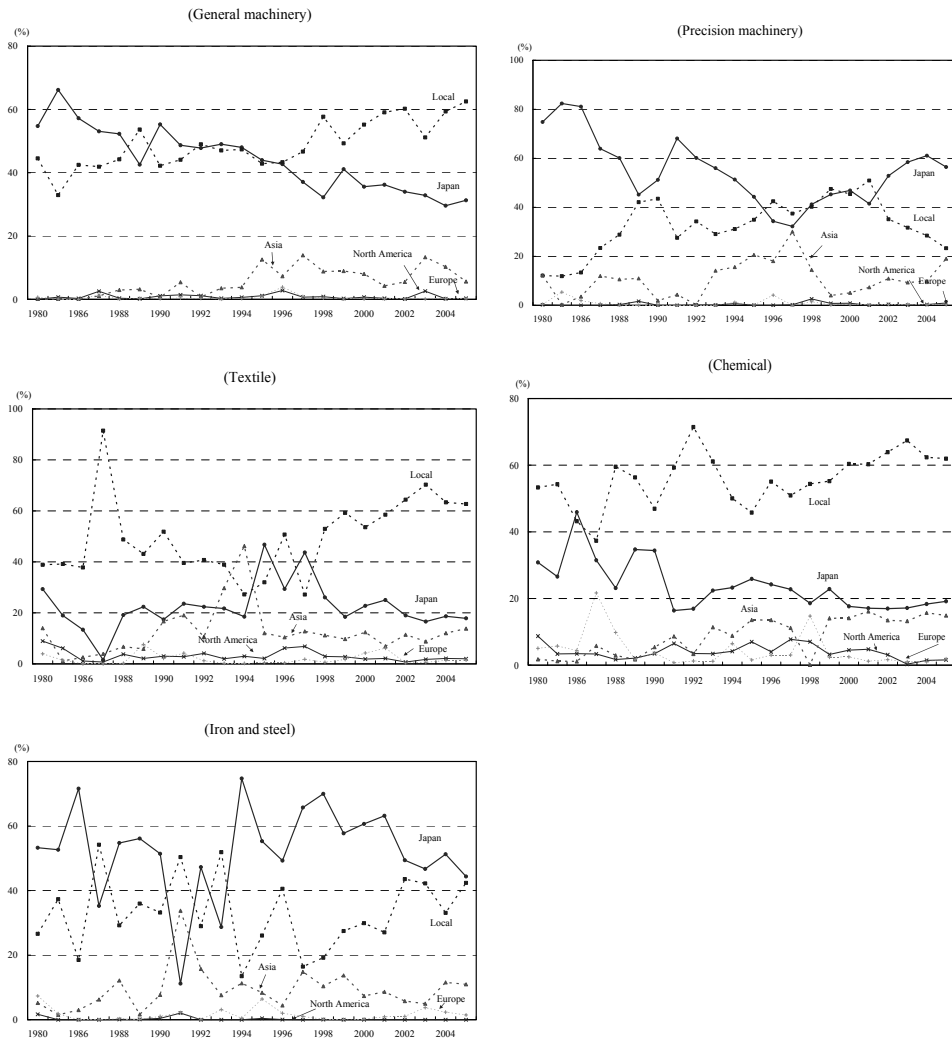
Source : METI "Basic Survey on Overseas Business Activities"

Figure 10. Purchase share of Japanese affiliates in Asia
(Electric machinery)



Source : METI "Basic Survey on Overseas Business Activities"

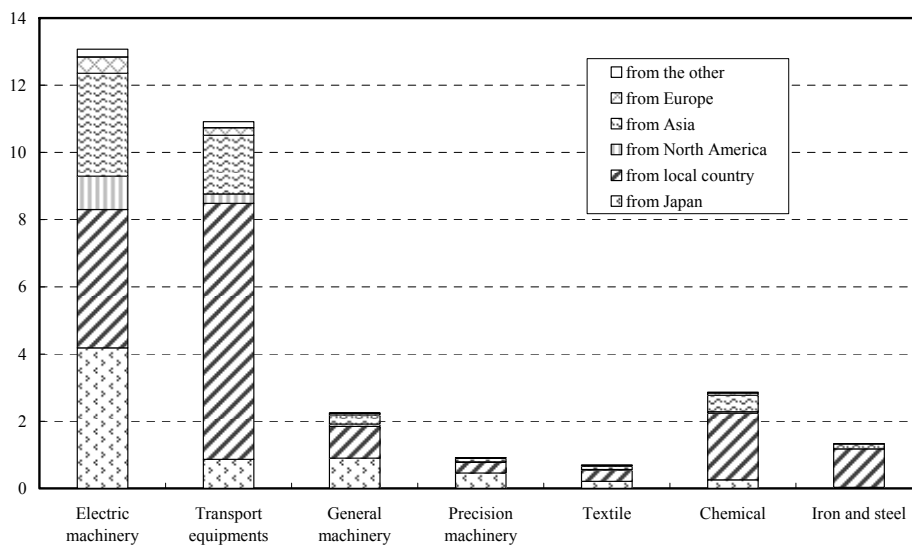
Figure 11. Purchase share of Japanese affiliates in Asia



Source: METI “Basic Survey on Overseas Business Activities”

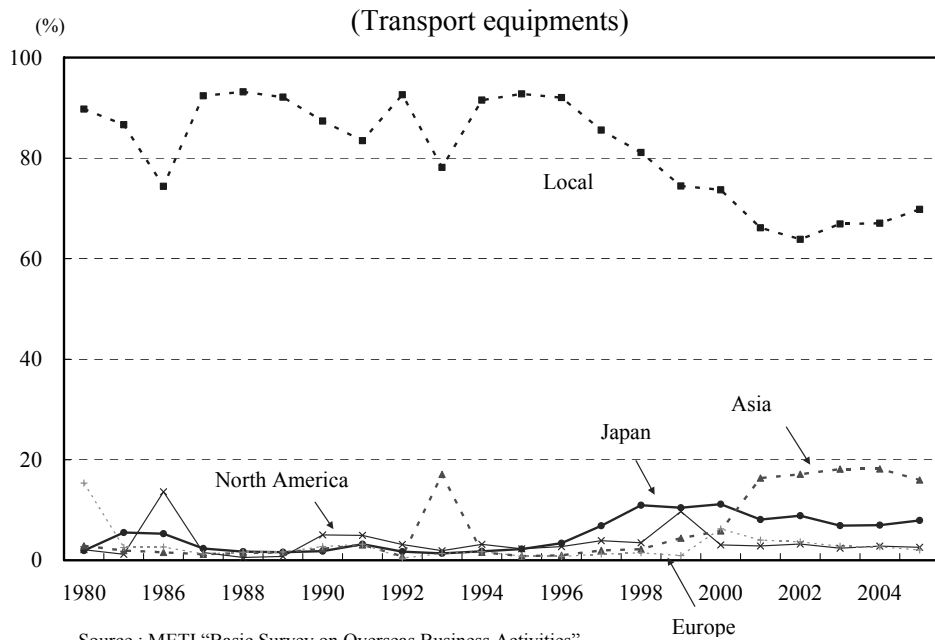
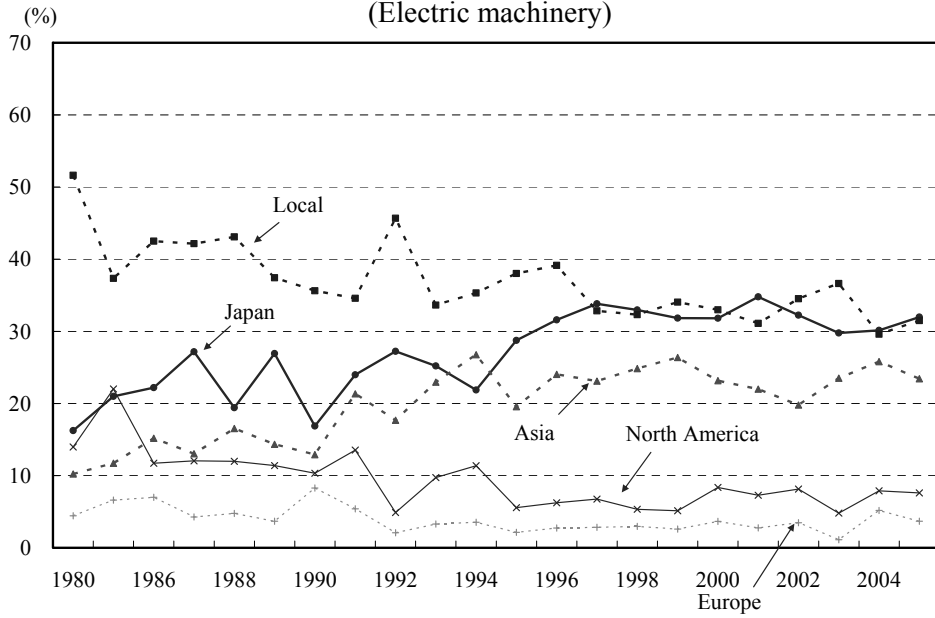
Figure 12. Sales destination of Japanese affiliates in Asia (2005)

(Trillion Yen)



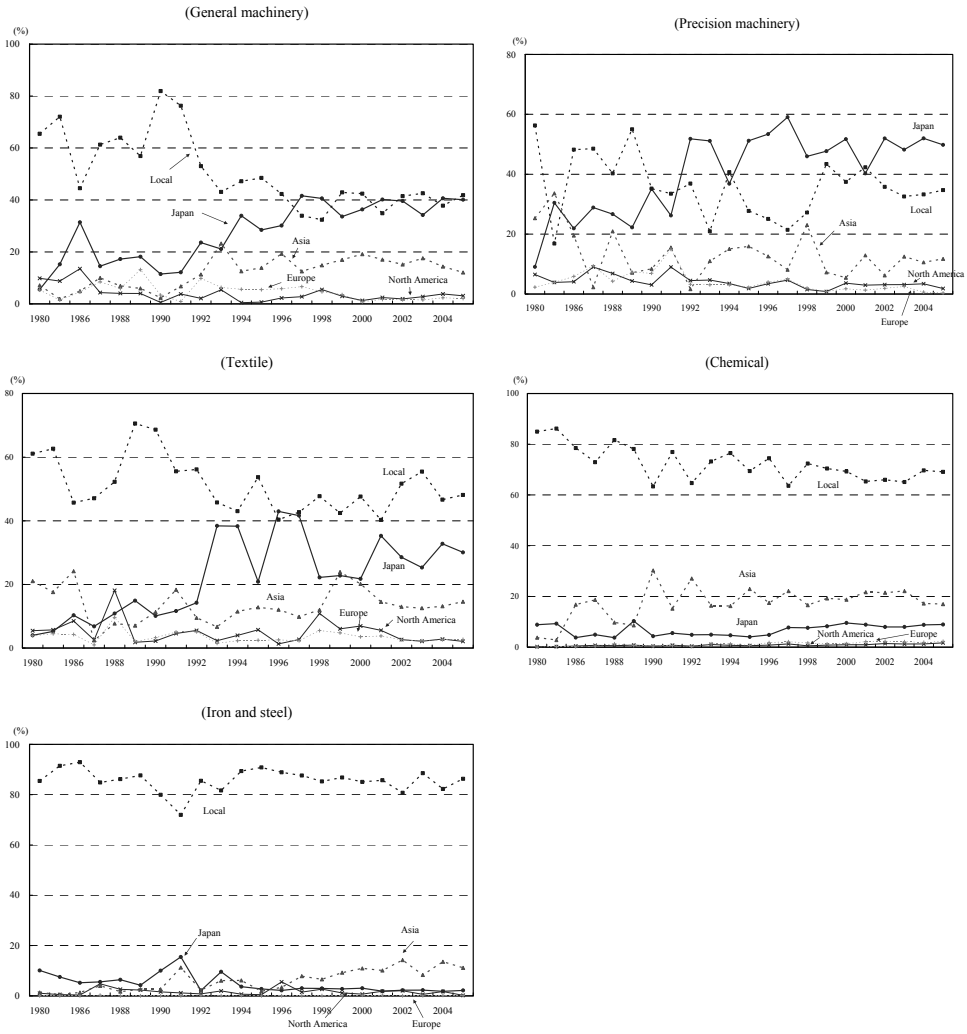
Sources : METI "Basic Survey on Overseas Business Activities"

Figure 13. Sales share of Japanese affiliates in Asia
(Electric machinery)



Source : METI "Basic Survey on Overseas Business Activities"

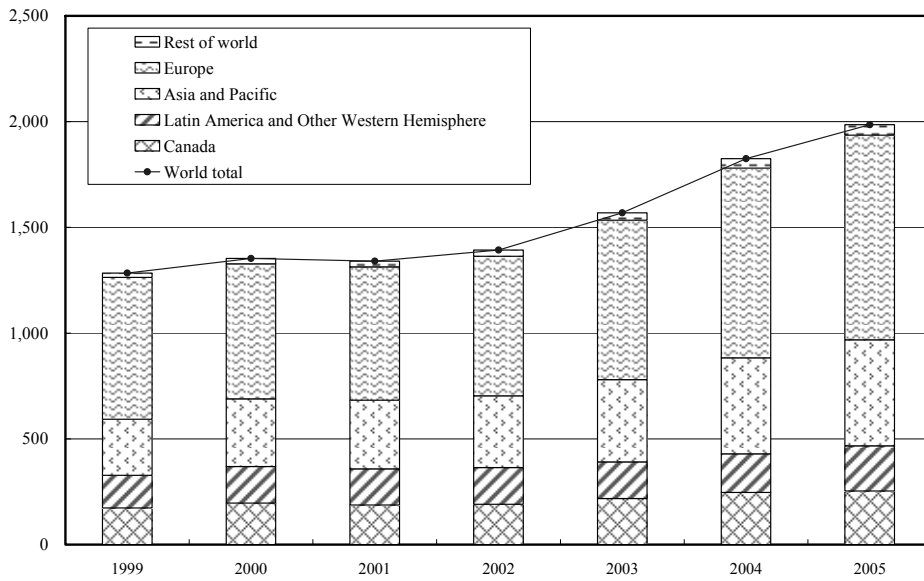
Figure 14. Sales share of Japanese affiliates in Asia



Source: METI "Basic Survey on Overseas Business Activities"

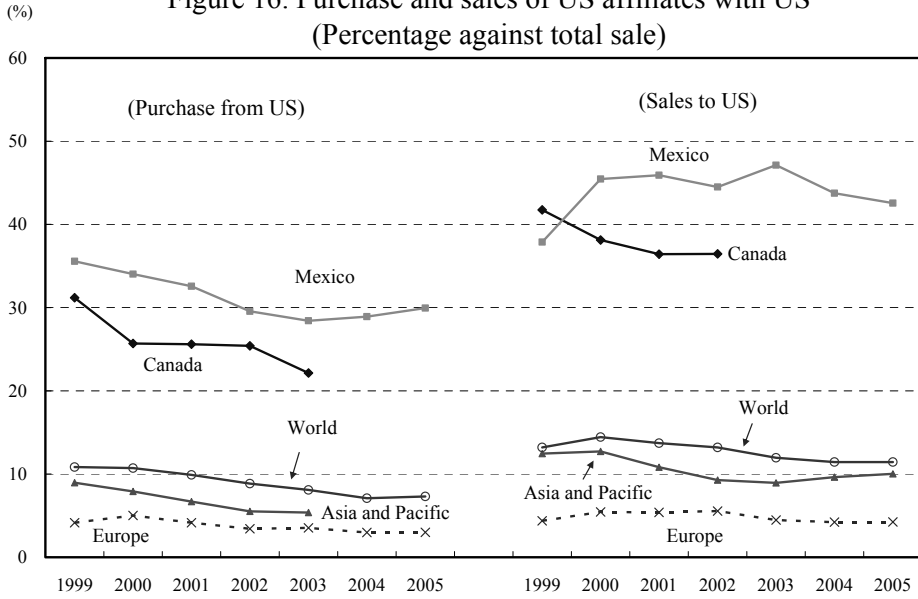
(Billion dollar)

Figure 15. Sale of US manufacturing affiliates



Source: Website of Bureau of Economic Analysis, Department of Commerce, US.

Figure 16. Purchase and sales of US affiliates with US
(Percentage against total sale)



Note: Some figures cannot be calculated because necessary data are suppressed to avoid disclosure of data of individual companies.
Source : Website of Bureau of Economic Analysis, Department of Commerce, US.

Table 4. Transaction of overseas manufacturing affiliates with mother country
(Percentage against total sale)

(Unit : %)

	US affiliates		Japanese affiliates	
	Purchase	Sale	Purchase	Sale
Noth America	-	-	23.2	2.6
US	-	-	24.6	2.7
Canada	22.1*	36.5*	-	-
M&S America	16.8	23.9	19.3	3.6
Mexico	30.0	42.6	-	-
Asia	5.4*	10.0	24.2	21.5
Japan	3.2	8.4	-	-
China	5.2	5.7	26.2	27.2
ASEAN4	-	-	21.0	20.4
NIEs3	-	-	24.3	11.5
Europe	3.0	4.2	30.8	2.2
World	7.3	11.4	25.1	10.6

Note:

1. The figures indicate percentages of purchase from (sale to) mother country against total sales.
2. M&S America includes Mexico. China includes mainland only. ASEAN4 includes Indonesia, Malaysia, Philippines and Thailand. NIEs3 includes Korea, Singapore and Taiwan.
3. The data is for 2005. However, * indicates the data is for 2003 because the necessary data are suppressed to avoid disclosure of data of individual companies.
4. Some figures are not available because of a difference in regional breakdown.

Sources:

Ministry of Economy, Trade and Industry, Japan. "Basic Survey on Overseas Business Activities"
Website of Bureau of Economic Analysis, Department of Commerce, US.