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Does Japanese Direct Foreign Investment Promote Japanese Imports from Developing Countries?

Kenji Takeuchi

One way for developing countries to penetrate the Japanese market could be to rely on expansion of Japan's intrafirm imports — particularly for machinery production — from Japanese manufacturing affiliates in these countries.

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This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in PRE to analyze the prospects for developing country exports, particularly manufactured exports, in major industrial country markets. Copies are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Jean Epps, room S8-037, extension 33710 (41 pages with tables).

Japanese direct foreign investment (DFI) in developing countries has been export-market-oriented. Exports were the dominant sales destinations for the affiliates in the primary industries.

In manufacturing, although local markets were the dominant sales destinations of the Japanese affiliates, the share of exports increased from 26 percent in 1972 to 42 percent in 1986. The only subsectors in which export's share remained below 30 percent in 1986 were iron/steel, transport machinery, and chemicals.

The share of Japanese affiliates in Japan's imports of manufactures from Asia (where Japanese manufacturing DFI was most active) is found to have been particularly high in the electrical machinery industry (50-100 percent), very significant for transport machinery (rising from 30 percent in 1980 to 77 percent in 1986), precision machinery (rising from 30 percent to 60 percent), and general machinery (rising from 20-24 percent to 65-75 percent).

For manufacturing as a whole, the share increased from 15 percent in 1980-83 to more than 20 percent in 1986.

Thus for many types of machinery production, Japanese affiliates in Asia seem to have become established as a base for exporting to the Japanese market through intrafirm trade.

In some other manufacturing subsectors, Japanese affiliates have directed their sales efforts to other overseas destinations, gradually reducing the share going to the local market.

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by
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Japanese Direct Foreign Investment: A Promoter of Japanese Imports From Developing Economies?

Kenji Takeuchi*

I. Introduction

Japan is the second largest economy in the world, a fast growing market for developing countries. Japan's level of manufactured imports relative to GNP is exceptionally low compared to other industrial countries, but the share of developing economies in total manufactured imports has not been lower; moreover, Japan's manufactured imports are growing rapidly, 25% per annum during 1987-89 (US$ terms).[1] If Japan's ratio of manufactured imports to GNP were to rise in the future to levels of those of other industrial countries, Japan's imports of manufactures from developing economies could be two to three times what they are today.[2]

The low ratio of manufactured imports to GNP may stem -- at least partly -- from market behavior. Many studies have found that the Japanese distribution system and practices constitute important market access problems, and have suggested steps that the government could take to improve the openness of the marketing system. Nevertheless, private sector behavior may also affect

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[1] The share of developing economies in total imports of manufactures in Japan has been in the range of 27-32% over the last decade, or about the same as, or even higher than, those for most other industrial countries. Japan's ratio of manufactured imports form all sources to GNP was in the range of 2.1-2.7% in the 1980-87 period as compared with 8.5-10.3% for the industrial countries as a whole and 4.7-7.2% for the United States. See Takeuchi (1989) and Takeuchi (1990).

[2] Takeuchi (1989), Takeuchi (1990).

trade relationships.[3] One possible avenue for developing economies to enhance their penetration of the Japanese market, therefore, could be to rely on expansion of intra-firm imports from Japanese manufacturing subsidiaries and joint ventures located in those economies. How likely are recent increases in Japan's direct foreign investment (DFI) in manufacturing in developing economies, especially in Asia, to lead to a significant expansion of Japan's imports of manufactures from these economies through intra-firm trade? The purpose of this paper is to review the impact of Japanese DFI on Japan's imports from developing economies in an effort to provide partial answers to that question. It identifies the links -- over time -- between Japanese DFI, and the exports it has generated from developing economies, and Japan's imports from them.

The next section of this paper discusses the sources of statistics used in this study. The third section reviews the broad trends in the Japanese DFI in the last three decades. The fourth section reviews the changing impact of Japan's DFI in the natural resource sectors on Japan's imports. The fifth section reviews the trends in Japanese DFI in the manufacturing sector in developing economies. The sixth section examines the market orientation of the Japanese affiliates in developing economies and their role in Japan's imports of manufactures from developing economies; the last contains some conclusions.

II. Data Sources

There are three official sources for statistics on Japanese DFI; (1) the Ministry of Finance (MOF), (2) the Ministry of International Trade and Industry (MITI) and (3) the Bank of Japan (BOJ). Most DFI data used in this paper use MOF statistics. That ministry publishes statistics on outward DFI flows with industry and country breakdowns on approval/notification basis. These

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[3] For example, see Kreinin (1988).

have been published periodically in special issues of the Zaisei Kinyu Tokei Geppo, covering Japanese outward DFI since 1951.

The MOF defines outward direct investment to include acquisition by Japanese residents of securities issued by non-residents as well as loans made to foreign corporations for the purpose of establishing long-term relationships with them. Furthermore, outward direct investment also includes outflows aimed at establishment of branch offices and factories overseas, even if they are directly owned by the investing home corporations and do not belong to any entities incorporated overseas. Investment in equity shares exceeding 10% (25% before December 1, 1979) in foreign corporations and long term lending to -- and holding of bonds issued by -- such corporations are included in outward DFI statistics. The statistics also include equity shares below 10% (25% before December 1, 1979) in foreign corporations if the investing resident corporation has a "close relationship" with the foreign corporations concerned.[4] MOF data on DFI outflows are given in current US dollars.

The MOF statistics on DFI have three major defects.[5] First, firms sometimes do not actually undertake the investment announced, or do so only partially. Second, the actual implementation of an investment is often later -- sometimes much later -- than the time of reporting. Third, the amount of investment includes certain types of loans and acquisitions of bonds which can account for a substantial portion of the total investment. Repayment of these loans or bonds,however, are not covered by the statistics, nor are withdrawals

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[4] For example, if a representative from the resident corporation is serving as a director on the board of the foreign firm, it is considered a "close relationship." A long-term purchase, licensing or agency contract is also considered a basis for a close relationship.

[5] Komiya (1988), pp. 242-247.

of (or capital losses on) equity investment. For these reasons, the MOF statistic tend to overstate the actual value of FDI. On the other hand, no direct investment undertaken by overseas subsidiaries is included in MOF statistics on DFI except the funding was provided by the "parent" firms and reported to the MOF.

Annual DFI flows reported in the balance of payments statistics published by the Bank of Japan (BOJ)[6] do reflect actual annual outflows of DFI. However, these cover only funds used to acquire equity shares of foreign corporations, and do not include reinvested earnings. And -- a fatal flow for our purposes -- the BOJ statistics do not give industry breakdowns nor host country breakdowns.

MITI conducts questionnaire surveys of Japanese enterprises' activities abroad; a detailed survey once in every three years since 1981, and -- since the early 1970s -- a less detailed survey in each year except for the years in which detailed surveys are done. Questionnaires are sent to all Japanese companies that have reported to the government their participation in the management of foreign corporations through acquisition of securities of these corporations (MITI, 1986, p.1). While the recovery (or response) ratio of MITI's questionnaire surveys is rather low, roughly 50%, almost all of the large corporations (those listed in the first division of the Tokyo Stock Exchange) always respond, and those which do not are relatively small firms. MITI surveys provide information on the market destinations and intra-firm trade of Japanese DFI subsidiaries among other things. This information is used in this study for identifying the sectoral pattern of Japan's imports from Japanese

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[6] Bank of Japan, Balance of Payments Monthly, various issues.

DFI affiliates in developing countries and the trends in intra-firm imports of Japan.

III. Japanese DFI in the Postwar Period

Although Japan's DFI outflow was resumed in 1951, its scale remained small through the early 1960s; stringent government restrictions were imposed because of the weak balance of payments. In the late 1960s, as Japan's strong economic growth continued and the balance of payments improved, the government began to relax its restrictions and Japan's DFI outflow grew rapidly (Chart 1).[7] However, the growth of this outflow was interrupted during the period 1974-1977, with the slower economic growth triggered by the first oil price increase of 1973-74. The fear of even more adverse turns in the balance of payments caused Japan to defer further liberalization of capital outflows. Furthermore, the abrupt slowdown in the world economy and increased uncertainty of demand growth led private business to slow their investment overseas as well as at home.

By the late 1970s, fully recovered from the recession of 1975, the Japanese economy was back on a more stable growth path and business confidence was recovered. Beginning in 1978, capital outflow was rapidly liberalized, and Japan's DFI outflow began to recover soon thereafter. The second oil price increase in 1979-1980 and the uncertainty it created again interrupted the DFI growth in the early 1980s.

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[7] Original MOF data on Japanese DFI are given in current US dollars. Chart 1 shows the same data in terms of constant 1985 yen. The current US dollar values were first converted to current yen values using yearly average exchange rates for the corresponding years, and these yen values were deflated by the BOJ producer price index for capital goods to obtain the constant 1985 yen values.

Since 1984, with world economic recovery, a rising current account surplus, and the sharp appreciation of the yen, Japan's DFI outflows escalated. Japan's DFI outflow exceeded US $20 billion in FY 1984 and reached US$ 47 billion in FY 1988.[8] Today, Japan is the world's largest source of direct foreign investment.[9]

One notable feature in the evolution of Japanese DFI is the rise and fall in the share of primary sector. In the latter half of 1960s, the share of DFI in the primary sector (agriculture, forestry, fisheries, mining, petroleum and gas) increased (Table 1). For the developing host region, this sector's share remained high through the decade of 1970s, although this share for the industrial host region began to decrease in the second half of the 1970s. This pattern reflected the desire of the Japanese government and businesses for secure, long-term supplies of primary products, especially energy and raw materials. The concern was heightened, first by the rapidly rising demand for energy and raw materials with Japan's economic boom in the 1960s, but it was sustained in the 1970s by OPEC activities as well as prognostications of resource scarcities.[10]

In the early 1980s, the share of the primary sector declined for all host regions as concerns over resource scarcities subsided. Surplus conditions persisted in energy and raw material markets, which in turn reflected sluggish

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[8] The Japanese fiscal year (FY) starts in April and ends in March of the following year; e.g., FY 1988 covers the year for April 1, 1988, to March 31, 1989.

[9] According to the IMF (1989, p. 68), direct investment outflow from Japan was SDR 25.5 billion in 1988, as compared to SDR 20.0 billion for the United Kingdom and SDR 13.1 billion for the United States.

[10] For the background, see Tsurumi (1976), Vernon (1983), Ozawa (1977), Kojima (1977), and Crowson (1983).

CHART 1

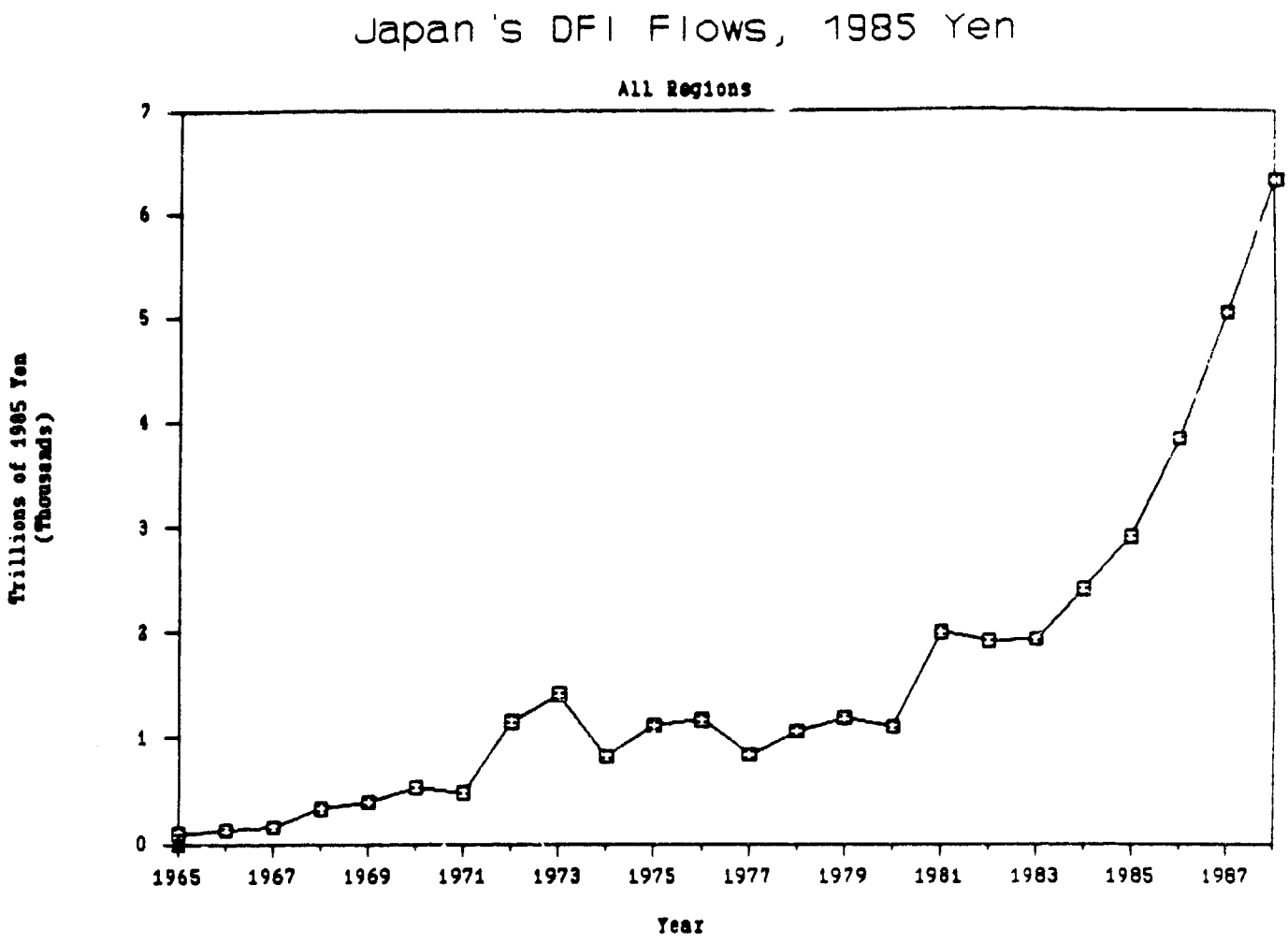
Japan's DFI Flows, 1985 Yen
All Regions
Trillions of 1985 Yen
(Thousands)
0
1
2
3
4
5
6
7
1965
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
Year

Table 1. Japanese DFI: Sector Shares, 1951-1988

	1951-64	1965-69	1970-74	1975-79	1980-84	1985	1986	1987	1988
	percent								
All Countries									
Primary Sector /a	12.9	29.6	27.8	20.4	12.6	5.3	3.3	2.0	2.7
Manufacturing	37.0	21.2	34.3	35.3	28.2	19.3	17.1	23.5	29.4
Real sector total /b	49.9	50.8	62.1	55.7	40.8	24.6	20.4	25.4	32.1
All Others /c	50.1	49.2	37.9	44.3	59.2	75.4	79.6	74.6	67.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Developing Countries									
Primary Sector /a	15.5	36.3	26.3	29.2	19.2	8.3	5.0	3.2	4.1
Manufacturing	37.5	30.8	48.1	41.1	27.0	18.5	14.6	18.4	21.9
Real sector total /b	53.0	67.1	74.4	70.3	46.2	26.8	19.6	21.6	26.0
All Others /c	47.0	32.9	25.6	29.7	53.8	73.2	80.4	78.4	74.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Industrial Countries									
Primary Sector /a	6.3	23.5	29.5	8.7	6.1	3.8	2.4	1.4	2.2
Manufacturing	35.4	11.9	19.0	27.7	29.4	19.6	18.3	25.7	32.2
Real sector total /b	41.7	35.4	48.5	36.4	35.5	23.4	20.7	27.1	34.4
All Others /c	58.3	64.6	51.5	63.6	64.5	76.6	79.3	72.9	65.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

/a Primary sector includes agriculture, forestry, fisheries and mining/gas/oil.
/b Real sector includes primary sector and manufacturing.
/c All others include construction, commerce, finance, insurance, real estate, transport, tourism, etc.

Source: Ministry of Finance, Zaisei Kinyu Tookei Geppo, various issues.

world economic growth and the sustained efforts of users to save energy and raw materials. World energy and raw material capacities had also been increased substantially through increased investment. The impact of Japanese DFI in energy and raw materials on Japan's imports of these commodities will be reviewed in the next section.

Japan's direct investment in the primary sector of developing countries declined in the 1980s, not only as a share in total DFI flows to developing countries but also in absolute terms. Measured in constant 1985 yen, Japan's DFI for primary sector in developing coutries declined from 212 billion yen per year in the 1973-1981 period to 100 billion yen per year in the 1982-1984 period and to 67 billion yen per year in the 1985-1988 period.

Another notable trend is that the combined share of sectors other than primary and manufacturing sectors (what we call "all others" in Table 1) increased markedly in the 1980s, for both industrial and developing host regions. The increase of "all others" reflects particularly increased DFI in services; finance, real estate, transport and tourism. The increase in the share of "all others" for the developing region in the 1980s largely reflects the growth of DFI aimed at tax havens (such as the Caribbean countries) and flag-of-convenience shipping.[11] The increase in the industrial countries reflects expanded Japanese financial activities and real estate purchases, especially in Europe and the United States.

Japanese DFI in the manufacturing sector has shown divergent trends between the industrial and developing host countries. The share of manufacturing

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[11] For example, Panama, the Bahamas, the Cayman Islands and Liberia together accounted for 44.2% of all Japanese DFI in all sectors in developing countries in 1988.

in Japan's DFI flows to developing countries increased in the 1970s, but declined in the 1980s (Table 1). In industrial countries, the share of manufacturing declined from the mid-1960s to mid-1970s, but has increased since the mid 1970s. This increase reflects, among other things, the concern of Japanese export-oriented manufacturing firms with the growth of protectionism in Europe and the United States and attempts by the Japanese producers to protect their market shares in these major markets. The impact of Japanese manufacturing DFI on Japan's imports of manufactures will be analyzed in detail in the fifth section of this paper.

Finally, it should be noted that the share of DFI directed towards developing countries has tended to decline since the mid-1970s. This trend has been particularly notable in manufacturing, agriculture/forestry, construction, and finance (Table 2).

IV. Impact of Direct Foreign Investment on Japan's Imports of Natural Resources

Because of its poor endowment of natural resources, Japan has long been dependent on overseas sources for supply of raw materials, energy, and food. Trade in fuel and non-fuel minerals has traditionally been controlled by oligopolies of multinational enterprises. In the 1960s, in order to increase Japan's relative independence from foreign multinationals, the Japanese government encouraged the development of independent Japanese firms engaged in production, primary processing and distribution of these commodities.

Thus, in constant yen terms, Japanese DFI in fuels and non-fuel minerals increased more than ten times between the mid-1960s and early 1970s. After peaking around 1972-74, however, the volume of DFI in these sectors stagnated for the rest of 1970s. It peaked again in the early 1980s just after

the second major oil price increase, but decreased substantially in the subsequent years. In contrast, Japan's food security policy has been to encourage domestic production while discouraging imports and Japan's DFI in agriculture, forestry and fisheries has been relatively tiny in comparison with that in minerals. Chart 2 shows the 3-year moving average[12] of Japanese DFI in minerals, the primary sector as a whole, manufacturing, and all "real" sectors (the primary sector plus manufacturing).

What has been the link between this past mineral-oriented DFI and Japanese imports? This section examines the link by reviewing major mineral groups.

In the case of crude oil, until the early 1960s, the major international petroleum companies dominated the supply of crude oil to the Japanese market. In 1962, a Petroleum Industry Law assigned MITI a supervisory role over the development of the indigenous petroleum industry -- refinery licensing, financial arrangements for the industry, and approval of production and crude oil acquisition plans.[13] Although a significant part of Japan's refinery industry was Japanese-owned by the early 1970s, almost 80% of Japan's crude oil imports still came from non-Japanese multinational oil companies.[14]

In 1967, the Petroleum Development Corporation was created to subsidize overseas petroleum exploration activities, and in 1972 the Petroleum Development Technology Center was established. In 1978, these organizations were incorporated into the Japan National Oil Corporation (JNOC) which had the

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[12] The three-year moving average is shown to smooth out the lumpiness of yearly data as DFI flows in minerals/energy sector tend to be especially lumpy.

[13] Vernon (1983), p. 94.

[14] Ibid, p. 95.

Table 2. Japanese DFI: Developing Economies' Share in Total, by Sector, 1951-1988

	1951-64	1965-69	1970-74	1975-79	1980-84	1985	1986	1987	1988
					percent				
Manufacturing	72.3	71.3	73.4	66.3	47.1	33.6	28.4	23.5	20.5
Agricul/forestry	85.7	86.8	66.2	53.5	42.9	41.7	60.0	22.7	11.7
Fisheries/marine	71.4	55.6	64.7	55.2	68.4	42.9	63.5	54.5	73.4
Mining/gas/oil	86.4	58.1	48.0	86.3	77.0	55.2	49.5	53.0	43.1
Construction	66.7	91.3	70.2	59.9	55.5	57.4	10.8	21.8	34.6
Commerce	11.8	6.0	19.1	15.3	18.0	18.3	18.4	16.6	17.0
Financial/insurance	32.5	60.7	33.4	16.3	18.6	30.0	38.8	28.4	39.4
Other /a	84.9	33.8	46.1	59.7	70.9	43.5	33.0	37.3	24.4
All Sectors	71.1	49.0	52.3	57.0	49.3	34.9	33.2	30.0	27.5

a/ All other industries not included elsewhere, such as real estate, transport, and tourism.

Source: Ministry of Finance, Zaisei Kinyu Tookei Geppo, various issues

additional task of stockpiling petroleum. These actions had an effect. In 1968, there were only two Japanese overseas projects producing and exporting oil to Japan (the Arabia Sekiyu project in Saudi Arabia and the North Sumatra Petroleum Development Cooperation project in Indonesia). By 1974, the number of Japanese firms engaged in oil exploration overseas increased to 47.[15] The financing provided by the JNOC to Japanese firms between FY 1967 and FY 1987 (inclusive) amounted to 1,268 billion yen; about US$ 10 billion. By 1988, there were 26 overseas companies with Japanese equity participation producing crude oil in 15 countries; they together exported 21.3 million tons of crude oil to Japan in 1988 (Table 3).

If an objective of the Japanese petroleum policy was to increase the share of crude oil imports coming from Japanese overseas firms, however, the policy has not been a phenomenal success. Since 1968, the share fluctuated around 10%, never exceeding 13% (see Table 4).

The Japanese government, through the Petroleum Development Corporation, has also subsidized overseas exploration and development of natural gas supply by Japanese firms since 1972. To ship natural gas in liquefied form requires a high degree of compression and extremely low temperature; a highly capital-intensive technology. Transoceanic transportation of liquefied natural gas (LNG) requires a specialized fleet. Thus, almost all LNG projects are vertically integrated from liquefaction to distribution.

Japanese participation in overseas LNG projects has expanded and Japan's imports of LNG have grown steadily -- from less than 1 million tons in 1971 to over 31 million tons in 1988. So far, all of Japan's imports of LNG have

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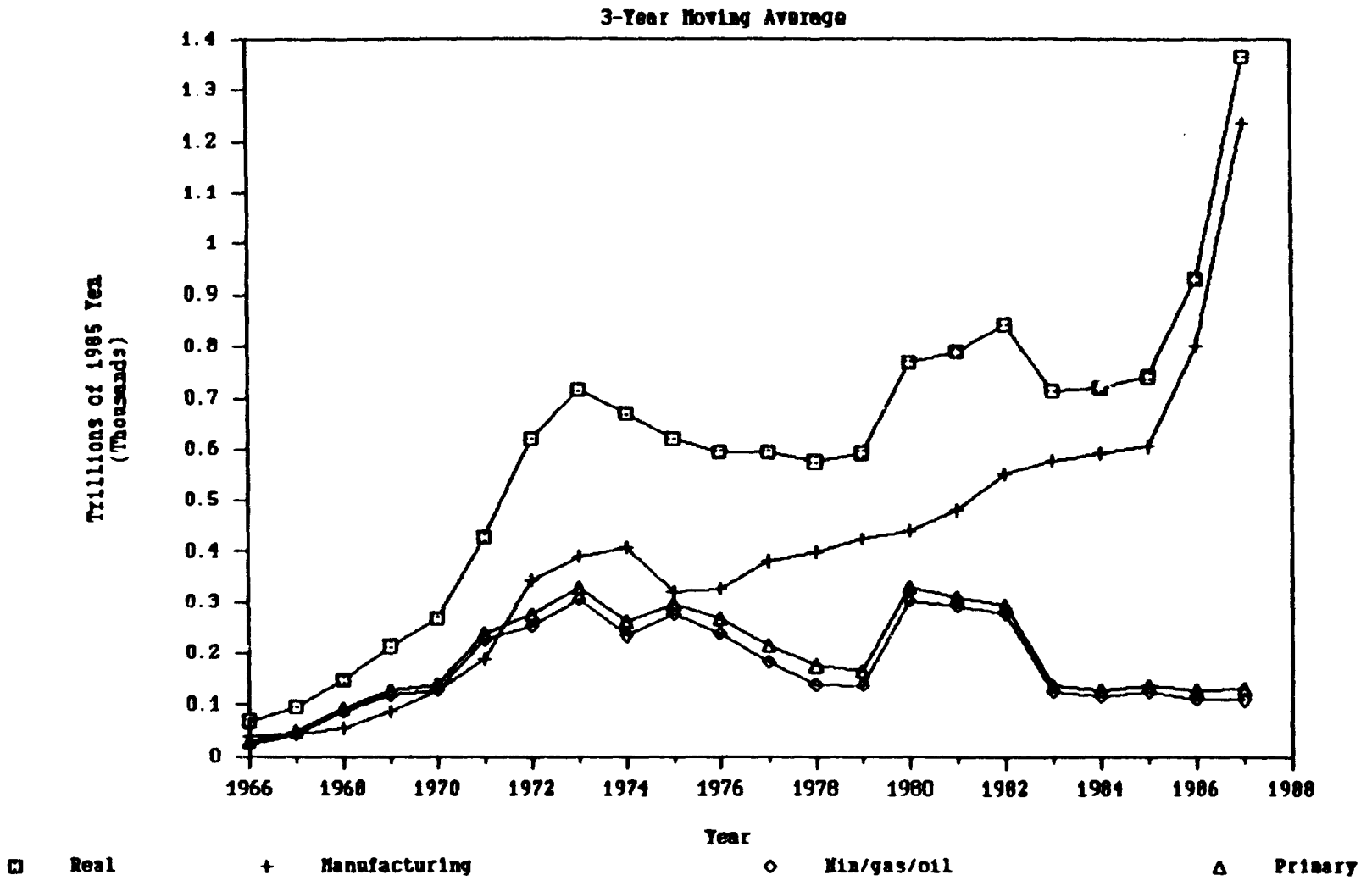
[15] Vernon (1983), p. 96.

CHART 2


Japan's DFI, 1985 Yen
3-Year Moving Average
Trillions of 1985 Yen
(Thousands)
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
Year
Real
Manufacturing
Min/gas/oil
Primary

come from Japanese DFI-financed projects located in five countries; Brunei, Indonesia, Malaysia, United Arab Emirates and the United States. Apart from LNG, Japan also imports liquefied petroleum gas (LPG), which does not require so much initial capital investment. Development of LPG production and exports has not required Japanese DFI financing. Although there may have been some cases where Japanese DFI was committed for LPG production, data are not readily available. Even if all of Japan's LPG imports are assumed to have been unrelated to Japanese DFI, the share of DFI-based imports in Japan's total liquefied gas (LPG plus LNG) imports increased from about 25% in the 1971-73 period to over 60% by early 1980s, and to 70% by 1984, where it has remained since (Table 4). Thus, for liquefied gas, the Japanese policy objective has been achieved.

In non-fuel minerals, since early 1960s the government's objective was to enhance the security of long-term supply of these commodities from overseas, as in fuels. The policy was to subsidize the development of new overseas sources to give Japanese users of these raw materials some degree of supply security.

In 1963, MITI established the Metal Mining Agency of Japan (MMAJ). Initially it concentrated on subsidizing domestic exploration but by 1968 the agency was promoting exploration and development overseas.[16] By the 1960s, most attractive known ore deposits were already controlled by non-Japanese multinational mineral companies. Therefore, in addition to providing financing for exploration and development of new deposits, the Export-Import Bank of Japan offered subsidized financing to Japanese firms for engaging in long-term purchase contracts with foreign owners who developed new mines. This was called the

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[16] Crowson (1983).

Table 3. Japan's DFI-Based Imports /a/ of Selected Natural Resource Commodities

Year	Copper /b	Aluminum Ingots	Iron Ore	Coking Coal	Liquefied Gas /c	Crude Oil
	--- (1,000 t) ---		---------- (million tons) ----------			
1960	28	NA	NA	NA	NA	NA
1961	34	NA	NA	NA	NA	NA
1962	39	NA	NA	NA	NA	NA
1963	56	NA	NA	NA	NA	NA
1964	52	NA	NA	NA	NA	NA
1965	63	NA	NA	NA	NA	NA
1966	74	NA	NA	NA	NA	NA
1967	96	NA	NA	NA	NA	NA
1968	139	NA	NA	NA	NA	15.5
1969	125	NA	NA	NA	NA	15.5
1970	147	NA	NA	NA	NA	17.3
1971	252	NA	NA	NA	0.8	16.8
1972	281	NA	NA	NA	1.0	18.0
1973	425	NA	NA	NA	1.9	21.2
1974	452	56	NA	NA	3.4	23.7
1975	397	56	57.2	18.9	4.6	20.1
1976	468	87	60.3	19.5	5.8	20.7
1977	426	120	57.8	19.1	7.3	20.4
1978	391	127	57.6	17.1	11.2	25.6
1979	302	182	61.2	21.3	13.8	21.4
1980	405	260	69.9	20.8	16.8	19.2
1981	340	290	62.2	23.1	17.0	17.5
1982	325	319	57.2	21.0	17.5	15.9
1983	321	490	55.7	23.3	18.9	20.3
1984	371	550	43.0	32.0	25.9	20.1
1985	299	645	38.8	32.3	27.8	18.2
1986	334	563	37.6	28.0	28.4	20.6
1987	332	555	48.8	30.4	29.1	16.6
1988	404	560	47.2	30.2	31.0	21.6

a/ All imports coming from projects in which Japanese companies have equity participation and/or to which they have made sizable medium- to long-term loans are considered DFI-based imports. This is in line with the Ministry of Finance definition of DFI.

b/ Since most of Japanese DFI in copper has been in production of copper ore or concentrates, DFI-based imports of copper are in concentrates.

c/ All Japanese imports of liquefied natural gas have been DFI-based. However, Liquefied gas imports in general include both LNG and lique--fied petroleum gas. DFI-based imports include only LNG; all LPG imports are considered non-DFI-based for the purpose of this table.

develop-for-import formula.[17] All of these loans are included in Japan's foreign direct investment data.[18]

The develop-for-import financing -- with or without Japanese equity participation -- has been a significant factor in developing the world's new production capacity for minerals, especially for copper, iron ore, coking coal, and, to a much lesser extent, for nickel, bauxite, lead and zinc. Since the mid-1970s, it has also been a key factor in linking the Japanese aluminum industry with overseas aluminum smelting projects. How successful were these efforts in increasing Japan's DFI-based imports of raw materials? Some pertinent data for aluminum, copper, coking coal and iron ore are presented in Tables 3 and 4 (along with similar data for oil and gas) and discussed below.

Japan's DFI-based imports of copper concentrates increased steadily from 28,000 tons (copper content) in 1960 to over 400,000 tons in early to mid-1970s, but they have since remained at or below 400,000 tons (Table 3). Copper has also been imported in the form of blister and refined copper as well. Japan's overall copper imports peaked at 1.1 million tons in 1973, but varied thereafter until a new peak of 1.35 million tons was reached in 1984. In the meantime, Japan's imports of copper concentrates peaked at 458,000 tons in 1976. The share of DFI-based copper concentrate imports in Japan's overall copper imports increased from 15% in the early 1960s to nearly 50% in 1976, but subsequently relapsed to 25-30% in the 1980s. The reasons for the recent decline in the DFI-linked share are associated with the rising energy prices and the

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[17] See Ozawa (1977), pp. 63-65; also Kolenda (1985).

[18] Komiya (1988).

Table 4. Share of DFI-Based Imports /a/ in Japan's Total Imports of Selected Natural Resource Commodities

Year	Copper /b	Aluminum Ingots	Iron Ore	Coking Coal	Liquefied Gas /c	Crude Oil
	percent					
1960	14.9	NA	NA	NA	NA	NA
1961	15.1	NA	NA	NA	NA	NA
1962	20.4	NA	NA	NA	NA	NA
1963	24.9	NA	NA	NA	NA	NA
1964	18.0	NA	NA	NA	NA	NA
1965	22.4	NA	NA	NA	NA	NA
1966	23.0	NA	NA	NA	NA	NA
1967	18.4	NA	NA	NA	NA	NA
1968	24.5	NA	NA	NA	NA	12.2
1969	19.3	NA	NA	NA	NA	10.3
1970	20.5	NA	NA	NA	NA	9.8
1971	32.8	NA	NA	NA	24.0	8.7
1972	32.0	NA	NA	NA	18.2	8.5
1973	37.4	NA	NA	NA	27.7	8.5
1974	44.4	16.0	NA	NA	37.6	10.0
1975	46.4	15.6	47.3	31.0	44.5	8.9
1976	47.7	20.4	47.4	32.9	48.1	8.7
1977	44.3	25.5	49.0	33.9	51.0	8.5
1978	38.3	18.7	52.5	33.7	58.1	11.0
1979	26.1	29.8	51.1	37.6	59.4	9.0
1980	37.0	32.9	56.1	32.1	63.5	8.9
1981	28.7	27.3	53.2	35.1	62.1	8.8
1982	24.6	23.7	52.5	33.8	59.8	8.9
1983	29.3	35.5	53.4	37.2	63.6	11.1
1984	27.4	42.8	36.8	46.4	69.5	10.9
1985	24.4	47.7	33.9	45.2	70.7	10.7
1986	29.5	47.4	36.5	40.8	70.5	12.8
1987	28.6	29.1	44.5	43.6	69.7	10.3
1988	30.1	27.3	40.7	40.8	70.9	12.5

a/ All imports coming from projects in which Japanese companies have equity participation and/or to which they have made sizable medium- to long-term loans are considered DFI-based imports. This is in line with the Ministry of Finance definition of DFI.

b/ Since most of Japanese DFI in copper has been in production of copper ore or concentrates, DFI-based imports of copper are in concentrates, but total copper imports refer to imports of refined and blister copper as well as copper in concentrates.

c/ All Japanese imports of liquefied natural gas have been DFI-based. However, Liquefied gas imports in general include both LNG and lique--fied petroleum gas. DFI-based imports include only LNG and all LPG imports are considered non DFI-based for the purpose of this table.

Source: Metal Mining Agency of Japan; Marubeni Corporation; Nippon Steel Corporation; Japan National Oil Corporation.

increased exchange value of the yen, which made it more economical to produce blister or refined copper abroad.[19]

The case of aluminum ingots, which already incorporate energy costs, is similar. Japan's DFI-based imports rose from some 50-60,000 tons in the mid-1970s to over 600,000 tons in the mid-1980s. They remained at around 550,000 tons in subsequent years. The share of DFI-based imports of aluminum, 15-16% in the mid 1970s, rose to over 40% in the mid-1980s, but subsequently declined to below 30%, as Japan's total imports of aluminum incraeased markedly (from 1.2 million tons in 1986 to over 2.0 million tons in 1988 and 1989).

In iron ore and coking coal, which are imported for Japan's steel industry, data on DFI-based imports are available only for the period since 1975. While DFI-based imports of iron ore have been relatively stable at around 40-60 million tons throughout the period, DFI-based coking coal imports have risen from below 20 million tons int he second half of 1970s to over 30 million tons in the period since 1984. The share of DFI-based imports in Japan's imports of iron ore from all sources rose from 47% in 1975 to 56% in 1980 but declined to the 35-44% range by the 1984-88 period. Coking coal was similar; the DFI-based share of imports increased fro: 31% in 1975 to 45-46% in 1984-85 but has decreased to 41-44% in the 1986-88 period.

To summarize, Japan's DFI in the minerals and energy sector was active from mid 1960s to early 1980s but subsequently dropped both relatively and in absolute terms. DFI in this sector was supported by the Japanese government, whose stated objective was to increase the share of imports from

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[19] For background information on the pattern of world trade in the three forms of copper in the period since 1960, and the role of Japan as an important importer, see Takeuchi, et al (1987), Chapter VII and Annex C.

Japanese DFI-based sources in Japan's imports from all sources. This policy initially succeeded more or less in natural gas, aluminum, copper, iron ore and coking coal but was not successful in petroleum. Finally, with the exception of LNG, where vertical integration is almost mandatory, the share of DFI-based imports of all these mineral commodities has declined since mid-1980s as relative economic costs changed. Far from establishing import monopolies for Japanese firms, the evidence from Japan's raw material oriented DFI seems to indicate that although a stated policy and subsidies of the government led to a successful increase in Japanese firms' import shares, their shares tended to decline when investments in these sectors became less attractive due to perceived worsening of the long term market outlook for the commodities in question.

Will the recent apparent boom in Japan's manufacturing DFI, particularly to Asia, lead to greatly increased imports of manufactures? The next section reviews the role of Japanese DFI in the growth of manufactured imports from developing countries over the last two decades.

V. Japan's Manufacturing DFI in Developing Countries

Japan's DFI in manufacturing in all host country groups combined has been growing steadily since the mid 1960s; the growth accelerated since the mid 1980s. It not only increased in terms of current US dollars, it has increased in constant US dollar and yen terms as well (Table 5).

However, there have been contrasting trends in Japan's manufacturing DFI flows between those destined to industrial and developing countries. The flows to industrial countries have steadily increased throughout the entire

Table 5. Japan DFI in Manufacturing, by Host Region, 1965-1988

Period Averages (Per Annum)

Period	Asia	LAC	Middle East	Africa	Developing Total	North America	Europe	Oceania	Industrial Total	World Total
	Millions of Current US Dollars Per Annum									
1965-69	33	21	0	2	57	14	2	8	23	80
1970-74	268	208	20	6	503	107	39	35	181	684
1975-79	456	259	174	7	896	271	94	90	455	1,351
1980-84	642	331	56	25	1,054	891	216	75	1,182	2,236
1985-88	1,328	300	4	4	1,636	4,365	773	174	5,312	6,948
	Millions of 1985 US Dollars Per Annum									
1965-69	96	64	1	7	168	41	5	23	69	238
1970-74	644	498	46	15	1,202	261	94	83	437	1,639
1975-79	723	416	273	11	1,424	423	145	140	708	2,132
1980-84	715	359	63	28	1,165	965	236	86	1,287	2,452
1985-88	1,273	291	4	4	1,572	4,173	740	167	5,080	6,652
	Billions of 1985 Yen Per Annum									
1965-69	20	13	0	1	34	8	1	5	14	49
1970-74	117	87	8	3	214	47	17	16	80	294
1975-79	125	74	47	2	248	74	25	25	124	372
1980-84	152	79	13	6	250	211	51	18	280	529
1985-88	205	52	1	1	259	661	120	26	807	1,065

Source: Ministry of Finance, Zaisei Kinyu Tokei Geppo, various issues;
Bank of Japan, Economic Statistics Annual, various issues;
United States Council of Economic Advisors, Economic Report of the President, 1990

period, both in terms of value and number of cases (Table 5).[20] Conversely, the flows to developing countries have been relatively stagnant, at least, since the mid 1970s. As a result of these divergent trends, in the most recent period (1985-88), North America alone accounted for two-thirds of all Japanese DFI in manufacturing (Table 6).

Although Japan's manufacturing DFI flows to developing countries as a group have stagnated since the mid-1970s, those going to Asia have been increasing steadily, in constant yen and $ terms and number of investment cases as well (Table 7). Thus, Asia's share in the developing economies group rose from 50-55% in the 1965-1979 period to over 80% by the 1985-88 period. The most important host economies in Asia in the recent years have been Thailand, Indonesia, Korea, Singapore and Taiwan[21] (see Table 7). The decline in Japan's manufacturing DFI to other developing regions, especially Latin America and the Caribbean and the Middle East, has been dramatic.

Over the last two decades the sectoral composition of Japanese manufacturing DFI flows to developing economies has also changed considerably. In the early 1970s, chemicals, textiles and metals were the most important subsectors (Table 8). In subsequent years, while the share of textiles decreased rapidly the shares of chemicals and metals increased further in the second half of the 1970s. In the early 1980s, metals remained the most important

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[20] The number of investment cases directed towards industrial countries increased from 97 per annum in the 1970-74 period to 356 in the 1980-84 period and to 599 in the 1985-88 period.

[21] Data for Japan's DFI to Taiwan are not available separately for manufacturing for the 1987-88 period. However, based on the fact that total Japanese DFI (including manufacturing as well as others) in Taiwan is reported to have increased from $405 million in the 1985-86 two-year period to $739 million in the 1987-88 two-year period, Japan's DFI for manufacturing in Taiwan is very likely to have increased substantially between the two periods.

Table 6. Geographical Distribution of Japan's Manufacturing DFI, 1951-1988
Share in World Total, by Host Region

	Developing Countries					Industrial Countries			
Period	Asia	LAC	Middle East	Africa	Developing Total	North America	Europe	Oceania	Industrial Total
	Percent								
1951-64	21.0	49.1	0.0	2.7	72.9	24.7	2.1	0.3	27.1
1965-69	40.6	26.7	0.5	3.0	70.8	17.0	2.0	10.2	29.2
1970-74	39.2	30.4	3.0	0.9	73.5	15.7	5.7	5.1	26.5
1975-79	33.8	19.2	12.9	0.5	66.3	20.1	7.0	6.6	33.7
1980-84	28.7	14.8	2.5	1.1	47.1	39.8	9.7	3.4	52.9
1985-88	19.1	4.3	0.1	0.1	23.5	62.8	11.1	2.5	76.5

Source: Ministry of Finance, Zaisei Kinyu Tokei Geppo, various issues.

Table 7. Japanese Manufacturing DFI in Asia, by Major Host Country, 1951-88

Period (inclusive)	Hong Kong	Singapore	Korea	Taiwan	China	Thailand	Malaysia	Indo-nesia	Philip-pines	Asia Total
	Millions of Current US Dollars									
1973-76	64	146	292	111	0	71	154	550	78	1,496
1977-80	85	467	295	134	1	120	251	843	143	2,353
1981-82	30	323	59	96	8	99	77	476	55	1,230
1983-84	19	342	69	130	22	118	227	268	20	1,258
1985-86	66	198	178	385	46	112	97	93	57	1,265
1987-88	193	441	501	NA	273	836	NA	593	NA	4,049

Source: Ministry of Finance, Zaisei Kinyu Tokei Geppo, various issues.

Table 8. Subsector Shares in Japan's Manufacturing DFI in Developing Countries, 1965-1988

Period /a	1965-68	1969-72	1973-76	1977-80	1981-82	1983-84	1985-86	1987-88
Subsector	---------- Percent ----------							
Food Processing	5.9	4.0	4.0	2.7	2.4	3.5	4.0	5.5
Textiles/Garment	23.4	35.5	19.8	7.1	5.1	9.2	2.3	4.2
Wood/pulp/paper	1.6	4.5	6.8	1.9	1.0	1.5	0.7	4.1
Chemicals	6.4	9.8	23.2	32.7	17.6	18.7	4.7	10.3
Metals, ferr/nonfer	17.6	11.9	14.2	29.1	40.8	28.8	17.3	16.4
General Machinery	8.0	6.3	6.3	5.9	7.0	8.6	9.7	8.2
Electrical Machinery	10.6	12.4	9.7	8.1	8.0	7.5	18.1	31.9
Transport Machinery	21.3	6.7	7.3	6.1	11.9	16.8	31.8	9.3
Manufacturing Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a/ Periods are inclusive of fiscal years indicated.

Source: Ministry of Finance, Zaisei Kinyu Tokei Geppo, various issues.

subsector but the share of chemicals declined. In the meantime, machinery subsectors[22] steadily increased their importance over the two decades. Notably, transport machinery's share rose from 6-7% in the 1970s to over 30% by 1985-86. In particular, electrical machinery's share, which remained below 10% up to 1983-84, increased to 18% in 1985-86. The share of general machinery similarly edged up gradually in the 1980s.

VI. The Role of Japanese DFI in Japan's Imports of Manufactures from Developing Countries

The desirability for developing countries to have foreign direct investment in export industries as an effective means to enter world markets was questioned by Nayyer (1978), who conlcuded that the contribution that foreign direct investment by multinationals had made toward the expansion of the manufactured exports of host developing countries had been relatively modest, that the share of foreign-owned subsidiaries in manufactured exports of developing countries had tended to decline over time and that, considering the "costs" involved, the inducement of foreign investment in manufacturing export industries of these countries might not be the best policy for them unless more convincing evidence was found. A recent study by Blomstrom, Kravis and Lipsey (1988) re-examined the issue and found that during the 1957-1985 period the shares of United States, Japanese and Swedish owned firms in developing countries' manufactured exports had tended to increase. Unfortunately, this

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[22] The MITI source materials subdivide the machinery sector into four subsectors, i.e., (a) electrical machinery industry (which includes electronics equipment/apparatus), (b) transport machinery industry (which includes automobiles, bicycles, ships, aircraft, among others), (c) precision machinery industry (which includes notably cameras. other optical equipment, watches and clocks, among others) and (d) general machinery (all others not included in the first three categories mentioned above).

(hence, Nayyer's) approach does not show whether foreign-owned subsdidiaries are more export-oriented than local (non foreign-owned) firms. One case study of Thailand, Siburuang (1986), however, found that "TNCs and FDI (had) played an important role in generating manufactured exports from Thailand throughout the decade (of the 1970s)." (p. 250).

How important has the export market (Japan and elsewhere) been for Japanese affiliates in developing countries? To examine this question, relevant data available in the various issues of MITI's surveys have been extracted and these are summarized in Table 9, which show the share of exports in total sales of Japanese DFI affiliates located in developing countries by sectors for 1972, 1980, 1983 and 1986. First, the popular impression that Japanese affiliates engaged in primary commodity production concentrate on exports, rather than local sales, is confirmed by the data. Roughly 90% of sales in the agriculture/forestry/fisheries sector and the mining/oil/gas sector has been destined to export markets, although the export share for the mining/oil/gas sector may have begun to decline in the recent few years.

Second, for the manufacturing sector, local sales rather than exports have been the more important outlets for the Japanese affiliates in developing countries. The importance of exports in the total sales of Japanese manufacturing DFI affiliates in developing countries has varied from subsector to subsector and over time (see Table 9). On the one hand, export orientation has been very strong in the natural-resource-based processing subsectors, i.e., food processing, wood processing (plywood, pulp/paper), and nonferrous metals

Table 9. Share of Exports in Total Sales of Japanese DFI Affiliates in Developing Countries, 1972, 1980, 1983 and 1986

Sector/Subsector	1972	1980	1983	1986
		percent		
Agriculture/Forest/Fish	91.8	91.4	87.8	92.5
Mining/Oil/Gas	96.0	90.6	93.2	67.6
Manufacturing	25.5	33.0	35.1	42.3
Food Processing	(51.8) /a	63.1	41.0	76.7
Textile/Apparel	31.8	33.8	34.7	51.6
Wood Processing	91.7	62.8	65.3	57.1
Chemical	15.1	16.0	16.4	27.5
Iron & Steel	(16.1) /a	16.0	16.4	16.5
Nonferrous Metals	(25.0) /a	45.8	38.8	63.8
General Machinery	7.5	21.9	25.1	43.8
Electrical Machinery	34.0	37.5	57.0	53.1
Transport Machinery	8.9	7.7	10.6	22.9
Precision Machinery	49.2	41.6	80.2	51.6

a/ Data for all countries for 1974.

Source: MITI, Kaigai Jigyo Katsudo Kihon Chosa, 1st (1983), 2nd (1986), 3rd (1989); MITI, Wagakuni Kigyo no Kaigai Jigyo Katsudo, 3rd (1974).

(notably, aluminum smelting).[23] The export share of total sales has also been high for textiles, electrical machinery and precision machinery (e.g. cameras and watches). Labor-intensiveness is a common characteristic of these last two industry groups. On the other hand, the export share has been relatively low for three industries, i.e., chemical, iron/steel and transport machinery. DFI in these industries have largely been made in response to import substitution incentives provided by host countries.

Third, the export share in the sales of Japanese affiliates has increased for most subsectors over time. The export share has clearly increased over time in textiles, electrical machinery, precision machinery and general machinery. Furthermore, the export share for transport machinery increased visibly in the 1980s. Thus, the export share has indeed increased for most industries, and by 1986, the only industries for which the export share still remained below 30% were chemical, iron/steel and transport machinery.

How important have exports to Japan been in the total sales of Japanese affiliates in developing countries? Table 10 shows the share of exports to Japan in the sales of Japanese affiliates located in all developing countries and the share of exports to Japan in the total exports of these affiliates, in 1980, 1983 and 1986. For the manufacturing sector as a whole, about 40% of total sales were exported, and 40% of the exports were destined to Japan; thus, about 15% of total sales of these affiliates were shipped to Japan.

The industries which recorded relatively high shares of exports to Japan in their total sales were industries which recorded relatively high shares

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[23] Because Japanese foreign direct investment statistics include nonferrous metals in the manufacturing sector, smelting and refining of nonferrous metals are included in manufacturing for the purpose of this section.

Table 10. Shares of Sales to Japan and All Exports in Total Sales of Japanese Affiliates Located in Developing Countries, by Manufacturing Subsector

	Share of Exports to Japan in Total Sales of Affiliates			Share of Exports in Total Sales of Affiliates			Share of Exports to Japan in Total Exports of Affiliates		
	1980	1983	1986	1980	1983	1986	1980	1983	1986
	percent			percent			percent		
Manufacturing Total	13.0	14.6	16.4	33.0	35.1	42.3	39.4	41.6	38.8
Food Processing	26.9	15.1	26.5	63.1	41.0	76.7	42.6	36.8	34.6
Textiles	3.3	4.6	9.7	33.8	34.7	51.6	9.8	13.3	18.8
Wood/pulp/paper	36.0	43.3	28.8	62.8	65.3	57.1	57.3	66.3	50.4
Chemicals	8.8	9.5	8.1	16.0	16.4	27.5	55.0	57.9	29.5
Iron/steel	7.4	5.7	3.6	16.0	16.4	16.5	46.3	34.8	21.8
Nonferrous metals	29.8	16.0	28.8	45.8	38.8	63.8	65.1	41.2	45.1
General machinery	3.3	14.1	24.5	21.9	25.1	43.8	15.1	56.2	55.9
Electrical machinery	12.4	19.1	20.4	37.5	57.0	53.1	33.1	33.5	38.4
Transport machinery	1.4	4.1	3.9	7.7	10.6	22.9	18.2	38.7	17.0
Precision machinery	8.6	29.0	21.7	41.6	80.2	51.6	20.7	36.2	42.1

Source: MITI, TARS

of exports in total sales. When the share of exports to Japan in the total sales was regressed on the share of exports to all destinations in the total sales, a correlation coefficient of 0.7 (uncorrected) was found (data for 1980, 1983 and 1986 for 10 industries were pooled for 30 observations). However, when the share of exports to Japan was regressed on the share of exports to all destinations in the total sales, the resulting correlation coefficient was low (0.06) and highly insignificant. This implies that at least in the 1980-1986 period, export sales to Japan were not a common driving force for the export activities of these affiliates, although it may have been such a driving force for some specific industries and specific firms.

Japanese DFI affiliates in Asia have been more export-oriented than those in the LAC region. Between 1972 and 1986, the share of exports in total sales of Japanese manufacturing DFI affiliates in Asia was consistently higher than that of those located in the LAC region (Table 11). Also, the share of exports to Japan in the affiliates' total exports was consistently higher for those in Asia than for those in the LAC region.

Within Asia, Urata (1989) has found a contrasting pattern in the importance of Japan as a destination of the affiliates' exports between ASEAN countries and the rest of Asia. For the affiliates in ASEAN countries, the share of exports to Japan in their total sales is especially high in the wood processing and non-ferrous metals subsectots. In contrast, for the affiliates in non-ASEAN countries (where Korea, Hong Kong and Taiwan are dominating), the share going to the Japanese market is relatively high in general machinery,

Table 11. Share of Total Exports and Exports to Japan in Total Sales of Japanese Manufacturing DFI Affiliates and Share of Exports to Japan in Their Total Exports: Asia Vs. LAC

	Asia				LAC			
	Share in Total Sales of DFI Affiliates			Share of Exports to Japan in Exports of Affiliates (%)	Share in Total Sales of DFI Affiliates			Share of Exports to Japan in Exports of Affiliates (%)
	Exports to Japan (%)	Exports to Others (%)	All Exports (%)		Exports to Japan (%)	Exports to Others (%)	All Exports (%)	
1972	5.8	31.2	37.0	15.7	1.0	8.2	9.2	10.9
1974	26.3	20.5	46.8	56.2	7.3	9.9	17.2	42.4
1975	23.8	18.8	42.6	55.9	4.5	9.8	14.3	31.5
1977	10.0	23.3	33.3	30.0	1.1	7.0	8.1	13.6
1978	8.9	23.7	32.6	27.3	1.0	7.3	8.3	12.0
1980	9.8	26.4	36.2	27.1	9.4	8.0	17.4	54.0
1983	10.8	22.3	33.1	32.6	12.2	15.8	28.0	43.6
1986	15.8	29.5	45.3	34.9	4.1	15.4	19.5	21.0
1987	16.7	24.3	41.0	40.7	NA	NA	NA	NA

Source: MITI, Wagakuni Kigyo no Kaigai Jigyo Katsudo, various issues; MITI, Kaigai Jigyo Katsudo Kihon Chosa, 1st, 2nd and 3rd.

electrical machinery, precision machinery as well as in food processing and non-ferrous metals. Urata argues that the above contrast is based on the fact that non-ASEAN Asian countries have a comparative advantage in the production of capital-intensive and human-capital-intensive products while ASEAN countries have a comparative advantage in the production of natural resource based and labor-intensive products (Urata, 1989, p. 29).

How important are imports from Japanese affiliates in Japan's imports of the same products from all sources? Because of the apparent importance of this question for Japanese manufacturing DFI in Asia, relevant data for Asia have been collated in Table 12. For various subsectors, imports from Japanese affiliates in Asia, total imports from Asia and the share of the former in the latter are shown.

Data presented in Table 12, however, have some major problems which must be acknowledged outright. First, because of very large discrepancies between the data for Japanese imports as reported by the importer (Japan) and those reported by the exporters, Japan's imports by commodity are shown both ways. Since the data for Japan's imports from Japanese DFI affiliates are based on the reporting from these affiliates located in these Asian countries (taken from the MITI surveys), the Japanese imports (namely, exports to Japan) as reported by the exporting countries are just as relevant as the imports reported by Japan for the purposes at hand. Second, it should be recalled that the response ratio of the MITI questionnaire surveys (on which the data on imports from affiliates are based) has been rather low. Therefore, the amounts shown for imports from affiliates tend to understate the true values. Third, while imports from affiliates are reported on a fiscal year basis, both Japan's imports as reported by Japan and those as reported by the exporters are based on calendar year data.

Table 12. Share of Imports from Affiliates in Japan's Imports from Asia by Manufacturing Sub-Sector, 1980, 1983 & 1986

Sector/subsector	Fiscal Year	Imports from Affiliates (A)	Imports from Asia: As reported by Japan(B)	Imports from Asia: As reported by Exporters(C)	Share of Imports from Affiliates A/B	Share of Imports from Affiliates A/C
		Million US $			percent	
Manufacturing Total	1980	1,081	6,376	7,244	16.9	14.9
(SITC 5+6+7+8+9)	1983	1,061	7,073	7,897	15.0	13.4
	1986	3,003	12,966	13,746	23.2	21.8
Food Processing	1980	106	1,573	1,371	6.8	7.8
(ISIC 311+312+313)	1983	40	1,693	1,548	2.4	2.6
	1986	80	2,545	2,328	3.1	3.4
Wood Processing	1980	33	248	232	13.4	14.4
(incl. pulp/paper)	1983	29	204	246	14.0	11.6
(SITC 25+63+64)	1986	30	482	550	6.3	5.5
Chemical	1980	85	795	1,228	10.7	6.9
(SITC 5)	1983	103	845	735	12.2	14.0
	1986	83	1,366	1,307	6.0	6.3
Iron & Steel	1980	60	458	424	13.2	14.2
(SITC 67)	1983	53	672	617	7.8	8.5
	1986	38	896	878	4.3	4.3
Nonferrous Metals	1980	8	632	547	1.2	1.4
(SITC 68)	1983	2	671	641	0.3	0.3
	1986	204	639	563	32.0	36.3
Textile/Apparel	1980	77	2,188	2,152	3.5	3.6
(SITC 65+84)	1983	88	2,310	2,329	3.8	3.8
	1986	224	4,242	4,177	5.3	5.4
General Machinery	1980	32	123	177	25.9	18.0
(SITC 71)	1983	47	170	274	27.9	17.3
	1986	404	526	608	76.8	66.4
Electrical/Electronics	1980	524	673	652	78.0	80.4
Machinery	1983	473	743	807	63.7	58.6
(SITC 72)	1986	1,499	1,180	1,537	127.0	97.5
Transport Machinery	1980	21	69	67	29.8	30.7
(SITC 73)	1983	81	78	183	104.7	44.3
	1986	139	91	182	153.0	76.7
Precision Equipment	1980	45	168	161	27.1	28.3
(SITC 861+864)	1983	48	171	167	28.2	29.0
	1986	179	300	296	59.6	60.3

Notes: (a) Imports from affiliates are reported in yen on fiscal year basis. Yen values have been converted to US$ values using calendar year average exchange rates. (b) The FY equivalent of Japan's imports which are reported on calendar year basis has been obtained by adding one fourth of the following CY's value to three fourths of the current CY's value.

Source: MITI Surveys and UN Trade Statistics

These calendar year data were crudely adjusted to derive the fiscal year equivalents.[24] Because of these data problems, we must be careful in drawing too precise conclusions from the data presented in Table 12.

Nevertheless, some broad conclusions can be safely drawn. First, for the manufacturing sector as a whole, the share of imports from affiliates ranged around 15-20% and the share seems to have increased between 1983 and 1986. Second, in the four machinery subsectors, the share of imports from affiliates has been highly significant; over 60% by 1986. In the electrical machinery subsector, it has been the dominating force. Tran Van Tho argues that the share of imports from affiliates is particularly high in the various machinery subsector because these industries "are characterized as industries of multiproduction stage which have different factor intensities" and that "this characteristic tends to induce, or facilitate, the intra-firm division of labor..." (Tran Van Tho, 1987, p.36) Third, in other subsectors, imports from affiliates have been a relatively minor factor, perhaps with the exception of nonferrous metals subsector in 1986. It is conspicuous that the share has been particularly low in the case of textiles/apparels, only 4-5%.

It has been popularly supposed that predominant portions of the products exported by Japanese affiliates to Japan represent their sales to their parent companies in Japan. This popular supposition is confirmed by the data presented in Table 13, which shows the share of affiliates' exports to parent companies in the exports of the affiliates in Asia to Japan in 1974, 1980, 1983 and 1986, by industry. For manufacturing as a whole, the share remained close to 90% in 1974 and 1980, but declined somewhat in 1983 and 1986, to around 75%.

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[24] See notes to Table 12 for the method of conversion used.

Table 13. Share of Exports to "Parents" in Total Exports to Japan from Affiliates in Asia

	1974	1980	1983	1986
	percent			
Manufacturing Total	87.8	89.2	74.4	76.5
Food Processing	88.0	80.4	64.1	87.0
Textiles /a	84.7	86.2	74.9	57.7
Apparels /a	78.4	NA	NA	NA
Wood Processing /b	73.6	100.0	89.5	27.7
Pulp/Paper /b	83.8	NA	NA	NA
Chemical	82.0	79.4	49.8	83.9
Iron/Steel	100.0	85.4	97.9	100.0
Nonferrous Metals	99.5	93.3	77.1	99.2
General Machinery	98.9	100.0	88.8	94.7
Electrical Machinery	85.6	96.0	76.3	73.0
Transport Machinery	99.2	51.2	67.3	46.0
Precision Machinery	98.6	83.9	91.5	86.1
Other Misc.	NA /c	76.8	67.5	88.5

a/ Textiles include secondary manufactures such as apparels, except for 1974. For 1974, data for apparels and other secondary manufactures are shown separately.

b/ Wood processing includes mechanically processed products such as plywood, veneers, particleboard, wooden furniture as well as pulp and paper, except for 1974. For 1974, pulp and paper are shown separately.

c/ Industry classification for 1974 is generally more detailed than that for 1980 and after. Especially data for "other misc." for 1974 are not comparable for data for the same category for other years.

Source: MITI, Kaigai Jigyo Katsudo Kihon Chosa, 1st (1983), 2nd (1986) and 3rd (1989); MITI, Wagakuni Kigyo no Kaigai Jigyo Katsudo, 5th (1976).

Among the subsectors, textiles, wood processing, electrical machinery and transport machinery followed this pattern of declining share.

VII. Conclusions

Japanese outward DFI flows, measured in constant yen, increased in the 1965-1973 period but stagnated in the 1974-1980 period. They increased rapidly in the 1980s, especially after 1983. However, the most important thrust of the rapid increase in the 1980s was a flood of DFI flows in the service sectors, especially financial and real estate sectors.

Japanese outward DFI in the primary sector, particularly mining, gas and oil, was boosted steadily in the decade from mid 1960s to mid 1970s, mainly because of the concern for the long-term security of raw materials supply on the part of both the government and the private sector. This concern lingered on through the early 1980s with respect to energy (oil, gas, coal, uranium, etc.) and aluminum smelting, which is highly energy intensive. This led to a burst of bunching of overseas investments in the early 1980s.

A major objective of the Japanese government in promoting direct investment by Japanese firms in overseas production of fuel and nonfuel minerals was to increase the share of Japanese DFI-based supply in Japan's imports of these commodities. This objective was successfully achieved in several key commodities such as copper, aluminum, iron ore, coking coal and natural gas but, in the case of the most important commodity, crude oil, the achievement was only modest, at best. Even in the commodities where the share of DFI-based imports became large, it peaked in the early to mid 1980s as the concern of the long-term supply security subsided in the face of prolonged surplus market conditions.

Japanese outward DFI in manufacturing, measured in constant yen, began to grow steadily in the late 1960s. A peak around 1972-1974 was followed by a brief stagnation in 1975-1976, but steady growth was resumed in 1977 and the pace accelerated in the latter half of the 1980s, in contrast to the stagnation for DFI in the primary sector. However, this steady growth in manufacturing DFI since the mid 1970s hides some divergent geographical trends. Notably, the overall steady growth reflected a sharp increase in manufacturing DFI flows to industrial countries (particularly Europe and the United States) which were likely mainly motivated to protect market shares in the face of growing new protectionism there.

Japanese manufacturing DFI flows to developing countries have shown only a modest growth since early 1970s. The significant growth in the flows to Asia has been offset by a decline in the flows to developing countries in other regions. The sub-sectoral composition of Japanese manufacturing DFI in developing countries has changed considerably over the last two decades or so. In the 1965-1972 period, the most important subsectors were textiles and clothing, metals (ferrous and nonferrous) and transport machinery. In the 1972-1980 period, the importance of textiles and transport machinery subsided, and the importance of chemicals and metals increased. In the 1981-1984 period, metals and chemicals continued to be the most important subsectors but transport machinery's importance was revived. Since 1985, electrical machinery became the leading subsector.

Japanese DFI in developing countries has been significantly export-market oriented. Exports were the dominant sales destination for Japanese affiliates in the primary industries, agriculture/forestry/fisheries and mining/oil/gas. In manufacturing, the share of exports increased steadily --

from 26% in 1972 to 42% in 1986. In the majority of manufacturing subsectors, the share of exports in the total sales of Japanese manufacturing affiliates increased significantly between 1972 and 1986. The only subsectors in which the export share did not exceed 30% in 1986 were iron/steel, transport machinery and chemicals.

The role of Japanese affiliates in Japan's imports of manufactures from developing countries was examined, subsector by subsector, for Asia (where Japanese manufacturing DFI was most active among developing countries), based on the data available for 1980, 1983, and 1986. This share was very high in the electrical machinery industry (50-100%), significant for transport machinery industry (increasing from 30% to 77%), and for the precision machinery subsector (increasing from 30% to 60%) . For general machinery, the share increased from around 20-24% to the 65-75% range. In other subsectors, this share is found to have been relatively minor, usually less than 20% (except for non-ferrous metals in 1986). For the manufactures as a whole, the share increased from around 15% in 1980-1983 to over 20% in 1986. In sum, for many types of machinery production, Japanese affiliates in Asia seem to have become established as a base to export to the Japanese market. In some other manufacturing subsector, Japanese affiliates have directed their sales efforts to other overseas destinations gradually reducing the share going to the local markets.

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