**RIETI Discussion Paper Series 01-E-002**

# Foreign Direct Investment in Japan
## Empirical Analysis Based on Establishment and Enterprise Census*

Keiko Ito
Hitotsubashi University
and
Research Institute of Economy, Trade and Industry
Kyoji Fukao
Hitotsubashi University
and
Research Institute of Economy, Trade and Industry

September 2001

**ABSTRACT**

In spite of the importance of FDI in Japan, Japan's official statistics on inward FDI have many drawbacks in comparison with U.S. statistics. Using micro-data of *the Establishment and Enterprise Census of Japan*, we compile new statistics on the employment of Japanese affiliates of foreign firms (JAFF) in Japan at the 3-digit industry level for the year 1996. According to our new statistics, JAFF with 33.4% or more foreign ownership in the service sector employed 308,000 workers in 1996, which is nearly five times greater than the number reported in MITI (1999). In the case of the manufacturing sector, JAFF with 33.4% or more foreign ownership employed 176,000 workers in 1996, which is 10% greater than the number reported in MITI (1999). The underestimation of MITI's survey is substantial in the case of the service sector. Using our statistics, we compare FDI in Japan with FDI in the United States at the 3-digit industry level. We also compare FDI in Japan with Japan's outward direct investment and international trade in goods and services.

Using our cross-industry statistics, we also estimate an empirical model explaining the determinants of Japan's inward FDI penetration. We found that the determinants of Japan's inward FDI penetration are very different for the manufacturing sector and the service sector. In the manufacturing sector, advantages in managerial resources and factor intensity were significant. In the service sector, policy variables were significant. This result implies that by eliminating its restrictions on inward FDI and reducing government activities, Japan can increase inward FDI in service sector. In the case of the *keiretsu* variables, we did not get significant results in both the manufacturing and the service sectors. This suggests that *keiretsu* does not act as an impediment to inward FDI in Japan.

JEL Classification: F14, F23, L50
Keywords: Foreign Direct Investment, Services Trade, *Keiretsu*, GATS

* The previous version of this paper was presented at the CGP-2 Conference, *Analytical Issues in the Trade, Foreign Direct Investment, and Macro/Financial Relations of the United States and Japan*, May 18-19, 2001, Keio University, Tokyo, Japan. The authors are grateful for the comments by Sadao Nagaoka, Fukunari Kimura, Robert M. Stern and other conference participants.

## 1. Introduction

According to the standard theory (Caves 1982, Dunning 1988), foreign direct investment is a form of long-term international capital movement accompanied by investors' intangible assets, such as the stock of technological knowledge accumulated by R&D or the accumulation of marketing know-how from past advertising activity. The host country is expected to benefit from the inflow of such intangible assets. Especially in the case of the service sector, since many services are not tradable, customers in one country cannot enjoy the advanced services of foreign firms, if these do not establish affiliates in that country. Being aware of this issue, the Japanese Government has lifted its regulations and made efforts to promote inward FDI in recent years.[1] Although FDI in Japan is increasing rapidly, the FDI stock in Japan is still very small.

In spite of the importance of FDI in Japan, Japan's official statistics on inward FDI have many drawbacks in comparison with U.S. statistics as we will discuss in the next section. Probably due to the deficiency of data, there are not many empirical investigations on why FDI in Japan is so small. In this paper, we compile new statistics on the employment of Japanese affiliates of foreign firms (JAFF) in Japan at the 3-digit industry level for the year 1996. Our new statistics are based mainly on micro data of the Establishment and Enterprise Census of Japan, which is conducted by the Japan Management and Coordination Agency. Using our statistics, we compare FDI in Japan with FDI in the United States at the 3-digit industry level. We also compare FDI in Japan with Japan's outward direct investment and Japan's international trade in goods and services.

According to our new statistics, actual foreign activities in Japan are much greater than those reported in MITI(which is now the Ministry of Economy, Trade and Industry, METI)'s survey, *Gaishi-kei Kigyo Doko Chosa* (*Survey on Trends of Business Activities by Japanese Subsidiaries of Foreign Firms*).

Since our statistics are compiled at the 3-digit industry level, we can use them for cross-industry regression. We estimated an empirical model explaining the determinants of Japan's inward FDI penetration. We found that inward FDI penetration is closely related to several characteristics of industries.

The paper is organized as follows: In the succeeding section, we discuss existing data on Japan's international transactions of services through affiliates and explain how we compiled our new statistics on JAFF. In section 3, we provide a general overview of FDI in Japan. In section 4, we undertake an econometric investigation of the determinants of Japan's FDI penetration at the 3-digit industry level.

---

[1] For detail of deregulations and promotion policies, see Japan Investment Council (various years) and

## 2. Existing Data on FDI in Japan and Compilation of the New Statistics

Probably the most commonly cited statistics on Japan's inward direct investment are those provided by the Ministry of Finance. (MOF 1999, the data are also available in OECD 1999). According to these data, Japan's outward direct investment stock in the service sector is nine times greater than the corresponding inward direct investment stock (Table 1). Since no other OECD country has an imbalance of this magnitude, it has been argued that this imbalance indicates the closedness of the Japanese economy to inward direct investment in the service industries (GATT 1995, MITI 1998, Stern 2000). In the case of the manufacturing sector, the outward direct investment stock is six times greater than the corresponding inward direct investment stock. But since the MOF data only record cross-border capital flows, they do not necessarily correspond to the extent of affiliates' actual activities. For example, because of Japanese regulations, many foreign banks and insurance companies entered the Japanese market by setting up branches rather than founding subsidiary companies. This fact makes their investment flows relatively small compared with the actual magnitude of their affiliates' activities measured by sales or employment.

INSERT TABLE 1

In the case of inward direct investment, the *Gaishi-kei Kigyo Doko Chosa* (*Survey on Trends of Business Activities by Japanese Subsidiaries of Foreign Firms*) by the Ministry of International Trade and Industry (MITI, which is now the Ministry of Economy, Trade and Industry, METI) is the only official source on the sales and employment of foreign firms' Japanese subsidiaries.[2] According to this survey (METI 2001a), foreign firms' Japanese subsidiaries employed 230,475 workers in manufacturing industries and only 85,386 workers in non-manufacturing industries at the end of March 2000. The survey is loosely based on the U.S. Department of Commerce's survey of foreign direct investment in the United States, but MITI's survey has the following serious drawbacks for the purpose of studies on inward direct investment.

(i) It is not mandatory and suffers from a low response ratio. In the case of the survey for the 1999 fiscal

---

Japanese Government (various years).

[2] MITI's other survey, *Kigyo Katsudo Kihon Chosa* (*Basic Survey on Business Activities by Enterprises*), also collects data on JAFF as part of information obtained on Japanese firms. But this survey covers only the manufacturing and commerce sectors. Moreover, the response ratio of this survey is also low. In 1999, the Japan Management and Coordination Agency added questions on whether firms were majority owned by foreigners or not to their survey, *Service-gyo Kihon Chosa* (*Basic Survey on Service Sector*), which covers several service industries. An upcoming report of this survey will probably include some

year, only 56.3% of the questionnaires sent out were returned to MITI. Moreover, usually not all the questions in the returned questionnaires are answered.

(ii) The survey does not cover subsidiaries in real estate, finance, and insurance.

(iii) The survey covers only Japanese companies that are more than one-third foreign-owned and does not cover branches and other establishments directly owned by foreign firms.

(iv) In MITI's report on inward FDI, all the data on manufacturing subsidiaries are aggregated into 19 industries. Those on non-manufacturing subsidiaries are aggregated into transport and telecommunication, wholesale trade, retail trade, services, and others (agriculture, construction, etc.). In the case of outward FDI, the data on manufacturing and non-manufacturing subsidiaries are aggregated into twelve and six industries (agriculture, mining, construction, commerce, services, and others) respectively. No data at a more detailed industry level are published.

Because of the low response ratio and the exclusion of real estate, finance, and insurance, the number of subsidiaries covered by MITI's survey is substantially smaller than that of other surveys on foreign subsidiaries conducted by private companies. For example, the number of subsidiaries covered by MITI's survey for the 1999 fiscal year was only 1,978. [3]

Concerning foreign subsidiaries of Japanese firms, MITI conducts the survey *Kaigai Jigyo Katsudo Doko Chosa (Survey on Trends of Japan's Business Activities Abroad)*, which covers foreign subsidiaries with more than a 10% Japanese ownership. This survey has similar setbacks as the survey on inward direct investment. It suffers from a low response ratio and does not cover Japanese-owned subsidiaries in the finance and insurance sector. According to this survey (METI 2001b), foreign subsidiaries of Japanese firms employed 3,161,000 workers at the end of March 2000.

Compared with these surveys by MITI, Toyo Keizai's micro-data, *Gaishi-kei Kigyo Soran: CD-ROM-ban (Directory of Japanese Subsidiaries Abroad: CD-ROM version)* and *Kaigai Shinshutsu Kigyo Soran: CD-ROM-ban (Directory of Japanese Subsidiaries Abroad: CD-ROM version)* have a substantially broader coverage of subsidiaries. The data cover all industries. In the case of JAFF in manufacturing sectors, the data for 1997 cover 831 subsidiaries, which employed 204,000 workers. In the case of non-manufacturing sectors, the data for 1997 cover 2,456 subsidiaries, which employed 287,000

---

information on JAFF.

[3] Mainly focusing on manufacturing sectors, Kimura and Baldwin (1996) estimated sales and procurements by JAFF and FAJF using the results of MITI's surveys. They did not make adjustments to account for these problems.

workers.[4] Judging by the number of subsidiaries and number of workers employed by subsidiaries, the coverage of the Toyo Keizai data is much broader than that of MITI in the case of the non-manufacturing sectors.

Using Toyo Keizai's data as the basic statistics for the estimation, Fukao and Ito (2001) estimated sales and employment data for Japanese affiliates of foreign firms (JAFF) and foreign affiliates of Japanese firms (FAJF) in service sectors at the 3-digit level for the year 1995. Although the coverage is broader, the Toyo Keizai data have the following shortcomings.

(i) Industry Classification

In Toyo Keizai's data, information at the establishment level is not available. We need to classify affiliates according to their primary industry based on line-of-business. For example, computer makers sometimes supply computer-related services. However, the Toyo Keizai data do not allow us to treat their service and manufacturing activities separately.

(ii) Definition of Nationality

Toyo Keizai adopts multiple criteria in the coverage of Japanese subsidiaries. For listed or unlisted but large subsidiaries, the cut-off capital participation rate is 20%. For unlisted and small subsidiaries, the cut-off rate is 49%.

(iii) Coverage and Reliability

Toyo Keizai conducts its own surveys for this database.[5] Toyo Keizai also uses additional data such as financial reports for non-responding firms. But since firms are not obliged by law to report correct information, Toyo Keizai's data is not perfect in their coverage and reliability.

(iv) Branches and Other Establishments Directly Owned by Foreign Firms

In the case of the banking and insurance sector, the Toyo Keizai data cover Japanese branches and other establishments directly owned by foreign firms. However, the data only partially cover such establishments in other sectors.

Compared with MITI's statistics and Toyo Keizai's data, data collected in the *Jigyosho-Kigyo*

---

[4] A private company, Teikoku Data Bank Ltd. provides the database "Cosmos" which covers 1.1 million Japanese firms for 1999. In the case of the non-manufacturing sector, the database contains information on 1,236 firms which were more than one quarter foreign-owned. The database was too expensive for us to use for this research. Some statistics on these firms are available at <www.tdb.co.jp>.

[5] In the case of inward FDI, Toyo Keizai and Dun & Bradstreet Japan Ltd. jointly conduct their surveys for this database.

*Tokei Chosa* (*Establishment and Enterprise Census of Japan*), conducted by the Japan Management and Coordination Agency (which is now the Statistics Bureau, Ministry of Public Management, Home Affairs, Posts and Telecommunications) are advantageous in several respects. This is the most basic and important survey on Japanese establishments and covers all industries. Since it is mandatory, the data are more reliable. The survey collects both data on establishments and data on enterprises, and these two sets of data are linked. In the survey, companies are asked what percentage of their paid-in capital is owned by foreign firms. Therefore we can compile statistics at the establishment level and choose any cut-off ratio.[6] The data also include branches and other establishments directly owned by foreign firms. In Table 2, we compare the Establishment and Enterprise Census data with MITI's statistics and the Toyo Keizai data.

INSERT TABLE 2

Although the data collected in this survey are ideal for a compilation of statistics on the number of workers employed by all the JAFF, such statistics are unfortunately not included in the report on this survey. Therefore we compile micro-data of the survey by ourselves. In spite of the merits listed above, the micro-data of the Establishment and Enterprise Census have the following shortcomings.

(i) Information on Activities

Data collected in the Establishment and Enterprise Census do not include basic information on activities, such as sales and profits. They include information on employment, location, and date of establishment. Therefore we measure activities of JAFF by number of workers.

(ii) Years Covered

The question on the percentage of paid-in capital owned by foreigners was only added to the survey by the Japan Management and Coordination Agency in 1996. The same question was also included in their 2001 survey, which is not available yet. So the only available data at present are those for 1996 .

(iii) Linkage between Data on Establishments and Data on Enterprises

For about five percent of all establishments, we were not able to link them with any head office although they replied that they are neither a head office nor an independent establishment. We treated them as Japanese independent establishments. Our estimates on the employment of JAFF probably

[6] Each establishment is asked about its major activity at the 4-digit industry level. If we compiled the data at an industry level this detailed, our data on many industries would include less than three JAFF and we would be forced to suppress the data for secrecy. For this reason, we compile the data at the 3-digit industry level. In the case of manufacturing industries, we basically use the *Standard Industry Classification for Japan* (Statistics Bureau 1993). In the case of non-manufacturing industries, we use our own classification (for details, see Fukao and Ito 2001).

underestimate the actual values because of this problem.

(iv) Definition of Nationality

In the 1996 survey, head offices and independent establishments were asked what percentage of their paid-in capital was owned by foreigners. When we set our cut-off capital participation rate at 10%, our data on JAFF include all the affiliates of which one or several foreigners owned 10 % or more in total. In the case of U.S. statistics on U.S. affiliates owned by foreign firms (USAFF), the data include only the affiliates of which a single foreigner owns 10% or more (U.S. Department of Commerce 1995a). Therefore our definition of JAFF (10% foreign-owned or more) is broader than the U.S. definition of USAFF (owned 10% or more). In the case of data on affiliates owned 50 % or more by foreign firms, there is no such gap between our statistics and U.S. statistics (U.S. Department of Commerce 1995b). Both the statistics include all the affiliates of which the ownership of one or several foreigners exceeds 50% in total. Substantial amount of stocks issued by Japanese prime firms are owned by foreign institutional investors as portfolio investments.[7] When we set our cut-off ratio at 10%, probably our data will include such portfolio investments. Taking account of this risk, we will mainly use the 33.4% or 50% cut-off ratio.

Table 3 and Table 4 present the number of establishments and number of workers of foreign-owned affiliates in the Japanese economy at the 3-digit industry level. We set our cut-off capital participation rate at 10 %, 33.4%, and 50%.

INSERT TABLE 3 and TABLE 4

In order to compare FDI in Japan with FDI in the United States, we adjusted corresponding U.S. statistics for the year 1992 which are reported in U.S. Department of Commerce (1995a) to our industry classifications. The results are reported in Table 5. For the U.S.-Japan comparison we also prepared Table 6, in which we compared the share of the number of workers employed by majority-owned foreign affiliates in the United States and Japan. The U.S. data is taken from the U.S. Department of Commerce (1995b). Since the U.S. data are not available at the 3-digit industry level, the U.S.-Japan comparison in Table 6 is done at the more aggregated industry level.

INSERT TABLE 5 AND TABLE 6

In order to compare our data on Japan's inward FDI with Japan's outward FDI, we prepared data on the outward FDI. In the case of the manufacturing sector, we compiled micro-data of MITI's *Dai 26-kai*

[7] According to Japan National Conference of Stock Exchanges (2001), 11.9% of total market value in Japanese stock markets was owned by foreigners on March 31, 1996. On March 31, 2001, 18.8% was owned by foreigners.

*Kaigai Jigyo Katsudo Doko Chosa* (*Survey on Trends of Japan's Business Activities Abroad, 1996*). In the case of the non-manufacturing sector except the primary sector, we used the micro-data of Toyo Keizai Shinpo-sha's *Kaigai Shinshutsu Kigyo Soran 1996: CD-ROM-ban* (*Directly of Japanese Subsidiaries Abroad 1996: CD-ROM version*).[8] We should note that compared with the data on Japan's inward FDI, the data on outward FDI are probably smaller than the actual values because of the limited coverage of the MITI and Toyo Keizai data. In order to compare Japan's establishment transactions with Japan's cross-border transactions, we also adjusted the data of Japan's 1995 I-O tables to our industry classifications. Table 7 compares these data.

INSERT TABLE 7

**3. An Overview of FDI in Japan**

According to our new statistics (Table 3 and Table 4), JAFF with 33.4% or more foreign ownership in the non-manufacturing sector employed 308,000 workers in 1996, which is nearly five times greater than the number reported in MITI (1999). In the case of the manufacturing sector, JAFF with 33.4% or more foreign ownership employed 176,000 workers in 1996, which is 1.1 times greater than the number reported in MITI (1999). The underestimation of MITI's survey is crucial in the case of the service sector.

Figure 1 shows the industry composition of workers employed by JAFF (33.4% or more foreign-owned). In the case of the manufacturing sector, four industries, motor vehicles & parts, electronic parts & devices, electric equipment & computers, and drugs and medicines account for 51% of all the workers employed by JAFF in the manufacturing sector. In the case of the service sector, FDI is even more concentrated in a limited number of industries. Four industries, wholesale trade, eating and drinking places, retail trade, and computer programming and software account for 77% of all the workers employed by JAFF.

INSERT FIGURE 1

Using Table 7, we can compare Japan's inward FDI with its outward FDI. In the case of the service sector, imbalances between the activities of JAFF and those of FAJF are smaller than those reported in the MOF FDI statistics. In terms of employment, the JAFF (33.4% or more foreign-owned)/FAJF(10% or more foreign-owned) ratio is 0.34 (=308,000/909,000). The MOF statistics exaggerate the gap, probably for the following reasons.

First, during the second half of the 1980s, Japanese firms engaged in a large amount of FDI in the

[8] For detail of this compilation, see Fukao and Ito (2000).

tertiary sector, especially in the United States. Stock market and real estate bubbles in Japan during this period enabled real estate companies, general construction companies, institutional investors and other small investors to borrow large funds to invest in foreign real estate (Wilkins 1990, Kenneth Leventhal & Company 1994). During this period, Japanese firms in the tertiary sector, especially banks and general construction companies, also expanded their business in purely domestic markets in foreign countries such as retail banking in California or Britain or the development of shopping malls in the United States (Wilkins 1990, Graham and Krugman 1991). Since a substantial part of FDI in the real estate sector was conducted as portfolio investment, activities by affiliates measured by sales or employment are relatively small compared with capital flows. And although many of Japan's FDI projects in the tertiary sector resulted in failure afterwards, withdrawals of equity investment or repayments of loans or bonds are not subtracted from the MOF statistics, which are gross data. These factors exaggerate Japan's outward FDI in the MOF statistics.

Second, as we have already pointed out, because of regulations of Japan's authorities, many foreign banks and insurance companies entered Japan through setting up branches instead of founding subsidiary companies. This fact makes their investment flows relatively small compared with the actual sizes of their affiliates' activities measured by sales or employment.

In the case of the manufacturing sector, imbalances between the activities of JAFF and those of FAJF are greater than those reported in the MOF FDI statistics. In terms of employment, the JAFF(33.4% or more foreign-owned)/FAJF(10% or more foreign-owned) ratio is 0.095 (=176,000/1,848,000).

Next we compare FDI in Japan with FDI in the United States. Using Table 6 and Table 7, we can compare Japan's and America's purchases of services from foreigners. For the service sector as a whole, Japan's ratio of imports to total domestic output is 2.11%, which is almost at the same level as the corresponding U.S. ratio at 2.07% (Table 7). But in the case of inward FDI (Table 6), Japan's ratio of the number of workers employed by majority-owned foreign affiliates to the total number of workers is 0.59%, which is less than one fifth of the corresponding US ratio of 2.77%. It seems that Japan's market for services is more closed for establishment transaction than for cross-border transactions.

In the case of the manufacturing sector, Japan's ratio of the number of workers employed by majority-owned foreign affiliates to the total number of workers is 0.79%, which is less than one-thirteenth of the corresponding US ratio of 10.48%. Compared with the case of the service sector, the gap between FDI in Japan and that in the United States is much larger in the case of the manufacturing sector.

In cases where cross-border transactions in goods and services are not difficult, multinational corporations will choose the location where the production costs are the lowest. Since Japan's wage rates

and land prices are relatively high, Japan probably has a locational disadvantage for manufacturing industries except those in which proximity to consumers plays an important role. We know that a substantial part of Japan's FDI in U.S. manufacturing industries was caused by US trade barriers, such as "voluntary" restraints on car exports and anti-dumping policies on electrical machinery exports from Japan during the 1980s. Therefore we cannot argue that Japan's low level of inward FDI itself is problematic. Compared with the case of the manufacturing sector, the low level of FDI in Japan's service sector is more serious issue. Since many services are untradable, Japanese customers cannot enjoy advanced services of foreign firms, if the foreign firms do not establish affiliates in Japan.

Using Table 6, we can compare Japan's and the United States' penetration of inward FDI, which we measure by the ratio of the number of workers employed by majority-owned foreign affiliates to the total number of workers at a detailed industry level. According to Table 6, this ratio is higher for Japan than that for the United States in only three industries: Finance except depository institutions, computer and data processing services, and other services (such as eating and drinking places and individual education facilities). It is also interesting to note that in Japan, differences in this ratio among industries are more remarkable than in the United States. Japan's variation coefficient of this ratio among manufacturing industries is 1.43 compared to a variation coefficient of only 0.93 for the United States (Table 6). In the case of non-manufacturing industries, Japan's variation coefficient is 1.26 compared to that of 0.74 for the United States (Table 6). In Japan, there are what may be labeled sanctuary sectors, such as medical services, utilities, and education, in which almost no foreign affiliate exists (Table 5). Inward FDI is impeded by a lack of market access. For example, private corporations which seek profits are prohibited to do business in major areas of education and medical services.

Table 8 reports correlation coefficients between Japan's inward FDI, outward FDI, imports, and exports. All the variables are normalized based on the size of the domestic industry. The correlations between the four variables are very different for the manufacturing and the service sector. In the manufacturing sector, there is no significant correlation between any pair of the four variables. In the service sector all the four variables are positively and significantly correlated. Especially the correlation coefficients between inward FDI and imports and between imports and exports are very high. The close correlation between inward FDI and imports indicates potential complementarities between activities by JAFF and their parent firms' services exports to Japan. Services imports and services exports are closely correlated probably because of the difference in the tradability of different types of services.

INSERT TABLE 8

So far, our analysis was static and mainly based on data for 1996. But we should note that FDI into

Japan is growing at an amazing speed. Table 9 shows MOF statistics on FDI flows into Japan. According to the statistics, the inward direct investment stock in Japan's non-manufacturing sector has grown six-fold in the last ten years. The total of FDI flows in the last three years is greater than the FDI stock at the end of the 1996 fiscal year. In recent years, the number of cross-border M&A cases has been increasing especially.[9] In 1999, AT&T and British Telecom jointly bought a combined 30% share of Nippon Telecom. A British company, Cable & Wireless, acquired IDC (International Digital Communications) by a takeover bid. An American company, GE Capital acquired Japan Lease. In 2000, an American company, Ripplewood Holdings and others acquired The Long-Term Credit Bank of Japan.

INSERT TABLE 9

Probably the following two factors have contributed to the recent increase in inward FDI. First, in recent years, the Japanese government promoted important deregulatory and related measures in order to transform Japan's economic system into a one that is more open to the international community and based on the rules of self-responsibility and market principles. As a part of this deregulation program, the Japanese government relaxed or abolished several regulations on inward FDI. For example, all restrictions on foreign ownership and on foreign board members in Type I telecommunications carriers (except for NTT and KDD), including their radio station licenses, were removed in 1998. In 1999, all restrictions on foreign capital and the appointment of foreign directors in all cable TV businesses were removed.[10] Moreover, the recent stagnation of Japan's land and stock prices has created a kind of "fire-sale" situation, from which foreign investors have benefited. We can confirm the recent increase in FDI to Japan's service sector by our micro-data of the *Establishment and Enterprise Census of Japan*. Figure 2 shows distribution of 10% or more foreign-owned establishments by year of establishment. We can see that in the case of the manufacturing sector, the majority of establishments were started up before 1984.[11] In contrast with this, in the case of the service sector, many establishments were started up after 1990. Figure 3 shows the cumulative number of JAFF established before each year. In the case of information services and communication and broadcasting, the number of JAFF has increased drastically after 1990.

INSERT FIGURE 2 and FIGURE 3

Probably we can partly explain the recent rapid increase in JAFF in the service sector by the history of Japan's regulations on inward FDI. Japan's process of inward FDI liberalization and Japan's remaining

---

[9] According to MITI (2000), there were 129 investments into Japan through cross-border M&A in 1999.
[10] For more detail on Japan's recent deregulation measures, see Japan Investment Council (various years).
[11] We should note that in cases of acquisitions and capital participation, the date of establishment can be earlier than the date of FDI.

major restrictions on inward FDI are summarized in Tables 10, 11 and 12. As Table 10 shows, after joining the OECD in 1964, Japan gradually and systematically liberalized its regulations on inward FDI. In the case of the manufacturing sector, Japan lifted almost all the regulations by 1980 except those on FDI in the petroleum and leather product industries (Table 10 and Table 12). In the cases of many service industries, Japan continued to restrict inward FDI by foreign exchange law and other regulatory laws until quite recently (Table 10 and Table 11).

INSERT TABLE 10, 11, 12

**4. Econometric Analysis on Determinants of Inward FDI Penetration**

As we have seen in the previous section, there are significant differences in inward FDI penetration in the various industries and in Japan and the United States. What industry characteristics affect the inward FDI penetration of each industry? In this section we conduct an empirical study on this issue.

This type of cross-industry analysis on FDI into Japan has been conducted by Lawrence (1993), Weinstein (1996), Nakamura, Fukao, and Shibuya (1995, 1997), Horaguchi (1995), and Fukao and Ito (2001).[12] One of the most hotly debated issues in these studies was whether Japan's *keiretsu* relationships impede inward FDI. It has been argued that *keiretsu* relationships reduce inward FDI through cross share-holdings and long-term supplier relationships. Using MITI (1991) data on only ten industries, Lawrence (1993) did a cross-industry regression and found that *keiretsu* relationships significantly impeded inward foreign direct investment. By constructing panel data based on MOF data, Weinstein (1996) conducted a similar kind of regression and found that the coefficient on the shares of financial group member sales in each sector is negative but not significant in many cases. Nakamura, Fukao, and Shibuya (1995, 1997), using their newly compiled statistics on Japan's inward FDI penetration (the share of sales by JAFF in total sales) in 58 manufacturing industries from micro-data of MITI's *Kigyo Katsudo Kihon Chosa* (*Basic Survey on Business Activities by Enterprises*) conducted a cross-industry regression. They found that sales concentration as measured by the Herfindahl index has significant negative effects on Japan's inward FDI penetration, while capital intensity and skilled-worker intensity have significant positive effects on the FDI penetration. They also found that *keiretsu* variables and a government barrier dummy variable based on OECD (various issues) do not have a significant effect on FDI penetration. Horaguchi (1995) also found that a coefficient on the *keiretsu* share was not significant. For the Japanese service industries, Fukao and Ito (2001) conducted a cross-industry regression and found that the inward

[12] In the case of FDI into the U.S., Ray (1989), Kogut and Chang (1991), and Pugel, Kragas, and Kimura

FDI penetration is low in industries where government-owned establishments are dominant. Moreover, they found that the relatively higher FDI restrictiveness in Japan compared to that in the United States has significantly negative effects on Japan's inward FDI. In the case of *keiretsu* variables, they did not get significant results, suggesting that *keiretsu* do not act as an impediment to inward FDI in Japan's service sector.

These previous empirical studies have some shortcomings with regard to the data bases used in the analyses. First, several studies such as Lawrence (1993) are based on a very small sample size. Second, although FDI in services is an important issue, except for Fukao and Ito (2001), there is no study on FDI in this sector. And third, as we mentioned in Section 2, the data these studies used are based on firm-level surveys. Yet, as one firm is often involved in diversified businesses spanning different industries, it is more appropriate to use establishment-level surveys to capture the size of activities in each detailed industry.

In this section we estimate an empirical model explaining the determinants of Japan's inward FDI penetration. The variables of this estimation are defined in Table 13. Further details on the definitions and sources of the variables are provided in Appendix. We use Japan's FDI penetration ratio as the dependent variable.[13] Japan's FDI penetration is defined by Japan's ratio of the number of workers employed by companies that are 10% or more foreign-owned to the total number of workers. In addition, taking into account the different attributes between manufacturing and service sectors, we assume different models for the estimations of the two sectors.

INSERT TABLE 13

The standard FDI theory (see, for example, Caves 1982 and Dunning 1988) emphasizes intangible assets, such as the stock of technological knowledge accumulated by R&D or the accumulation of marketing know-how from past advertising, as a source of multinational enterprises' advantages. When a firm moves production overseas, it is in a disadvantageous position in relation to local firms because of differences in terms of language, customs and institutions. Multinational enterprises will exist only if the foreign establishments they control and operate attain lower costs or higher revenue productivity than the same establishments functioning under local management. According to this theory, we will observe more active FDI in R&D-intensive or advertisement-intensive industries. We would expect positive coefficients for *RDINT* (R&D intensity) and *ADINT* (advertisement intensity). If Japanese firms' productivity level is higher than that of foreign firms, Japanese firms would have a higher sales share in the world market and

---

(1994) conducted similar types of cross-industry analyses.

[13] On the theoretical foundation of cross-industry estimation, see Kogut and Chang (1991), Petri (1991), and Lawrence (1993). On *keiretsu*, also see Saxonhouse (1993).

inward *FDI* will be limited. To take account of this factor, we used *DPROD* (an index comparing Japan's productivity in each industry with the U.S. equivalent) which was taken from Kawai (1996). We should note that it is problematic to use this variable for the following reasons. First, since Japanese firms compete not only with U.S. firms but also with other countries' firms, *DPROD* is not an appropriate variable. Second, in Kawai's (1996) methodology, if Japan's absolute producer price level in one industry is higher than the corresponding U.S. price level and if this gap cannot be explained by Japan-U.S. differences in factor prices and prices of intermediate inputs, then Japan's productivity in that industry is inferred to be lower compared to the United States. But there is a possibility that Japan's high absolute price level (relatively low *DPROD*) might reveal either Japan's higher industry rent or Japan's higher fixed costs. Third, there might exist a reverse causality. High inward FDI penetration might increase *DPROD* through either reducing the industry rent or improving that industry's productivity.

In cases where cross-border transactions are not difficult, for example due to low transportation costs or the characteristics of the services, multinational corporations will choose the location where the production costs are the lowest.[14] Therefore, the inward FDI penetration ratio will be affected by Japan's locational advantage for each industry. Since Japan's capital prices are relatively low and land prices and wages of unskilled workers are relatively high, Japan probably has a locational advantage for capital-intensive industries and a disadvantage for land-intensive or unskilled worker-intensive industries. Consequently, we would expect positive coefficients for *CLRATIO* (capital-labor ratio) and *UNIV* (skilled-labor intensity), and a negative coefficient for *LAND* (land intensity). Since it is considered that the capital intensity is a more important determinant in the manufacturing sector and it is difficult to get reliable data on capital intensity in the case of the non-manufacturing sector, we introduce *CLRATIO* only in the manufacturing sector regressions. It has been argued that firm-specific skills play a more important role in Japanese firms and that this feature has hindered the development of the secondary labor market in Japan. This fact might impede the entry of foreign firms (Weinstein 1996). In order to take this factor into account, we prepared *JOBSEP* (job separation rate).[15] We expect a positive coefficient for this variable.

Industrial organization theory, moreover, suggests that new entries are often deterred in an oligopolistic market. For example, an incumbent firm often takes strategic actions to deter new entries, and entry into an industry may be difficult where the minimum efficient scale is large relative to the market size.

---

[14] Brainard (1993, 1997) discusses this issue for the case of manufacturing products. For the issue of locational advantage, also see Dunning (1988).

[15] Weinstein (1996) used data on wage gaps between JAFF and independent Japanese firms in order to test whether Japan's low liquidity of labor impedes inward FDI. But since this data is only available at quite an

Therefore, we introduced two variables representing market concentration, *HERF* (Herfindahl index) and *CR4* (top 4-firm concentration ratio), and would expect negative coefficients for both.

To find out the effects of government regulation on inward FDI, we prepared the variables, *REGCUR* and *REGPAST* for the manufacturing sector regressions, and *RINVJAUS* (Japan's FDI restrictiveness minus U.S. FDI restrictiveness) for service sector regressions. *REGCUR* is a dummy variable which takes 1 for currently regulated industries, and *REGPAST* is a dummy variable which takes 1 for industries regulated in the past. To construct *RINVJAUS*, following Hoekman (1996), we compiled a frequency measure for FDI restrictiveness at the 3-digit industry level, using data from GATS (General Agreement on Trade in Services) schedules for Japan and the United States, APEC (1996), OECD (various issues), Japan Investment Council (various years), and the Japanese Government (various years). The two countries' FDI restrictiveness indices are reported in Panel B of Table 5. According to these indices, Japan has not welcomed liberalization in the fields of transportation, medicine, postal services, temporary staffing services, agriculture-related services, ship repair, and electricity/gas. *RINVJAUS* is defined as the difference between the FDI restrictiveness of Japan and the United States. We expect a negative coefficient for this variable.

Moreover, inward FDI in an industry will be limited, if government-owned establishments dominate the industry. To study this effect, we used *PUBEMP* (the share of workers employed by local or central government). We expect a negative coefficient for *PUBEMP*.

In order to take account of the effects of the *keiretsu*, we used two *keiretsu* variables, *HORIZ* (the share of workers employed by horizontal *keiretsu* firms) and *VERT* (the share of workers employed by vertical *keiretsu* firms. If the *keiretsu* impedes inward FDI, we will have negative coefficients. In order to control for differences in the tradability of different goods and services, we used *FDIUS* (U.S. inward FDI penetration), though we think that tradability is a more important determinant of FDI in the service sector than in the manufacturing sector. We expect a positive coefficient for this variable.[16]

We conduct an ordinary least squares regression for the manufacturing sector and a Tobit estimation for the service sector, since there exists a lower bound, zero, for our dependent variable in the

---

aggregated level, we do not use it.

[16] In his comment, Sadao Nagaoka pointed out that market growth might be an important determinant of inward FDI. Following this comment, we added a new variable, the growth rate of domestic demand from 1985 to 1995, which we obtained from Japan's Linked Input-Output Tables. The estimated coefficient of this variable was negative but insignificant both for the manufacturing and the service sector. Moreover, inclusion of this variable in our regression equations did not substantially change the estimated values and the significance of coefficients on other variables. Therefore, we only report the estimated results of the

latter. The results are summarized in Tables 14 and 15. For the manufacturing sector, we integrated 58 manufacturing industries into 38 industries in order to be consistent with *keiretsu* data published in Dodwell Marketing Consultants (1995). For the service sector, among our 50 industries, we were unable to obtain data for nine industries, namely other insurance services, postal services, education, research institutes for natural sciences, research institutes for social sciences and humanities, health and hygiene, private non-profit organizations' services, social insurance and welfare, and unclassified services. Therefore, the maximum sample size is 41.

INSERT TABLE 14 AND TABLE 15

The determinants of Japan's inward FDI penetration are very different for the manufacturing sector and the service sector. In the manufacturing sector, we found advantages in managerial resources and factor intensity to be significant, while policy variables were significant in the service sector.

The results we obtained for the manufacturing sector are as follows: The estimated coefficients of *RDINT* (R&D intensity), *UNIV* (skilled-labor intensity) and *CLRATIO* (capital-labor ratio) are significantly positive and robust. Consistent with the standard theory of FDI, Japan's inward FDI penetration is relatively high in industries that have a higher R&D intensity, a higher skilled-labor intensity, and a higher capital-labor ratio. The coefficient of *ADINT* (advertisement intensity), however, is not significant. The estimated coefficient on *LAND* (land intensity) was negative as we expected but insignificant in most cases. In the case of the market structure variables, the estimated coefficient on *HERF* (Herfindahl index) is insignificant. Contrary to our expectations, the coefficient on *JOBSEP* (job separation rate) is negative but insignificant. The coefficient of *DPROD* is positive but insignificant. In the case of policy variables, the estimated coefficients on *REGCUR* (a dummy for currently regulated industries) and *REGPAST* (a dummy for industries regulated in the past) are not significant. The estimated coefficients on *PUBEMP* (the share of workers employed by local or central government) is negative and significant as we expected. The estimated coefficients on the two *keiretsu* variables, *HORIZ* (the share of workers employed by horizontal *keiretsu* firms) and *VERT* (the share of workers employed by vertical *keiretsu* firms) are not significant.

In the service sector, the estimated coefficients of *RINVJAUS* (Japan's FDI restrictiveness minus U.S. FDI restrictiveness) and *PUBEMP* (the share of workers employed by local or central government) are negative and significant. These results are consistent with the results obtained by Fukao and Ito (2001), and imply that by eliminating its restrictions on inward FDI and reducing government activities, Japan can

---

equations without domestic demand growth.

increase inward FDI in the service sector. In the case of locational advantage variables for the service sector, as we expected, the estimated coefficient of *LAND* (land intensity) is negative while the coefficient of *UNIV* (skilled-labor intensity) is positive in many cases. However, they are not significant. Contrary to our expectations, the coefficient of *JOBSEP* (job separation rate) is negative but insignificant. In the case of the variables that stand for the importance of intangible assets, the estimated coefficient of *RDINT* (R&D intensity) is negative and the coefficient of *ADINT* (advertisement intensity) is positive. But both are not significant in many cases. The coefficient of *DPROD* is positive but insignificant. In the service sector, the estimated coefficient on *HERF* (Herfindahl index) is positive and significant in most cases. One interpretation of this result is as follows: The Herfindahl index tends to be higher when economies of scale work at the firm level; in such industries we will observe active inward and outward FDI.

In the case of the *keiretsu* variables, we did not get significant results in both the manufacturing and the service sectors, which is consistent with the results obtained in most of the previous studies. Again, this suggests that *keiretsu* do not work as an impediment to inward FDI in Japan.[17]

**5. Conclusions**

In this paper we compiled new statistics on the employment of Japanese affiliates of foreign firms (JAFF) in Japan at the 3-digit industry level for the year 1996, using micro data of *the Establishment and Enterprise Census of Japan*. According to our new statistics (Tables 3 and 4), JAFF with 33.4% or more foreign ownership in the service sector employed 308,000 workers in 1996, which is nearly five times greater than the number reported in MITI (1999). In the case of the manufacturing sector, JAFF with 33.4% or more foreign ownership employed 176,000 workers in 1996, which is 10% greater than the number reported in MITI (1999). The underestimation in MITI's survey is substantial in the case of the service sector.

Using our statistics, we compared FDI in Japan with FDI in the United States at the 3-digit industry level. We found that as of 1996, the share of employment by JAFF in the service sector reached one fifth of that of the United States. However, FDI into Japan is growing at an amazing speed. The total of FDI flows in the last three years is greater than the FDI stock at the end of the 1996 fiscal year. In the next 7 or 8 years, the share of employment by Japanese affiliates of foreign firms in the service sector may reach a level almost equal to that observed in the United States.

We also estimated an empirical model to examine the determinants of Japan's inward FDI

[17] As Fukunari Kimura and Sadao Nagaoka pointed out, it is difficult to test the effect of impediments

penetration using our cross-industry statistics. We found that the determinants of Japan's inward FDI penetration are very different for the manufacturing sector and the service sector. In the manufacturing sector, we found advantages in managerial resources and factor intensity to be significant. In the service sector, policy variables were significant. This result implies that by eliminating restrictions on inward FDI and reducing government activities, Japan can increase inward FDI in service sector. In the case of the keiretsu variables, we did not obtain significant results in both the manufacturing and the service sectors. This suggests that *keiretsu* does not work as an impediment to inward FDI in Japan.

We found that compared with FDI in the U.S., FDI in Japan's service sector is more concentrated in a limited number of industries. Four industries, wholesale trade, eating and drinking places, retail trade, and computer programming and software account for 77% of all the workers employed by JAFF. In Japan, there are what may be labeled "sanctuary" sectors, such as medical services, utilities, postal services, and education. If international competition in these sectors were introduced through the participation of foreign capital, this would undoubtedly contribute to Japan's structural reform process. In order to remove government impediments to direct investment by foreign companies, not only should the principle of equal treatment irrespective of nationality be applied, but restrictions on market access should be eased. In the "sacred" sectors, restrictions on market access, which take precedence over equal treatment, impede direct investment by foreign companies. In fact, even Japanese corporations are sometimes prohibited from participating in those markets because of legal restrictions. The very existence of public entities also impedes participation by private companies. In order to encourage market participation by foreign companies in areas in which governmental involvement is high, there is a need to solve difficult issues such as how to introduce competitive principles without violating the public interest.

---

which cover all industries (such as Japan's inferior accounting standards) by our cross-industry regression.

**Appendix: Description of Variables and Data Sources**

**1. Notes to Table 5**

***Number of Workers in the United States:***

Our data on the number of workers employed by the U.S. affiliates of foreign firms and that of workers employed by all the establishments in the United States are taken from *Foreign Direct Investment in the United States, Establishment Data for 1992* (U.S. Department of Commerce 1995a).

***FDI Restrictiveness Index:***

Following Hoekman (1996), we compiled a frequency measure for FDI restrictiveness at the 3-digit industry level, using data from GATS (General Agreement on Trade in Services) schedules for Japan and the United States. The GATS schedule of each country shows to which service sectors and under what conditions the basic principles of the GATS - market access and national treatment - are applied in that country. The GATS schedule covers 155 service sectors. The commitments and limitations are in every case entered with respect to each of the four modes of supply, i.e. cross-border supply, consumption abroad, commercial presence, and presence of natural persons. It seems that commitments on the commercial presence mode of supply have the most significant impact on inward FDI, so we used only information on this mode of supply. For sectors not covered by the GATS schedule, we obtained information on each country's FDI restrictiveness from APEC (1996), OECD (various issues), Japan Investment Council (various years), and the Japanese Government (various years).

**2. Notes to Table 7**

***Imports, Exports, and Domestic Output:***

Our data on Japan's imports, exports, and total domestic output are taken from the *1995 Japan Input-Output Tables* (Japanese Government 1998).

In the context of our analysis, cross-border service trade statistics in Japan's I-O tables have the following shortcomings:

(i) Imports and exports in I-O tables do not include payments and receipts for construction services which, if provided by non-residents, should be considered as service imports.

(ii) As merchandise imports are on a CIF basis, I-O output tables omit those services - transportation and insurance - that are associated with the import of goods and already included in the value of goods imports.

(iii) The value of overseas whole-sellers' activities is included in the value of goods imports either on FOB basis or on CIF basis, while the value of domestic whole-sellers' activities for exported goods is properly

summed up in the output of wholesale trade sector.

In order to solve these problems, we used Bank of Japan (various issues) data on trade in construction and civil engineering, water transportation, and air transportation services. For imports of wholesale trade services which are included in the value of goods imports, we estimated distribution margins in the following way. We calculated the ratio of distribution margins for exported goods to total exports on an FOB basis, and estimated margins on imported goods by multiplying imports on an FOB basis by the commercial margin ratio. We obtained the value of goods imports on an FOB basis from Bank of Japan (various issues).

In the case of financial intermediary services, we calculated a measure of import quantities which is comparable to our measure of activities for this sector, that is, current income. We derived this by multiplying the industry's import/output ratio of the I-O tables with the industry's total current income.

We should note that, in the case of the manufacturing sector, imports are on a CIF basis and include the value of services that are associated with the import of goods.

Our data on U.S. imports and total domestic output are taken from the *1992 U.S. Input-Output Tables* (U.S. Department of Commerce 1995c). Due to the same shortcomings as in the case of Japan's Input-Output tables, we revised the data of the I-O tables, using data on cross-border transactions of U.S. International Services (U.S. Department of Commerce 1999) for construction and civil engineering, railway passenger and freight transportation, road passenger and freight transportation, water and air transportation, and supporting services for transport. Data on imports of financial intermediary services, telecommunications, eating and drinking places, and hotels and lodging places are also taken from U.S. Department of Commerce (1999). For imports of wholesale trade services, we estimated distribution margins that are included in the value of goods imports in the same way as with Japan's imports. We should note that imports data in U.S. Department of Commerce (1999) exclude imports from U.S. firms' foreign affiliates.

***Number of Workers Employed by Foreign Affiliates of Japanese Firms:***

Our data on the number of workers employed by foreign affiliates of Japanese firms in the manufacturing industries are compiled using the micro-data of MITI's Survey on Trends of Japan's Business Activities Abroad, 1996. In the case of the non-manufacturing sector except the primary sector, we use the micro-data of Toyo Keizai Shinpo-sha's Directory of Japanese Subsidiaries Abroad, 1996, CD-ROM version.

### 3. Notes to Table 13

***Japan's Inward FDI Penetration (FDIJA):***

The share of the number of workers employed by JAFF (Japanese Affiliates of Foreign Firms) that are 10% or more foreign-owned in Japan's total number of workers in 1996. Our data are compiled using the micro-data of the 1996 Establishment and Enterprise Census of Japan.

***R&D Intensity (RDINT):***

*RDINT* is defined as the ratio of R&D expenses to the gross value-added in each industry. In the case of the manufacturing sector, the data are compiled using the industry-level data provided in Nakamura, Fukao, and Shibuya (1995, 1997). In the case of the service sector, the data are taken from the 1995 Japan I-O Tables (Japanese Government 1998). R&D expenses are defined as the amount of input from the research industry to each industry.

***Advertisement Intensity (ADINT):***

*ADINT* is defined as the advertising expenses per employee in each industry. In the case of the manufacturing sector, the industry-level data provided in Nakamura, Fukao, and Shibuya (1995, 1997) are used. In the case of the service sector, the data are taken from the 1995 Japan I-O Tables (Japanese Government: 1998). The advertising expenses are defined as the amount of input from the advertising industry to each industry.

***Capital-Labor Ratio (CLRATIO):***

The industry-level data provided in Nakamura, Fukao, and Shibuya (1995, 1997) are used.

***Land Intensity (LAND):***

Our data on *LAND* are taken from the Development Bank of Japan (2000) and Nikkei QUICK Information Technology (2000). We first calculated the ratio of the book value (unit: billions of yen) of owned land to the number of employees for each firm. *LAND* is a weighted average of the land/employee ratio in each industry. We used the number of employees of each firm as a weight. For water supply and sewerage systems industries, we calculated the land/employee ratio using MOF (Japan Ministry of Finance) (1996). We first regressed the ratio calculated using the Development Bank of Japan's data on the ratio calculated using MOF's data for the industries that have the ratios calculated by both data. We then took the adjusted ratios for water supply and sewerage systems industries by using the estimated regression equation.

***Skilled Labor Intensity (UNIV):***

*UNIV* is defined as the ratio of the number of university graduate employees to the total number of employees in that particular industry. The data are taken from the Statistics Bureau, Japan Prime Minister's Office (1995) and Policy Planning and Research Department, Minister's Secretariat, Japan Ministry of

Labor (1996).

***Herfindahl Index (HERF):***

*HERF* is calculated from the each firm's share of the number of employees in the total number of employees in each industry. The data are complied using the micro-data of the 1996 Establishment and Enterprise Census of Japan.

***Top 4-Firm Concentration Ratio (CR4):***

*CR4* is calculated from each firm's share of the number of employees in the total number of employees in each industry. The data are complied using the micro-data of the 1996 Establishment and Enterprise Census of Japan.

***U.S. Inward FDI Penetration (FDIUS):***

The share of the number of workers employed by foreign firms' U.S. affiliates in the total number of workers in the U.S. in 1992. The data are taken from the U.S. Department of Commerce (1995a).

***Currently Regulated Industries (REGCUR):***

*REGCUR* is a dummy variable which takes one for currently regulated industries, otherwise zero. According to the information in the OECD's Code of Liberalisation of Capital Movements (various years), the currently regulated industries are the petroleum and the leather and leather products industries.

***Industries Regulated in the Past (REGPAST):***

*REGPAST* is a dummy variable which takes one for industries regulated in the past, otherwise zero. According to the information in the OECD's Code of Liberalisation of Capital Movements (various years), the industries regulated in the past are food and related products, textile products and apparel, pharmaceuticals, miscellaneous chemicals, stone, clay, and glass products, special industry machinery, electric equipment and computers, and electronic parts and devices industries.

***Differences between Japan's and U.S. FDI Restrictiveness (RINVJAUS):***

*RINVJAUS* is defined as the difference between the FDI restrictiveness of Japan and the United States. For details of FDI restrictiveness, see the above description on FDI restrictiveness index.

***Share of Public Services (PUBEMP):***

*PUBEMP* is defined as the ratio of the number of workers employed by establishments owned by the central or local governments to the total number of employees in that particular industry in Japan. The data are taken from the Statistics Bureau, Japan Management and Coordination Agency (1998).

***Productivity (DPROD):***

*DPROD* is defined as the productivity of a particular industry in Japan relative to that in the U.S. The data are based on Kawai (1996). For this data, also see Kawai and Urata (1997).

***Job Separation Rate (JOBSEP):***

The data on *JOBSEP* are taken from the Policy Planning and Research Department, Minister's Secretariat, Japan Ministry of Labor (1995).

***Vertical Keiretsu (VERT):***

*VERT* is defined as the share of workers employed by vertical *keiretsu* firms in the total work force. In the case of the manufacturing sector, the industry-level data provided in Nakamura, Fukao, and Shibuya (1995, 1997) are used. In the case of the service sector, the data on *keiretsu* were taken from Toyo Keizai Shinpo-sha (1992, 2000). We treated all the firms that belong to forty-three independent corporate groups (Toyota, Nissan, Hitachi, Toshiba, Matsushita, Taisei, etc.) and all the subsidiaries of such firms as vertical *keiretsu* firms.

***Horizontal Keiretsu (HORIZ):***

*HORIZ* is defined as the share of workers employed by horizontal *keiretsu* firms in the total work force. In the case of manufacturing sector, the industry-level data provided in Nakamura, Fukao, and Shibuya (1995, 1997) are used. In the case of service sector, the data on *keiretsu* were taken from Toyo Keizai Shinpo-sha (1992, 2000). We treated all the firms that belong to the *Shacho-kai* (President Clubs) of seven corporate groups (Mitsui, Mitsubishi, Sumitomo, Fuyou, Sanwa, Ichikan, and Tokai) and all the subsidiaries of such firms as horizontal *keiretsu* firms.

**References**


APEC (Asia Pacific Economic Cooperation) Committee on Trade and Investment, 1996, 1999, *Guide to the Investment Regimes of Member Economies, APEC Committee on Trade and Investment*, Singapore.

Bank of Japan, various issues, *Balance of Payment Statistics Monthly*, Tokyo: Bank of Japan (also available at <www.boj.or.jp>).

Brainard, S. Lael, 1993, "A Simple Theory of Multinational Corporations and Trade with a Trade-off Between Proximity and Concentration," NBER Working Paper No.4269, National Bureau of Economic Research.

Brainard, S. Lael, 1997, "An Empirical Assessment of the Proximity-Concentration Trade-off Between Multinational Sales and Trade," *The American Economic Review*, Vol.87, No.4, pp.520-544.

Caves, Richard E. (1982) *Multinational Enterprise and Economic Analysis.* Cambridge, U.K.: Cambridge University Press.

Development Bank of Japan, 2000, *Kigyo Zaimu Data Bank* (*Financial Data of Enterprises*), Development Bank of Japan, Tokyo.

Dodwell Marketing Consultants, 1995, *Industrial Groupings in Japan*, 11th Edition, Dodwell Marketing Consultants.

Dunning, John. H., 1988, *Explaining International Production*, London: Unwin Hyman.

Fukao, Kyoji and Keiko Ito, 2001, "Foreign Direct Investment and Service Trade: The Case of Japan," In *Services Trade in the Asia-Pacific Region*, eds. Takatoshi Ito and Anne O. Krueger, Chicago: The Chicago University Press (forthcoming, also available at www.nber.org).

GATT, 1995, Trade Policy Review: Japan 1994. Geneva: GATT Secretariat.

Graham, Edward M. and Paul R. Krugman, 1991, *Foreign Direct Investment in the United States*, 2nd Edition, Washington D.C.: Institute for International Economics.

Hoekman, Bernard, 1996, "Assessing the General Agreement on Trade in Services." In *the Uruguay Round and the Developing Countries*, eds. Martin and Winters, Cambridge, U.K.: Cambridge Univ. Press.

Horaguchi, Haruo, 1995, "Tainichi Chokusetsu Toshi: Keiretsu wa Sogai Yoin ka (Inward FDI to Japan: Is Keiretsu an Impediment?)." In *Industry Organization in Japan*, ed. Masuo Uekusa, Tokyo: Yuhikaku.

Japan Investment Council, various years, *Yearbook of the Japan Investment Council*, Japan Investment Council, Tokyo (also available at <www.cao.go.jp>).

Japan National Conference of Stock Exchanges, 2001, *The 2000 Shareownership Survey*, Tokyo: National Conference of Stock Exchanges (also available at <www.tse.or.jp>).

Japanese Government, (various years), Japan's APEC Individual Action Plan, Japanese Government, Tokyo (also available at <www.mofa.go.jp).

Japanese Government, (1998), *1995 Input-Output Tables*, Tokyo: Japanese Government.

Kawai, Hiroki, 1996, "Shijo Kaiho no Ippan-Kinko Bunseki (A General Equilibrium Analysis of Market Liberalization in Japan)." Nippon Keizai Kenkyu, No. 31, pp. 133-165.

Kawai, Hiroki and Shujiro Urata, 1997, "The Cost of Regulation in the Japanese Service Industry." IDE APEC STUDY CENTER Working Paper Series 96/97-No.17, IDE APEC Study Center.

Kenneth Leventhal & Company (1994) *Japanese Investment in U.S. Real Estate 1993*, Los Angeles, Cal.: Kenneth Leventhal & Company.

Kimura, Fukunari and Robert E. Baldwin, 1996, "Application of Nationality-Adjusted Net Sales and Value added Framework: The Case of Japan." NBER Working Paper No.5670, National Bureau of Economic Research.

Kogut, Bruce and Sea Jin Chang, 1991, "Technological Capabilities and Japanese Foreign Direct Investment in the United States," *The Review of Economics and Statistics*, Vol. LXXIII, No.3, pp.

401-413.
Lawrence, Z., Robert, 1993, "Japan's Low Levels of Inward Investment: The Role of Inhibitions on Acquisitions." In *Foreign Direct Investment*, ed. Kenneth A. Froot, The University of Chicago Press.
METI (Japan Ministry of Economy, Trade and Industry), 2001a, *Dai 34-kai Gaishi-kei Kigyo Doko Chosa Gaiyo* (*The Summary of the 34th Report on Trends of Business Activities by Japanese Subsidiaries of Foreign Firms*), Tokyo: METI (also available at <www.meti.go.jp>).
METI, 2001b, *Dai 30-kai Kaigai Jigyo Katsudo Doko Chosa Gaiyo* (*The Summary of the 30th Report on Trends of Japan's Business Activities Abroad*), Tokyo: Tokyo: METI (also available at <www.meti.go.jp>).MITI (Japan Ministry of International Trade and Industry), 1995, *The Japan-U.S. Input-Output Table*, Tokyo: Tsusan Tokei Kyokai.
MITI, 1998, *Tsusho Hakusho Heisei 10-nen ban* (*White Paper on International Trade: 1998*), Tokyo: Printing Office, Japan Ministry of Finance.
MITI, 1999, *Dai 31-kai Gaisi-kei Kigyo no Doko* (*The 31th Report on Trends of Business Activities by Japanese Subsidiaries of Foreign Firms*), Tokyo: Printing Office, Japan Ministry of Finance.
MITI, 2000, *Tsusho Hakusho Heisei 12-nen ban* (*White Paper on International Trade: 2000*), Tokyo: Printing Office, Japan Ministry of Finance.MOF (Japan Ministry of Finance), 1996, *Zaisei Kinyu Tokei Geppo* (*Ministry of Finance Statistics Monthly*), No.532, Aug.96, Tokyo: Printing Office, Japan Ministry of Finance.
MOF (Japan Ministry of Finance), 1996, *Zaisei Kinyu Tokei Geppo (Ministry of Finance Statistics Monthly)*, No. 532, Aug. 96, Tokyo: Printing Office, Japan Ministry of Finance.
MOF, 1999, *Zaisei Kinyu Tokei Geppo* (*Ministry of Finance Statistics Monthly*), No.572, Dec.99, Tokyo: Printing Office, Japan Ministry of Finance, (also available at <www.mof.go.jp>).
Nakamura, Yoshiaki, Kyoji Fukao and Minoru Shibuya, 1995, Tainichi-chokusetsu-toshi wa Naze Sukunai ka? (Why the FDI into Japan is So Small?), Tsusan Kenkyu Review (MITI Research Review), Vol. 6, Nov. 95, Tokyo: MITI.
Nakamura, Yoshiaki, Kyoji Fukao and Minoru Shibuya, 1997, Tainichi-chokusetsu-toshi wa Naze Sukunai ka? Keiretsu, Kisei ga Mondai ka? (Why the FDI into Japan is So Small? Is it Because of Keiretsu or of Restrictions?), Tsusho Sangyo Kenkyusho Kenkyu Series (MITI Research Institute Study Series) No.31, Tokyo: MITI.
Nikkei QUICK Information Technology, 2000, *Nikkei Kigyo Data* (*Nikkei Data of Enterprises*) Tokyo: Nikkei QUICK Information Technology Co., Ltd.
OECD (Organization for Economic Co-operation and Development), 1999, *International Direct Investment Statistics Yearbook 1999*. OECD, Paris.
OECD, various issues, *Code of Liberalization of Capital Movements*. OECD, Paris.
Policy Planning and Research Department, Minister's Secretariat, Japan Ministry of Labor, 1995, *Maigetsu Kinrou Tokei Sokuho/ Zenkoku Chosa* (*Monthly Labour Survey / National Survey*), Policy Planning and Research Department, Minister's Secretariat, Japan Ministry of Labor, Tokyo.
Policy Planning and Research Department, Minister's Secretariat, Japan Ministry of Labor, 1996, *Heisei 7-nen Chingin Kozo Kihon Chosa* (*Basic Survey on Wage Structure: 1995*), Policy Planning and Research Department, Minister's Secretariat, Japan Ministry of Labor, Tokyo.
Petri, Peter A. 1991, "Market Structure, Comparative Advantage, and Japanese Trade under the Strong Yen." In *Trade with Japan: Has the Door Opened Wider*?, ed. Paul Krugman, The University of Chicago Press.
Prime Minister's Office, Government of Japan, 1995, *Heisei 4-nendo Shugyo Kozo Kihon Chosa (1996 Employment Status Survey*), Statistics Bureau, Japan Prime Minister's Office, Tokyo.
Prime Minister's Office, Government of Japan, 1999, *Kanko Hakusho Heisei 11-nen Ban (White Paper on*

*Tourism: 1999)*, Tokyo: Printing Office, Japan Ministry of Finance.
Pugel, Thomas A, Erick S. Kragas, and Yui Kimura, 1994, "Further Evidence on Japanese Direct Investment in U.S. Manufacturing." *The Review of Economics and Statistics*.
Ray, Edward John, 1989, "The Determinants of Foreign Direct Investment in the United States, 1979-85." In *Trade Policies for International Competitiveness*, ed. R. C. Feenstra, Chicago: University of Chicago Press.
Saxonhouse, Gary R., 1993, "What Does Japanese Trade Structure Tell us About Japanese Trade Policy?, " *Journal of Economic Perspectives*, vol. 7, pp. 21-44.
Statistics Bureau, Japan Management and Coordination Agency, 1993, *Standard Industrial Classification for Japan: List of Classification Categories and Explanatory Notes*, Statistics Bureau, Japan Management and Coordination Agency , Tokyo.
Statistics Bureau, Japan Management and Coordination Agency, 1998, *Heisei 8-nen Jigyosho Kigyo Tokei Chosa* (*1996 Establishment and Enterprise Census of Japan*). Statistics Bureau, Japan Management and Coordination Agency , Tokyo.
Stern, M. Robert, 2000, "U.S.-Japan Trade Policy and FDI Issues," Paper presented at a Pre-Conference Meeting of Authors and Invited Guests, *Analytic and Negotiating Issues in U.S.-Japan International Economic Relations*, hosted at Keio University, May 19-20, Tokyo.
Toyo Keizai Shinpo-sha, 1992, *Kigyo Keiretu Soran 1990* (*Directory of Corporate Groups 1990*), Toyo Keizai Shinpo-sha, Tokyo.
Toyo Keizai Shinpo-sha, 2000, *Nippon-no Kigyo Group 1990 and 2000: CD-ROM-ban (Japanese Corporate Groups 1990 and 2000: CD-ROM version*), Toyo Keizai Shinpo-sha, Tokyo.
Toyo Keizai Shinpo-sha, 1999, *Gaishi-kei Kigyo Soran 1999: CD-ROM-ban* (*Directory of Japanese Subsidiaries of Foreign Firms 1999: CD-ROM version*), Toyo Keizai Shinpo-sha, Tokyo.
U.S. Department of Commerce, 1995a, *Foreign Direct Investment in the United States, Establishment Data for 1992* (available at <www.bea.doc.gov>).
U.S. Department of Commerce, 1995b, *Foreign Direct Investment in the United States, Benchmark Survey for 1992* (available at <www.bea.doc.gov>).
U.S. Department of Commerce, 1995c, *Benchmark Input-Output Accounts of the United States, 1992* (available at <www.bea.doc.gov>).
U.S. Department of Commerce, 1999, *US International Services: Cross-Border Trade and Sales Through Affiliates, 1986-98* (available at <www.bea.doc.gov>).
Weinstein, David, 1996, "Structural impediments to Investment in Japan: What Have We Learned over the Last 450 Years?," in *Foreign Direct Investment in Japan*, eds, Masaru Yoshitomi and Edward M. Graham, Edward Elgar.
Wilkins, Mira (1990) "Japanese Multinationals in the United States: Continuity and Change, 1879-1990," *Business History Review*, vol. 64, pp.585-629.

**Table 1. Japan's Inward and Outward FDI: Position at the End of March 2001**

(Billion Yen)

**Panel A. Inward FDI**

| Industry | Inward FDI Stock |
|---|---|
| Manufacturing Total | 5,324 |
| Food and related products | 110 |
| Textile products | 24 |
| Rubber and leather products | 82 |
| Chemicals and allied products | 1,272 |
| Petroleum | 443 |
| Glass and stone products | 30 |
| Primary and fabricated metals | 220 |
| Machinery | 2,978 |
| Other manufacturing | 165 |
| Non-manufacturing Total | 7,880 |
| Construction | 21 |
| Real estate | 339 |
| Commerce | 2,028 |
| Business and personal services | 1,526 |
| Transportation services | 48 |
| Communication services | 1,155 |
| Finance and insurance | 2,595 |
| Others | 168 |
| Total Amount | 13,203 |

**Panel B. Outward FDI**

| Industry | Outward FDI Stock |
|---|---|
| Manufacturing Total | 34,187 |
| Food and related products | 3,181 |
| Textile products | 1,508 |
| Lumber and pulp | 994 |
| Chemicals and related products | 4,478 |
| Ferrous and nonferrous metals | 3,419 |
| Machinery | 2,858 |
| Electronics and electrical machine | 9,126 |
| Transportation equipment | 4,751 |
| Other manufacturing | 3,873 |
| Non-manufacturing Total | 71,665 |
| Agriculture and Forestry | 424 |
| Fishery | 257 |
| Mining | 5,193 |
| Construction | 821 |
| Commerce | 11,016 |
| Finance and Insurance | 20,347 |
| Business and Personal Services | 11,398 |
| Transportation Services | 7,862 |
| Real Estate | 12,524 |
| Others | 1,824 |
| Branches | 1,656 |
| Total Amount | 107,669 |

Note: Cumulated value of FDI flows approved or notified from 1950 onwards.
Sources: MOF (1999) and <www.mof.go.jp>

**Table 2. Comparison of Major Statistics on FDI in Japan**

| | Our statistics based on micro-data of "Establishment and Enterprise Census of Japan" | | | MITI "Survey on Trends of Business Activities by Japanese Subsidiaries of Foreign Firms | Toyo Keizai Sinpo-sha "Directry of Japanese Subsidiaries of Foreign Firms" |
|---|---|---|---|---|---|
| Years Covered | 1996 (Data of 2001 Survey is not available yet) | | | Annual data is available from 1970 | Annual data is available from 1985 |
| Industry Coverage | Covers all the industries | | | Does not cover finance, insurance, and real estate | Covers all the industries |
| Response Ratio | Mandatory. | | | Not-mandatory. Response ratio for 1996 Survey was 52.1% | Not mandatory. There is no information on response ratio |
| Industry Classification | Establishment level, 3-digit industry classification (Original micro-data is at 4-digit level) | | | Firm level, 24 industries (including 5 non-manufacturing industries) | Firm level, 55 industries |
| Definition of Nationality | We can choose any cut-off capital participation ratio | | | The cut-off ratio is 33.4% | For listed or major firms, cut-off ratio is 20%, otherwise 49% |
| Coverage of Branches Directly Owned by Foreign Firms | All covered | | | Not covered | Covered in the case of finance and insurance |
| Comparison for 1996 | | | | | |
| Date of Survey | October 1, 1996 | | | March 31, 1996 | October, 1998 |
| Cut-off Ratio | >10% | >33.4% | >=50% | >=33.4% | >=20% or >=49% |
| Primary Industry | | | | | |
| Number of Workers Employed by JAFF | 2,338 | 407 | 248 | N.A. | 268 |
| Number of Japanese Firms Owned by Foreign Firms | 7 | 4 | 4 | N.A. | 3 |
| Number of Japanese Establishments Directly Owned by Foreign Firms | 66 | 10 | 6 | N.A. | N.A. |
| Manufacturing Industry | | | | | |
| Number of Workers Employed by JAFF | 1,025,450 | 176,186 | 102,155 | 163,135 | 286,933 |
| Number of Japanese Firms Owned by Foreign Firms | 600 | 370 | 311 | 480 | 828 |
| Number of Japanese Establishments Directly Owned by Foreign Firms | 2,714 | 986 | 857 | N.A. | N.A. |
| All the Other Industry | | | | Excluding Real Estate and Finance, including Mining | |
| Number of Workers Employed by JAFF | 1,132,702 | 308,245 | 279,844 | 61,961 | 203,940 |
| Number of Japanese Firms Owned by Foreign Firms | 2,499 | 2,065 | 1,887 | 641 | 2,456 |
| Number of Japanese Establishments Directly Owned by Foreign Firms | 32,190 | 12,082 | 10,699 | N.A. | N.A. |
| Available Information | Number of workers (in detailed category of male, female, full-time, part-time etc.), start-up date, form of ownership, location. No information on sales or profits. | | | Detailed information on business activities is available. But many firms do not answer to such detailed questions. | Number of workers and start-up date are available for most firms. Sales data are available for some firms. |

**Table 3. Summary Data of Foreign-Owned Establishments in the Japanese Manufacturing Sector, 1996**

**<Panel A. Number of Establishments Owned by Japanese Affiliates of Foreign Firms (JAFF)>**

| | Industry | JAFF Owned 10% or More by Foreigners | | | JAFF Owned 33.4% or More by Foreigners | JAFF Owned 50% or More by Foreigners | Government-Owned Establish-ments | All Japanese Establish-ments |
|---|---|---|---|---|---|---|---|---|
| | | Japanese Subsidiaries of Foreign Firms a | Branches and Other Establish-ments of Foreign Firms b | JAFF a+b | | | | |
| 201 | Livestock products | 20 | 0 | 20 | 6 | 4 | 6 | 3,753 |
| 202 | Seafood products | 11 | 0 | 11 | 2 | 2 | 1 | 13,203 |
| 203 | Flour & grain mill products | 0 | 0 | 0 | 0 | 0 | 0 | 1,747 |
| 204 | Miscellaneous food products | 76 | 1 | 77 | 24 | 21 | 29 | 46,552 |
| 205 | Beverages & tobacco | 39 | 4 | 43 | 18 | 17 | 8 | 8,209 |
| 206 | Prepared feed & fertilizers | 1 | 1 | 2 | 1 | 1 | 22 | 1,462 |
| 207 | Reeling plants & spinning mills | 17 | 1 | 18 | 1 | 1 | 0 | 802 |
| 208 | Woven & knitted fabrics | 3 | 0 | 3 | 1 | 1 | 0 | 24,485 |
| 209 | Dyed & finished textiles | 4 | 0 | 4 | 1 | 0 | 0 | 8,283 |
| 210 | Other textile mill products | 6 | 0 | 6 | 1 | 1 | 0 | 17,382 |
| 211 | Textile outer garments | 28 | 2 | 30 | 16 | 15 | 1 | 47,928 |
| 212 | Apparel | 9 | 1 | 10 | 7 | 7 | 0 | 23,947 |
| 213 | Sawmills & millwork | 11 | 0 | 11 | 1 | 0 | 6 | 18,730 |
| 214 | Wooden containers & wood products | 0 | 0 | 0 | 0 | 0 | 4 | 8,653 |
| 215 | Furniture & fixtures | 12 | 0 | 12 | 5 | 2 | 1 | 39,409 |
| 216 | Pulp & paper mills | 11 | 0 | 11 | 1 | 1 | 1 | 3,012 |
| 217 | Paper products | 15 | 0 | 15 | 3 | 3 | 0 | 14,349 |
| 218 | Newspaper industries | 2 | 2 | 4 | 4 | 4 | 0 | 2,134 |
| 219 | Publishing industries | 29 | 4 | 33 | 28 | 28 | 0 | 5,792 |
| 220 | Printing | 189 | 2 | 191 | 16 | 15 | 21 | 59,241 |
| 221 | Industrial inorganic chemicals | 94 | 0 | 94 | 53 | 49 | 0 | 1,555 |
| 222 | Industrial organic chemicals | 135 | 0 | 135 | 59 | 54 | 0 | 1,868 |
| 223 | Oil products & detergents | 36 | 3 | 39 | 23 | 23 | 0 | 1,762 |
| 224 | Drugs & medicines | 120 | 1 | 121 | 72 | 71 | 1 | 1,859 |
| 225 | Toilet preparations & others | 87 | 5 | 92 | 51 | 48 | 0 | 2,267 |
| 226 | Petroleum refining | 9 | 0 | 9 | 7 | 7 | 0 | 113 |
| 227 | Petroleum & coal products | 54 | 0 | 54 | 7 | 5 | 1 | 1,325 |
| 228 | Plastic products | 74 | 1 | 75 | 36 | 33 | 0 | 31,291 |
| 229 | Tires & inner tubes | 3 | 0 | 3 | 3 | 3 | 0 | 152 |
| 230 | Rubber & plastic footwear | 19 | 2 | 21 | 9 | 9 | 0 | 9,058 |
| 231 | Leather products & fur skins | 1 | 0 | 1 | 0 | 0 | 0 | 13,144 |
| 232 | Glass & glass products | 14 | 1 | 15 | 12 | 7 | 0 | 2,734 |
| 233 | Cement & cement products | 58 | 0 | 58 | 2 | 2 | 1 | 9,841 |
| 234 | Clay, pottery & stone products | 59 | 1 | 60 | 8 | 6 | 2 | 19,916 |
| 235 | Blast furnace & basic steel | 43 | 0 | 43 | 2 | 2 | 0 | 2,422 |
| 236 | Iron & steel | 13 | 0 | 13 | 0 | 0 | 0 | 6,419 |
| 237 | Nonferrous metals | 36 | 0 | 36 | 10 | 10 | 0 | 854 |
| 238 | Nonferrous rolling & castings | 22 | 1 | 23 | 11 | 9 | 0 | 5,748 |
| 239 | Fabricated structural metal | 47 | 0 | 47 | 6 | 6 | 0 | 37,452 |
| 240 | Miscellaneous metal work | 82 | 2 | 84 | 32 | 25 | 3 | 57,478 |
| 241 | Metal working machinery | 50 | 0 | 50 | 15 | 11 | 0 | 15,084 |
| 242 | Special industry machinery | 63 | 2 | 65 | 38 | 33 | 0 | 15,371 |
| 243 | Office & household machines | 55 | 0 | 55 | 24 | 21 | 0 | 5,002 |
| 244 | General industrial machinery | 191 | 2 | 193 | 77 | 65 | 0 | 46,528 |
| 245 | Electrical industrial machinery | 77 | 4 | 81 | 42 | 31 | 0 | 15,166 |
| 246 | Household electric appliances | 35 | 0 | 35 | 3 | 2 | 0 | 3,064 |
| 247 | Communication equipment | 46 | 3 | 49 | 14 | 11 | 0 | 4,234 |
| 248 | Electric equipment & computers | 90 | 2 | 92 | 39 | 32 | 0 | 4,153 |
| 249 | Electronic parts & devices | 147 | 2 | 149 | 58 | 48 | 0 | 16,033 |
| 250 | Miscellaneous electric equip. | 53 | 0 | 53 | 18 | 15 | 0 | 5,871 |
| 251 | Motor vehicles & parts | 175 | 3 | 178 | 38 | 20 | 0 | 20,762 |
| 252 | Miscellaneous transp. equip. | 36 | 4 | 40 | 19 | 16 | 4 | 7,534 |
| 253 | Medical instruments | 24 | 0 | 24 | 14 | 14 | 1 | 3,042 |
| 254 | Optical instruments & lenses | 11 | 0 | 11 | 4 | 4 | 0 | 3,785 |
| 255 | Watches, clocks & parts | 2 | 0 | 2 | 0 | 0 | 0 | 845 |
| 256 | Measuring & analytical inst. | 33 | 1 | 34 | 18 | 17 | 0 | 5,646 |
| 257 | Ordnance & accessories | 1 | 0 | 1 | 0 | 0 | 0 | 32 |
| 258 | Miscellaneous manufacturing | 78 | 0 | 78 | 26 | 25 | 2 | 43,423 |
| **Manufacturing Total** | | **2,656** | **58** | **2,714** | **986** | **857** | **115** | **771,906** |

**Table 3. Summary Data of Foreign-Owned Establishments in the Japanese Manufacturing Sector, 1996**

***--- Continued ---***

**<Panel B. Number of Workers Employed by JAFF's Establishments>**

| | Industry | JAFF Owned 10% or More by | | | JAFF Owned 33.4% or More by Foreigners | JAFF Owned 50% or More by Foreigners | Government-Owned Establish-ments | All Japanese Establish-ments |
|---|---|---|---|---|---|---|---|---|
| | | Japanese Subsidiaries of Foreign Firms | Branches and Other Establish-ments of Foreign Firms | JAFF | | | | |
| | | c | d | c+d | | | | |
| 201 | Livestock products | 3,765 | 0 | 3,765 | 267 | 217 | 52 | 174,152 |
| 202 | Seafood products | 1,638 | 0 | 1,638 | A | A | A | 266,711 |
| 203 | Flour & grain mill products | 0 | 0 | 0 | 0 | 0 | 0 | 21,885 |
| 204 | Miscellaneous food products | G | A | 11,759 | 1,449 | 1,256 | 162 | 938,750 |
| 205 | Beverages & tobacco | 9,823 | 438 | 10,261 | 2,840 | 2,812 | 159 | 148,709 |
| 206 | Prepared feed & fertilizers | A | A | A | A | A | 58 | 21,819 |
| 207 | Reeling plants & spinning mills | E | A | 4,627 | A | A | 0 | 38,913 |
| 208 | Woven & knitted fabrics | 499 | 0 | 499 | A | A | 0 | 117,118 |
| 209 | Dyed & finished textiles | 1,430 | 0 | 1,430 | A | 0 | 0 | 93,117 |
| 210 | Other textile mill products | 1,190 | 0 | 1,190 | A | A | 0 | 113,898 |
| 211 | Textile outer garments | E | A | 3,520 | 1,489 | 1,446 | A | 592,303 |
| 212 | Apparel | B | A | 250 | 92 | 92 | 0 | 193,986 |
| 213 | Sawmills & millwork | 729 | 0 | 729 | A | 0 | 64 | 211,046 |
| 214 | Wooden containers & wood | 0 | 0 | 0 | 0 | 0 | 18 | 49,244 |
| 215 | Furniture & fixtures | 1,564 | 0 | 1,564 | 182 | A | A | 282,558 |
| 216 | Pulp & paper mills | 3,217 | 0 | 3,217 | A | A | B | 114,768 |
| 217 | Paper products | 1,194 | 0 | 1,194 | 340 | 340 | 0 | 207,719 |
| 218 | Newspaper industries | A | A | 72 | 72 | 72 | 0 | 80,588 |
| 219 | Publishing industries | 1,169 | 69 | 1,238 | 687 | 687 | 0 | 96,981 |
| 220 | Printing | G | A | 25,662 | 352 | 285 | 5,381 | 616,267 |
| 221 | Industrial inorganic chemicals | 9,903 | 0 | 9,903 | 2,282 | 1,902 | 0 | 62,318 |
| 222 | Industrial organic chemicals | 49,055 | 0 | 49,055 | 5,386 | 4,332 | 0 | 151,765 |
| 223 | Oil products & detergents | 6,160 | 365 | 6,525 | 1,354 | 1,354 | 0 | 69,022 |
| 224 | Drugs & medicines | G | A | 28,279 | 10,330 | 10,301 | A | 143,368 |
| 225 | Toilet preparations & others | 23,075 | 196 | 23,271 | 4,822 | 4,436 | 0 | 99,891 |
| 226 | Petroleum refining | 3,316 | 0 | 3,316 | 3,064 | 3,064 | 0 | 24,968 |
| 227 | Petroleum & coal products | 1,112 | 0 | 1,112 | 198 | 135 | A | 20,076 |
| 228 | Plastic products | G | A | 12,825 | 2,063 | 1,788 | 0 | 502,955 |
| 229 | Tires & inner tubes | 1,318 | 0 | 1,318 | 1,318 | 1,318 | 0 | 32,693 |
| 230 | Rubber & plastic footwear | D | A | 2,492 | 700 | 700 | 0 | 153,625 |
| 231 | Leather products & fur skins | A | 0 | A | 0 | 0 | 0 | 91,996 |
| 232 | Glass & glass products | D | B | 1,713 | 958 | 658 | 0 | 77,078 |
| 233 | Cement & cement products | 6,506 | 0 | 6,506 | A | A | A | 211,985 |
| 234 | Clay, pottery & stone products | G | A | 15,376 | 472 | 167 | A | 231,371 |
| 235 | Blast furnace & basic steel | 66,127 | 0 | 66,127 | A | A | 0 | 195,673 |
| 236 | Iron & steel | 2,741 | 0 | 2,741 | 0 | 0 | 0 | 125,239 |
| 237 | Nonferrous metals | 12,029 | 0 | 12,029 | 1,775 | 1,775 | 0 | 40,585 |
| 238 | Nonferrous rolling & castings | G | A | 11,558 | 1,650 | 991 | 0 | 172,099 |
| 239 | Fabricated structural metal | 12,058 | 0 | 12,058 | 1,098 | 1,098 | 0 | 407,913 |
| 240 | Miscellaneous metal work | G | A | 16,936 | 2,083 | 1,474 | 1,371 | 603,082 |
| 241 | Metal working machinery | 16,972 | 0 | 16,972 | 1,730 | 1,519 | 0 | 178,344 |
| 242 | Special industry machinery | G | A | 11,643 | 6,607 | 4,915 | 0 | 305,564 |
| 243 | Office & household machines | 27,632 | 0 | 27,632 | 7,104 | 5,349 | 0 | 164,759 |
| 244 | General industrial machinery | G | A | 48,853 | 6,443 | 4,782 | 0 | 655,238 |
| 245 | Electrical industrial machinery | 60,385 | 16 | 60,401 | 6,073 | 4,000 | 0 | 439,554 |
| 246 | Household electric appliances | 23,150 | 0 | 23,150 | 709 | C | 0 | 137,452 |
| 247 | Communication equipment | 45,240 | 293 | 45,533 | 1,736 | 1,486 | 0 | 255,198 |
| 248 | Electric equipment & computers | H | A | 66,717 | 19,145 | 10,318 | 0 | 241,010 |
| 249 | Electronic parts & devices | J | A | 116,629 | 16,251 | 12,245 | 0 | 768,677 |
| 250 | Miscellaneous electric equip. | 22,379 | 0 | 22,379 | 6,352 | 6,164 | 0 | 202,940 |
| 251 | Motor vehicles & parts | 169,154 | 7 | 169,161 | 43,575 | 3,096 | 0 | 923,198 |
| 252 | Miscellaneous transp. equip. | 22,182 | 14 | 22,196 | 9,520 | 1,344 | 135 | 208,665 |
| 253 | Medical instruments | 9,488 | 0 | 9,488 | 649 | 649 | A | 65,131 |
| 254 | Optical instruments & lenses | 3,027 | 0 | 3,027 | 93 | 93 | 0 | 88,290 |
| 255 | Watches, clocks & parts | 2,491 | 0 | 2,491 | 0 | 0 | 0 | 35,778 |
| 256 | Measuring & analytical inst. | F | A | 5,710 | 471 | 430 | 0 | 106,849 |
| 257 | Ordnance & accessories | C | 0 | C | 0 | 0 | 0 | 3,270 |
| 258 | Miscellaneous manufacturing | 16,701 | 0 | 16,701 | 2,101 | 2,067 | A | 352,084 |
| **Manufacturing Total** | | **1,022,925** | **2,525** | **1,025,450** | **176,186** | **102,155** | **8,201** | **12,930,235** |

Note: A:1-199, B:200-499, C:500-999, D:1,000-2,499, E:2,500-4,999, F:5,000-9,999, G:10,000-49,999, H:50,000-99,999, J:100,000-

**Table 4. Summary Data of Foreign-Owned Establishments in the Japanese Non-Manufacturing Sector, 1996**

**<Panel A. Number of Establishments Owned by Japanese Affiliates of Foreign Firms (JAFF)>**

| | Industry | JAFF Owned 10% or More by Foreigners | | | JAFF Owned 33.4% or More by Foreigners | JAFF Owned 50% or More by Foreigners | Government-Owned Establish-ments | All Japanese Establish-ments |
|---|---|---|---|---|---|---|---|---|
| | | Japanese Subsidiaries of Foreign Firms a | Branches and Other Establish-ments of Foreign Firms b | JAFF a+b | | | | |
| 301 | Construction and civil eng. | 3,501 | 16 | 3,517 | 106 | 101 | 4 | 647,360 |
| 302 | Electricity | 34 | 0 | 34 | 2 | 2 | 118 | 2,420 |
| 303 | Gas supply | 0 | 0 | 0 | 0 | 0 | 96 | 776 |
| 304 | Steam and hot water supply | 0 | 0 | 0 | 0 | 0 | 0 | 142 |
| 305 | Water supply | 1 | 0 | 1 | 0 | 0 | 4,473 | 4,657 |
| 306 | Sewerage systems | 2 | 0 | 2 | 0 | 0 | 1,680 | 2,173 |
| 307 | Sanitary services | 6 | 0 | 6 | 0 | 0 | 3,439 | 15,568 |
| 308 | Wholesale trade | 8,462 | 509 | 8,971 | 4,827 | 4,581 | 9 | 447,355 |
| 309 | Retail trade | 3,487 | 43 | 3,530 | 1,476 | 777 | 2,639 | 1,547,533 |
| 310 | Financial intermediary serv. | 1,766 | 278 | 2,044 | 625 | 596 | 38 | 61,307 |
| 311 | Life insurance | 153 | 116 | 269 | 248 | 248 | 7 | 15,444 |
| 312 | Casualty insurance | 2,160 | 169 | 2,329 | 257 | 257 | 0 | 6,259 |
| 313 | Other insurance services | 53 | 14 | 67 | 29 | 29 | 322 | 25,188 |
| 314 | Real estate | 292 | 12 | 304 | 41 | 35 | 1,103 | 292,358 |
| 315 | Railway transportion | 2 | 0 | 2 | 0 | 0 | 369 | 5,524 |
| 316 | Road passenger transp. | 4 | 0 | 4 | 0 | 0 | 260 | 43,255 |
| 317 | Road freight transportion | 1,961 | 3 | 1,964 | 47 | 45 | 0 | 68,038 |
| 318 | Water transportion | 33 | 22 | 55 | 43 | 40 | 81 | 5,049 |
| 319 | Air transportion | 77 | 325 | 402 | 346 | 346 | 0 | 1,058 |
| 320 | Storage facility services | 268 | 0 | 268 | 28 | 21 | 2 | 9,195 |
| 321 | Supporting serv. for transport | 589 | 178 | 767 | 399 | 377 | 630 | 66,617 |
| 322 | Postal service | 0 | 0 | 0 | 0 | 0 | 20,153 | 24,644 |
| 323 | Telecommunications | 203 | 7 | 210 | 25 | 21 | 52 | 5,132 |
| 324 | Broadcasting | 14 | 0 | 14 | 1 | 0 | 27 | 1,953 |
| 325 | Education | 152 | 9 | 161 | 63 | 59 | 62,556 | 88,165 |
| 326 | Research institutes (natural sci.) | 242 | 7 | 249 | 79 | 66 | 1,623 | 4,175 |
| 327 | Research institutes (soc. sci. & | 0 | 0 | 0 | 0 | 0 | 332 | 652 |
| 328 | Medical services | 51 | 3 | 54 | 17 | 14 | 2,741 | 201,908 |
| 329 | Health and hygiene | 5 | 0 | 5 | 1 | 0 | 2,920 | 3,928 |
| 330 | Private non-profit org. serv. | 21 | 0 | 21 | 3 | 3 | 3,235 | 169,831 |
| 331 | Advertising | 44 | 5 | 49 | 38 | 35 | 0 | 12,252 |
| 332 | Computer prog. & software | 311 | 33 | 344 | 165 | 150 | 0 | 13,128 |
| 333 | Information services | 188 | 101 | 289 | 209 | 199 | 21 | 11,653 |
| 334 | Goods & equip. rental & leas. | 241 | 4 | 245 | 132 | 63 | 7 | 29,057 |
| 335 | Automobile renting | 15 | 0 | 15 | 9 | 9 | 0 | 5,376 |
| 336 | Automobile repairing | 30 | 2 | 32 | 11 | 8 | 66 | 69,978 |
| 337 | Machine repairing | 758 | 18 | 776 | 513 | 503 | 4 | 32,712 |
| 338 | Building maintenance serv. | 17 | 0 | 17 | 8 | 4 | 0 | 18,427 |
| 339 | Legal & accounting serv. | 0 | 0 | 0 | 0 | 0 | 0 | 58,677 |
| 340 | Civil eng. & construct. serv. | 82 | 10 | 92 | 24 | 22 | 3,519 | 64,917 |
| 341 | Personnel supply services | 19 | 1 | 20 | 18 | 14 | 0 | 1,704 |
| 342 | Other business services | 1,115 | 295 | 1,410 | 606 | 570 | 1,330 | 100,355 |
| 343 | Amusement & recreation serv. | 380 | 19 | 399 | 54 | 51 | 3,736 | 82,094 |
| 344 | Eating and drinking places | 1,897 | 9 | 1,906 | 1,387 | 1,269 | 89 | 836,446 |
| 345 | Hotels and lodging places | 1,156 | 15 | 1,171 | 119 | 67 | 1,497 | 87,416 |
| 346 | Individual educ. facilities | 108 | 8 | 116 | 96 | 96 | 0 | 138,959 |
| 347 | Other personal services | 42 | 3 | 45 | 23 | 18 | 1,323 | 475,474 |
| 348 | Agricultural services | 3 | 0 | 3 | 0 | 0 | 254 | 14,260 |
| 349 | Social insurance & welfare | 6 | 0 | 6 | 6 | 2 | 25,961 | 58,982 |
| 350 | Unclassified services | 4 | 1 | 5 | 1 | 1 | 706 | 1,260 |
| **Services Total** | | **29,955** | **2,235** | **32,190** | **12,082** | **10,699** | **147,422** | **5,880,791** |
| 101 | Agriculture excl. agric. serv. | 11 | 0 | 11 | 3 | 0 | 123 | 7,524 |
| 102 | Forestry excl. forestry services | 8 | 0 | 8 | 0 | 0 | 1,826 | 3,229 |
| 103 | Fishery | 13 | 0 | 13 | 1 | 1 | 117 | 3,475 |
| 104 | Mining | 33 | 1 | 34 | 6 | 5 | 6 | 4,521 |
| 351 | Government services | 0 | 0 | 0 | 0 | 0 | 45,579 | 45,579 |
| **All Industries Total** | | **32,676** | **2,294** | **34,970** | **13,078** | **11,562** | **195,188** | **6,717,025** |

**Table 4. Summary Data of Foreign-Owned Establishments in the Japanese Non-Manufacturing Sector, 1996**

***--- Continued ---***

**<Panel B. Number of Workers Employed by JAFF's Establishments>**

| | Industry | JAFF Owned 10% or More by | | | JAFF Owned 33.4% or More by Foreigners | JAFF Owned 50% or More by Foreigners | Government -Owned Establish-ments | All Japanese Establish-ments |
|---|---|---|---|---|---|---|---|---|
| | | Japanese Subsidiaries of Foreign Firms c | Branches and Other Establish-ments of Foreign Firms d | JAFF c+d | | | | |
| 301 | Construction and civil eng. | 153,357 | 438 | 153,795 | 3,070 | 3,018 | 32 | 5,774,520 |
| 302 | Electricity | 1,766 | 0 | 1,766 | A | A | 2,943 | 168,204 |
| 303 | Gas supply | 0 | 0 | 0 | 0 | 0 | 2,280 | 47,973 |
| 304 | Steam and hot water supply | 0 | 0 | 0 | 0 | 0 | 0 | 1,803 |
| 305 | Water supply | A | 0 | A | 0 | 0 | 80,778 | 82,667 |
| 306 | Sewerage systems | A | 0 | A | 0 | 0 | 32,958 | 40,317 |
| 307 | Sanitary services | 123 | 0 | 123 | 0 | 0 | 91,649 | 256,194 |
| 308 | Wholesale trade | 286,278 | 8,309 | 294,587 | 116,693 | 111,054 | 60 | 5,061,402 |
| 309 | Retail trade | 157,959 | 732 | 158,691 | 26,597 | 18,820 | 37,816 | 9,071,160 |
| 310 | Financial intermediary serv. | 62,462 | 14,210 | 76,672 | 17,320 | 16,480 | 10,770 | 1,174,476 |
| 311 | Life insurance | 4,690 | 4,158 | 8,848 | 7,926 | 7,926 | 2,805 | 541,825 |
| 312 | Casualty insurance | 45,601 | 3,501 | 49,102 | 5,207 | 5,207 | 0 | 131,063 |
| 313 | Other insurance services | 588 | 78 | 666 | 229 | 229 | 2,125 | 128,381 |
| 314 | Real estate | 6,610 | 66 | 6,676 | 218 | 188 | 5,652 | 934,106 |
| 315 | Railway transportation | A | 0 | A | 0 | 0 | 20,478 | 277,467 |
| 316 | Road passenger transp. | 231 | 0 | 231 | 0 | 0 | 26,975 | 664,107 |
| 317 | Road freight transportation | 78,319 | 14 | 78,333 | 788 | 782 | 0 | 1,568,677 |
| 318 | Water transportation | 1,365 | 552 | 1,917 | 1,063 | 1,001 | 1,513 | 74,765 |
| 319 | Air transportation | 2,573 | 8,306 | 10,879 | 8,861 | 8,861 | 0 | 51,350 |
| 320 | Storage facility services | 4,237 | 0 | 4,237 | 583 | 180 | A | 141,126 |
| 321 | Supporting serv. for transport | 16,268 | 2,018 | 18,286 | 6,093 | 5,681 | 7,920 | 599,628 |
| 322 | Postal service | 0 | 0 | 0 | 0 | 0 | 374,335 | 384,263 |
| 323 | Telecommunications | 8,093 | 38 | 8,131 | 489 | 437 | 220 | 219,777 |
| 324 | Broadcasting | 3,624 | 0 | 3,624 | A | 0 | 141 | 69,782 |
| 325 | Education | 3,672 | 247 | 3,919 | 1,153 | 1,052 | 1,499,843 | 2,225,410 |
| 326 | Research institutes (natural sci.) | 48,509 | 231 | 48,740 | 7,230 | 3,832 | 63,183 | 244,691 |
| 327 | Research institutes (soc. sci. & | 0 | 0 | 0 | 0 | 0 | 9,115 | 19,983 |
| 328 | Medical services | 5,112 | 28 | 5,140 | 614 | 124 | 394,233 | 2,771,066 |
| 329 | Health and hygiene | 72 | 0 | 72 | A | 0 | 65,601 | 89,853 |
| 330 | Private non-profit org. serv. | 76 | 0 | 76 | 12 | 12 | 13,893 | 987,907 |
| 331 | Advertising | 2,390 | 17 | 2,407 | 1,807 | 1,799 | 0 | 149,996 |
| 332 | Computer prog. & software | 36,148 | 503 | 36,651 | 7,831 | 7,230 | 0 | 397,886 |
| 333 | Information services | 8,706 | 1,012 | 9,718 | 4,218 | 3,464 | 193 | 259,225 |
| 334 | Goods & equip. rental & leas. | 5,087 | 40 | 5,127 | 2,558 | 1,102 | 30 | 270,143 |
| 335 | Automobile renting | 233 | 0 | 233 | 113 | 113 | 0 | 33,442 |
| 336 | Automobile repairing | C | A | 845 | 422 | 351 | 1,130 | 350,573 |
| 337 | Machine repairing | 9,606 | 219 | 9,825 | 5,488 | 5,419 | 207 | 245,989 |
| 338 | Building maintenance serv. | 277 | 0 | 277 | 90 | 34 | 0 | 689,334 |
| 339 | Legal & accounting serv. | 0 | 0 | 0 | 0 | 0 | 0 | 250,586 |
| 340 | Civil eng. & construct. serv. | 1,547 | 311 | 1,858 | 416 | 397 | 109,246 | 568,481 |
| 341 | Personnel supply services | D | D | 2,908 | 2,868 | 1,693 | 0 | 240,876 |
| 342 | Other business services | 31,533 | 2,467 | 34,000 | 7,854 | 7,111 | 18,154 | 1,165,960 |
| 343 | Amusement & recreation serv. | 5,098 | 483 | 5,581 | 1,436 | 1,431 | 76,604 | 1,143,158 |
| 344 | Eating and drinking places | 75,965 | 124 | 76,089 | 65,167 | 62,448 | 763 | 4,115,138 |
| 345 | Hotels and lodging places | 9,310 | 452 | 9,762 | 1,809 | 856 | 8,910 | 911,763 |
| 346 | Individual educ. facilities | 1,390 | 134 | 1,524 | 1,254 | 1,254 | 0 | 544,323 |
| 347 | Other personal services | 1,030 | 13 | 1,043 | 379 | 219 | 5,761 | 1,566,518 |
| 348 | Agricultural services | 68 | 0 | 68 | 0 | 0 | 1,459 | 104,701 |
| 349 | Social insurance & welfare | 201 | 0 | 201 | 201 | A | 338,997 | 929,701 |
| 350 | Unclassified services | A | A | 30 | A | A | 9,255 | 15,915 |
| **Services Total** | | **1,082,803** | **49,899** | **1,132,702** | **308,245** | **279,844** | **3,318,029** | **47,757,651** |
| 101 | Agriculture excl. agric. serv. | 375 | 0 | 375 | 158 | 0 | 2,201 | 83,204 |
| 102 | Forestry excl. forestry services | 45 | 0 | 45 | 0 | 0 | 19,034 | 36,765 |
| 103 | Fishery | 646 | 0 | 646 | A | A | 664 | 59,078 |
| 104 | Mining | D | A | 1,272 | 86 | 85 | 85 | 64,323 |
| 351 | Government services | 0 | 0 | 0 | 0 | 0 | 1,849,997 | 1,849,997 |
| **All Industries Total** | | **2,108,062** | **52,428** | **2,160,490** | **484,838** | **382,247** | **5,198,211** | **62,781,253** |

Note: A:1-199, B:200-499, C:500-999, D:1,000-2,499, E:2,500-4,999, F:5,000-9,999, G:10,000-49,999, H:50,000-99,999, J:100,000-

**Table 5. Inward FDI Penetration: U.S. (1992) - Japan (1996) Comparison**

**<Panel A> Manufacturing Industries**

| Industry | | Share of No. of Workers Employed by Affiliates of Foreign Firms in Total No. of Workers (%) | | | |
|---|---|---|---|---|---|
| | | Japan - 50% or More Foreign Owned | Japan - 33.4% or More Foreign Owned | Japan - 10% or More Foreign Owned | U.S. - 10% or More Foreign Owned |
| 201 | Livestock products | 0.12 | 0.15 | 2.16 | 6.11 |
| 202 | Seafood products | 0.01 | 0.01 | 0.61 | 13.73 |
| 203 | Flour & grain mill products | 0 | 0 | 0 | 14.63 |
| 204 | Miscellaneous food products | 0.13 | 0.15 | 1.25 | 13.41 |
| 205 | Beverages & tobacco | 1.89 | 1.91 | 6.90 | 8.99 |
| 206 | Prepared feed & fertilizers | 0.16 | 0.16 | 0.17 | 10.06 |
| 207 | Reeling plants & spinning mills | 0.01 | 0.01 | 11.89 | 8.57 |
| 208 | Woven & knitted fabrics | 0.00 | 0.00 | 0.43 | 4.40 |
| 209 | Dyed & finished textiles | 0 | 0.13 | 1.54 | 6.32 |
| 210 | Other textile mill products | 0.04 | 0.04 | 1.04 | 12.55 |
| 211 | Textile outer garments | 0.24 | 0.25 | 0.59 | 2.48 |
| 212 | Apparel | 0.05 | 0.05 | 0.13 | 3.53 |
| 213 | Sawmills & millwork | 0 | 0.00 | 0.35 | 2.41 |
| 214 | Wooden containers & wood | 0 | 0 | 0 | 1.74 |
| 215 | Furniture & fixtures | 0.04 | 0.06 | 0.55 | 3.71 |
| 216 | Pulp & paper mills | 0.02 | 0.02 | 2.80 | 9.23 |
| 217 | Paper products | 0.16 | 0.16 | 0.57 | 6.95 |
| 218 | Newspaper industries | 0.09 | 0.09 | 0.09 | 4.79 |
| 219 | Publishing industries | 0.71 | 0.71 | 1.28 | 13.49 |
| 220 | Printing | 0.05 | 0.06 | 4.16 | 5.00 |
| 221 | Industrial inorganic chemicals | 3.05 | 3.66 | 15.89 | 22.79 |
| 222 | Industrial organic chemicals | 2.85 | 3.55 | 32.32 | 36.49 |
| 223 | Oil products & detergents | 1.96 | 1.96 | 9.45 | 19.23 |
| 224 | Drugs & medicines | 7.19 | 7.21 | 19.72 | 33.30 |
| 225 | Toilet preparations & others | 4.44 | 4.83 | 23.30 | 20.32 |
| 226 | Petroleum refining | 12.27 | 12.27 | 13.28 | 26.79 |
| 227 | Petroleum & coal products | 0.67 | 0.99 | 5.54 | 17.81 |
| 228 | Plastic products | 0.36 | 0.41 | 2.55 | 10.41 |
| 229 | Tires & inner tubes | 4.03 | 4.03 | 4.03 | 51.07 |
| 230 | Rubber & plastic footwear | 0.46 | 0.46 | 1.62 | 13.36 |
| 231 | Leather products & fur skins | 0 | 0 | 0.02 | 5.29 |
| 232 | Glass & glass products | 0.85 | 1.24 | 2.22 | 22.13 |
| 233 | Cement & cement products | 0.00 | 0.00 | 3.07 | 19.39 |
| 234 | Clay, pottery & stone products | 0.07 | 0.20 | 6.65 | 18.07 |
| 235 | Blast furnace & basic steel | 0.02 | 0.02 | 33.79 | 23.86 |
| 236 | Iron & steel | 0 | 0 | 2.19 | 9.97 |
| 237 | Nonferrous metals | 4.37 | 4.37 | 29.64 | 19.01 |
| 238 | Nonferrous rolling & castings | 0.58 | 0.96 | 6.72 | 14.03 |
| 239 | Fabricated structural metal | 0.27 | 0.27 | 2.96 | 6.30 |
| 240 | Miscellaneous metal work | 0.24 | 0.35 | 2.81 | 7.65 |
| 241 | Metal working machinery | 0.85 | 0.97 | 9.52 | 6.85 |
| 242 | Special industry machinery | 1.61 | 2.16 | 3.81 | 16.18 |
| 243 | Office & household machines | 3.25 | 4.31 | 16.77 | 13.11 |
| 244 | General industrial machinery | 0.73 | 0.98 | 7.46 | 9.36 |
| 245 | Electrical industrial machinery | 0.91 | 1.38 | 13.74 | 17.03 |
| 246 | Household electric appliances | 0.51 | 0.52 | 16.84 | 20.10 |
| 247 | Communication equipment | 0.58 | 0.68 | 17.84 | 19.26 |
| 248 | Electric equipment & computers | 4.28 | 7.94 | 27.68 | 9.24 |
| 249 | Electronic parts & devices | 1.59 | 2.11 | 15.17 | 12.65 |
| 250 | Miscellaneous electric equip. | 3.04 | 3.13 | 11.03 | 13.36 |
| 251 | Motor vehicles & parts | 0.34 | 4.72 | 18.32 | 11.74 |
| 252 | Miscellaneous transp. equip. | 0.64 | 4.56 | 10.64 | 3.43 |
| 253 | Medical instruments | 1.00 | 1.00 | 14.57 | 10.10 |
| 254 | Optical instruments & lenses | 0.11 | 0.11 | 3.43 | 14.27 |
| 255 | Watches, clocks & parts | 0 | 0 | 6.96 | 14.23 |
| 256 | Measuring & analytical inst. | 0.40 | 0.44 | 5.34 | 16.66 |
| 257 | Ordnance & accessories | 0 | 0 | 29.30 | 12.36 |
| 258 | Miscellaneous manufacturing | 0.59 | 0.60 | 4.74 | 8.68 |
| **Manufacturing Total** | | **0.79** | **1.36** | **7.93** | **11.01** |

Sources: See Appendix.

**Table 5. Inward FDI Penetration: U.S. (1992) - Japan (1996) Comparison**

***--- Continued ---***

**<Panel B> Non-Manufacturing Industries**

| Industry | | Share of No. of Workers Employed by Affiliates of Foreign Firms in Total No. of Workers (%) | | | | FDI Restrictiveness Index | |
|---|---|---|---|---|---|---|---|
| | | Japan - 50% or More Foreign Owned | Japan - 33.4% or More Foreign Owned | Japan - 10% or More Foreign Owned | U.S. - 10% or More Foreign Owned | Japan | U.S. |
| 301 | Construction and civil eng. | 0.05 | 0.05 | 2.66 | 1.97 | 0 | 0.05 |
| 302 | Electricity | 0.02 | 0.02 | 1.05 | 0.16 | 1 | 0.30 |
| 303 | Gas supply | 0 | 0 | 0.00 | 0.67 | 1 | 0.22 |
| 304 | Steam and hot water supply | 0 | 0 | 0 | 6.98 | 0.63 | 0.30 |
| 305 | Water supply | 0 | 0 | 0.00 | 8.69 | 0.25 | 0.30 |
| 306 | Sewerage systems | 0 | 0 | 0.06 | 8.69 | 0 | 0.05 |
| 307 | Sanitary services | 0 | 0 | 0.05 | 6.98 | 0.25 | 0.05 |
| 308 | Wholesale trade | 2.19 | 2.31 | 5.82 | 8.37 | 0.25 | 0.10 |
| 309 | Retail trade | 0.21 | 0.29 | 1.75 | 3.79 | 0.25 | 0.10 |
| 310 | Financial intermediary serv. | 1.40 | 1.47 | 6.53 | 6.62 | 0.50 | 0.53 |
| 311 | Life insurance | 1.46 | 1.46 | 1.63 | 14.34 | 0.50 | 0.26 |
| 312 | Casualty insurance | 3.97 | 3.97 | 37.46 | 14.34 | 0.50 | 0.26 |
| 313 | Other insurance services | 0.18 | 0.18 | 0.52 | 14.34 | 0.50 | 0.26 |
| 314 | Real estate | 0.02 | 0.02 | 0.71 | 1.97 | 0 | 0.05 |
| 315 | Railway transportation | 0 | 0 | 0.01 | 0 | 1 | 0.05 |
| 316 | Road passenger transp. | 0 | 0 | 0.03 | 6.75 | 1 | 1 |
| 317 | Road freight transportation | 0.05 | 0.05 | 4.99 | 1.92 | 0.63 | 0.78 |
| 318 | Water transportation | 1.34 | 1.42 | 2.56 | 8.34 | 1 | 1 |
| 319 | Air transportation | 17.26 | 17.26 | 21.19 | 12.02 | 1 | 1 |
| 320 | Storage facility services | 0.13 | 0.41 | 3.00 | 1.92 | 0.25 | 1 |
| 321 | Supporting serv. for | 0.95 | 1.02 | 3.050 | 8.71 | 0.53 | 0.80 |
| 322 | Postal service | 0 | 0 | 0 | 0 | 1 | 0.76 |
| 323 | Telecommunications | 0.20 | 0.22 | 3.70 | 0.37 | 0.75 | 0.53 |
| 324 | Broadcasting | 0 | 0.21 | 5.19 | 1.28 | 1 | 0.41 |
| 325 | Education | 0.05 | 0.05 | 0.18 | 6.44 | 0.15 | 0.68 |
| 326 | Research institutes (natural | 1.57 | 2.95 | 19.92 | 6.44 | 1 | 1 |
| 327 | Research institutes (soc. | 0 | 0 | 0 | 6.44 | 0 | 1 |
| 328 | Medical services | 0.00 | 0.02 | 0.19 | 2.72 | 1 | 0.86 |
| 329 | Health and hygiene | 0 | 0.01 | 0.08 | 2.72 | 0 | 0.05 |
| 330 | Private non-profit org. serv. | 0.00 | 0.00 | 0.01 | 0 | 1 | 1 |
| 331 | Advertising | 1.20 | 1.20 | 1.60 | 7.55 | 0 | 0.05 |
| 332 | Computer prog. & software | 1.82 | 1.97 | 9.21 | 4.08 | 0.25 | 0.29 |
| 333 | Information services | 1.34 | 1.63 | 3.75 | 4.08 | 0.17 | 0.21 |
| 334 | Goods & equip. rental & | 0.41 | 0.95 | 1.90 | 5.36 | 0.50 | 0.55 |
| 335 | Automobile renting | 0.34 | 0.34 | 0.70 | 5.67 | 0 | 0.05 |
| 336 | Automobile repairing | 0.10 | 0.12 | 0.24 | 0.64 | 0.25 | 0.05 |
| 337 | Machine repairing | 2.20 | 2.23 | 3.99 | 2.88 | 0.50 | 0.53 |
| 338 | Building maintenance serv. | 0.00 | 0.01 | 0.04 | 7.85 | 0 | 0.05 |
| 339 | Legal & accounting serv. | 0 | 0 | 0 | 0.06 | 0.25 | 0.22 |
| 340 | Civil eng. & construct. serv. | 0.07 | 0.07 | 0.33 | 1.44 | 0.13 | 0.05 |
| 341 | Personnel supply services | 0.70 | 1.19 | 1.21 | 6.79 | 0.63 | 0.05 |
| 342 | Other business services | 0.61 | 0.67 | 2.92 | 4.10 | 0.35 | 0.40 |
| 343 | Amusement & recreation | 0.13 | 0.13 | 0.49 | 4.32 | 0.06 | 0.17 |
| 344 | Eating and drinking places | 1.52 | 1.58 | 1.85 | 2.71 | 0.13 | 0.05 |
| 345 | Hotels and lodging places | 0.09 | 0.20 | 1.07 | 9.99 | 0 | 0.05 |
| 346 | Individual educ. facilities | 0.23 | 0.23 | 0.28 | 0.94 | 1 | 1 |
| 347 | Other personal services | 0.01 | 0.02 | 0.07 | 1.27 | 0.50 | 0.53 |
| 348 | Agricultural services | 0 | 0 | 0.06 | 0.82 | 1 | 0.53 |
| 349 | Social insurance & welfare | 0.00 | 0.02 | 0.02 | n.a. | n.a. | n.a. |
| 350 | Unclassified services | 0.01 | 0.01 | 0.19 | n.a. | n.a. | n.a. |
| **Services Total** | | **0.59** | **0.65** | **2.37** | **4.03** | **0.49** | **0.42** |
| 101 | Agriculture excl. agric. serv. | 0 | 0.19 | 0.45 | n.a. | n.a. | n.a. |
| 102 | Forestry excl. forestry serv. | 0 | 0 | 0.12 | 0.32 | n.a. | n.a. |
| 103 | Fishery | 0.28 | 0.28 | 1.09 | 5.97 | n.a. | n.a. |
| 104 | Mining | 0.13 | 0.13 | 1.98 | 18.95 | n.a. | n.a. |
| 351 | Government services | 0 | 0 | 0 | n.a. | n.a. | n.a. |
| **All Industries Total** | | **0.61** | **0.77** | **3.44** | **5.84** | **n.a.** | **n.a.** |

Sources: See Appendix.

**Table 6. Number of Employees of Majority-Owned Foreign Affiliates: U.S. (1992) - Japan (1995) Comparison**

| Sectors | Ratio of No. of Workers Employed by Majority-Owned Foreign Affiliates to Total No. of Workers (%) | | Fukao-Ito Industry Classification Code |
|---|---|---|---|
| | Japan | U.S. | |
| **Manufacturing** | **0.79** | **10.48** | |
| Food and related products | 0.28 | 15.38 | 201-206 |
| Textile products and apparel | 0.14 | 3.92 | 207-212 |
| Lumber, wood, furniture, and fixtures | 0.02 | 1.61 | 213-215 |
| Paper and related products | 0.11 | 5.99 | 216, 217 |
| Printing and publishing | 0.13 | 6.98 | 218-220 |
| Miscellaneous plastic products | 0.36 | 3.38 | 228 |
| Rubber products | 1.08 | 32.30 | 229, 230 |
| Stone, clay, and glass products | 0.16 | 20.84 | 232-234 |
| Chemicals and related products | 4.24 | 47.89 | 221-225 |
| Primary and fabricated metals | 0.35 | 9.37 | 235-240 |
| General industrial machinery | 0.98 | 9.97 | 241, 242, 244 |
| Electronic and electrical equipment | 1.36 | 18.87 | 245-247, 249, 250 |
| Office and computing machines | 3.86 | 12.06 | 243, 248 |
| Motor vehicles and equipment | 0.34 | 6.70 | 251 |
| Other transport equipment | 0.64 | 3.29 | 252 |
| Instruments and related products | 0.40 | 11.54 | 253-256 |
| Construction | **0.05** | **1.05** | 301 |
| Wholesale trade | **2.19** | **6.66** | 308 |
| Retail trade | **0.21** | **3.26** | 309 |
| Finance, except depository institutions | **1.40** | **1.21** | 310 |
| Real estate | **0.02** | **2.79** | 314 |
| Transportation | **0.49** | **2.17** | 315-321 |
| Services | **0.60** | **2.06** | |
| Hotels and other lodging places | 0.09 | 7.27 | 345 |
| Computer and data processing services | 1.63 | 1.41 | 332, 333 |
| Motion pictures, including television tape and film | 0.13 | 3.82 | 343 |
| Health services | 0.00 | 0.71 | 328, 329 |
| Business services | 0.45 | 3.21 | 331,334-342 |
| Other services | 1.03 | 0.49 | 344, 346, 347 |
| **Non-Manufacturing except primary industry** | **0.59** | **2.77** | |
| Agriculture, forestry, and fishing | **0.08** | **1.75** | 348, 102, 103 |
| Mining | **0.13** | **5.55** | 104 |
| **All Industries** | **0.61** | **4.61** | |

Sources: Panel B of Table 3; Panel B of Table 4; U.S. Department of Commerce (1995b)

**Table 7. Japan's International Transactions : FDI v.s. Cross-Border Trade**

**<Panel A> Manufacturing Sector**

| Fukao-Ito Code | Industry | Inward | | Outward | | U.S. Inward | |
|---|---|---|---|---|---|---|---|
| | | Ratio of No. of Workers Employed by JAFF to Total No. of Domestic Workers (%) | Ratio of Imports to Total Domestic Output (%) | Ratio of No. of Workers Employed by FAJF to Total No. of Domestic Workers (%) | Ratio of Exports to Total Domestic Output (%) | Ratio of No. of Workers Employed by USAFF to Total No. of Domestic Workers (%) | Ratio of Imports to Total Domestic Output (%) |
| 201-204 | Food products | 0.11 | 12.19 | 5.03 | 0.48 | 10.46 | 5.21 |
| 205 | Beverages & tobacco | 1.91 | 4.90 | 6.28 | 0.37 | 8.99 | 5.37 |
| 206 | Prepared feed & fertilizers | 0.16 | 0.89 | 6.51 | 0.08 | 10.06 | 0.96 |
| 207 | Reeling plants & spinning mills | 0.01 | 23.62 | 73.25 | 4.17 | 8.57 | 3.94 |
| 208 | Woven & knit fabrics mills | 0.00 | 13.59 | 18.73 | 26.21 | 4.40 | 12.66 |
| 209 | Dyed & finished textiles | 0.13 | 0.00 | 9.41 | 0.00 | 6.32 | 12.66 |
| 210 | Other textile mill products | 0.04 | 12.77 | 12.40 | 10.19 | 12.55 | 13.28 |
| 211, 212 | Textile outer garments & apparel | 0.20 | 27.83 | 7.48 | 0.62 | 2.75 | 54.97 |
| 213, 214 | Sawmills & wood | 0.00 | 22.54 | 2.32 | 0.16 | 2.26 | 10.98 |
| 215 | Furniture & fixtures | 0.06 | 6.59 | 0.66 | 1.00 | 3.71 | 12.74 |
| 216 | Pulp & paper mills | 0.02 | 8.19 | 8.28 | 2.74 | 9.23 | 14.00 |
| 217 | Paper products | 0.16 | 1.18 | 2.68 | 1.46 | 6.95 | 2.46 |
| 218-220 | Publishing & printing | 0.13 | 0.74 | 1.07 | 0.36 | 6.56 | 1.81 |
| 221 | Industrial inorganic chemicals | 3.66 | 9.58 | 16.58 | 1.11 | 22.79 | 13.24 |
| 222 | Industrial organic chemicals | 3.55 | 9.10 | 22.54 | 17.55 | 36.49 | 13.24 |
| 223 | Oil products & detergents | 1.96 | 4.44 | 61.86 | 3.36 | 19.23 | 4.65 |
| 224 | Drugs & medicines | 7.21 | 7.28 | 10.04 | 2.15 | 33.30 | 21.17 |
| 225 | Toilet preparations & others | 4.83 | 11.44 | 31.36 | 19.45 | 20.32 | 6.33 |
| 226 | Petroleum refining | 12.27 | 12.00 | 5.26 | 2.82 | 26.79 | 8.53 |
| 227 | Petroleum & coal products | 0.99 | 2.53 | 0.10 | 2.89 | 17.81 | 0.65 |
| 228 | Plastic products | 0.41 | 1.99 | 3.91 | 3.31 | 10.41 | 10.58 |
| 229 | Tires & inner tubes | 4.03 | 6.43 | 226.60 | 27.98 | 51.07 | 22.71 |
| 230 | Rubber & plastic footwear | 0.46 | 10.10 | 5.44 | 7.77 | 13.36 | 10.58 |
| 231 | Leather products & fur skins | 0.00 | 55.48 | 2.95 | 2.70 | 5.29 | 134.45 |
| 232 | Glass & its products | 1.24 | 5.60 | 43.99 | 10.70 | 22.13 | 12.01 |
| 233 | Cement & its products | 0.00 | 0.20 | 1.59 | 0.83 | 19.39 | 2.12 |
| 234 | Clay, pottery & stone products | 0.20 | 6.28 | 9.07 | 8.30 | 18.07 | 27.94 |
| 235 | Blast furnace & basic steel | 0.02 | 3.46 | 20.03 | 9.18 | 23.86 | 17.96 |
| 236 | Iron & steel foundries | 0.00 | 0.43 | 27.75 | 0.34 | 9.97 | 5.72 |
| 237 | Nonferrous metals | 4.37 | 108.04 | 16.81 | 7.42 | 19.01 | 20.01 |
| 238 | Nonferrous rolling & castings | 0.96 | 4.60 | 12.35 | 9.72 | 14.03 | 7.09 |
| 239 | Fabricated structural metal | 0.27 | 0.64 | 0.66 | 0.37 | 6.30 | 1.26 |
| 240 | Miscellaneous metal work | 0.35 | 2.78 | 2.74 | 5.00 | 7.65 | 9.38 |
| 241 | Metal working machinery | 0.97 | 2.42 | 8.17 | 24.90 | 6.85 | 34.66 |
| 242 | Special industry machinery | 2.16 | 5.19 | 13.65 | 27.14 | 16.18 | 19.40 |
| 243 | Office & household machines | 4.31 | 2.95 | 10.65 | 16.42 | 13.11 | 18.79 |
| 244 | General industrial machinery | 0.98 | 3.42 | 4.61 | 18.84 | 9.36 | 16.32 |
| 245 | Electrical industrial machinery | 1.38 | 6.12 | 6.82 | 22.79 | 17.03 | 18.53 |
| 246 | Household electric appliances | 0.52 | 3.19 | 147.76 | 5.01 | 20.10 | 82.65 |
| 247 | Communication equipment | 0.68 | 3.56 | 36.60 | 24.44 | 19.26 | 12.31 |
| 248 | Electric equipment & computers | 7.94 | 15.74 | 5.71 | 28.43 | 9.24 | 53.50 |
| 249 | Electronic parts & devices | 2.11 | 9.60 | 27.11 | 31.26 | 12.65 | 28.92 |
| 250 | Miscellaneous electric equipment | 3.13 | 7.57 | 31.52 | 24.80 | 13.36 | 31.19 |
| 251 | Motor vehicles & parts | 4.72 | 3.19 | 42.05 | 20.64 | 11.74 | 34.24 |
| 252 | Miscellaneous transport equipment | 4.56 | 9.12 | 6.02 | 28.02 | 3.43 | 11.48 |
| 253, 256 | Miscellaneous precision instruments | 0.65 | 14.65 | 7.43 | 17.13 | 13.99 | 16.78 |
| 254 | Optical instruments & lenses | 0.11 | 12.77 | 22.71 | 41.40 | 14.27 | 33.06 |
| 255 | Watches, clocks & parts | 0.00 | 42.62 | 30.77 | 40.75 | 14.23 | 360.39 |
| 257 | Ordnance & accessories | 0.00 | 8.07 | 0.00 | 0.13 | 12.36 | 3.64 |
| 258 | Miscellaneous manufacturing | 0.60 | 34.73 | 6.41 | 10.36 | 8.68 | 57.72 |
| **Manufacturing Total** | | **1.36** | **7.63** | **14.29** | **11.66** | **11.01** | **16.89** |

Note: FAJF: Foreign Affiliates of Japanese Firms (10% or more Japanese-owned), JAFF: Japanese Affiliates of Foreign Firms (33.4% or more foreign-owned), USAFF: U.S. Affiliates of Foreign Firms (10% or more foreign-owned)
Sources: See Appendix.

**Table 7. Japan's International Transactions : FDI v.s. Cross-Border Trade**

***--- Continued ---***

**<Panel B> Service Sector**

| Fukao-Ito Code | Industry | Inward | | Outward | | U.S. Inward | |
|---|---|---|---|---|---|---|---|
| | | Ratio of No. of Workers Employed by JAFF to Total No. of Domestic Workers (%) | Ratio of Imports to Total Domestic Output (%) | Ratio of No. of Workers Employed by FAJF to Total No. of Domestic Workers (%) | Ratio of Exports to Total Domestic Output (%) | Ratio of No. of Workers Employed by USAFF to Total No. of Workers (%) | Ratio of Imports to Total Domestic Output (%) |
| 301 | Construction and civil engineering | 0.05 | 0.34 | 0.70 | 0.70 | 1.97 | 0.04 |
| 302 | Electricity | 0.02 | 0.00 | 0.12 | 0.15 | 0.16 | 0.36 |
| 303 | Gas supply | 0.00 | 0.05 | 0.08 | 0.01 | 0.67 | 0.00 |
| 304 | Steam and hot water supply | 0.00 | 0.00 | 0.00 | 0.00 | 6.98 | 0.00 |
| 305 | Water supply | 0.00 | 0.02 | 0.00 | 0.11 | 8.69 | 0.00 |
| 306 | Sewerage systems | 0.00 | 0.00 | 0.00 | 0.03 | 8.69 | 0.00 |
| 307 | Sanitary services | 0.00 | 0.00 | 0.01 | 0.01 | 6.98 | 0.00 |
| 308 | Wholesale trade | 2.31 | 3.32 | 5.85 | 4.87 | 8.37 | 9.45 |
| 309 | Retail trade | 0.29 | 0.03 | 0.66 | 0.05 | 3.79 | 0.00 |
| 310 | Financial intermediary services | 1.47 | 2.98 | 13.37 | 1.78 | 6.62 | 0.25 |
| 311 | Life insurance | 1.46 | 2.60 | 3.28 | 0.09 | 14.34 | 0.49 |
| 312 | Casualty insurance | 3.97 | 1.87 | 18.41 | 2.41 | 14.34 | 0.49 |
| 313 | Other insurance services | 0.18 | n.a. | n.a. | n.a. | 14.34 | 0.49 |
| 314 | Real estate | 0.02 | 0.01 | 1.38 | 0.01 | 1.97 | 0.00 |
| 315 | Railway transportion | 0.00 | 1.30 | 0.01 | 0.30 | 0.00 | 3.63 |
| 316 | Road passenger transportion | 0.00 | 1.26 | 0.01 | 0.21 | 6.75 | 4.10 |
| 317 | Road freight transportion | 0.05 | 0.00 | 0.27 | 0.03 | 1.92 | 0.77 |
| 318 | Water transportation | 1.42 | 20.96 | 17.34 | 19.53 | 8.34 | 48.85 |
| 319 | Air transportation | 17.26 | 46.36 | 12.61 | 14.23 | 12.02 | 8.16 |
| 320 | Storage facility services | 0.41 | 0.00 | 5.18 | 0.01 | 1.92 | 0.77 |
| 321 | Supporting services for transport | 1.02 | 18.78 | 4.34 | 16.72 | 8.71 | 18.71 |
| 322 | Postal service | 0.00 | 0.35 | 0.00 | 0.43 | 0.00 | 0.00 |
| 323 | Telecommunications | 0.22 | 0.68 | 0.19 | 0.39 | 0.37 | 3.36 |
| 324 | Broadcasting | 0.21 | 0.00 | 0.52 | 0.00 | 1.28 | 0.00 |
| 325 | Education | 0.05 | 0.00 | 0.00 | 0.00 | 6.44 | 0.84 |
| 326 | Research institutes (natural sciences) | 2.95 | 1.71 | 0.00 | 1.14 | 6.44 | 0.84 |
| 327 | Research institutes (soc. sci. & humanitie | 0.00 | 2.15 | 0.00 | 1.25 | 6.44 | 0.84 |
| 328 | Medical services | 0.02 | 0.00 | 0.01 | 0.00 | 2.72 | 0.00 |
| 329 | Health and hygiene | 0.01 | 0.00 | 0.11 | 0.00 | 2.72 | 0.00 |
| 330 | Private non-profit organization services | 0.00 | 0.84 | 0.00 | 1.01 | 0.00 | 0.00 |
| 331 | Advertising | 1.20 | 4.85 | 3.23 | 1.47 | 7.55 | 0.44 |
| 332 | Computer programming & software | 1.97 | 1.42 | 1.02 | 0.66 | 4.08 | 0.18 |
| 333 | Information services | 1.63 | 6.77 | 40.74 | 3.33 | 4.08 | 0.18 |
| 334 | Goods & equipment rental & leasing | 0.95 | 2.33 | 3.65 | 1.06 | 5.36 | 0.00 |
| 335 | Automobile renting | 0.34 | 0.00 | 1.76 | 0.00 | 5.67 | 0.00 |
| 336 | Automobile repairing | 0.12 | 0.00 | 0.31 | 0.00 | 0.64 | 0.01 |
| 337 | Machine repairing | 2.23 | 0.00 | 0.49 | 0.00 | 2.88 | 0.00 |
| 338 | Building maintenance services | 0.01 | 0.00 | 0.23 | 0.00 | 7.85 | 0.00 |
| 339 | Legal & accounting services | 0.00 | 5.87 | 0.01 | 2.18 | 0.06 | 0.25 |
| 340 | Civil eng. & construct. Services | 0.07 | 3.11 | 0.01 | 2.45 | 1.44 | 0.50 |
| 341 | Personnel supply services | 1.19 | 0.00 | 0.12 | 0.01 | 6.79 | 1.67 |
| 342 | Other business services | 0.67 | 3.02 | 2.98 | 2.10 | 4.10 | 0.45 |
| 343 | Amusement & recreation services | 0.13 | 1.62 | 0.52 | 0.20 | 4.32 | 0.24 |
| 344 | Eating and drinking places | 1.58 | 4.17 | 0.55 | 0.56 | 2.71 | 2.05 |
| 345 | Hotels and lodging places | 0.20 | 23.31 | 4.46 | 3.97 | 9.99 | 19.63 |
| 346 | Individual education facilities | 0.23 | 0.03 | 0.01 | 0.01 | 0.94 | 0.00 |
| 347 | Other personal services | 0.02 | 0.04 | 0.06 | 0.01 | 1.27 | 0.04 |
| 348 | Agricultural services | 0.00 | 0.00 | 0.18 | 0.00 | 0.82 | 0.10 |
| 349 | Social insurance & welfare | 0.02 | 0.00 | 0.00 | 0.00 | n.a. | n.a. |
| 350 | Unclassified services | 0.01 | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Services Total** | | **0.65** | **2.11** | **1.89** | **1.48** | **4.03** | **2.07** |

Note: FAJF: Foreign Affiliates of Japanese Firms (10% or more Japanese-owned), JAFF: Japanese Affiliates of Foreign Firms (33.4% or more foreign-owned), USAFF: U.S. Affiliates of Foreign Firms (10% or more foreign-owned)
Sources: See Appendix.

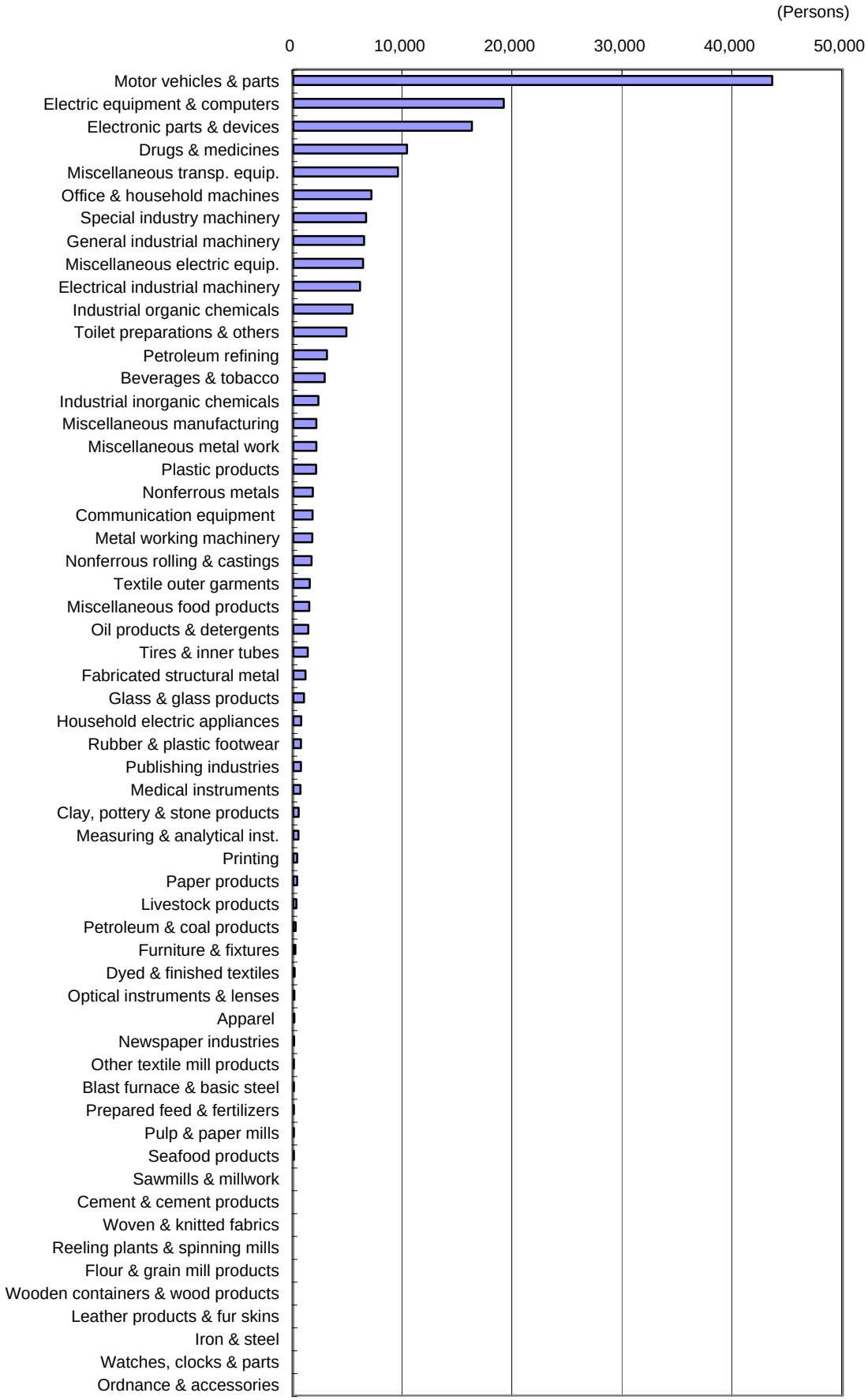


**Figure 1-a. Number of Employees of 33.4% or More Foreign-Owned Affiliates in Japan**
**--- Manufacturing Sector ---**

Source: Panel B of Table 3.


**Figure 1-b. Number of Employees of 33.4% or More Foreign-Owned Affiliates in Japar**
**--- Service Sector ---**

Source: Panel B of Table 4.

**Table 8. Correlation Coefficients between Japan's FDI and Trade: 1996 Cross-Industry Data**

**Panel A. Manufacturing Sector**

| | infdi | import | outfdi | export |
|---|---|---|---|---|
| infdi | 1 | | | |
| import | 0.0852 | 1 | | |
| | (0.5563) | | | |
| outfdi | 0.0925 | -0.0442 | 1 | |
| | (0.5231) | (0.7605) | | |
| export | 0.1865 | 0.0532 | 0.2282 | 1 |
| | (0.1948) | (0.7137) | (0.1110) | |

**Panel B. Service Sector**

| | infdi | import | outfdi | export |
|---|---|---|---|---|
| infdi | 1 | | | |
| import | 0.7697* | 1 | | |
| | (0.000) | | | |
| outfdi | 0.3554* | 0.3911* | 1 | |
| | (0.0132) | (0.006) | | |
| export | 0.5024* | 0.8138* | 0.4413* | 1 |
| | (0.0003) | (0.000) | (0.0017) | |

Note: 1) The numbers in parentheses represent significance levels.
2) *P=.05 (two-tailed test)
3) infdi=Ratio of No. of Workers Employed by JAFF to Total No. of Domestic Workers
import=Ratio of Imports to Total Domestic Output
outfdi=Ratio of No. of Workers Employed by FAJF to Total No. of Domestic Workers
export=Ratio of Exports to Total Domestic Output
4) The correlation coefficients are calculated from the data in Table 7.

**Table 9. FDI Flows into Japan** (Billion Yen)

| Fiscal Year | 1950-90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 2000 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Manufacturing Total | 1,666.5 | 257.7 | 208.1 | 183.6 | 205.4 | 141.2 | 311.1 | 267.4 | 312.6 | 979.7 | 790.7 | 5,324.0 |
| Food and related products | 44.2 | 17.1 | 1.2 | 10.4 | 3.2 | 4.1 | 0.3 | 2.2 | 25.8 | 1.5 | 0.0 | 110.0 |
| Textile products | 9.8 | 1.3 | 0.7 | 0.7 | 0.1 | 2.3 | 0.9 | 1.9 | 3.6 | 0.2 | 2.4 | 23.8 |
| Rubber and leather products | 11.0 | 7.6 | 9.6 | 5.4 | 4.0 | 2.1 | 10.7 | 18.8 | 4.8 | 7.0 | 1.1 | 82.1 |
| Chemicals and allied products | 447.3 | 122.6 | 93.1 | 54.2 | 23.4 | 109.5 | 69.5 | 74.0 | 39.7 | 60.3 | 178.8 | 1,272.5 |
| Petroleum | 102.1 | 23.4 | 5.9 | 5.9 | 14.7 | 2.0 | 8.2 | 5.8 | 8.4 | 13.5 | 253.4 | 443.3 |
| Glass and stone products | 20.7 | 0.6 | - | 0.5 | 1.8 | 0.0 | 0.0 | 0.7 | - | 5.7 | 0.0 | 30.0 |
| Primary and fabricated metals | 91.6 | 10.7 | 5.2 | 17.7 | 19.6 | 0.1 | 52.8 | 0.3 | 2.0 | 17.9 | 1.9 | 219.6 |
| Machinery | 874.5 | 59.5 | 82.9 | 78.1 | 133.9 | 18.2 | 155.8 | 145.2 | 212.9 | 865.2 | 351.9 | 2,978.1 |
| Other manufacturing | 65.3 | 14.9 | 9.4 | 10.8 | 4.8 | 2.9 | 12.9 | 18.5 | 15.3 | 8.5 | 1.2 | 164.5 |
| Non-manufacturing Total | 942.7 | 331.9 | 322.5 | 175.0 | 227.3 | 228.4 | 459.5 | 410.8 | 1,027.8 | 1,419.6 | 2,334.4 | 7,880.0 |
| Construction | 12.9 | 3.1 | 0.0 | 0.1 | 0.4 | 0.1 | 0.0 | 0.3 | 1.4 | 2.2 | 0.0 | 20.5 |
| Real Estate | 115.8 | 9.4 | 30.7 | 10.7 | 3.2 | 1.6 | 26.5 | 48.2 | 41.6 | 16.8 | 34.6 | 339.0 |
| Commerce | 416.6 | 107.3 | 155.4 | 100.5 | 113.5 | 67.9 | 166.4 | 99.6 | 175.9 | 348.5 | 276.1 | 2,027.8 |
| Business and Personal Services | 150.3 | 73.7 | 106.7 | 24.0 | 37.4 | 49.1 | 236.0 | 88.8 | 318.1 | 205.8 | 236.5 | 1,526.4 |
| Transportation Services | 19.8 | 3.5 | 2.5 | 5.1 | 0.8 | 1.2 | 1.0 | 0.4 | 6.1 | 2.2 | 5.7 | 48.3 |
| Communication Services | 20.8 | 13.6 | 6.3 | 3.2 | 3.0 | 5.3 | 2.1 | 3.3 | 16.8 | 330.0 | 750.8 | 1,155.1 |
| Finance and Insurance | 96.4 | 120.3 | 19.0 | 4.0 | 68.7 | 100.1 | 27.3 | 161.6 | 456.9 | 511.5 | 1,029.3 | 2,595.2 |
| Others | 110.4 | 1.1 | 1.8 | 27.4 | 0.3 | 3.2 | 0.2 | 8.7 | 11.1 | 2.5 | 1.3 | 168.0 |
| Total Amount | 2,608.5 | 589.6 | 530.6 | 358.6 | 432.7 | 369.7 | 770.7 | 678.2 | 1,340.4 | 2,399.3 | 3,125.1 | 13,203.3 |

Note: FDI flows approved or notified from 1950 onwards.
Data Sources: MOF (1999) and <www.mof.go.jp>

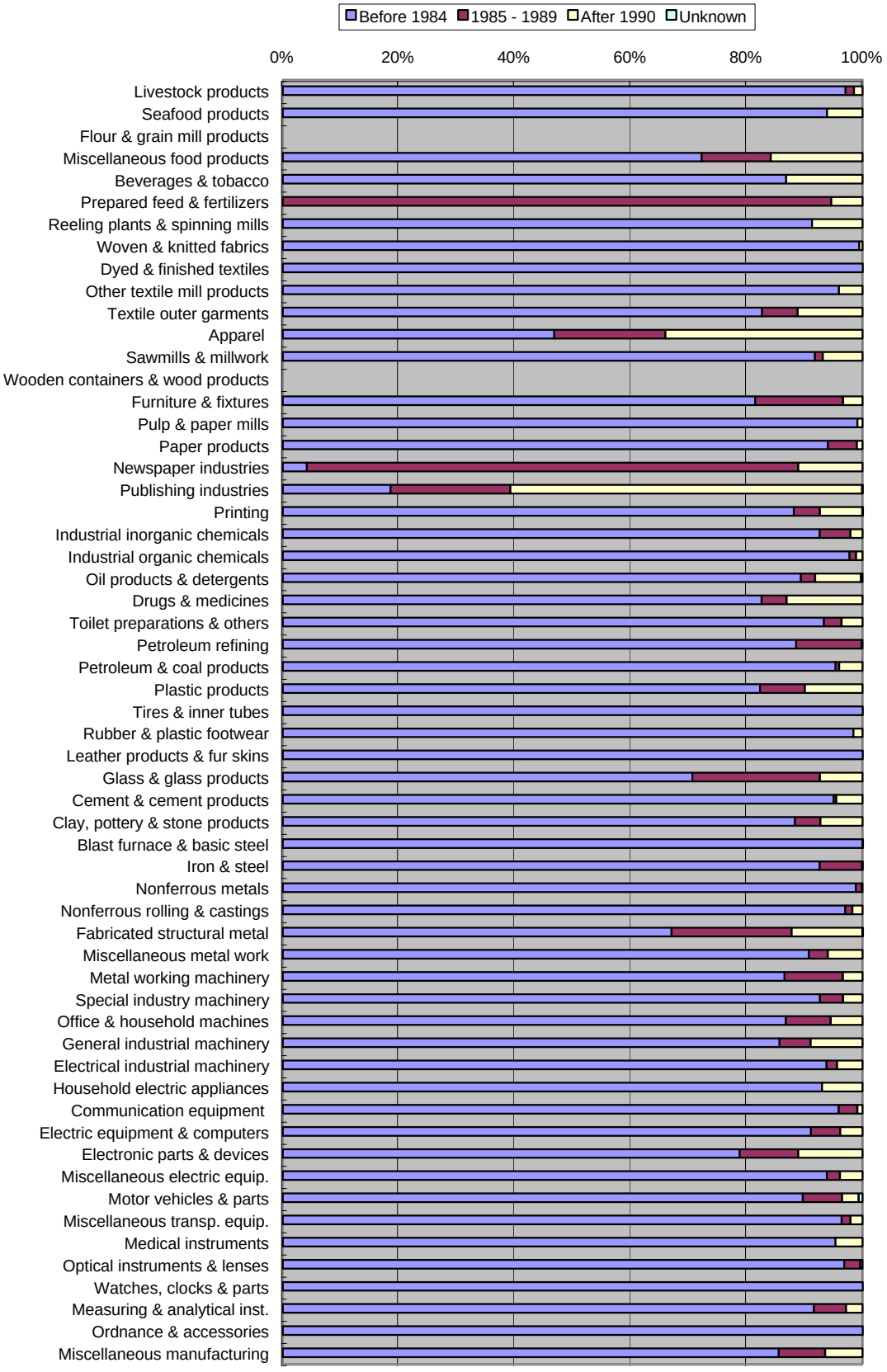


**Figure 2-a. Distribution of 10% or More Foreign-Owned Establishments by Year of Establishment --- Manufacturing Sector ---**

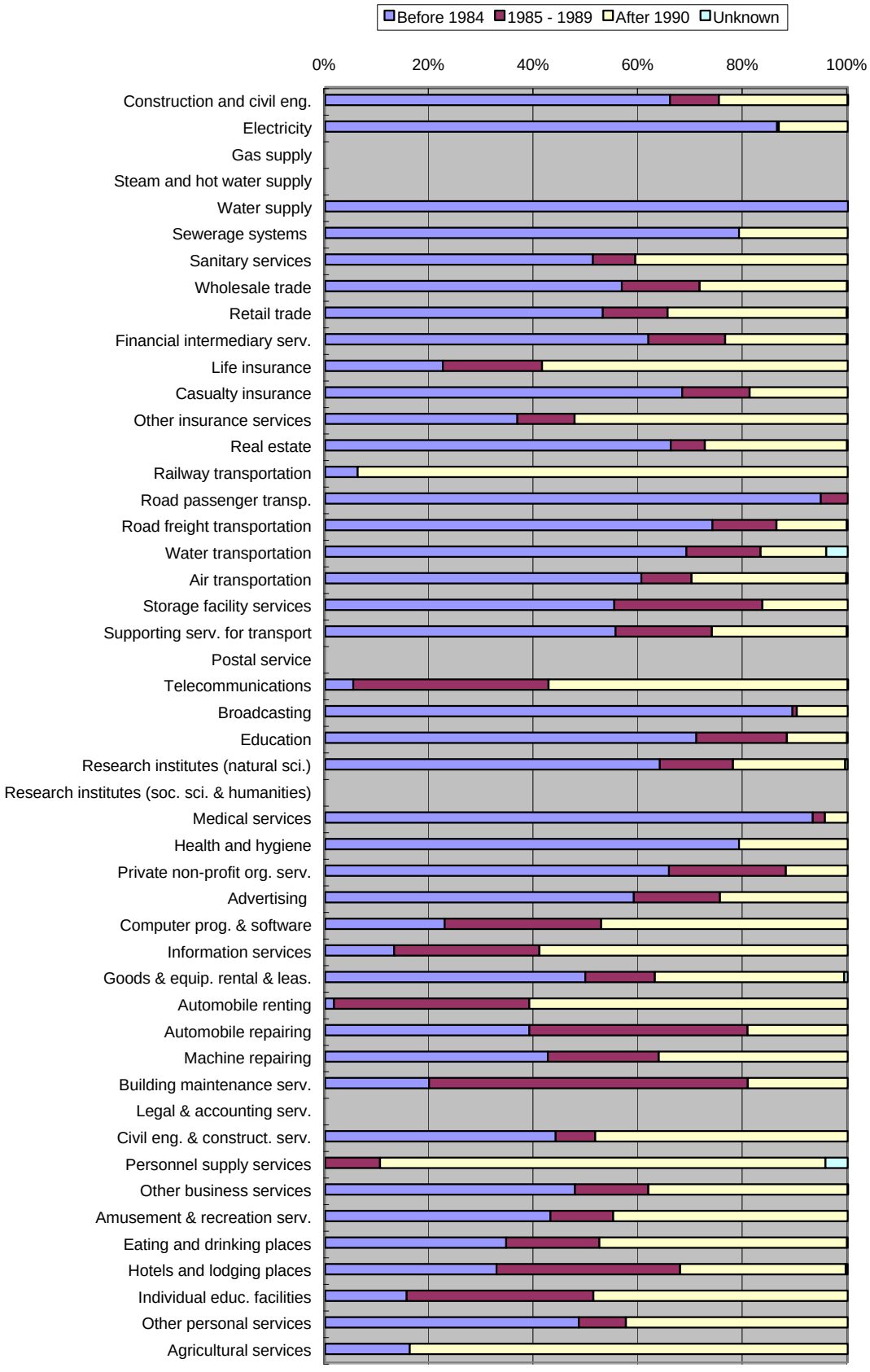


**Figure 2-b. Distribution of 10% or More Foreign-Owned Establishments by Year of Establishment --- Service Sector ---**

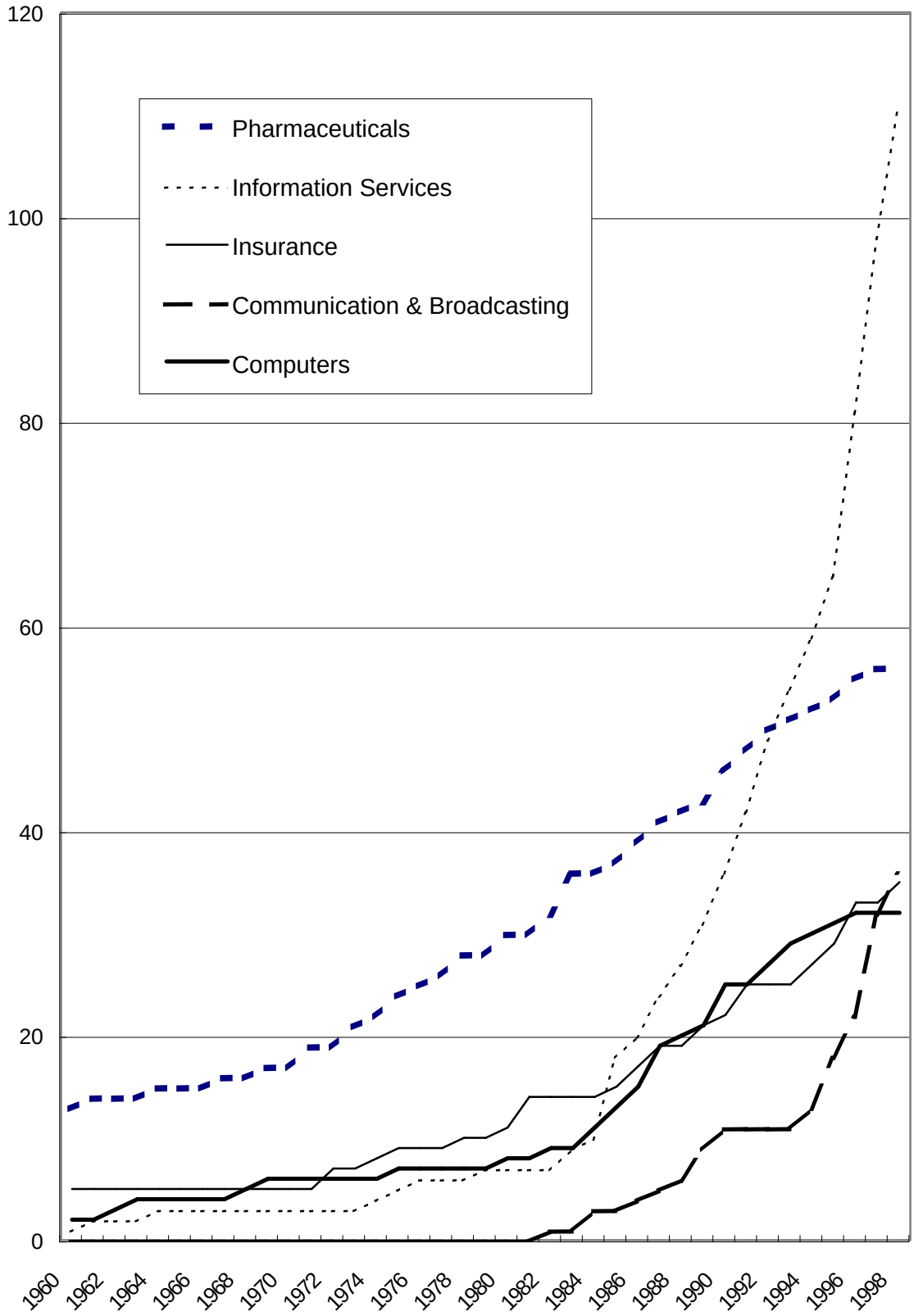


**Figure 3. Number of Japanese Affiliates of Foreign Firms in Major Industries**

Source: Toyo Keizai Shinposha (1999)

**Table 10. The Process of Inward FDI Liberalization in Japan**

| | For Newly Established Firms | | | For Existing Firms | |
|---|---|---|---|---|---|
| | Number of Industries | | | Foreign Ownership | |
| | Up to 50% Foreign Ownership Permitted | Up to 100% Foreign Ownership Permitted | Total | By one Foreign "Person" (*1) | By All Foreign "Persons" (*1) |
| **Phase I** (July 1967) | 33 | 17 | 50 | up to 7% | up to 20% (*2) |
| **Phase II** (Mar. 1969) | 160 | 17 | 204 | up to 7% | up to 20% (*2) |
| **Phase III** (Sep. 1970) | 447 | 77 | 524 | up to 7% | less than 25% (*2) |
| **Automobile Industry Liberalization (June 1971)** | | | | | |
| **Phase IV** (Aug. 1971) | (*3) | 228 | - | less than 10% | less than 25% (*2) |
| **Phase V** (May 1973) | In principle, 100% liberalized with the exception of 22 industries (excepted 5 industries and 17 industries with a time limit) (*4) | | | (*5) | |
| **Liberalization of the 17 industries with a time limit (From Dec. 1974 to May 1976) (*6)** | | | | | |
| **Retail Trade Liberalization (June 1975)** | | | | | |
| **Amendments to the Foreign Exchange Law (Dec. 1980)** | | | | | |
| | Inward FDI is not subject to prior permission, but in general, to **prior notification** to the Minister of Finance and the related Ministers in order to determine if an inquiry is necessary.<br>The amendments abolished the condition that takeovers by foreigners require the agreement with the owners of acquired firms. | | | | |
| **Discontinuance of Foreign Participation Restriction for the Designated Companies (July 1984) (*7)** | | | | | |
| **Amendments to the Foreign Exchange Law (Jan. 1992)** | | | | | |
| | Inward FDI is now subject, in general, to **ex post facto reporting** or, in certain cases, prior notification to the Minister of Finance and the related Ministers in order to determine if an inquiry is necessary. An ex post facto report is required to be submitted within 15 days after the investment is made. | | | | |
| **Amendments to the Foreign Exchange Law (April 1998)** | | | | | |
| | Telecommunications and media industries changed from prior to ex post notification. | | | | |

Notes: (*1) "Person" means any person, any government or its representative, and any foreign juridical person or association.

(*2) other than the excepted industries.

(*3) All industries other than "100% liberalized industries" and 7 industries to which individual screenings are applied.
"100% liberalized industries" are the industries in which 100% foreign participation in the share capital is automatically approved.

(*4) The excepted 5 industries are: 1. Agriculture, forestry and fishery; 2. Oil; 3. Mining; 4. Leather and leather products manufacturing; and 5. Retail trade.

(*5) For all industries other than the excepted 5 industries and 17 industries with a time limit, 100% foreign ownership is allowed if the firm agrees. In other cases, the foreign ownership restrictions are same as before.

(*6) The liberalization dates for the 17 industries with a time limit are as follows:

| Year | Industries |
|---|---|
| Dec. 1974 | Integrated circuits |
| May 1975 | Meat products, Tomato processed products, Prepared feed for animals, Pharmaceuticals and agricultural chemicals, Ferroalloy, Music records, Real estate, Electronic precision machinery, Packing machinery, Oil pressure instruments, Apparel (including wholesale trade), Prepared food products for food service industry |
| Dec. 1975 | Manufacture of computers, Sales and leasing of computers |
| April 1976 | Information service industry |
| May 1976 | Fruit juice, Sensitive materials for photography |

(*7) The specified 11 companies, such as Hitachi and Arabian Oil.

Sources: Nakamura, Fukao, and Shibuya (1997) Table 9; APEC(1999)

**Table 11. Major Restrictions on Inward FDI in Japan**

Apart from the regulations written in the Foreign Exchange Law, certain other laws, such as the following, restrict FDI in Japan:

| Sector | Prohibition, Limitation, or Special Conditions |
|---|---|
| Air transport | A license to operate a domestic air transport business shall only be granted to: a juridical person or association with less than a third of voting rights controlled by foreigners. |
| Maritime transport | Transport of goods and passengers between Japanese ports is reserved to Japanese ships. Foreign ownership of Japanese ships can only occur through an enterprise incorporated in Japan in accordance with the Ship Law. |
| Telecommunication | Foreign participation in the share capital of Nippon Telegraph and Telephone corporation (NTT) is restricted to less than one-fifth.<br>The limitations on foreign capital paticipation (formerly limited to less than a third) in all Type I telecommunications carriers (except for NTT and KDD) were abolished in Februarv 1998.<br>The limitation on foreign capital participation in KDD was eliminated in July 1998. |
| Broadcasting | Foreigners or foreign-controlled enterprises (where any of the officers executing the business is a foreigner, or 20% or more of whose voting rights in aggregate are owned by foreigners) are not granted:<br>1) licenses for broadcasting stations including AM, FM or television broadcasting stations; and<br>2) approvals as program-supplying broadcasters.<br>(The bills which prohibited the granting of permissions to foreigners for the installation of cable television facilities were removed in June, 1999.) |
| Mining | No one other than Japanese citizens or a Japanese juridical person shall become a mining right owner.<br>Japan has no performance requirement or regulation tied in any way to the export orientation of an investment proposal under the Foreign Exchange Law. |
| Insurance | Foreign insurers are required in all cases to lodge an initial deposit for the establishment of branches which is essentially equivalent to the share capital required of domestic companies. Initial deposits may be required of national insurers in some cases. |

Sources: APEC (1999); Japan Investment Council (various years);
Nakamura, Fukao, and Shibuya (1997) Table 11.

**Table 12. Reservations to the OECD Code of Liberalization of Capital Movements: U.S. - Japan Comparison**

| Year | Japan | United States |
|---|---|---|
| 1973 | Agriculture, forestry and fisheries<br>Mining<br>Petroleum<br>Leather and leather products<br>Retail Trade<br>Integrated circuits, Meat products, Tomato processed products, Prepared feed for animals, Pharmaceuticals and agricultural chemicals, Ferroalloy, Music records<br><br>Real estate, Electronic precision machinery, Packing machinery, Oil pressure instruments, Apparel (including wholesale trade), Prepared food products for food service industry<br><br>Manufacture of computers, Sales and leasing of computers, Information service industry, Fruit juice, Sensitive materials for photography<br><br>Sectors related to national security or public health* | Fresh water shipping, Domestic radio communications, Domestic air transport<br><br>Coastal shipping, Hydro-electric power production, Other forms of communications, Utilization and production of atomic energy<br><br>Sectors related to national security or public health* |
| 1982 | Agriculture, forestry and fisheries<br>Mining<br>Petroleum<br>Leather and leather products<br><br>Sectors related to national security or public health* | Fresh water shipping, Domestic radio communications, Domestic air transport<br><br>Coastal shipping, Hydro-electric power production, Other forms of communications, Utilization and production of atomic energy<br><br>Sectors related to national security or public health* |
| 1993 | Agriculture, forestry and fisheries<br>Mining<br>Petroleum<br>Leather and leather products<br>Air transport, Maritime transport<br>Investment trust management business<br><br>Sectors related to national security or public health* | Atomic energy<br>Broadcasting (radio and television)<br>Air transport<br>Coastal and domestic shipping<br>Ocean thermal energy, Hydroelectric power, Geothermal steam or related resources on federal lands, Mining on federal lands or on the outer continental shelf or on the deep seabed<br><br>Fishing in the "Exclusive Economic Zone"<br>Deepwater ports<br><br>Sectors related to national security or public health* |
| 1997 | Agriculture, forestry and fisheries<br>Mining<br>Petroleum<br>Leather and leather products<br>Air transport, Maritime transport<br>Investment trust management business<br><br>Sectors related to national security or public health* | Atomic energy<br>Broadcasting (radio and television)<br>Air transport<br>Coastal and domestic shipping<br>Ocean thermal energy, Hydroelectric power, Geothermal steam or related resources on federal lands, Mining on federal lands or on the outer continental shelf or on the deep seabed<br><br>Fishing in the "Exclusive Economic Zone"<br>Deepwater ports<br><br>Sectors related to national security or public health* |

* Under the OECD Code, members are not prevented from taking action in certain sectors, for reasons such as the protection of their essential security interests. That is, a reservation to the Code is not necessary for those sectors. In accordance with the April 1984 decision, however, such measures as controls imposed for reasons of national security or public health are now examined by the Committee. As a result, some items of reservations related to those reasons are added to the Code in 1990s.

Sources: Nakamura, Fukao, and Shibuya (1997), Table 12.
OECD, *Code of Liberalisation of Capital Movements*, various years.

**Table 13. Definition of Variables for Analysis on Inward FDI Penetration**

| **Dependent Variable:** | | |
|---|---|---|
| Japan's Inward FDI Penetration: | | |
| FDIJA | Share of workers employed by 10% or more foreign-owned JAFF in Japan's total workers: 1996 | |
| **Independent Variables:** | | [Expected Sign of Coefficients] |
| Advantages in the Managerial Resources: | | |
| RDINT | R&D intensity: Ratio of R&D expenses to the gross value-added: 1995 | [+] |
| ADINT | Advertisement intensity: Advertising expenses per employee: 1995 | [+] |
| Factor Intensity: | | |
| CLRATIO | Capital-Labor Ratio: Tangible Fixed Assets per employee: 1992 | [+] |
| LAND | Land intensity: Land input (book value) per employee: Industry average: 1995 | [-] |
| UNIV | Skilled-labor intensity: Share of university graduates in total workers: 1992 | [+] |
| Market Structure | | |
| HERF | Herfindahl Index calculated from share of number of employees: 1996 | [-] |
| CR4 | The top 4-firm concentration ratio calculated from share of number of employees: 1996 | [-] |
| U.S. Inward FDI Penetration | | |
| FDIUS | Share of workers employed by foreign firms' U.S. affiliates in U.S. total workers: 1992 | [+] |
| FDI Restrictiveness: | | |
| REGCUR | A dummy that takes 1 for currently regulated industries | [-] |
| REGPAST | A dummy that takes 1 for industries regulated in the past | [-/+] |
| RINVJAUS | Japan's FDI restrictiveness minus U.S. FDI restrictiveness: 1994 | [-] |
| Public Services: | | |
| PUBEMP | Share of workers employed by local or central governments in Japan's total workers: 1996 | [-] |
| Productivity: | | |
| DPROD | Japan's productivity level (United States = 1): 1990 | [-/+] |
| Labor Market Structure: | | |
| JOBSEP | Job separation rate:1995 | [+] |
| Keiretsu: | | |
| VERT | Share of workers employed by vertical Keiretsu firms in total workers: 1998 | [-] |
| HORIZ | Share of workers employed by horizontal Keiretsu firms in total workers: 1998 | [-] |

Note: For more detailed definitions and sources of the variables, see Appendix.

**Table 14. Determinants of Japan's Inward FDI Penetration in the Manufacturing Sector: OLS Estimation with Robust Standard Errors**

| | Japan's Inward FDI Penetration | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | (Dependent Variable: FDIJA) | | | | | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| RDINT | 89.67 | 86.03 | 84.18 | 89.37 | 76.02 | 91.29 | 88.90 | 94.16 | 89.51 |
| | (3.58) *** | (3.21) *** | (2.90) *** | (3.53) *** | (2.80) *** | (3.60) *** | (3.41) *** | (3.66) *** | (3.35) *** |
| ADINT | -4.62 | -4.68 | -4.90 | -4.30 | -4.67 | -4.25 | -4.65 | -4.21 | -4.67 |
| | (-1.41) | (-1.45) | (-1.29) | (-1.24) | (-1.43) | (-1.39) | (-1.36) | (-1.35) | (-1.33) |
| CLRATIO | 0.28 | 0.27 | 0.29 | 0.28 | 0.27 | 0.27 | 0.29 | 0.28 | 0.29 |
| | (2.29) ** | (2.27) ** | (2.46) ** | (2.23) ** | (2.19) ** | (2.35) ** | (2.18) ** | (2.29) ** | (2.05) * |
| LAND | -0.23 | -0.25 | -0.24 | -0.23 | -0.24 | -0.18 | -0.22 | -0.18 | -0.22 |
| | (-1.61) | (-1.68) | (-1.66) | (-1.59) | (-1.70) * | (-1.50) | (-1.59) | (-1.44) | (-1.56) |
| UNIV | 47.99 | 47.85 | 43.74 | 44.85 | 57.39 | 49.17 | 47.84 | 51.04 | 48.42 |
| | (2.88) *** | (2.90) *** | (2.42) ** | (2.51) ** | (3.28) *** | (2.81) *** | (2.76) ** | (2.62) ** | (2.61) ** |
| HERF | 0.48 | | 4.78 | -1.24 | 0.15 | -14.63 | 1.08 | -3.58 | 5.58 |
| | (0.01) | | (0.13) | (-0.04) | (0.00) | (-0.52) | (0.03) | (-0.08) | (0.11) |
| CR4 | | 0.04 | | | | | | | |
| | | (0.34) | | | | | | | |
| DPROD | | | 2.81 | | | | | | |
| | | | (0.82) | | | | | | |
| JOBSEP | | | | -1.04 | | | | | |
| | | | | (-0.74) | | | | | |
| PUBEMP | | | | | -12.74 | | | | |
| | | | | | (-2.56) ** | | | | |
| VERT | | | | | | -2.44 | | -2.40 | |
| | | | | | | (-1.50) | | (-1.45) | |
| HORIZ | | | | | | 1.54 | | 1.82 | |
| | | | | | | (0.67) | | (0.74) | |
| REGCUR | | | | | | | -0.79 | | -0.95 |
| | | | | | | | (-0.24) | | (-0.27) |
| REGPAST | | | | | | | 0.16 | | 0.18 |
| | | | | | | | (0.08) | | (0.09) |
| FDIUS | | | | | | | | -0.06 | -0.02 |
| | | | | | | | | (-0.40) | (-0.12) |
| _cons | -4.66 | -4.91 | -6.72 | -2.76 | -4.83 | -5.11 | -4.66 | -5.27 | -4.65 |
| | (-2.35) ** | (-2.56) ** | (-2.56) ** | (-0.75) | (-2.54) ** | (-2.57) ** | (-2.21) ** | (-2.46) ** | (-2.15) ** |
| No. of obs | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 38 |
| F | 19.16 *** | 18.75 *** | 14.16 *** | 17.49 *** | 19.03 *** | 25.29 *** | 13.85 *** | 20.45 *** | 11.92 *** |
| Adj R2 | 0.635 | 0.636 | 0.643 | 0.636 | 0.659 | 0.646 | 0.635 | 0.647 | 0.635 |

Note: 1) The numbers in parentheses are t-statistics based on the Huber-White-Sandwich robust standard errors.
2) *P=.10, **P=.05, ***P=.01 (two-tailed test)

**Table 15. Determinants of Japan's Inward FDI Penetration in the Service Sector: Tobit Estimation with Robust Standard Errors**

| | Japan's Inward FDI Penetration | | | | | |
|---|---|---|---|---|---|---|
| | (Dependent Variable: FDIJA10) | | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| RDINT | -277.11 | -153.40 | -247.10 | -287.04 | -511.82 | -325.76 |
| | (-1.26) | (-1.06) | (-1.16) | (-1.30) | (-1.79) * | (-1.40) |
| ADINT | 1.53 | 0.19 | 1.38 | 1.54 | 2.21 | 2.04 |
| | (1.40) | (0.30) | (1.30) | (1.42) | (1.33) | (1.67) * |
| UNIV | 1.96 | 1.45 | 1.94 | 1.93 | -0.22 | 1.79 |
| | (0.39) | (0.29) | (0.40) | (0.38) | (-0.05) | (0.35) |
| LAND | -17.71 | -12.37 | -26.50 | -17.04 | -18.36 | -20.24 |
| | (-0.82) | (-0.44) | (-1.08) | (-0.82) | (-1.39) | (-1.04) |
| HERF | 30.88 | | 27.08 | 31.68 | 26.91 | 36.66 |
| | (2.00) ** | | (1.70) * | (2.05) ** | (1.40) | (2.24) ** |
| CR4 | | 0.13 | | | | |
| | | (2.01) ** | | | | |
| DPROD | | | 1.75 | | | |
| | | | (1.01) | | | |
| JOBSEP | | | | -22.04 | | |
| | | | | (-0.27) | | |
| PUBEMP | -0.12 | -0.04 | -0.12 | -0.12 | -0.05 | -0.12 |
| | (-2.71) *** | (-1.92) * | (-2.83) *** | (-2.71) *** | (-1.56) | (-2.87) *** |
| VERT | | | | | 8.49 | |
| | | | | | (0.53) | |
| HORIZ | | | | | 44.42 | |
| | | | | | (1.60) | |
| RINVJAUS | | | | | | -4.15 |
| | | | | | | (-1.90) * |
| FDIUS | 0.81 | 0.67 | 0.80 | 0.81 | 0.31 | 0.72 |
| | (1.80) * | (1.74) * | (1.76) * | (1.80) * | (1.28) | (1.60) |
| _cons | -1.80 | -3.37 | -2.95 | -1.35 | -1.95 | -1.23 |
| | (-0.87) | (-1.25) | (-1.35) | (-0.45) | (-1.36) | (-0.59) |
| No. of obs | 41 | 41 | 41 | 41 | 41 | 41 |
| Wald | 14.75 ** | 13.17 * | 20.95 *** | 14.68 * | 31.60 *** | 16.77 ** |
| Log likelihood | -119.97 | -118.952 | -119.614 | -119.956 | -111.334 | -119.265 |

Note: 1) The numbers in parentheses are z-statistics based on the Huber-White-Sandwich robust standard errors.

2) The following nine industries are excluded from the estimations due to the unavailability of some variables: other insurance services, postal services, education, research institutes (natural sciences), research institutes (social sciences and humanities), health and hygiene, private non-profit organizations' services, social insurance and welfare, and unclassified services.

3) *P=.10, **P=.05, ***P=.01 (two-tailed test)