

The Determinants of the Location of Foreign Direct Investment by Japanese Small and Medium-sized Enterprises

Shujiro Urata
Hiroki Kawai

ABSTRACT. Japanese manufacturing small and medium enterprises (SMEs) have actively undertaken Foreign Direct Investment (FDI) in Asia since the mid-1980s. FDI contributes to economic growth of the FDI recipient countries, as it brings in not only financial resources for investment but also technologies and managerial know-how, which are important factors for promoting economic growth. Recognizing these benefits of receiving FDI, policy makers in developing countries have formulated various strategies to attract FDI. This paper examines the factors in the host countries that would attract FDI by Japanese SMEs. Our results show the importance of both supply-side and demand-side factors in the recipient countries for attracting FDI by Japanese SMEs. Supply-side factors include abundance of low-wage labor, availability of well-developed infrastructure, and good governance of the host government, while an important demand-side factor is the presence of sizable local market. In addition, Japanese SMEs regard industrial agglomeration, which has a element of both supply and demand factors, as an important factors making FDI decision. Supply-side factors are found to be important for attracting Japanese FDI in developing countries, while demand-factors play a role in attracting Japanese FDI in developed countries. A comparison of the results for SMEs to those for large firms reveals that SMEs are more sensitive to the conditions in the host countries in making their FDI decision. In particular, SMEs regard the availability of low-wage labor, well-developed infrastructure, and industrial agglomeration as important elements much more than large firms. High sensitivity of SMEs to local economic conditions in their decision on FDI location may be explained by their limited availability of financial and human resources and high dependence on overseas production in their business. In light of these findings, we conclude that countries inter-

ested in hosting FDI have to provide a very attractive business environment.

1. Introduction

Countries gain various benefits, which would promote their economic growth, by receiving foreign direct investment (FDI). First, FDI transfers financial resources to recipients or host countries, which could be used to expand production facilities in the host countries. Second, technology and managerial know-how, which play crucial roles in promoting economic growth, may be transferred to the host countries. Third, FDI enables the host countries to participate in various networks such as sales and procurement networks of foreign investors. Using international networks, host countries could not only expand exports but also import high quality parts and materials, which in turn would improve productivity in the host countries.

Besides these benefits that may be gained through receiving FDI undertaken by foreign firms of all sizes, there are some additional benefits that the host countries may gain by receiving FDI undertaken by small and medium-sized enterprises (SMEs). First, parts and components suppliers, consisting of a supporting industry, which are not sufficiently developed in most developing countries but important for promoting industrialization, may be developed by receiving FDI by SMEs engaged in metal and machinery production. Developing a supporting industry has proven recently to be particularly important for avoiding the problem of trade account deficits, which was one of crucial elements behind the recent currency and economic crisis in East Asia. The presence of an efficient supporting industry would in turn

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Shujiro Urata
Waseda University
Japan Center for Economic Research
169 Tokyo
Japan

Hiroki Kawai
Keio University



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attract FDI by large assembling firms, as they could utilize locally produced parts and components for assembling final products. FDI by SMEs would also contribute to economic development of the host country by improving income distribution, as they provide local people with limited experiences and education with jobs and income by utilizing labor-intensive technologies.

Recognizing these benefits from hosting FDI, a number of developing countries have attempted to attract FDI by using various incentives such as preferential tax treatment. In light of these observations, it is important on the part of potential host countries to discern the important factors that would attract or discourage FDI by SMEs. The purpose of this paper is to identify these factors by examining the patterns of FDI by Japanese SMEs by using two approaches; one analyzing the tabulated results of the survey on the motives of FDI and the difficulties associated with FDI, and the other undertaking a statistical analysis of the locational determinants of FDI by Japanese SMEs. Japanese SMEs have actively undertaken FDI in recent years. In terms of the number of FDI cases, SMEs account for approximately 50 percent of total number of FDI cases by Japanese firms.

Being more seriously constrained by financial and human resources compared to large firms, SMEs are likely to be more sensitive to local conditions than large firms in undertaking FDI. Several authors have examined the factors that determine the location of Japanese FDI in general (Fujita, 1995a, b), but no previous studies have analyzed them for Japanese SMEs by explicitly taking the firm size into consideration.¹ Therefore, the analysis in this paper would be useful not only for researchers interested in FDI but also for policy makers engaged in economic development.

Our analysis found that abundance of low-wage labor, availability of good infrastructure and good governance, presence of sizable local market and industrial agglomeration in the host countries are important factors that would attract Japanese FDI. It was also found that compared to large firms, SMEs are more sensitive to local conditions in making their decision on FDI, especially when they make investments in developing countries. Such risk-averse behavior of SMEs may be explained by their limited availability of financial and human resources, and high dependence on

overseas production in their business. These findings suggest that policy makers interested in hosting FDI have to provide an attractive business environment to foreign firms.

The structure of the paper is as follows. In Section 2, we present an overview of the recent patterns of FDI by Japanese SMEs. In Sections 3 and 4 we examine the motives of FDI by Japanese SMEs and the problems faced by them, respectively, in order to discern the important factors determining the location of their FDI. In light of these findings, in Section 5 we examine the determinants of FDI location by Japanese SMEs by conducting a statistical analysis. Finally, in Section 6 we present some concluding remarks.

2. Recent trends of foreign direct Investment by Japanese SMEs²

2.1. *Rapid expansion in the 1980s and subsequent slowdown in the 1990s*

Similar to the pattern observed for FDI by Japanese firms of all sizes, FDI by Japanese SMEs increased on a large scale and underwent major changes in its regional and sectoral compositions in the latter half of the 1980s (Figure 1 and Tables I–IV). The number of annual FDI cases or projects increased sharply from around 300 in the early 1980s to more than 1,000 in the latter half of the 1980s. Equally as dramatic as the size of the boom was the pace at which FDI by Japanese SMEs declined after reaching a peak in 1988. The decline in annual FDI cases continued until 1992, when the number of annual FDI cases amounted to almost one third of that recorded in 1988. In 1993 the number of FDI cases by Japanese SMEs increased to around 700, and it remained at around 700 with some fluctuations through 1996.

One identifies both “push” and “pull” factors behind the recent developments of FDI by Japanese SMEs. The push factors are those in the investing country, that is Japan in this case, while the pull factors are those in the host countries. We will take up the push factors in this section and pull factors in turn in the next section in explaining the recent patterns of FDI by Japanese SMEs.

Several push factors were responsible for the rapid growth of FDI by Japanese SMEs in the

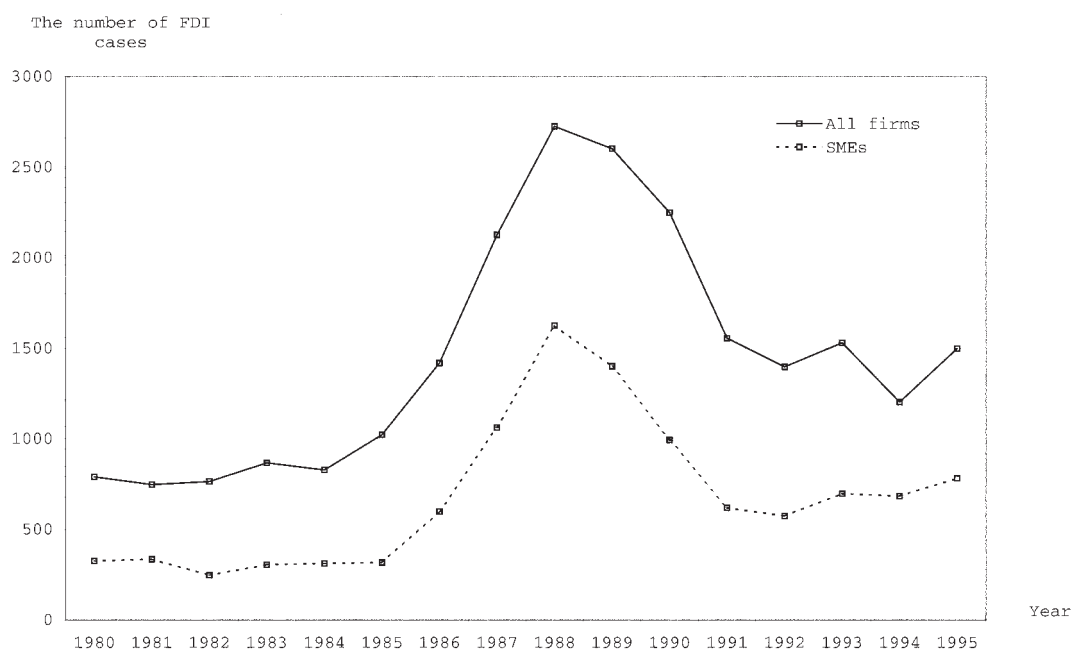


Figure 1. Foreign direct investment by Japanese SMEs.

latter half of the 1980s. The rapid and steep appreciation of the yen exchange rate against other currencies was the most important macroeconomic factor leading to the expansion of Japanese FDI in the second half of the 1980s. The yen appreciated by 37 percent between 1985 and 1988 on a real, effective basis. The drastic yen appreciation stimulated FDI by Japanese SMEs in two ways. One way was the dramatic “relative price” effect, and the other was the “liquidity” or “wealth” effect. The relative price effect substantially reduced the international price competitiveness of Japanese products, resulting in a decline in Japan’s export volume. To cope with the new international price structure, a number of Japanese manufacturing firms moved their production base to foreign countries, especially to East Asia, where production costs were lower.

Yen appreciation had a positive impact on FDI by Japanese SMEs through the “liquidity” or “wealth” effect as well. To the extent that yen appreciation made Japanese firms relatively more “wealthy” in the sense of increased collateral and liquidity, it enabled them to finance FDI relatively more cheaply as a result of the yen appreciation.

Another important push factor was the emergence of the “bubble” economy in Japan. The

liquidity effect discussed above was strengthened by the bubble economy, in which the prices of assets such as shares and land increased enormously. Indeed, the average share prices more than doubled in four years from 1985 to 1989, as the index of share prices increased from 45.7 in 1985 to 117.8 in 1989. The Bank of Japan injected liquidity into the economy to deal with the recessionary impact caused by the drastic yen appreciation. Active fiscal spending for the same purpose of reflating the economy was an additional factor leading to the bubble economy.

An increasing shortage of labor was a particularly important push factor that has activated FDI by SMEs. During the bubble economy period, labor market became very tight as many firms were expanding their employment. Under such circumstances, SMEs had difficulty attracting workers. To deal with the labor shortage situation, a large number of SMEs shifted their operation abroad, where low-wage labor was abundantly available. It is also important to note that a number of Japanese subcontracting SMEs followed their parent companies that invested overseas, to maintain business.³

The decline in the number of FDI cases by Japanese SMEs in the early 1990s resulted mainly

TABLE I
Regional distribution of FDI by Japanese SMEs

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<i>Number of cases (#)</i>																	
World	326	336	247	306	312	318	599	1063	1625	1401	994	619	574	698	684	783	673
Asia	98	107	87	96	119	145	258	474	693	600	384	300	374	533	569	613	450
Latin America	16	11	3	5	8	8	12	18	23	11	19	8	6	8	8	20	16
Middle East	0	3	2	5	1	0	4	1	1	0	0	2	3	2	0	2	4
Africa	0	1	0	0	4	0	1	0	0	2	4	0	0	1	0	0	1
North America	177	169	132	162	152	141	265	455	732	568	442	189	121	98	64	103	154
Europe	26	29	18	31	23	18	39	52	117	136	87	89	49	44	35	30	35
Oceania	9	16	5	7	5	6	20	63	59	84	58	31	21	12	8	15	13
<i>Regional composition (%)</i>																	
World	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Asia	30.1	31.8	35.2	31.4	38.1	45.6	43.1	44.6	42.6	42.8	38.6	48.5	65.2	76.4	83.2	78.3	66.9
Latin America	4.9	3.3	1.2	1.6	2.6	2.5	2.0	1.7	1.4	0.8	1.9	1.3	1.0	1.1	1.2	2.6	2.4
Middle East	0.0	0.9	0.8	1.6	0.3	0.0	0.7	0.1	0.1	0.0	0.0	0.3	0.5	0.3	0.0	0.3	0.6
Africa	0.0	0.3	0.0	0.0	1.3	0.0	0.2	0.0	0.0	0.1	0.4	0.0	0.0	0.1	0.0	0.0	0.1
North America	54.3	50.3	53.4	52.9	48.7	44.3	44.2	42.8	45.0	40.5	44.5	30.5	21.1	14.0	9.4	13.2	22.9
Europe	8.0	8.6	7.3	10.1	7.4	5.7	6.5	4.9	7.2	9.7	8.8	14.4	8.5	6.3	5.1	3.8	5.2
Oceania	2.8	4.8	2.0	2.3	1.6	1.9	3.3	5.9	3.6	6.0	5.8	5.0	3.7	1.7	1.2	1.9	1.9

Notes: (1) Reported basis and only include those reporting the purchase of new securities (establishment of foreign affiliates or participation in new joint-ventures).

(2) Small and medium firms are defined as follows: in wholesale sector SMEs are those with less than 30 million-yen paid-in capital or with less than 100 employees, in retail and service sectors they are those with less than 10 million-yen paid-in capital or with less than 50 employees; in manufacturing they are those with less than 100 million-yen paid-in capital or with less than 300 employees.

Source: Small and medium enterprise agency, White Paper on Small and Medium-sized Enterprises, various issues.

from the burst of the bubble economy in 1989. The depreciation of the yen also contributed to the decline. The recent increase in FDI in the mid-1990s is attributable to the substantial appreciation of the yen, whose real effective exchange rate increased by 17 percent in a year from 1992 to 1993. The appreciation of the yen set off the relative price effect discussed above, to result in the expansion of FDI by Japanese SMEs. It is worth noting that unlike the remarkable increase in FDI by Japanese SMEs in the second half of the 1980s, the recent increase in FDI by Japanese SMEs is taking place in the absence of the bubble economy. This difference is reflected in the changes in the regional as well as sectoral distribution of FDI by Japanese SMEs over time, to which we will turn next.

2.2. *Foreign direct investment in Asia by Japanese SMEs*

FDI by Japanese SMEs in the first half of the 1980s was directed largely to North America (Table I). North America absorbed approximately fifty percent of the FDI cases by SMEs during the period. Beginning in the second half of the 1980s, Asia started to attract Japanese FDI by SMEs on a large scale. Consequently, the share of Asia in total FDI cases by SMEs started to rise, while the corresponding share for North America started to decline. These trends continued through the mid-1990s, and in 1996 the shares of Asia and North America in the total FDI cases by SMEs stood at 66.9 and 22.9 percent, respectively. It should be noted that Asia and North America absorbed as much as 80–90 percent of overall FDI cases by Japanese SMEs. The shift of geographical orientation of FDI by Japanese SMEs from North America to Asia in the early 1990s appears to reflect the change in SMEs' strategy, which put a greater emphasis on reducing production cost to be competitive in the international market. Furthermore, rapid economic growth in Asia contributed to this shift, as it attracted FDI that was seeking for market.

Since the mid-1980s, geographical distribution of Japan's FDI to Asia has changed significantly, from the Asian NIEs to ASEAN, and then to China and other Asian countries (Table II).⁴ The NIEs attracted FDI until the late 1980s mainly by

pursuing FDI promotion policies. Policy makers in Korea, Taiwan, and Singapore, in particular, promoted inward FDI in their pursuit of high-tech industrialization. These countries enjoyed positive growth brought about by the simultaneous expansion of trade and inward FDI.

However, Japanese FDI in the Asian NIEs reached a peak in 1988. The Asian NIEs started to lose some of their cost advantages due to rapid wage increases and currency appreciation. Firms in Japan and other investing countries therefore started to look to other East Asian countries such as ASEAN as hosts for investment. One important factor behind attracting FDI in manufacturing to ASEAN has been the ASEAN countries' shift from inward-oriented to outward-oriented strategies, which were carried out through their unilateral liberalization of trade and FDI policies. Such regime changes have been prompted by the earlier success of outward-oriented policies in the NIEs.

FDI inflows into China have also grown sharply since 1990 due to China's gradual but persistent economic reforms, liberalization in trade and FDI policies, and its political and social stability despite the Tiananmen Square incident in 1989. Since 1990 China has attracted the largest number of FDI cases by Japanese SMEs in Asia. The attractiveness of China as a host to FDI has increased recently, being reflected on the substantial increase in the share of China in overall FDI by Japanese SMEs. The attractiveness of China as a host to FDI from Japan and other countries increased, as some ASEAN countries have lost their attractiveness mainly due to the rapid increase in the production costs including wages, material and services costs. The increase in the production costs in turn resulted from the currency appreciation, shortage of manpower, emergence of serious bottlenecks in infrastructure and other factors.⁵

In recent years, despite at a significantly lower scale, Japanese FDI to other Asian countries such as Vietnam has begun to increase (not shown in the table). Liberalization of FDI policies by these countries attracted Japanese investors.

Turning to the sectoral distribution of Japanese FDI by SMEs, there was a dramatic shift from non-manufacturing to manufacturing from the 1980s to the mid-1990s. Specifically, the share of manufacturing in total FDI cases increased notably

TABLE II
Country distribution of FDI by Japanese SMEs in Asia

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<i>Number of cases (#)</i>																	
Asia total	98	107	87	96	119	145	258	474	693	600	384	300	374	533	569	613	450
NIEs	61	59	47	48	53	58	169	298	315	263	111	74	60	73	47	55	35
Hong Kong	27	18	18	12	14	15	36	64	82	86	26	20	29	35	21	19	4
Korea	6	7	16	12	23	31	65	115	109	56	32	23	9	12	6	10	4
Singapore										58	27	18	11	16	16	13	18
Taiwan	28	34	13	24	16	12	68	119	124	63	26	13	11	10	4	13	9
ASEAN4										240	177	133	63	75	103	109	115
Indonesia										25	27	55	18	22	20	40	24
Malaysia										51	60	26	17	20	20	14	20
Philippines										33	30	5	0	22	16	22	26
Thailand										131	60	47	28	11	47	33	45
China						56	51	49	88	86	69	87	232	372	431	434	262
<i>Country composition (%)</i>																	
Asia total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
NIEs	62.2	55.1	54.0	50.0	44.5	40.0	65.5	62.9	45.5	43.8	28.9	24.7	16.0	13.7	8.3	9.0	7.8
Hong Kong	27.6	16.8	20.7	12.5	11.8	10.3	14.0	13.5	11.8	14.3	6.8	6.7	7.8	6.6	3.7	3.1	0.9
Korea	6.1	6.5	18.4	12.5	19.3	21.4	25.2	24.3	15.7	9.3	8.3	7.7	2.4	2.3	1.1	1.6	0.9
Singapore										9.7	7.0	6.0	2.9	3.0	2.8	2.1	4.0
Taiwan	28.6	31.8	14.9	25.0	13.4	8.3	26.4	25.1	17.9	10.5	6.8	4.3	2.9	1.9	0.7	2.1	2.0
ASEAN4										40.0	46.1	44.3	16.8	14.1	18.1	17.8	25.6
Indonesia										4.2	7.0	18.3	4.8	4.1	3.5	6.5	5.3
Malaysia										8.5	15.6	8.7	4.5	3.8	3.5	2.3	4.4
Philippines										5.5	7.8	1.7	0.0	4.1	2.8	3.6	5.8
Thailand										21.8	15.6	15.7	7.5	2.1	8.3	5.4	10.0
China						38.6	19.8	10.3	12.7	14.3	18.0	29.0	62.0	69.8	75.7	70.8	58.2

Note: See notes in Table I. Empty cells indicate that the information is not available and thus do not necessarily mean that the number is zero.

Source: Small and medium enterprise agency, White Paper on Small and Medium-sized Enterprises, various issues.

from around 30 percent in 1980 to around 70 percent in the mid-1990s, while the corresponding share for non-manufacturing declined from 70 to 30 percent. (Table III) Among the manufacturing sub-sectors, FDI was undertaken actively in textiles and machinery. In particular, the number of FDI cases rose remarkably in textiles from 6 in 1980 to 293 in 1994, before declining to 180 in 1996. The trends in other sectors were similar, albeit at a smaller scale. In 1996 the number of FDI cases in textiles and machinery stood at 180 and 135, respectively, capturing 26.7 and 20.1 percent of all FDI cases. As to FDI in the non-manufacturing sector, commerce was active in undertaking FDI. However, the number of FDI cases declined significantly in the 1990s. The shift from non-manufacturing to manufacturing, and especially to textiles and machinery, is mainly attributable to the fact that the manufacturing sector, a substantial part of whose output are sold in international markets, was adversely affected by the yen appreciation.

As Asia became a dominant region for attracting FDI by Japanese SMEs in the middle of the 1990s, the sectoral patterns of FDI by Japanese SMEs in Asia are largely reflected on those of FDI by Japanese firms of all sizes, which were discussed above. However, one may observe that a distinct characteristic of FDI by Japanese SMEs in Asia is the large share of manufacturing in comparison to other regions. The share of manufacturing in total FDI by SMEs in Asia increased from around 50 percent in the early 1980s to 80 percent in the mid-1990s, while the corresponding share for FDI by all firms increased from 30 to 70 percent (Tables III and IV). Among the manufacturing sub-sectors, the number of FDI cases in textiles increased rapidly from around 3–5 in the early 1980s to more than 200 in the mid-1990s, registering the largest share of FDI by SMEs at 38.2 percent in 1996. Textiles was followed by machinery at 21.3 percent. In non-manufacturing it is noteworthy that the number of FDI cases in commerce dropped sharply from the peak of 132 in 1989 to 24 in 1996.

3. Motives behind Japanese FDI in Asia

Several factors promoting recent Japanese FDI were explained in the previous section. This

section examines the motives behind Japanese FDI in more detail, because these motives influence the pattern of geographical distribution of Japanese FDI, which is our main concern in this paper.

Several questionnaire surveys on the motives of Japanese firms for undertaking FDI are conducted on a regular basis. The most comprehensive is a questionnaire survey conducted by the Ministry of International Trade and Industry (MITI) of the Japanese government.⁶ Table V summarizes the results of the 1992 MITI survey conducted on the motives behind Japanese FDI in all regions and in Asia. In the table the survey results are disaggregated into those for SMEs and those for large firms.

For SMEs, the most common motive is the use of local labor, as 68 percent of the responding SMEs indicated the use of local labor as one of their motives for undertaking FDI.⁷ For the Asian affiliates of Japanese SMEs, the use of local labor is even more important motive since as large as 78.6 percent of the respondents indicated such a motive. One realizes the importance of the use of local labor as an FDI motive for SMEs, as the proportion of the large firms indicated the use of local labor as a motive is significantly smaller at 37.5 (46.1) percent for those investing in all regions (Asia). The use of labor is the most important motive for almost all the sub-sectors, as it captured the largest share in most of them. These observations suggest that a large number of SMEs undertook FDI in order to cope with the labor shortage in Japan.

A large number of SMEs identified local sales as one of their motives behind undertaking FDI, as 46.2 percent of responding SMEs indicated such a motive. The importance of local sales motive is somewhat less for FDI by SMEs in Asia, as the proportion of SMEs indicating local sales as a motive is smaller at 37.8 percent. This is quite a contrast to the case for large firms. For large firms, local sales is the most common motive behind their FDI, as two-thirds of large firms indicated that expanding local sales as one of their motives.

Exports, particularly exports to Japan, have shown to be an important motive behind FDI by Japanese SMEs. This pattern is more evident for FDI in Asia. Indeed, 37.8 and 22.4 percent of SMEs undertaking FDI in Asia indicated exports

TABLE III
Sectoral distribution of FDI by Japanese SMEs: World

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<i>Number of cases</i>																	
Total	326	336	247	306	312	318	599	1063	1625	1401	994	619	574	698	684	783	673
Food	14	16	8	12	13	17	27	35	65	29	24	16	11	25	16	20	21
Wood and pulp	5	2	2	4	1	5	5	12	21	18	11	9	11	12	11	16	21
Textiles	6	9	7	7	6	12	12	34	81	67	71	81	121	196	293	275	180
Chemicals	7	12	9	7	8	14	19	36	46	33	28	19	23	13	12	35	32
Ferrous and non-ferrous metals	7	5	6	4	10	16	13	45	91	42	51	21	22	32	22	46	26
Machinery	43	36	21	29	47	45	131	196	249	211	117	67	50	90	86	110	135
Miscellaneous	17	28	33	31	24	28	72	111	171	135	79	68	53	64	80	71	43
Manufacturing total	99	108	86	94	109	137	279	469	724	535	381	281	291	432	520	573	458
Agriculture, fishery	12	18	2	5	3	6	11	22	25	21	5	8	15	16	12	11	23
Mining	1	2	2	1	1	1	3	5	6	4	3	3	4	2	1	7	9
Construction	3	1	4	10	8	5	3	6	20	53	34	21	10	19	1	8	3
Commerce	152	152	107	150	119	93	139	187	309	304	146	134	107	110	37	59	34
Services	22	4	19	24	25	43	55	98	144	146	105	95	75	50	47	31	68
Others	37	51	27	22	47	33	109	276	397	338	320	77	72	69	66	94	78
<i>Sectoral composition (%)</i>																	
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Food	4.3	4.8	3.2	3.9	4.2	5.3	4.5	3.3	4.0	2.1	2.4	2.6	1.9	3.6	2.3	2.6	3.1
Wood and pulp	1.5	0.6	0.8	1.3	0.3	1.6	0.8	1.1	1.3	1.3	1.1	1.5	1.9	1.7	1.6	2.0	3.1
Textiles	1.8	2.7	2.8	2.3	1.9	3.8	2.0	3.2	5.0	4.8	7.1	13.1	21.1	28.1	42.8	35.1	26.7
Chemicals	2.1	3.6	3.6	2.3	2.6	4.4	3.2	3.4	2.8	2.4	2.8	3.1	4.0	1.9	1.8	4.5	4.8
Ferrous and non-ferrous metals	2.1	1.5	2.4	1.3	3.2	5.0	2.2	4.2	5.6	3.0	5.1	3.4	3.8	4.6	3.2	5.9	3.9
Machinery	13.2	10.7	8.5	9.5	15.1	14.2	21.9	18.4	15.3	15.1	11.8	10.8	8.7	12.9	12.6	14.0	20.1
Miscellaneous	5.2	8.3	13.4	10.1	7.7	8.8	12.0	10.4	10.5	9.6	7.9	11.0	9.2	9.2	11.7	9.1	6.4
Manufacturing total	30.4	32.1	34.8	30.7	34.9	43.1	46.6	44.1	44.6	38.2	38.3	45.4	50.7	61.9	76.0	73.2	68.1
Agriculture, fishery	3.7	5.4	0.8	1.6	1.0	1.9	1.8	2.1	1.5	1.5	0.5	1.3	2.6	2.3	1.8	1.4	3.4
Mining	0.3	0.6	0.8	0.3	0.3	0.3	0.5	0.5	0.4	0.3	0.3	0.5	0.7	0.3	0.1	0.9	1.3
Construction	0.9	0.3	1.6	3.3	2.6	1.6	0.5	0.6	1.2	3.8	3.4	3.4	1.7	2.7	0.1	1.0	0.4
Commerce	46.6	45.2	43.3	49.0	38.1	29.2	23.2	17.6	19.0	21.7	14.7	21.6	18.6	15.8	5.4	7.5	5.1
Services	6.7	1.2	7.7	7.8	8.0	13.5	9.2	9.2	8.9	10.4	10.6	15.3	13.1	7.2	6.9	4.0	10.1
Others	11.3	15.2	10.9	7.2	15.1	10.4	18.2	26.0	24.4	24.1	32.2	12.4	12.5	9.9	9.6	12.0	11.6

Note: See notes in Table I.

Source: Small and medium enterprise agency, White Paper on Small and Medium-sized Enterprises, various issues.

TABLE IV
Sectoral distribution of FDI by Japanese SMEs: Asia

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<i>Number of cases</i>																	
Total	98	107	87	96	119	145	258	474	693	600	384	300	374	533	569	613	450
Food	9	4	2	4	8	11	20	21	40	11	13	9	10	20	12	16	10
Wood and pulp	2	1	2	2	1	1	5	7	16	11	4	7	7	12	11	13	16
Textiles	3	5	3	3	5	11	9	26	66	53	52	71	117	194	290	273	172
Chemicals	2	8	7	2	3	10	13	26	24	22	17	10	17	9	10	31	22
Ferrous and non-ferrous metals	3	2	2	2	4	7	8	40	61	28	34	14	19	32	21	41	21
Machinery	27	19	13	13	22	27	80	138	153	125	67	40	31	72	66	86	96
Miscellaneous	11	17	16	14	17	20	46	83	115	96	49	41	41	51	76	65	30
Manufacturing total	57	56	45	40	60	87	181	341	475	346	236	192	242	390	486	525	367
Agriculture, fishery	1	5	1	0	3	2	5	8	12	2	4	2	2	7	6	6	7
Mining	1	1	0	0	1	1	0	0	2	2	1	2	0	1	0	0	1
Construction	1	1	2	8	5	5	1	4	8	14	7	8	7	15	0	2	2
Commerce	24	33	23	36	28	17	34	64	92	132	58	66	72	78	27	44	24
Services	6	1	8	8	12	24	21	31	38	37	27	20	29	24	25	7	26
Others	8	10	8	4	10	9	16	26	66	67	51	10	22	18	25	29	23
<i>Sectoral composition (%)</i>																	
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Food	9.2	3.7	2.3	4.2	6.7	7.6	7.8	4.4	5.8	1.8	3.4	3.0	2.7	3.8	2.1	2.6	2.2
Wood and pulp	2.0	0.9	2.3	2.1	0.8	0.7	1.9	1.5	2.3	1.8	1.0	2.3	1.9	2.3	1.9	2.1	3.6
Textiles	3.1	4.7	3.4	3.1	4.2	7.6	3.5	5.5	9.5	8.8	13.5	23.7	31.3	36.4	51.0	44.5	38.2
Chemicals	2.0	7.5	8.0	2.1	2.5	6.9	5.0	5.5	3.5	3.7	4.4	3.3	4.5	1.7	1.8	5.1	4.9
Ferrous and non-ferrous metals	3.1	1.9	2.3	2.1	3.4	4.8	3.1	8.4	8.8	4.7	8.9	4.7	5.1	6.0	3.7	6.7	4.7
Machinery	27.6	17.8	14.9	13.5	18.5	18.6	31.0	29.1	22.1	20.8	17.4	13.3	8.3	13.5	11.6	14.0	21.3
Miscellaneous	11.2	15.9	18.4	14.6	14.3	13.8	17.8	17.5	16.6	16.0	12.8	13.7	11.0	9.6	13.4	10.6	6.7
Manufacturing total	58.2	52.3	51.7	41.7	50.4	60.0	70.2	71.9	68.5	57.7	61.5	64.0	64.7	73.2	85.4	85.6	81.6
Agriculture, fishery	1.0	4.7	1.1	0.0	2.5	1.4	1.9	1.7	1.7	0.3	1.0	0.7	0.5	1.3	1.1	1.0	1.6
Mining	1.0	0.9	0.0	0.0	0.8	0.7	0.0	0.0	0.3	0.3	0.3	0.7	0.0	0.2	0.0	0.0	0.2
Construction	1.0	0.9	2.3	8.3	4.2	3.4	0.4	0.8	1.2	2.3	1.8	2.7	1.9	2.8	0.0	0.3	0.4
Commerce	24.5	30.8	26.4	37.5	23.5	11.7	13.2	13.5	13.3	22.0	15.1	22.0	19.3	14.6	4.7	7.2	5.3
Services	6.1	0.9	9.2	8.3	10.1	16.6	8.1	6.5	5.5	6.2	7.0	6.7	7.8	4.5	4.4	1.1	5.8
Others	8.2	9.3	9.2	4.2	8.4	6.2	6.2	5.5	9.5	11.2	13.3	3.3	5.9	3.4	4.4	4.7	5.1

Note: See notes in Table I.

Source: Small and medium enterprise agency, White Paper on Small and Medium-sized Enterprises, various issues.

TABLE V
Motives behind Japanese manufacturing FDI: 1992

	# of firms	Use of local labor	Response to host country policy	Local sales	Exports to third countries	Exports to Japan	Information collection
<i>A. All regions</i>							
Small-medium firm	247	68.0	22.3	46.2	19.8	32.4	12.6
Food	15	46.7	6.7	20.0	20.0	40.0	20.0
Textiles	23	82.6	17.4	43.5	4.3	43.5	4.3
Wood product	5	40.0	20.0	0.0	0.0	60.0	0.0
Furniture	2	100.0	0.0	0.0	0.0	50.0	0.0
Pulp and paper	1	0.0	0.0	100.0	0.0	0.0	100.0
Printing	3	100.0	0.0	100.0	33.3	0.0	66.7
Chemicals	10	60.0	20.0	80.0	10.0	40.0	10.0
Petroleum products	0						
Rubber products	6	100.0	16.7	16.7	50.0	66.7	0.0
Leather products	3	100.0	66.7	0.0	33.3	66.7	0.0
Glass products	11	63.6	45.5	27.3	9.1	27.3	18.2
Iron and steel	9	88.9	22.2	55.6	0.0	33.3	22.2
Non-ferrous metals	6	50.0	0.0	33.3	16.7	50.0	0.0
Metal products	27	66.7	33.3	51.9	11.1	25.9	0.0
General machinery	21	71.4	23.8	71.4	23.8	19.0	14.3
Electric machinery	47	61.7	19.1	46.8	23.4	19.1	19.1
Transport machinery	20	55.0	25.0	60.0	35.0	25.0	15.0
Precision equipment	7	71.4	57.1	42.9	28.6	57.1	0.0
Other manufacturing	31	77.4	16.1	38.7	29.0	38.7	12.9
Large firms	2781	37.5	19.5	65.5	20.5	11.7	12.8
Food	142	24.6	4.9	47.9	20.4	21.8	20.4
Textiles	150	65.3	16.7	54.0	33.3	28.7	6.7
Wood product	17	47.1	5.9	11.8	5.9	29.4	5.9
Furniture	6	66.7	0.0	33.3	16.7	33.3	16.7
Pulp and paper	17	11.8	5.9	35.3	0.0	11.8	0.0
Printing	20	30.0	10.0	65.0	45.0	10.0	25.0
Chemicals	406	24.4	13.8	65.3	17.0	7.9	16.0
Petroleum products	13	15.4	0.0	30.8	7.7	15.4	0.0
Rubber products	44	61.4	25.0	77.3	20.5	13.6	4.5
Leather products	6	33.3	0.0	33.3	0.0	16.7	33.3
Glass products	96	30.2	20.8	65.6	26.0	7.3	9.4
Iron and steel	97	30.9	4.1	74.2	9.3	1.0	9.3
Non-ferrous metals	89	44.9	29.2	77.5	15.7	12.4	11.2
Metal products	74	36.5	25.7	74.3	39.2	24.3	8.1
General machinery	233	33.9	19.3	69.1	18.5	2.6	13.7
Electric machinery	773	39.5	22.1	67.5	23.5	12.5	13.7
Transport machinery	351	38.2	28.2	70.1	13.1	11.1	8.8
Precision equipment	81	23.5	4.9	58.0	24.7	8.6	14.8
Other manufacturing	166	59.0	31.3	66.3	20.5	8.4	15.7

TABLE V (Continued)

	# of firms	Use of local labor	Response to host country policy	Local sales	Exports to third countries	Exports to Japan	Information collection
<i>B. Asia</i>							
Small-medium firm	201	78.6	24.9	37.8	22.4	37.8	7.0
Food	10	70.0	10.0	10.0	20.0	50.0	10.0
Textiles	23	82.6	17.4	43.5	4.3	43.5	4.3
Wood product	5	40.0	20.0	0.0	0.0	60.0	0.0
Furniture	2	100.0	0.0	0.0	0.0	50.0	0.0
Pulp and paper	0						
Printing	2	100.0	0.0	100.0	50.0	0.0	50.0
Chemicals	8	75.0	25.0	75.0	12.5	37.5	0.0
Petroleum products	0						
Rubber products	6	100.0	16.7	16.7	50.0	66.7	0.0
Leather products	3	100.0	66.7	0.0	33.3	66.7	0.0
Glass products	10	70.0	50.0	20.0	10.0	30.0	10.0
Iron and steel	7	100.0	14.3	42.9	0.0	42.9	14.3
Non-ferrous metals	6	50.0	0.0	33.3	16.7	50.0	0.0
Metal products	20	80.0	45.0	35.0	15.0	35.0	0.0
General machinery	17	82.4	23.5	64.7	29.4	23.5	5.9
Electric machinery	36	75.0	22.2	36.1	27.8	25.0	11.1
Transport machinery	14	71.4	28.6	50.0	50.0	28.6	14.3
Precision equipment	6	83.3	66.7	33.3	33.3	66.7	0.0
Other manufacturing	26	84.6	15.4	34.6	26.9	42.3	7.7
Large firms	1903	46.1	23.2	64.0	24.7	13.1	10.1
Food	83	28.9	6.0	49.4	24.1	21.7	14.5
Textiles	118	69.5	16.1	48.3	36.4	33.9	6.8
Wood product	11	54.5	9.1	9.1	9.1	36.4	0.0
Furniture	4	75.0	0.0	25.0	0.0	50.0	0.0
Pulp and paper	5	20.0	0.0	40.0	0.0	0.0	0.0
Printing	15	40.0	13.3	53.3	53.3	6.7	20.0
Chemicals	298	29.9	17.8	65.8	20.8	8.1	13.4
Petroleum products	7	28.6	0.0	28.6	14.3	28.6	0.0
Rubber products	33	69.7	33.3	72.7	18.2	15.2	3.0
Leather products	6	33.3	0.0	33.3	0.0	16.7	33.3
Glass products	71	36.6	26.8	66.2	33.8	7.0	11.3
Iron and steel	57	43.9	5.3	77.2	12.3	1.8	8.8
Non-ferrous metals	51	64.7	41.2	78.4	25.5	13.7	3.9
Metal products	48	50.0	29.2	72.9	47.9	27.1	4.2
General machinery	144	39.6	19.4	68.1	22.2	3.5	11.8
Electric machinery	564	48.8	25.4	66.5	27.8	13.7	11.3
Transport machinery	221	48.4	35.3	64.7	14.0	11.8	4.1
Precision equipment	50	30.0	8.0	54.0	24.0	10.0	10.0
Other manufacturing	117	66.7	35.0	63.2	25.6	11.1	12.0

Note: 1) Small and medium firms are firms with paid-in capital being less than 100 million yen, while large firms are firms with paid-in capital being greater than 100 million yen.

2) Figures indicate the percentage share of the firms indicating the motive in total number of surveyed firms.

Source: MITI, Kaigai Toshi Tokei Soran [Comprehensive Statistics on Japanese Foreign Direct Investment], no. 5, 1993.

to Japan and exports to the third countries respectively as their motives for undertaking FDI. The importance of exports to Japan as a motive for FDI by SMEs can be seen clearly, if one observes that the share of large firms indicating such motive is much smaller at 13.1 percent.

One out of five SMEs undertook FDI, to respond to the industrial policies in the host countries. Although it is not clear from the survey as to the specific policies that SMEs responded to, one may argue that host country policies appear to influence the decision of FDI by SMEs.

In sum, the results from the MITI survey have shown that Japanese SMEs have undertaken FDI to export their products to Japan by utilizing low-wage local labor, in response to the labor shortage or high wage situation in Japan. These FDI patterns by Japanese SMEs seem to indicate that they act as a member of networks such as sub-contracting networks, or keiretsu, because they supply a large portion of their products produced in East Asia to their trading partners in Japan. These findings also confirm an observation that SMEs adopt labor-intensive production technologies, in comparison to large firms. The fact that the use of local labor as a motive for Japanese FDI in Asia may reflect rational behavior of Japanese firms from the point of view of comparative advantage in Asia. Richly endowed with labor, Asian countries have a comparative advantage in the production that requires labor-intensive techniques. Furthermore, one may argue that the technologies used by SMEs are suitable or appropriate for the local condition.

4. The problems Encountered by Japanese firms in Asia

An investigation of the problems that are faced by overseas affiliates of Japanese SMEs would provide useful information on the determinants of FDI locations by Japanese SMEs. This is because the firms would select the location of their investment where the probability of encountering problems is minimal. Below two kinds of problems are investigated. One is the economic environment in the host countries under which Japanese firms conduct their business, and the other concerns the regulations imposed on their activities.

Table VI shows the frequency of the responses

given by Japanese firms to some of the problems in their overseas operation. One immediately notices that SMEs are operating under more difficult condition than large firms, as the response rates for all the problems listed in the table except one are greater for SMEs than large firms. The fact that SMEs face more problems than large firms may be explained by an observation that SMEs are more constrained than large firms in terms of financial, human and other resources, to deal with the problems. Furthermore, the severity of the problems appears to be greater for SMEs than large firms, as SMEs attach a greater significance to their overseas operation in relation to their home operation, compared to large firms. Indeed, the share of overseas sales in total sales (overseas sales plus home sales) for manufacturing SMEs is significantly higher at 36.6 percent than that for large firms at 17.7 percent (both for 1992).⁸

One exception to the pattern that SMEs face more problems than large firms, is severe competition in the local market, for which the response rate is greater for large firms than SMEs. This finding may reflect the differences in the motives of FDI by SMEs and by large firms. Large firms, whose motivation behind FDI is to sell their products in the local market, feel severe competition in the host market, while SMEs, which are more interested in exporting their products, feel less competitive pressure in the local market. The remaining part of this section examines other kinds of problems faced by SMEs.

To begin with the problems concerning economic environment of the host countries, one finds that the shortage of skilled labor is the most serious problem, as it received the highest frequency of the responses. Specifically, one out of three SMEs indicated the presence of labor shortage problem. The fact that a greater proportion of SMEs suffer from the labor shortage problem than large firms reflects a common observation that SMEs face a greater difficulty in attracting labor compared to large firms, possibly because of their less attractive working conditions. Coupled with an earlier finding that a main motive behind FDI by SMEs was to utilize local labor, this finding indicates that a large proportion of SMEs have not fulfilled their objective of undertaking FDI.

The problem of underdevelopment of sup-

porting industries was indicated by approximately 25 percent of SMEs. Among the manufacturing sub-sectors, machinery and metal producing sectors, which use a number of parts and components, tend to suffer from the lack of supporting industries.

Insufficient infrastructure and high inflation are regarded as the problems by approximately one-fifth of the SMEs. Availability of good infrastructure, whose main components include the provision of transportation and communication services as well as electricity generation, plays an important role in the determination of economic performance of the firms. In spite of the recognition of this point, a number of developing countries have difficulty solving the problem of insufficient infrastructure mainly because of a lack of financial resources. This problem is felt more strongly by SMEs than large firms. One explanation for this difference is that large firms, having greater financial resources, can avoid the problem that stems from the lack of sufficient infrastructure by constructing its own, while limited financial resources makes it difficult for SMEs to do so. High inflation poses a problem to the firms, as it increases the cost of production and the uncertainty regarding business environment.

Turning to the problems associated with the regulations on FDI, one finds that approximately 10 percent of SMEs experienced the import restrictions on materials and parts, and export requirements of their products. Among the manufacturing sub-sectors, a relatively high response rate was reported for the Asian affiliates in transport machinery. This apparently reflects the restrictive FDI policies adopted for the transport machinery sector in some Asian countries, in order to promote local automobile producers.

5. The determinants of FDI locations by Japanese SMEs

The examination of the motives of FDI by Japanese SMEs and the problems they face in their overseas operation in the previous sections revealed some important factors that attract FDI by Japanese SMEs. Some of the important factors that would attract FDI by Japanese SMEs include the availability of labor, presence of a large local market, macroeconomic stability, availability of

infrastructure and supporting industries, and investor friendly FDI policies. In this section the importance of these factors is examined in details by the use of a statistical analysis. Before conducting the analysis, a brief review of previous studies is in order. As noted in the introduction, a major purpose of this paper is to shed light on the impact of the firm size on Japanese firms' decision of FDI locations. Although none of the previous studies examined the differences in the decision making of FDI location by Japanese firms of different sizes, a review of previous studies should prove useful in analyzing our results to be given below.

5.1. Previous studies

Several recent studies (Fujita, 1995a, b) examined the determinants of the location of Japanese FDI by considering the characteristics of the host countries under the framework of the conditional logit model. Fukao and Chung (1996) and Wakasugi (1997) examined the determinants of Japanese manufacturing FDI, and Tokunaga and Ishii (1995), and Fukao and Yue (1997) examined the determinants of FDI by Japanese electronics firms. As an indicator of a firm's decision on FDI, Fukao and Chung, and Wakasugi used the number of FDI cases by industry, reported to the Ministry of Finance, while Tokunaga and Ishii, and Fukao and Yue used the number of FDI cases by Japanese electronics firms, compiled from firm-level data sets. Fukao and Chung, and Fukao and Yue analyzed the determinants of Japanese FDI at global level, while Tokunaga and Ishii, and Wakasugi examined the determinants at regional (East Asia) level, in addition to their analysis at global level.

There are some variations in their findings, but major common findings include the followings. In the global location analysis, high wages are found to discourage Japanese FDI, while the presence of large local market attracts Japanese FDI. However, these relationships are not strong for the regional location analysis. The availability of infrastructure was found to attract Japanese FDI in the global FDI decision, but it was not important in the local FDI decision. Industry agglomeration was shown to be an important element for attracting Japanese FDI, probably indicating the

TABLE VI
Problems faced by Japanese manufacturing firms: 1992

	# of firms	Restrictions on imports of materials and parts	Export requirements of products	High inflation	Under-developed distribution system	Severe competition	Insufficient infrastructure	Under-developed supporting industries	Shortage of high skilled labor
<i>A. All regions</i>									
Small-medium firm	247	11.3	10.1	18.6	12.6	21.5	17.8	23.9	30.4
Food	15	0.0	0.0	13.3	0.0	13.3	13.3	0.0	6.7
Textiles	23	8.7	4.3	34.8	0.0	13.0	26.1	17.4	30.4
Wood product	5	20.0	20.0	20.0	20.0	20.0	20.0	20.0	60.0
Furniture	2	0.0	0.0	50.0	0.0	50.0	50.0	0.0	100.0
Pulp and paper	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Printing	3	0.0	0.0	0.0	0.0	66.7	0.0	0.0	0.0
Chemicals	10	0.0	20.0	20.0	10.0	30.0	10.0	20.0	30.0
Petroleum products	0								
Rubber products	6	16.7	16.7	16.7	16.7	16.7	50.0	50.0	66.7
Leather products	3	33.3	33.3	33.3	33.3	0.0	33.3	33.3	0.0
Glass products	11	18.2	9.1	9.1	9.1	45.5	36.4	0.0	36.4
Iron and steel	9	0.0	0.0	11.1	0.0	22.2	0.0	0.0	11.1
Non-ferrous metals	6	0.0	33.3	16.7	33.3	0.0	33.3	50.0	33.3
Metal products	27	3.7	11.1	14.8	14.8	25.9	25.9	37.0	29.6
General machinery	21	14.3	4.8	9.5	0.0	28.6	0.0	33.3	33.3
Electric machinery	47	14.9	8.5	21.3	25.5	17.0	12.8	21.3	36.2
Transport machinery	20	20.0	15.0	25.0	15.0	30.0	10.0	25.0	10.0
Precision equipment	7	14.3	14.3	28.6	28.6	28.6	28.6	71.4	42.9
Other manufacturing	31	16.1	12.9	12.9	9.7	12.9	19.4	25.8	35.5
Large Firms	2781	4.5	5.4	13.6	6.1	33.8	12.2	14.7	23.9
Food	142	2.8	2.1	7.7	7.0	33.1	6.3	4.2	25.4
Textiles	150	6.7	6.0	30.0	10.0	33.3	26.7	16.0	30.7
Wood product	17	0.0	0.0	11.8	0.0	0.0	5.9	5.9	11.8
Furniture	6	0.0	16.7	50.0	0.0	50.0	16.7	66.7	33.3
Pulp and paper	17	0.0	0.0	5.9	0.0	23.5	0.0	5.9	5.9
Printing	20	0.0	0.0	5.0	5.0	20.0	5.0	10.0	25.0
Chemicals	406	1.5	3.2	12.3	5.9	39.7	11.3	6.9	20.0
Petroleum products	13	0.0	0.0	30.8	7.7	23.1	15.4	7.7	7.7
Rubber products	44	9.1	2.3	15.9	0.0	38.6	11.4	11.4	22.7
Leather products	6	0.0	0.0	16.7	0.0	50.0	16.7	0.0	16.7
Glass products	96	4.2	6.3	10.4	7.3	31.3	19.8	17.7	27.1
Iron and steel	97	4.1	1.0	10.3	6.2	22.7	9.3	4.1	16.5
Non-ferrous metals	89	5.6	11.2	13.5	6.7	41.6	14.6	15.7	31.5
Metal products	74	8.1	12.2	5.4	2.7	36.5	13.5	18.9	37.8
General machinery	233	3.4	1.7	10.7	6.0	32.6	7.3	16.3	28.8
Electric machinery	773	3.4	6.6	14.4	6.0	34.3	11.4	17.3	25.6
Transport machinery	351	13.4	11.4	17.7	7.4	39.6	16.8	28.5	24.8
Precision equipment	81	0.0	1.2	4.9	4.9	33.3	9.9	9.9	16.0
Other manufacturing	166	1.2	0.6	9.6	4.2	15.7	6.6	4.8	10.2

TABLE VI (Continued)

	# of firms	Restrictions on imports of materials and parts	Export requirements of products	High inflation	Under-developed distribution system	Severe competition	Insufficient infrastructure	Under-developed supporting industries	Shortage of high skilled labor
<i>B. Asia</i>									
Small-medium firm	201	12.4	11.9	21.9	13.9	18.9	21.9	25.9	33.3
Food	10	0.0	0.0	20.0	0.0	20.0	20.0	0.0	10.0
Textiles	23	8.7	4.3	34.8	0.0	13.0	26.1	17.4	30.4
Wood product	5	20.0	20.0	20.0	20.0	20.0	20.0	20.0	60.0
Furniture	2	0.0	0.0	50.0	0.0	50.0	50.0	0.0	100.0
Pulp and paper	0								
Printing	2	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0
Chemicals	8	0.0	25.0	25.0	0.0	25.0	12.5	12.5	25.0
Petroleum products	0								
Rubber products	6	16.7	16.7	16.7	16.7	16.7	50.0	50.0	66.7
Leather products	3	33.3	33.3	33.3	33.3	0.0	33.3	33.3	0.0
Glass products	10	20.0	10.0	10.0	10.0	40.0	40.0	0.0	40.0
Iron and steel	7	0.0	0.0	0.0	0.0	14.3	0.0	0.0	0.0
Non-ferrous metals	6	0.0	33.3	16.7	33.3	0.0	33.3	50.0	33.3
Metal products	20	5.0	10.0	20.0	20.0	25.0	35.0	45.0	30.0
General machinery	17	11.8	5.9	11.8	0.0	23.5	0.0	35.3	35.3
Electric machinery	36	16.7	11.1	25.0	27.8	13.9	16.7	19.4	38.9
Transport machinery	14	28.6	21.4	35.7	21.4	21.4	14.3	28.6	14.3
Precision equipment	6	16.7	16.7	33.3	33.3	33.3	33.3	83.3	50.0
Other manufacturing	26	15.4	15.4	15.4	11.5	11.5	23.1	30.8	42.3
Large firms	1903	4.9	6.9	15.0	8.0	31.8	15.4	16.3	25.6
Food	83	4.8	3.6	6.0	10.8	30.1	8.4	6.0	24.1
Textiles	118	5.1	6.8	24.6	12.7	29.7	28.0	17.8	31.4
Wood product	11	0.0	0.0	18.2	0.0	0.0	9.1	9.1	18.2
Furniture	4	0.0	25.0	25.0	0.0	25.0	25.0	75.0	25.0
Pulp and paper	5	0.0	0.0	0.0	0.0	20.0	0.0	20.0	20.0
Printing	15	0.0	0.0	6.7	6.7	20.0	6.7	13.3	26.7
Chemicals	298	1.7	4.0	14.1	8.1	39.3	13.8	7.0	21.5
Petroleum products	7	0.0	0.0	42.9	14.3	28.6	28.6	14.3	14.3
Rubber products	33	6.1	3.0	18.2	0.0	30.3	9.1	9.1	15.2
Leather products	6	0.0	0.0	16.7	0.0	50.0	16.7	0.0	16.7
Glass products	71	5.6	7.0	9.9	8.5	26.8	23.9	21.1	32.4
Iron and steel	57	3.5	1.8	10.5	8.8	22.8	15.8	3.5	14.0
Non-ferrous metals	51	5.9	17.6	17.6	9.8	39.2	23.5	15.7	39.2
Metal products	48	10.4	14.6	4.2	2.1	25.0	16.7	22.9	45.8
General machinery	144	2.8	2.8	10.4	5.6	29.9	8.3	16.0	25.0
Electric machinery	564	4.1	8.7	17.0	7.4	34.0	13.1	19.7	29.1
Transport machinery	221	15.4	13.6	20.4	11.3	37.1	24.4	30.8	25.8
Precision equipment	50	0.0	2.0	6.0	8.0	28.0	14.0	16.0	18.0
Other manufacturing	117	0.9	0.9	11.1	6.0	12.0	8.5	5.1	10.3

Note: 1) Small and medium firms are firms with paid-in capital being less than 100 million yen, while large firms are firms with paid-in capital being greater than 100 million yen.

2) Figures indicate the percentage share of the firms indicating the problem in total number of surveyed firms.

Source: MITI, *Kaigai Toshi Tokei Soran [Comprehensive Statistics on Japanese Foreign Direct Investment]*, no. 5, 1993.

importance of supporting industries in the decision making of Japanese FDI. Fukao and Chung found that low country risk attracts Japanese manufacturing FDI.⁹

5.2. The model and the hypotheses on the determinants of FDI location

(1) The model¹⁰

To model the location of Japanese FDI, we assume that Japanese firms undertake FDI in a country where they can maximize their profits after evaluating relevant characteristics of alternative locations. Let us describe the profit (π) of firm i obtained from undertaking FDI in country j as (1).

$$\pi_{ij} = a_0 X_{1j}^{a_1} \dots X_{mj}^{a_m} \times e^{u_{ij}} \quad (1)$$

where a 's are unknown parameters, X_{sj} ($s = 1, \dots, m$) are variables describing the characteristics of country j ($j = 1, \dots, n$), and u_{ij} is a random disturbance term.

Given profit Equation (1) and assuming that u_{ij} are independently and identically distributed with Weibull density functions, then we obtain that the probability of undertaking FDI in country j is given by Equation (2) (McFadden, 1974).

$$P_{ij} = \frac{\exp\left(\sum_{s=1}^m a_s \ln X_{sj}\right)}{\sum_{j=1}^n \exp\left(\sum_{s=1}^m a_s \ln X_{sj}\right)} \quad (2)$$

Expressing the number of FDI selections made by Japanese firms in country j as W_j ($j = 1, \dots, n$), we obtain the probability of observing such FDI pattern as Equation (3).

$$L = \prod_i \prod_{j=1}^n P_{ij}^{W_j} \quad (3)$$

This type of model is called the conditional logit model, and the parameters (a 's), which indicate the characteristics of potential host countries to Japanese FDI, are estimated by the maximum likelihood estimation method, which maximizes the likelihood function (3).

(2) The hypotheses

Taking account of the result of the survey discussed above and the results of the previous

studies, we undertake a statistical analysis of the determinants of the location of Japanese FDI. In addition to a similar analysis carried out by the previous studies, which only dealt with the characteristics of the host countries of FDI, we carry out an analysis by examining explicitly the effect of the firm size on their decision of FDI location. As to the characteristics of the host countries, we examine the effects of the following variables on Japanese FDI, exchange rate, exchange rate volatility, wage rate, market size, macroeconomic stability, labor quality, infrastructure, agglomeration (cumulative FDI cases by Japanese firms), and governance. In the remaining of this section we first discuss the hypotheses on the determinants of Japanese FDI location and the expected signs of the estimated coefficients on explanatory variables, and then discuss the estimated results.¹¹

The exchange rate is an important determinant of FDI location for several reasons. First, a country whose currency depreciates is likely to attract FDI, as the depreciation makes it easier for foreign firms with foreign currency denominated assets to invest in that country by appreciating the value of the assets in terms of depreciating currency. Second, for the firms interested in export production, depreciation of the currency of a host country increases the attractiveness of that country as a host to FDI, because the depreciation tends to improve export competitiveness of the products produced in that country. Following these observations, we expect that the exchange rate of the host country (denoted by EXR), which is constructed in such a way that depreciation results in the increase in its value, to be positive.

Large fluctuations in the exchange rate tend to discourage FDI inflow, as they increase uncertainty associated with economic environment of the host country. Several studies have found the inhibiting effect of exchange rate volatility on foreign trade.¹² But there have not been any studies that examined the effect of exchange volatility on FDI. Following the discussions above, we expect the estimated coefficient on exchange rate volatility (EXRV) to be negative.

One of the important motives of Japanese manufacturing FDI is to utilize low-wage local labor, and therefore the expected sign of the wage variable (WAGE) is negative. Based on the result of the MITI survey discussed above that shows the

importance of local sales motive behind Japanese FDI, the coefficient on the market size, here proxied by purchasing power parity adjusted GDP (GDP), is expected to be positive. A number of Japanese firms in the MITI survey noted that inflation is one of the problems they face in overseas operation. Accordingly, we include the consumer price index as an indicator of inflation (CPI) in our analysis to test the statistical validity of this observation. The expected impact of inflation is negative.

Shortage of skilled labor was found to be a serious problem for Japanese firms operating overseas in the MITI survey. One would therefore expect that Japanese FDI would be attracted to an economy where high quality labor is available. Given the difficulty in measuring the quality of labor, we use the secondary education enrollment ratio (EDU) as a proxy for skilled labor. Based on the discussion above, the expected sign of the estimated coefficient on EDU is positive. Infrastructure plays an important role for attracting FDI. Various indicators such as the availability of transportation and communications facilities may be used for the measurement of infrastructure. Among these indicators, we use the level of electricity generation per person (ELEC) as a proxy for infrastructure, because most Japanese manufacturing firms regard the availability of electricity as a key factor for producing high quality products. We expect the coefficient on electricity to be positive. It should be added that electricity generation and other indicators of infrastructure are highly correlated.

Agglomeration of Japanese FDI would attract new Japanese FDI for several reasons. A potential Japanese investor would think that an economy where a substantial number of Japanese FDI already exist to be a safe and suitable place for investment. Investing Japanese firms may also expect abundant business opportunities with Japanese firms, with whom they feel most comfortable to do business. We measure the extent of agglomeration by the number of cumulative FDI cases by Japanese firms (FDI), and we expect the estimated coefficient to be positive.

Governance capability of the host government has an important impact on the decision of FDI for several reasons. First, in spite of recent liberalization in the FDI regime in many economies, FDI

is still subject to various government regulations. Second, investing firms are concerned with the security of their FDI, as FDI involves substantial commitment in the forms of financial and human resources. We measure the quality of governance capability by incorporating the following five indicators: government repudiation of contracts, risk of expropriation, corruption, law and order tradition, and bureaucratic quality. Government repudiation of contracts and risk of expropriation are indicators of government credibility.¹³ Law and order tradition, and government repudiation of contracts measure the presence or absence of peaceful mechanisms for adjudicating disputes, and therefore they may be interpreted as proxies for the security of property and contract rights. Corruption and bureaucratic quality are considered as proxies for the efficiency of the government in providing public services. In addition, they appear to have implications on the degree of uncertainty regarding the credibility of government commitments.

In order to derive an explanatory variable, which captures the essential properties of these five indicators, we carry out a factor analysis. From the analysis, we obtain the first principal component, which is constructed as a weighted average of the five indicators with more or less similar weight. As the governance variable (GOV) is constructed in such a way that high value indicates high quality of governance, we expect the estimated coefficient to be positive.

Based on our earlier findings of substantial differences in the motives and problems associated with FDI between SMEs and large firms, we would expect the differences in the degrees of sensitivity in FDI decision making to the local conditions in the host countries between them. To test this hypothesis, we included dummy variables representing SMEs for all the explanatory variables. Being more constrained by financial and human resources, and generally relying more on overseas production, compared to large firms, SMEs are expected to be more sensitive to the conditions in the host countries in selecting FDI location. As such, we would expect the absolute size of the estimated coefficients be larger for SMEs, compared to that for large firms. One exception may be the coefficient on the size of host market (GDP), which is expected to be

greater for large firms than SMEs. This is because large firms attach a greater importance to local sales, compared to SMEs.

5.3. *Empirical results: an application of the conditional logit model*

To examine the importance of the characteristics of host countries in the decision making of FDI location by Japanese firms, we estimated the determinants of Japanese FDI by using the conditional logit model. In the estimation, we consider 117 countries as possible sites for Japanese FDI. The choice of 117 countries depended on their importance as a host to Japanese FDI and the availability of necessary data for the estimation. In addition, we performed analyses on the subsets of these countries, developed and developing countries, and Asian countries. The analysis was conducted for four manufacturing sub-sectors, textiles, general machinery, electric machinery, and transport machinery, which account for a dominant share of Japanese FDI. In order to see if small and medium sized firms have different patterns of decision making on the location of their FDI than large firms, we added an SME dummy in the analysis.

The results of the estimation are shown in Table VII. The estimated coefficients of the exchange rate (EXR) are shown to have mixed signs. EXR is positive for textiles and transport machinery, as expected, but it is statistically significant only for textiles. According to these findings, exchange rate does not necessarily play an important role in the determination of the location of Japanese FDI. Exchange rate volatility (EXRV) has a negative impact on attracting Japanese FDI in electric machinery, and transport machinery, as expected. FDI discouraging effect is particularly strong for FDI in developing countries.

The estimated coefficients of the wage rate (WAGE) are negative for all the industries, as expected, and all of them are statistically significant. It is important to note that WAGE has an expectedly negative impact on Japanese FDI in developing countries and in Asian countries. These results, which indicate that Japanese firms select a country with low wage labor as a site for their investment, are consistent with an earlier

observation from the MITI survey that the use of local labor is one of the important motives of undertaking FDI by Japanese firms in Asia. The results on SME dummy variables show that SMEs are more sensitive to wage rates than large firms in the three machinery sectors. Suffering from a labor shortage more acutely than large firms, SMEs put a greater significance to the availability of low-wage labor in selecting a site for their FDI.

Market size (GDP) has an expected positive sign in all the industries and they are statistically significant. Market size is a particularly important characteristic to attract Japanese FDI in developed countries. This is particularly the case for large firms. By contrast, for Japanese FDI in developing countries the coefficients on GDP turn out to be negative for the three machinery sectors. These findings appear to show that Japanese firms undertake FDI in developing countries to produce products not for local market but for exports. The estimated coefficients on inflation (CPI) are mostly negative, as expected, but only a few coefficients are statistically significant. Relatively speaking, inflation plays a discouraging role for the determination of Japanese FDI in developing countries.

The availability of skilled labor (EDU), expressed by the secondary school enrollment ratio, has an unexpected negative impact on Japanese FDI in most cases. A comparison of the results covering developed countries and developing countries brings out an interesting contrast that EDU has an importantly positive impact on Japanese FDI in developed countries but not in developing countries. This finding indicates that Japanese firms investing in developed countries give importance to the availability of highly educated population while those investing in developing countries are interested in using low-skilled, low-wage labor. The combination of different motives regarding the use of local labor by Japanese firms in developed countries and those in developing countries are reflected in these contrasting results.

Capability of electricity generation (ELEC) is shown to be an important factor in attracting FDI as the estimated coefficients on ELEC are positive and statistically significant in many cases. This finding indicates that the availability of well-developed infrastructure is important for attracting

Japanese FDI. As expected, ELEC has a significant impact on the FDI decision making of the locations among developing countries. The estimated SME dummy coefficients are positive in all sectors, and they are statistically significant in textiles, general machinery and electric machinery, indicating that the availability of electricity is particularly important for SMEs in making their selection of FDI sites. Richly endowed with financial resources, large firms can deal with the problem resulting from the lack of electricity by building their own power generating facilities. However, SMEs with limited resources have to depend on the local facilities for the supply of electricity, thus more sensitive to the local capability of generating electricity.

The estimated coefficients on agglomeration (CFDI) are positive and significant in all the industries except in the case of textiles in developed countries. This observation indicates the importance of inter-firm relations for Japanese firms in the forms of inter-firm transactions and information exchange. In general machinery, electric machinery, and transport machinery, agglomeration has a greater impact on SMEs compared to large firms, especially in their selection of FDI site in developing countries. These findings may indicate the importance of supporting industries in machinery sectors, as they require a large number of reliable parts and components in their production, a large part of which are supplied by other Japanese firms in the region. This observation is consistent with the result of the MITI survey indicating the lack of supporting industries as one of the problems in operating in Asia.

Governance (GOV) has an expected positive coefficient with statistical significance in all the industries, supporting the validity of the observation that good governance of the host government promotes Japanese FDI. Governance is especially important for Japanese firms interested in investing in developing countries. Compared to large firms, SMEs in electric machinery and transport machinery put greater emphasis on governance when they invest in developing countries.

6. Conclusions

The empirical results of the determinants of FDI location by Japanese firms show that both supply-side and demand-side factors in the host countries are important determinants. Supply-side factors include abundance of low-wage labor, availability of good infrastructure and good governance, while an important demand-side factor is the presence of sizable local market. Industrial agglomeration, which has both supply-side and demand-side elements, has an important influence on the decision making by Japanese firms.

Supply-side factors including abundance of low-wage labor, availability of good infrastructure, and good governance are important factors in attracting Japanese FDI in developing countries, while a demand-side factor, large local market is an important factor for Japanese FDI in developed countries. These different patterns reflect the differences in the motives of Japanese FDI and the level of economic development in these two groups of host countries. For Japanese firms investing in developing countries, especially those in developing Asia, export production is an important motive, while for those investing in developed countries local sales is a major motive. Japanese firms interested in export production place importance to production conditions, while those interested in local sales are naturally concerned with the size of local market. The importance attached to the availability of good infrastructure and good governance by Japanese firms interested in investing in developing countries is due to poor infrastructure in developing countries, which in turn is attributable to low level of economic development.

Industrial agglomeration, here indicated by the cumulative FDI by Japanese firms, is shown to be an important element for attracting Japanese FDI both in developed and developing countries. This finding indicates the importance of inter-firm relationship among Japanese firms not only for the procurement of parts and components but also for the sales of their products. Although close inter-firm relationship may be justified on the ground of increasing technical efficiency for Japanese firms, it may not be accepted by the host country if such relationship discriminates the local firms.

3. Electric machinery

EXR	-1.08E-06	-0.888	1.07E-06	1.878*	-1.062	-1.881*	0.096	0.928	-1.05E-06	-0.893	1.05E-06	0.884	-0.003	-0.564	0.002	0.484
EXRV	-1.002	-3.927***	-0.943	-3.811***	-14.157	-2.839***	-15.579	-3.034***	-0.614	-2.683***	-0.547	-2.469**	-7.674	-3.458***	-7.583	-3.125***
lnWAGE	-1.152	-10.864***	-1.118	-9.917***	-0.593	-1.802*	-0.570	-1.705*	-1.532	-12.295***	-1.497	-11.252***	-1.642	-11.199***	-1.635	-10.319***
lnGDP	0.245	7.611***	0.302	8.752***	1.071	14.747***	1.066	14.397***	-0.326	-2.967***	-0.296	-0.622	-0.353	-2.231**	-0.328	-0.957
CPI	-0.017	-0.653	-0.019	-1.758*	-0.581	-0.592	0.700	0.721	-0.027	-1.125	-0.028	-1.175	-0.827	-1.424	-0.595	-1.973**
EDU	-1.780	-6.374***	-1.859	-1.207	2.571	3.470***	2.398	3.185***	-2.935	-8.580***	-3.115	-2.422**	-2.790	-7.637***	-2.931	-2.337**
lnELEC	0.386	5.335***	0.329	4.254***	-0.062	-0.316	-0.033	-0.164	0.963	11.746***	0.923	10.392***	1.093	11.096***	1.036	9.703***
lnCFDI	0.519	18.273***	0.492	16.602***	0.235	3.839***	0.236	3.764***	0.709	17.565***	0.685	15.860***	0.715	17.194***	0.698	15.497***
GOV	8.732	12.840***	8.718	11.773***	-0.065	-0.028	0.673	1.289	11.810	17.260***	11.814	15.827***	10.887	14.283***	11.043	13.116***
Dsm*EX			-0.135	-0.552			0.852	0.586			-0.147	-0.554			-0.029	-0.225
Dsm*EXRV			-3.420	-1.707*			-13.785	-1.207			-6.187	-1.281			-0.968	-1.154
Dsm*lnW			-0.497	-2.257**			-1.018	-0.456			-0.268	-2.617***			-0.051	-2.118**
Dsm*lnGDP			-0.474	-4.889***			0.400	0.810			-0.196	-1.716*			-0.147	-1.263
Dsm*CPI			-0.778	-0.528			-1.439	-0.183			0.069	0.049			-1.713	-1.949*
Dsm*EDU			0.692	0.771			5.457	1.170			1.176	1.151			0.739	0.721
Dsm*lnELEC			0.589	2.479**			-1.141	-0.850			0.399	2.488**			0.403	2.414**
Dsm*lnCFDI			0.245	2.406**			0.054	0.157			0.140	2.161**			0.116	2.968***
Dsm*GOV			0.300	1.159			-17.813	-1.597			1.056	2.531**			0.504	1.246
pseudo R ²	0.195		0.2001		0.475		0.477		0.238		0.240		0.266		0.267	
nob	46761		46761		18412		18412		28299		28299		27061		27061	

4. Transport machinery

EXR	5.52E-09	0.391	4.88E-09	1.344	-0.160	-0.650	-0.149	-0.624	1.42E-08	0.919	1.40E-08	0.882	-0.012	-1.657*	0.010	2.279**
EXRV	-1.108	-3.083***	-1.055	-3.06***	-1.056	-0.737	-1.094	-1.718*	-0.854	-2.370**	-0.782	-2.329**	-14.077	-3.900***	-14.518	-3.771***
lnWAGE	-0.929	-7.107***	-0.827	-6.142***	-0.394	-0.977	-0.423	-1.033	-1.395	-9.526***	-1.288	-8.442***	-2.428	-10.697***	-2.262	-9.649***
lnGDP	0.445	10.657***	0.464	10.652***	0.990	10.831***	1.001	10.683***	-0.046	-0.821	-0.031	-0.523	-0.104	-1.720*	-0.100	-1.537
CPI	-0.068	-1.214	-0.067	-1.205	0.106	1.258	-0.092	-1.221	-0.048	-1.887*	-0.048	-1.907*	-0.667	-1.656*	-0.427	-1.410
EDU	-1.224	-3.387***	-1.452	-3.87***	4.121	4.505***	4.282	4.573***	-2.990	-6.912***	-3.438	-4.535***	-1.583	-3.235***	-2.150	-4.108***
lnELEC	0.375	3.815***	0.333	3.248***	0.372	1.672*	0.351	1.535	0.637	5.907***	0.592	5.262***	0.620	4.575***	0.601	4.216***
lnCFDI	0.443	12.836***	0.425	12.025***	0.254	3.320***	0.237	3.040***	0.485	10.427***	0.475	9.837***	0.587	11.281***	0.574	10.558***
GOV	2.529	3.111***	2.466	2.919***	4.406	1.731*	4.979	1.942*	6.505	7.501***	6.618	7.228***	5.165	5.648***	5.502	5.618***
Dsm*EXR			-0.393	-0.621			-1.085	-0.433			-0.483	-0.558			-0.473	-0.546
Dsm*EXRV			-2.003	-0.23			0.046	0.005			-7.394	-1.584			-6.341	-1.479
Dsm*lnW			-2.703	-3.382			0.391	0.146			-3.338	-3.343***			-2.364	-2.330**
Dsm*lnGDP			-0.203	-1.247			-0.212	-0.437			-0.096	-0.464			-0.027	-0.128
Dsm*CPI			-3.952	-1.039			1.830	0.430			-3.746	-0.792			-3.368	-0.696
Dsm*EDU			4.809	3.249***			-3.287	-0.734			7.090	4.476***			5.803	3.616***
Dsm*lnELEC			0.405	0.985			0.771	0.661			0.123	1.255			0.115	0.234
Dsm*lnCFDI			0.373	2.211**			0.540	1.123			0.330	2.523**			0.231	2.058**
Dsm*GOV			1.243	0.391			35.317	1.388			2.151	1.683*			1.035	1.327
pseudo R ²	0.200		0.205		0.500		0.503		0.178		0.190		0.247		0.255	
nob	25463		25463		12504		12504		12909		12909		11524		11524	

Note: *, **, and *** indicate statistical significance at 10, 5, and 1 percent, respectively.

Source: Authors' estimation.

Japanese firms are shown to be risk-averse, as they are discouraged to invest in a country with high economic risks represented by high exchange risk volatility and high inflation. We may also add a political risk expressed by governance as an important risk factor in the determination of the location of FDI by Japanese firms.

A comparison of the results obtained for SMEs with those for large firms reveals that SMEs are more sensitive to local conditions in making their decision on FDI, especially when they make investments in developing countries. Specifically, SMEs regard the availability of low-wage labor, well-developed infrastructure, and industrial agglomeration much more importantly than large firms. High sensitivity of SMEs to local economic conditions in their decision on FDI location can be explained by their limited availability of financial and human resources and high dependence on overseas production in their business.

Recognizing the need to develop SMEs in developing countries to promote economic growth, policy makers in developing countries should attract foreign SMEs to undertake FDI in their countries. Hosting foreign SMEs would promote the development of local SMEs, as foreign SMEs could be a role model for local SMEs. The demonstration effect emanated from dynamic foreign SMEs could enhance entrepreneurial spirit among local SMEs. Furthermore, foreign SMEs may transfer "appropriate" technologies suited to local SMEs, and they would provide job opportunities to local workers with limited education and working experiences, thereby contributing to the improvement of income distribution. In light of the findings in this paper that SMEs are very sensitive to local economic conditions in making their decision on FDI location, policy makers interested in hosting foreign SMEs should improve not only hard infrastructure such as transportation and communication facilities but also soft infrastructure such as reliable and well functioning legal bureaucracy and legal system.

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Notes

¹ A brief review of previous studies is presented in Section 4.

² This section draws on Urata and Kawai (1997), who discussed the recent developments of Japanese overall FDI.

³ One piece of evidence to support this observation is a finding by the Export-Import Bank of Japan (1996), which reports that approximately 20 percent of the Japanese firms in its survey undertook FDI to supply parts and components to the Japanese assemblers located in foreign countries.

⁴ This observation applies to new FDI. A lack of data precludes one from obtaining accurate statistics, but there are signs showing that Japan's FDI undertaken with reinvested earnings has continued to grow in the ASEAN countries. See, for example, Okamoto and Urata (1997) for the case of Malaysia.

⁵ See Urata (1993) for a detailed discussion.

⁶ The MITI conducts a comprehensive survey of overseas activities of Japanese firms every three years starting 1980. The results of the survey are published under the title of *Kaigai Toshi Kokei Soran [Comprehensive Survey of Overseas Activities of Japanese Firms]*. In the 1992 survey, a questionnaire was sent to 3,378 Japanese multinationals, 1,594 of whom responded. The respondents covered the activities of 7,108 overseas affiliates. The MITI also conducts an annual survey with the more limited number of questions except for the years of Comprehensive Survey. The results of the survey are published under the title of *Wagakuni Kigyo no Kaigai Jigyo Katsudo [Overseas Activities of Japanese Firms]*. Motives of FDI are asked in the comprehensive surveys but not in the annual surveys.

⁷ The respondents are asked to list three motives or less.

⁸ MITI, *Kaigai Toshi Kokei Soran [Comprehensive Survey of Overseas Activities of Japanese Firms]*, no. 5.

⁹ In their study of the determinants of FDI locations by U.S. manufacturing and electronics firms, Wheeler and Mody (1992) find that risk has a discouraging effect but the effect is very small.

¹⁰ Several studies have applied this type of model to explain the locational determinants of FDI. See, for example, Woodward (1992) and Head, Ries, and Swenson (1995).

¹¹ Definitions of the explanatory variables and their data sources are presented in Appendix Table I.

¹² For example, see Thursby and Thursby (1987) and Cushman (1988).

¹³ See Knack and Keefer (1995) on these observations. They examined the effect of quality of institutions, measured by these indicators, on economic growth and private investment, and found that quality of institutions has a positive impact on these two economic variables.

Appendix

TABLE AI
Summary statistics for explanatory variables

	EXR (local/yen)		EXRV		CPI (%) wage			GDP (billion 1987\$)		Electricity (KWh)		Education (%)		CFDI		Governance	
	81	94	81	94	81/94	81	94	81	94	81	94	81	94	81	94	81	94
Latin America	0.076	25345434	1.306	0.307	13.7	0.160	0.189	28	36	1,055	1,614	42	51	496,987	3,288,635	0.0	1.8
Middle East	0.593	14.204	0.070	0.104	7.8	na	na	34	41	1,276	2,348	47	58	301,305	647,856	-5.4	1.5
Africa	0.500	17.179	0.068	0.091	9.1	na	na	7	9	225	288	23	30	308,264	1,589,036	-4.4	0.1
North America	0.651	1.419	0.060	0.043	3.4	0.743	1.291	2,082	2,905	11,092	13,893	92	96	4,899,046	92,152,647	6.5	6.2
Europe	0.647	2.225	0.068	0.053	5.2	0.728	1.430	191	265	4,654	5,438	82	91	257,646	4,833,219	5.0	5.6
Oceania	0.407	1.367	0.044	0.049	5.4	0.614	0.990	42	60	6,006	7,975	65	75	618,068	5,601,649	5.8	6.5
Asia	0.454	2.180	0.076	0.048	6.1	0.150	0.287	39	100	270	661	38	45	653,247	4,732,353	0.1	3.1
NIES	0.635	1.278	0.057	0.039	3.8	0.089	0.440	45	134	1,573	4,435	71	87	884,473	7,454,323	3.0	5.0
Hong Kong	0.470	1.402	0.051	0.042	6.7	0.109	0.348	33	71	2,596	4,412	65	71	1,095,110	12,748,128	6.7	5.0
Korea	0.543	1.382	0.072	0.044	4.6	0.070	0.453	79	233	1,038	3,712	81	93	1,136,698	4,868,914	-0.2	5.3
Singapore	0.658	1.026	0.051	0.028	1.8	0.141	0.456	15	37	3,224	6,842	61	84	936,156	8,481,126	6.1	5.2
Taiwan	0.869	1.301	0.054	0.043	2.1	0.072	0.402	54	196	2,214	5,629	64	88	369,926	3,719,122	4.9	4.7
ASEAN	0.415	1.634	0.056	0.043	5.6	0.039	0.069	38	81	208	570	39	50	1,521,358	8,285,181	-1.9	2.2
Indonesia	0.252	1.860	0.056	0.049	6.8	na	0.031	56	129	67	281	31	43	4,423,776	18,911,273	-4.8	2.2
Malaysia	0.600	1.474	0.053	0.034	2.7	0.041	na	25	57	763	1,988	49	59	650,356	5,615,145	4.0	2.6
Philippines	0.252	1.818	0.058	0.053	9.5	0.029	0.101	34	41	372	404	64	79	614,928	2,149,568	-5.4	0.3
Thailand	0.556	1.384	0.056	0.037	3.5	0.046	0.074	36	99	322	1,234	29	37	396,371	6,464,736	0.6	2.9
China	0.300	3.277	0.051	0.043	7.1	0.008	0.018	141	521	311	779	45	52	12,021	6,149,888	0.5	3.7
Other Asia	0.405	2.531	0.060	0.054	7.9	0.253	0.456	58	113	163	368	31	35	16,996	180,117	-1.8	1.3
India	0.438	3.425	0.050	0.060	7.3	0.420	0.445	192	372	187	423	31	37	39,390	331,998	-1.0	2.1
Pakistan	0.373	2.486	0.060	0.063	6.4	na	0.512	23	47	222	463	15	21	7,030	142,064	-5.5	-0.4
Bangladesh	0.381	1.839	0.057	0.045	6.8	0.118	0.445	14	23	30	84	18	19	5,927	125,494	-6.5	-1.6
Sri Lanka	0.429	2.375	0.073	0.049	8.6	0.220	0.420	5	9	125	246	57	74	15,638	120,913	-1.9	-0.6

Source: World Development Indicators, 1997 (World Bank), Financial Statistics (IMF), Yearbook of Labor Statistics (ILO), International Country Risk Guide (Political Risk Services).

Note: 1) EXR: local/yen index, 1987 = 1.0 , EXRCV: Coefficient of Variation on Exchange Rate, 5 years average, CPI: annual growth rate, %, wage: wage rate, 1987, US = 1.0. Electricity: Per capita Electricity Production, kWh, Education: secondary School Enrollment Ratio, CFDI: cumulative FDI, million yen.

2) Governance (1st principal component of GOV1–GOV5), GOV1 (Government repudiation of contract), GOV2 (Risk of expropriation), GOV3 (Corruption), GOV4 (Law and Other Tradition), GOV5 (Bureaucratic quality). High score indicates better governance.

TABLE AII
The list of countries used in the analysis

1	United States	41	Hong Kong	81	Romania
2	Canada	42	Taiwan	82	Finland
3	Mexico	43	Vietnam	83	Cyprus
4	Panama	44	Korea, Rep.	84	Russian Federation
5	El Salvador	45	Nepal	85	Australia
6	Brazil	46	Brunei	86	Fiji
7	Argentina	47	China	87	New Zealand
8	Paraguay	48	Iran, Islamic Rep.	88	New Caledonia
9	Chile	49	Israel	89	Papua New Guinea
10	Peru	50	Kuwait	90	Western Samoa
11	Dominican Republic	51	Lebanon	91	Egypt, Arab Rep.
12	Venezuela	52	Saudi Arabia	92	Morocco
13	Bolivia	53	United Arab Emirates	93	Zimbabwe
14	Bahamas, The	54	Afghanistan	94	Liberia
15	Colombia	55	Bahrain	95	Tanzania
16	Guatemala	56	Qatar	96	Sudan
17	Ecuador	57	Syrian Arab Republic	97	Nigeria
18	Nicaragua	58	Iraq	98	Cote d'Ivoire
19	Costa Rica	59	United Kingdom	99	Madagascar
20	Trinidad and Tobago	60	France	100	Kenya
21	Bermuda	61	Germany	101	Ethiopia
22	Puerto Rico	62	Belgium	102	Zambia
23	Honduras	63	Ireland	103	Uganda
24	Suriname	64	Switzerland	104	Ghana
25	Jamaica	65	Portugal	105	Cameroon
26	Guyana	66	Netherlands	106	Zaire
27	Uruguay	67	Italy	107	Rwanda
28	India	68	Luxembourg	108	Gabon
29	Pakistan	69	Spain	109	Sierra Leone
30	Bangladesh	70	Greece	110	Gambia, The
31	Sri Lanka	71	Malta	111	Mauritania
32	Myanmar	72	Austria	112	Senegal
33	Malaysia	73	Norway	113	Swaziland
34	Singapore	74	Yugoslavia, FR (Serbia/Montenegro)	114	Libya
35	Thailand	75	Denmark	115	Guinea
36	Indonesia	76	Iceland	116	Niger
37	Macao	77	Sweden	117	Tunisia
38	Philippines	78	Turkey		
39	Cambodia	79	Poland		
40	Lao PDR	80	Hungary		

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