Globalization of Japanese Economy and its Impact on SMEs

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Summary

Due to the appreciation of Japanese Yen, Japanese large companies have actively set up overseas production sites, and shifted its production activities to abroad since the middle 1980's. This trend of globalization has never stopped, and recently more and more firms are attracted by growing market in Asian countries, particularly China.

In an era of globalization, it is natural for large firms to seek for attractive market and cost advantage by producing in low labor cost countries. However, large firms' shifting production site to overseas may have negative impact on SMEs, which do not have enough management resources for overseas production. This is particularly the case for SMEs whose major customer has shifted its production sites.

In this paper, the impact of globalization of large firms on domestic economy, particularly on business activities of SMEs, is analyzed, by using firm level data of METI's BSBSA (Basic Survey of Business Structure and Activity) and SOBA (Survey of Overseas business Activities). The relationship between globalization and domestic production depends on the type of overseas production, and the objectives of globalization have been changing over time and regions. Such microstructure of overseas production activities, as well as their impact on SME's business activities is analyzed.

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1. *Introduction*

In the postwar years, the Japanese economy caught up with the United States and Europe at an astonishing speed. Japanese automobiles and electronic products spread worldwide, and in the 1980s, even Made in America, a Massachusetts Institute of Technology (MIT) report on U.S. industrial competitiveness, rated the practices of Japan's auto and semiconductor industries the best in the world (Dertouzos, M.L. et al (1989)). In the late 1980s, the Japanese economy entered its longest postwar expansionary phase. This economic boom, later to be described as the "bubble" economy, ended abruptly in the early 1990s following the 1990 stock market crash and the subsequent tumble in land prices. In the wake of the collapse of the so-called bubble, the 1980s approbation of Japan's industrial competitiveness became the economic gloom of the 1990s.

By facing sluggish domestic market, Japanese firms started looking at international market more seriously. In addition, Japanese firms have to rely on low cost labor in developed countries, in order to meet with intense international market competition. All of these factors contribute to growing trend of globalization activities in Japan. For large multinational companies, globalization is meant for reallocation of their production facilities across boarders. However, structural changes caused by increasing overseas production may have non negligible impacts on SMEs which do not have enough management resources for globalization.

In this paper, the impact of globalization of large firms on domestic economy, particularly on business activities of SMEs, is analyzed, by using firm level data of METI's BSBSA (Basic Survey of Business Structure and Activity) and SOBA (Survey of Overseas business Activities). The relationship between globalization and domestic production depends on the type of overseas production, and the objectives of globalization have been changing over time and regions. Such microstructure of overseas production activities, as well as their impact on SME's business activities is analyzed.

The structure of paper is as follows. The next section provides a trend of globalization of Japanese economy. SOBA's statistics of overseas production is compared with trade statistics to understand the size of Japanese multinationals' activities. In section 3, the role of SMEs in Japanese manufacturing sector and the impact of globalization on SMEs are discussed. Then, a section for economic analysis follows. In this section, the relationship between domestic and overseas production is analyzed by econometric models. Finally, this paper concludes with summary and policy implications.

2. Trend of Globalization of Japanese Economy and Implications on Domestic Economy

Active foreign direct investments and overseas production has taken place since the middle 1980's, when Japanese yen was substantially appreciated due to the 1985 Plaza Accord. Japanese manufacturers, particularly in electronics industry, expanded their production facilities in Thailand, Malaysia and other Association of South-East Asian Nations (ASEAN) countries. In addition, Japanese automobile manufacturers invested in the U.S. and Europe in response to voluntary export restraints agreements as a consequence of series of trade negotiations between Japan and these countries. Since the 1990s, policies introduced by the Chinese government to encourage the transition to a market economy have seen investment in China by Japanese companies. According to the Ministry of Finance's foreign direct investment statistics, direct investment in East Asia by manufacturing industry comprised a cumulative total of around ¥8.6 trillion between fiscal 1990 and fiscal 2004, 25% of which was in the electrical machinery industry. In addition, chemicals, steel and nonferrous metals and transportation machinery accounted for more than 10%.

Accordingly, the size of oversea production went up to about 53 trillion yen in 2000, which is far greater than the value of export, about 45 trillion yen. In Table 1, overseas production and trade statistics are compared in detail. METI's Survey on Overseas Business Activities (SOBA) provides detail information on overseas production, such as where these output are marketed and these inputs are procured. It is found that the significant portion of international trade can be explained by the value associated with overseas production. In case of Asia, 5 trillion yen out of 20 trillion yen of total export can be explained by export of components and machinery to be used in production cites in Asian countries by Japanese firms. This is the case for overseas production in the Unites States and Europe as well.

(Table 1)

In contrast, the impact of globalization on import is different by region. In Asia, the values of export and import associated with overseas production are almost balanced, while the import is much smaller than the export in the US and Europe. This pattern can be explained by the difference in the purpose of overseas production across regions, i.e., for global production base by using low labor cost, or for targeting at new international market. In former case for Asia, substantial amount of products produced overseas are imported back to Japan, while in latter case for US and Europe, overseas outputs are mainly sold in the region of production. In this sense, export substitution effect of globalization is stronger for Asian countries.

In order to look at this point in detail, the sales amount in fiscal 2000 according to the

destination of products manufactured by Japanese overseas affiliates established locally in East Asia[2], is presented in Figure 1. It appears that 66.2% of production by these local operations is supplied to the same regional market, with 24.7% reverse-imported to Japan. The Japanese local operations in the United States and Europe sell more than 90% of their products in the domestic markets, which suggests that they were established with an eye to the local market. By contrast, many of the Japanese operations established in East Asia were looking for division of production with Japan.

(Figure 1) and (Figure 2)

Figure 2 conversely delineates the sources from which local affiliates procure their parts. The local procurement rate in East Asia is 57.7%, with 36.6% dependent on imports from Japan. The reliance of foreign production operations on imports from Japan for the bulk of parts procurement is also true for operations in the United States and Europe. Finally, when the extent of the impact on trade as a whole of the activities of these foreign-based operations was examined by comparing trade amounts with East Asia in the trade statistics for 2000, reverse-imports accounted for around ¥5 trillion of the gross import amount of around ¥17 trillion, while exports to locally-established operations accounted for around ¥5 trillion of the gross export amount of around ¥21 trillion, indicating a substantial share of trade absorbed by transactions with locally-established Japanese companies.

This point can be further investigated by using trade specialization indexes (TSIs)[3] by commodity level trade statistics. TSI is a typical indicator to assess international competitive of industry, but the trade balance also reflects the magnitude of globalization. Figure 3 compares TSIs in 1988 and 2001 for trade with East Asia. Notable changes of TSIs in this period can be found, in the electronics sector. For example, in final demand products such as computers and TV receivers, export surpluses have turned into import surpluses. Although changes are much smaller for electronic components such as semiconductor devises and ICs, downward trends of TSI can be found. These finding suggest that the impact of globalization on domestic economy may be greater for electronics industry than for the other industries. In addition, overseas production base in Asian countries are primary focusing on assembling activities, by using imported electronics components.

[2] "East Asia" here refers to China (including Hong Kong), Taiwan, South Korea, Singapore, Thailand, Malaysia, the Philippines and Indonesia.
[3] TSI is defined as the ratio of the value of trade surplus (export – import) to the value of total trade (export + import).

(Figure 3)

Table 2 shows changes in TSIs of electronics industry by more detail product classification. It is found that TSIs in most of computer and peripheral products has plunged into import surplus in these 10 years. Even for Laptop PCs and LC displays at which Japanese firms used to be strong, TSIs became negative as compared to NIES3. As for semiconductor ICs, the significant drop can be observed in MOS memories, as compared to NIES3. In 1990, Japanese electronics firms dominated world DRAM market, but they are completely replaced by Korean firms in 2000. Therefore, changes in MOS memories reflect changes in competitive position of Japanese firms, but most of other changes can be explained by globalization of Japanese firms. For example, negative TSIs in MPUs in 2000 in Japan-ASEAN trade comes from factories of western companies such as Intel in Malaysia. In addition, negative signs in Japan-China trade are also explained by overseas production activities of Japanese firms.

(Table 2)

In terms of competitiveness of Japanese manufacturing industry, the overseas production activities by Japanese firms lift another concern about hollowing out of Japanese production base. Japanese companies in the electronics industry have been transferring their production operations, particularly assembly processes, abroad to East Asia. This globalization of business activities by Japanese companies is basically in line with Heckscher-Ohlin model of international trade theory. Therefore, it should be welcomed by standard economic theory. So, how can we understand hollowing out concern from theoretical viewpoints?

Firstly, given a perfect production factor market (the labor market is particularly important here), an offshore production shift would cause domestic employment to decline, but the surplus employment would be absorbed by areas with high productivity. However, in reality, because workers find it difficult to change professions, inter-industry labor shifts do not necessarily proceed smoothly. Further, although the law of diminishing returns is an important concept forming the basis of microeconomics, increasing returns can be observed in industries such as software, where fixed costs are high and marginal costs are small, and semiconductor ICs, where "learning by doing" boosts productivity. In these industries, the shift of production operations based on temporary comparative advantage could lead to a reduction in the long-term industrial competitiveness of the industries in question.

The difficulty of shifting workers between industries is a labor market problem, and should be

resolved through active labor policies such as re-employment assistance, while an unemployment insurance system and other safety nets are being set in place to deal with the unemployment arising from industrial structure transformation. Accordingly, it would be a mistake to restrict the global movement of industries which have lost their international competitiveness in order to secure domestic employment. However, a more serious examination is necessary for the argument that manufacturing technology, which has been the wellspring of the competitiveness of the Japanese manufacturing industry, is now being eroded. The law of increasing returns suggests that if workers' skills are accumulating according to the growing production volume in a certain industry, productivity will rise. Where this law is functioning, major economic damage could be caused by the loss of the accumulated skills due to the offshore shift of production. Further, the external economic effect created by the clusters of related industries is also a factor in increasing returns, and where one industry which is part of an industrial cluster shifts overseas, the external effect produced by the cluster will be lost, impacting negatively on those industries remaining at home. In trade theory too, strategic trade theory has emerged as a new area incorporating increasing returns and imperfect competition.[4] This cutting-edge theory postulates that the merits and demerits of offshore production shifts have to be determined by the productivity characteristics of the particular industry, as well as the situation of the external economies with related industries.

Returning to the pattern of TSIs with East Asia, because the assembly processes for electric appliances and computers are labor-intensive, these are not areas in which technological progress will lead to an explosive surge in productivity. In that sense, the offshore shift of production of these products which has continued since the late 1980s represents a decision by companies to optimize their production bases from a global standpoint, and as such, should provide merit for industry as a whole. On the other hand, the declining TSIs for such products as semiconductors and computer parts require serious investigation. As these industries are capital-intensive and are open to swift technological innovation, there is great strategic significance in manufacturing such products domestically.

3. SMEs in Globalization Era

In this section, industrial activities at SMEs are compared with those of large firms, and potential impacts of globalization are discussed. First, Figure 4 shows the presence of

[4] Numerous papers have been published on this subject, including Helpman, E. and P. Krugman (1985)

establishments with less than 300 employees in manufacturing sector.[5] An official definition of SMEs in Japan is a firm with no more than 300 employees or 300 million capital amount for manufacturing sector, so that this graph provides some information on the role of SMEs in Japanese industrial activities.

(Figure 4)

As for the number of establishments, more than 99% are those of SMEs, but this share is slightly declining. More than 70% of total employment is found in SMEs, while the share of SMEs in total sales is only about 23% in 2000. In contrast to the number of establishments, the shares of SMEs in employment and sales are slightly increasing. However, the changes in these shares are very small, and it can be said that the presence of SMEs in these 15 years is fairly stable.

In order to look at the impact of globalization, the data from METI's BSBSA (Basic Survey of Business Structure and Activities) are used in the following part. BSBSA is a firm level census for manufacturing and wholesale/retail sector with no less than 50 employees or 30 million yen capital amount. This survey started in 1991, and annual survey has been conducted since 1994. Survey items cover a wide range of firm's structures and activities, such as employment by function, sales by industry, innovation activities, globalization and ownership structure.

As is mentioned in the previous section, the impact of globalization on domestic economy takes place in a form that overseas production may substitute domestic production for export, or exports of raw materials and parts to overseas production are stimulated. In order to analyze such impacts, it is important to look them at commodity level. Therefore, the data of sales by commodity or industrial activity in each firm are used, since diversification of industrial outputs is commonly observed, particularly for large firms. Figure 5a and 5b show the share of SMEs in sales, based on the data of aggregation by industry of activity, instead of by industry of firm's classification.

(Figure 5a and 5b)

First, it is shown that the presence of SMEs is different by industry. In textile and apparel, the share of SMEs' output is more than 50% recently, while it is less than 10% for oil refinery,

[5] These figures are based on manufacturing census of Japan, which covers all manufacturing establishments with no less than 4 employees.

electrical machinery and transportation machinery. Second, the share of SMEs' output is increasing for most of sectors. It is particularly the case for textile, apparel, grass and clay, and metal products.

Globalization activities are compares between SMEs and LEs in Figure 6. For both types of firms, the share of firms with overseas production in any region and that in Asian countries are presented. Globalization activities are increasing for both LEs and SMEs, although the share of SMEs with overseas production is still small. In addition, it is found that the most of SMEs overseas production activities take place in Asia. Presumably, major objective for SMEs overseas production is cutting production cost, instead of seeking for new overseas markets.

(Figure 6)

This point can be confirmed by Figure 7, which is based on the results of an opinion survey for globalizing companies (METI, 2004). This graph indicates the share of firms responding 'relevant' to each type of local factors in their FDI decision. As for 'labor cost', more than half of firms indicated relevant for all types of firms. In contrast, the share of relevant for 'market size' decreases as the firm size gets smaller. In addition, the share of 'infrastructure' and 'legal and tax environment' is smaller for small firms as well. It may be the case that small firms are enforced to set up overseas production site, by any reason such as necessity of cost reduction and major customer's requirement.

(Figure 7)

Within Asian region, the objectives of overseas production are different across countries. Figure 8 shows the results of an opinion survey for SME White Paper again. In China and NIES countries, the major motivation for overseas production is 'cheap product import back' as compared to 'responding to Japanese customer's needs'. In contrast, the share of 'overseas market' and 'respond to Japanese customer's needs' is greater than that of 'cheap product import back' in south east Asia. This is due to the fact that a substantial number of Japanese large firms have constructed supply chain networks in south east Asian countries, and ASEAN are promoting such investments by intra region free trade agreement (AFTA) and investment treaty (AIA).

(Figure 8)

Figure 9 shows the share of sales cross classified by firm size and by overseas production. The share of large firms with overseas production (Global LE) increases and reached more than 60% in 2002. In contrast, the share of large firms without overseas production (Domestic LE) becomes smaller. As for SMEs, the share of firms with overseas production (Global SMEs) increases, but its sales share is still very small. Although the share of global SMEs increases, the share of domestic SMEs does not decline. Therefore, the shift of output from domestic firms to global firms can be seen in large firms, but this is not the case in SMEs.

(Figure 9)

4. Economic Analysis of Globalization on SMEs

There are numerous studies on economic impact of globalization. In terms of structural changes associated with globalization, many studies focus on the impact of labor market. As is found in the previous section, one of major motivations of globalization of Japanese firms is seeking for low labor cost. In this case, presumably, they relocate unskilled workers' jobs to overseas, and focus on skilled workers' jobs at home country. This leads to decreasing demand for unskilled labor at home countries, and the difference in wage between skilled and unskilled workers will become wide (Feenstra, 1996: Slaughter 1995). In Japan, Sakurai (2000) addresses this issue by using industry level data. Higuchi and Genda (1999) also show the positive relationship between employment at subsidiaries in developed countries and the share of white collar workers at parent companies in Japan.

However, it is not always the case that increasing globalization activities have negative impact on domestic production and employment. For example, Bloomstrom et. al (1997) shows that FDIs of US firms in developed countries have positive effects on domestic employment, while those in developing countries have negative one. Chen and Ku (2003) also find complemental relationship between domestic production and overseas production in Taiwan multinational companies. Multinationals may be able to gain managerial expertise by accessing to international market, and this will be particularly the case for FDI in developed countries.

These studies suggest that firm's globalization activity takes various forms, and it is important to take into account its heterogeneity in analyzing economic impacts. Economic implications may be different, not only by host country, but also by various other factors such as organizational form of foreign subsidiary, degree of intra firm transactions and backward linkage with local suppliers. Kimura and Ando (2004) show detail descriptive statistics for

Japanese multinationals in order to understand the state of 'international fragmentation of production sites'. For example, it is found that the share of intra-firm transactions is decreasing for both sales and procurement of foreign subsidiaries in East Asia. This point can be confirmed by Kiyota et. al. (2005) showing that experience at local market is one of important determinant factors of backward linkage with local suppliers.

In this section, quantitative analysis of the relationship between domestic and overseas production is presented. The dataset used in this section is a linked data of BSBSA used in the previous section with a data from Survey of Overseas Business Activity (SOBA) by METI. SOBA is an annual survey conducted from 1971 for all Japanese firms with foreign subsidiaries.[6] A survey instrument is sent to parent companies located in Japan, and each parent company is supposed to answer all questions concerning its foreign subsidiaries. The sample size in most recent survey in 2003 fiscal year is about 4,000 firms, and MITI received the data from 2,411 firms (response rate: 64.9%) with 13,856 foreign subsidiaries. In order to investigate the relationship between domestic and overseas production, the data from SOBA for overseas production have to be linked with BSBSA with various parent company's data. In this study, a panel dataset from 1994 to 2002 for all firms with domestic and international manufacturing activities is constructed with around 1,000 samples for every year.[7]

Using this dataset, the amount of domestic sales is regressed by that of overseas subsidiaries as well as other factors at firm level. For both BSBSA and SOBA, activity base information (sales by commodity and services) is available, and the data for only manufacturing activities, instead of total amount of figures of firm, is generated. Therefore, the amount of manufacturing sales is a good measure of the size of production activities, and regression results will show how each firm group allocate production activities between domestic and foreign production sites.

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[6] A foreign subsidiary is defined as a company no less than 10% of whose stocks are owned by a parent company in Japan, or a so-called grandchild company of no less than 50% owned by a child company of no less than 50% owned. All parent companies in Japan, except those in financial services and real estate sector are covered.

[7] Sample size for each year is as follows,

year	# of firms
1994	871
1995	852
1996	881
1997	1,055
1998	1,029
1999	1,081
2000	1,049
2001	918
2002	842
Total	8578

Explanatory variables for log of domestic sales are as follows,

- LOS: Log of sales in overseas subsidiaries
- D-lf: Dummy variable for parent firm with more than 300 employees (large firm dummy)
- LOS*D-lf: Cross term of LOS and D-lf
- LRD: Log of R&D in parent company
- D_Parent: Dummy variable for whether parent company is a subsidiary of another company

Table 3 shows regression results by fixed effect model estimation. LRD is included in this regression model in order to control for time variant unobservable factors for firm's success (in domestic sales), which cannot be controlled by fixed effect model.

(Table 3)

One of major findings is that overseas production does not substitute for domestic production, but rather these two are in complemental relationship according to positive and statistically significant coefficients to LOS. This result is consistent with those in Chen and Ku (2003) for Taiwan, it can be interpreted that overseas production can strengthen competitive position of whole firm group, which leads to expansion of domestic sales as well. This is the case not only for overseas production in developed countries, but also for that in developing countries such as China.

Positive coefficients to D-lf show that domestic sales in large firms grow faster than those of SMEs. More interestingly, negative and statistical significant coefficients can be found in cross terms of LOS and D-lf for overseas production in Asia, implying that the degree of substitution between domestic and international sales is greater for large firms. In case for China, the effect of LOS on domestic sales can be described as $\frac{\partial \ln(domsales)}{\partial LOS} = 0.061 - 0.061 * Dlf$.
Therefore, a positive impact of LOS is offset by Dlf in case of large firms (Dlf=1). It should be noted that this cross term effect can be observed only in Asia, and no difference between large firms and SMEs is found in North America and Europe.

In order to further investigate the linkage of domestic and overseas production, the following explanatory variables are added.

- %SAJ: Share of overseas sales import back to Japan to total overseas sales in overseas subsidiaries
- %SUJ: Share of supply of parts and materials to overseas production from Japan to total amount of supply

- %SAJ*D_lf: cross term of %SAJ and D_lf
- %SAJ*D_lf: cross term of %SAJ and D_lf

Fixed effect estimation results for Asian countries are presented in Table 4.

（Table 4）

Negative coefficients are expected to %SAJ, because import back sales of overseas production will compete with domestic production. Conversely, positive coefficients to %SUJ can be expected, because this stimulates export of domestically produced products. From regression results in Table 4, some statistically significant results can be found in %SUJ, but not in %SAJ. Although some of coefficients are not at statistically significant level, the sign of coefficients show that there is a positive relationship between domestic sales and export of domestic parts and materials to overseas production. But this impact is smaller for large firms, according to the coefficients to %SUJ*D_lf. In contrast, import back of overseas production does not reduce domestic sales. This supports a hypothesis of gaining competitiveness by overseas production in a sense that globalization stimulates domestic production more than the size of import back of overseas production.

Foregoing discussion is based on the regression results for globalization firms, and it is found that globalization does not have negative impact on domestic activities in general, but it has rather positive impact, particularly for SMEs. Then the next question is what is happening for non globalization firms. Figure 10 shows the changes in globalization ratio (the share of global firms in total sales) and the changes in SME ratio (the share of SMEs in total sales) by industry, based on BSBSA data. The industrial classification is based on the 3 digit industry classification with 58 manufacturing sectors. It can be shown that a negative relationship between these two indicators, i.e., as the globalization ratio increases, the SME ratio decreases.

(Figure 10)

This point is further investigated by using linked dataset of BSBSA and SOBA. Industry level data for domestic and overseas sales is constructed. In order to match industrial classification of BSBSA and SOBA, the number of industries reduces to 35, but this data is cross classified by with or without overseas production, region of overseas production, employment category, and with or without parent company, as well. In total, over 400 observations are available in each year from 1994 to 2002. Table 5 shows the regression results of log of domestic sales as dependent variable, by random effect model. Regressions are conducted separately for 4 groups,

i.e non glonalization SME, non globalization LE, globalization SME and glonalization LE.

(Table 5)

A clear contrast between globalization and non globalization group can be found, i.e., negative impact of overseas production in non globalization group, and positive one for globalization group. However, the negative impact of overseas production to non globalization firms is small when it is a subsidiary of other firm, according to positive coefficient to cross term of LOS and D_parent. A coefficient of LOS for non globalized SME is negative, but not statistically significant, in contrast to that for non glonlized LE. Therefore, it can be said that negative impact of globalization on domestic economy is smaller for SMEs.

5. Conclusion

In this paper, economic implications of globalizing industrial activities by Japanese firms are analyzed and discussed, focusing on the impact on SMEs. It is observed that overseas production activities of Japanese firms have been increasing steadily since early 1990's. Major players in overseas activities are large multinationals, and SME's position is still limited, even though its rate of growth is very high. Foreign direct investments involve significant business and political risk at host country, and a large amount of capital investment is needed. In this sense, it is natural that such activities are concentrated in large firms.

Therefore, there may be a concern over globalization's negative impacts on SMEs, which does not have enough management resources for overseas production. However, it is found that the role of SMEs in Japanese manufacturing output becomes larger, and we cannot find a direct evidence of negative impact of globalization on SMEs in this study. More and more SMEs are being involved in global production activities, and complemental relationship between domestic and overseas sales is observed. As compared to globalization firms, the growth rate of domestic sales is smaller for non globalization firms. Some negative impact of globalization for these firms is found, but this is particularly the case for large firms, instead of SMEs.

Hitomi and Motohashi (2004) provide detail information on how SMEs respond to competition from international markets, by interview survey for 49 Japanese firms. There are some firms which shifted their production sites to China or South East Asian countries to seek for lower cost production. But, there are other firms to stay in Japan and compete against international competition by upgrading manufacturing technology. There are also other SMEs, focusing on

product design, and keeping high profit level as a fab-less company. In many cases, innovation starts with small market which is ignored by large companies, where SMEs play an important role (Audretsch (1999)). A strategy for surviving as “only one company” in niche market is also possible for SMEs. Findings in this paper may be explained by all kinds of these efforts by Japanese SMEs.

Policy implications for SMEs in era of globalization are twofold. One is facilitating SMEs’ globalization activities. SME financial institutions are providing special interest loans for foreign direct investments by SMEs. In addition, information service on business and political environment at host country is also valuable for SMEs. For example, JETRO is organizing investment seminars, matchmaking services as well as general information dissemination services all over the world. Disadvantage of SMEs due to financial market imperfection and information asymmetry can be solved by such globalization facilitation policies.

Another one is SME innovation promotion policy in order to compete with international competition. In 1999, METI revised SME Basic Law in order to treat SMEs as the source of entrepreneurship and innovation, and enacted Law on Supporting Business Innovation in 2001. In this year, the new law in order to enhance supporting schemes of this law is just enacted, by merging with another law called Law for Promotion of Creative Business Activities. In Japan, the role of SMEs in national innovation system used to be small, but recently this large firm dominated system is changing (Motohashi, 2005). As a source of entrepreneurship, further innovation support to SMEs is beneficial for industrial competitiveness of Japan as a whole.

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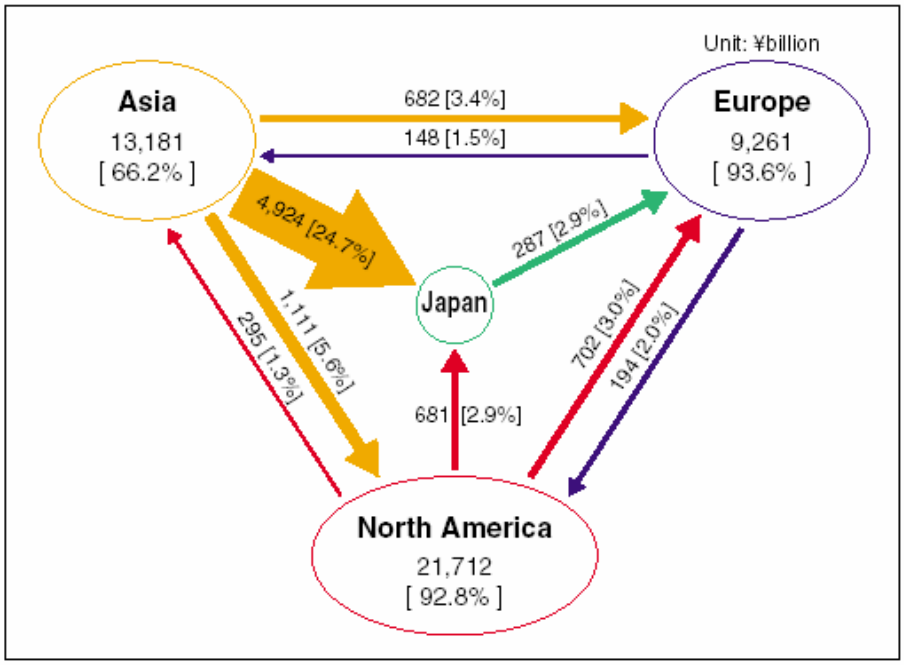
Table 1: Overseas production and trade by region in 2000

(unit: billion JP yen)

	Overseas production	Export	Export associated with overseas production	Import	Import back from overseas production
Asia	19,898	20,520	5,223 (25%)	16,197	4,924 (30%)
North America	23,390	16,162	5,445 (34%)	8,717	681 (8%)
Europe	9,890	8,432	2,765 (33%)	5,042	287 (6%)

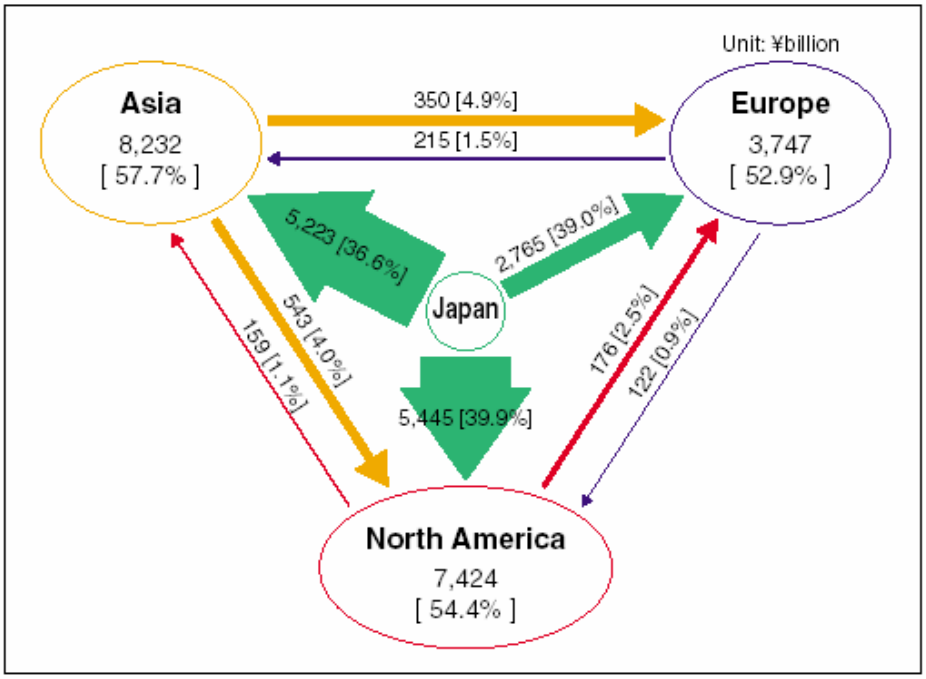
Source: Trade Statistics, Survey of Overseas Business Activities

Figure 1: Sales of Japanese overseas affiliates by destination in 2000FY



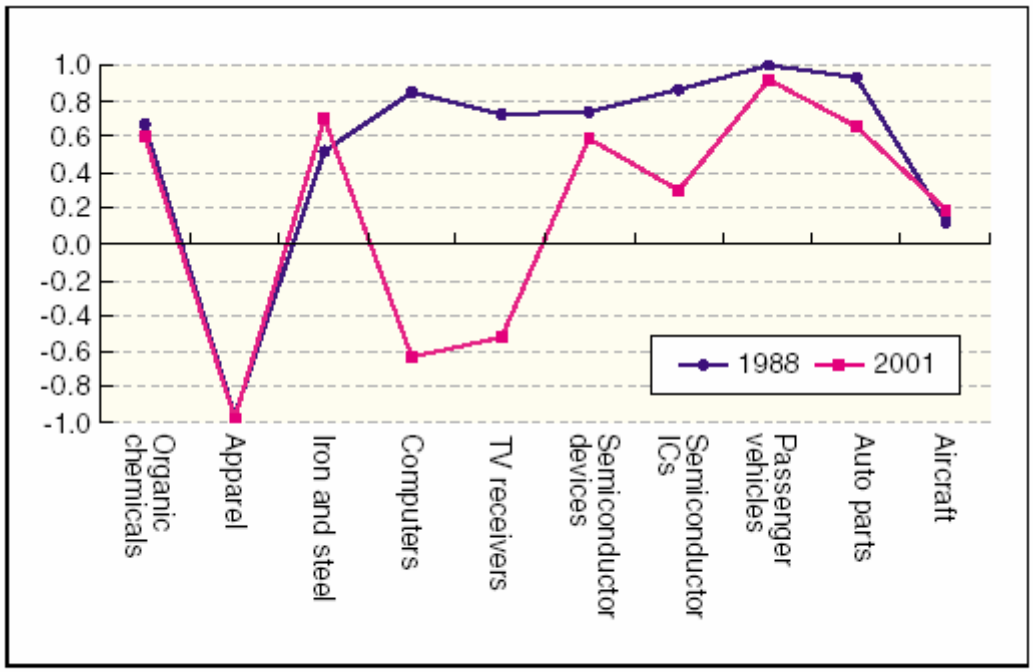
Source: Survey of Overseas Business Activities, Ministry of Economy, Trade and Industry

Figure 2: Procurement of Japanese overseas affiliates by destination in 2000FY



Source: Survey of Overseas Business Activities, Ministry of Economy, Trade and Industry

Figure 3 : Trade specialization index for Japan-East Asia trade



Source: Author's calculation using "Trade Statistics," Ministry of Finance

Table 2: Trade specialization index for computers and ICs

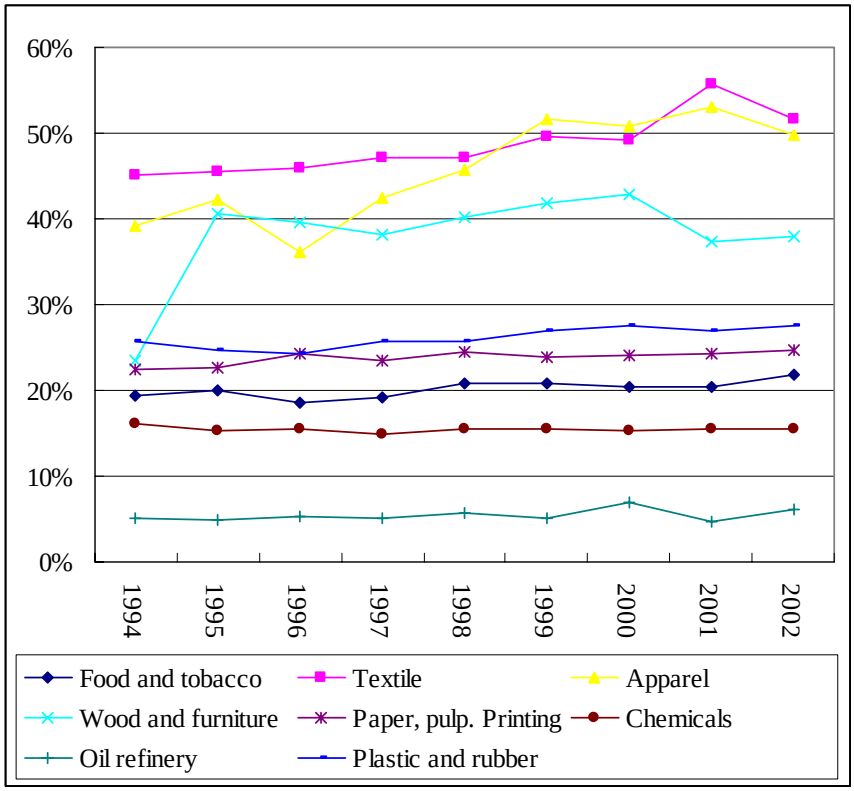
	World		NIES3		ASEAN		China(+HK)	
	1990	2000	1990	2000	1990	2000	1990	2000
Computers	0.24	-0.25	0.29	-0.86	0.99	0.03	0.92	-0.02
Laptop		0.07		-0.80		0.03		0.65
Desktop		-0.48		-0.92		0.03		-0.45
Peripherals	0.93	0.26	0.82	-0.53	0.78	0.42	0.91	-0.48
LC Display		-0.05		-0.74		-0.08		0.30
Strorage Unit	0.64	0.04	0.40	0.24	-0.53	-0.40	0.99	-0.22
MOS-Memory	0.71	-0.02	0.75	-0.37	0.60	0.14	0.99	0.65
DRAM		-0.17		-0.71		-0.37		0.40
SRAM		0.06		-0.76		0.75		0.99
ROM		0.15		-0.30		-0.87		0.74
MOC-Logic	0.29	0.31	0.93	0.50	0.90	-0.59	0.99	0.92
MPU		-0.47		-0.04		-0.97		0.99
MCU		0.83		0.76		0.58		0.97
MPR		-0.21		1.00		-0.25		1.00
Other Logic		0.48		0.45		-0.40		0.85

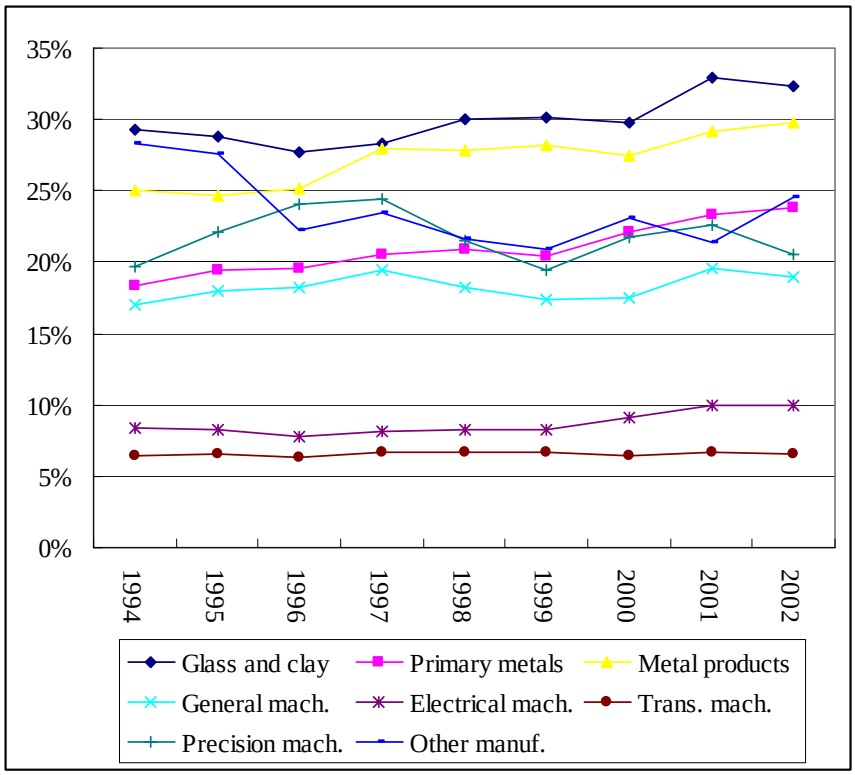
Source: Author's calculation using trade statistics, Ministry of Finance

Figure 4: Presence of SMEs in Japanese manufacturing sector

Source: Manufacturing Census (METI)

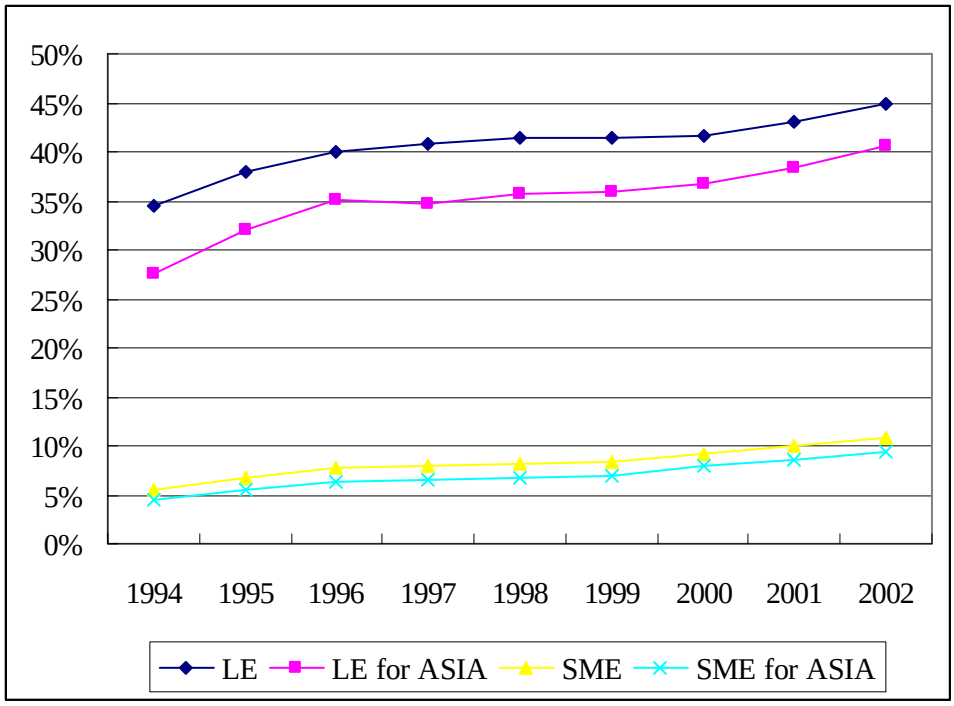
Figure 5a and 5b: Share of SMEs' industrial output





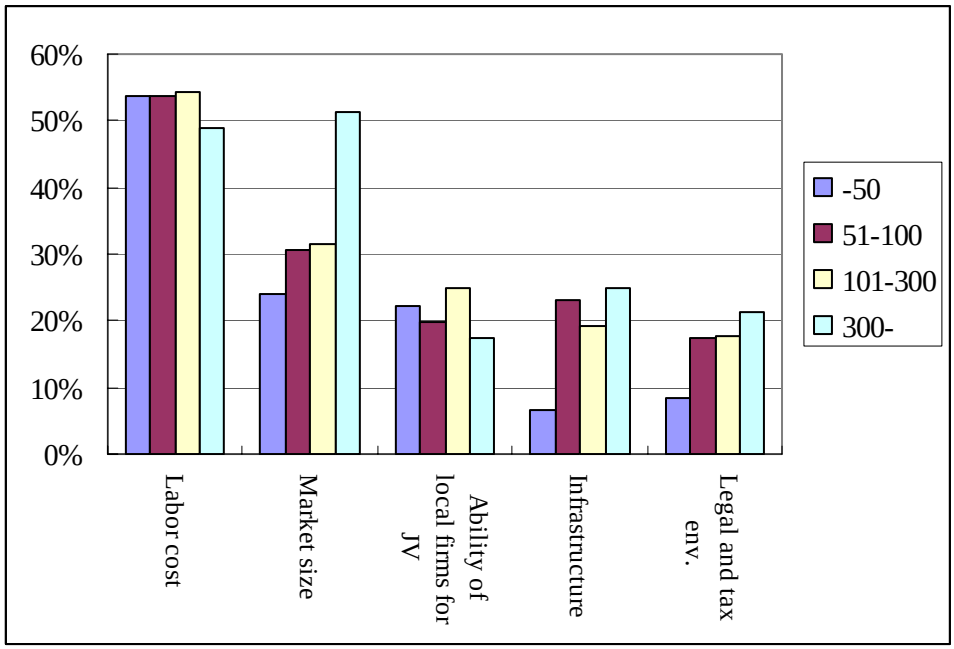
Source: Author's calculation by BSBSA

Figure 6: Share of firms with overseas production



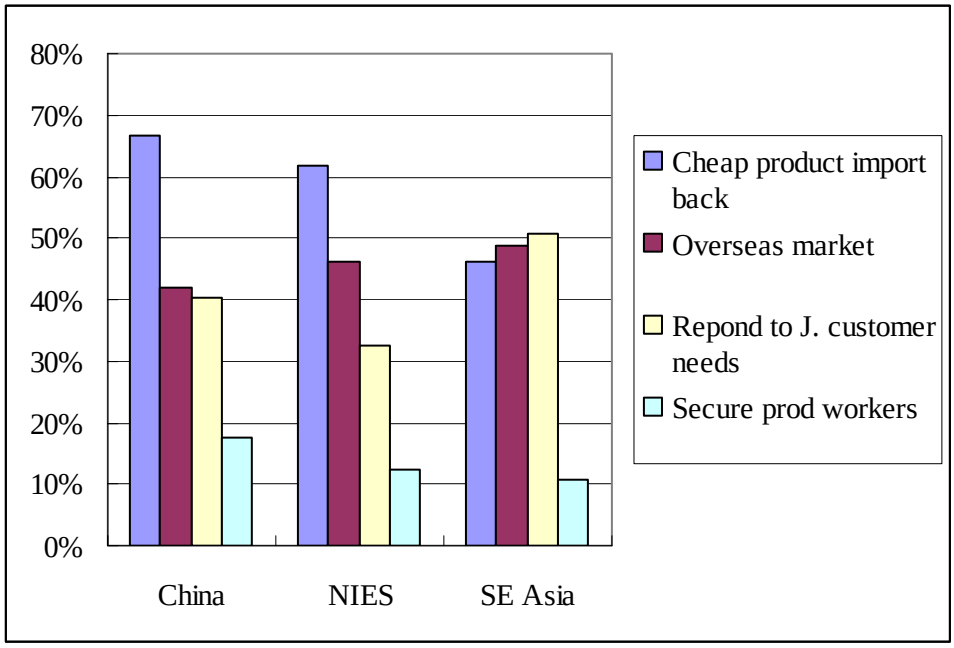
Source: Author's calculation based on BSBSA

Figure 7: Relevant local factors for FDI



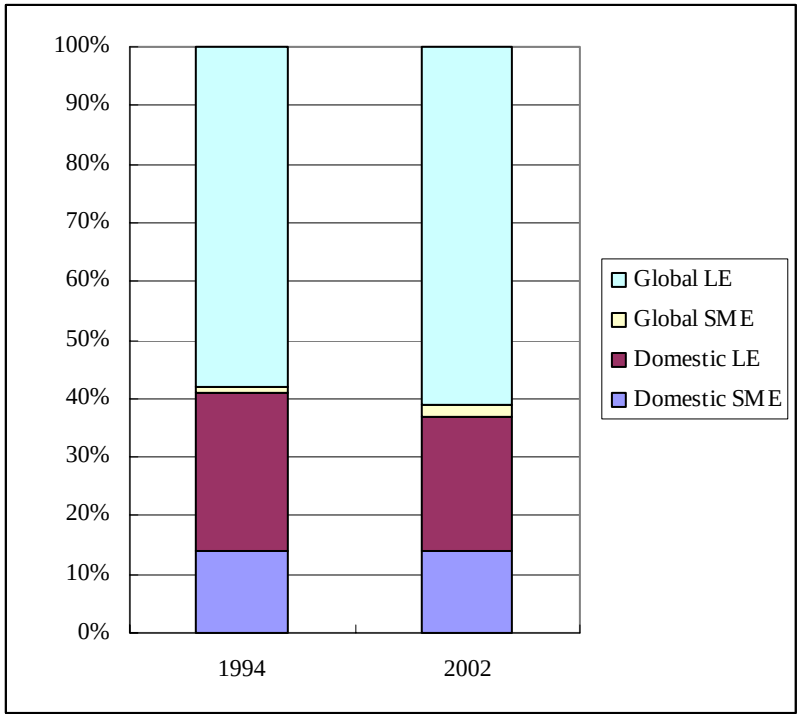
Source: 2004 SME White Paper in Japan (METI)

Figure 8: Objectives of overseas production by location



Source: 2004 SME White Paper in Japan (METI)

Figure 9: Sales share by firm size and globalization



Source: Author's calculation based on BSBSA

Table 3: Regression Results-1 (Dependent Variable=Log(domestic sales))

	North America	Europe	NIES	ASEAN	China	Others
LOS	0.055	0.060	0.083	0.067	0.061	-0.029
	(2.69)**	(1.91)	(3.70)**	(3.43)**	(2.83)**	(0.87)
D-lf	0.508	0.366	0.590	0.527	0.661	-0.071
	(3.31)**	(1.79)	(3.62)**	(3.64)**	(4.21)**	(0.35)
LOS*D-lf	-0.039	-0.035	-0.056	-0.045	-0.061	0.046
	(1.89)	(1.13)	(2.42)*	(2.25)*	(2.73)**	(1.35)
LRD	0.055	0.065	0.046	0.044	0.041	0.025
	(6.98)**	(6.64)**	(5.45)**	(5.68)**	(3.40)**	(2.09)*
D_Parent	-0.030	-0.067	0.007	-0.093	-0.042	-0.193
	(1.00)	(1.51)	(0.19)	(2.75)**	(0.73)	(2.44)*
Constant	10.037	10.391	9.797	9.932	10.015	11.575
	(62.77)**	(47.09)**	(58.96)**	(65.82)**	(57.16)**	(51.81)**
Observations	3768	2359	2987	3913	2413	1319
Number of kikatsu	717	457	573	759	533	256
R-squared	0.03	0.04	0.03	0.03	0.02	0.02

Absolute value of t statistics in parentheses

* significant at 5%; ** significant at 1%

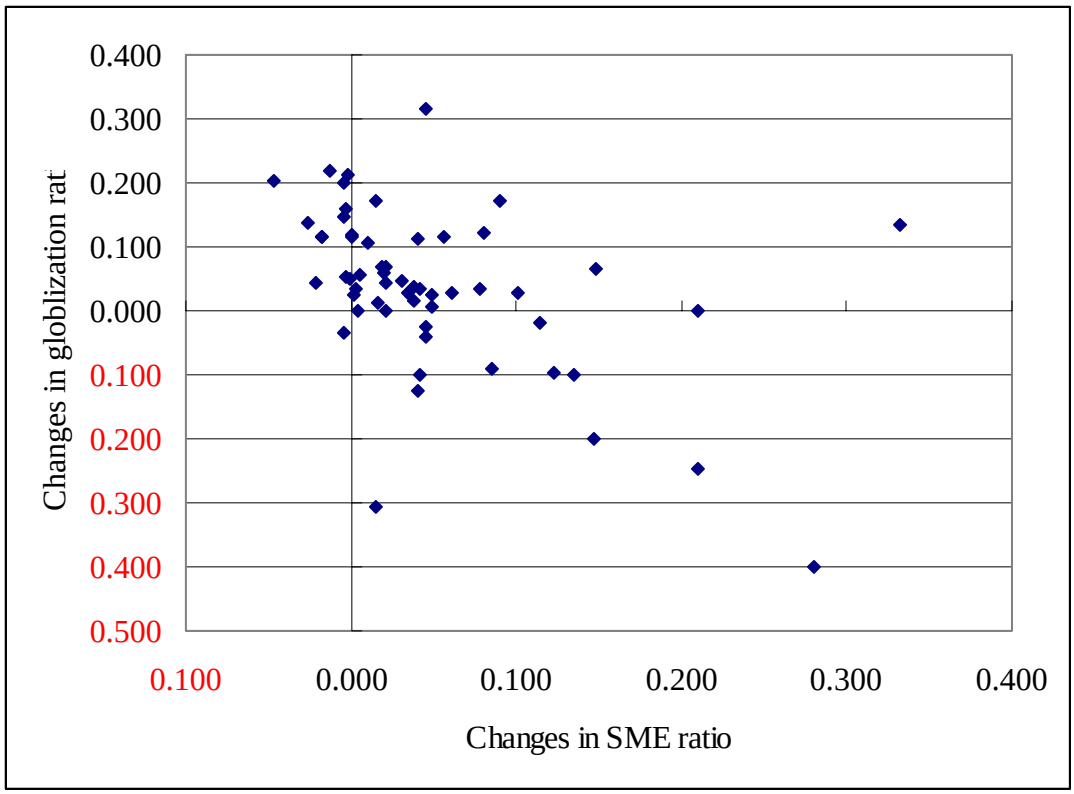
Table 4: Regression Results-2 (Dependent Variable=Log(domestic sales))

	NIES		ASEAN		China	
	(1)	(2)	(3)	(4)	(5)	(6)
LOS	0.097	0.095	0.068	0.073	0.072	0.074
	(3.72)**	(3.65)**	(3.31)**	(3.48)**	(3.17)**	(3.26)**
D-lf	0.663	0.711	0.509	0.567	0.745	0.753
	(3.48)**	(3.70)**	(3.33)**	(3.31)**	(4.54)**	(4.48)**
LOS*D-lf	-0.066	-0.065	-0.041	-0.047	-0.072	-0.075
	(2.42)*	(2.39)*	(1.98)*	(2.17)*	(3.09)**	(3.19)**
%SAJ	0.005	-0.092	-0.008	-0.088	0.024	-0.063
	(0.13)	(0.92)	(0.26)	(0.99)	(0.64)	(0.64)
%SUJ	0.021	0.171	0.032	0.152	0.066	0.161
	(0.79)	(2.15)*	(1.43)	(1.92)	(2.47)*	(2.21)*
%SAJ*D_lf		0.117		0.087		0.098
		(1.11)		(0.96)		(0.97)
%SUJ*D_lf		-0.167		-0.127		-0.108
		(2.03)*		-1.58		-1.41
LRD	0.048	0.047	0.046	0.046	0.041	0.041
	(5.20)**	(5.12)**	(5.49)**	(5.50)**	(3.25)**	(3.21)**
D_Parent	0.007	0.006	-0.098	-0.100	-0.063	-0.062
	(0.16)	(0.16)	(2.66)**	(2.71)**	(0.99)	-0.98
Constant	9.532	9.501	9.782	9.726	9.802	9.797
	(49.62)**	(49.13)**	(61.46)**	(55.85)**	(53.66)**	(52.93)**
Observations	2561	2561	3423	3423	2057	2057
Number of kikatsu	552	552	734	734	515	515
R-squared	0.04	0.04	0.03	0.03	0.03	0.03

Absolute value of t statistics in parentheses

* significant at 5%; ** significant at 1%

Figure 10: Globalization and SME by industry



Source: Author's calculation based on BSBSA

Table 5: Regression Results-3 (Dependent Variable=Log(domestic sales))

	Overseas=No		Overseas=Yes	
	SME	LE	SME	LE
LOS	-0.016	-0.035	0.043	0.026
	(1.17)	(1.86)+	(2.46)*	(1.72)+
LRD	0.461	0.524	0.339	0.546
	(32.11)**	(26.25)**	(19.94)**	(40.42)**
D_parent	-0.438	-1.307	-0.822	-0.463
	(2.48)*	(4.95)**	(2.85)**	(1.96)+
LOS*D_parent	0.022	0.117	0.011	-0.017
	(1.34)	(4.92)**	(0.42)	(0.83)
Constant	9.303	8.686	8.267	8.032
	(44.12)**	(30.27)**	(37.13)**	(35.27)**
Observations	1000	930	705	830
Number of ind	35	35	35	34
R-squared	0.47	0.53	0.48	0.83

Absolute value of t statistics in parentheses
+ significant at 10%,* significant at 5%; ** significant at 1%