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Changes in Japan's Export and Import Structures*

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ABSTRACT

1. Export trends have been an important factor during Japan's present economic adjustment period, and the structures of Japanese exports, together with the imports, have been changing substantially in recent years. The changes in the country's export and import structures during the 1990s can be characterized by the following three key developments: (1) the weight of IT-related goods has been rising in both real exports and imports; (2) real imports of consumer goods from East Asia has been increasing; and (3) the US remains Japan's largest trading partner as a single country.

2. The backgrounds to these developments include both macroeconomic and microeconomic changes, especially (1) the globalization of the world economy and (2) the advance of modularization and global fragmentation in trade goods production processes.

3. The ongoing changes in Japan's trade structure are typified by the developments in the industries of IT-related goods, consumer goods, and motor vehicles and related goods. First, in the IT-related goods industry, Japanese producers have been decreasing their level of export specialization as an overall trend, but the conditions vary by the category of goods. For finished goods, East Asian and other countries have now obtained production technologies that are almost equivalent to those in Japan as a result of direct investment and other transnational

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alliances, and the comparative advantages of domestically produced Japanese IT-related finished goods are being lost. As a result, IT-related goods firms are specializing less in exports, or are even specializing in imports in some cases. For IT-related parts, the comparative advantages of domestic and foreign production vary by category, but overall IT-related parts firms are decreasing their level of export specialization. In contrast, for capital goods, domestic production retains comparative advantages, and exports of IT-related capital goods seem to exceed imports greatly.

4. In the consumer goods industry, for textile products and household appliances, for example, production by comparatively low-skilled workers is possible, and technology transfer is also relatively easy. Consequently, the international division of labor is advancing via means such as direct investment and consigned production, and on the whole, the comparative advantages of domestic production are being lost and Japanese firms are specializing in imports, primarily because of the differential between domestic and overseas labor costs.

5. In the motor vehicles and related goods industry, Japanese automobile manufacturers still retain comparative advantages in small and medium-sized vehicle production under the circumstances whereby i) the domestic market is extremely competitive, ii) the preferences for goods vary by country, and iii) trade friction became an international problem during the 1980s. Even though the production of certain standardized parts is becoming divided between domestic and overseas production bases, the overall production process of Japanese automakers has not moved to a stage of global division of labor. Nevertheless, Japanese automobile firms are producing models with strong local demand at their overseas production bases, while entire production processes are being transferred altogether.

6. While the changes in Japan's trade structure are diverse and vary by industry, the following overall trends can be identified. With the spurt in IT-related goods trade, (1) real exports are sensitively reflecting the overseas demand for IT-related goods, and (2) the simultaneous correlation of real exports and imports is rising. Additionally, (3) the IT-related goods trade is further strengthening ties linking the Japanese, East Asian and US economies.

7. In consumer goods, imports from East Asia, particularly from China, are remarkably increasing. Simultaneously, the penetration of imported consumer goods supply into the Japanese market is rising. This expansion of imported consumer goods has resulted in substantial declines in the prices of consumer goods on the Japanese market.

8. Given these developments, advancing a smooth reallocation of management resources is essential for the Japanese manufacturing sector to achieve future growth. Also, because existing technologies are becoming shared worldwide with the passage of time, for example, through direct investment, the cost of labor differential will be the decisive factor for goods produced using such technologies.

Thus, the creation of new technologies that produce higher value added and of new business models that generate higher profitability will be critical for the future prosperity of Japan's manufacturing industry. Furthermore, from the perspective of the overall growth of the Japanese economy, another key issue will be the extent to which the productivity of the nonmanufacturing sector, which holds the larger share in the production factor allocation, can be improved.

Preface

Reviewing the recent developments in the Japanese economy, from the beginning of 2001 manufacturing production has been declining because of a large drop in exports, and thus large cutbacks in business fixed investment, restraints on labor costs, and employment reduction have been inevitable. These forced adjustments have harshly affected the household sector via higher unemployment, lower wages and even reductions in compensation of employees (Chart 1). The decline in exports, which triggered this series of adjustment processes, was greatly influenced by the sudden slowdown in the US and global economies, especially by the simultaneous worldwide plunge in the IT-related sector and subsequent inventory adjustments.

While such export trends have been an important factor in Japan's economic adjustment phase, the structure of Japanese exports, together with that of imports, has been changing substantially over the past decade. To begin with, the weight of IT-related goods has been remarkably rising in both exports and imports in real terms amid the continuous high growth in global IT-related goods demand. An equivalent trend is also occurring in East Asia, and consequently the deceleration in US IT-related goods demand had an immediate and unprecedentedly large impact in decreasing Japanese and East Asian exports. In fact, worldwide semiconductor shipment trends (Chart 2) showed rapid declines in all countries and regions from the middle of 2000, highlighting the sudden and large-scale reductions in shipments and inventory adjustments that occurred simultaneously across the globe.

The rising weight of IT-related goods in both exports and imports has led to a growing trend whereby both figures move in tandem (Chart 3). Seemingly, this reflects the structure of the IT-related goods industry in which raw materials, capital goods and parts are mutually supplied among countries. Furthermore, Japanese imports from East Asia, including those outside of the IT-related industry, have been sharply increasing since the 1990s (Chart 4). In this paper, we review the historical development and background of these changes in Japan's import-export structure.

1. Export and import Developments

We begin by reviewing how Japanese exports and imports have changed during the 1990s.

(Exports)
Examining Japanese exports in the 1990s by type of goods (Charts 4 and 5), the three categories of capital goods and parts, motor vehicles and related goods, and IT-related goods accounted for approximately 70% of total exports, and consistently remained the main pillars of the country's exports throughout the 1990s. In greater detail, exports of motor vehicles and related goods declined to about 20% of total exports in 2000 from approximately 30% in the early 1990s. On the other hand, the weight of IT-related goods in total exports increased from around 10% to 20%. Furthermore, the percentage of semiconductor fabrication machines and equipment within the capital goods and parts category rose (Chart 6). Thus, the relative weight of IT-related goods in Japanese

exports has been increasing gradually.

Japan's IT-related goods exports (Chart 7) consistently rose throughout the 1990s, jumped sharply during 1999-2000 in particular, and then plunged in 2001 with the bursting of the so-called "IT bubble." By category, the weight of semiconductors and other electronic parts rose toward the mid-1990s and subsequently remained at around half of total IT-related goods exports. Conversely, the weight of telecommunications machinery, automatic data processing machinery (computers) and other finished goods posted a declining trend.

As for exports by region (Charts 4 and 8), the US consistently accounted for about 30% of Japanese exports, and remains Japan's largest export market. However, the percentage of exports to NIEs (South Korea, Taiwan, Hong Kong, and Singapore) has been rapidly expanding, and recently reached a quarter of the total. What is more, East Asia, defined as NIEs combined with ASEAN 4 (Thailand, Indonesia, Malaysia and the Philippines) and China, now accounts for approximately 40% of all Japanese exports.

In this manner, Japan's main exports at the start of the 1990s were motor vehicles and related goods to the US and EU, and capital goods and parts to the US and NIEs. Recently, however, the percentage of motor vehicles and related goods exports has shrunk to about 20% while the percentage of IT-related goods, which are mostly shipped to the US and East Asia, has grown to over 20%. Throughout this period, the percentage of capital goods and parts exports remained at around 30%.

(Imports)

Next, examining imports by type of goods (Charts 4 and 5), raw materials including crude oil and other mineral fuels have had the greatest weight in imports, but these are recently starting to be overtaken by IT-related goods. Meanwhile, although the value of consumer goods imports, which are attracting a great deal of attention in relation to domestic prices, is increasing, these goods still consistently account for around 10% of total imports.

IT-related goods imports (Chart 7) rose sharply in 1995 when a new version of a widely used personal computer OS software was released, and again in 1999-2000 during the global spike in IT-related goods demand, but fell suddenly in 2001. By category, there have been no striking changes in the relative shares. Office machinery is the largest, accounting for nearly half of total IT-related goods imports, followed by semiconductors and other electronic parts, which account for about 30%.

By region (Charts 4 and 8), the US remains the largest supplier of Japanese imports as a single country, but the weight of imports from East Asia, particularly China, expanded rapidly from the latter 1990s and now accounts for about 40% of the total, which is around twice the US figure. Meanwhile the value of imports from other regions, which includes sources of crude oil, has not changed significantly and the relative weight of imports from these regions is declining.

Reviewing the import trends, the weight of IT-related goods imports, mostly from East

Asia, especially NIEs, and from the US has been expanding, and the percentage of consumer goods imports from East Asia, especially China, is also growing, while the weight of imports of raw materials from other regions continues to contract.

(Summary of the Features of Japan's Export and Import Structures)
The three main features in Japan's export and import structures may be summarized as follows: (1) the weight of IT-related goods has been increasing in both exports and imports in real terms; (2) the percentage of consumer goods imports from East Asia is rising; and (3) the US remains Japan's largest trading partner as a single country (Chart 9). These features are examined in greater detail in the next chapter, but before that let us review the major macroeconomic and microeconomic trends that form their common background.

2. Details of the Changes in Japan's Export and Import Structures

Throughout the 1990s, (1) the globalization[1] of the economy advanced at the macroeconomic level, and (2) the modularization[2] and global fragmentation[3] of trade goods production processes advanced at the microeconomic level. As explained in the previous chapter, the changes in Japan's export and import structures are emerging amid these trends. As a result, the international division of labor in world trade is becoming deeper and increasingly complex, and certain aspects cannot be grasped at the industry classification level.

First, let us consider the influence of the globalization of the world economy, which is a development at the macroeconomic level. Up until the beginning of the 1990s, the basic pattern of Japanese foreign trade was to import raw materials and intermediate goods from regions other than the US and EU, to process these into manufactured products, and to then export these finished goods, primarily to the US and the EU. With the further advance in the globalization of the world economy from the 1990s, however, Japan's reciprocal trade of products with regions other than the US and the EU has

[1] Here, "globalization" refers to the phenomenon whereby international trade has significantly expanded in both industrialized and developing countries, and whereby this has increased the mutual dependency among the economies of each country.

[2] The definition of "modularization" has not yet been fixed, and this term is presently being used to express a range of concepts. In this paper, "modularization" refers to the production format whereby complex production systems are divided into several subsystems and the intermediate products produced in these sub-systems are finally assembled into finished goods. See Aoki and Ando [2002] for a concise summary of the ongoing discussion regarding modularization.

[3] The "fragmentation" of production processes is expected to provide the merit of improving production efficiencies from concentrating on each sub-process. On the other hand, it requires additional telecommunications, transportation and other costs throughout the production processes. Also, such fragmentation is easy for production processes and parts that can be simply standardized, while it is difficult for those that are closely interrelated with each other in the overall production line. The fact that the level of fragmentation of production processes varies by industry, as detailed below, seemingly reflects these differences.

become much more active[4] (Chart 9). Amid these developments, Japan has been rapidly losing its comparative advantages of domestic production in such fields as household electrical appliances and textile products.

During the latter 1990s, the weight of IT-related goods increased in both Japanese exports and imports, and IT-related goods came to be actively traded among Japan, the US and East Asia. To understand this, we need to consider the microeconomic aspects of the modularization and global fragmentation of production processes. One reason why these trends have noticeably advanced in IT-related goods is that the low-cost transportation of parts is feasible in this industry. On the whole, this development may largely be dependent on the unique characteristics of the IT-related goods industry, as discussed below. Recently, however, the modularization and global fragmentation of production processes also seem to be spreading in the general machinery and other industries. In contrast, these trends have not remarkably progressed in the domestic motor vehicles and related goods industry.[5]

As a result of these macroeconomic and microeconomic developments, Japan's international division of labor has become deeper and more complex, especially from the latter 1990s through to the present, and certain aspects are difficult to depict using simple inter-industry and intra-industry categorizations. In the following sections, we review the details of this movement toward a more advanced international division of labor in three industries that are considered as typifying the characteristic changes in Japan's international trade structure: (1) IT-related goods, (2) consumer goods, and (3) motor vehicles and related goods.

(1) The IT-related Goods Industry

The background to the advance of the modularization and global fragmentation of production processes in the IT-related goods industry includes: (1) technological innovations enabling modularization[6]; (2) the ability to transport modularized parts at a

[4] Examining this development even more abstractly, the so-called "Hecksher-Ohlin trade theory," which explains the mechanism whereby the comparative advantages arising from differences in the factor endowments of different countries determine the international trade structure, has become more appropriate for Japan's export-import structure from the 1990s. For example, the trade between Japan and East Asia, which employ different capital and labor endowments, has come to be characterized by the imports of consumer goods into Japan and the exports of capital goods and parts from Japan, and this can be explained to some extent by the framework of the Hecksher-Ohlin trade theory. Meanwhile, the "new trade theory" attempts to explain the active trade among industrialized countries with relatively similar factor endowments. This can be applied to automobiles and the other mainstays of foreign trade among industrialized nations. See the Appendix for further details.

[5] This also seems to reflect the particular character of the motor vehicles and related goods industry, as discussed below. It does appear, however, that modularization is beginning to advance for some automotive components.

[6] Needless to say, the advances in Internet and other telecommunications technologies are playing a major role.

relatively low cost, often via air freight; and (3) the relative ease of assembling these parts into finished goods.

The structure of the global fragmentation of production processes in Japan's IT-related goods industry can be roughly characterized by: a) exports of semiconductor fabrication machines and equipment, which are capital goods; b) the mutual export and import of modularized semiconductors and other electronic parts; and c) the import of finished goods such as desktop computers. The progress of this global fragmentation of production processes is revealed by the "trade specialization indicator," which indicates the level of specialization in exports or imports in foreign trade (Chart 10). In general, when the global fragmentation of production processes in a given industry is advanced, the trade specialization indicator is expected to show no strong specialization toward either imports or exports.[7]

While Japan's overall foreign trade structure still maintains a certain level of specialization in exports, the level of export specialization for IT-related goods is on a declining trend. By region, this decline in export specialization holds for the Japanese IT-related goods trade with both East Asia and the US (Chart 11), but the conditions differ substantially by goods category (Chart 12).

Beginning with finished goods such as office machinery, Japan shows a strong import specialization in its trade with East Asia while the level of export specialization in its trade with the US is markedly declining. In parts such as semiconductors and other electronic parts, and scientific, medical and optical instruments, Japan retains export specialization with both East Asia and the US, but the level of specialization is declining overall. Furthermore, in the trade of capital goods such as semiconductor fabrication machines and equipment, the level of export specialization seems to be considerably high, though it is impossible to directly measure this specialization indicator. Japan exports semiconductor fabrication machines and equipment worldwide, beginning with shipments to East Asia and the US. In detail, the percentage of these exports to East Asia is rising (Chart 13).

Thus, the trade specialization conditions within Japan's IT-related goods industry vary by goods category, and this raises the question of why these differences exist. In the following discussion, we try to grasp the reasons based on data from firms that are actually engaged in each category of production (Chart 14).

Starting with finished goods such as household electrical appliances, Japan's trading partners have now obtained production technologies that are equivalent to those in Japan as a result of direct investment and other transnational alliances. Consequently, whether labor costs are high or low becomes the main source of international competitiveness in this field, and the comparative advantages of domestic production

[7] The trade specialization indicator shows the comparative advantages of domestic or foreign production for individual goods (or groups of goods) at the detailed goods classification level, and may also be used to grasp the so-called intra-industry trade processes at the broader level of classification by industry.

are being lost.[8] While corporate data on personal computers, which are included in the category of office machinery, is not available separately, it seems that the burden of capital equipment is relatively low and the content of the final assembly works is comparatively simple in the personal computer industry. These characters are similar to those in the household electrical appliances industry.

Turning to semiconductors and other electronic parts, the capital-labor ratio is high, and substantial research and development are also conducted. This indicates that, in terms of the capital and technological aspects, the domestic production of semiconductors and other electronic parts may still retain comparative advantages. Additionally, the production value added per worker is relatively high in this category, and this may reflect the fact that, as a result of the competition with East Asia and the US, the semiconductor and other electronic parts production lines that now remain in Japan may be those that generate relatively high value added. Looking at the breakdown of the semiconductors and other electronic parts trade in greater detail, however, the conditions vary greatly by part classification, revealing the heightening complexity of the global fragmentation of production processes (see BOX 1).

Semiconductor fabrication machines and equipment, which are capital goods, is one field where Japan retains a comparative advantage in domestic production because of the efficient production systems attained by skilled workers and the sophisticated technologies required. The high wages per employee also indicate the complexities of the actual works contents. Meanwhile, the low capital-labor ratio and percentage of research and development expenses underline the importance of the know-how that has been embodied by Japanese workers in this field. In fact, the value added per worker in this field is rather high.

Thus, the global fragmentation of production processes in the Japanese IT-related goods industry is developing differently by goods category.

(2) The Consumer Goods Industry

Moving on the to the consumer goods industry, the trade specialization indicators of consumer goods (Charts 10 and 11) show a generally consistent specialization in imports throughout the 1990s overall. By category, during this period, Japan consistently specialized in imports of textile products,[9] while rapidly shifting from export specialization to import specialization for household electrical appliances.[10] By

[8] Nevertheless, even within the finished goods category, Japan retains high labor productivity for telecommunications equipment, an area in which firms have made substantial research and development investments. Thus, the finished goods category includes certain fields where domestic production retains a comparative advantage. Additionally, as for finished goods for personal computers, some of the final assembly work is still being conducted domestically because of the high shipment costs and the high frequency of model changes.

[9] The level of textile industry's export specialization peaked in the 1960s, and the textile trade shifted to import specialization from the latter 1980s.

[10] Household electrical appliances include refrigerators with freezers, microwave ovens, fans and

region, Japan now specializes in imports with both East Asia and the US.

Hereafter, we examine the details of the trade in textile products and household electrical appliances as typical examples of consumer goods, beginning with textile products (Charts 15 and 16; see BOX 2 for further details). By region, Japan's import specialization is particularly pronounced in its trade with China, and the volume imported from China is increasing for many textile products. Conversely, Japan is shifting from import specialization to export specialization in its textile trade with NIEs.[11] For household electrical appliances (Charts 15 and 17), the level of import specialization with China and ASEAN 4 is rapidly increasing, and the volume of widely used household electrical appliance imports from these countries is on the rise.[12]

On the whole, both textile products and household electrical appliances can be produced by lower skilled labor, and technology transfer is also comparatively easy in these fields. Thus, it is relatively easy to advance the international division of labor for these products via direct investment, production consignments, etc. From the latter 1980s, Japanese firms developed local production bases in East Asia, where the production costs are low, partially in response to the appreciation of the yen, and the location of these bases has expanded from NIEs to ASEAN 4 and further on to China. Through such movements, the differentials in capital equipment and technological capabilities have been narrowed via direct investment, production consignments and other means,[13] and hence a division of production between Japan and overseas economies has progressed in accordance with the comparative advantage structure based on the differences in labor costs.

Additionally, for household electrical appliances the selection of production bases is

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hair dryers, which are not classed as "consumer goods" in real exports due to statistical limitations, in addition to audio-visual equipment.

[11] The difference between Japan's trade trends with NIEs as opposed to its trends with ASEAN 4 and China may be attributed to the increase in imports from Japan accompanying the expansion in domestic demand within NIEs due to the rising standards of living. In fact, from the late 1980s, along with the growth in the import of manufactured products from Japan, the services and construction industries, which are domestic-demand driven industries, posted strong growth in South Korea and Taiwan.

[12] Production of refrigerators and vacuum cleaners, which are popular among general households, shifted overseas comparatively easily, primarily to NIEs, from an early stage. Conversely, air conditioners and other relatively expensive appliances were mainly exported from Japan as they required comparatively high-level technologies and local demand was not strong. Nevertheless, with the dramatic economic development in ASEAN 4 and China from the early 1990s, industrial agglomeration in the household electrical appliance sector has rapidly advanced, and the production of widely used household appliances has shifted significantly to local facilities.

[13] According to the Hecksher-Ohlin trade theory, even without transferring capital, technologies and other production factors, domestic and overseas factor costs naturally move toward parity through free trade. In practice, however, after those production factors that are easily transferable, such as capital and technologies, are transferred, production bases tend to be shifted to those areas where the production factors that are not easily transferable, such as labor, are comparatively inexpensive.

basically determined on an individual product basis, while for textile products it is determined for more aggregated production processes, such as spinning, weaving and sewing, respectively. This stands in sharp contrast with the far greater fragmentation of production processes in the IT-related goods industry, which runs all the way down to the individual parts level. Such differences in the extent of fragmentation may appear because the improvement in productivity that can be expected from the fragmentation of production processes differs depending on the level of production complexity.

(3) The Motor Vehicles and Related Goods Industry

In the previous sections, we examined how the global fragmentation of production processes and the division between domestic and overseas production have advanced in the IT-related goods and consumer goods industries. Throughout the 1990s, however, the Japanese motor vehicles and related goods industry, which has a large weight in overall Japanese exports, retained a relatively high level of export specialization (Chart 10), with rather minimal imports. In this respect, the Japanese motor vehicles and related goods industry is fundamentally different from the two industries discussed above.

Breaking down Japanese motor vehicles and related goods exports, completely built vehicles account for the majority of these exports, and passenger car weights have been gradually increasing (Chart 18). The Japanese motor vehicles and related goods industry exports mainly to the US and Europe. While this industry specializes in exports to both regions, the export specialization with Europe is less than that with the US (Chart 19). On the other hand, although the volumes are very small, Japan does import completely built vehicles from the US and Europe.

One characteristic of the global motor vehicles and related goods trade is that completely built vehicles are traded more or less among developed countries. This may be largely attributed to the different scales of domestic markets, and the substantial differences in consumer preferences by country.[14] These different consumer preferences make each domestic motor vehicles and related goods industry specialize in different types of vehicles. Aside from differentials in factor endowments like capital stock and labor forces, market size, which implies high incomes and sufficient demand, is another important factor in the global motor vehicles and related goods trade.
There are many automakers in Europe and each automaker supply differentiated goods fitted to the preferences of each domestic market. The scale of each national market in Europe is smaller than that of the US market. In the US market, automobile manufacturers have arranged production systems centered on full-sized cars, because US consumers in general have a strong preference for large vehicles. Moreover, the size of the market is larger than those in Europe and Japan. In Japan, consumers have a strong preference for small cars.

[14] In the so-called “new trade theory” models, if consumer preferences are different among markets, a differentiated goods trade occurs even among developed countries with similar factor endowments (see the Appendix).

We can confirm the dissimilarities in consumer preferences in each market by the following facts (Chart 20). While large gasoline vehicles (with an engine displacement of more than 2,000cc) account for an overwhelming share of the US domestic market, small gasoline vehicles (with an engine displacement of 2,000cc or less) account for the majority of all vehicles sold in Japan. Meanwhile, diesel vehicles account for a substantial share of the European market, in part due to the response to environmental problems.[15]

Japanese automakers primarily focus on the development of small and medium-sized vehicle products, for which there is strong domestic demand, and have actively advanced their marketing activities in the US. The demand for small vehicles with high fuel efficiency increased in the US following the rise in petroleum prices in the 1980s. As US automobile manufacturers did not respond to this shift in demand promptly,[16] Japanese automakers succeeded in significantly increasing their US market share. Conversely, foreign automakers have not made substantial inroads into the Japanese market, with some exceptions, because of the fierce competition among domestic automakers in addition to the strong preference for small vehicles in Japan.[17]

In this manner, the Japanese motor vehicles and related goods industry has retained a comparative advantage in small and medium-sized vehicle production. The recent situation in the US automobile market, which is Japan's largest export market for completely built vehicles, show that Japanese automobiles have a substantial share for small and medium-sized vehicles, while US automobiles have a nearly 100% share for the largest vehicles (Chart 21).

Another significant factor concerning Japanese motor vehicles and related goods industry is that Japan's trade imbalances with the US and Europe became a major issue during the 1980s. In response, Japanese automakers actively expanded their overseas production facilities, and this shift toward the overseas production of completely built vehicles subsequently progressed, induced by the further appreciation of the yen.[18] This

[15] The European Commission and the European Automobile Manufacturers Association have reached an agreement on targets for the reductions of carbon dioxide emissions. Based on this agreement, European automakers have been actively introducing diesel vehicles that provide superior fuel efficiency.

[16] As the unit profit on large vehicles is 3-4 times higher than that on small vehicles and the technologies required to produce components for small vehicles are more costly than those for large vehicles, the US automakers did not have strong incentives at first to pursue the development of small vehicles.

[17] In the US and Europe, there are usually no more than 2-3 automakers in a country at most, but 11 Japanese automakers are competing in the domestic market.

[18] Yet another factor promoting local production by Japanese automakers in Europe was the market integration of the European Union whereby trade was liberalized within the EU and various restrictions were placed on trade with countries outside the EU, including requirements for the use of locally manufactured products. As a result, Japanese automakers were practically forced to shift to local production in Europe, and expanded their production facilities into various continental European countries.

is an important development for the industry overall.

As for the division between domestic and overseas production, Japanese automobile manufacturers mainly responded to the increasing global demand by expanding their overseas production during the 1990s. While the number of vehicles supplied by Japanese automakers to the overall world market is increasing, the number of vehicles produced in Japan is decreasing[19] (Chart 22). This trend has been significantly influenced by the existence of transportation costs, and by the "*kanban* (just-in-time) system" inventory management technique unique to the motor vehicles and related goods industry, which assumes high agglomeration of different production processes. Meanwhile, the percentage of luxury car exports is increasing and the quality of domestic products is becoming higher. In fact, unit prices have followed an upward trend in the US exports of completely built vehicles produced in Japan (Chart 23), and Japanese luxury class vehicles have increased their share in the US market (Chart 21).

As for automotive components production, competition between Japanese and foreign manufacturers is intensifying, and this suggests the possibility that highly standardized components will be produced overseas hereafter (See BOX 3 for a further discussion of the automotive components industry). On the other hand, modularization has not yet widely advanced in the Japanese automotive components industry. This may be because refined Japanese supplier systems have already been functioning effectively and this leaves little motivation to directly introduce the outsourcing type modularization of automotive components developed in the US and Europe. Nevertheless, it seems that domestic firms will also move toward some types of modularization where they can expect production efficiency improvements and which are consistent with the existing domestic supplier systems in the future.

Thus, we conclude that Japanese automakers have maintained their comparative advantage in small and medium-sized vehicle production under the following conditions: (1) severe competition in the domestic market; (2) varied consumer preferences in different countries; and (3) the historical development whereby trade friction became exacerbated during the 1980s. In terms of a deepening of the division of labor, an international fragmentation of production processes is not yet clearly seen in the Japanese motor vehicles and related goods industry, despite some moves toward overseas production of certain standardized components. Meanwhile, Japanese automakers have advanced their local overseas production by shifting entire production streams overseas for specific models with strong local demand. This is distinctively different from the patterns in the IT-related and consumer goods industries.

3. Influences from the Changes in Japan's Trade Structure

The above examinations have shown how the international division of labor is deepening in various industries. Combined, these trends are bringing about changes in

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[19] These developments have mostly resulted in overseas production to meet the local demand in overseas markets, and have not yet led to any substantial volume of so-called "reverse imports" whereby vehicles produced by Japanese automakers abroad are used to supply the domestic market.

Japan's overall trade structure, and this chapter discusses the influences from these changes.

(Influences from the Active Trade in IT-related Goods)
As described above, the global fragmentation of production processes is advancing for IT-related goods, and this is resulting in a very brisk international trade in such goods. The substantial and rising share of IT-related goods in both Japanese exports and imports is exerting the following influences on Japan's overall import-export structure, and on Japanese economic relations with the US and East Asia.

(1) Japan's real exports of IT-related goods have come to reflect the fluctuations in the overseas demand for such goods far more sensitively than in the past. It has become difficult to explain the recent developments in real exports with estimated coefficients using orthodox formulations[20]. The resulting estimation error is extremely similar to the fluctuation in global semiconductor demand (Chart 24). This implies that the massive decline in Japanese exports during 2001 was strongly influenced by the global slump in IT-related goods and semiconductor fabrication machines and equipment. It cannot be explained solely by world output and foreign exchange market developments. Tentatively adding worldwide semiconductor shipments to the explanatory variables, and understanding these as a proxy for overseas IT-related goods demand, the fit of the estimation improves, especially for the most recent period.

(2) The simultaneous correlation between real exports and imports is rising. Calculating the cross correlation coefficients recursively between total real exports / imports and real exports / imports of IT-related goods (Chart 25), it can be said that recently there has been a conspicuous increase in the simultaneous correlation between exports and imports of IT-related goods, and that this is resulting in a subsequent similar increase in the simultaneous correlation between total exports and imports. Moreover, this analysis shows that the correlation between real exports and imports of IT-related goods tends to be more simultaneous in the most recent period. In fact, recent developments in total real imports can be more accurately grasped by explicitly incorporating IT-related goods exports as an explanatory variable into the estimation of the real imports function (Chart 26).

(3) The economic ties linking Japan, East Asia and the US are deepening as a result of the increased trade in IT-related goods. We conducted a variance decomposition using a simple VAR model (Chart 27) to investigate the mutual real GDP influence among the three countries and regions Japan, East Asia (represented by South Korea, Taiwan, Singapore and Malaysia) and the US.[21] The following two main conclusions were

[20] See Kimura and Nakayama [2000] for the details of an ECM-type export function that considers exchange-rate volatility.

[21] Economic Planning Agency Research Bureau [2000] conducts variance decomposition using production indices from 10 countries and regions (the US, Japan, NIEs and ASEAN 4), and the results show that NIEs and ASEAN 4 are greatly influenced by the other countries, and that this influence is further amplified when shocks occur.

reached concerning the period from 1995, when Japan's real import-export simultaneous correlation increased, and during the prior decade. First, between Japan and East Asia, the influence from Japan on East Asia is increasing overall. Second, between the US and East Asia, the influence from the US on East Asia is also increasing overall.

(Influences from Consumer Goods Imports)
As noted above, the weight of consumer goods in total Japanese imports is not significantly changing, but the amount of imports from East Asia, particularly from China, is strikingly increasing, with an especially prominent rise in imports of textile products (Charts 28 and 29; see BOX 4 for a discussion of Japanese trade with China). This has been accompanied by a rising penetration of imports in domestic consumer goods supply (Chart 30). What is more, the domestic prices of imported consumer goods and of domestically produced consumer goods that compete with imports have dropped substantially[22] (Chart 31). Consumer goods that are relatively strongly influenced by domestic supply-demand conditions seem to be responding to the changes in the import penetration ratios with some time lag[23] (Chart 32).

Turning to other prices, the rapid pace of technological innovation in the IT-goods related industry, which has achieved high growth through international trade, is pushing down the prices of IT-related capital goods and of capital goods overall (Chart 33). Furthermore, it is entirely conceivable that the shift of Japanese production facilities overseas could be accelerated if domestic prices in nonmanufacturing industries that have a strong social infrastructure character, e.g., electricity, gas and water supply, remain relatively high by international standards. Additionally, the fees charged by the telecommunications, transportation and finance industries are important in terms of domestic production costs, and thus are indirectly influenced by the globally competitive business environment facing the trade goods sector. In fact, deregulation has been advanced and price reductions in Internet and other telecommunications related fields have been actively promoted from several perspectives including maintaining the international competitiveness of domestic industries.

(Influence on the International Balance of Payments)
From a long-term perspective, Japan's surplus in the goods and services trade balance is contracting moderately, and this may be partially attributed to the changes in the import-export structure described above. On the other hand, Japan's income account surplus is expanding, so the reduced goods and services surplus has not resulted in any clear long-term trends in the current account overall (see BOX 5 regarding Japan's balance of payments developments).

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[22] When the volume of low-priced imported goods rapidly expands, this might also tend to push down the foreign-exchange rate. Nevertheless, the fluctuations in actual foreign-exchange rates are influenced by a wide variety of factors aside from exports and imports, and the mechanism whereby foreign-exchange rates move to lessen the domestic price-reduction pressures from increased imports is not always observed.

[23] Kamada and Hirakata [2002] also note that the structural rise in Japan's import penetration ratios is exerting strong downward pressures on domestic consumer prices.

4. Concluding Remarks

This paper has shown how Japanese firms have established an international division of labor amid global competition. Diverse approaches are being adopted in different fields. In some areas, like the IT-related goods industry, global fragmentation of production processes is advancing. In others, like the consumer goods industry, production processes are divided more roughly or the entire production of certain goods is being divided between domestic and overseas manufacturing. In certain fields, like the motor vehicles and related goods industry, the comparative advantages of domestic production are being maintained through product differentiation. Regardless, all Japanese industries are being forced to address the difficult choices of "selection and concentration" to achieve a proper balance of domestic and overseas production under harsh competition between Japanese and foreign firms. Thus, Japanese firms in trade goods sectors, especially in manufacturing, are under pressure to make critical decisions about which goods and processes should remain in Japan and which should be relocated overseas, considering such factors as capital costs, wages, transportation costs and expected future increases in demand (Chart 34).

Looking at the manufacturing and nonmanufacturing sectors, the contribution of manufacturing firms to Japanese GDP growth has been declining somewhat from the 1990s (Chart 35). Nevertheless, the Japanese manufacturing sector will continue to be exposed to global competition and hence needs to discover new means to survive and to achieve dynamic changes, as evidenced in this paper. For manufacturers, advancing a smooth reallocation of management resources such as labor and capital will form the essential foundations for future growth.

Moreover, since existing technologies tend to become shared worldwide over time through direct investment and other transnational alliances, the differential in labor costs will become the determining factor for the production of goods utilizing these technologies, and this holds true for all industries. Therefore, the creation of new technologies that produce higher value added and of new business models that generate higher profitability will be crucial for Japanese manufacturers to maintain the comparative advantages of domestic production and to achieve further growth.[24]

On the other hand, the nonmanufacturing sector now utilizes more labor and capital than the manufacturing sector (Chart 37). Accordingly, the extent to which Japan's nonmanufacturing sector productivity can be improved is becoming a key issue for overall economic growth.[25] To place the Japanese economy onto a new sustainable growth path, it will be essential to manifest the growth potential of the

[24] Regarding this point, it seems that Japanese manufacturing firms are trying to adopt a management strategy of maintaining the domestic production of goods that require basic research, product development and the use of advanced technologies, while relocating the production of goods that only require conventional technologies overseas (Chart 36).

[25] In the US, the nonmanufacturing sector made a substantial contribution to the high economic growth achieved during the 1990s.

nonmanufacturing industry, which has been said to be relatively inefficient to date. This situation is reminiscent of that in the US during the 1980s when, in response to the high dollar, manufacturing firms – especially those in the automobile industry – achieved high productivity gains from increased inward direct investment. Similarly, promoting greater inward direct investment into Japan's nonmanufacturing sector, which suffers from low productivity growth, would boost the potential growth rate of the sector.

Inward direct investment into Japan is presently still at a very low level compared with that into the US (Chart 38). According to the 2001 *World Competitiveness Yearbook* published by the International Institute for Management Development (IMD) in Switzerland, Japan's overall international competitiveness presently ranks around the middle of all countries surveyed (Japan ranks 26th out of the 49 countries surveyed; Chart 39). Based on this, the Japanese market certainly cannot be characterized as an exceptionally attractive destination for foreign direct investment. Ample latitude remains to improve systems and business practices toward making Japan a more attractive investment destination, and such efforts should be made on an intensive basis. In fact, such efforts will be indispensable for the Japanese manufacturing sector to survive fierce global competition.

There is also a high likelihood of additional changes in Japan's international trade structure if the East Asian economies come to produce even higher quality products than they have in the past. Nevertheless, such changes will not necessarily have an immediate impact on the domestic savings-investment balance. In terms of accounting, domestic savings surpluses are simply consistent with surpluses in the international balance of payments. Hypothetically, however, what will the outcome be if Japan's domestic savings surplus remains more or less steady for the time being while the East Asian economies come to produce a wide range of products with strong comparative advantages in terms of both quality and pricing? The market mechanism adjustment will inevitably exert downward pressure on the global market prices of goods produced in Japan, which are determined based on changes in yen-denominated domestic prices and in foreign exchange rates. This would lead to additional downward pressure on domestic prices, or could even result in the withdrawal of domestic products from the global market. From this perspective, it is clearly important to promote changes in Japan's economic structure and to increase domestic consumption and investment opportunities for the Japanese economy to achieve sustainable growth.[26]

These changes in Japan's economic structure are being advanced as the world economy has entered a new era of globalization, following the collapse of the "Cold War structure"[27] (Chart 40). As detailed in this paper, the global economy has become more closely intertwined through foreign trade in the 1990s, and especially from the latter 1990s, with the rapid expansion of the IT-related goods industry. Under these

[26] See Maeda, Higo and Nishizaki [2001] for a detailed discussion of Japan's ongoing economic structural adjustments.

[27] As shown in Chart 40, from the 1990s the growth in world trade has become remarkably high compared with that in global real GDP, indicating how the world economy has become more closely interconnected via foreign trade ever since the dismantling of the Berlin Wall.

conditions, one may assume a new worldwide business cycle pattern whereby other economies in effect align themselves with those that have strong autonomous growth momentum. And if this proves to be true, unless the Japanese economy regains its self-sustaining growth potential, Japan's route to recovering stable economic growth will inevitably become dependent on the conditions in other countries. Changing Japan's economic structure to respond to the changes in the global economic environment may well be the most viable means to place Japan's economy back on a sustainable economic growth path.

BOX 1: Export and Import Trends of Semiconductors and Other Electronic Parts

Japan's trade in semiconductors and other electronic parts does not show any significant specialization toward either exports or imports, especially when compared with its trade in IT-related finished goods. In greater detail, however, there are fields in which Japan retains a comparative advantage in domestic production and those in which it does not. There are various reasons for this. This BOX classifies semiconductors and other electronic parts into the following three broad categories, and then reviews the market characteristics for each category (BOX 1-Charts 1 and 2): (1) semiconductor devices and MCUs; (2) memories; and (3) system LSIs.

(1) <u>Semiconductor Devices and MCUs</u>

Japan has a strong export specialization for semiconductor devices and MCUs, and Japanese firms have a dominant share in the global market.

Japanese firms have traditionally held an overwhelming share of the semiconductor device market for transistors, diodes, etc. Amid the ongoing standardization of these goods, the device quality improvement is not very pronounced. Accordingly, US and East Asian manufacturers have little incentive to newly enter these markets, paying new development costs. Comparing the figures for 1997 and 2000, the level of Japan's export specialization for the goods in this category has remained essentially unchanged.

Japanese firms also maintain an overwhelming share in the market for micro-controllers (MCUs), which are mostly used for household electrical appliances, AV equipment and automobiles. The market conditions are similar to those for semiconductor devices and MCUs.

(2) <u>Memories</u> (Memory Elements, DRAMs, SRAMs and ROMs)

The standardization of goods is also substantially progressed in this field. The comparative advantages of domestic production are being lost and production facilities are agglomerating in East Asia, primarily in NIEs. Especially for commoditized items, Japanese firms apparently see little merit from re-entering this market, considering the fixed costs involved.

Looking at trade by region, Japan has a strong import specialization with NIEs, but still maintains an export specialization with the US. Reviewing the changes from 1997 through 2000, the level of import specialization with NIEs rose further while the level of export specialization with the US declined. Moreover, over the same period, the share of memory products in Japan's total semiconductor parts exports contracted.

This suggests a growing dominance of NIEs and US manufacturers in the world memory market, particularly for DRAMs. DRAMs have relatively low value added, and considering the fixed costs required, they provide little merit for new market entrants. Thus, the memory market conditions for Japan are seemingly exactly opposite to those for semiconductor devices and MCUs.

In recent years, domestic production has been shifting toward higher end memories for servers and other devices that require comparatively high-level technologies, although the production amount is still small.

(3) System LSIs (Analog Logics etc.)

Japan retains comparative advantages of domestic production in this field, with sophisticated technologies. System LSIs are knowledge-intensive goods that require highly refined circuit design, and Japanese firms are said to still have international competitiveness in system LSIs, especially for household electrical appliances and game machines. In fact, the share of system LSIs in Japan's exports is increasing.

Nevertheless, considering the future international spread of technologies hereafter, even though Japan presently maintains its comparative advantages in this field, the possibility that these advantages may eventually be lost cannot be denied. The technologies required for certain system LSIs, however, cannot be easily transferred for some products, and thus certain countries may be able to retain their comparative advantages as observed in CPUs.

As we have seen, reviewing the semiconductors and other electronics parts markets in greater detail reveals differences in the comparative advantages enjoyed by different countries and regions for different types of parts. The division between domestic and foreign production in electronics parts is being pursued accordingly. As a result, various types of parts are being traded internationally. This clearly indicates how IT-related goods production processes are becoming globally fragmented in an increasingly complex fashion.

BOX 2: The Division of Domestic and Overseas Production in the Textile Industry

Here, we examine how the division between domestic and overseas production is taking place for each category of products in the textile industry, which has the highest weight among all consumer goods imports. Clothing and related articles account for 80% of Japanese textile products imports, while fabric, especially synthetic fiber fabric, accounts for a relatively large share of its exports (BOX 2-Chart 1). The characteristics of Japan's textile trade vary substantially by goods category (BOX 2-Chart 2). Japan is a net importer of clothing, cotton/linen/silk/wool fabric and thread, and a net exporter of dyed fabric and synthetic fiber fabric / thread.

The trade specialization conditions for clothing and for dyed fabric have remained stable over the past ten years. For synthetic fiber fabric, however, the level of export specialization with China has been rising, while the trade with ASEAN 4 is shifting from export specialization toward import specialization. These developments seemingly reflect the following factors: (1) domestic demand has been expanding in China; (2) exports for the so-called "take-home trade," [28] whereby domestic Japanese manufacturers export clothing material to Chinese sewing bases and the finished clothes are then shipped back to Japan, have been expanding; and (3) ASEAN 4 have built up supply capacities that are sufficient to substitute for domestic Japanese production.

Reviewing the corporate data by product category to see why these changes are occurring in the textile industry (BOX 2-Chart 3), the following general characteristics become clear, although the categorization of trade statistics and the corporate data is not totally consistent.

A. For **chemical textiles (including synthetic textiles)**, where Japan still retains a comparative advantage in domestic production, the production value added per worker is high, as is the percentage of expenses devoted to research and development. Moreover, wages are high, and the percentage of part-time workers is low.[29] These characteristics indicate that Japan's sustained export specialization in this field is based on maintaining technological competitiveness and retaining workers who can apply such technologies to actual production works. In addition, given the high capital labor ratio and the small number of firms, large expenses are needed to establish new production facilities. Overall, it seems that in the chemical textiles industry, where there are economies of scale, new market entry in the form of overseas production tends to be hindered.[30]

[28] Japanese firms typically export clothing fabric, have the sewing works done in China to benefit from the low local labor costs, and then import the finished goods back into Japan.

[29] It should be noted, however, that the chemical textile manufacturing industry discussed here also includes a substantial amount of non-textile production, e.g., chemical products, plastic chemicals, telecommunications equipment and materials, and pharmaceuticals, and thus the characteristics noted above do not necessarily apply solely to the production of textile goods.

[30] As for chemical textiles, the extent to which the sewing and other industries that use chemical textiles as raw materials have developed is also important for locating production facilities. In Japan's textile industry trade with ASEAN 4, the level of export specialization for synthetic fiber

B. For **dyed products (the dyeing and finishing industry[31])**, the production value added per worker is somewhat high. The expenses devoted to research and development are not so great, but the percentage of workers assigned to research and development works is high. The wages in the dyeing and finishing industry are high and the percentage of part-time employees is low. Thus, the dyeing and finishing industry differs from the chemical textiles industry in that the key to maintaining competitiveness is seemingly the use of a highly skilled labor force that has embodied high-level techniques. This facilitates stable finishing works, and provides leeway to increase demand by incorporating new fashion trends through differentiated dyeing processes. This seems to be the reason why this industry continues to maintain export specialization.

C. For **woven goods and knitted outwear, accessories and other textile products**, Japan has a strong import specialization, with no comparative advantage in domestic production. In this field, the production value added per worker is low, and the capital labor ratio and the percentage of expenses devoted to research and development are both at low levels. Additionally, the wages are low, and the percentage of part-time workers is high. These characteristics indicate that Japanese producers are not competitive in terms of both technologies and capital stock in this field, and that the labor used is also relatively low-skilled in general. Overall, it may be concluded that in this field domestic manufacturers have been unable to maintain comparative advantages against East Asian manufacturers.

D. For **yarn spinning**, which is a typical process industry, the capital labor ratio is considerably high, but the value added per worker is low and domestic production does not necessarily enjoy comparative advantages. This demonstrates that a high capital labor ratio by itself does not always generate comparative advantages for domestic manufacturers. As implied from the low percentage of research and development expenses in this field, it has already become difficult to achieve further technological advances, and the areas in which existing technologies can be applied are also limited. Moreover, even if quality improvements and price declines are attained, an increase in future demand to match such changes cannot be expected, and therefore the motivation to expand domestic production seems to be small.

As we have seen, the division of production between Japanese and East Asian manufacturers in the textiles industry varies by product group due to various reasons. Japan is maintaining its comparative advantages in those fields that require sophisticated technologies and extremely large-scale capital equipment, e.g., chemical

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fabrics and thread has been decreasing, and at the same time the overseas production of chemical textiles is expanding, especially for widely used items. Amid these developments, domestic Japanese synthetic fiber firms are maintaining their competitiveness by shifting to production of higher value-added fabrics with better quality.

[31] The dyeing and finishing industry implements various types of processing works including fiber and fabric refining, bleaching, dyeing, finishing and printing.

textiles and dyed products, but has already lost its comparative advantages in other fields, especially those where the required labor skills are not all that high and where the product market conditions are closer to perfect competition, such as for clothing. Naturally, the value added is higher for the former types of products, and lower for the latter. Since the chemical textiles industry provides raw materials for the clothing industry, the global fragmentation of production processes seems to be developing from a wider perspective.

BOX 3: Trends in Automotive Components Industry

Automotive components exports generally account for 20-30% of total Japanese motor vehicles and related goods exports, with no clear changes in the share trends. By region, it is difficult to grasp any clear trend in the export value of automotive components to Asia, partially due to influences from the Asian currency crisis. In contrast, the values of exports to the US and Europe momentarily declined around the mid-1990s, but have recently been rising gradually, mostly for use in Japanese automakers' overseas production bases (BOX 3-Chart 1).

The domestic production trends vary somewhat by parts category. Automotive components are broadly divided into engine parts, drive, transmission and steering parts, body parts, electrical parts, and accessories. The changes in the production volumes and unit prices of these parts can be categorized into the following three groups (BOX 3-Chart 2).

(1) Engine Parts / Drive, Transmission and Steering Parts

While the domestic production of these parts has not been increasing significantly, or may even be declining, the unit price rises have recently been topping out. This suggests that the standardization of products has been progressing, and that the competition with East Asian and other foreign producers has intensified.

(2) Body Parts / Electrical Parts

The growth in the domestic production of body and electrical parts is leveling off, but the decline in the unit prices for these items is bottoming out. While the competition with overseas manufacturers is intensifying, these trends suggest that Japanese automotive components markers are shifting the production of lower quality products overseas while further improving the quality of the higher-end items that are domestically manufactured.

(3) Accessories

The domestic production of accessories has begun to decline, and the unit prices continue dropping. It seems this is because the comparative advantages of domestic production have already been lost for most of the products, and Japanese automakers are shifting to overseas production and local procurement.

With the further increase in overseas local production by Japanese automobile manufacturers, the movement toward greater local production and procurement of automotive components is also expected to advance in the future. The industry opinion seems to be that the local production and procurement of engines, engine parts, driving system parts and chassis parts will increase in the US and Europe, and that of a wide range of items including body parts, electrical parts and accessories will expand in the

emerging economies.[32] Meanwhile, imports from East Asia are expected to increase for components that are now produced in East Asia but were formerly produced in Japan.

The global integration and restructuring of automobile manufacturers has been advancing in recent years, and traditional parts procurement relations are being reviewed along with this industry restructuring. In response to these developments, Japanese automotive components manufacturers are advancing their division of domestic and overseas production in accordance with the particular conditions of each product, and generally working to further upgrade the quality of their domestically produced parts. Thus, the Japanese automotive components industry is gradually moving to a greater international division of labor.

[32] See FOURIN [2001] for further details.

BOX 4: Issues Concerning Japan-China Trade

There has recently been a great deal of discussion concerning the bilateral trade between Japan and China. From the middle to long term macroeconomic perspective, however, it is difficult to derive any constructive connotations from just examining the trade relations between two particular countries. Accordingly, this BOX simply summarizes the distinctive characteristics observed in the present bilateral trade with China.

(Trade Between Japan and China)
The percentage of Japanese imports from China has been increasing year by year, and in August 2001 China became the largest source of imports on a value basis, surpassing the US (BOX 4-Chart 1). China's share of global trade has also been steadily rising (BOX 4-Chart 1). Looking at the bilateral trade by product category (BOX 4-Chart 2), capital goods and parts show the highest weights in exports from Japan, while consumer goods account for the greatest percentage of imports into Japan. Comparing the trade data of 1990 and 2000, the shares of capital goods and IT-related goods have been increasing in both exports and imports. This shows that the rise in the simultaneous correlation between Japanese exports and imports, noted in this paper, is also apparent in Japan's trade with China. The import figures show that the share of raw materials has been declining while that of consumer goods has been increasing, possibly reflecting China's expanded consumer goods supply capacity (BOX 4-Chart 3).

(Foreign Direct Investment into China)
Foreign direct investment into China momentarily slumped following the Asian currency crisis, but has subsequently recovered and is now expanding at a rapid pace (BOX 4-Chart 4). In the past, Japanese firms' direct investment into China primarily focused on the establishment of production bases for exports to Japan utilizing inexpensive Chinese labor. Recently, however, more Japanese firms are making capital investments in China with a view toward the potential growth of the domestic Chinese market. Amid these trends, Japanese direct investment in China is shifting from labor-intensive processing industries such as textiles to technology and capital-intensive industries such as electric equipment (BOX 4-Chart 5).

(China's Accession to the WTO)
As China's accession to the WTO has recently been approved (BOX 4-Chart 6), the conditions whereby China and its trading partners, including Japan, can gain deeper mutual understanding and enjoy the merits of free trade are being improved. Formerly, Chinese tariffs on imported goods were higher than those in other countries, and China also maintained various non-tariff barriers such as import restrictions. With Chinese membership in the WTO, import tariffs are being reduced and non-tariff barriers are being eliminated, which is expected to result in even higher trading volumes. Additionally, foreign capital will be afforded equal national treatment. This should facilitate domestic Chinese sales by foreign firms, and increase their incentive to expand business in China. Improvements of China's legal and other systems should also promote greater foreign direct investment into China.

BOX 5: Trends in Japan's Balance of Payments

Japan's current account figures show some cyclical fluctuations, but no clear long-term trend (BOX 5-Chart 1). By item, Japan's goods and services account surplus is contracting while its income account surplus is expanding. The following issues need to be considered when examining Japan's balance of payments trends for the time being.

Important factors affecting the goods and services account include: (1) the decline in the balance of travel services resulting from the terrorist attacks in the US; (2) the fluctuations in import prices resulting from the decline in crude oil prices last year and their subsequent increase; and (3) the effects from the weakening of the yen in the past (BOX 5-Chart 2)

Meanwhile, the income account (BOX 5-Chart 3) has been strongly influenced by outstanding securities investment and direct investment. The present expansion in Japan's income account surplus is mostly the result of securities investment in foreign medium and long-term bonds, so it is important to note that the income account surplus may be greatly affected by future overseas interest rate developments. Meanwhile, Japan's foreign direct investment has recently been rising once again (BOX 5-Chart 4), and the resulting revenues will continue contributing, to some extent, to the income account surplus.

Assuming that Japan retains its comparative advantages in technology-intensive areas, the income from patent royalties and licensing fees may affect future current account trends. The receipts of such royalties and fees appear to be on a gradual rising trend (BOX 5-Chart 5).

Over the long term, the domestic I-S balance determines the external payments of the economy. Looking at Japan's I-S balance by sector (BOX 5-Chart 6): (1) in the household sector, while the aging of society is progressing, elderly Japanese keep a high savings ratio, and thus there seem to be no signs of any sudden shift toward a savings deficit; (2) the corporate sector also continues to record a savings surplus; and (3) in the government sector, while the vision toward reducing the fiscal deficit over the middle to long term has not yet become firmly established, concrete efforts to avert any sudden expansion of the deficit are accumulating. Overall, the outlook for a sudden reduction in Japan's domestic I-S balance savings surplus seems unlikely.

Appendix: Trade Patterns shown in Trade Theories

This paper has illustrated how the international division of labor by Japanese firms is currently becoming deeper and increasingly complex in diverse formats. Trade theories provide various models of trade patterns, and this Appendix presents a simple comparison between the patterns presented by these models and Japan's actual trade patterns.

As mentioned in the paper, trade theories can be broadly divided into two groups. The first is the "Hecksher-Ohlin trade theory," which assumes common production functions and consumer utility functions among trading partners, as well as perfect competition in the trade goods market, and attempts to explain the mechanism whereby different capital, labor and other production factor endowments determine international trade patterns.

The other are the so-called "new trade theory" models, which attempt to explain the actual active manufactured goods trade among industrialized countries with relatively similar factor endowments. There are various versions, and most of the models assume imperfect competition in the trade goods market, e.g., monopolies, oligopolies, and monopolistic competition, increasing returns to scale, and product differentiation.[33]

As noted in the paper, the globalization of the world economy has advanced throughout the 1990s, ever since the dismantling of the Berlin Wall, and the so-called North-South trade has also become very active. In this respect, it can be said that the world of the Hecksher-Ohlin trade theory became more persuasive in the 1990s. On the other hand, this theory dictates that there is no relocation of production factors under free trade and no trade when production factors move freely, but production factors such as capital and technology are actually being transferred across borders through direct investments, production consignments and other means. In the real economy, the production functions of the developed and the developing nations are not the same at the beginning, and these may only become shared once capital and technologies are transferred internationally.[34] In this case, the differential in labor costs that emerge from differences in labor endowments become a decisive factor determining production comparative advantages. This explanation seems to hold in the cases of IT-related finished goods and of household electrical appliances, clothing, and yarn-spinning in consumer goods, as detailed in this paper.

[33] Well-known trade models that assume imperfect competition include Krugman [1979], where consumers prefer variety of goods itself, and Lancaster [1980], where consumer preferences diversify within the same good. Both models attempt to explain the mechanism whereby international trade occurs for similar goods.

[34] Aside from this, considering the existence of transportation costs, decisions on establishing overseas production bases to meet local demand may be rational. In fact, a recent questionnaire regarding the reasons why Japanese firms are establishing local production bases in East Asia shows that Japanese managers are now more concerned about meeting the local demand in the East Asian region than they are about achieving lower production costs (Appendix-Chart 1).

On the other hand, the "new trade theory" models may provide a better explanation for fields where technologies and production facilities become market-entry barriers, and where there is imperfect competition for trade goods, e.g., semiconductor fabrication machines and equipment in IT-related goods, chemical textiles and dyed products in consumer goods, and motor vehicles and related goods.[35] Especially, given the diversity of consumer preferences for automobiles, the motor vehicles and related goods industry trade may be better grasped by models that incorporate product differentiation by firms facing monopolistic competition.

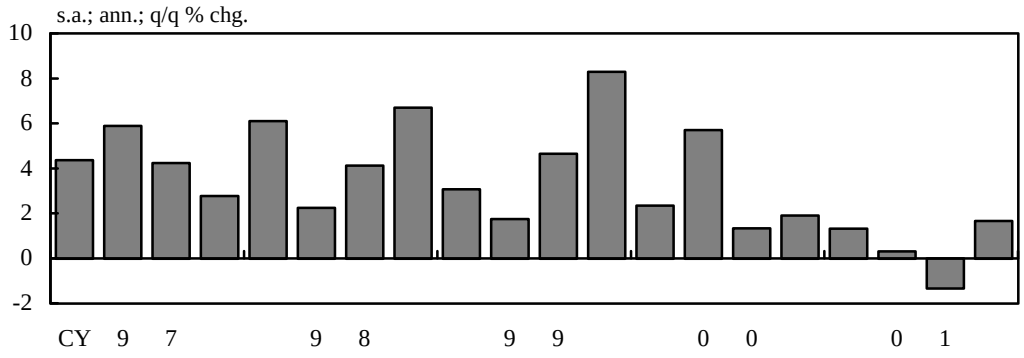
The actual data confirms clear differences in the production factor endowments of Japan, East Asia and the US (Appendix-Chart 2). Nevertheless, the increasing complexity of the international division of labor, as described in this paper, provides a situation in which the two trade patterns introduced above are intermixed within industries, and thus under "industry" classification neither of the patterns clearly explains Japan's actual international trade[36]. This simply reflects the diversified behavior of Japanese firms, such as promoting production modularization and the global fragmentation of production processes, dividing domestic and overseas production by products, and retaining comparative advantages of domestic production by product differentiation and shifting to higher-quality products. The activities of Japanese firms that are exposed to global competition are becoming even more diverse through these managerial efforts, and thus the actual situation cannot be sufficiently grasped at the "industry" level.

[35] The situation of imperfect competition also emerges when the international transmission of technologies takes time. Trade models that consider product cycles incorporate this factor. The increasingly severe competition between Japanese and East Asian manufacturers of IT-related goods and automotive components is, in part, due to the gradual transmission of various production technologies.

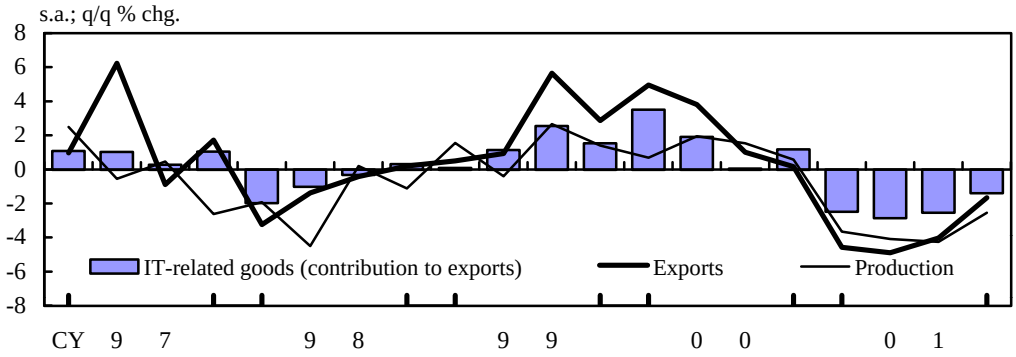
[36] For example, reviewing the relationships between the capital-labor ratios and the export and import shares at different Japanese manufacturing firms, there is no consistent distribution indicating that comparative advantages are necessarily achieved in line with relative capital and labor endowments (Appendix-Chart 3). On the other hand, estimates focusing on technology, which is the other key factor of production, do show some correlation whereby industries with higher technological intensity have higher export shares, but this still does not provide a sufficient explanation for the trade in certain industries like electrical machinery that are characterized by active intra-industry exports and imports (Appendix-Chart 4).

Economic Conditions

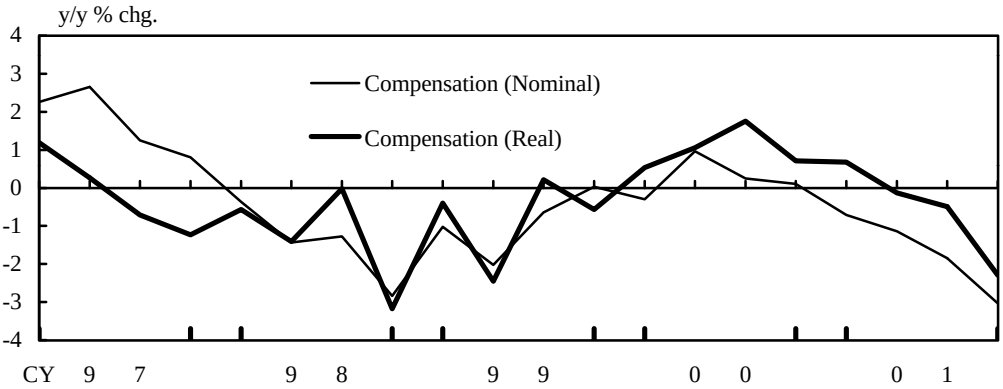
(1) United States - Real GDP



(2) Japan - Exports and production



(3) Japan - Compensation of employees



Notes: 1.Japan's exports are in real terms (seasonally adjusted by X-11). The way of calculating real exports is shown in Chart 3.

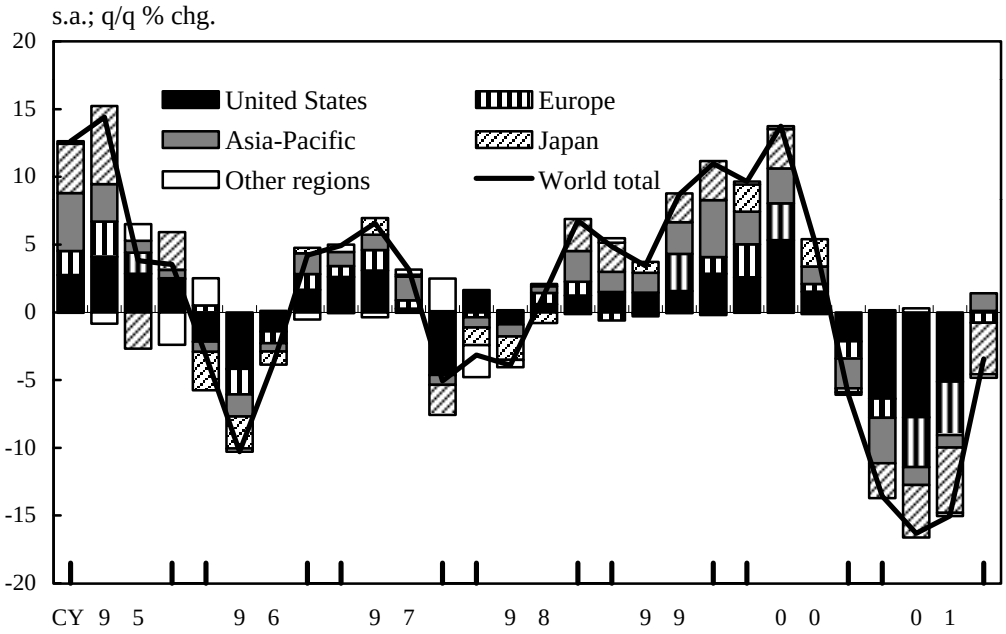
2.Compensation = index of total cash earnings * index of regular employees / 100 (calculated by the Bank of Japan). Real basis is deflated by Consumer Price Index. Data based on firms with at least 5 employees.

1st quarter = Mar.-May, 2nd quarter = Jun.-Aug., 3rd quarter = Sep.-Nov., 4th quarter = Dec.-Feb.

Sources: Ministry of Finance,"The Summary Report on Trade of Japan"; Bank of Japan,"Wholesale Price Indexes"; Ministry of Economy Trade and Industry,"Indices of Industrial Production"; U.S. Department of Commerce,"National Income and Product Accounts"; Ministry of Health, Labour and Welfare,"Monthly Labour Survey"; Ministry of Public Management, Home Affairs, Post and Telecommunications,"Consumer Price Index."

Chart 2

World Semiconductor Shipments



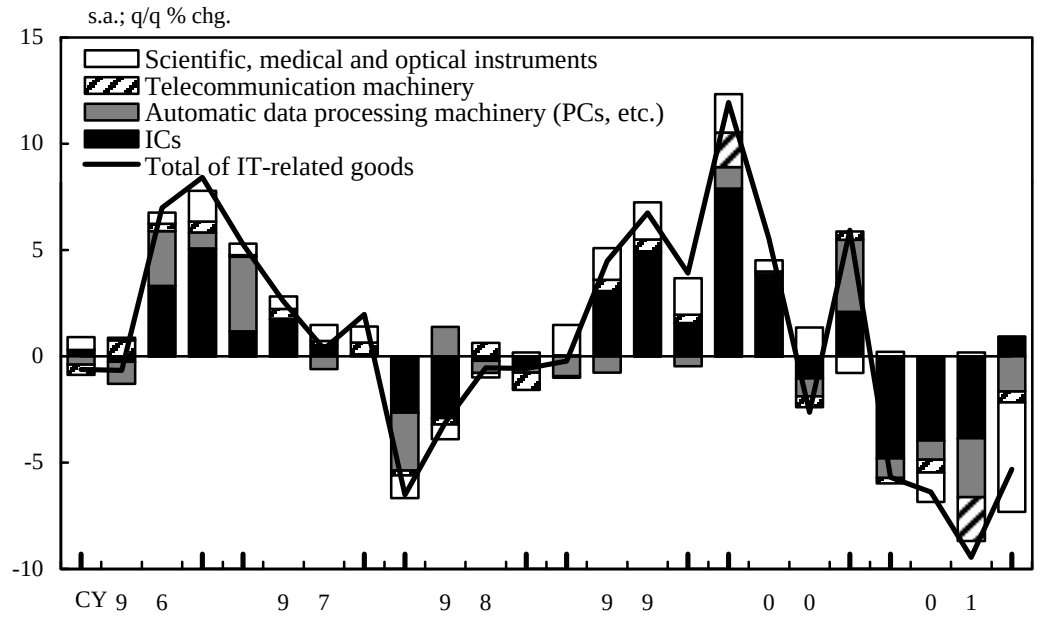
Note: Figures are on a real basis deflated by U.S. PPI electronic devices.

Source: WSTS (World Semiconductor Trade Statistics), "Semiconductor Forecasts."

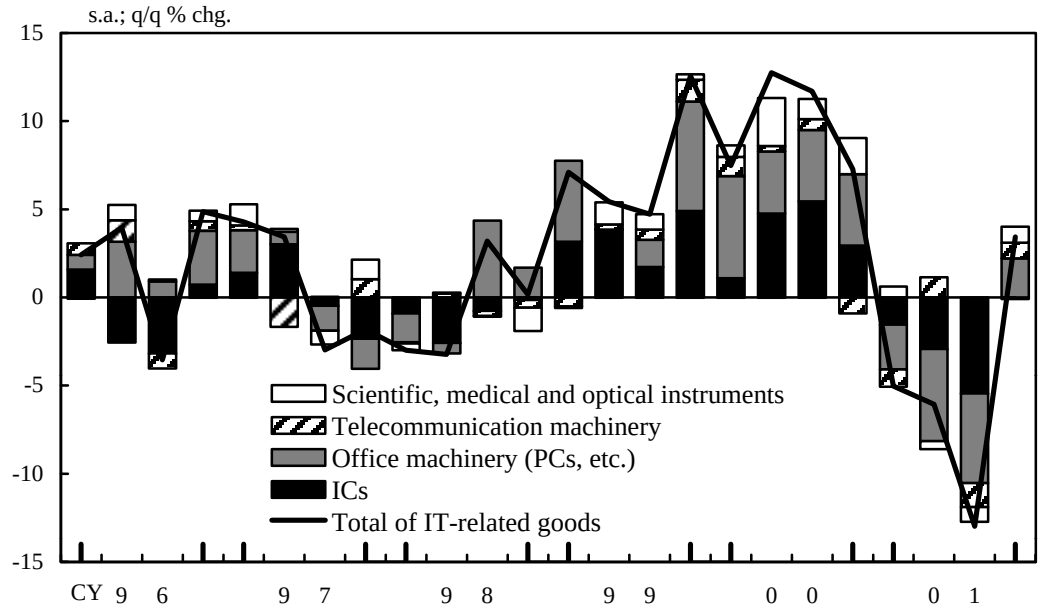
Chart 3

Exports and Imports of IT-related Goods

(1) Real exports



(2) Real imports



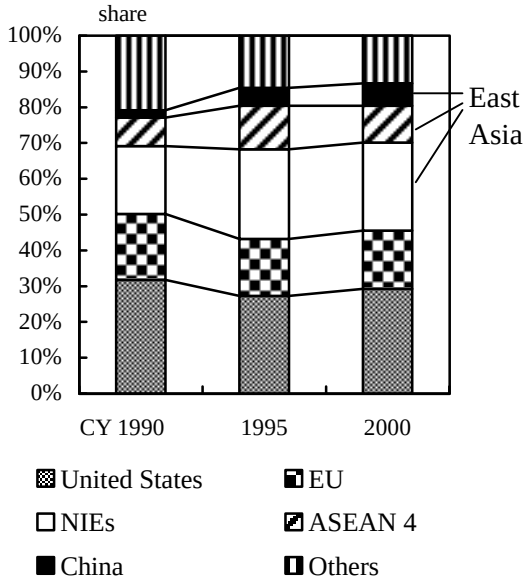
Note: 1. Real exports (imports) = Nominal exports (imports)/Export (Import) price indexes.
2. Seasonally adjusted by X-11.

Sources: Ministry of Finance, "The Summary Report on Trade of Japan";
Bank of Japan, "Wholesale Price Indexes."

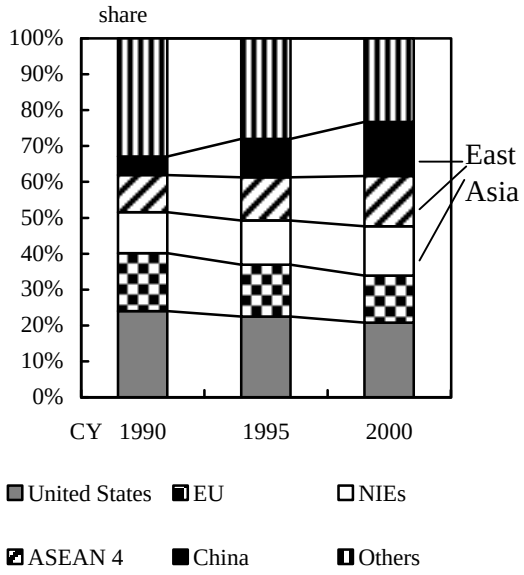
Exports and Imports -- Breakdown by Region and Type of Goods

(1) Breakdown by region

a. Real exports

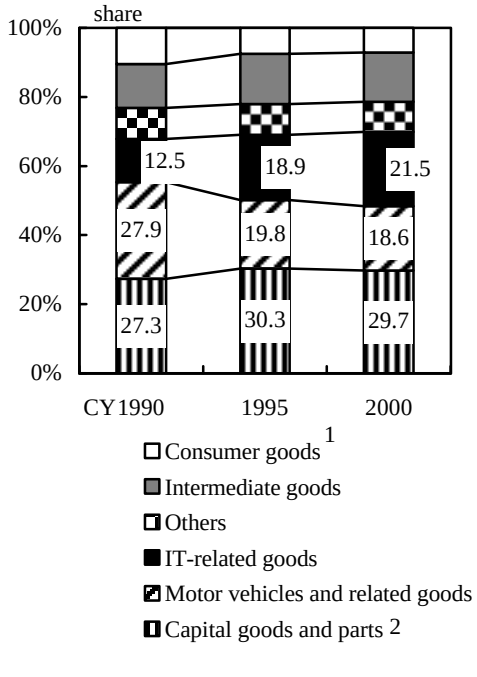


b. Real imports

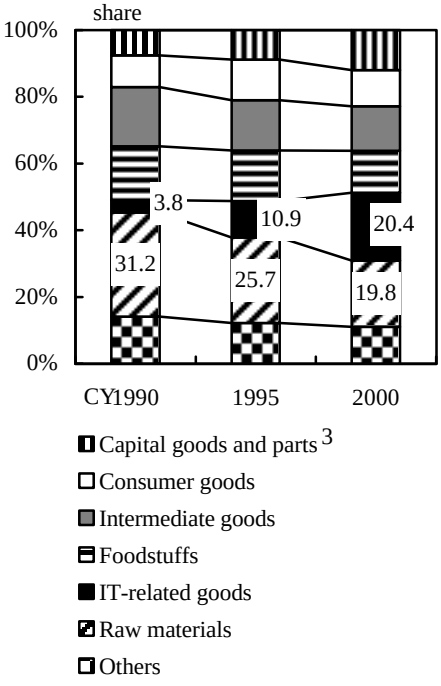


(2) Breakdown by type of goods

a. Real exports



b. Real imports



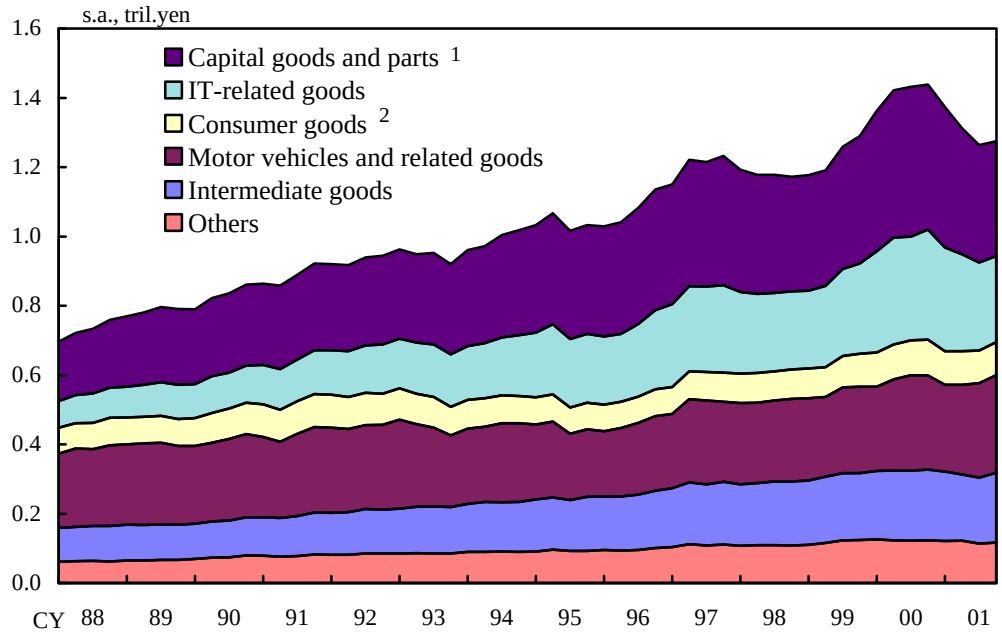
Notes: 1. Excluding motor vehicles.
2. Excluding IT-related goods, power generating machinery and motor vehicle parts.
3. Excluding IT-related goods and aircraft.

Sources: Ministry of Finance, "The Summary Report on Trade of Japan"; Bank of Japan, "Wholesale Price Indexes."

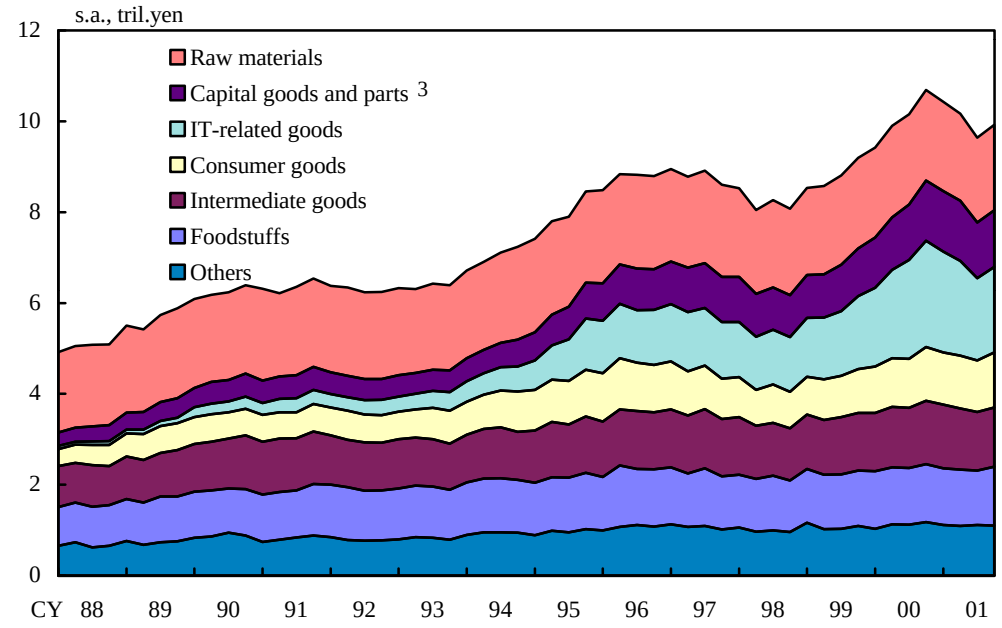
Chart 5

Exports and Imports -- Breakdown by Type of Goods

(1) Real Exports



(2) Real Imports

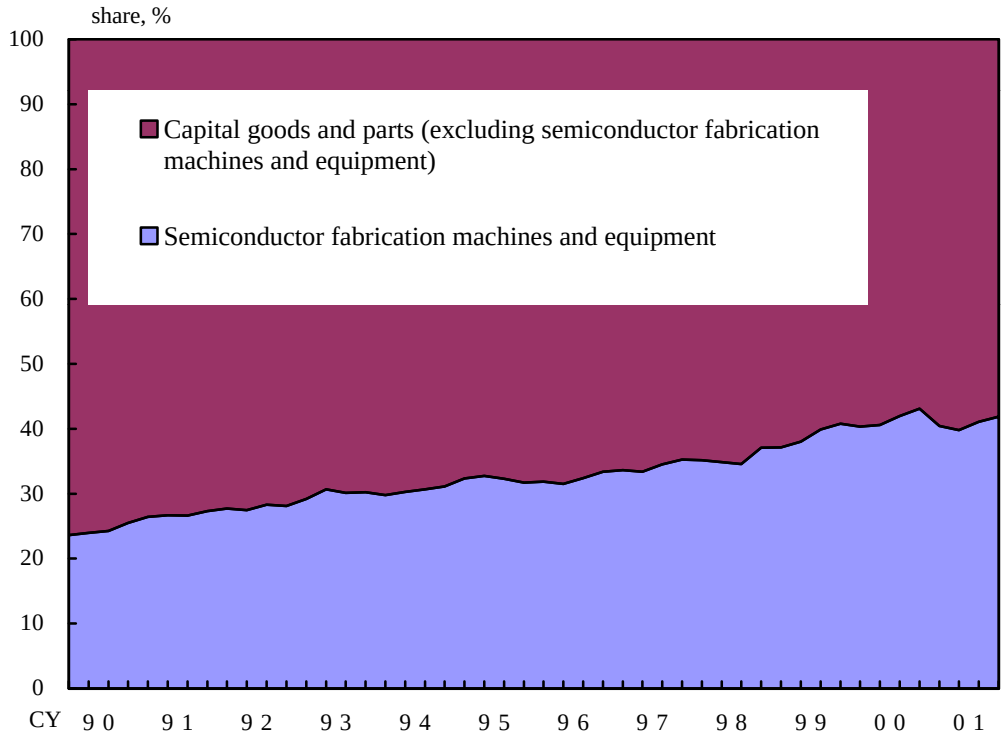


Notes: 1. Excluding IT-related goods, power generating machinery and motor vehicle parts.
2. Excluding motor vehicles.
3. Excluding IT-related goods and aircraft.
4. Seasonally adjusted by X-11.

Sources: Ministry of Finance, "The Summary Report on Trade of Japan"; Bank of Japan, "Wholesale Price Indexes."

Chart 6

Real Exports of Capital Goods and Parts

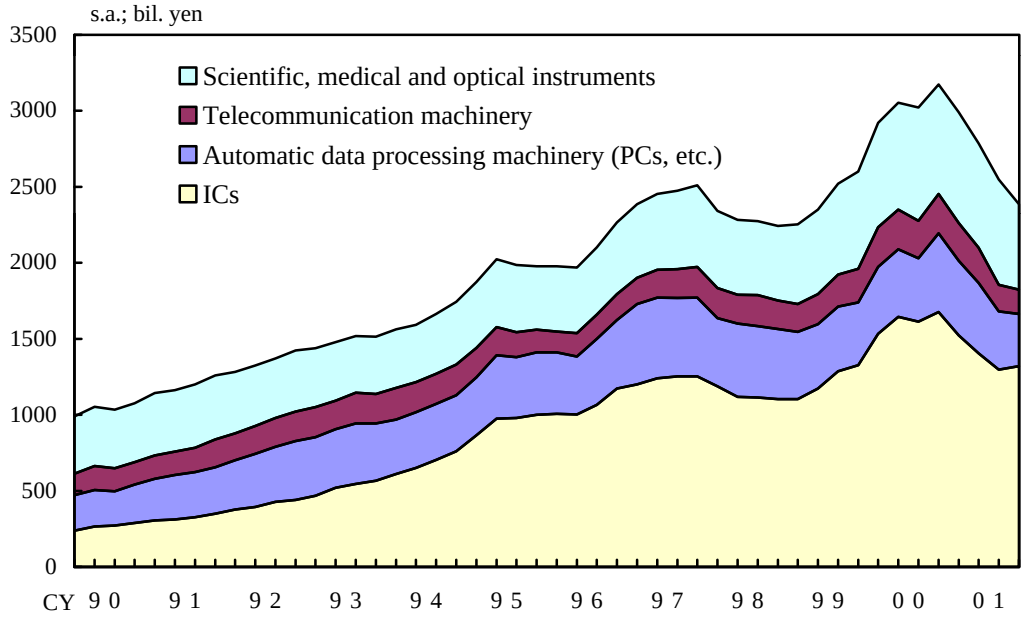


Note: Seasonally adjusted by X-11.

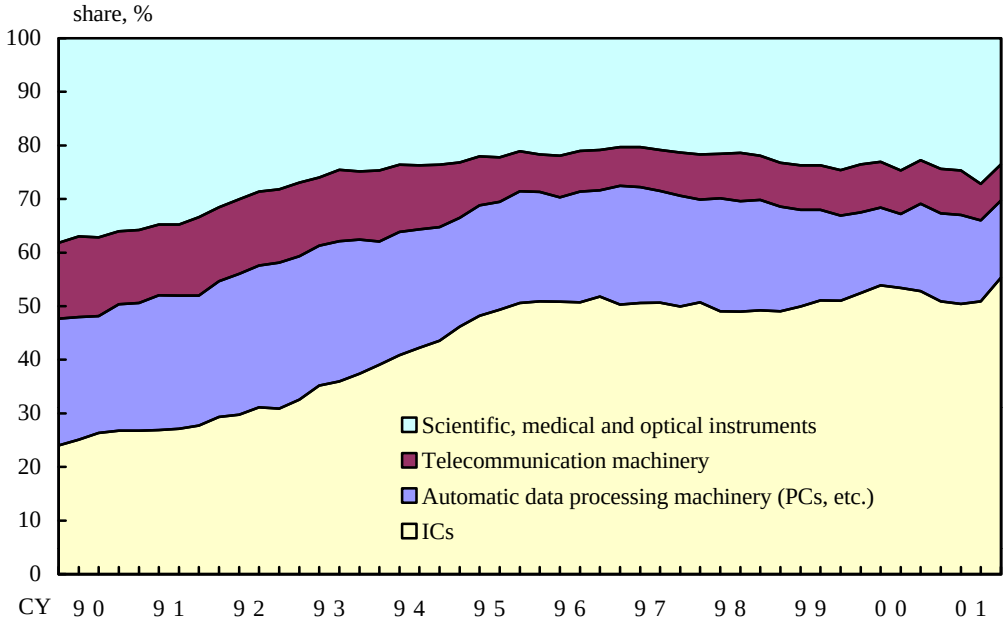
Sources: Ministry of Finance, "The Summary Report on Trade of Japan"; Bank of Japan "Wholesale Price Indexes."

Real Exports of IT-related Goods

(1) Value



(2) Share

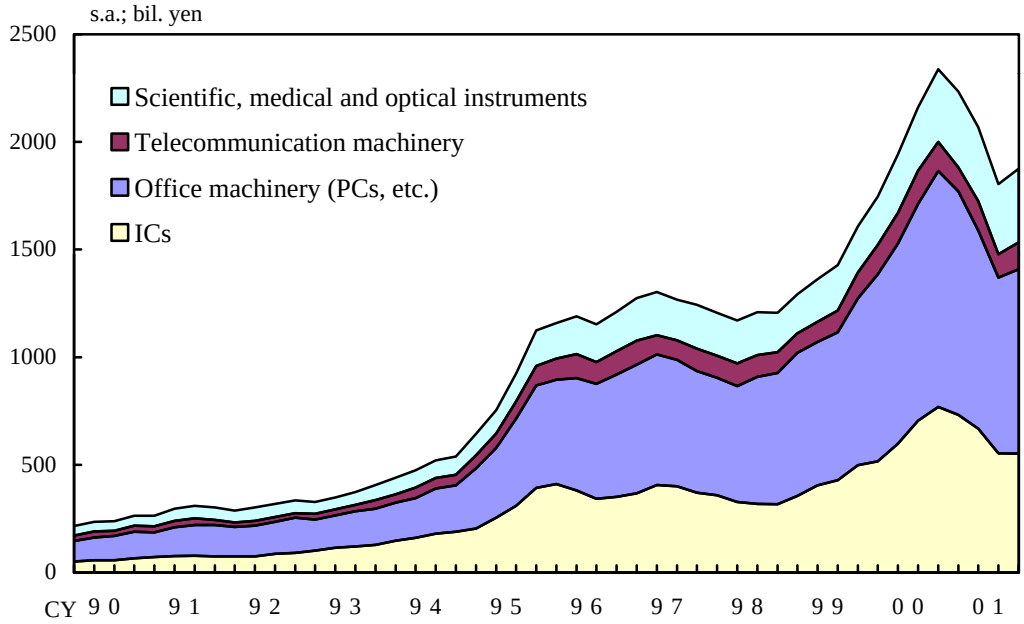


Note: Seasonally adjusted by X-11.

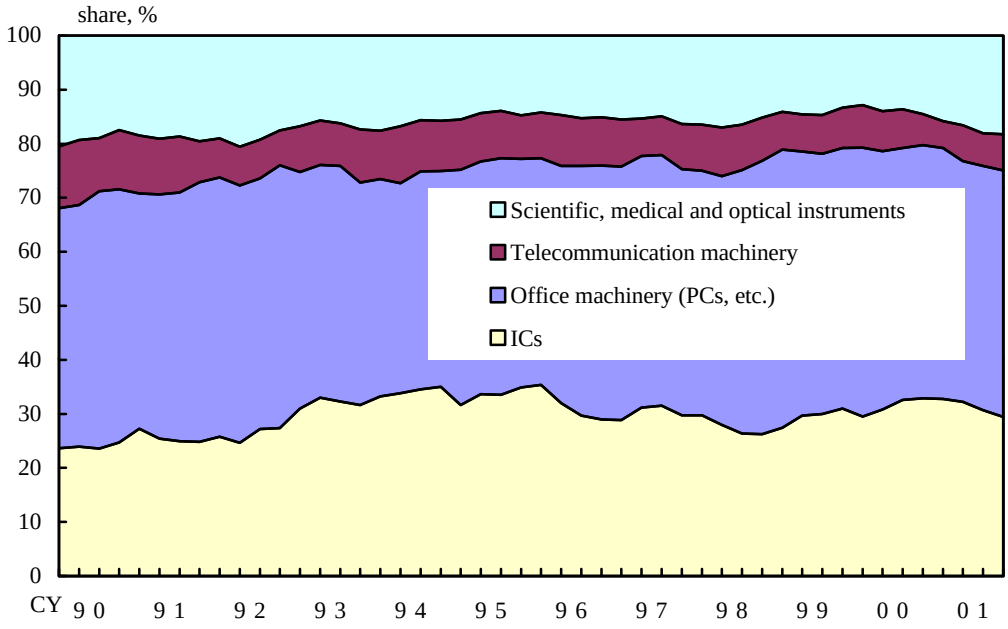
Sources: Ministry of Finance, "The Summary Report on Trade of Japan"; Bank of Japan, "Wholesale Price Indexes."

Real Imports of IT-related Goods

(1) Value



(2) Share



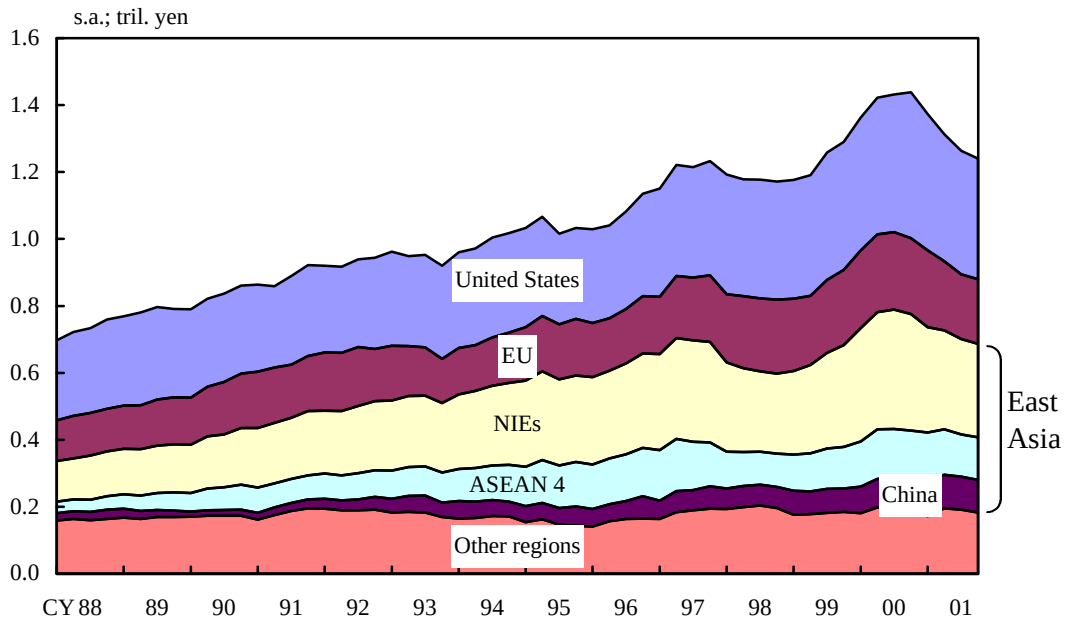
Note: Seasonally adjusted by X-11.

Sources: Ministry of Finance, "The Summary Report on Trade of Japan"; Bank of Japan, "Wholesale Price Indexes."

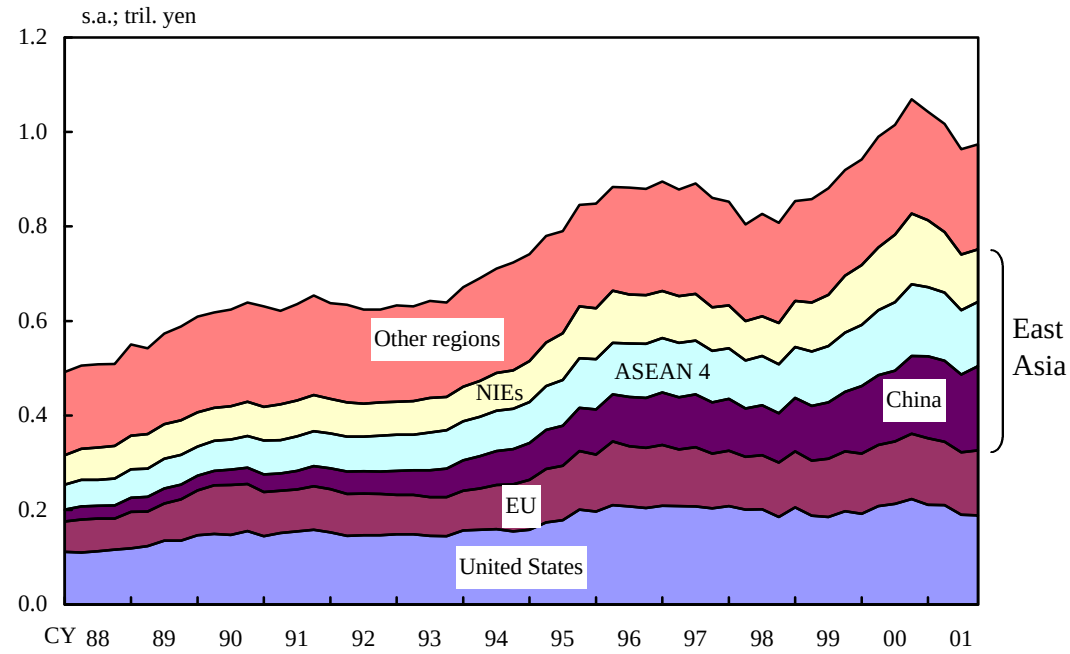
Chart 8

Exports and Imports -- Breakdown by Region

(1) Real Exports



(2) Real Imports



Note: Seasonally adjusted by X-11.
Sources: Ministry of Finance, "The Summary Report on Trade of Japan";
Bank of Japan, "Wholesale Price Indexes."

Exports and Imports -- Breakdown by Region and Type of Goods

(1) Real exports (share, %)

<CY1990>

	U.S.	EU	China	NIEs	ASEAN 4	Others	Total
Intermediate goods	2.6	1.5	0.7	4.0	1.7	2.3	12.8
Motor vehicles and related goods	12.5	4.5	0.1	1.3	1.9	7.6	27.9
Consumer goods	2.5	2.5	0.4	2.6	0.3	2.2	10.4
IT-related goods	4.5	3.4	0.1	2.5	0.6	1.4	12.5
Capital goods and parts	7.2	4.7	0.5	6.4	2.9	5.6	27.3
Others	2.6	1.7	0.2	2.2	0.5	1.8	9.0
Real exports	31.8	18.4	2.1	19.0	8.0	20.8	100.0

<CY2000>

	U.S.	EU	China	NIEs	ASEAN 4	Others	Total
Intermediate goods	2.4	1.6	1.7	5.0	2.0	1.5	14.2
Motor vehicles and related goods	9.0	2.8	0.3	0.9	1.0	4.6	18.6
Consumer goods	2.3	1.9	0.6	1.3	0.3	0.8	7.1
IT-related goods	5.9	3.8	1.1	7.0	2.7	1.1	21.5
Capital goods and parts	6.9	4.8	2.2	8.3	3.3	4.2	29.7
Others	2.7	1.4	0.5	2.1	0.8	1.1	8.7
Real exports	29.2	16.3	6.3	24.6	10.2	13.3	100.0

(2) Real imports (share, %)

<CY1990>

	U.S.	EU	China	NIEs	ASEAN 4	Others	Total
Raw materials	4.2	0.4	1.4	1.1	6.2	17.9	31.2
Intermediate goods	4.2	4.0	0.7	2.1	0.7	6.0	17.7
Foodstuffs	5.4	1.6	1.0	2.0	1.6	4.6	16.1
Consumer goods	0.7	3.8	1.5	2.4	0.4	0.6	9.5
IT-related goods	2.4	0.4	0.0	0.6	0.2	0.2	3.8
Capital goods and parts	4.4	2.3	0.1	1.1	0.3	1.0	9.2
Others	2.6	3.6	0.5	2.1	1.0	2.5	12.4
Real imports	24.0	16.2	5.2	11.4	10.3	32.9	100.0

<CY2000>

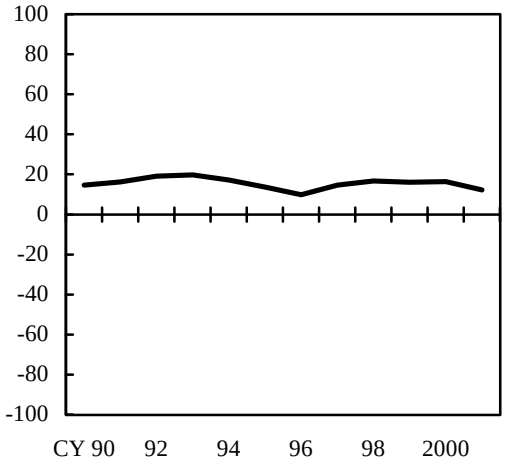
	U.S.	EU	China	NIEs	ASEAN 4	Others	Total
Raw materials	1.3	0.4	0.7	0.8	3.5	13.1	19.8
Intermediate goods	2.6	3.5	1.3	1.7	0.8	3.4	13.3
Foodstuffs	3.8	1.2	1.6	0.8	1.3	3.8	12.6
Consumer goods	0.7	2.1	5.2	1.0	1.5	0.5	10.9
IT-related goods	5.4	2.0	1.6	6.7	3.9	0.7	20.4
Capital goods and parts	5.0	2.2	2.1	1.3	1.4	0.8	12.9
Others	1.9	1.7	2.5	1.3	1.7	1.0	10.2
Real imports	20.8	13.1	15.1	13.8	14.0	23.2	100.0

Note: Figures with large changes are highlighted.

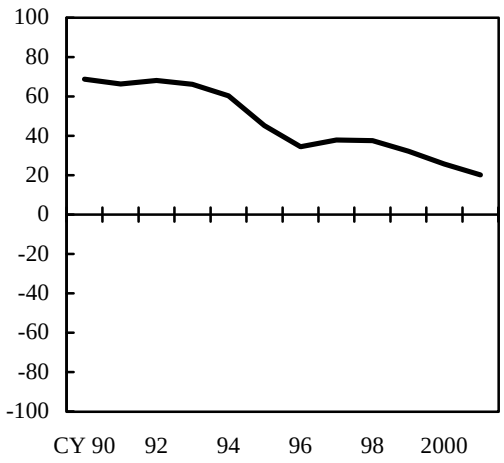
Sources: Ministry of Finance, "The Summary Report on Trade of Japan";
Bank of Japan, "Wholesale Price Indexes."

Trade Specialization Indicator (1)

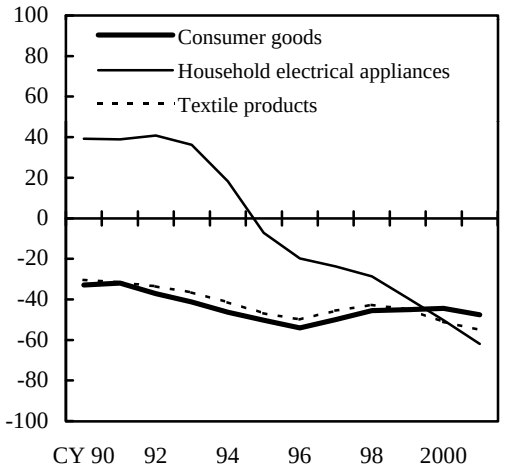
(1) Total



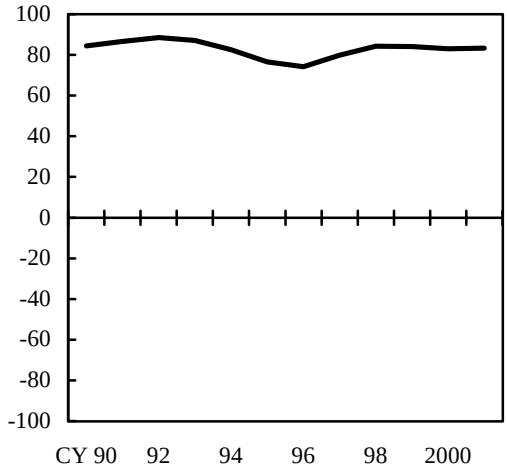
(2) IT-related goods



(3) Consumer goods



(4) Motor vehicles and related goods

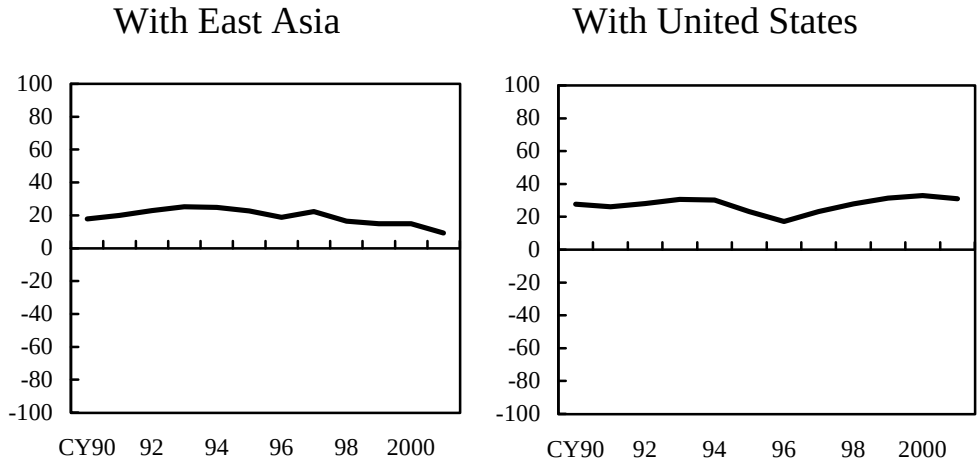


Notes: 1. Figures are on a real basis.
2. Trade specialization indicator = (export value - import value)/(export value + import value)*100.
3. IT-related goods = office machinery + telecommunication machinery + ICs + scientific, medical and optical instruments.
4. Consumer goods = foodstuffs + textile products + audio and visual apparatus.
5. Household electrical appliances = audio and visual apparatus + refrigerators + electric fans + hair dryers + microwave ovens.
Refrigerators, electric fans, hair dryers and microwave ovens are not included in "consumer goods."
6. Motor vehicles and related goods = road motor vehicles excluding cycles + road motor vehicle parts excluding cycle parts + power generators.

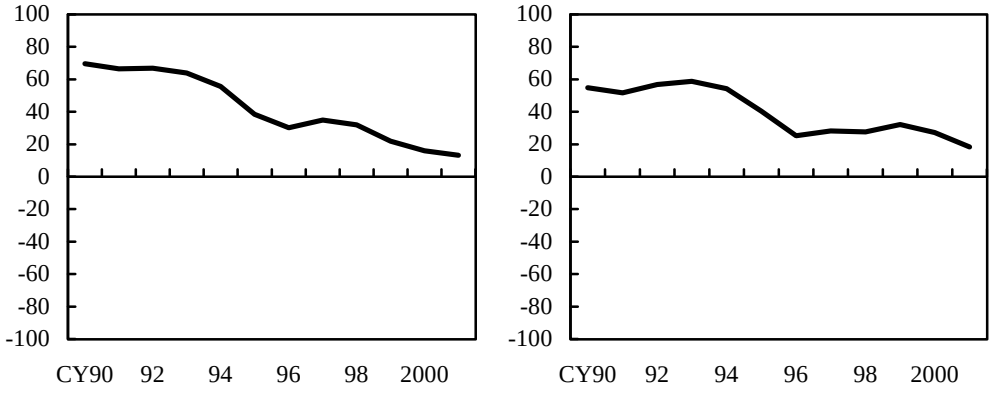
Sources: Ministry of Finance, "The Summary Report on Trade of Japan"; Bank of Japan, "Wholesale Price Indexes."

Trade Specialization Indicator (2)

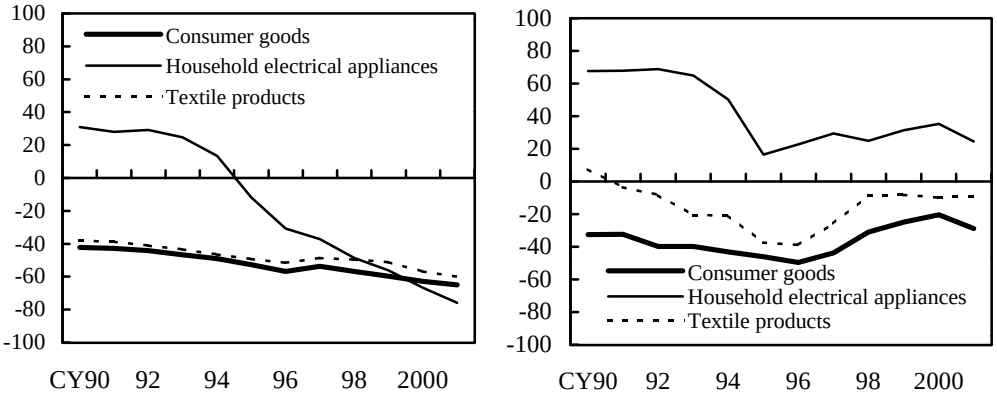
(1) Total



(2) IT-related goods



(3) Consumer goods



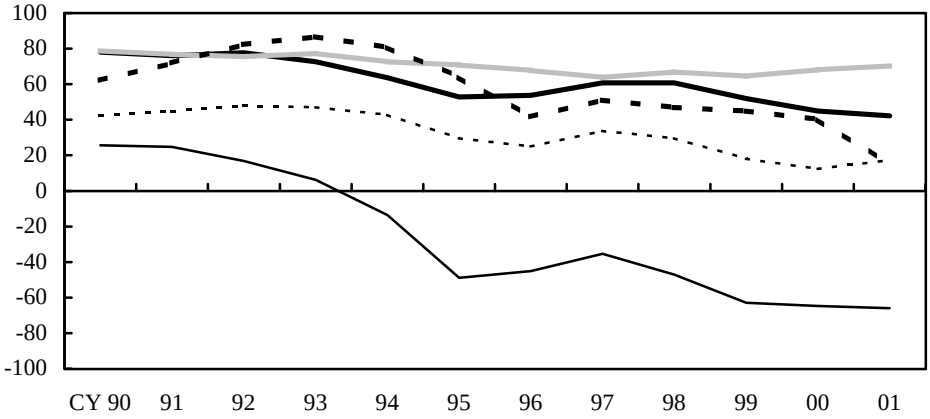
Notes: 1. Figures are on a real basis.
2. Trade specialization indicator = (export value - import value)/(export value + import value)*100.
3. IT-related goods = office machinery + telecommunication machinery + ICs + scientific, medical and optical instruments.
4. Consumer goods = foodstuffs + textile products + audio and visual apparatus.
5. Household electrical appliances = audio and visual apparatus + refrigerators + electric fans + hair dryers + microwave ovens.
Refrigerators, electric fans, hair dryers and microwave ovens are not included in "consumer goods."
6. Motor vehicles and related goods = road motor vehicles excluding cycles + road motoer vehicle parts excluding cycle parts + power generators.

Sources: Ministry of Finance, "The Summary Report on Trade of Japan"; Bank of Japan, "Wholesale Price Indexes."

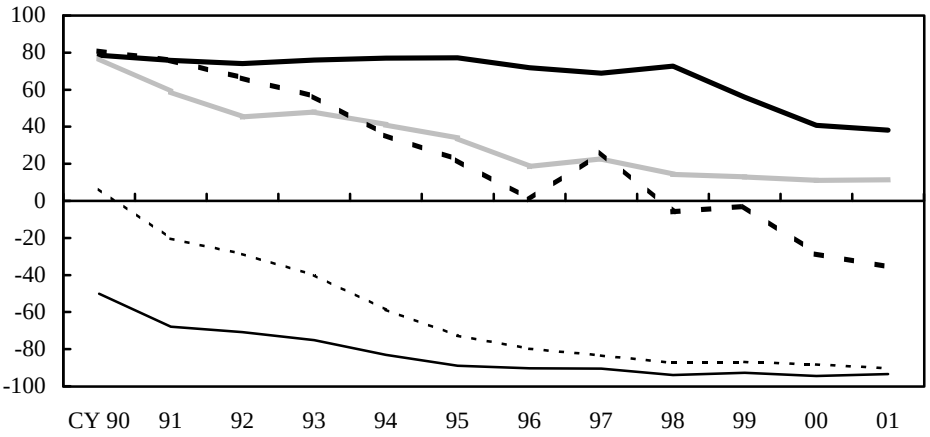
Chart 12-1

Trade Specialization Indicator of IT-related Goods

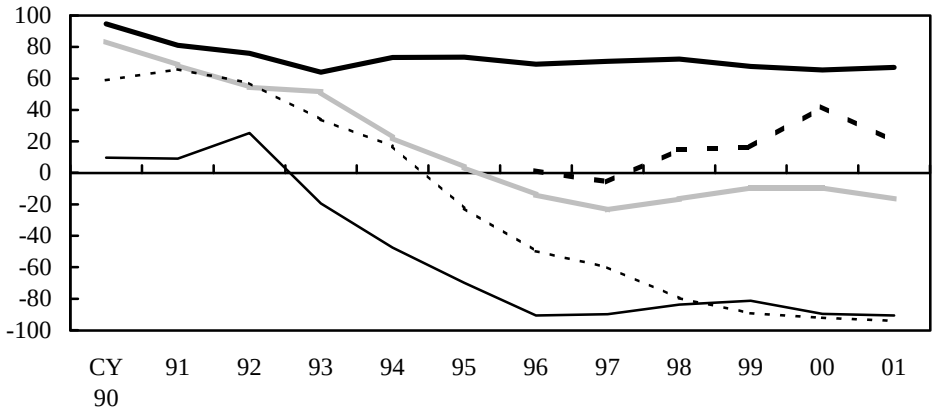
(1) With NIEs



(2) With ASEAN 4



(3) With China



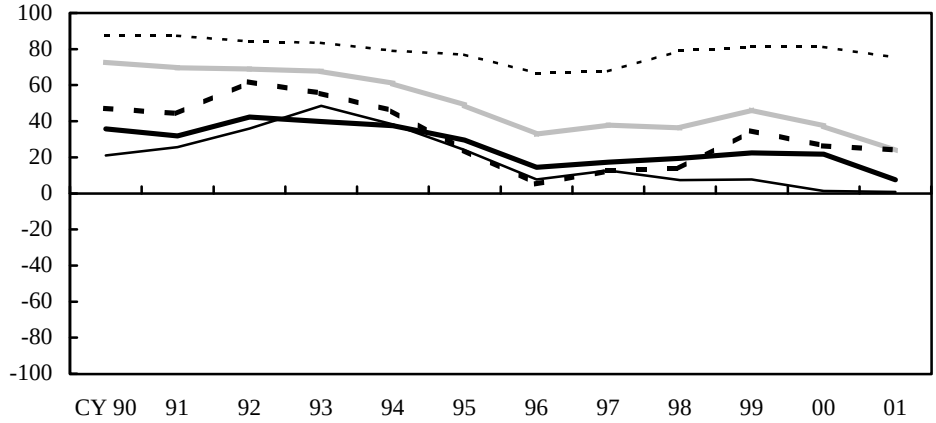
ICs
Telecommunication machinery
Household electrical appliances
Scientific, medical and optical instruments
Office machinery (PCs, etc.)

Note: Figures are on a real basis.

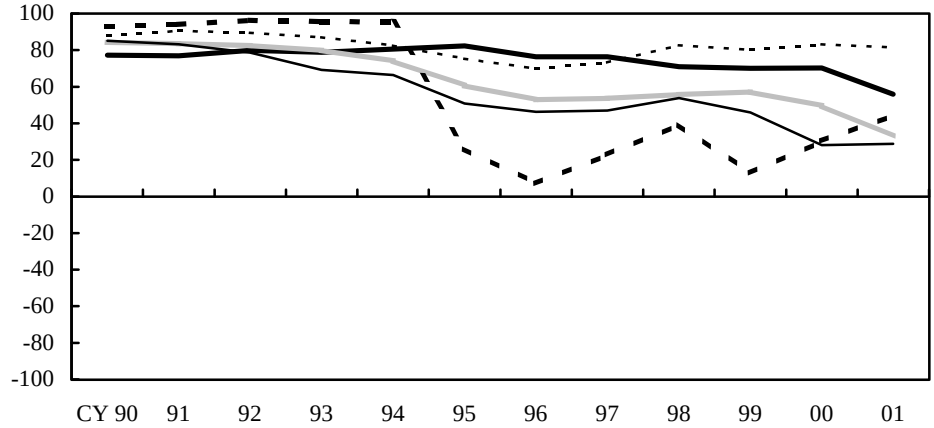
Sources: Ministry of Finance, "The Summary Report on Trade of Japan"; Bank of Japan, "Wholesale Price Indexes."

Trade Specialization Indicator of IT-related Goods

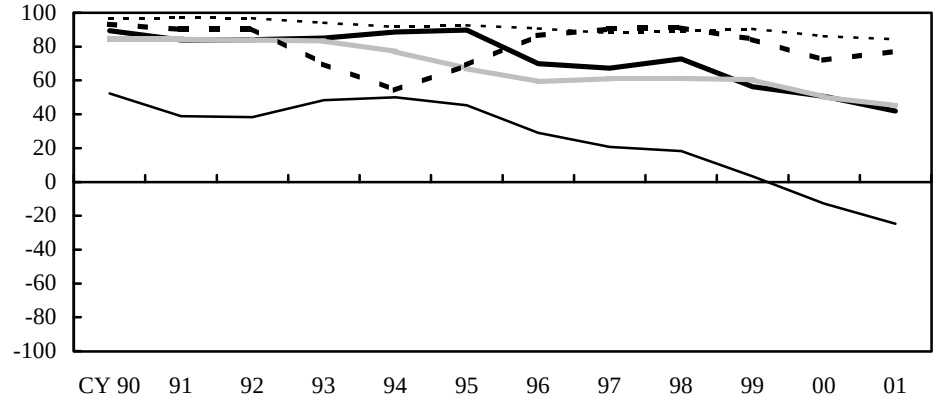
(4) With United States



(5) With EU



(6) With other countries



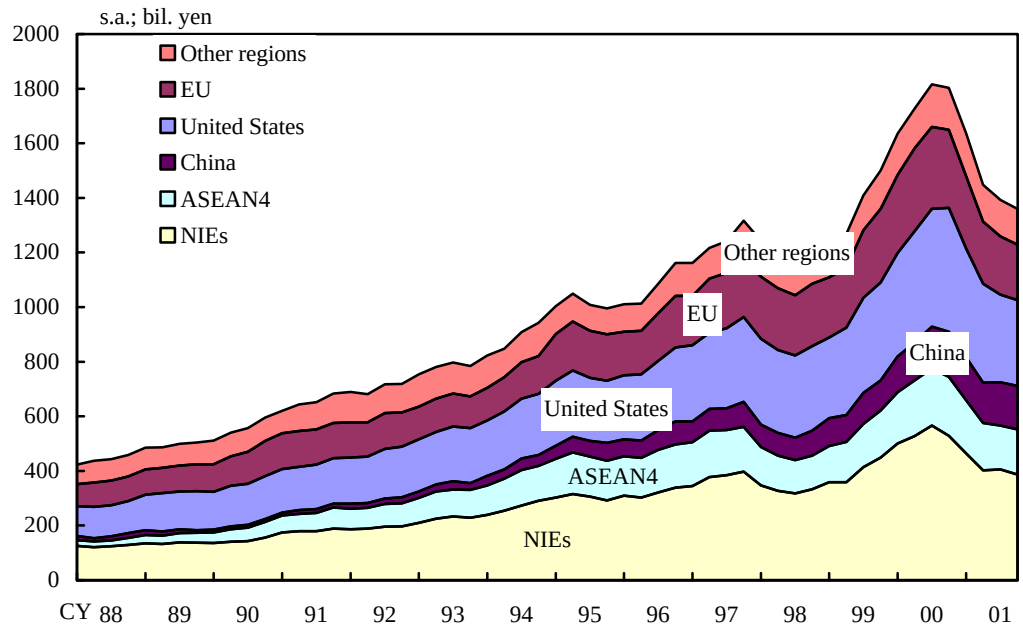
Note: Figures are on a real basis.

Sources: Ministry of Finance, "The Summary Report on Trade of Japan"; Bank of Japan, "Wholesale Price Indexes."

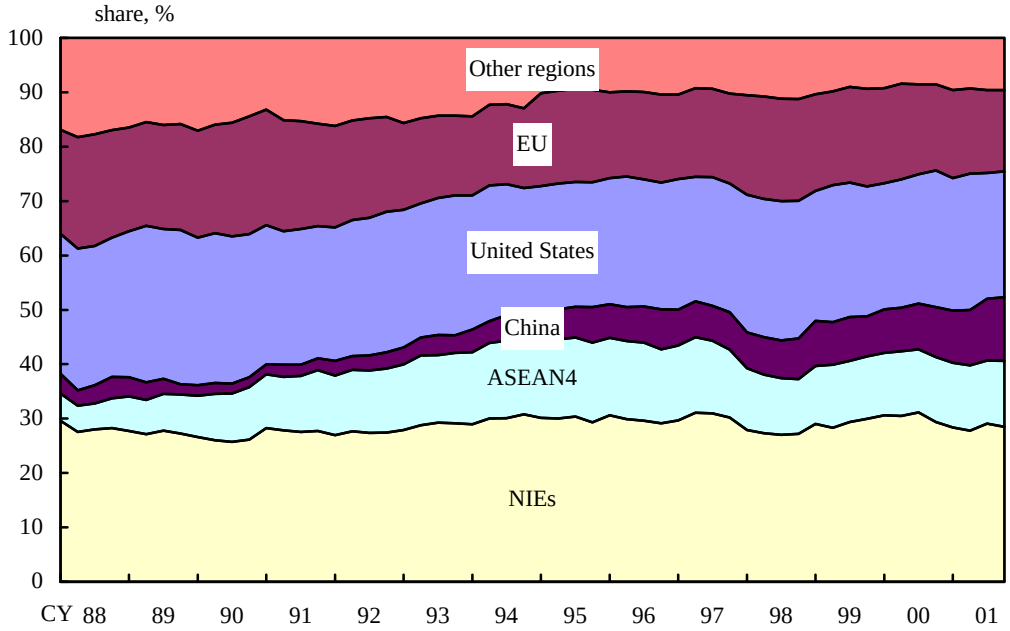
Chart 13

Real Exports of Semiconductor Fabrication Machines and Equipment

(1) Value



(2) Share

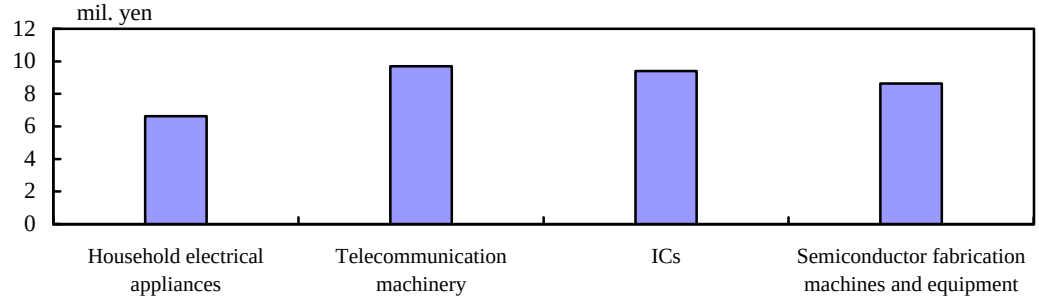


Note: Seasonally adjusted by X-11.

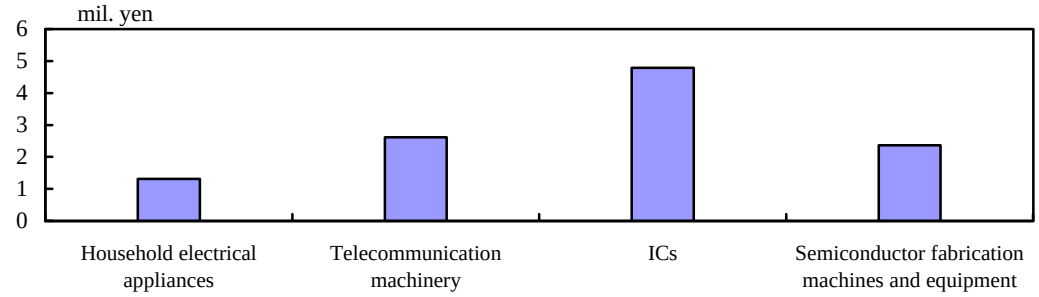
Sources: Ministry of Finance, "The Summary Report on Trade of Japan"; Bank of Japan, "Wholesale Price Indexes."

Characteristics of the IT Industry

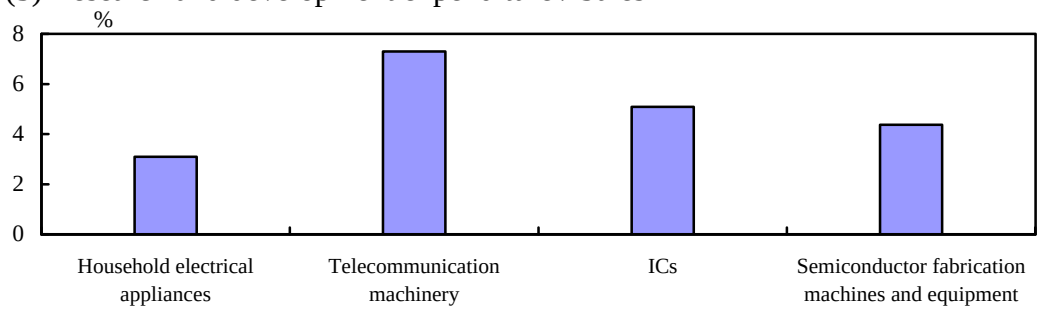
(1) Value added per worker



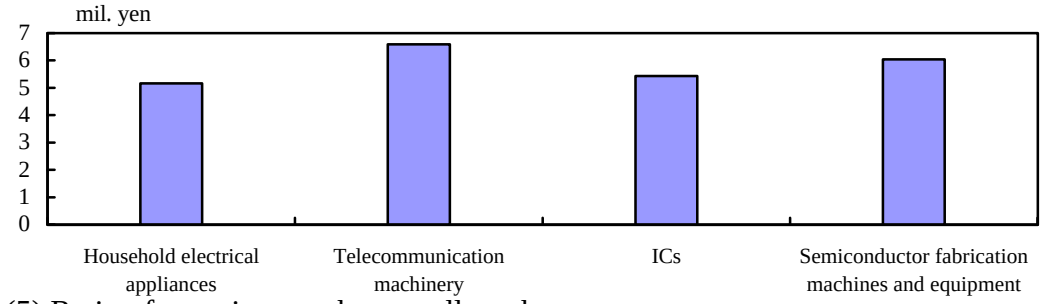
(2) Machinery equipment per worker



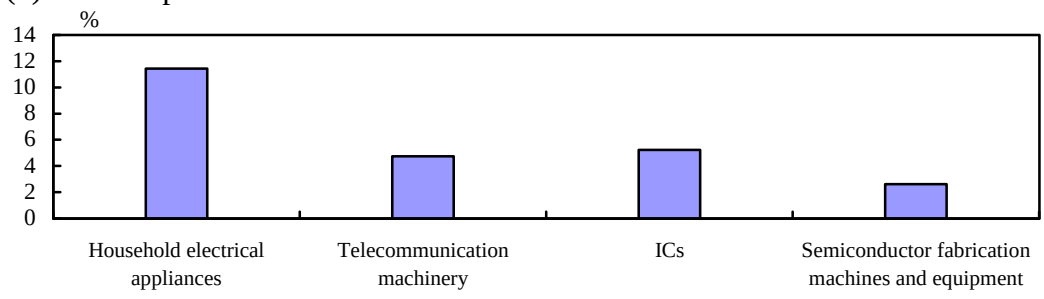
(3) Research and development expenditure / Sales



(4) Compensation per worker



(5) Ratio of part-time workers to all workers



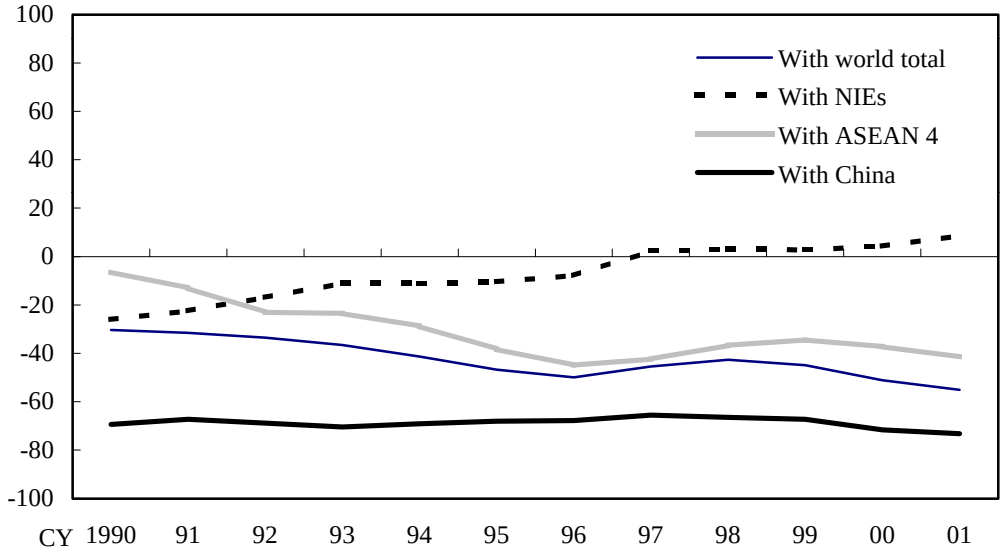
Note: Ratio of part-time workers to all workers = (part-time workers + other workers) / (Full-time workers <including part-time workers> + other workers)

Source: Ministry of International Trade and Industry, "Results of the Basic Survey of Japanese Business Structure and Activities 1999."

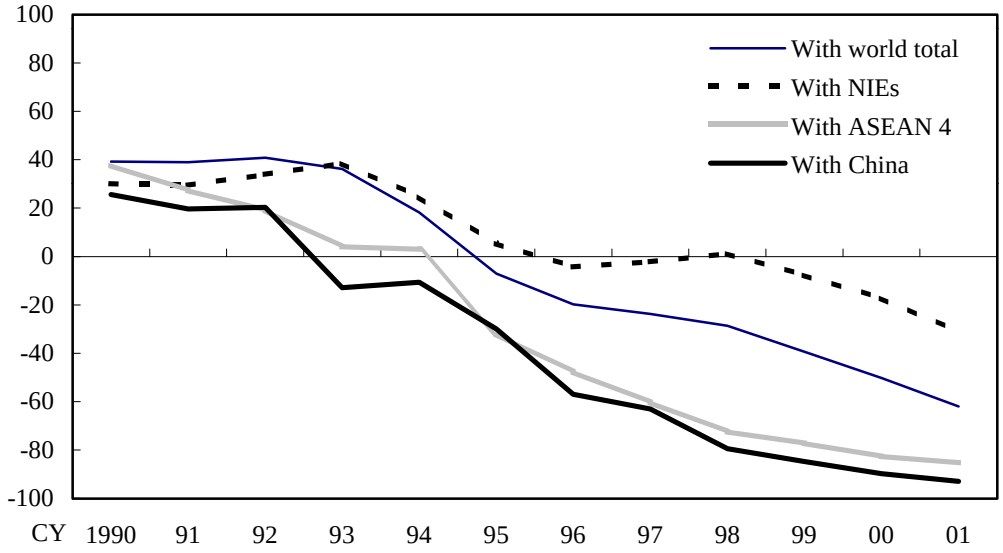
Chart 15

Trade Specialization Indicators of Consumer Goods

(1) Textile products



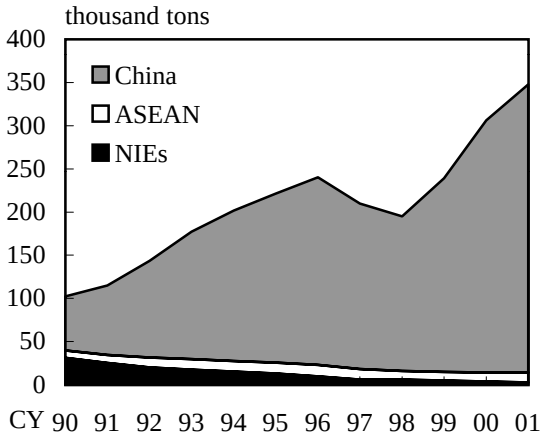
(2) Household electrical appliances



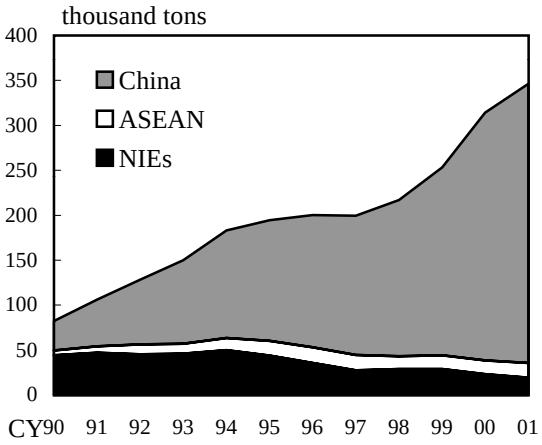
Note: Figures are on a real basis.
Source: Japan Tariff Association, "Japan Exports & Imports - Commodity by Country."

Real Imports of Clothing from East Asia

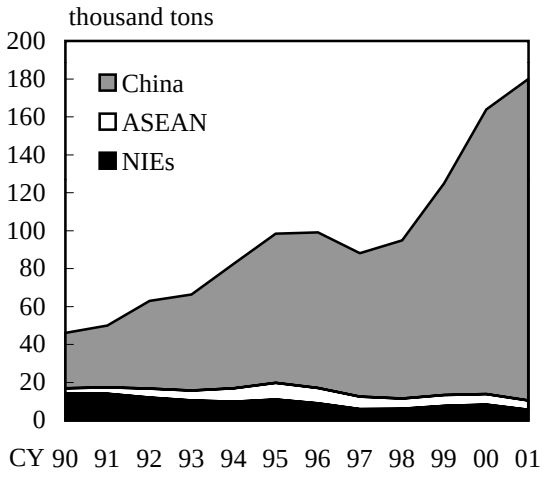
(1) Knitted fabrics outerwear



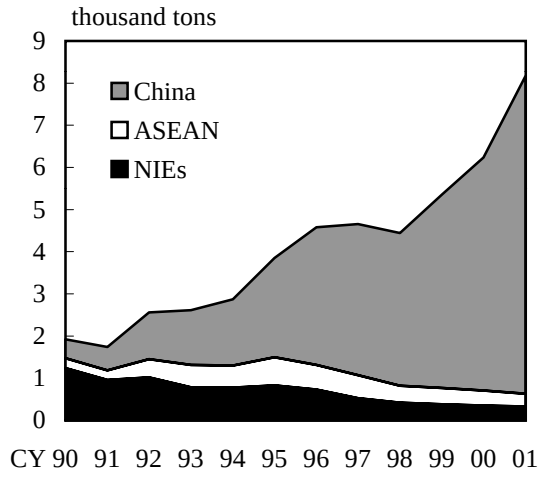
(2) Woven fabrics outerwear



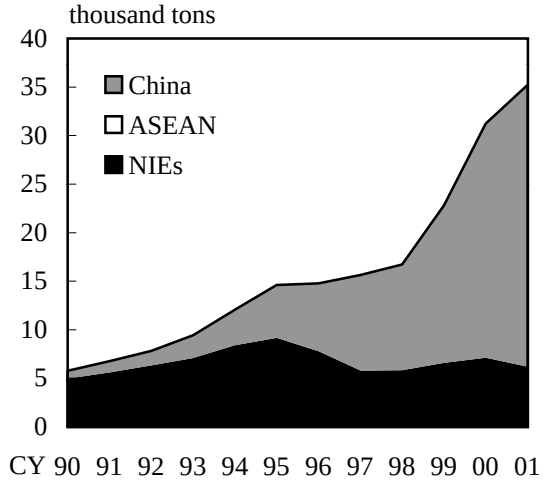
(3) Underwear



(4) Foundation garments



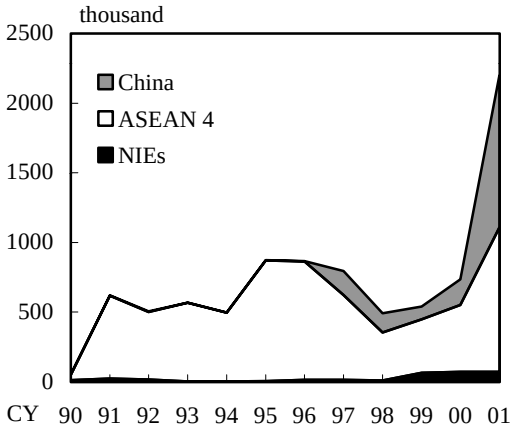
(5) Hosiery



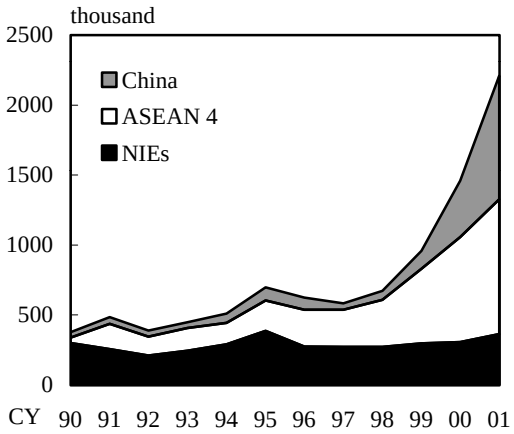
Notes: 1.Figures are on a quantity basis.
2.CY2001 is calculated based on the y/y change from January to May.
Source: Japan Tariff Association, "Japan Exports & Imports - Commodity by Country."

Real Imports of Household Electrical Appliances from East Asia

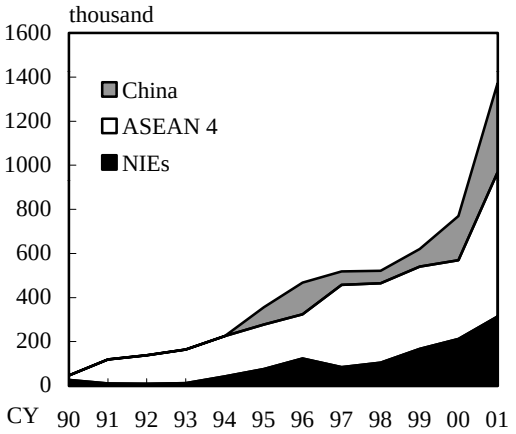
(1) Air conditioners



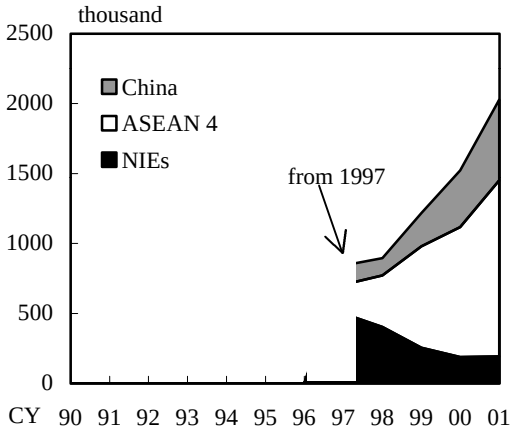
(2) Refrigerators with freezers



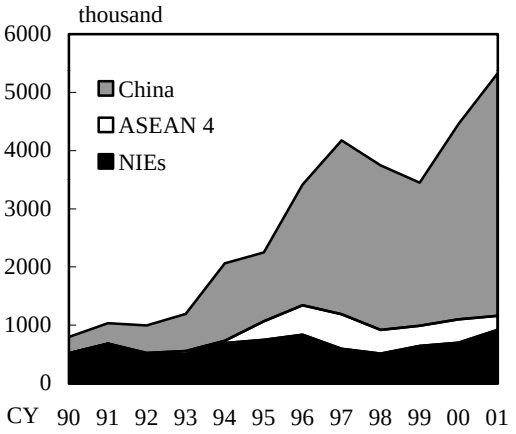
(3) Washing machines



(4) Microwave ovens



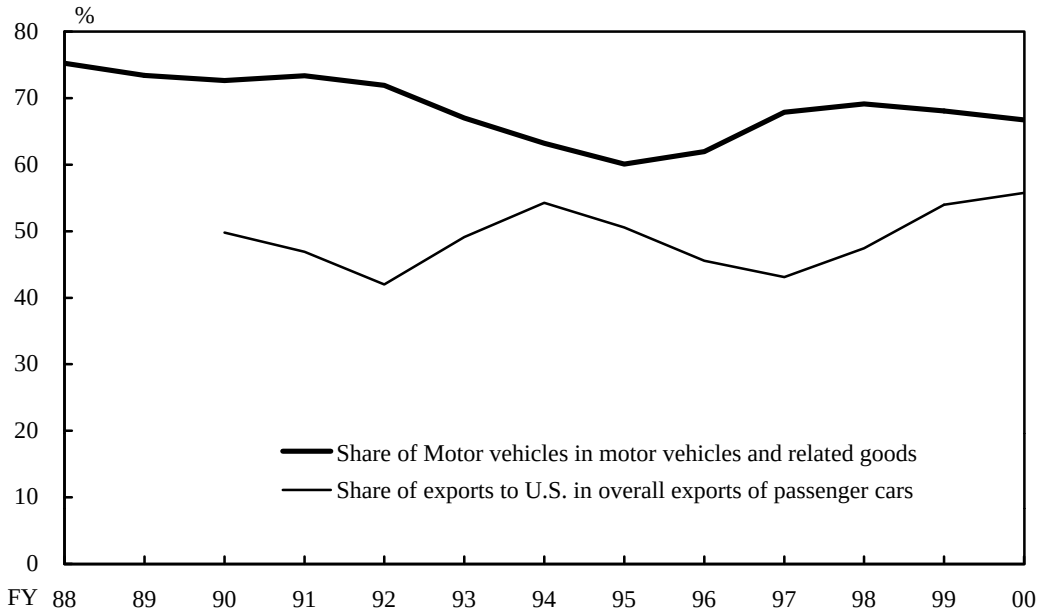
(5) Vacuum cleaners



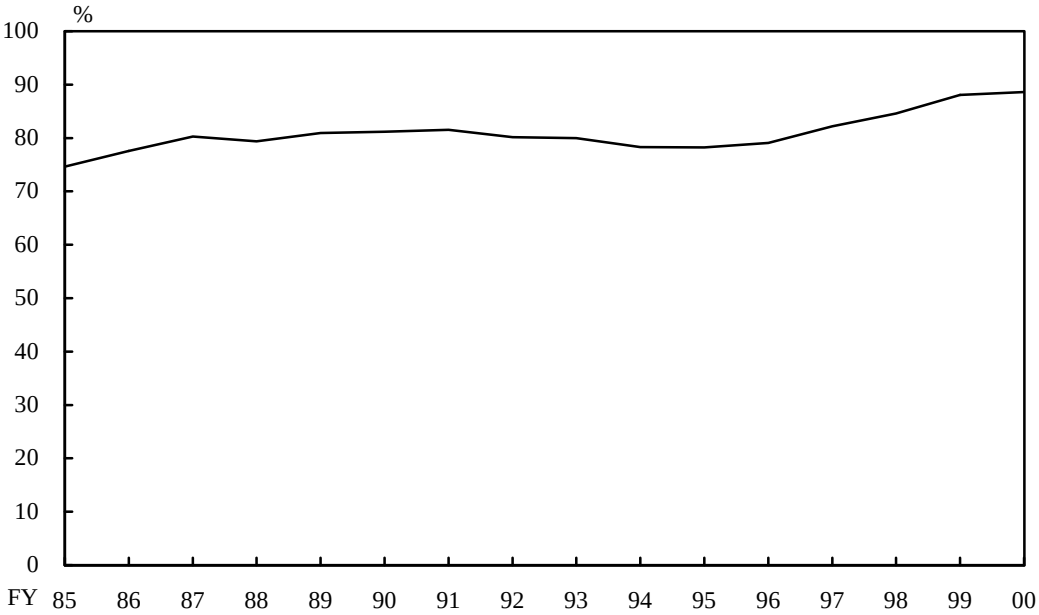
Notes: 1.Figures are on a quantity basis.
2.CY2001 is calculated based on the y/y change from January to May.
Source: Japan Tariff Association, "Japan Exports & Imports - Commodity by Country."

Exports of Motor Vehicles

(1) Completely built vehicles -real terms-



(2) Share of passenger cars in motor vehicles -nominal terms-



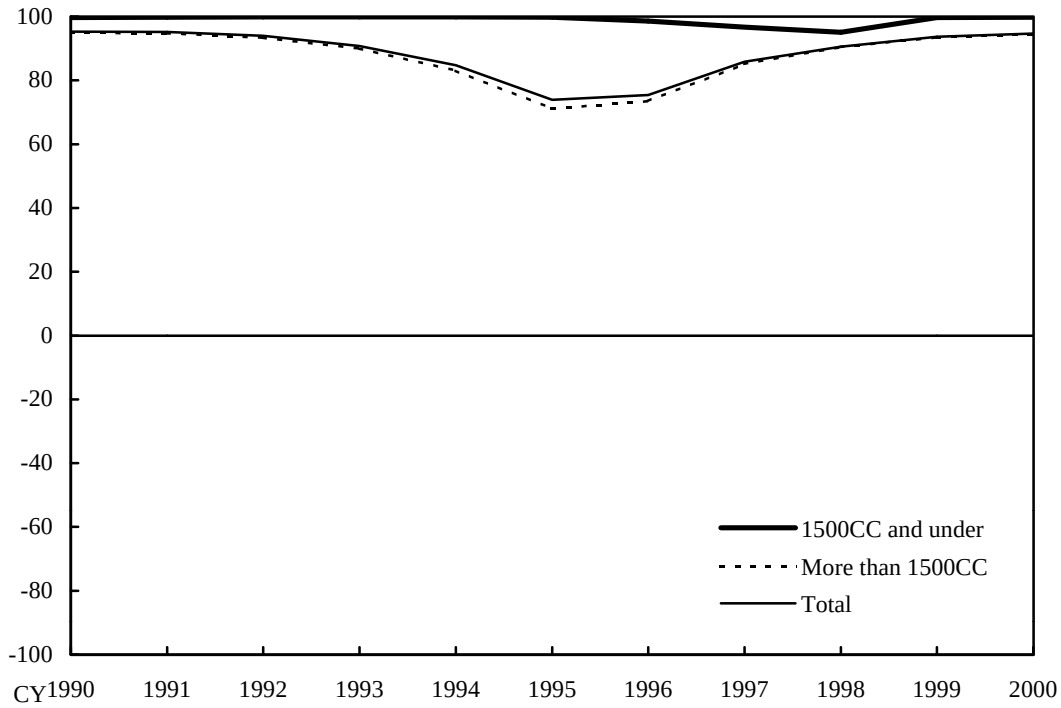
Notes:1. Motor vehicles include passenger cars, buses and trucks.
2. Motor vehicles and related goods here include motor vehicle parts and power generators.

Source: Ministry of Finance, "The Summary Report on Trade of Japan."

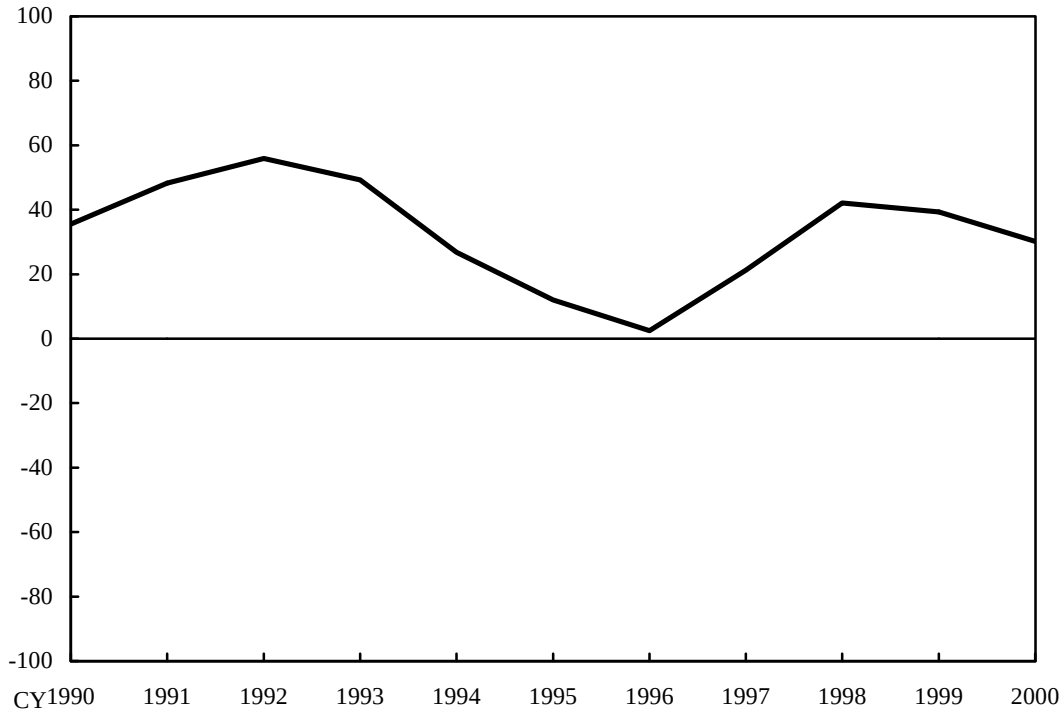
Chart 19

Trade Specialization Indicator of the Automotive Industry by Destination

(1) With U.S.



(2) With Europe

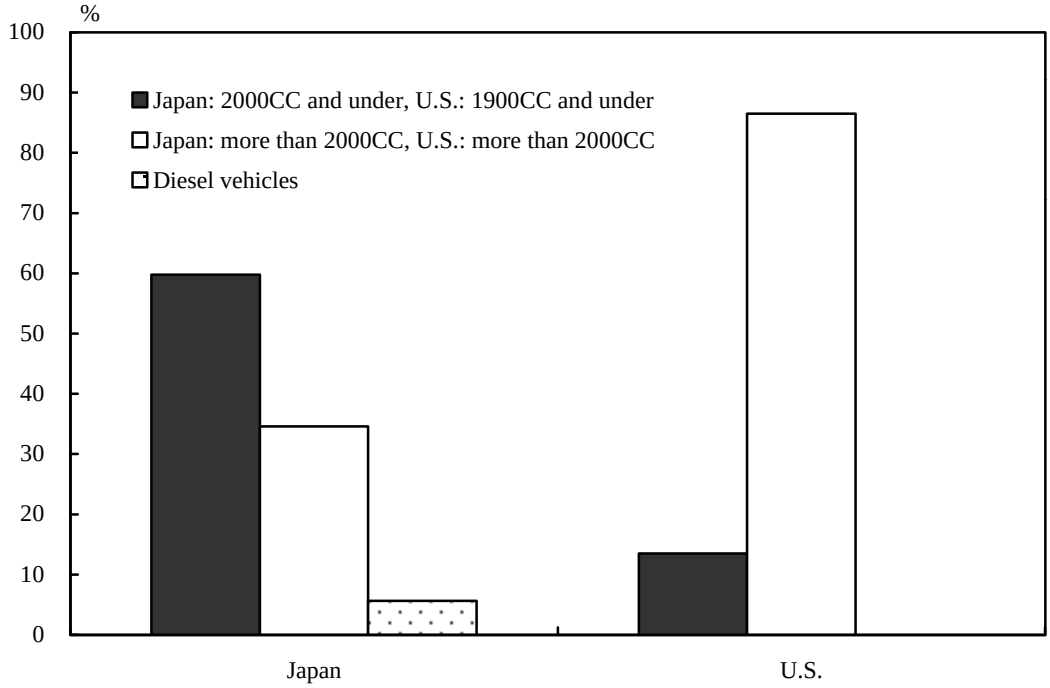


Notes: 1. Trade specalization indicator = (exports - imports)/(exports + imports) *100.
2. Including knockdown supply.

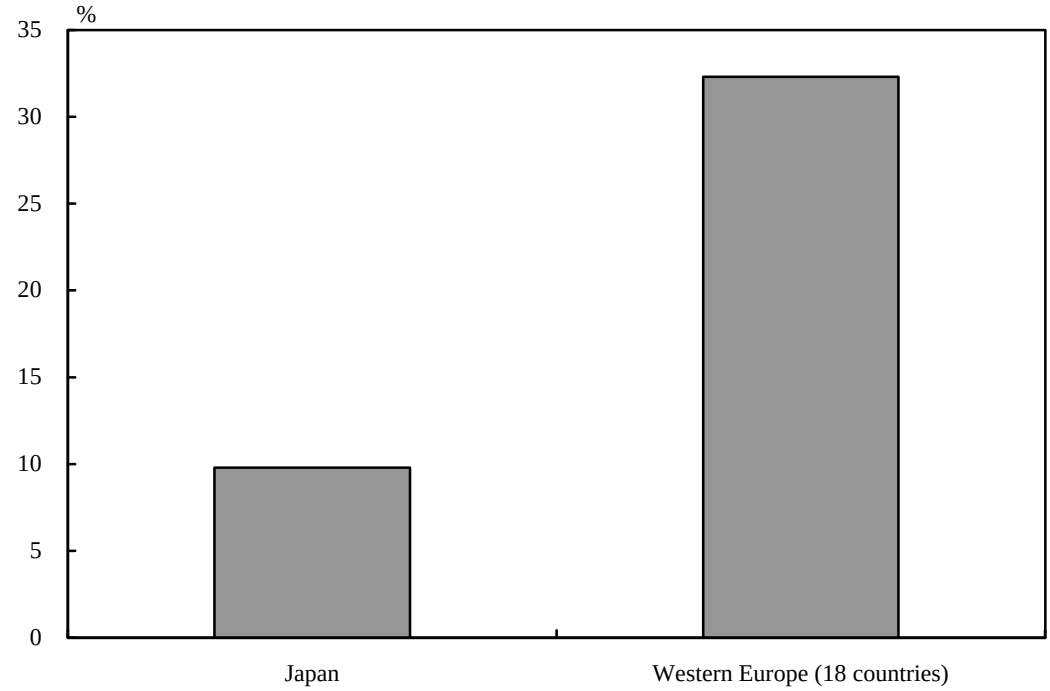
Source: Japan Tariff Association, "Japan Exports & Imports - Commodity by Country."

Motor Vehicle Prefernces in Japan, U.S. and Europe

(1) Engine displacement in Japan and the U.S. -1998-



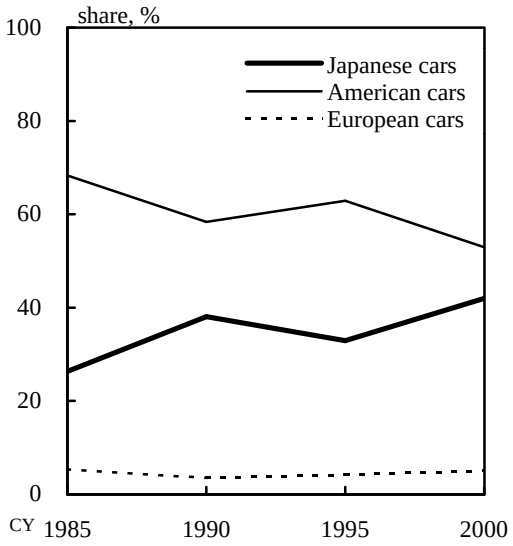
(2) Share of diesel vehicles in Japan and Europe -2000-



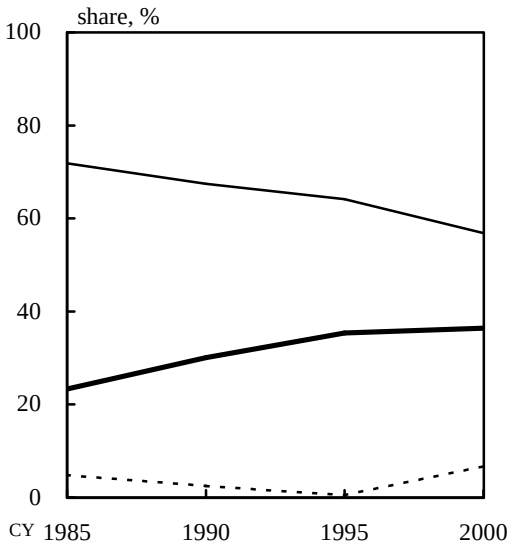
Source: Japan Automobile Manufacturers Association, Inc., "World Motor Vehicle Data."

U.S. Automobile Market by Segment

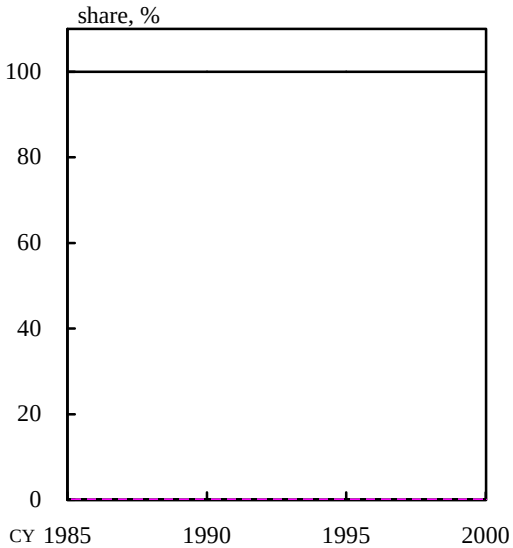
(1) Small



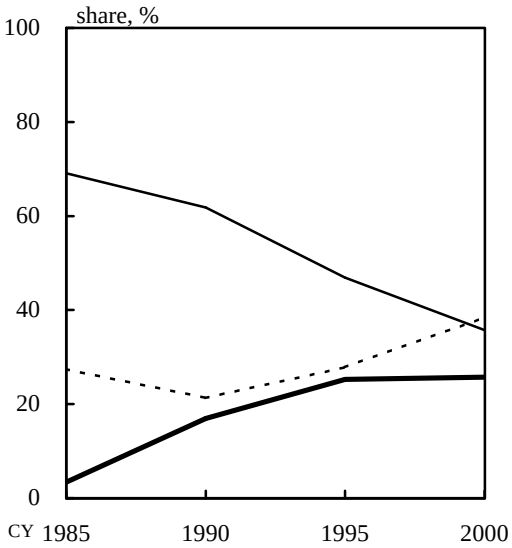
(2) Middle



(3) Large



(4) Luxury



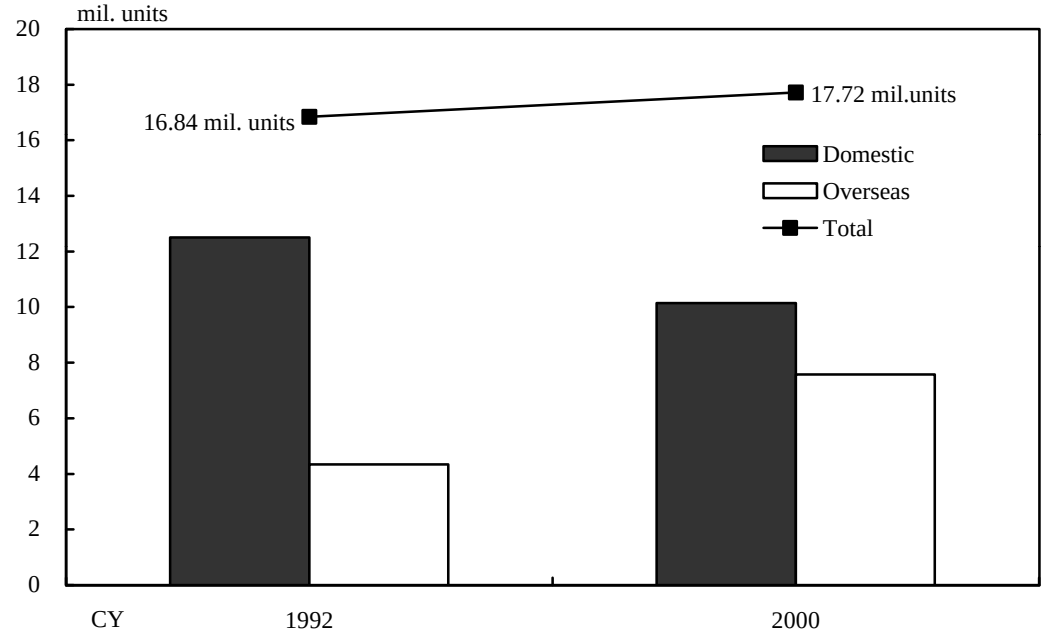
Notes: The U.S. market consists of four segments; small, middle, large and luxury. The "Large" class is completely occupied by U.S. domestic automakers.

Source: Ward's Communications,"Ward's Automotive Yearbook."

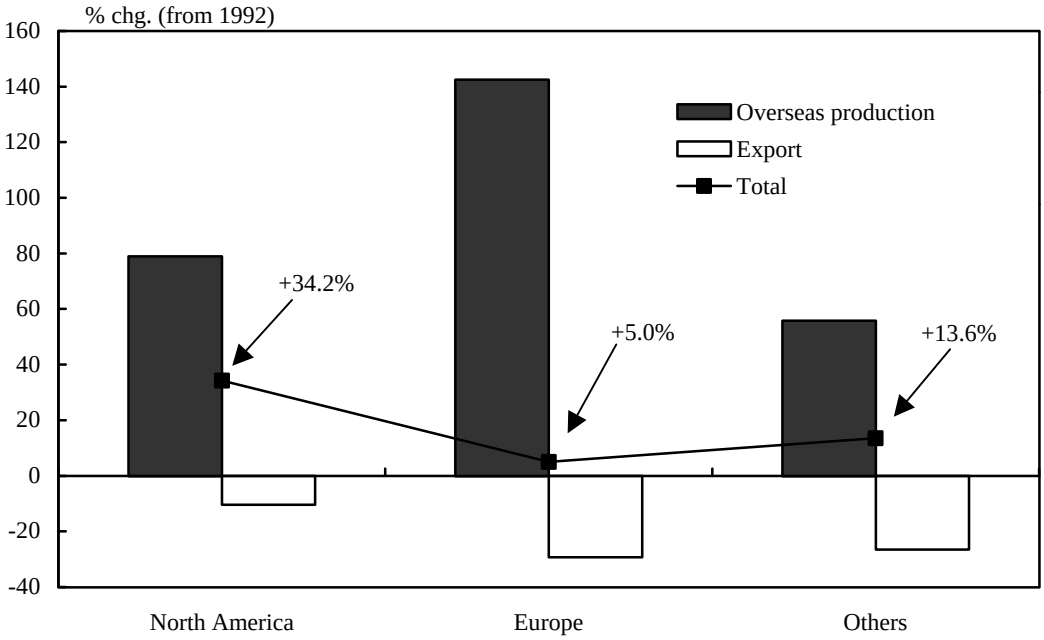
Chart 22

Domestic and Overseas Production by the Japanese Automotive Industry

(1) Domestic and overseas production



(2) Overseas production by market -2000-



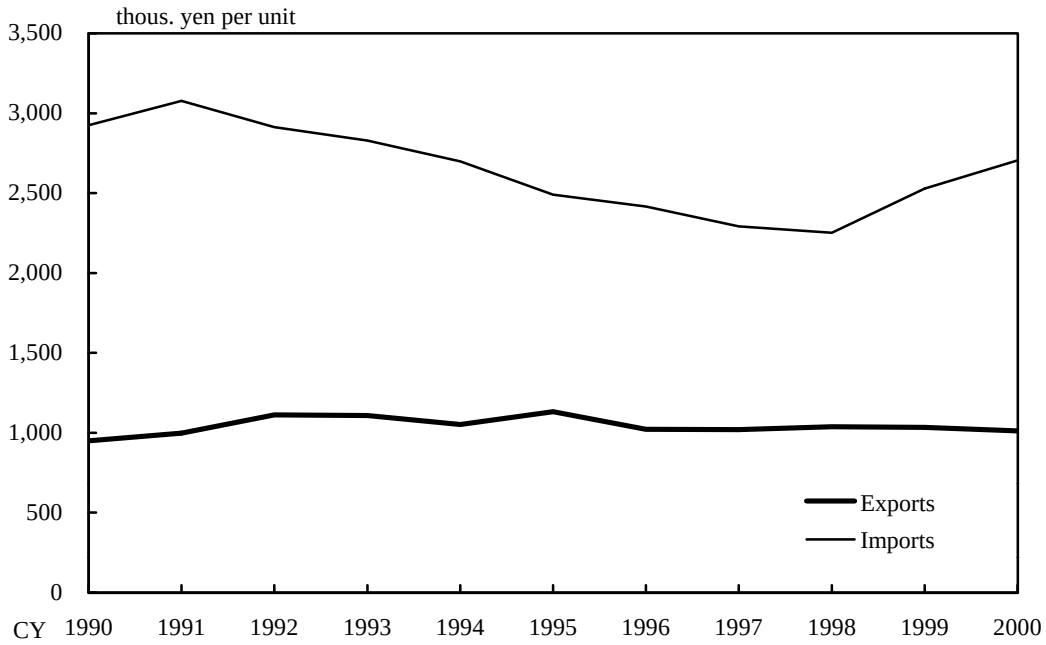
Note: Overseas production here includes main outsourcing, production on consignment and knockdown supply.

Sources: Japan Automobile Manufacturers Association, Inc., "Motor Vehicle Statistics Monthly"; FOURIN, "2001 Japanese Automotive Components Industry."

Unit Price of Completely Built Vehicles

(1) With the U.S.

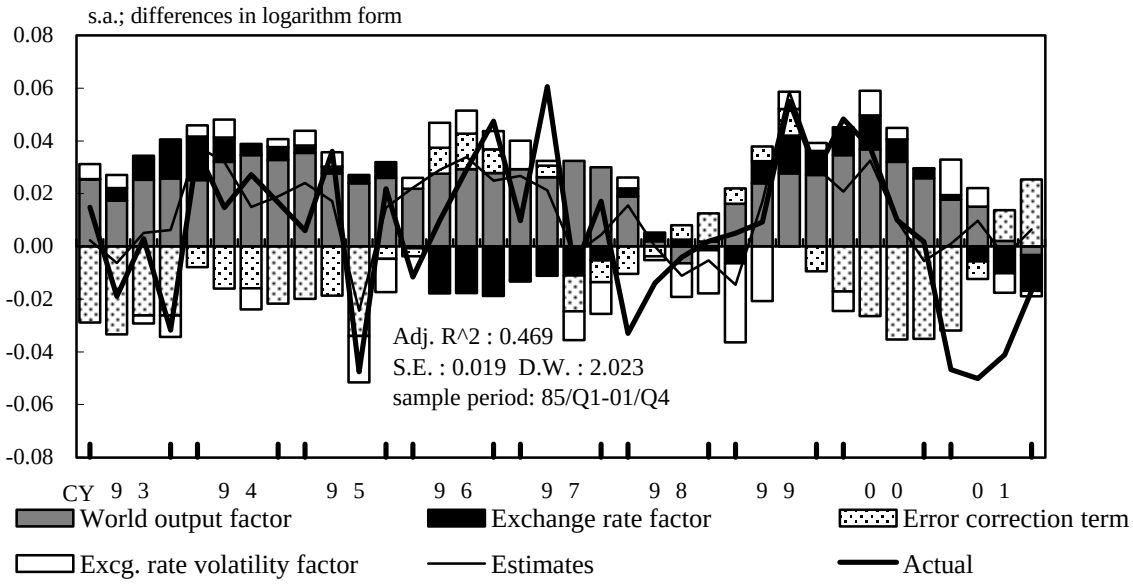
(2) With Europe



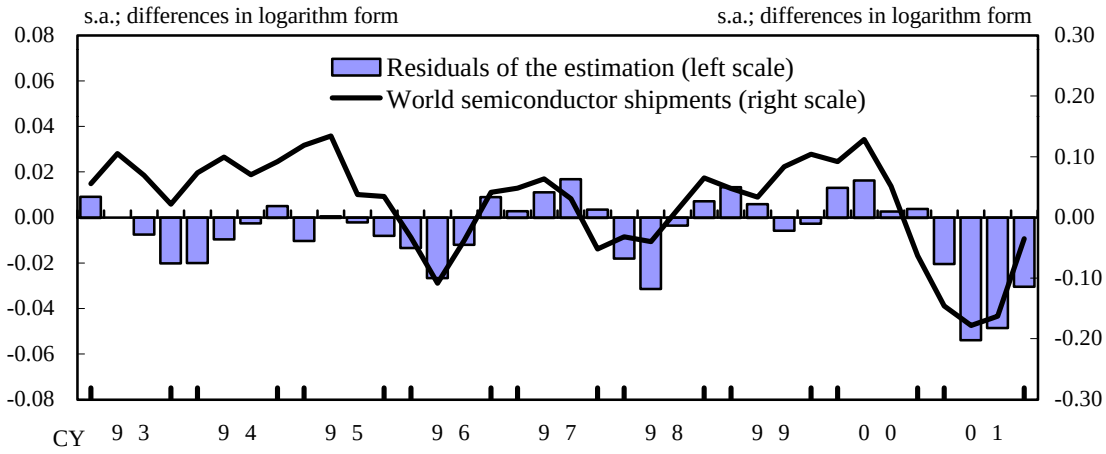
Sources: Japan Tariff Association, "Japan Exports & Imports - Commodity by Country";
Bank of Japan, "Wholesale Price Indexes."

Estimation of Real Exports Function -- IT-demand Explicitly Considered

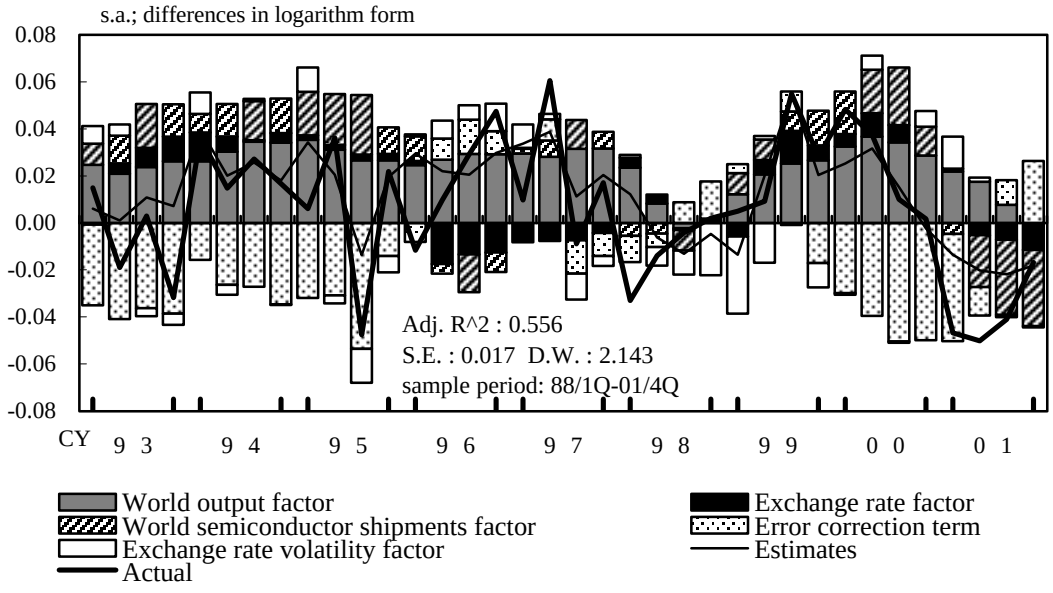
(1) Orthodox ECM-type real exports function



(2) Residuals of the estimation and world semiconductor demand



(3) ECM-type real exports function -- IT-demand explicitly considered



Results of the Real Exports Function -- IT-demand Explicitly Considered

Note:

1. Estimation of Orthodox ECM-type Real Exports Function

Long-run equilibrium: $\log(EX) = 1.193 \times \log(Y) - 0.198 \times \log(P) + 9.701\ EC$
(32.224) (-2.646) (31.799)

ECM-type function: $\mathrm{dlog}(EX) = 0.361 \times EC(-1) + \Sigma\alpha\,\mathrm{dlog}(EX\text{ <-1 -3>}) + \Sigma\beta\,\mathrm{dlog}(Y\text{ <-1 -3>})$
(-3.882)
$+ \Sigma\chi\,\mathrm{dlog}(P\text{ <-1 -3>}) + \Sigma\delta V(-1\ -3)$

where, *EX*: Real exports, *EC*: Error correction term, *Y*: World output, *P*: Real effective exchange rate, *V*: Exchange rate volatility estimated by E-GARCH-M, t-value is shown in parenthesis below each parameter.

2. Estimation of ECM-type Real Exports Function -- IT-demand explicitly considered

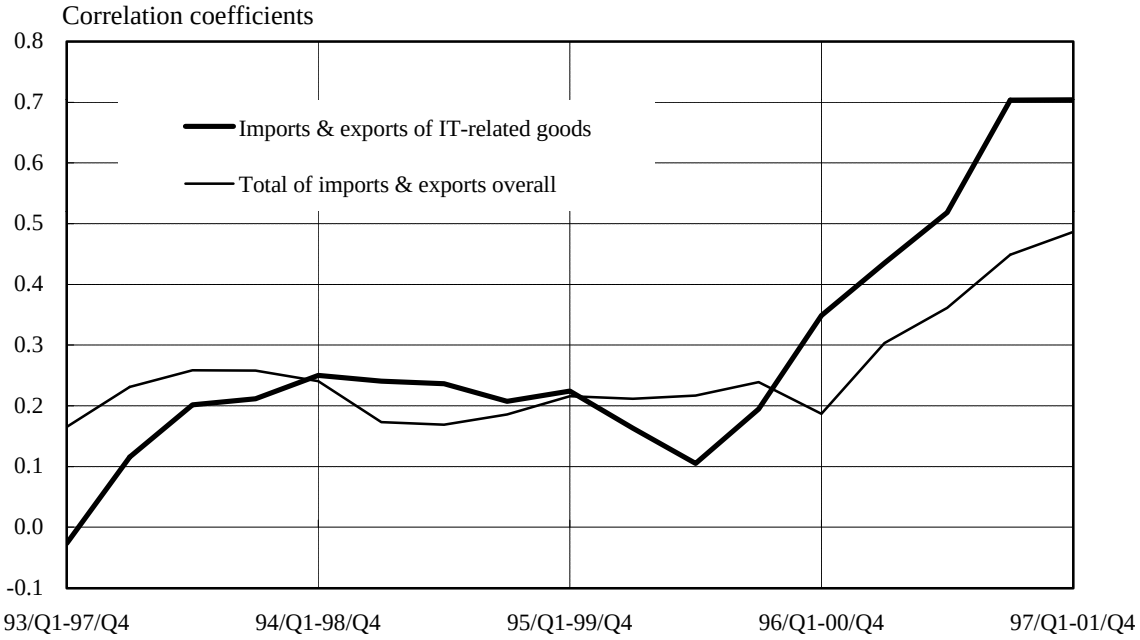
Long-run equilibrium: $\log(EX) = 1.174 \times \log(Y) - 0.316 \times \log(P) + 10.388 + EC$
(31.389) (-3.569) (26.008)

ECM-type function: $\mathrm{dlog}(EX) = -0.424 \times EC(-1) + \Sigma\alpha\,\mathrm{dlog}(EX\text{ <-1 -3>}) + \Sigma\beta\,\mathrm{dlog}(Y\text{ <-1 -3>})$
(-5.428)
$+ \Sigma\chi\,\mathrm{dlog}(P\text{ <-1 -3>}) - 0.533 \times V(-1) + 0.156 \times \mathrm{dlog}IT(-1)$
(-2.892) (2.578)

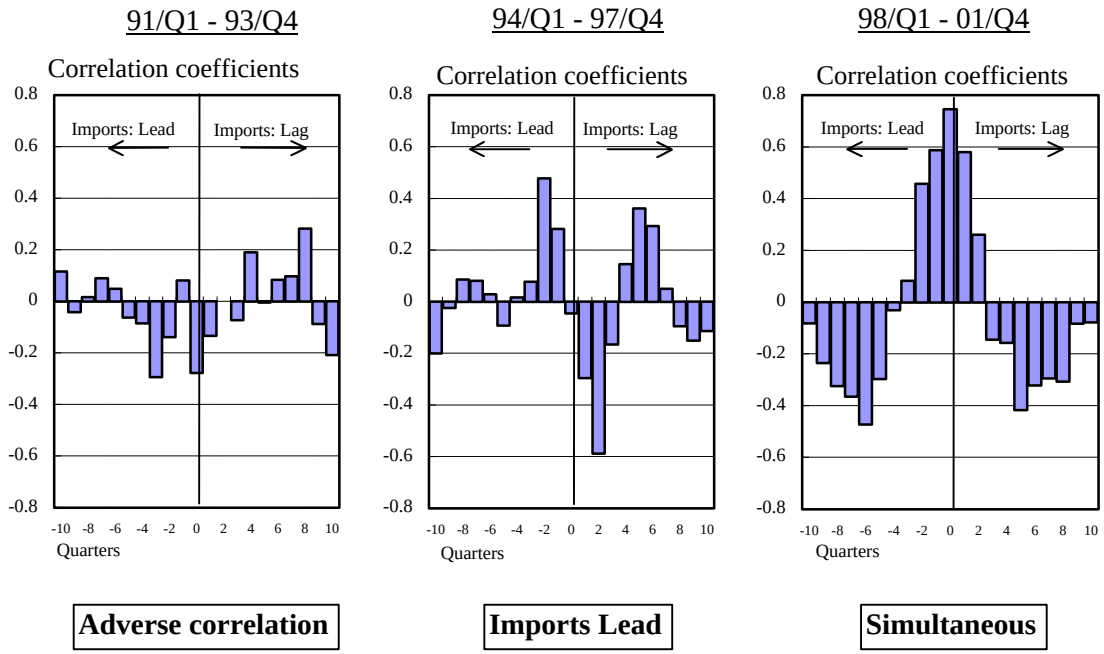
where, EX: Real exports, EC: Error correction term, Y: World output, P: Real effective exchange rate, V: Exchange rate volatility estimated by E-GARCH-M, *IT*: World semiconductor shipments, t-value is shown in parenthesis below each parameter.

Correlation of Imports and Exports

(1) Recursive estimation of correlation coefficients



(2) Cross correlation of imports and exports of IT-related goods

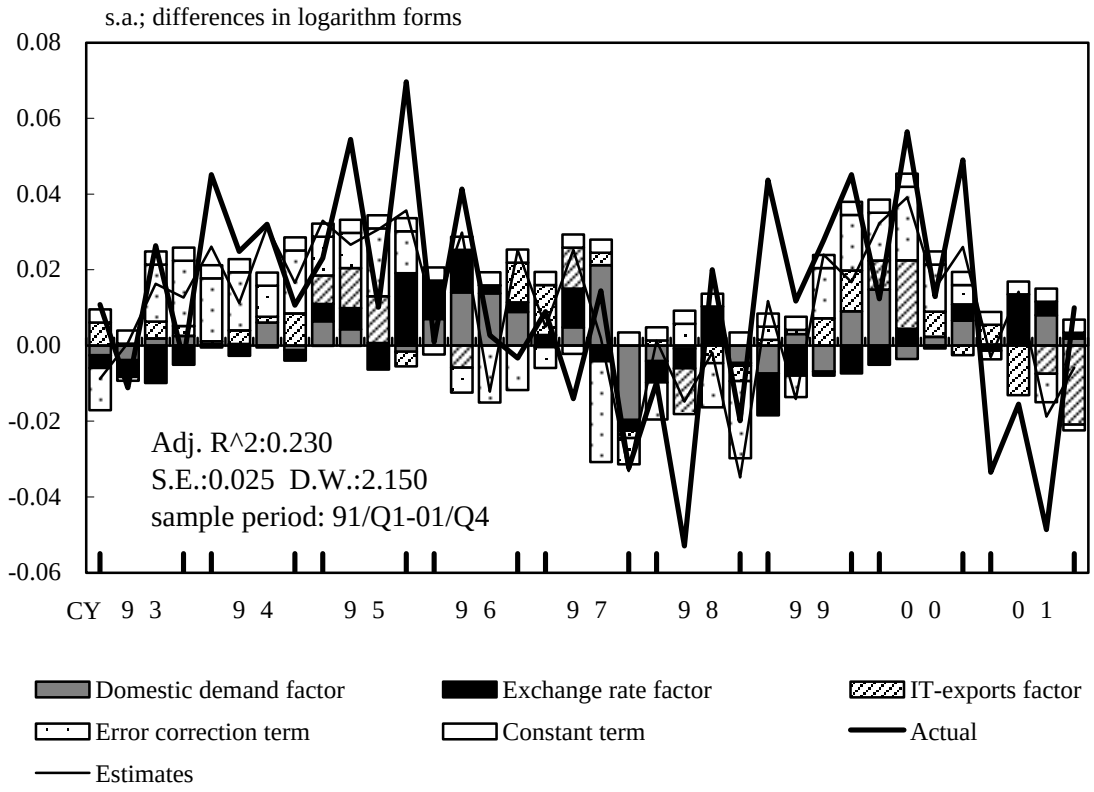


Note: For figure (1), each correlation coefficient is recursively estimated taking the 5-year sample period.

Sources: Ministry of Finance,"The Summary Report on Trade of Japan";
Bank of Japan,"Wholesale Price Indexes."

Estimation of Real Imports Function

ECM-type real imports function -- IT-exports explicitly considered



Long-run equilibrium: $\log(IM) = 4.538 \times \log(YD) + 0.779 \times \log(P) - 47.168\ EC$
(12.733) (5.665) (-5.377)

ECM-type function: $\mathrm{dlog}(IM) = -0.208 \times EC(-1) + \Sigma\alpha\,\mathrm{dlog}(IM\langle -1\ -3\rangle) + \Sigma\beta\,\mathrm{dlog}(YD\langle -1\ -3\rangle)$
(-2.901)
$+ \Sigma\chi\,\mathrm{dlog}(P\langle -1\ -3\rangle) + 0.161 \times \mathrm{dlog}(ITEX\langle -1\rangle) + 0.003$
(1.978) (0.955)

where, *IM* : Real imports, *EC* : Error correction term, *YD* : Japanese domestic demand, *P* : Real effective exchange rate, *ITEX* : Japanese IT-exports, t-value is shown in parenthesis below each parameter.

Variance Decomposition of Real GDP of 6 Countries

(1) CY1985 - 1994

	from United States	from Japan	from South Korea	from Singapore	from Malaysia	from Taiwan
to United States	76.9	0.9	10.1	4.9	3.9	3.4
to Japan	10.0	79.9	0.2	0.2	2.5	7.2
to South Korea	0.9	19.9	71.8	1.1	1.7	4.5
to Singapore	9.4	17.8	7.1	60.4	2.5	2.8
to Malaysia	10.7	2.8	3.3	0.1	80.5	2.7
to Taiwan	20.1	7.1	1.4	0.9	0.6	69.8

(2) CY1995 - 2001

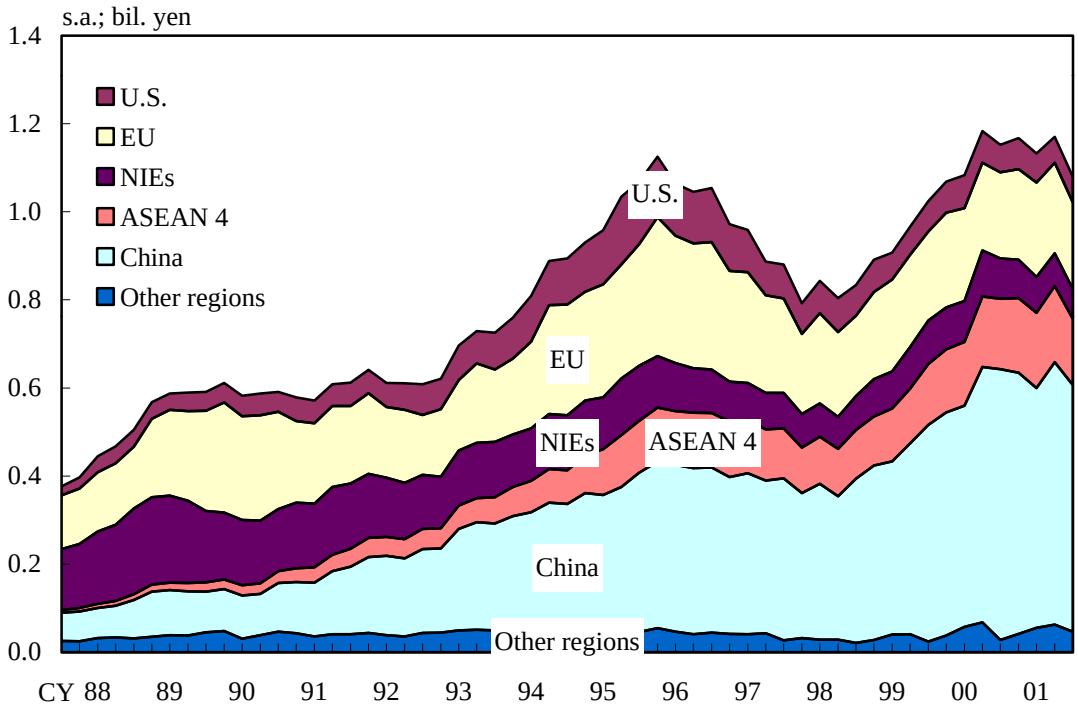
	from United States	from Japan	from South Korea	from Singapore	from Malaysia	from Taiwan
to United States	73.8	10.5	7.4	1.5	1.1	5.8
to Japan	8.5	82.4	2.8	3.0	3.2	0.2
to South Korea	2.1	14.4	70.3	2.6	1.0	9.6
to Singapore	19.5	16.5	17.2	38.7	2.8	5.2
to Malaysia	5.1	21.7	34.7	18.6	19.1	0.7
to Taiwan	38.1	14.3	9.2	2.2	13.2	23.1

Notes: 1. A VAR model is estimated using real GDP data of 6 countries (United States, Japan, South Korea, Singapore, Malaysia and Taiwan). The GDP data are transformed into differences in logarithm forms. AR(3) is chosen according to AIC.

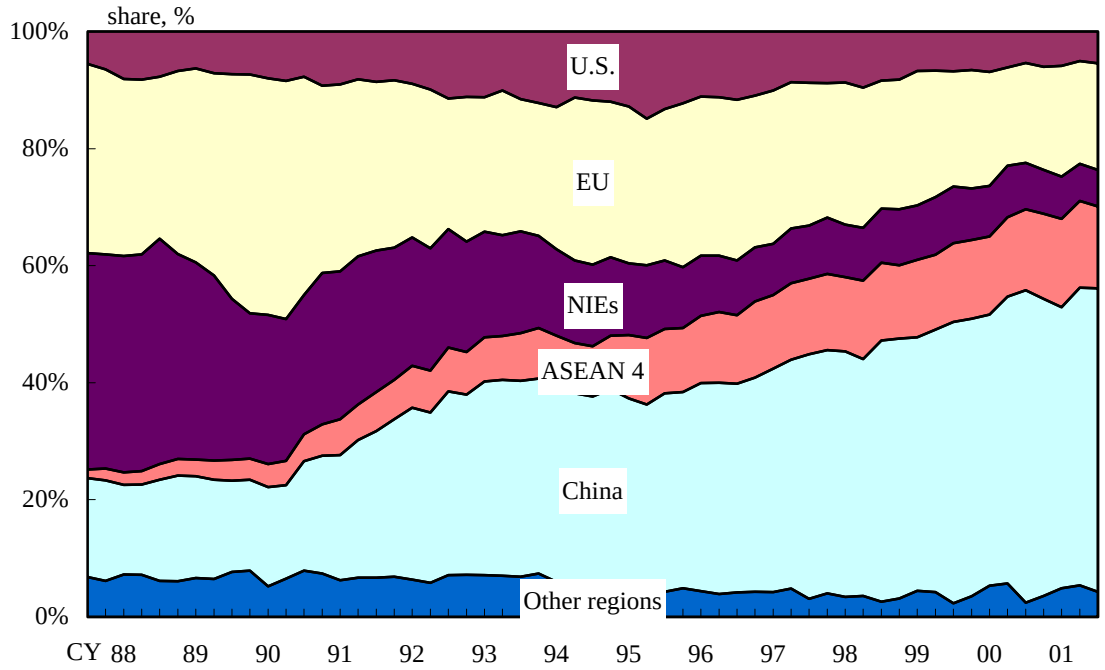
2. Figures in the tables indicate how much fluctuations of the GDP of each country in the vertical axis are explained by fluctuations of those in the horizontal axis. For example, 73.8% of the fluctuations in U.S. GDP from CY1995 - 2001 can be explained by fluctuations from itself, whereas, 10.5% by Japan, 7.4% by South Korea, 1.5% by Singapore, 1.1% by Malaysia, and 5.8% by Taiwan. The total of figures in each horizontal axis is 100.

Real Imports of Consumer Goods by Region

(1) Value



(2) Share



Notes: 1. Figures are on a real basis. Seasonally adjusted by X-11.
2. Excludes foodstuffs.

Sources Ministry of Finance, "The Summary Report on Trade of Japan."

Imports of Consumer Goods by Commodity - Changes from 1995CY to 2000CY-

Rank	Items	Contribution(%)*
1	**Woven fabrics outerwear**	**5.82**
2	**Knitted fabrics outerwear**	**4.97**
3	Medical and pharmaceutical products	3.21
4	Video cameras	3.21
5	**Underwear**	**2.00**
6	Gasoline	1.05
7	Videotape recorders	0.86
8	Color televisions	0.80
9	Ceramic tableware and kitchenware	0.72
10	Plastic products for daily necessaries and miscellaneous goods	0.71
11	Coffee and tea drinks	0.66
12	**Foundation garments**	**0.58**
13	Wooden furniture	0.50
14	Dressers	0.50
15	Plastic toys	0.49
16	**Hosiery**	**0.48**
17	Makeup products	0.42
18	Cheese	0.41
19	24mm and 35mm cameras	0.37
20	Body cleaners	0.35
21	Refrigerators with freezers	0.28
22	Hair care products	0.25
23	Cordless telephones	0.24
24	Magnetic tapes	0.19
25	Vacuum machines	0.17
26	Washing machines	0.17
27	Household and sanitary paper	0.16
28	Fluorescent lights	0.15
29	Interchangeable lenses for cameras	0.14
30	Frozen prepared foods	0.14
31	Noodles	0.14
32	Shochu	0.12
33	Sausages	0.11
34	Skin cream products	0.11
35	Battery driven clocks	0.11
36	Motorcycles (more than 125cc)	0.11
37	Electronic toys	0.10
38	Buns	0.10
39	Sauces	0.09
40	Microwave ovens	0.09
41	Color rolled film	0.09
42	Glass tableware and kitchenware	0.08
43	Wooden beds	0.06
44	Motorcycles (125cc and less)	0.06
45	Fruit drinks	0.04
46	Instant coffee	0.04
47	Toilet soap (solid)	0.03
48	Wooden desks and tables	0.03
49	Incandescent electric lights for general use	0.03
50	Mini-vehicle passenger cars	0.02

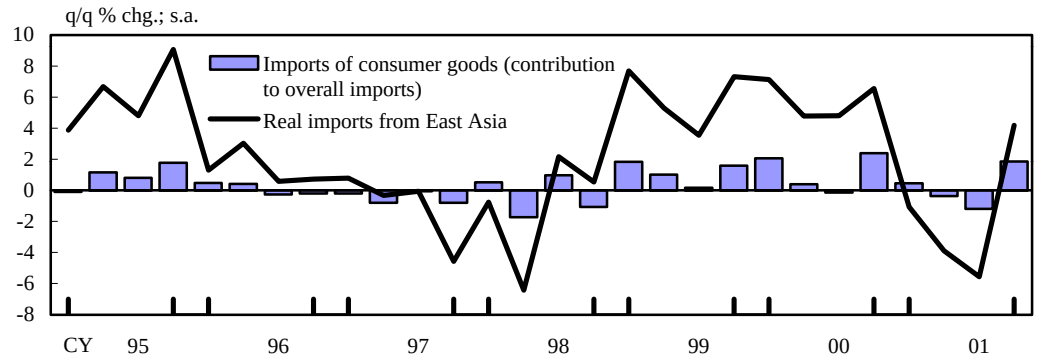
* Percent changes, from CY1995 to CY2000, of the import value of 126 items categorized as consumer goods in "Indices of Industrial Domestic Shipments and Imports" are calculated and weighted by import value in CY1995. They are listed according to their contribution to the overall change in consumer good imports.

Textile products (non-durable consumer goods including clothing and footware) are highlighted in white letters.

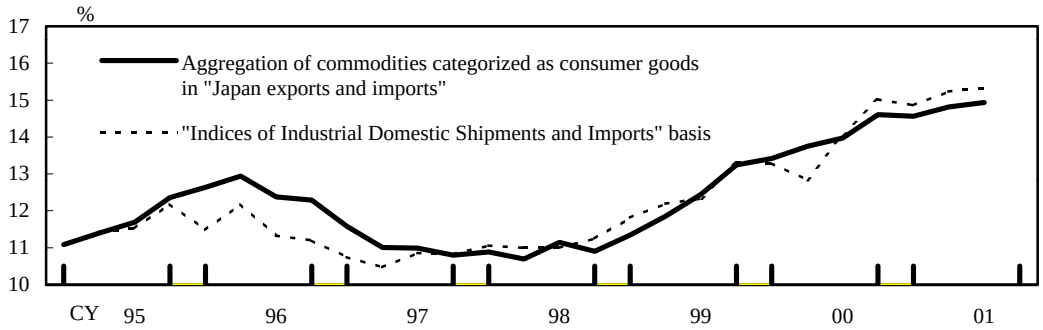
Sources: Ministry of Finance, "The Summary Report on Trade of Japan";
Japan Tariff Association, "Japan Exports & Imports - Commodity by Country."

Import Penetration

(1) Real Imports from East Asia



(2) Import Penetration Ratio of Consumer Goods



Notes: 1. East Asia in Chart (1) includes NIEs (South Korea, Taiwan, Hong Kong and Singapore), ASEAN 4 (Thailand, Indonesia, Malaysia and the Philippines) and China.
2. Import penetration ratio of consumer goods = imports of consumer goods / aggregate supply of consumer goods × 100.
3. Commodities categorized as consumer goods in "Japan exports and imports" are as of below.

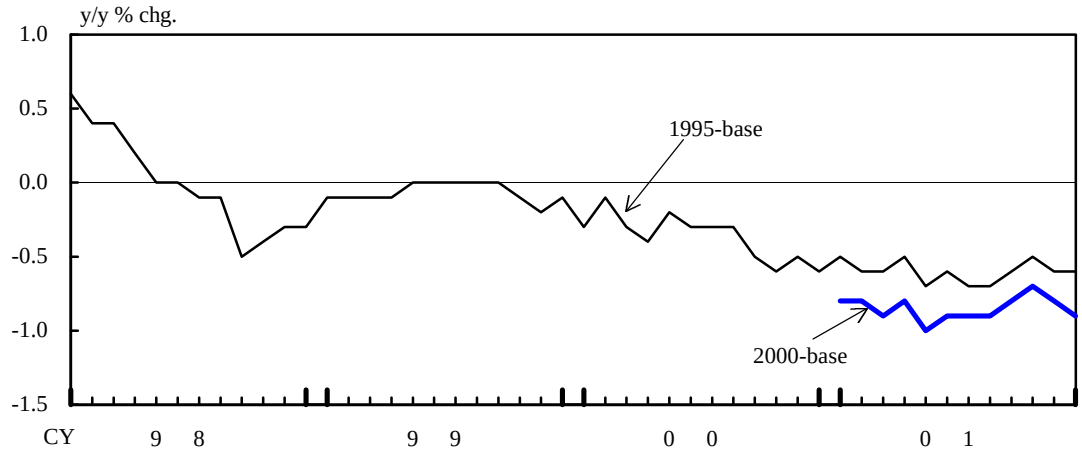
(126 commodities categorized as consumer goods)

Gas oven double burner cooking appliances, Instantaneous gas water heaters, Oil space heaters, Oil space warm air heaters, Separate unit air conditioners, Microwave ovens, Electric rice cookers and rice jar set, Refrigerators with freezers, Washing machines, Vacuum machines, Fluorescent lamps, Incandescent electric lamps, Lights for general use, Fluorescent lights, Cordless telephones, Facsimile machines, Personal handy phone system and cellular telephones, Pagers, Color televisions, Videotape recorders, Video disk players, Video cameras, Car navigation systems, Stereos, Digital audio disc players, Magnetic tapes, Personal computers, Round carbon zinc batteries, Alkaline manganese dioxide batteries, Lithium batteries, Mini-vehicle passenger cars, Small passenger cars, Large passenger cars, Mini-vehicle trucks, Motorcycles (125cc and less), Motorcycles (more than 125cc), 24mm and 35mm cameras, Interchangeable lenses for cameras, Battery driven watches (complete), Battery driven clocks, Glass tableware and kitchenware, Ceramic tableware and kitchenware, Color rolled film, Toilet soap (solid), Body cleaners, Synthetic detergents, Fabric softeners, Bleaching agents, Hair care products, Skin cream products, Makeup products, Medicaments, Gasoline, Kerosene, Plastic daily necessaries and miscellaneous goods, Household and sanitary paper, Knitted fabrics outerwear, Woven fabrics outerwear, Underwear, Foundation garments, Hosiery, Ham, Sausages, Bacon, Butter, Cheese, Milk, Milk drinks, Ice cream, Canned seafood, Fish sausage, Boiled or baked fish paste, Preserved food boiled in soy sauce, Flaked dried bonito, Canned vegetables, Canned fruits, Pickled vegetables, Bean paste, Soy sauce, Sauces, Tomato ketchup, Mayonnaise, Dressings, Vinegar, Edible oils, Margarine, Pancake mixes, Bread, Buns, Instant noodles, Noodles, Biscuits, Rice crackers, Canned or bottled foods, Frozen prepared foods, Carbonated beverages, Fruit drinks, Coffee or tea beverages, Instant coffee, Beer, Sake, Shochu, Whisky, Liqueurs, Cigarettes, Leather boots and shoes, Wooden chests of drawers, Dressers, Wooden shelves, Wooden desks and tables, Wooden chairs, Wooden beds, Newspapers, Books, Monthly magazines, Weekly magazines, Pianos, Electric and electronic pianos, Mechanical pencils, Ball-point pens, Marking pens, Electronic toys and Plastic toys.

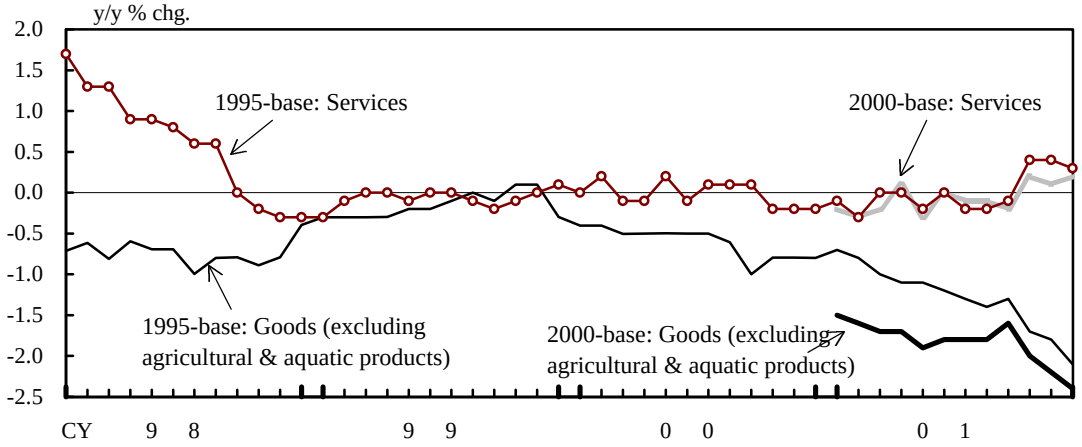
Source: Ministry of Finance, "The Summary Report on Trade of Japan"; Japan Tariff Association, "Japan Exports Imports - Commodity by Country"; Bank of Japan, "Wholesale Price Indexes."

Consumer Prices

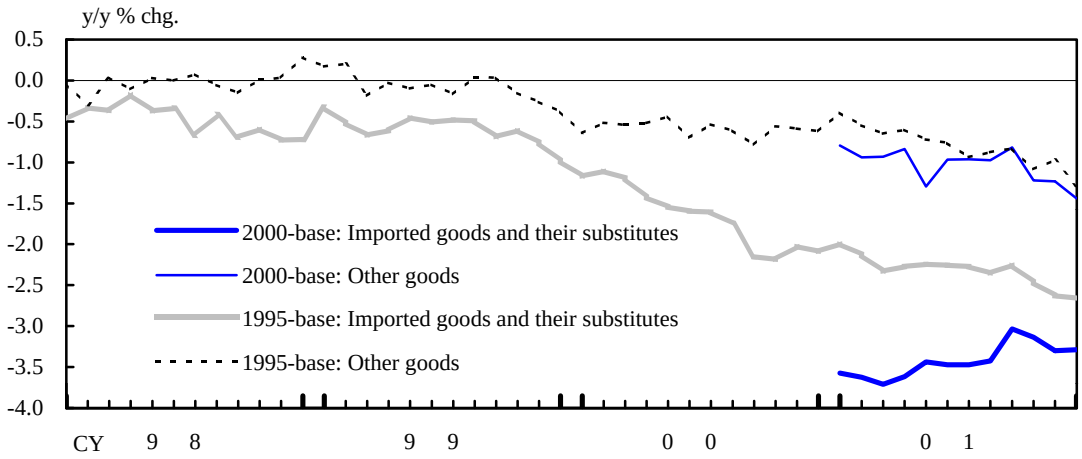
(1) Consumer Price Index (excluding fresh food)



(2) Comparison of goods (excluding agricultural & aquatic products) and services in terms of CPI



(3) Comparison of imported goods and their substitutes in terms of CPI

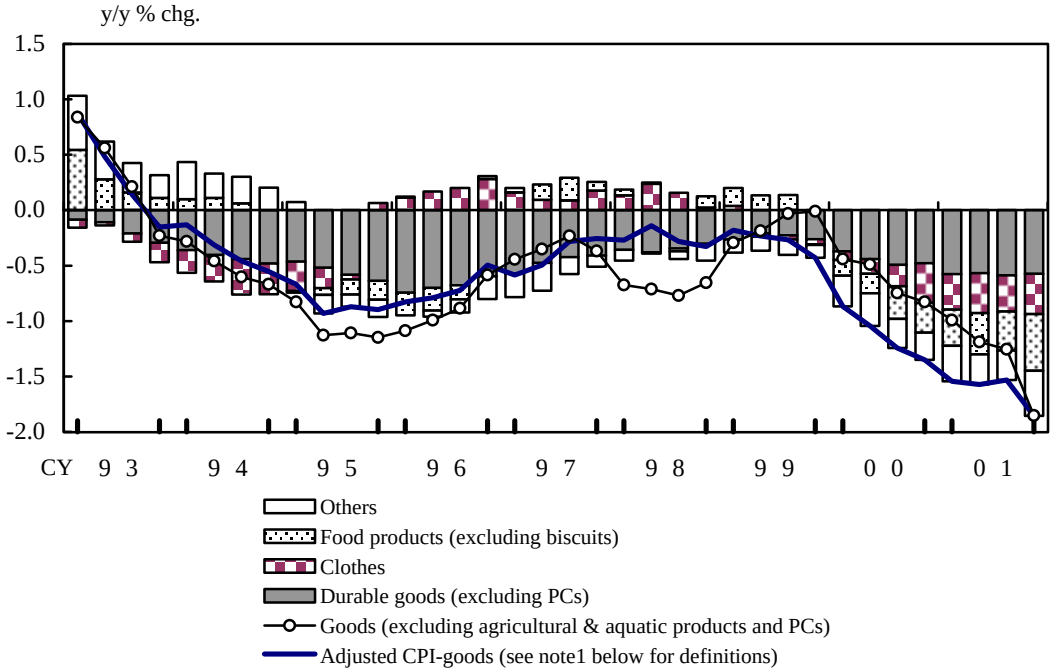


Notes 1. The effects of the consumption tax hike in April 1997 are excluded, assuming that prices of all taxable goods fully reflect the rise in the tax rate.
2. Goods = "Goods" defined by the Ministry of Public Management, Home Affairs, Posts and Telecommunications - "Electricity, gas & water"
3. Services = "general services" + "public services" + "electricity, gas & water"
4. The gap between 1995-base and 2000-base is due to the revision of items and weights.

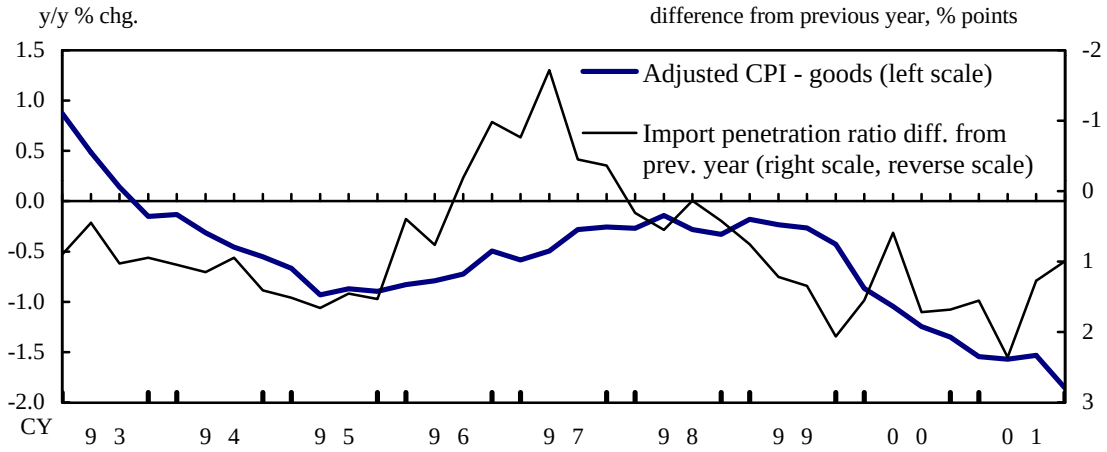
Source: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Consumer Price Index."

Consumer Price Index of Goods

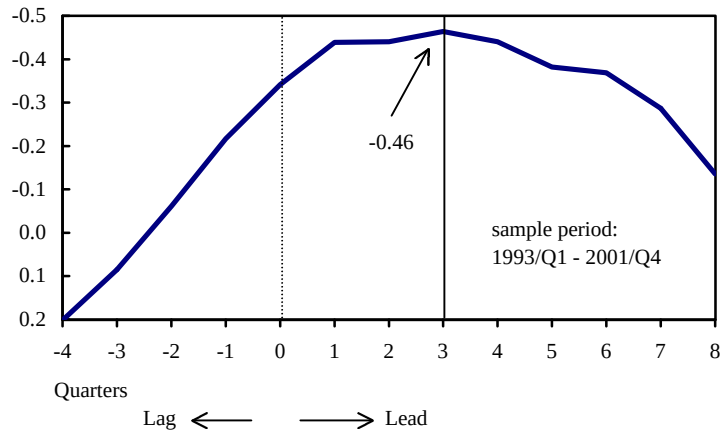
(1) Consumer Price Index of goods



(2) Adjusted CPI-goods and import penetration ratio



Cross Correlation: Import penetration ratio leads 3 quarters



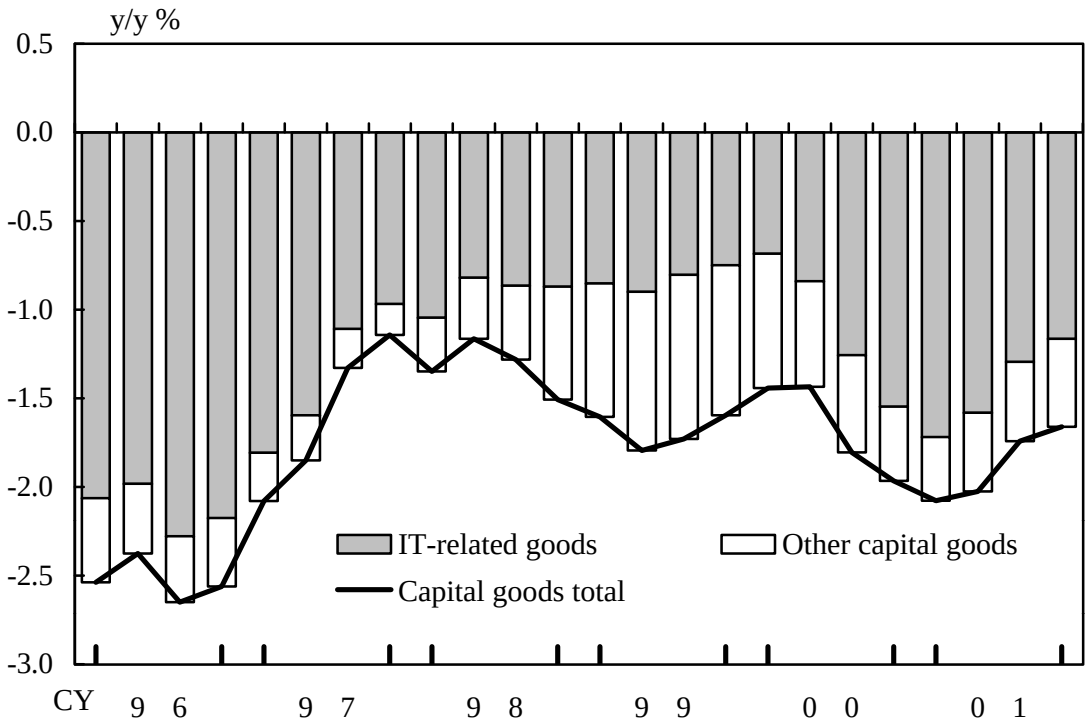
Notes: 1. Adjusted CPI-Goods = "CPI-goods" - "agricultural & aquatic products" - "petroleum products" - "PCs" - "cigarettes" etc.

2. The effects of the consumption tax hike in April 1997 are excluded, assuming that prices of all taxable goods fully reflect the rise in the tax rate.

Sources: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Consumer Price Index"; Ministry of Economy Trade and Industry, "Indices of Industrial Domestic Shipments and Imports."

Chart 33

Contribution of IT-related Goods to the Decline of WPI Capital Goods



Notes: 1. The effects of the consumption tax hike in April 1997 are excluded, assuming that prices of all taxable goods fully reflect the rise in the tax rate.

2. IT-related goods here are defined as the weighted sum of the following items: Communication cables, Copying machines, Word processors, Condensers, Computers, External memories, Input-output devices, Terminal units, X-ray equipment, Ultrasonic equipment, Electronic equipment for medical use, Telephone sets, Key telephone systems, Intercoms, Facsimiles, Fixed radio communications equipment, Cell stations, Applied radio equipment, Video cameras, Electrical test & measuring equipment, Precision measuring instruments, Optical & spectrophotometric analyzers, Electromagnetic analyzers, Chromatographs, separators & distillation equipment, Materials testing apparatus, Surveying instruments, Medical equipment & systems.

Source: Bank of Japan, "Wholesale Price Indexes."

Overseas Production Ratio

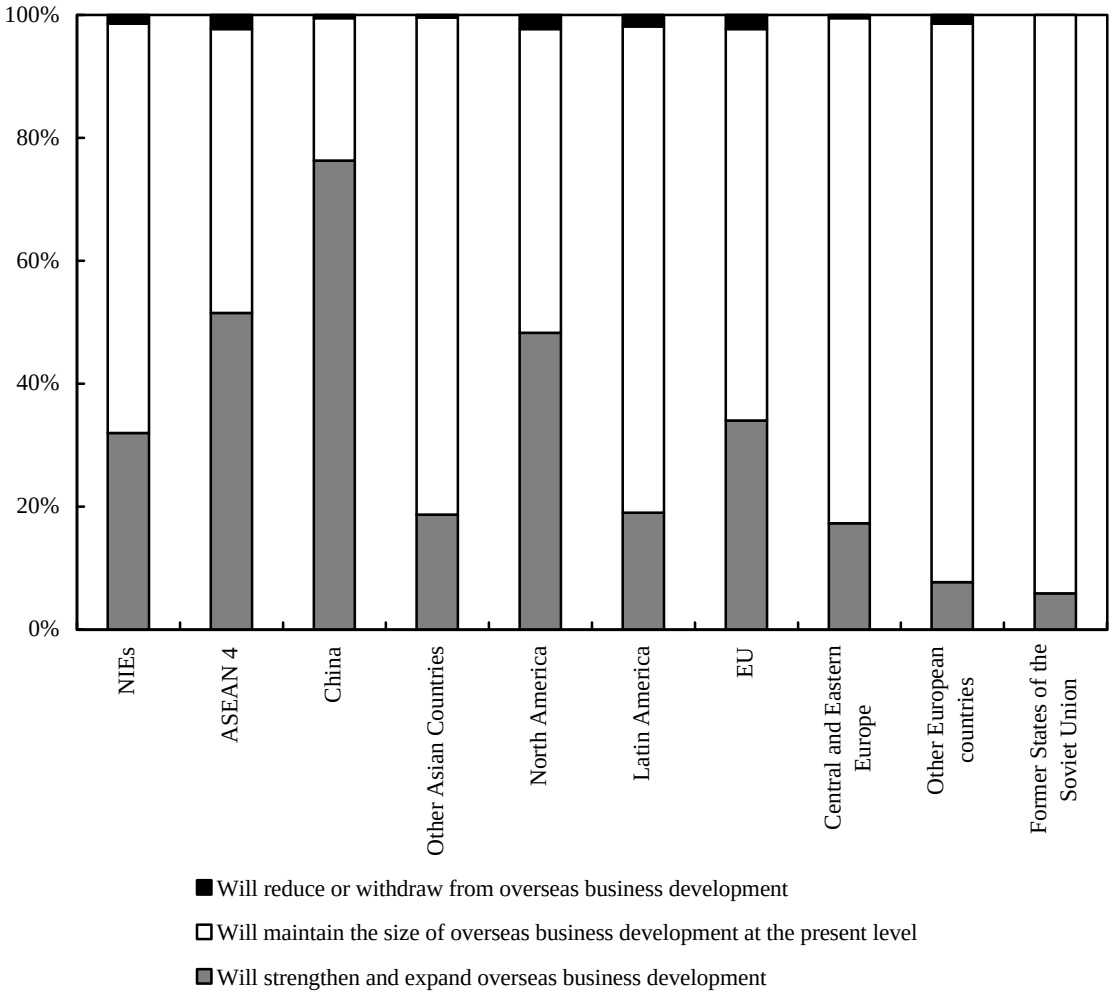
(1) Overseas production ratio by major industrial classification

% points

	Textiles	Steel	Chemicals	General machinery	Electrical equipment and electronics	Precision machinery	Manufacturing
Overseas production ratio	32.5	15.0	17.4	20.0	31.7	25.5	21.1

Note: Overseas production ratio = overseas production volume / (overseas production volume + domestic production volume)

(2) Size of overseas business operations through foreign direct investment over the medium term (next three years)

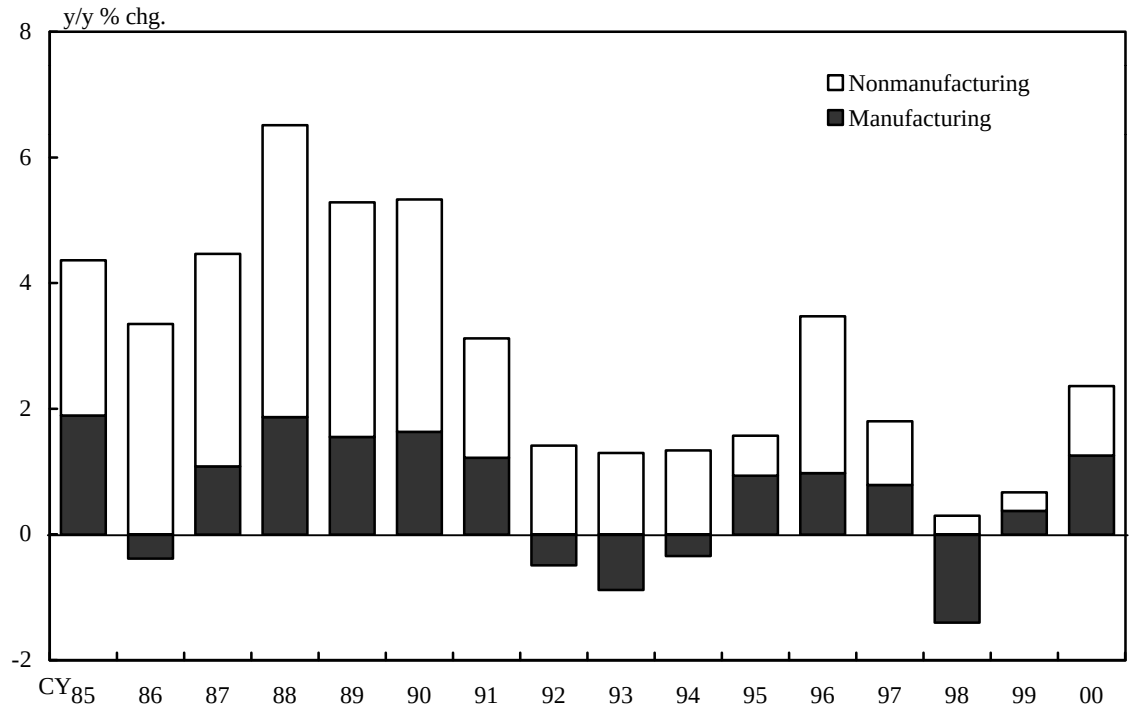


Source: Japan Bank for International Cooperation Development Finance Research Center, "The Outlook of Japanese Foreign Direct Investment (12th Annual Survey - FY2000)."

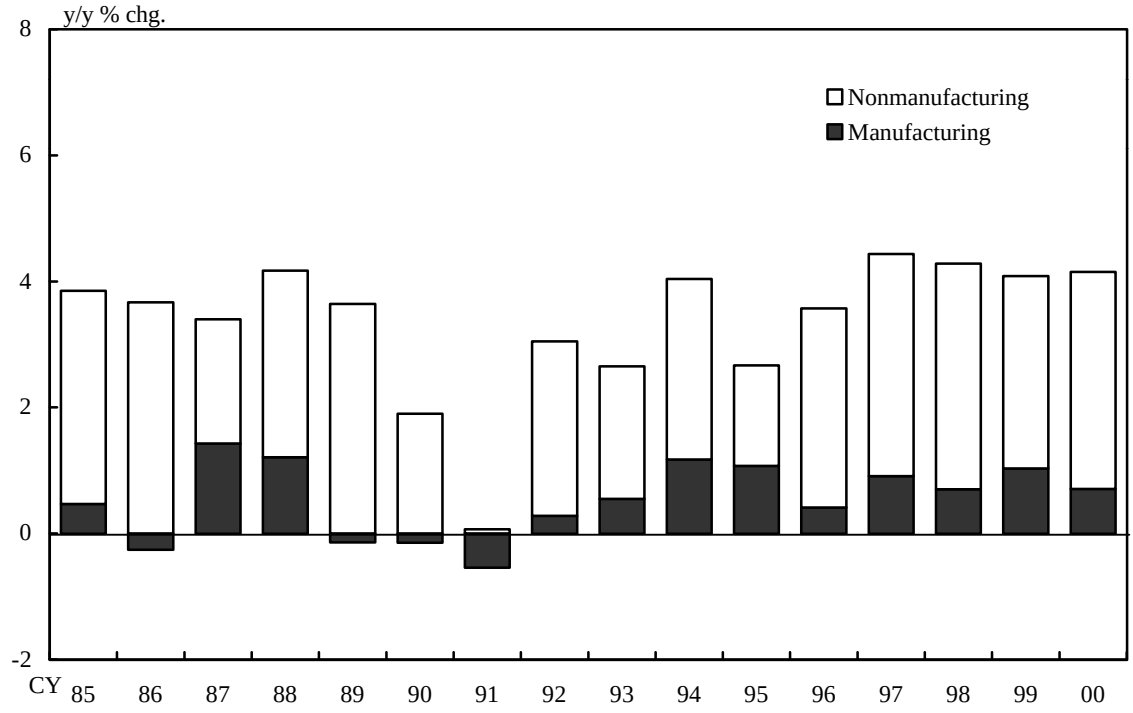
Chart 35

Contributions of Manufacturing and Nonmanufacturing to Economic Growth

(1) Japan



(2) U.S.

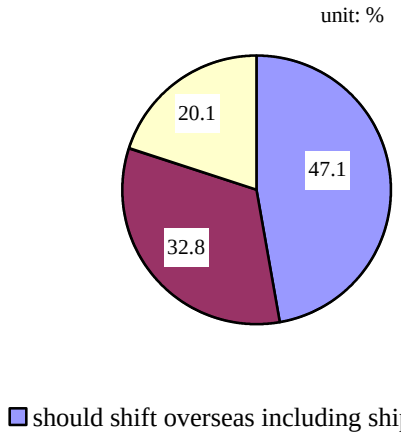


Note: Nonmanufacturing ={Transportation and communication, Wholesale and retail trade, Finance and insurance, Construction, Services, Electricity, Gas and water supply and Real estate.}

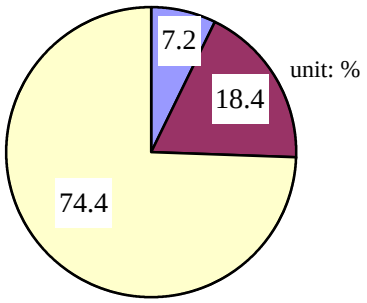
Sources: Cabinet Office, "National Accounts"; U.S. Department of Commerce, "Survey of Current Business."

Overseas and Domestic Production Portfolio

Production of matured technology products

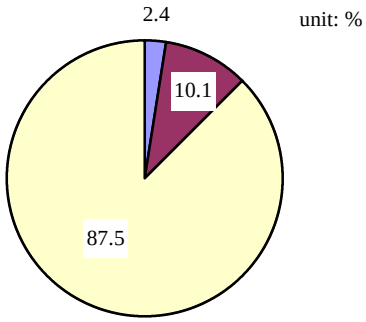


Production of high technology products

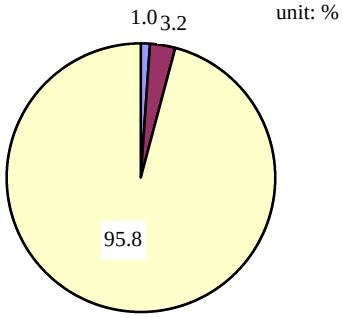


should shift overseas including shipments to domestic market
should shift overseas excluding shipments to domestic market
should remain domestic

Development of new products



Fundamental research



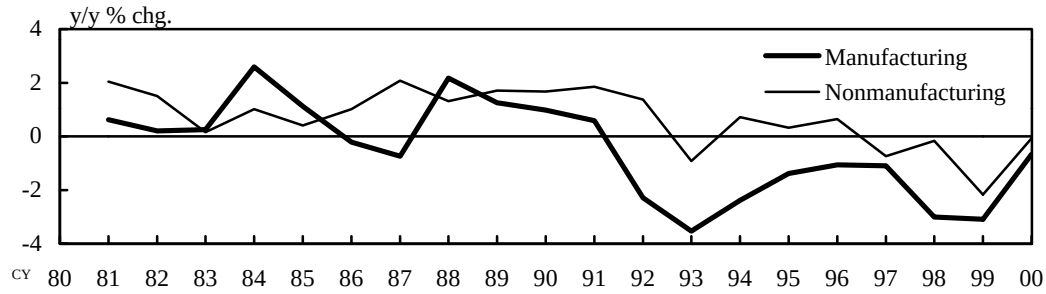
Note: Respondents only from the manufacturing sector.

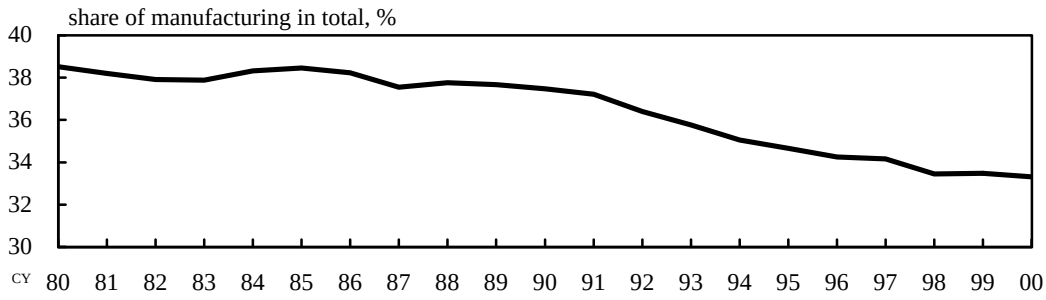
Source: Cabinet Office,"*Kigyou Koudou ni Kansuru Ankeito Chousa 2001* (Questionnaire on Corporate Behavior 2001)."

Chart 37

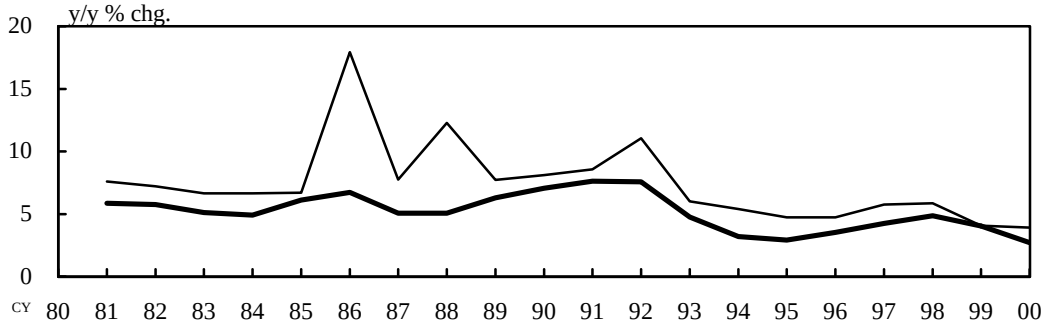
Factor Endowments of Manufacturing and Nonmanufacturing

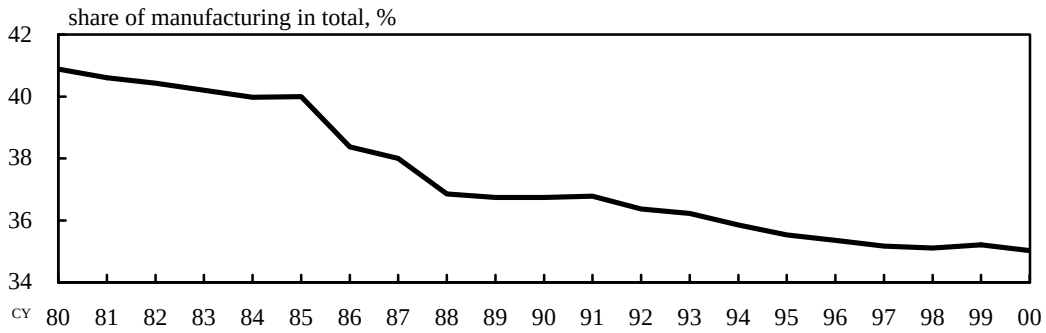
(1) Labor input





(2) Real capital stock



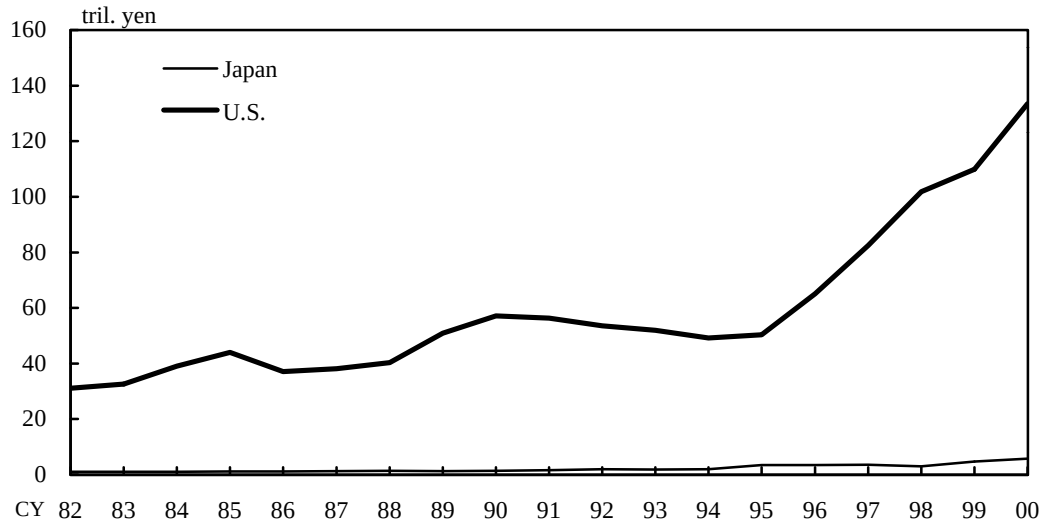


Note: Labor input is calculated from multiplying regular employees by total working hours.

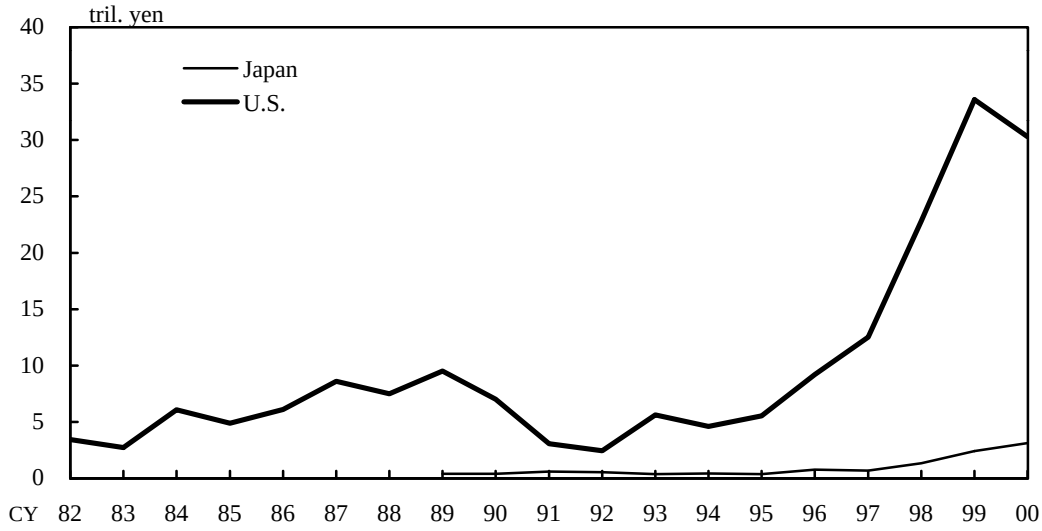
Sources: Ministry of Health, Labour and Welfare, "Monthly Labour Survey"; Cabinet Office, "Gross Capital Stock of Private Enterprises."

Inward Direct Investment

(1) Stock basis



(2) Flow basis



Notes: 1. Stock basis figures come from the international investment position of Japan in "Balance of Payments Monthly" and flow basis figures are from "Inward Direct Investment." There is a discontinuity in "Balance of Payments Monthly" data due to the revision in 1994.
2. "Inward Direct Investment" is on ex post facto report or prior notice basis. Definition and coverage differ from "Balance of Payments Monthly."
3. U.S. data is converted into yen with market exchange rates.
4. Stock basis data for Japan is on a FY basis and that of U.S. is on a CY basis.

Sources: Ministry of Finance, "Inward Direct Investment"; Bank of Japan, "Balance of Payments Monthly"; U.S. Department of Commerce, "Survey of Current Business."

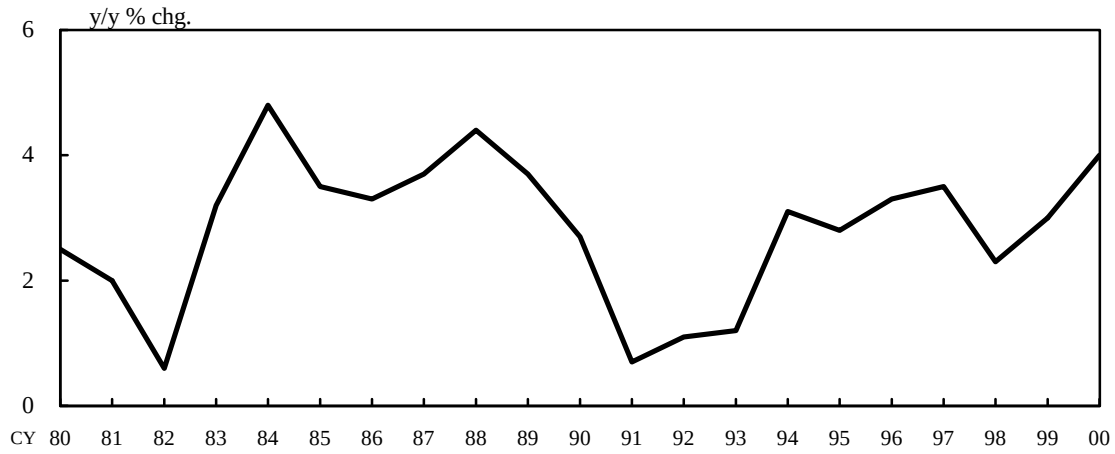
Japan's Competitiveness

Strengths	Rank among 49 countries	Weaknesses	Rank among 49 countries
Total reserves	1	Electricity costs for industrial clients	47
Patents granted to residents	1	Cost-of-living index	48
Securing patents abroad	2	Entrepreneurship	49
Total expenditure on R&D per capita	2	Immigration laws	48
Business expenditure on R&D per capita	2	Rights and responsibilities of shareholders	49
Portfolio investments assets	3	Creation of firms	49
Exports of goods	3	Public sector contracts	49
Higher education achievement	2	Management of public finances	48
Total expenditure on R&D	2	Shareholder value	48
Total R&D personnel in business per capita	4	Competence level	48
Current account balance	1	University education	49
Customer satisfaction	2	Transparency	49
Computers in use	2	Central government budget surplus / deficit	48
Employee training	5	Political system	48
Total R&D personnel nationwide per capita	4	Government economic policies	48
Unit labor costs in the manufacturing sector	4	Legal regulation of financial institutions	47
Portfolio investments liabilities	5	Central bank policy	47
Collected indirect tax revenues	8	Flexibility and adaptability	47
Worker motivation	6	Consensus about policy direction inside the cabinet	49
Labor relations	5	National culture	46

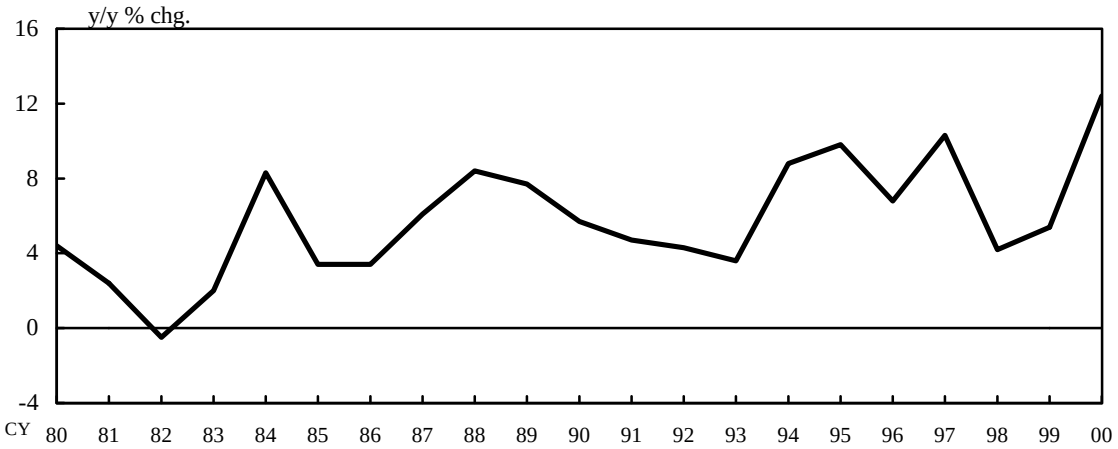
Source: International Institute for Management Development (IMD), "THE WORLD COMPETITIVENESS YEARBOOK 2001."

Globalization of the World Economy Since the 1990's

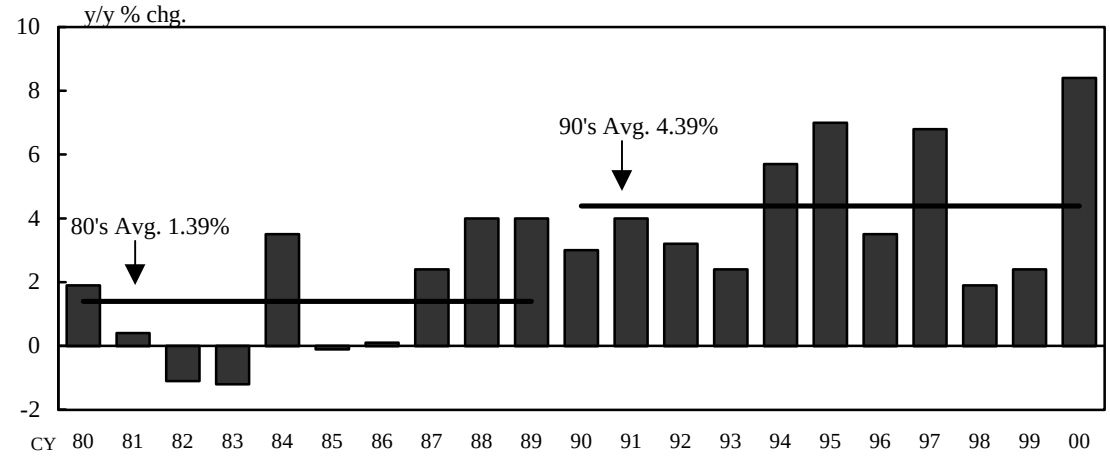
(1) Real GDP growth of the world: A



(2) Trade of the world: B



(3) B-A

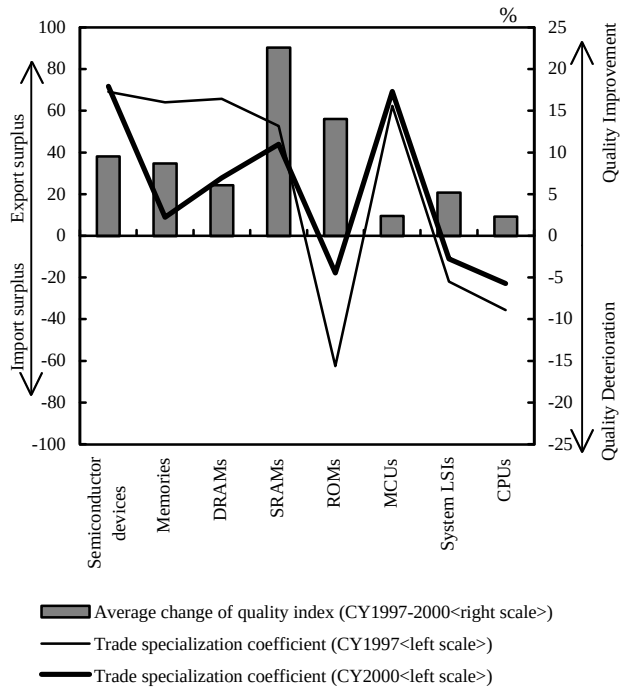


Source: IMF, "World Economic Outlook."

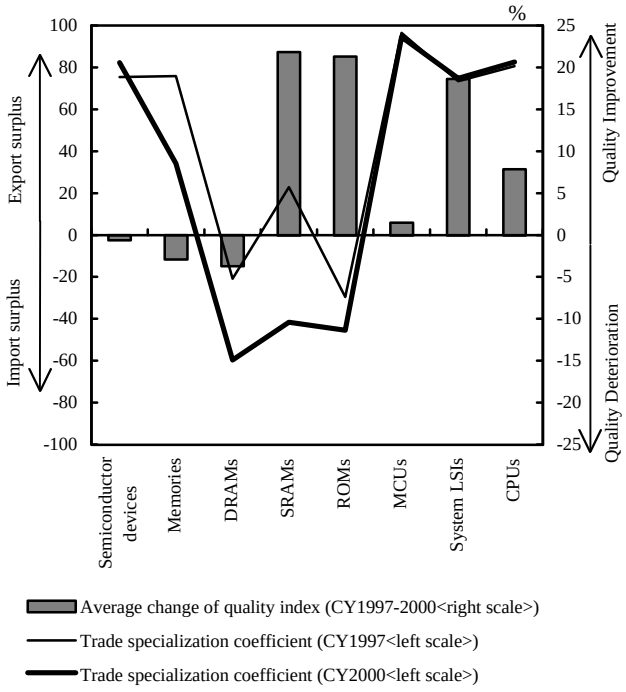
Trade Specialization Indicators and Quality Indexes of ICs

(1) Trade specialization indicators and average changes of quality indexes of ICs

a. With United States

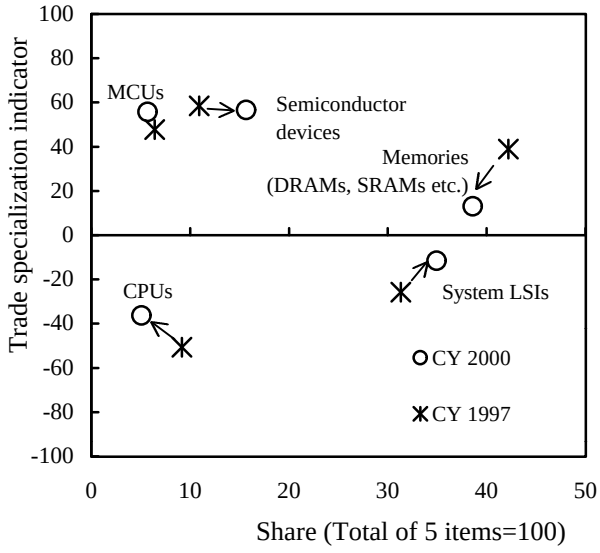


b. With NIEs

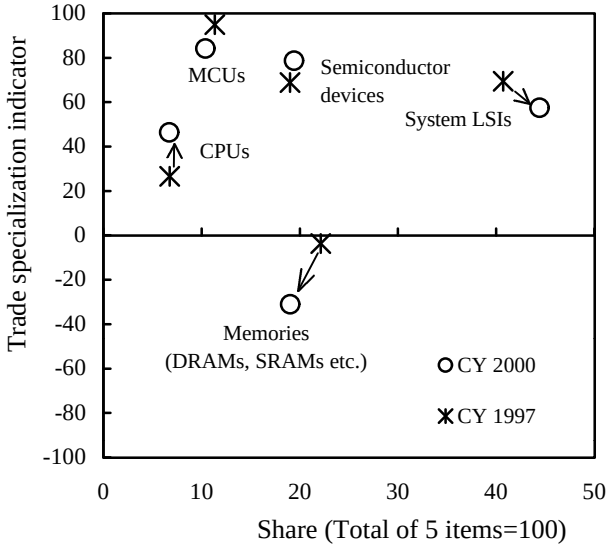


(2) Changes of shares in exports of IT-related goods and trade specialization indicators (from CY1997 to CY2000)

a. With United States



b. With NIEs



Note: Trade specialization indicators in (1) are on a quantity basis.

Sources: Japan Tarrif Association, "Japan Exports & Imports - Commodity by Country"; Bank of Japan, "Wholesale Price Indexes."

Description of Quality Index and ICs

Note:

(1) Quality Index

Quality Index = Export Unit Price Index (EUPI) / Export Price Index (EPI)

Export Unit Price Index (EUPI) is an index of the average export unit price which is calculated by dividing the total value of exports by the total quantity of exports. Whereas Export Price Index (EPI) is calculated using the Laspeyres formula, which is the weighted arithmetic mean based on the fixed value weights in the base year of CY1995.

Quality Index shows whether the rise or fall of the average export price due to changes of export items is larger or smaller than that of EPI. Usually, when EUPI is bigger than EPI (Quality Index > 1), the quality of export items is improving. On the other hand, when EUPI is smaller than EPI (Quality Index < 1), the quality of export items is deteriorating. Note that the coverage of EPI is different from that of EUPI.

Here, average y/y changes of the Quality Index from 1997 to 2000 are used.

(2) Description of ICs

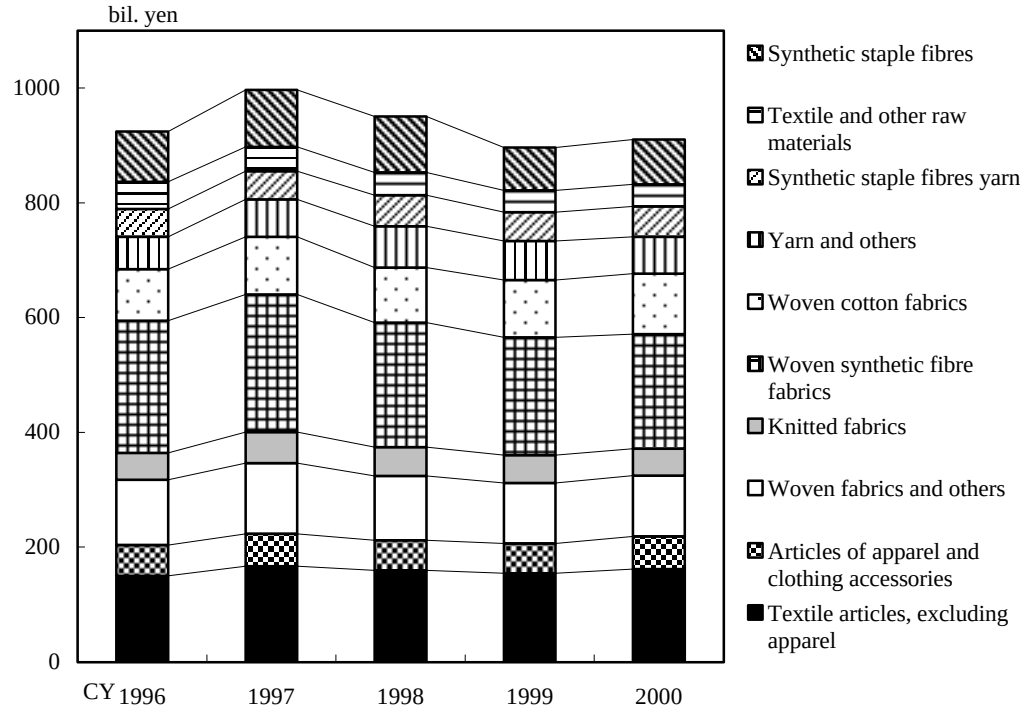
Semiconductor Devices	Semiconductor devices are components of integrated circuits (ICs), including transistors i.e. elements whose functions are amplification, generating oscillations and switching. They function by applying junctions of semiconductors like germanium or silicon. Also diodes, such as semiconductor devices with two terminals which have functions like commutation, detecting oscillations, and amplification, are included in this category.
MCUs	Micro-Controllers (MCUs) are the integration of CPUs, RAMs, ROMs etc. on one chip. They are usually built in electric instruments as controllers.
Memories	Memories are the elements or devices which stock data. They include DRAMs, a type of RAM (Random Access Memory) that requires a refresh signal to be sent to it periodically. DRAMs are used for storing data temporarily while working on it, running application programs, etc.. "Random access" refers to the fact that any area of RAM can be accessed directly and immediately. They also include SRAMs, a type of RAM that requires a constant supply of power in order to hold its content, but does not require refresh circuitry, and ROMs, a memory that can be read but not changed. ROMs are non-volatile storage; they hold contents even when the power is turned off.
System LSIs	System LSIs are Large Scale Integrations whose systems are on a chip. They are made up of processors, memories, input-output circuits, interface circuits, communication circuits, etc.. The scale of system LSI circuits is so large that their design is time-consuming.
CPUs	Central Processing Units (CPUs) controls computer operations. Units within CPUs perform arithmetic and logical operations and decode and execute instructions.

Source: Electronic Industries Association of Japan (EIAJ) "IC Guidebook 2000."

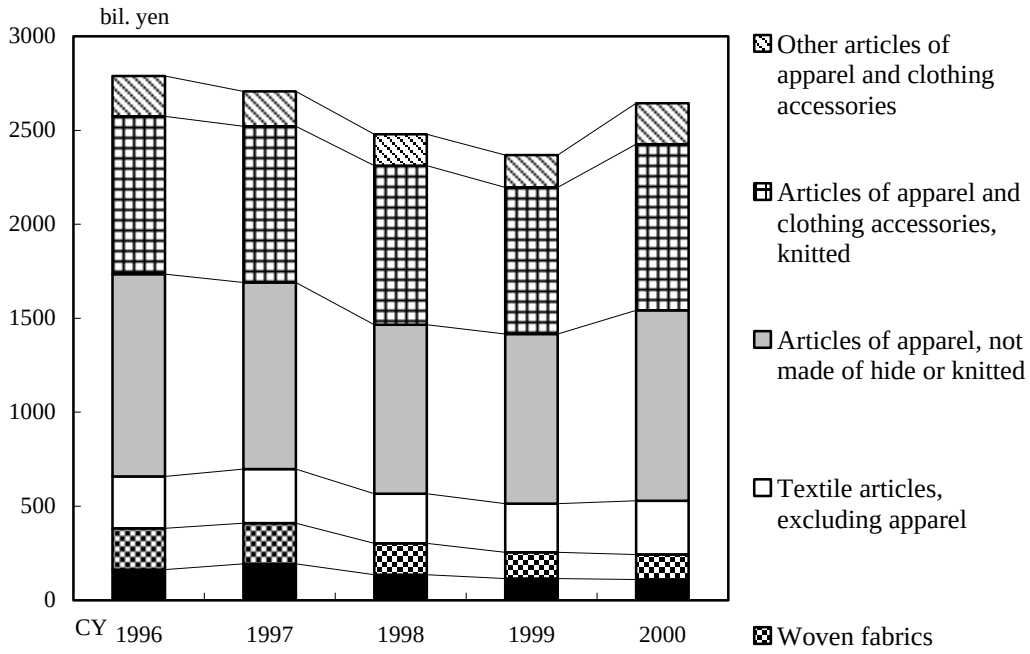
BOX2 Chart 1

Imports and Exports of Textile Products

(1) Exports



(2)Imports

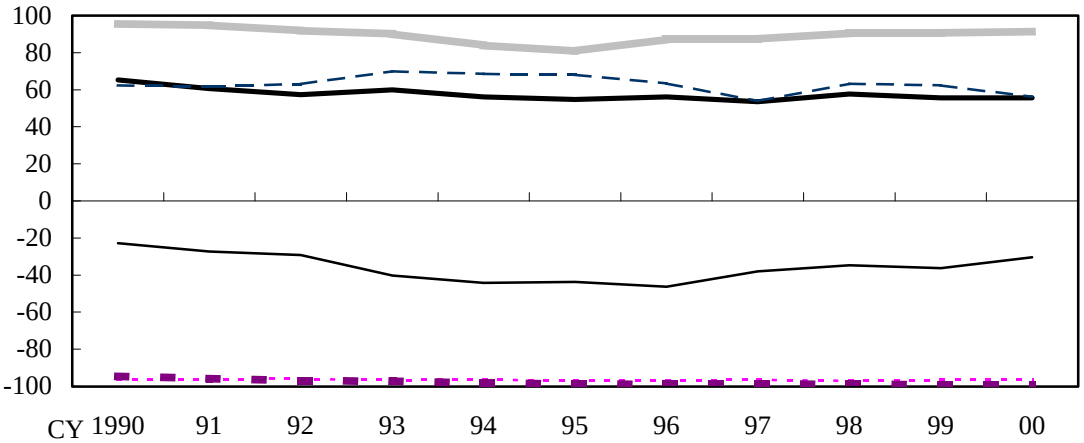


Source: Ministry of Finance, "The Summary Report on Trade of Japan."

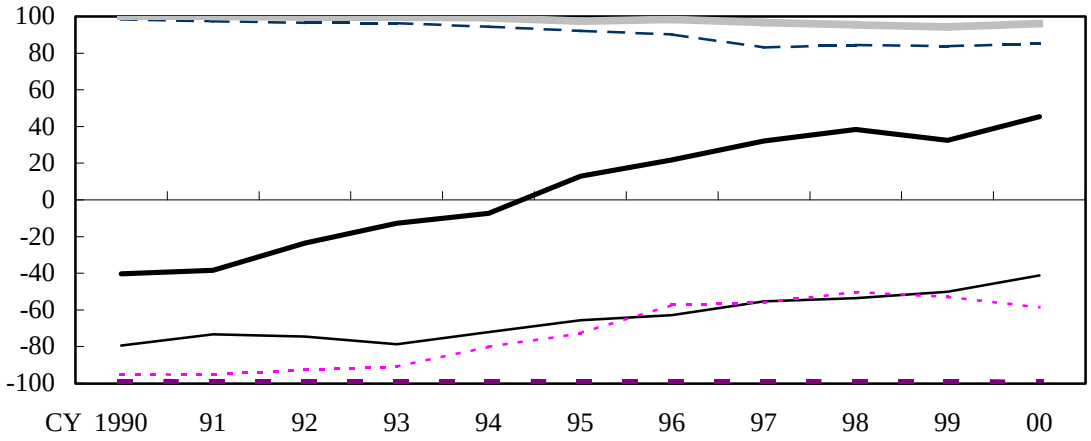
BOX2 Chart 2

Trade Specialization Indicators of Textiles and Related Products

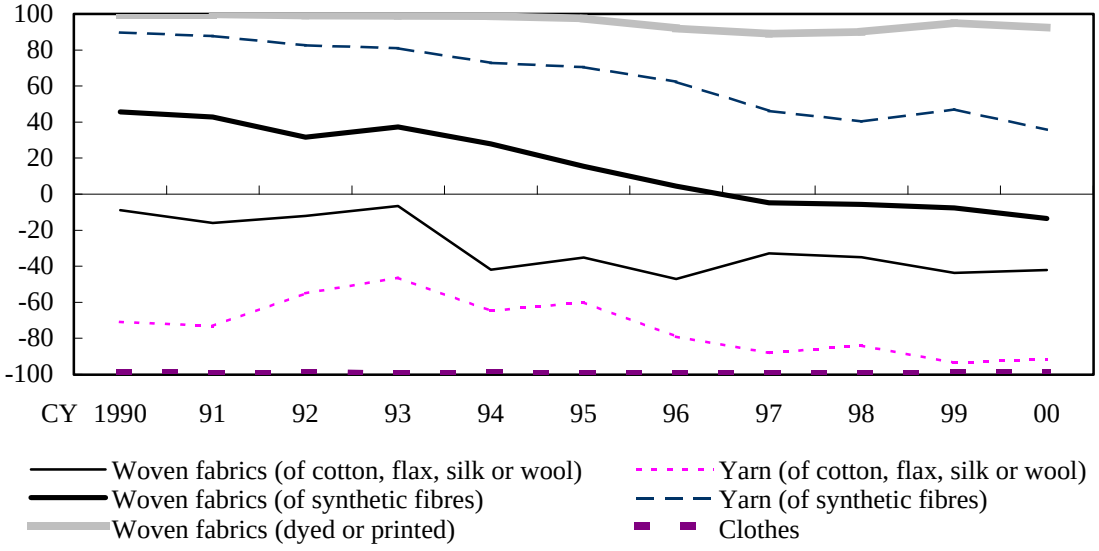
(1) With the world



(2) With China



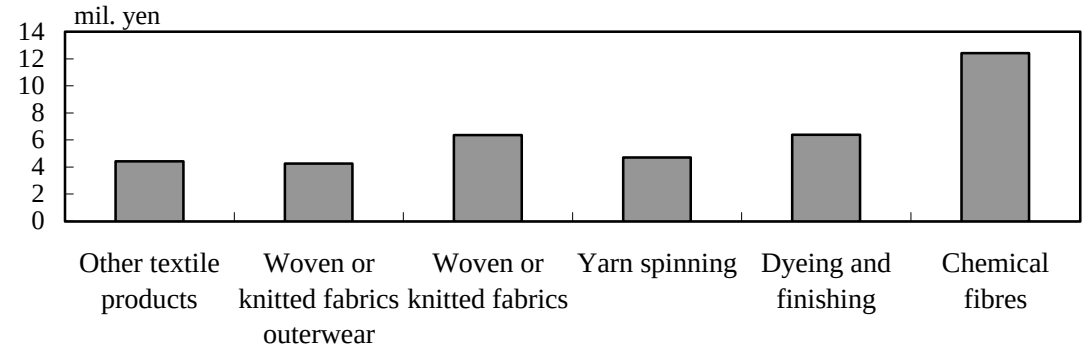
(3) With ASEAN 4



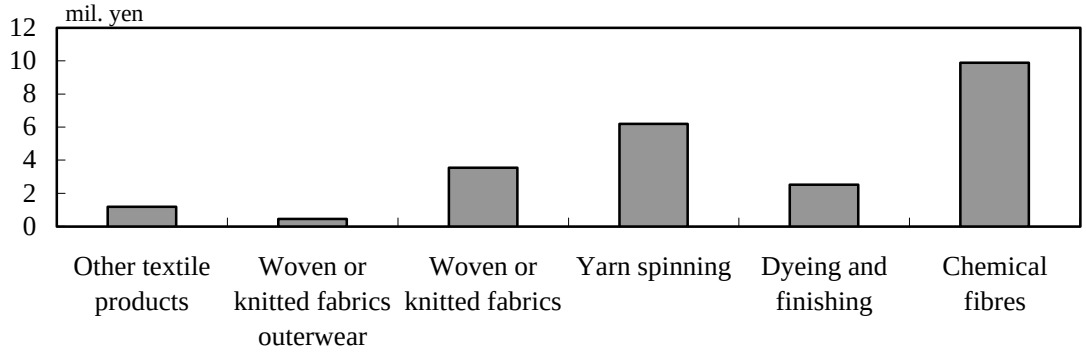
Source: Japan Tariff Association, "Japan Exports & Imports - Commodity by Country."

Characteristics of the Textile Industry

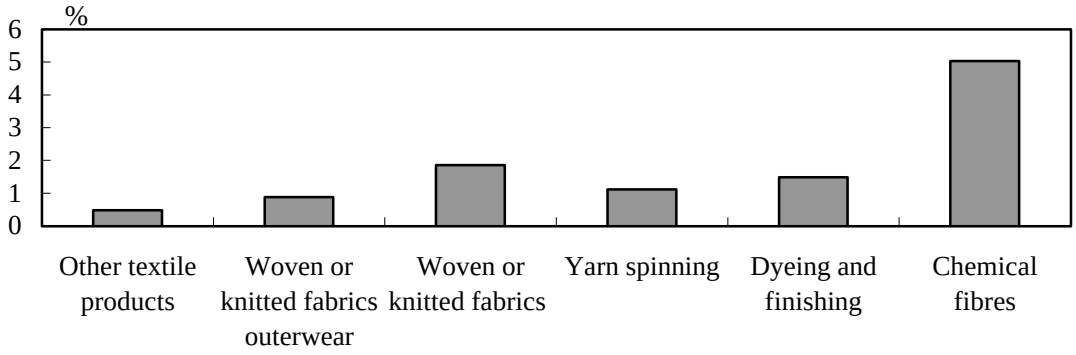
(1) Value added per worker



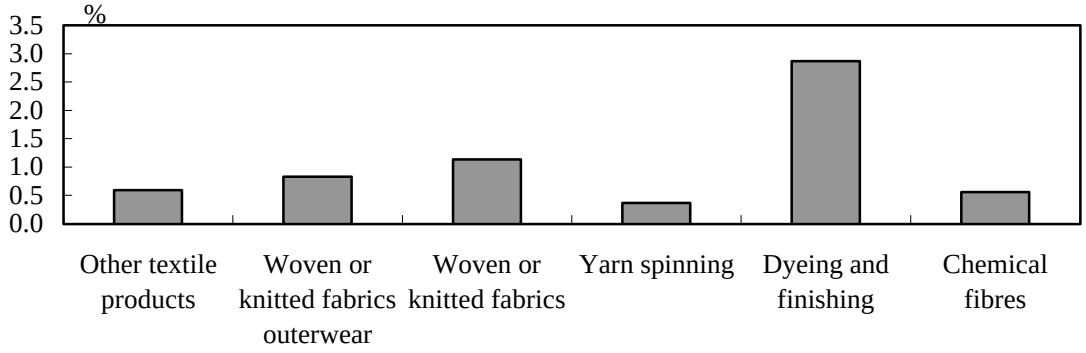
(2) Machinery equipment per worker



(3) Research and development expenditure / Sales



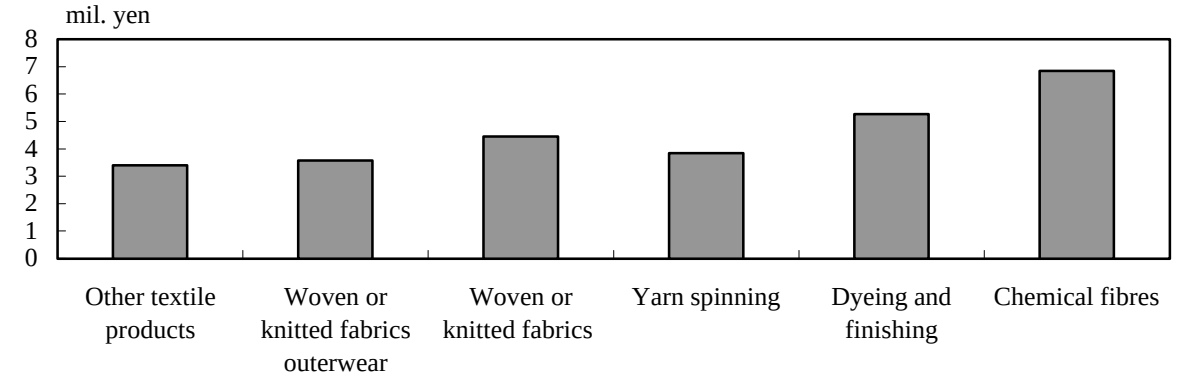
(4) Ratio of workers in R&D section to all workers



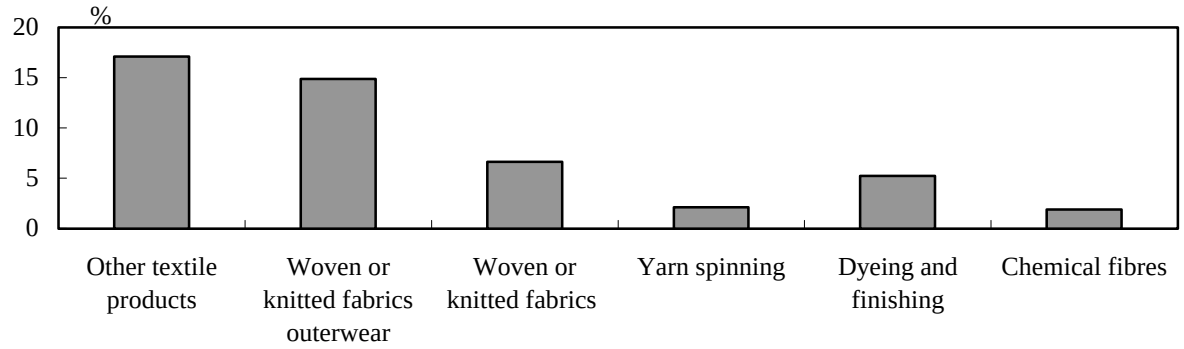
Source: Ministry of International Trade and Industry, "Results of the Basic Survey of Japanese Business Structure and Activities."

Characteristics of the Textile Industry

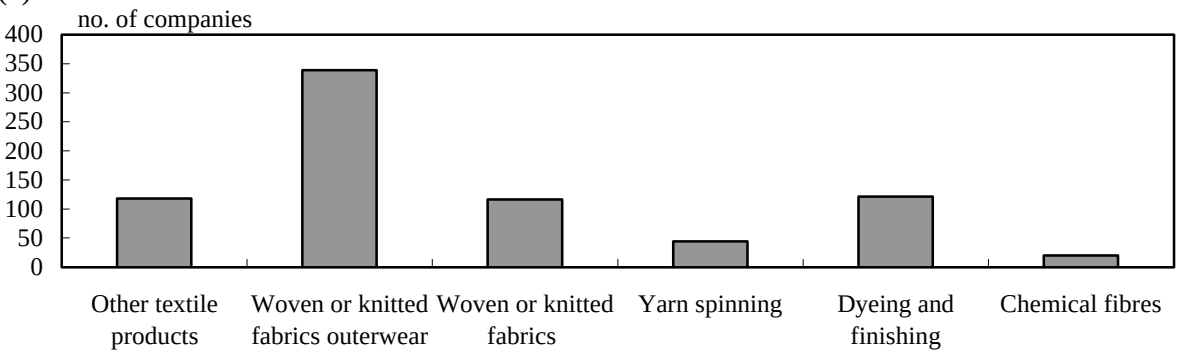
(5) Compensation per worker



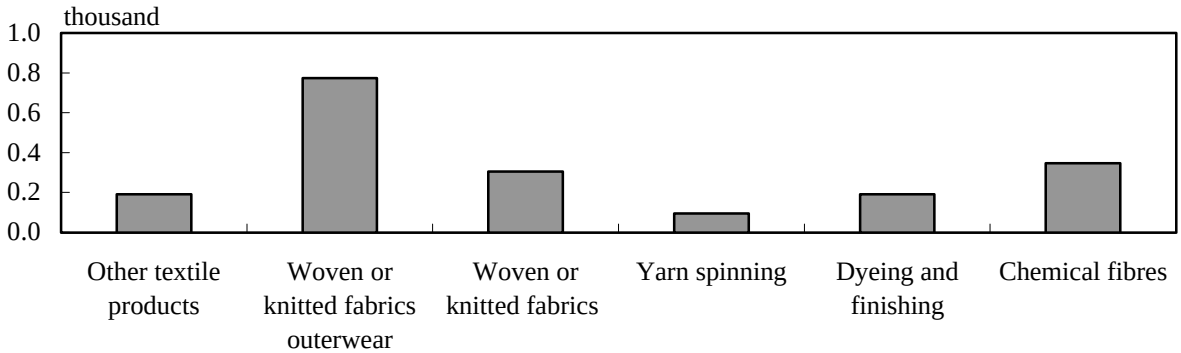
(6) Ratio of part-time workers to all workers



(7) Firms



(8) Workers

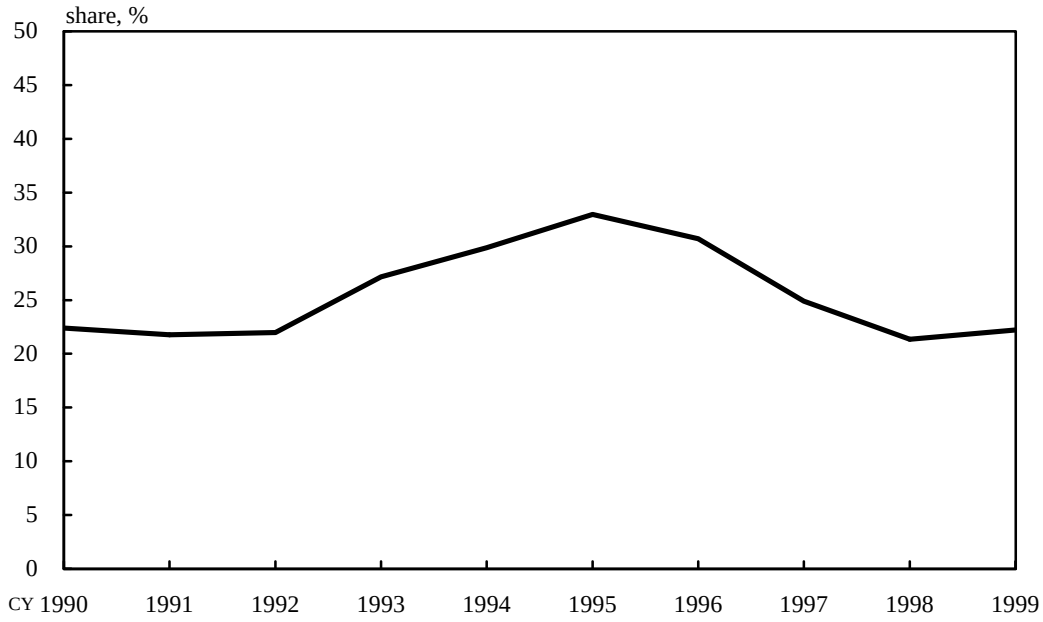


Note: Ratio of part-time workers to all workers = (part-time workers + other workers)
/ (full-time workers <including part-time workers> + other workers)

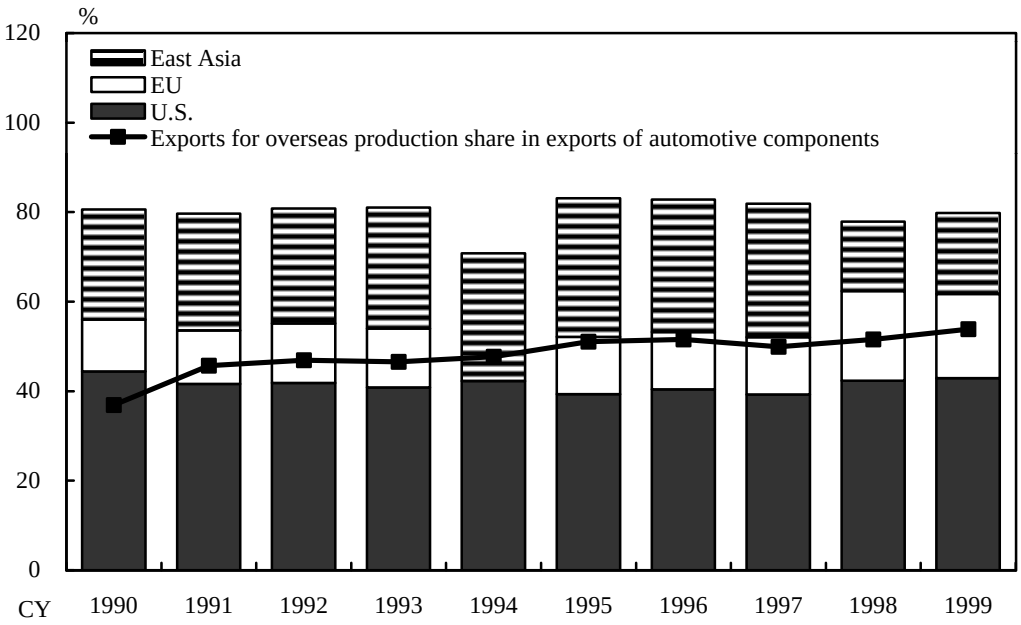
Source: Ministry of International Trade and Industry, "Results of the Basic Survey of Japanese Business Structure and Activities."

Automotive Components Industry

(1) Automotive components share in exports of motor vehicles and related goods



(2) Automotive components exports for overseas production by destination

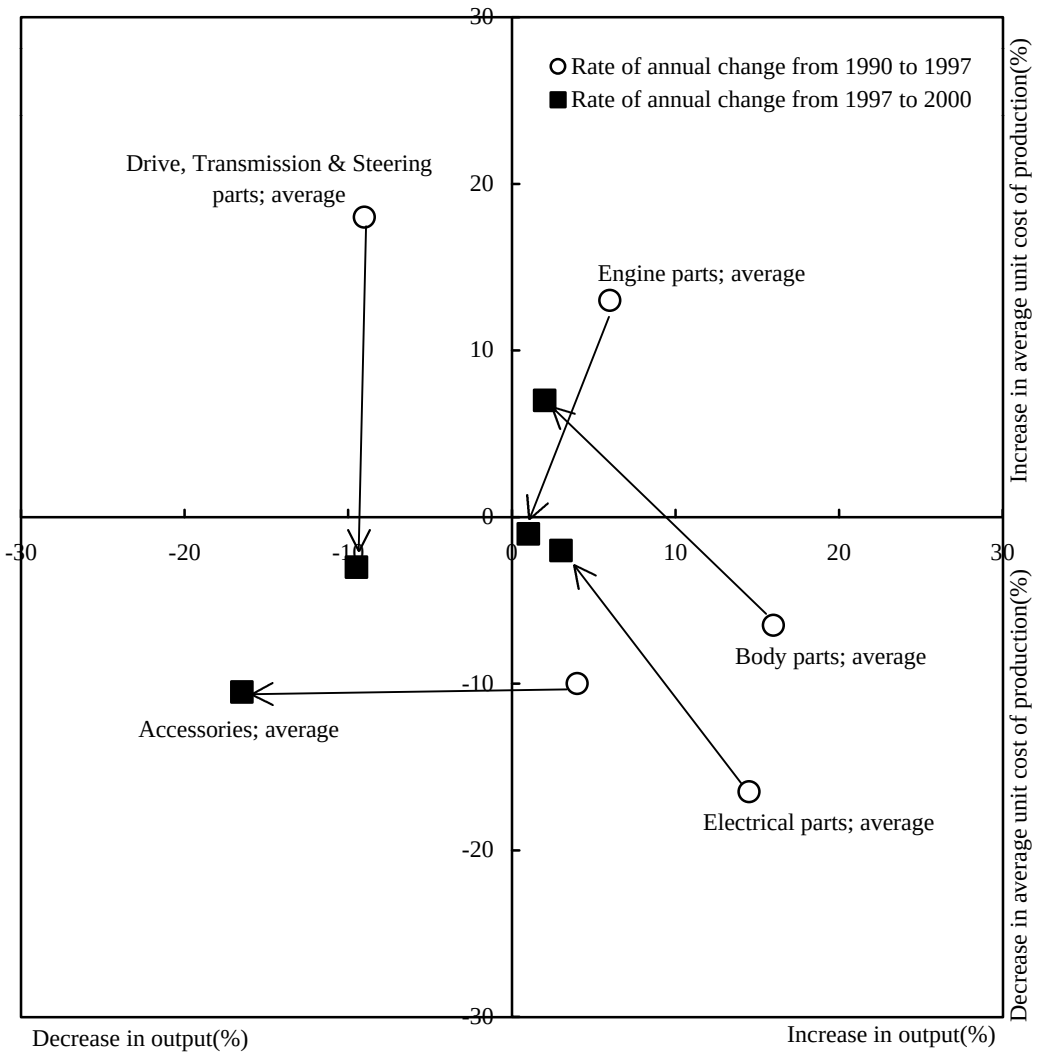


Notes: 1. Figures are on a U.S. dollar basis.
2. 1994 figure of EU is N.A.
3. Figures in the bar figures show East Asia, EU and U.S. only, and exclude other regions.

Sources: Ministry of Finance, "The Summary Report on Trade of Japan";
Japan Automobile Manufacturers Association, Inc., "Motor Vehicle Statistics Annual."

BOX3 Chart 2

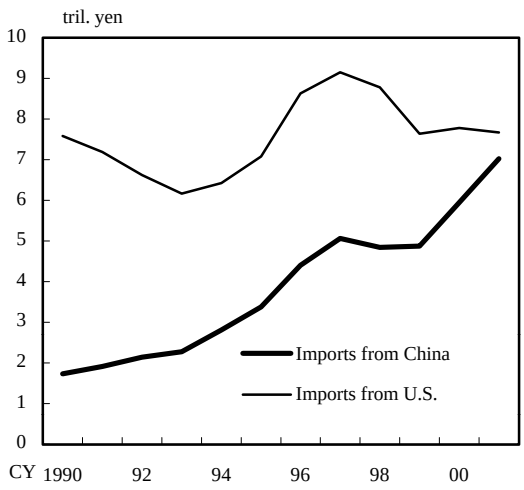
Changes in Production and Average Unit Cost of Automotive Components

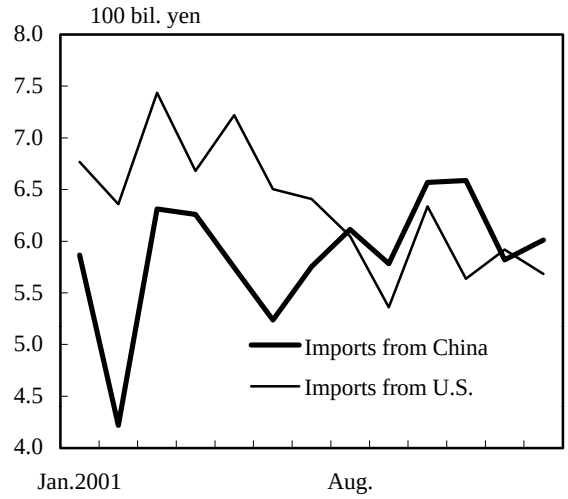


Source: FOURIN, "2001 Nihon Jidousha Buhin Sangyou."

The Presence of China

(1) Imports from China to Japan





(2) Shares of each country / region in Japan's imports

	U.S.	EU	NIEs	ASEAN	China	Others
1st half of the 1980s	16.4	5.6	5.2	16.8	3.6	52.5
2nd half of the 1980s	19.8	10.5	8.8	18.0	4.2	38.7
1st half of the 1990s	20.1	12.5	9.8	19.7	5.6	32.2
2nd half of the 1990s	19.4	12.5	10.7	21.1	9.5	26.9
CY 2000	19.0	12.3	12.2	12.8	14.5	29.1

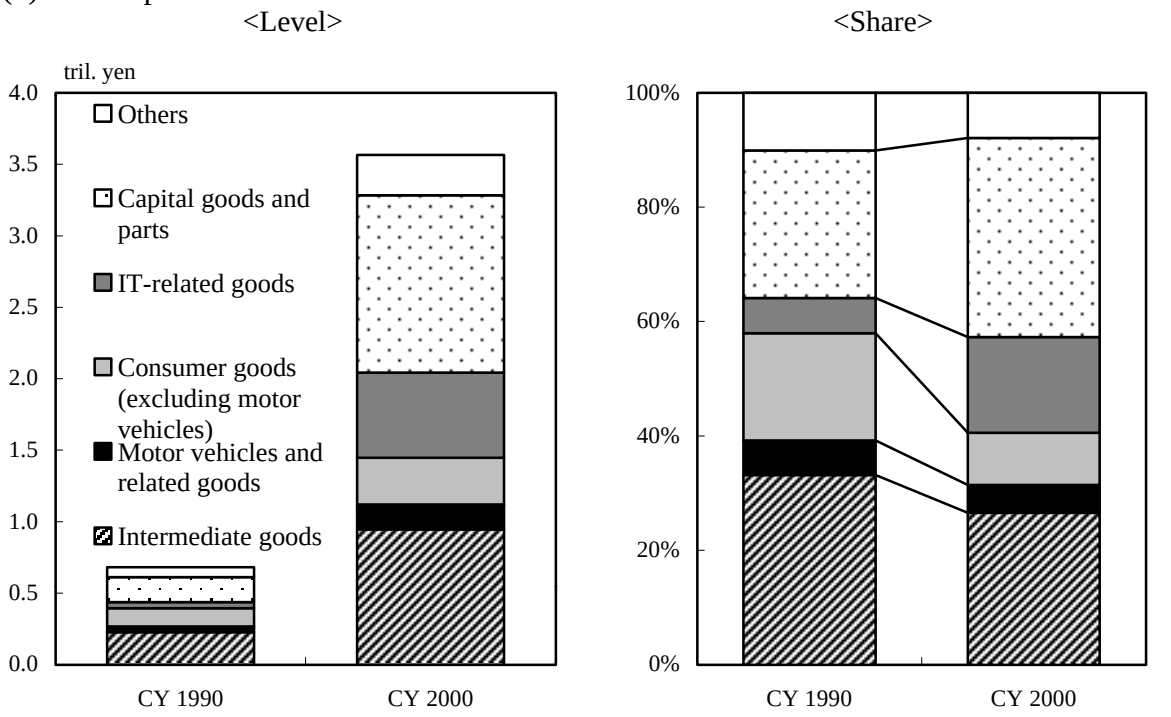
(3) Shares of China's exports in world trade

	U.S.	EU	Japan	NIEs	ASEAN	China	Others
1st half of the 1980s	11.4	35.5	8.0	3.7	2.5	1.2	37.6
2nd half of the 1980s	10.8	39.9	9.2	5.1	2.2	1.6	31.2
1st half of the 1990s	11.7	39.9	8.9	6.9	3.1	2.3	27.2
2nd half of the 1990s	11.9	38.3	7.6	7.9	3.8	3.1	27.3
CY 2000	11.6	33.4	7.4	7.6	4.0	4.6	31.4

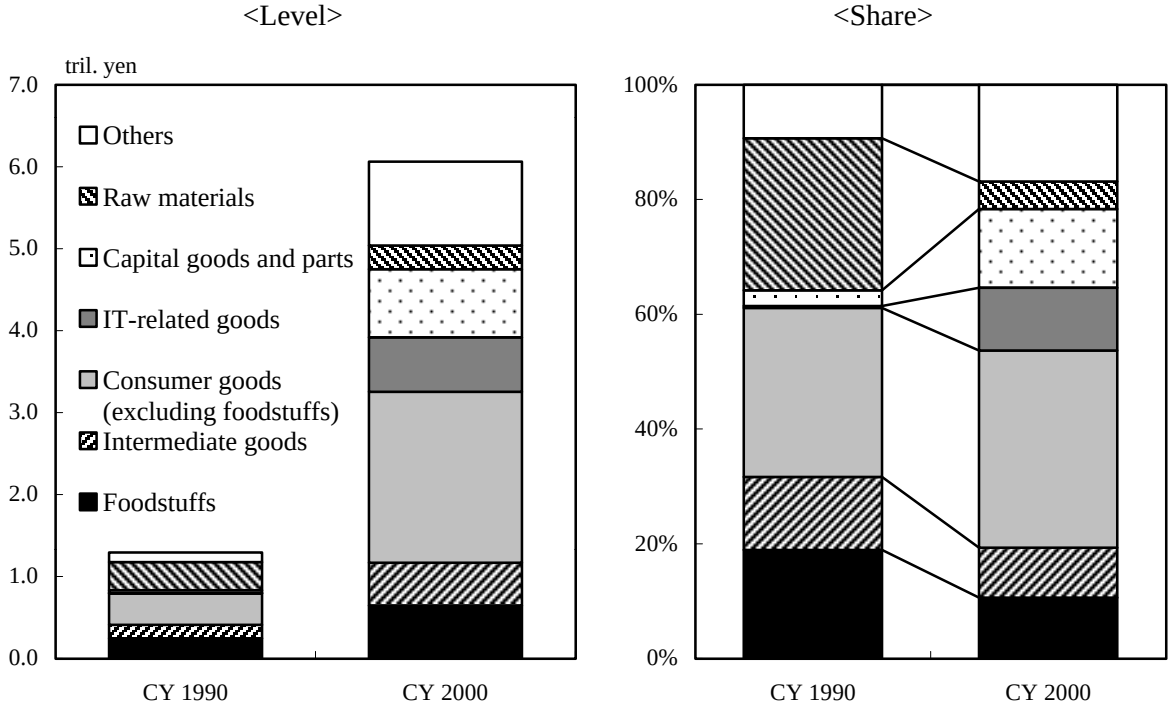
Note: Shares in Japan's imports are based on, "The Summary Report on Trade of Japan" by the Ministry of Finance. Others are based on "Direction of Trade Statistics" by the IMF.
Sources: Ministry of Finance, "The Summary Report on Trade of Japan"; IMF "Direction of Trade Statistics."

Trade between China and Japan

(1) Real exports



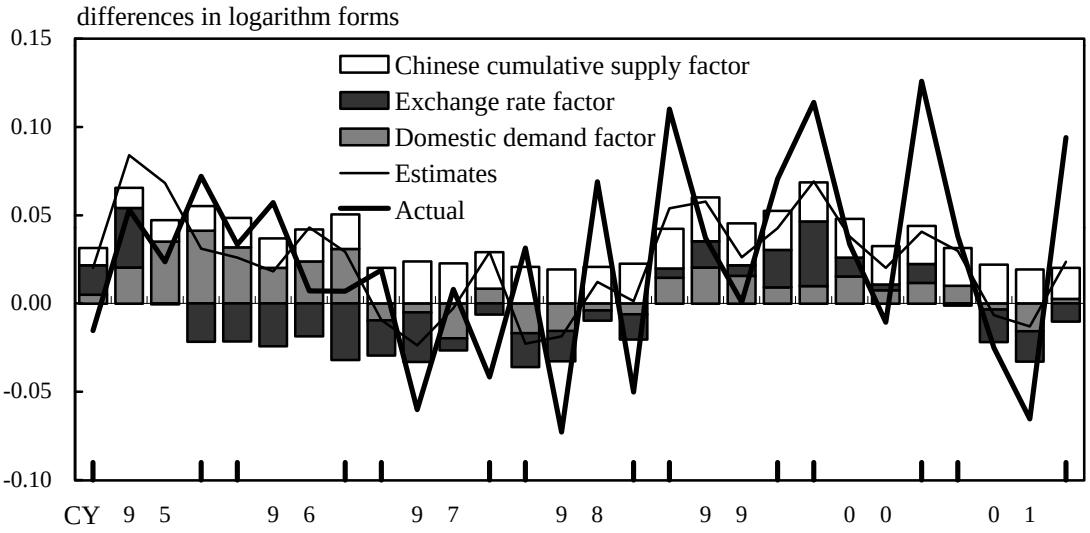
(2) Real imports



Sources: Ministry of Finance, "The Summary Report on Trade of Japan";
Bank of Japan, "Wholesale Price Indexes."

Imports of Consumer Goods from China

(1) Estimation of consumer goods imports from China (real imports basis)

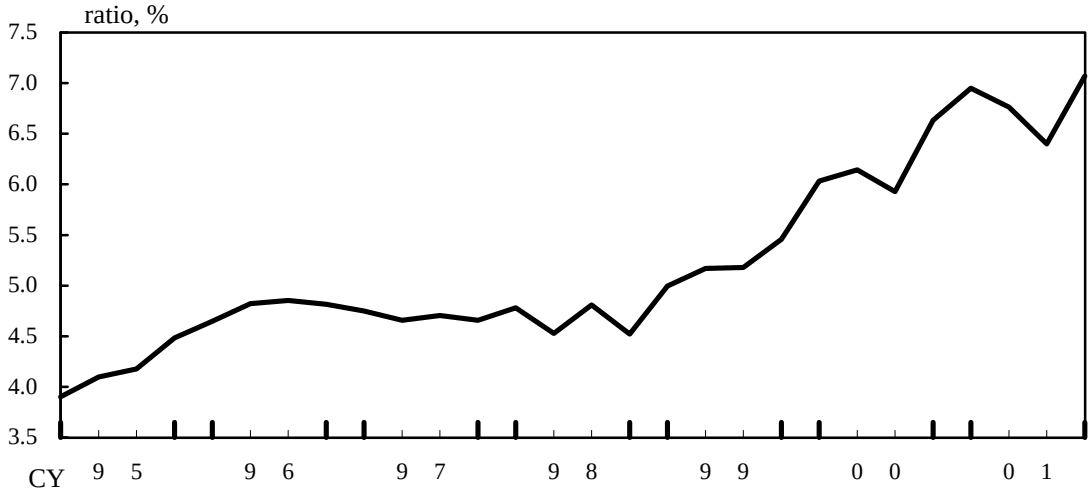


dlog(*IMC*) = 3.340*dlog(*DD*<0>) + 0.467*dlog(*PC*<-1 - -5>) + 0.003*dlog(*CCS*<-1 - -3>)
(3.146) (2.628) (2.352)

where, *IMC*: Consumer goods imports from China (real imports basis), *DD*: Domestic demand, *PC*: Real exchange rate of Yen-Yuan, *CCS*: Chinese cumulative supply factor, t-value is shown in parenthesis below each parameter.

Adj-R^2: 0.353, D.W.: 1.903, S.E.: 0.042, sample period: 1993/Q1-2001/Q4

(2) Import penetration ratio of consumer goods from China

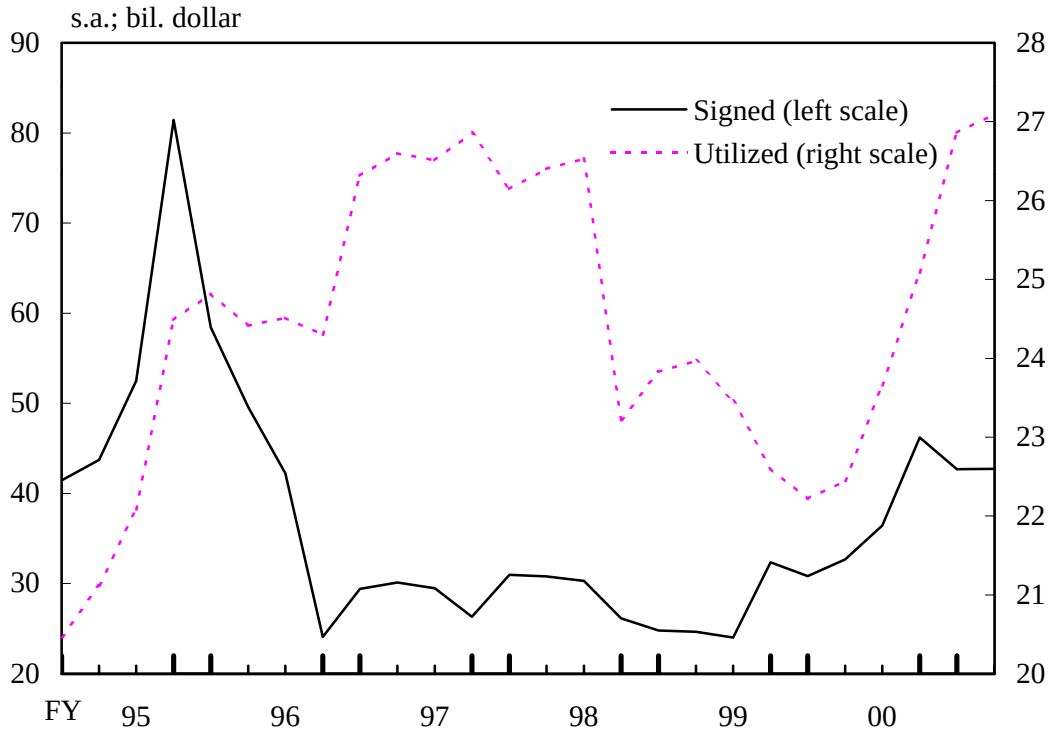


Notes: 1. "Chinese cumulative supply factor" is the cumulation of China's fixed investments. Domestic demand is the 3-quarter moving average.
2. Import penetration ratio of consumer goods from China = consumer goods imports from China / consumer goods supply (domestic shipments + imports).
3. Consumer goods imports from China is seasonally adjusted by X-11.

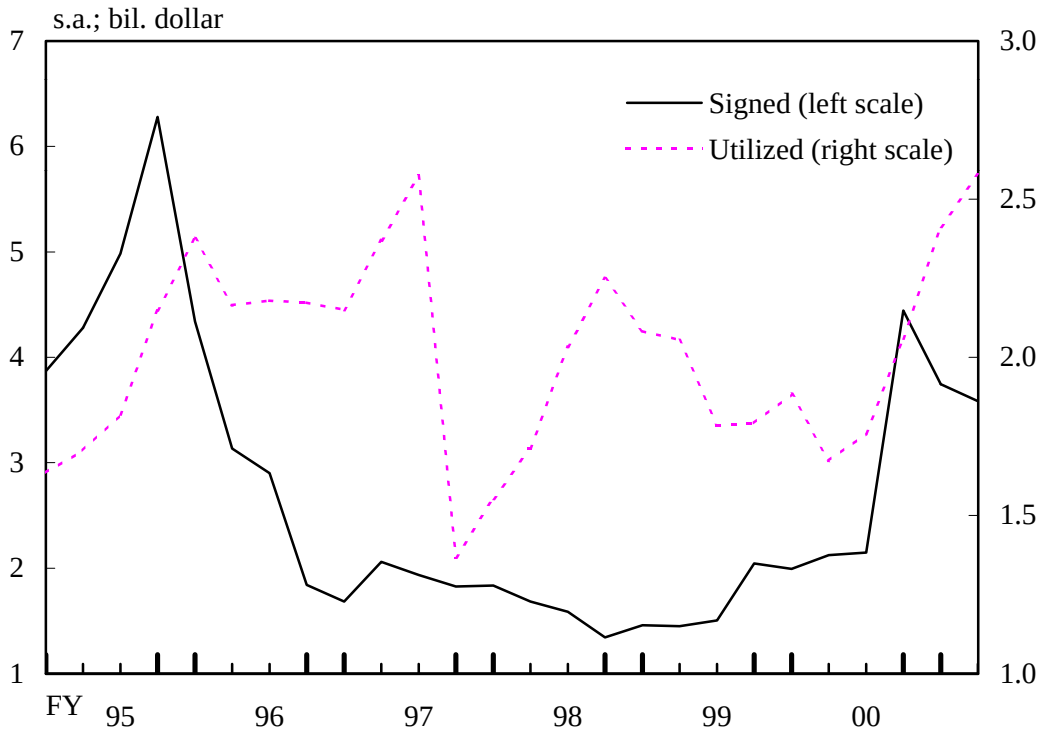
Sources: Ministry of Finance, "The Summary Report on Trade of Japan";
Ministry of Economy, Trade and Industry, "Indices of Industrial Production,"
"Indices of Industrial Domestic Shipments and Imports"; Bank of Japan, "Wholesale Price Indexes"; CEIC Data Company.

Foreign Direct Investment to China

(1) To China in total



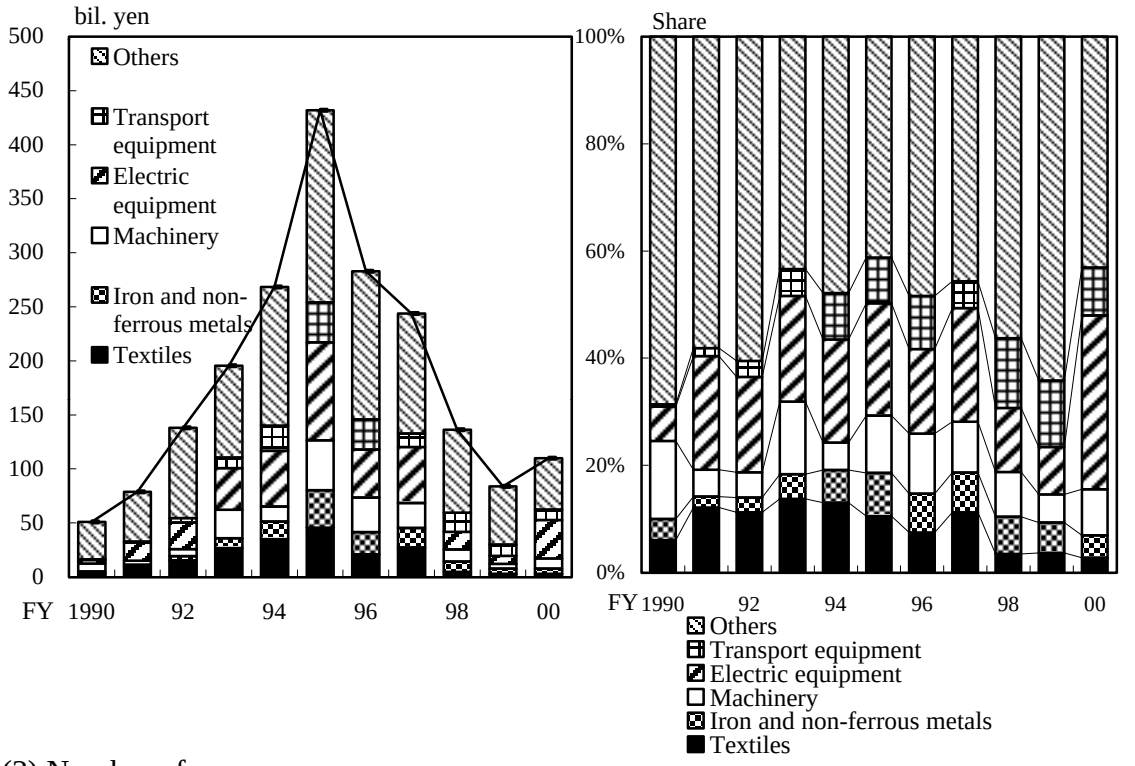
(2) From Japan to China



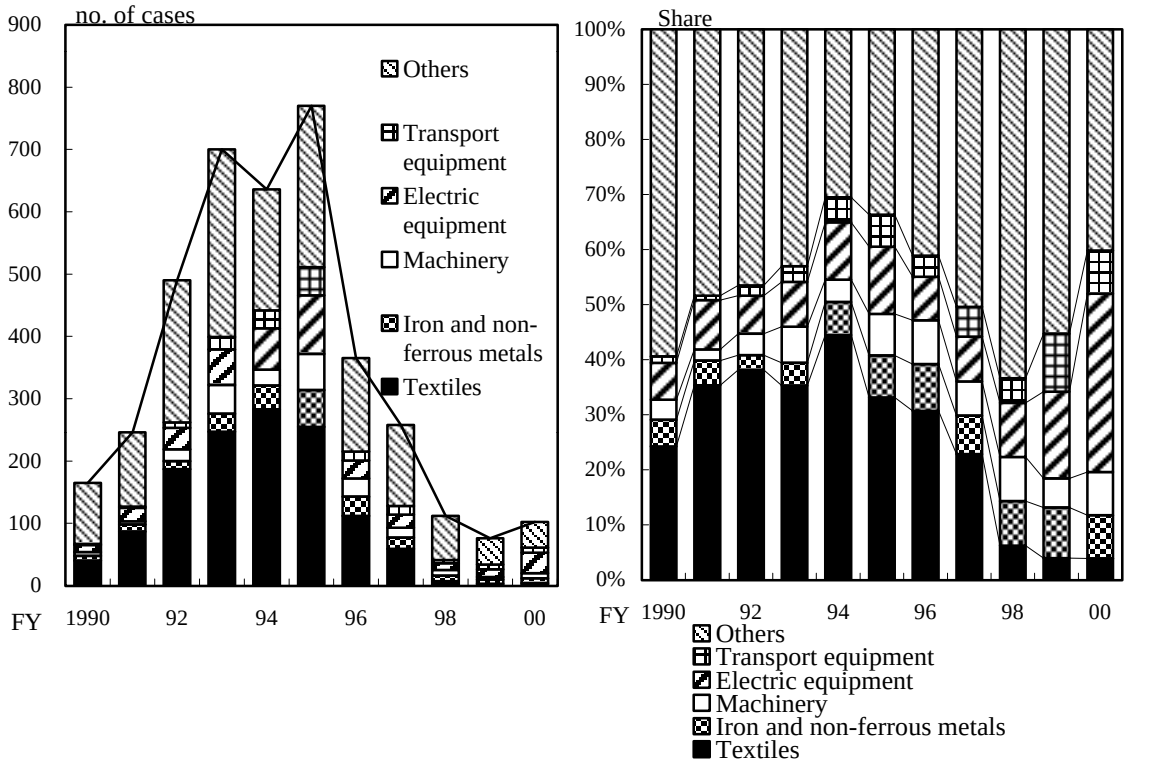
Note: Series are seasonally adjusted by X-11.
Source: CEIC Data Company

Foreign Direct Investment from Japan to China by Industry

(1) Amount



(2) Number of cases



Note:Amounts on ex post reported basis and prior notice basis.
Source:Ministry of Finance, "Foreign Direct Investment."

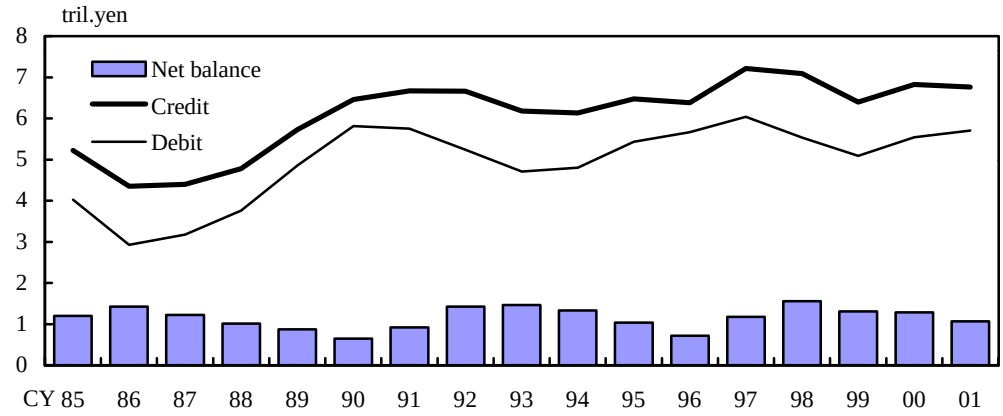
China's Accession to the WTO

Contents of agreement on China's accession to the WTO

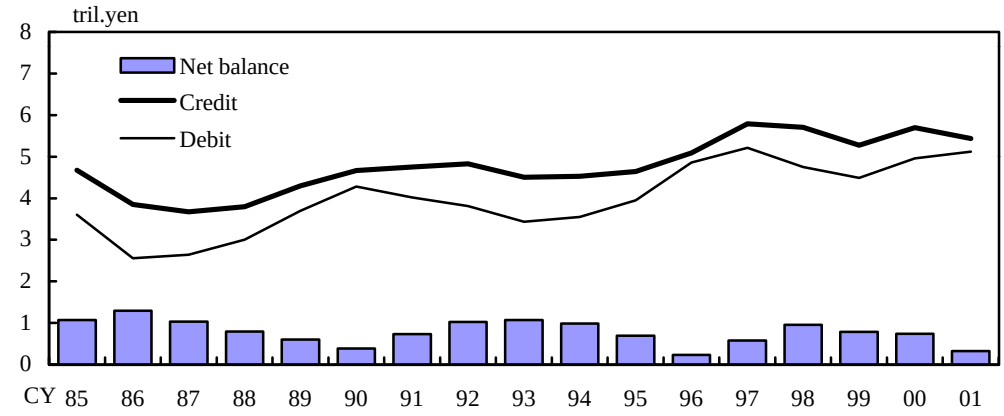
Field	Content
Agricultural products	- The upper limit of subsidies for agricultural products will be set at 8.5% of the total amount. - The average tariff on agricultural products will be reduced from the current average of 21.2% to 15.0% by 2004.
Industrial products	- The average tariff on industrial products will be reduced from the current average of 16.6% to 8.9% by 2010 (for most products, the average tariff will be reduced to 8.9% by 2004).
Banking services	- Foreign financial institutions may provide foreign currency services without client restrictions. - For local currency services, foreign financial institutions will be permitted to provide services in any region by Dec. 11, 2006, to Chinese enterprises by Dec. 11, 2003, and to all Chinese clients by Dec. 11, 2006.
Insurance	- Foreign non-life insurers may establish joint ventures with 51% foreign ownership. They may also establish branches with 51% foreign ownership. By Dec. 11, 2003, they will be permitted to establish wholly-owned subsidiaries, with no establishment restrictions. - Foreign life insurers may establish joint ventures with 50% foreign ownership and a Chinese partner according to their choice. - By Dec. 11, 2004, geographic restrictions will be eliminated.
Securities	- Foreign securities institutions may establish joint ventures, with a maximum foreign investment of 33%, to conduct the domestic securities investment fund management business. By Dec. 11, 2004, foreign investment may be increased to 49%. - By Dec. 11, 2004, foreign securities institutions may establish joint ventures, with a maximum foreign investment of 33%, to engage in (without a Chinese intermediary) the underwriting of A shares, the underwriting and trading of B and H shares and government and corporate debts, and the launching of new funds.
Telecom-munications services	- Foreign suppliers may provide value-added and paging telecommunications services through joint venture enterprises, with a maximum foreign investment of 30%, in and among Beijing, Shanghai, and Guangzhou. By Dec. 11, 2003, foreign investment may be increased to a maximum of 50%, and geographic restrictions will be eliminated. - Foreign suppliers may provide mobile voice and data services through joint venture enterprises, with a maximum foreign investment of 25%, in and among Beijing, Shanghai, and Guangzhou. By Dec. 11, 2004, foreign investment may be increased to a maximum of 49%. By Dec. 11, 2006, geographic restrictions will be eliminated.
Legal services	- For foreign law firms, geographic and numerical restrictions will be lifted by Dec. 11, 2002.
Distribution services	- By Dec. 11, 2002, foreign service suppliers will be permitted to provide commission agents and wholesale trade services for all imported and domestically produced products through minority foreign-owned or 50-50 joint ventures, with the following exceptions: books, newspapers, magazines, pharmaceutical products, pesticides, and mulching films (restriction to be lifted by Dec. 11, 2004); chemical fertilizers, processed oil, and crude oil (restriction to be lifted by Dec. 11, 2006). By Dec. 11, 2003, all geographic and quantitative restrictions will be lifted and foreign majority ownership will be permitted. - Foreign service suppliers may provide retail services through joint ventures, subject to geographic restrictions. Joint venture retailing enterprises may be established in Wuhan and Zhengzhou. Foreign service suppliers may engage in the retailing of all products with the following exceptions: books, newspapers, and magazines (restriction to be lifted by Dec. 11, 2002); pharmaceutical products, pesticides, mulching films, and processed oil (restriction to be lifted by Dec. 11, 2004); chemical fertilizers (restriction to be lifted by Dec. 11, 2006). By Dec. 11, 2003, all provincial capitals as well as Chongqing and Ningbo will also be opened to joint venture retailing enterprises.
Transitional China-specific issues	- The transitional China-specific safeguard mechanism will be available for 12 years after the accession. - For Chinese textile products, the textile safeguard mechanism is extended until the end of 2008. - As for specific restrictions, Argentina, EU, Hungary, Mexico, Poland, Slovenia, and Turkey can limit imports of specific items such as textile products from China to a certain extent to prevent or address market disruption. - Evaluation regarding China's commitments under the WTO agreement by WTO's subsidiary bodies will take place for 8 years after the affiliation. Thereafter there will be a final evaluation within 10 years.

Current Account Surplus

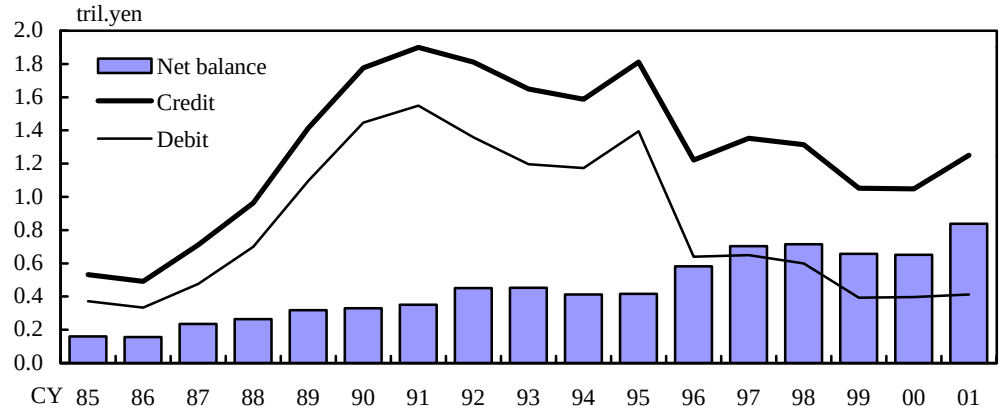
(1) Current account



(2) Goods and services



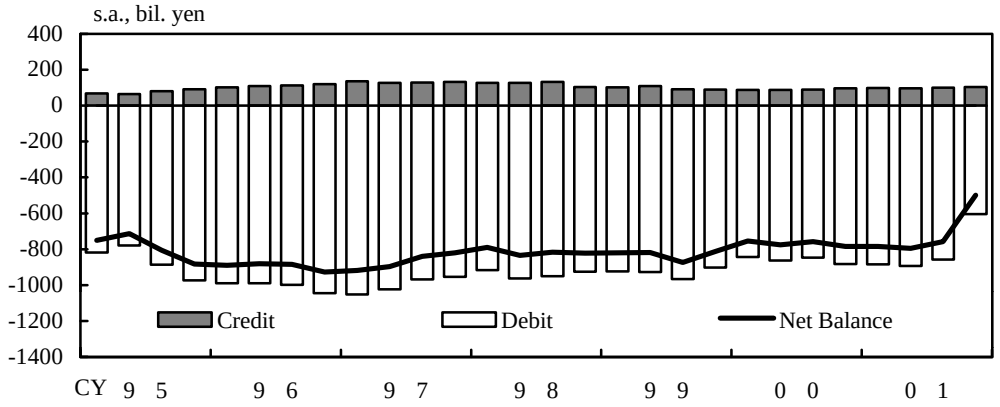
(3) Income



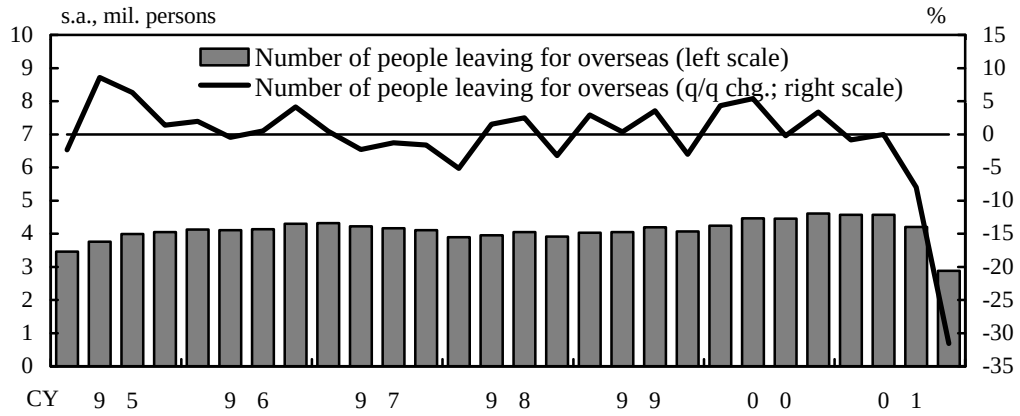
Note: Data up to CY1995 are on the old basis.
Source: Bank of Japan, "Balance of Payments Monthly."

Travel Service Deficit and Imports of Non-Ferrous Metals and Mineral Fuels

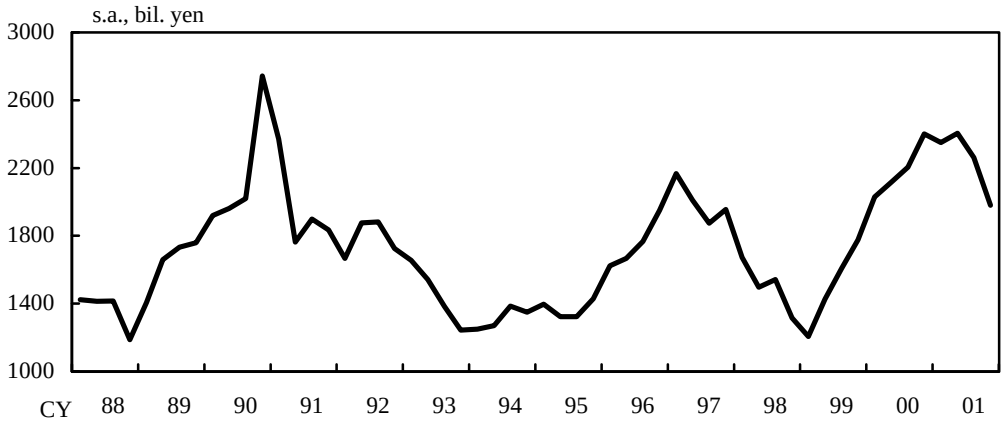
(1) Travel service deficit



(2) Number of people leaving for overseas



(3) Imports of non-ferrous metals and mineral fuels (value)

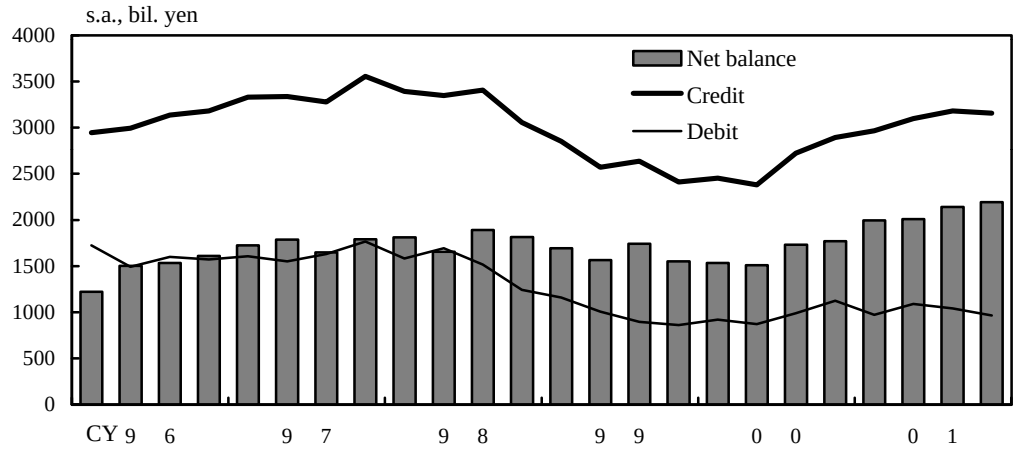


Note: Figures in (2) are seasonally adjusted by X-11.

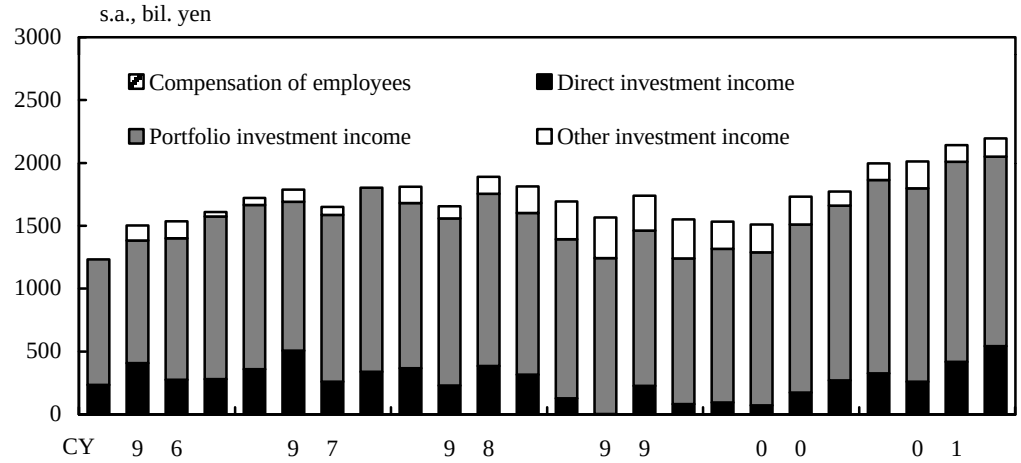
Sources: Bank of Japan, "Wholesale Price Indexes," "Balance of Payments Monthly"; Ministry of Finance, "The Summary Report on Trade of Japan"; Ministry of Justice, "Monthly Report of Statistics on Justice."

Income Surplus

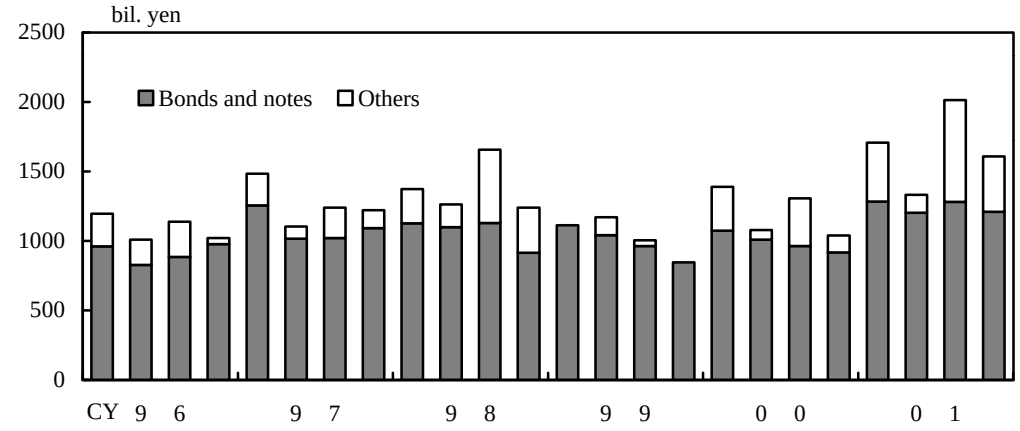
(1) Income surplus -- total



(2) Income surplus -- breakdown



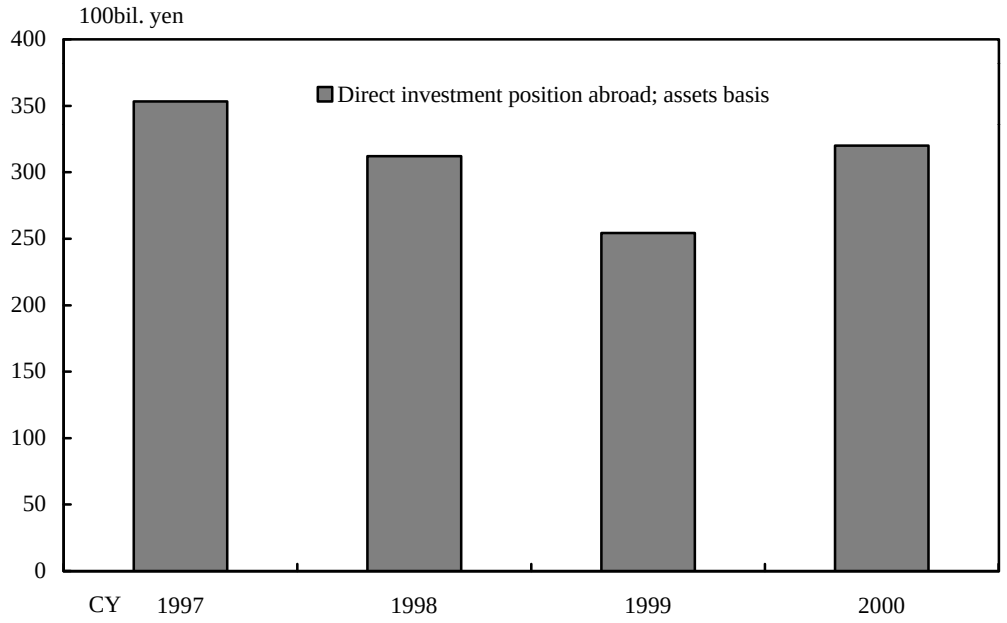
(3) Protfolio investment income



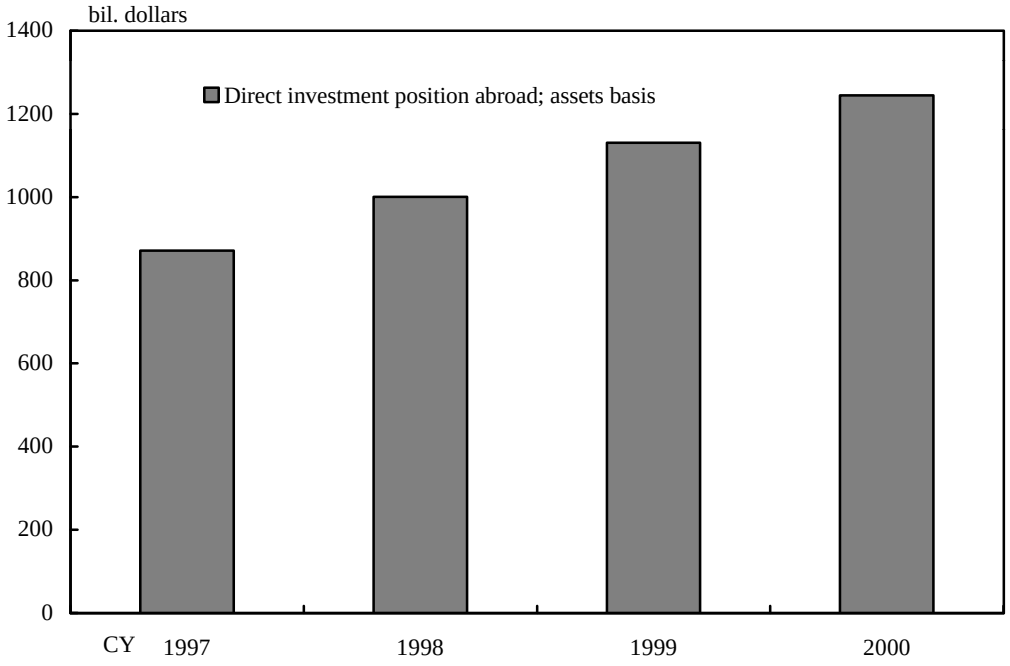
Note: Figures in (3) are prior to seasonal adjustment.
Source: Bank of Japan, "Balance of Payments Monthly."

Direct Investment Position Abroad; Assets

(1) Japan



(2) United States

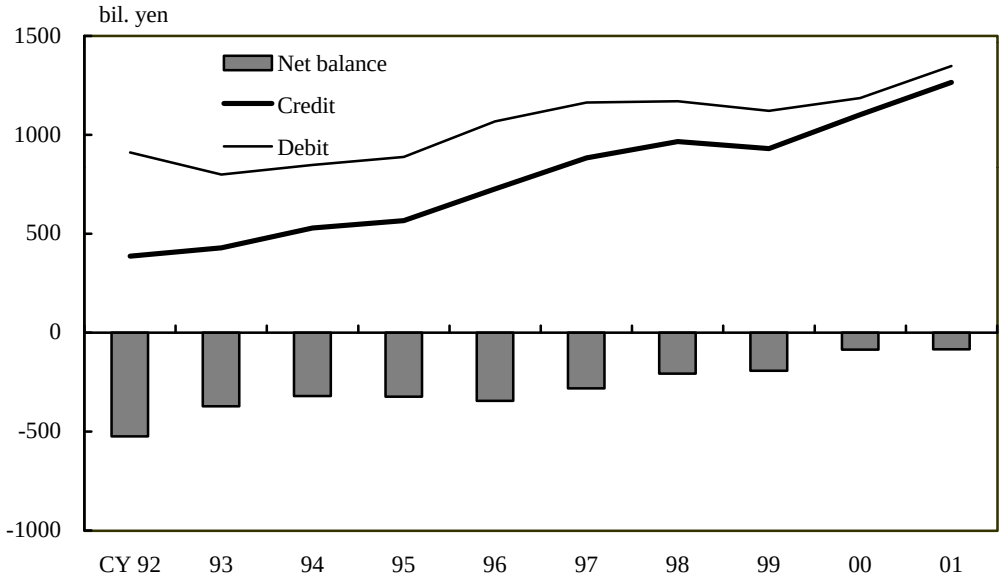


Note: Figures of U.S. direct investment position abroad are on a historical-cost basis. Whereas, figures of Japan direct investment position abroad are on a book-value basis.

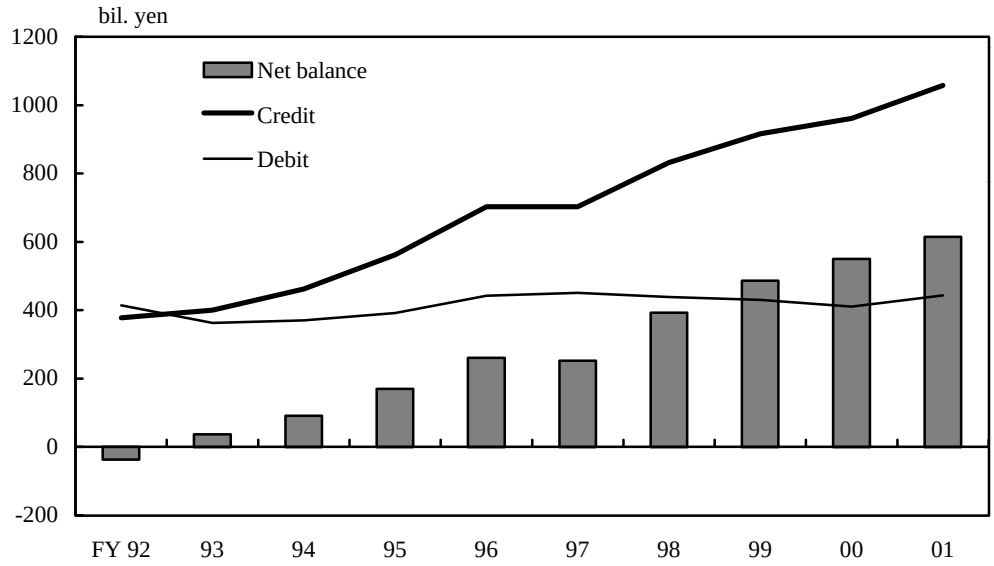
Sources: U.S. Department of Commerce, "Survey of Current Business"; Bank of Japan, "Balance of Payments Monthly."

Royalties and License Fees

(1) Royalties and license fees; "Balance of Payments Monthly"



(2) Technology transfer; "Survey of Research and Development"



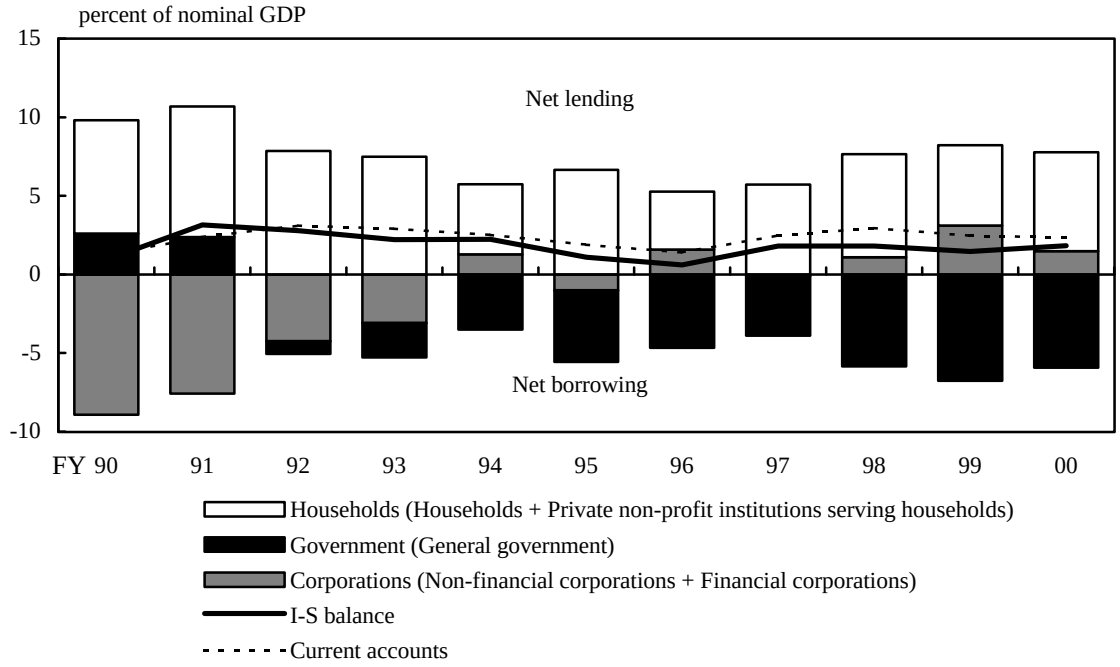
Note: Differences between figures of "Balance of Payments Monthly" and "Survey of Research and Development" are mainly attributed to the factors below:

1. "Balance of Payments Monthly" covers all residents sending over 5 million yen per remittance overseas. Whereas, "Survey of Research and Development" excludes businesses such as wholesaling, retail trading, eating and drinking places, and financing and insurance.
2. "Survey of Research and Development" covers receipts from and payments to nonresidents for royalties and license fees related to the outcomes of technological researches. Whereas, "Balance of Payments Monthly" covers receipts from and payments to nonresidents for royalties and license fees related not only to the outcomes of technological researches but also those to others.

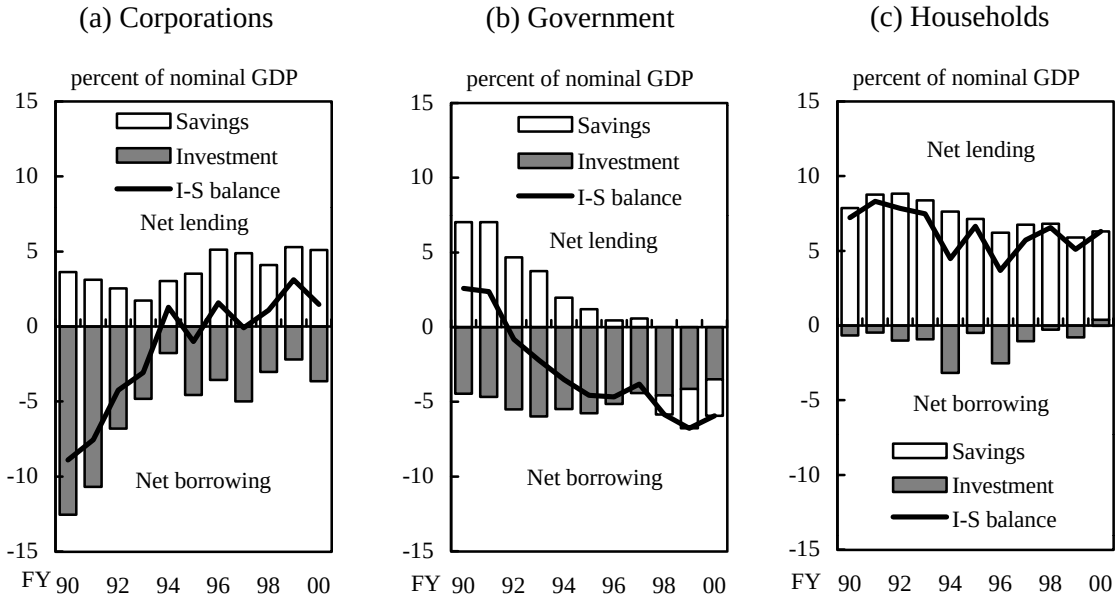
Sources: Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Survey of Research and Development"; Bank of Japan, "Balance of Payments Monthly."

I-S Balance Classified by Sectors

(1) I-S Balance of the total economy



(2) I-S Balance classified by sector



Notes: 1. Savings = net savings + capital transfers receivable - capital transfers payable
Investment = gross fixed capital formation - consumption of fixed capital + changes in inventories + net purchases of land
I-S balance = savings - investment
2. The following effects are excluded; (a) repayment of government bonds held by the Deposit Insurance Corporation (FY98: 1.2 tril. yen, FY99: 3.6 tril. yen, FY2000: 3.6 tril. yen) and (b) transfer of Japan National Railway's long-term debt (FY98: 23.5 tril. yen) and cumulative debt of state-owned forests & fields (FY98: 2.8 tril. yen) to general accounts (general government).

Sources: Bank of Japan,"Balance of Payments Monthly"; Cabinet Office, "National Accounts."

Appendix Chart 1

Reasons for Strengthening and Expanding Overseas Business Operating through FDI over the Medium Term

(1) FY 2000 SURVEY

	China	ASEAN 4	NIEs	North America	EU
To respond to market expansion	74.2 (68.8)	70.5 (64.4)	68.2 (n.a.)	64.9 (74.5)	60.5 (70.6)
To build a flexible parts supply system for leading customers	27.9 (14.1)	37.2 (23.7)	28 (n.a.)	36.3 (18.2)	34.2 (15.7)
To develop products suited to the local market	15.3 (14.1)	15.4 (16.9)	21.5 (n.a.)	28 (21.8)	29.8 (19.6)
To strengthen competitiveness by securing low-cost labor	46.3 (29.7)	39.1 (33.9)	15.9 (n.a.)	0.6 (0.0)	0.9 (0.0)
To strengthen competitiveness by securing inexpensive parts and raw materials	25.8 (n.a.)	17.9 (n.a.)	13.1 (n.a.)	3 (n.a.)	0.9 (n.a.)
To avoid foreign exchange risk	4.2 (n.a.)	9 (n.a.)	2.8 (n.a.)	7.1 (n.a.)	2.6 (n.a.)

(2) FY 1994 SURVEY

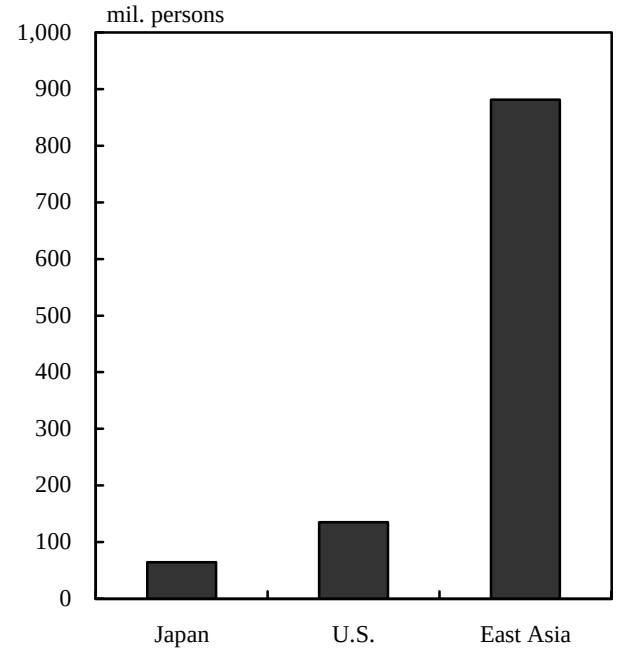
	China	ASEAN 4	NIEs	North America	EU
Development of new market	54.2	13.5	17.5	9.8	17.3
Exports (re-imports) to Japan	22.3	23.2	16.5	6.9	1.2
Exports to third countries	15.7	23.9	26.2	5.9	11.1
Coping with trade regulations by the host country, such as voluntary export restraints and dumping tariffs	0	1.3	2.9	12.7	11.1
Securing inexpensive labor forces	31.3	20.6	8.7	2	0
Securing a stable supply of natural resources and raw materials	1.2	4.5	1.9	2	2.5
Supply parts to assembly manufacturing companies	10.2	17.4	10.7	11.8	12.3
Avoiding foreign exchange risk	4.8	9.7	8.7	17.6	6.2

Notes: 1. Figures are the percentage of all responses (multiple responses valid).
2. In table(1), figures in parentheses are the results of the FY1999 survey.

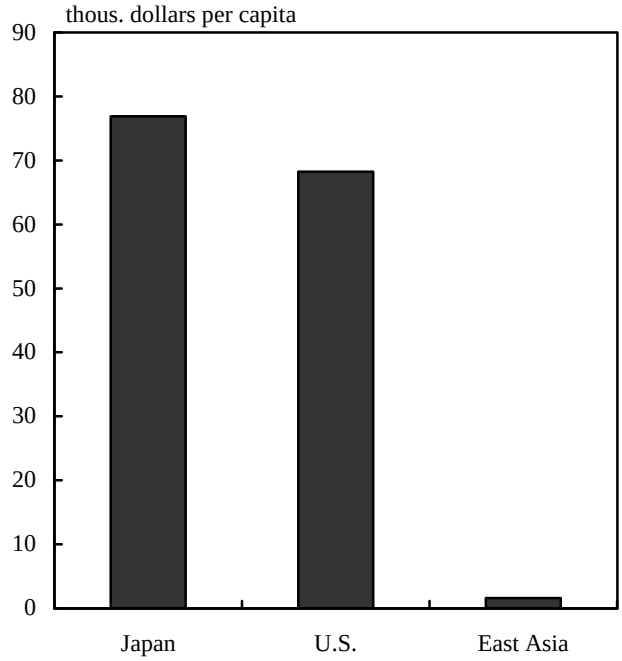
Source: Japan Bank for International Cooperation Development Finance Research Center, "The Outlook of Japanese Foreign Direct Investment."

Factor Endowments of Japan, U.S. and East Asia -2000-

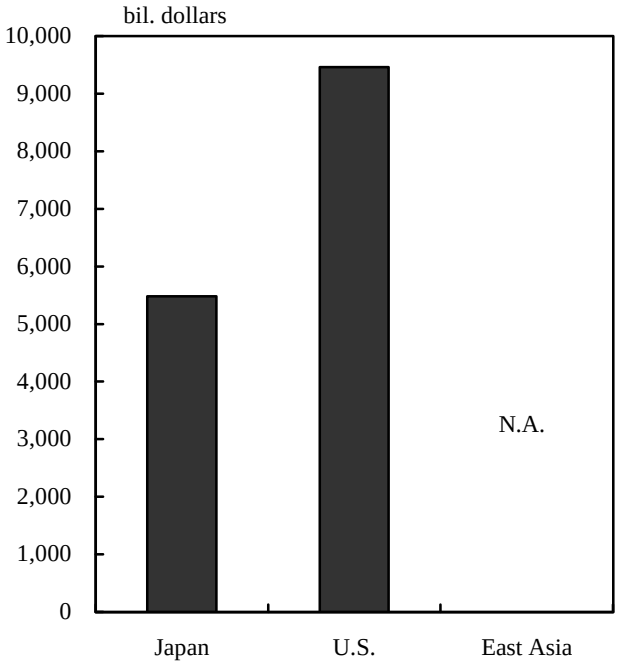
(1) Labor



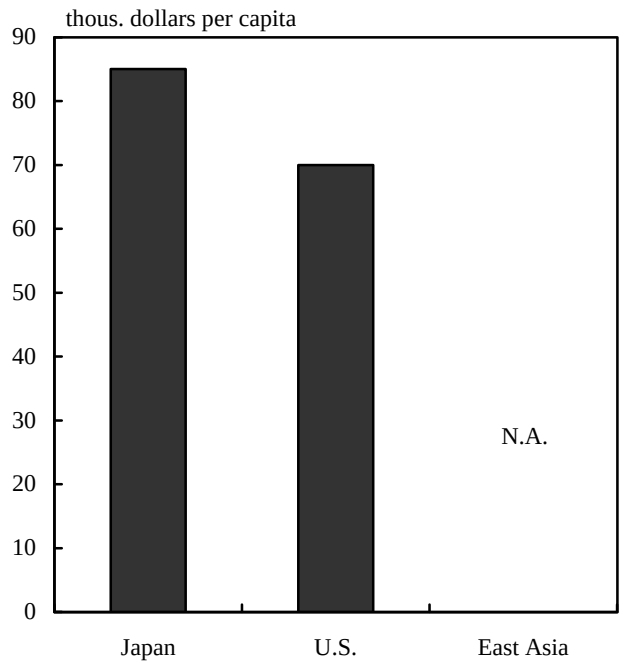
(2) Labor productivity



(3) Capital



(4) Capital labor ratio



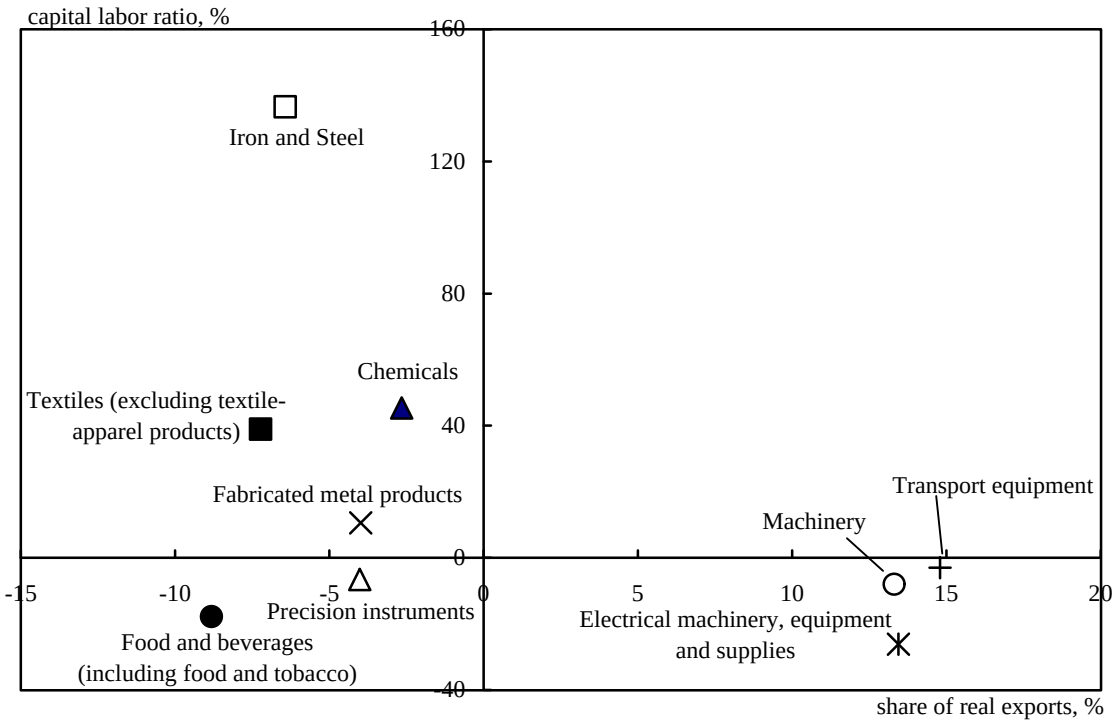
Notes: 1. Capital in U.S. is real net stock of private fixed assets and consumer durables while that in Japan is real fixed assets excluding general government. Both exclude dwellings.

2. Converted into U.S. dollars using market exchange rates.

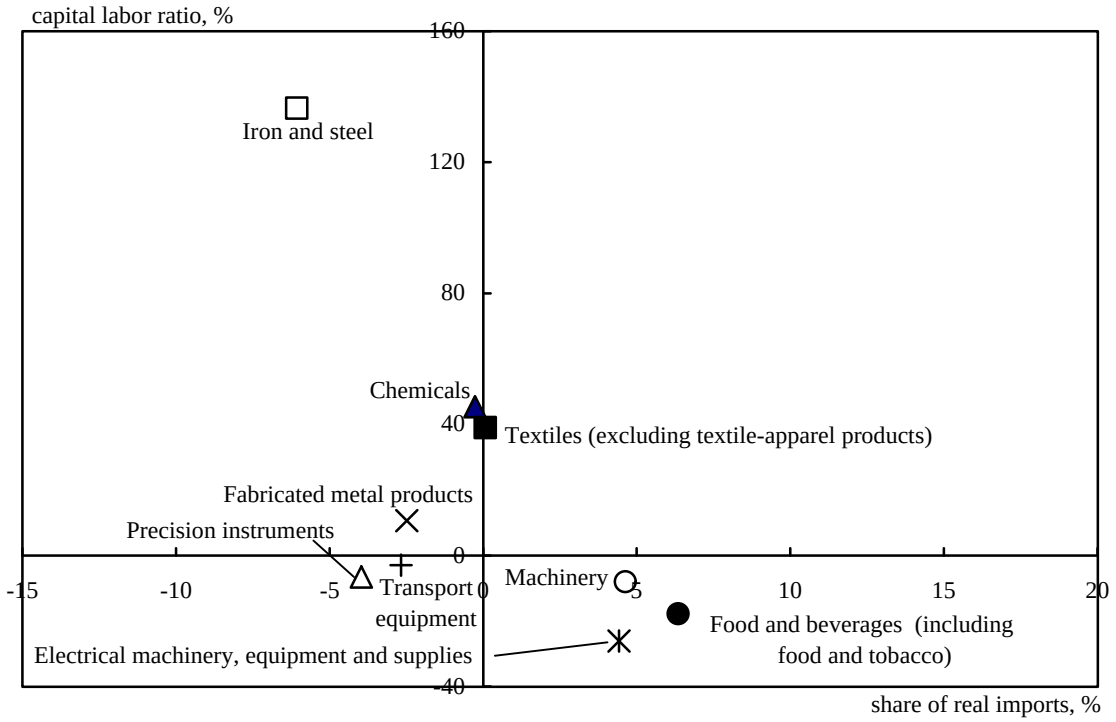
Sources: Cabinet Office, "National Accounts"; U.S. Department of Commerce,"Survey of Current Business"; IMF, "International Financial Statistics."

Capital Labor Ratio and Export/Import Share -1999-

(1) Capital labor ratio and export share



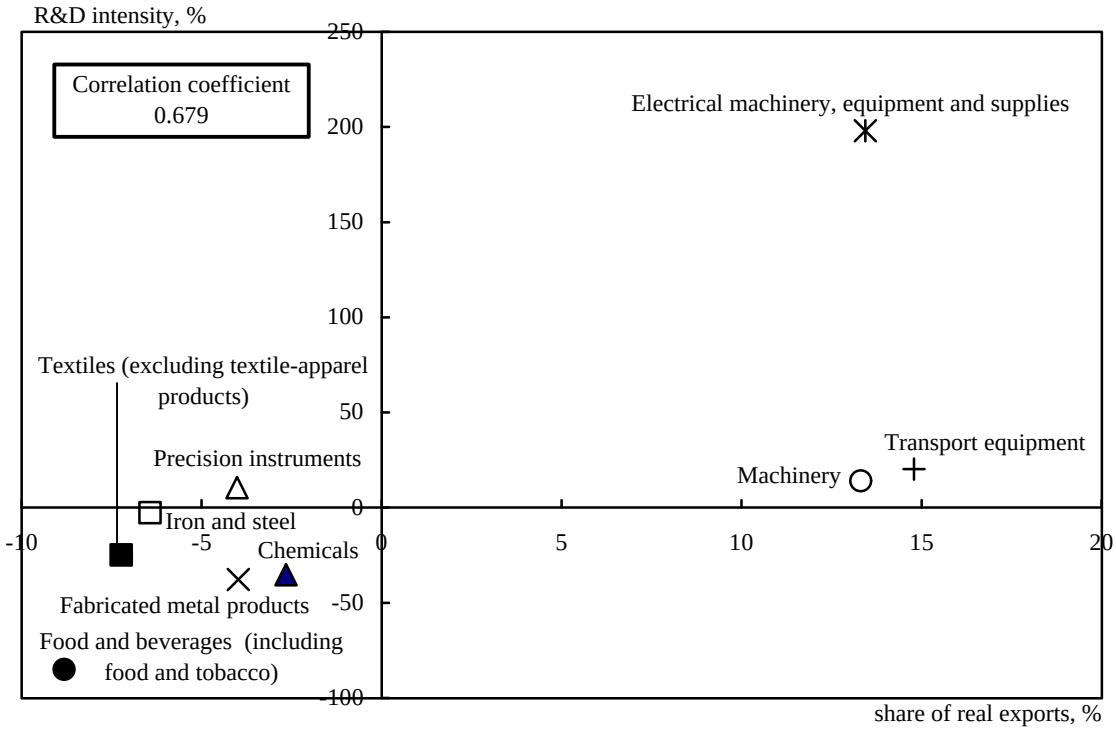
(2) Capital labor ratio and import share



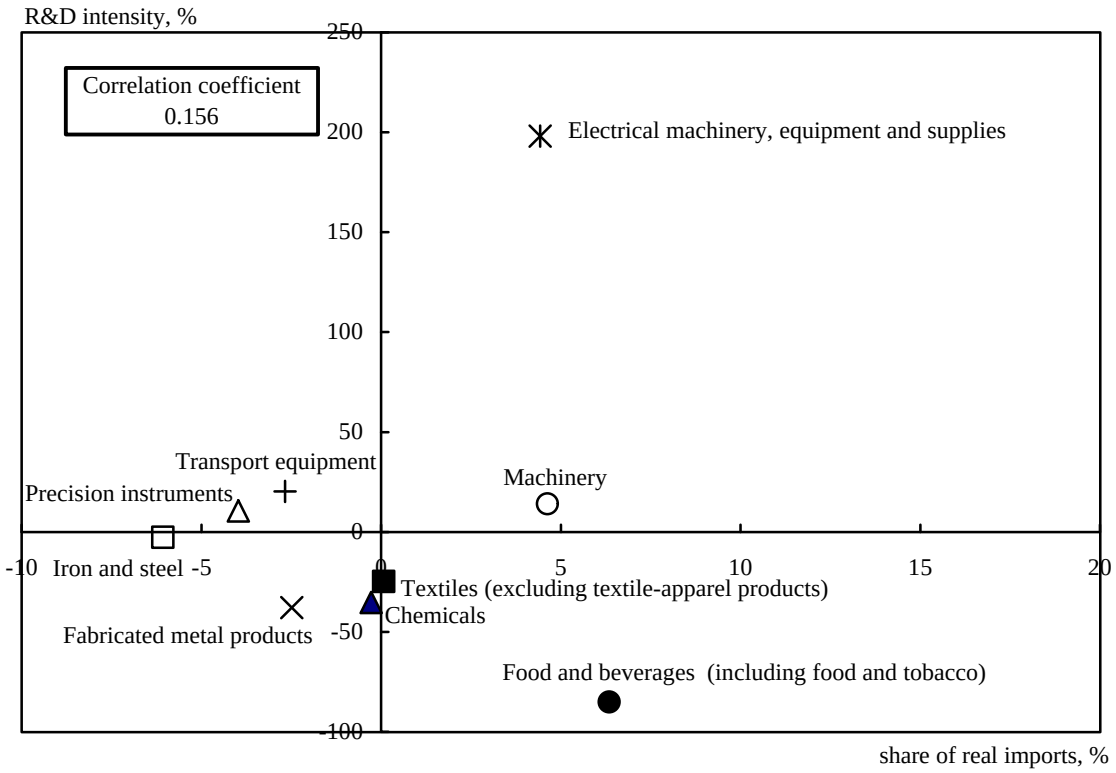
Notes: Figures indicate the deviations from the average share and ratio of manufacturing.
Sources: Ministry of Health, Labour and Welfare, "Monthly Labour Survey"; Cabinet Office, "Gross Capital Stock of Private Enterprises," "National Accounts."

R&D Intensity and Export/Import Share -1999-

(1) Export share



(2) Import share



Notes: 1. R&D intensity is the industry's R&D ratio to operating profit.
2. Figures indicate the deviations from the average share and ratio of manufacturing.

Sources: Ministry of Finance, "The Summary Report on Trade of Japan"; Ministry of Public Management, Home Affairs, Posts and Telecommunications, "Report on the Survey of Research and Development."

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