Chapter 2 Japan's path to cope with the world economic crisis

Chapter 1 analyzed the impact on the global economy caused by the financial crisis, which originated in the U.S. Chapter 2 contains analysis and review, focusing on the impact on the Japanese economy caused by the world economic crisis, and the path for the Japanese economy amid such crisis.

Section 1 Present situation of the world economic crisis and the Japanese economy

When the financial crisis began in September 2008, the U.S. and Europe experienced their financial systems failing to function properly, whereas Japan expected only a slight impact due to factors such as the comparative stability of its financial institutions at that time. In spite of such expectation, the Japanese real GDP growth rate for the fourth quarter of 2008 and the first quarter of 2009 actually took a downward turn at a faster pace than that of Europe and the U.S. This section analyses the factors that made the Japanese economy slide into such serious circumstances, and also specifies the issues to be tackled in order for the Japanese economy to lead itself out of the current crisis. The Japanese economy suffered negative impact caused by a sharp decline in exports to the U.S. (including indirect exports via Asia), which Japan had excessively relied upon, and in exports of transportation equipment, etc. which had been generating high added value and a large ripple effect. Explanations are given below in a step-by-step manner, suggesting that seeking diversified markets with high growth potentiality, instead of being merely dependent upon markets of certain countries and regions or markets of certain goods, is a key issue for abating the negative effects caused by a rapid decline in exports, and that stimulating domestic demand further is important.

1. The striking aspects of the longest Japanese economic recovery in the post-war period

In January 2002, Japan entered into the post-war period's longest economic recovery process, which lasted for 69 months until October 2007.[1] In this period, the Japanese economy revealed aspects differing from any other economic recovery periods in the past. Such striking aspects present a close connection with the economic recession that started last autumn.

With regard to trends in the Japanese economy, a contribution analysis of the growth rate of real Gross National Income (GNI) demonstrates the following characteristics.[2]

(1) Expanded influence of foreign economic trends

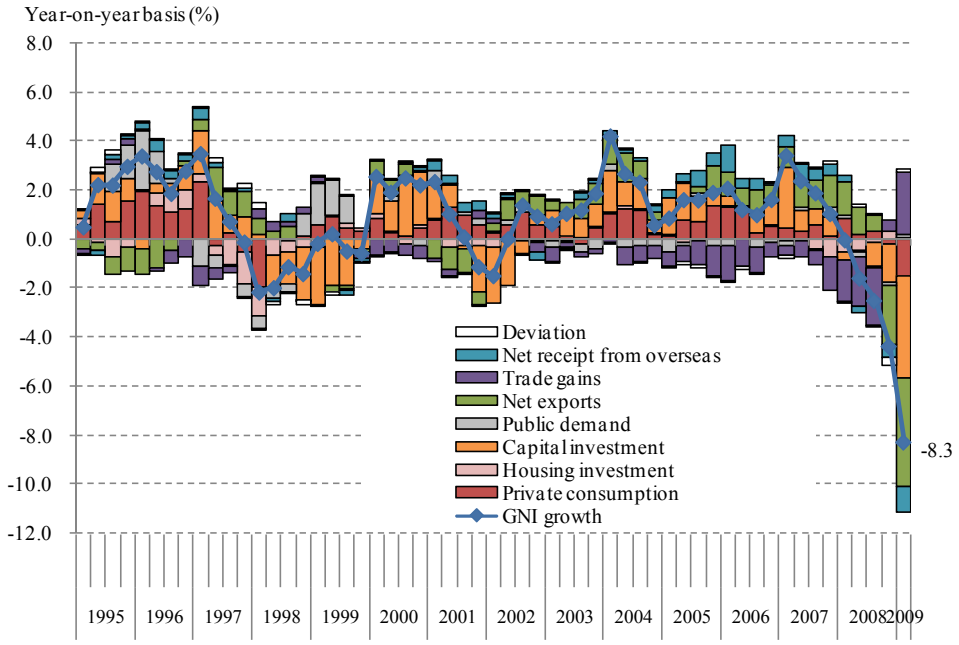
In the 2002–2007 economic recovery period, factors related to international transactions, such as

[1] Based on the Cabinet Office, "Business Cycle Dating." The business cycle peak of October 2007 was tentative.

[2] In recent years, as acceleration in globalization has led to an increase in international economic transactions, there is a growing necessity for reflecting the area not covered by GDP, such as trade gains or income transfer from overseas, in a benchmark showing the affluence of the Japanese economy. Therefore, this document focuses on GNI, which means GDP plus trade gains and net receipts from overseas (Explanation is given in Chapter 3, Section 1).

net export and trading gains, had gained more influence on the Japanese growth rate, as compared with the cases of the past. The contribution of the real GNI growth rate in this period showed an increase in the contribution of net exports after 2004 and the fourth quarter of 2005 (Figure 2-1-1-1). On the other hand, the outflow of trading gains caused by deterioration in terms of trade has contributed to downward trends in the GNI growth rate since 2004. In particular, such outflow sharply forced down the GNI growth rate in 2008.

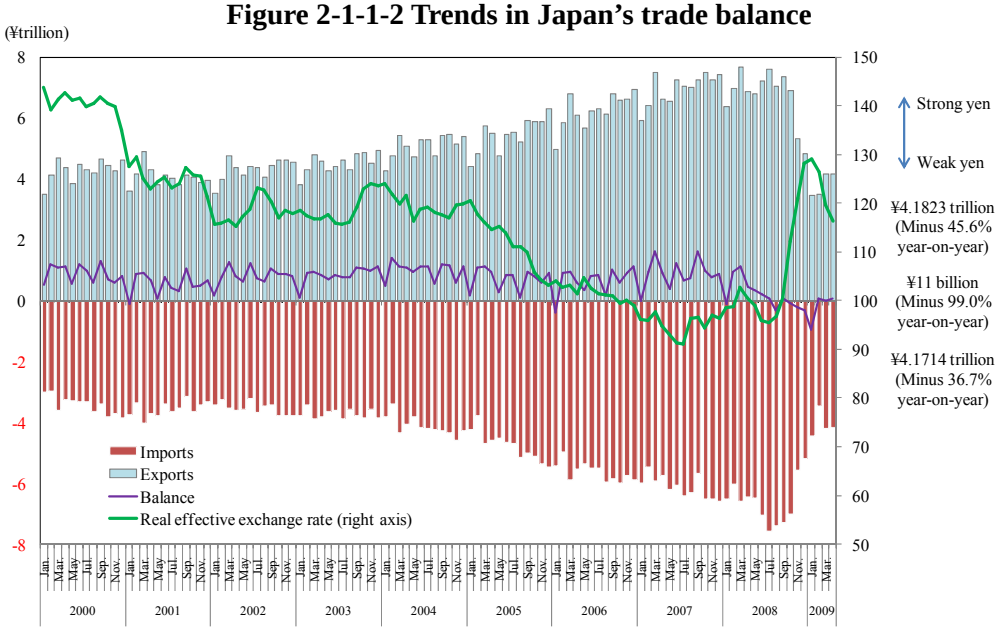
Figure 2-1-1-1 Decomposition of contribution to Japan's real GNI growth rate



Source: *System of National Accounts* (Cabinet Office).

The impact of the downturn in the exchange rate may be considered as the background for such expansion of the contribution of net exports and trading gains outflow. The real effective exchange rates of Japan show a remarkable downward trend starting from 2000, and an increase in imports and exports at the same time (Figure No. 2-1-1-2)

Figure 2-1-1-2 Trends in Japan's trade balance

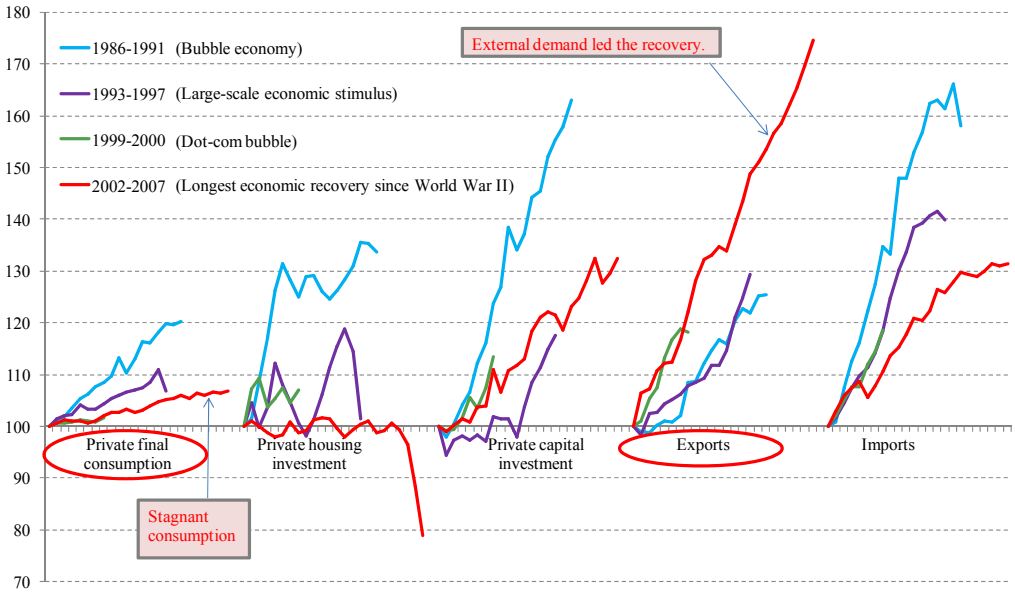


Source: *Trade Statistics* (Ministry of Finance).

(2) Stagnant private final consumption

Another striking aspect found in the most recent economic recovery period was stagnating private final consumption. A comparison between the 2002–2007 economic recovery period and the past economic recovery periods based on categorization by demand components reveals that, among domestic demands, capital investment had made a comparatively large contribution to economic recovery. However, the growth of private final consumption, which accounts for approximately 60% of GNI, was slow, compared with that of the economic recovery periods in the late 1980s and mid 1990s (Figure 2-1-1-3).

Figure 2-1-1-3 Comparison of recoveries in Japan's demand components during its economic expansion



Notes: Figures are index numbers, with a base value of 100 for the first quarter of each fiscal year.
Source: *System of National Accounts* (Cabinet Office).

As a result of such stagnant domestic demand, the Japanese real GDP growth rate in the 2002–2007 economic recovery period was 2.4%, not a major improvement compared with that of the late 1980s.[3]

Meanwhile, due to a stagnant growth rate and weak yen, the Japanese nominal GDP for 2007 dropped to $4.3850 trillion and the nominal GDP per capita to $34,326, ranking 19th among the thirty member countries of the Organisation for Economic Co-operation and Development (OECD), and also ranking the lowest among G-7 countries.[4] The proportion to global nominal GDP marked 8.1%, the lowest level since 1971.

2. Impact of the world economic crisis on the Japanese economy — a vicious circle involving exports, employment, consumption and companies' performance

Based on the aspects pointed out thus far, the following focuses on trends in the Japanese economy after the emergence of the global financial crisis.

(1) Trends in the Japanese economy after the financial crisis

The Japanese economy already began to slide into recession after November 2007. However, in addition to this, the Japanese economy began to suffer severe impacts immediately after the failure of Lehman Brothers of the Unites States on September 15, 2008.

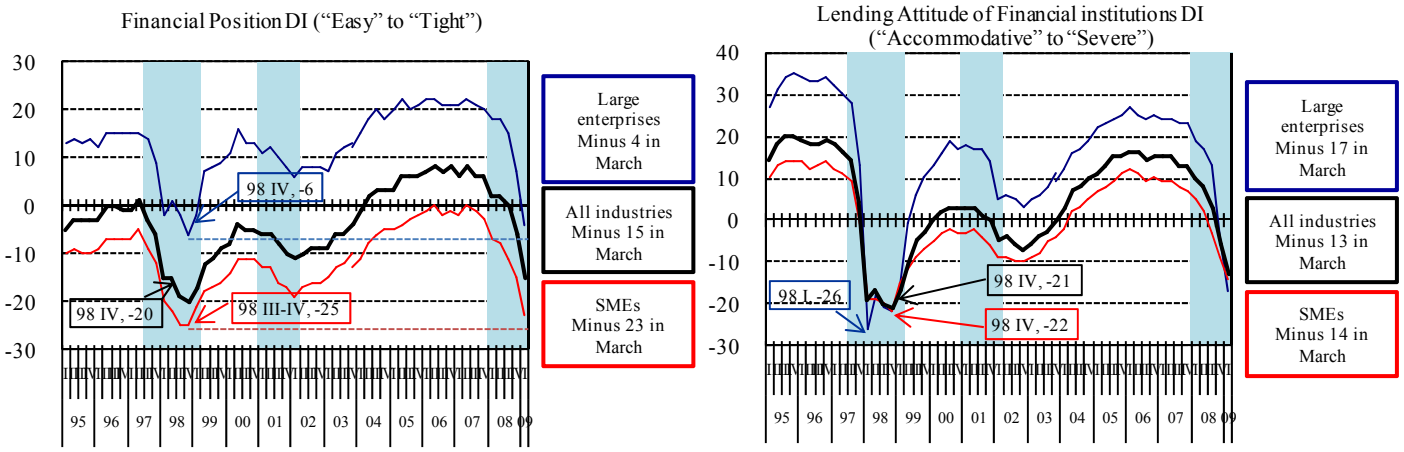
(A) Impacts on financial aspects

Since September 16, 2008, Japan has seen an exacerbation in the environment for procuring corporate funds, e.g., a rapid decline in stock prices and a worsening of conditions for issuing corporate bonds. According to the December 2008 “Tankan” and the March 2009 “Tankan,” published by the Bank of Japan, the diffusion index for financial positions and that for lending attitudes of financial institutions, irrespective of company size, deteriorated, approaching the level of the end of the 1990s (Figure 2-1-2-1).

[3] In the economic recovery period from 1986 to 1991, the average real GDP growth rate was 5.4% per annum. In the two economic recovery periods (i.e. 1993–1997 and 1999–2000), the real GDP growth rates were stagnant, i.e. 2.3 and 2.4% per annum, respectively.

[4] Japan ranked third in the 1993–1996 period, in terms of nominal GDP per capita.

Figure 2-1-2-1 Trends in companies' financial position

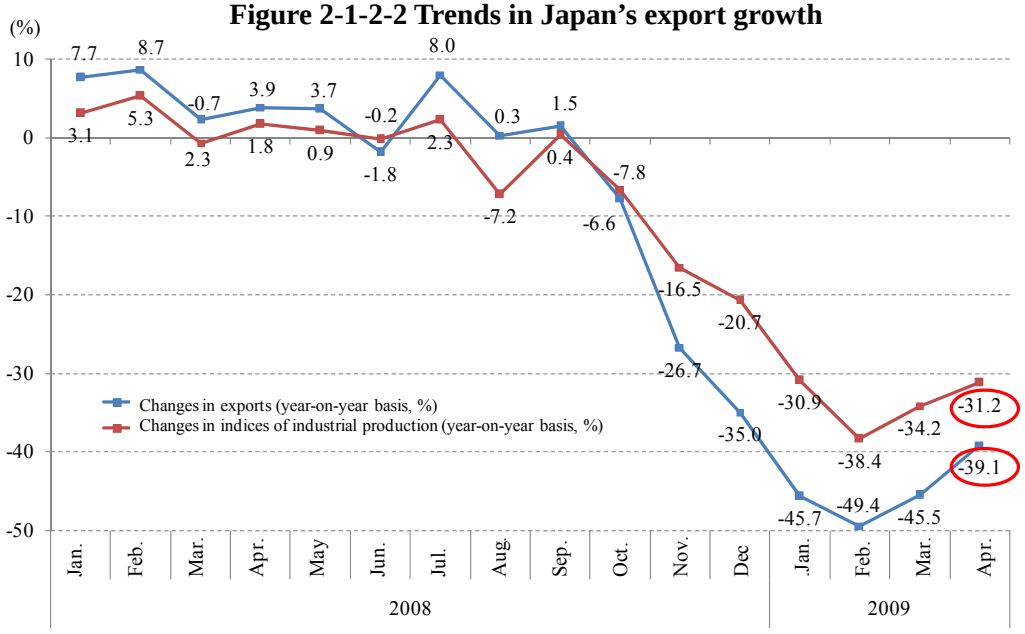


Source: *Tankan* (Bank of Japan).

(B) Impact on the real economy

The real economy has changed dramatically. Exports, which had been the leading sector of Japanese economic recovery, rapidly worsened after October, 2008, and continued to do so over the four-month period from November 2008 to February 2009, producing the record for the largest decline since 1980, when comparative data became available (Figure 2-1-2-2).

Figure 2-1-2-2 Trends in Japan's export growth



Source: *Indices of Industrial Production* (Ministry of Economy, Trade and Industry), *World Trade Atlas.*

Imports have also been on a downward trend since November 2008, and as exports began to slow at an earlier stage and in a more rapid manner, the trade balance fell into a deficit in October 2008 for the first time in 26 years,[5] and continued for four months until January, 2009. Thereafter, the trade balance has returned to a surplus; however, looking at the data for a year earlier, the severe downturn

[5] This data is excludes January, which includes New Year's holidays, when exports tend to slow down.

has been continuing.

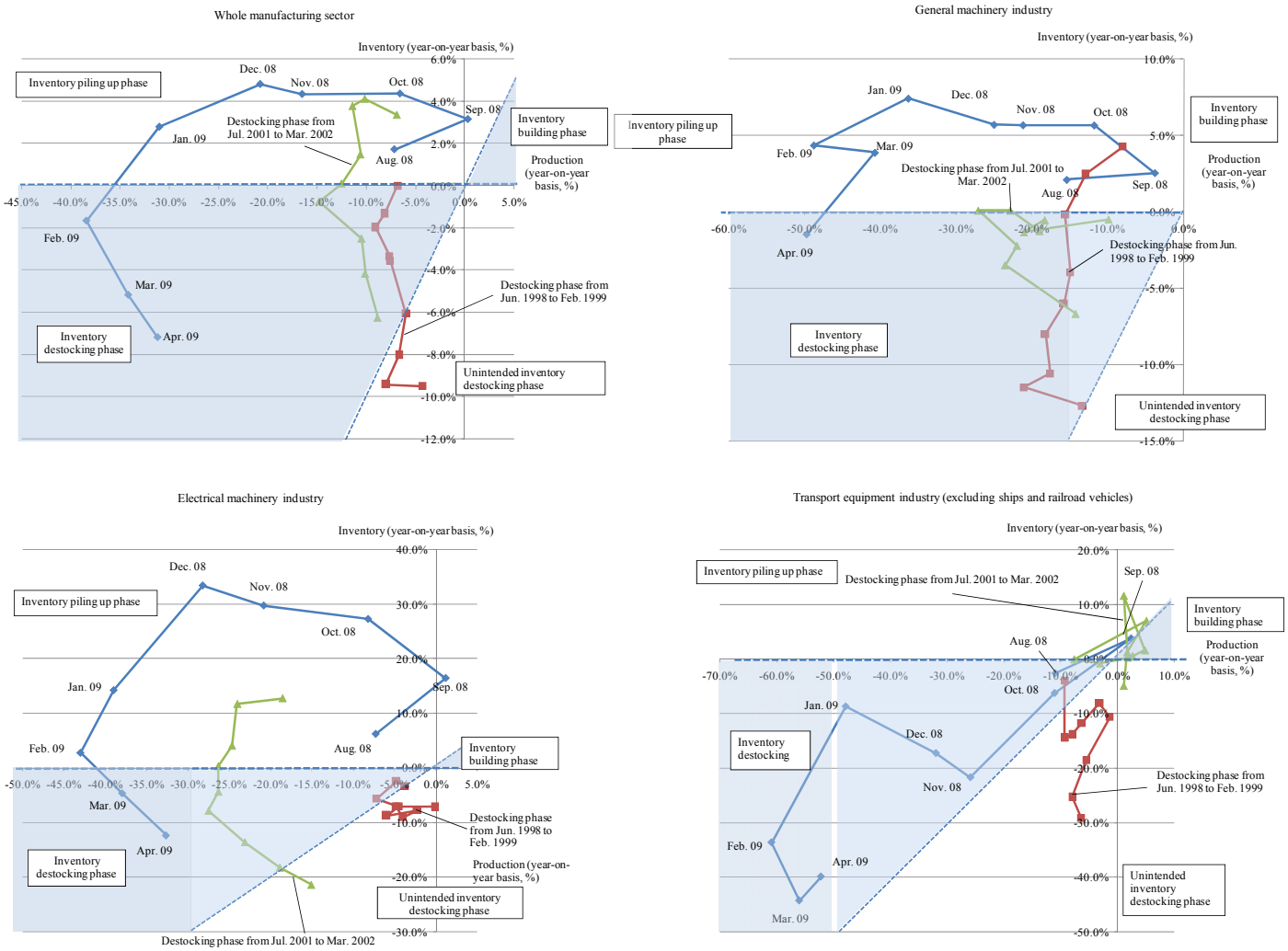
Industrial production also turned downward in October 2008, and thereafter showed declining rates, worsening month after month, until February 2009.

Consequently, the real GDP growth rate for the fourth quarter of 2008 resulted in a decline at an annualized rate of −13.5% on a quarter-on-quarter basis, which was worse than the growth rate for the first quarter of 1974 (annualized rate of −13.1% on a quarter-on-quarter basis) and was the worst figure that Japan had ever experienced. Such growth rate was worse than that of the U.S. and Europe, where the financial crisis originated. The contribution rate of external demand was −12.6%, which demonstrates that the sharp decline in exports had a significant negative impact on the Japanese economy.

From 2009, an impact on the domestic economy caused by the decline in exports began to come to light. The real GDP growth rate for the first quarter of 2009 (preliminary figure) was −14.2% on a quarter-to-quarter basis (annualized rate), the worst rate of decline ever. The factors largely contributing to such a figure were private domestic demands, including capital investment (contribution rate: −5.1%), which marked −31.0% on a quarter-on-quarter basis (annualized rate) and broke the record for the worst growth rate, and private consumption (contribution rate: −2.4%).

However, a sign of change can be seen in some sectors of the Japanese economy, which has rapidly weakened since October 2008. For example, the inventory cycles of manufacturing industries shows that their production sharply decreased and that at the same time they entered into an inventory adjustment stage in February 2009 (Figure 2-1-2-3). In particular, the transportation equipment industry and electrical machinery industry (including the information technology machinery industry, and electrical parts/devices industry) have been making progress in inventory adjustment. The industrial production index marked an increase of 1.6% on a month-on-month basis in March, showing an upward trend for the first time in six months. It also showed an increase of 5.2% on a month-on-month basis in April. The foregoing facts indicate a tendency of improvement in manufacturing sectors.

Figure 2-1-2-3 Manufacturing sector's inventory cycle



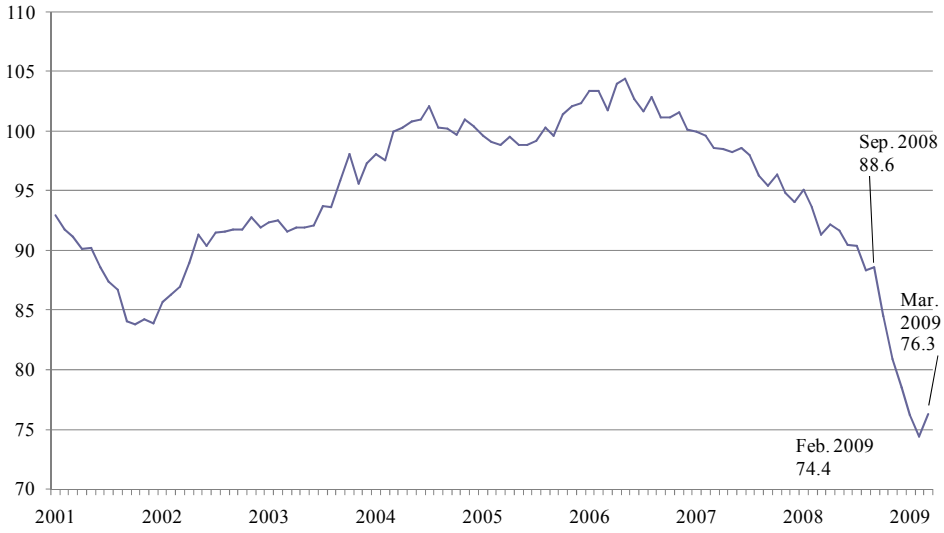
Source: *Indices of Industrial Production* (Ministry of Economy, Trade and Industry).

Recently, there has been an improvement in consumer confidence, although at a low level. According to the "Consumer Confidence Survey" published by the Cabinet Office, the monthly consumer sentiment index for private households (original figure) has continued to increase since January 2009, for a period of four months. In particular, such index increased to 32.4 points in April 2009, which is an increase of 3.5 points from March.

Based on such trends, the leading indicators for the composite index (CI), which is published by the Cabinet Office, marked 76.3 in March, showing an upturn compared with that for the previous month (Figure 2-1-2-4).[6]

6 The evaluation of DI for a judgment of the current status, shown in "Economy Watcher Survey," published by the Cabinet Office marked 34.2 in April of 2009, which was an increase of 5.8 points on a month-on-month basis, showing an increase for four consecutive months.

Figure 2-1-2-4 Leading Composite Index (CI)

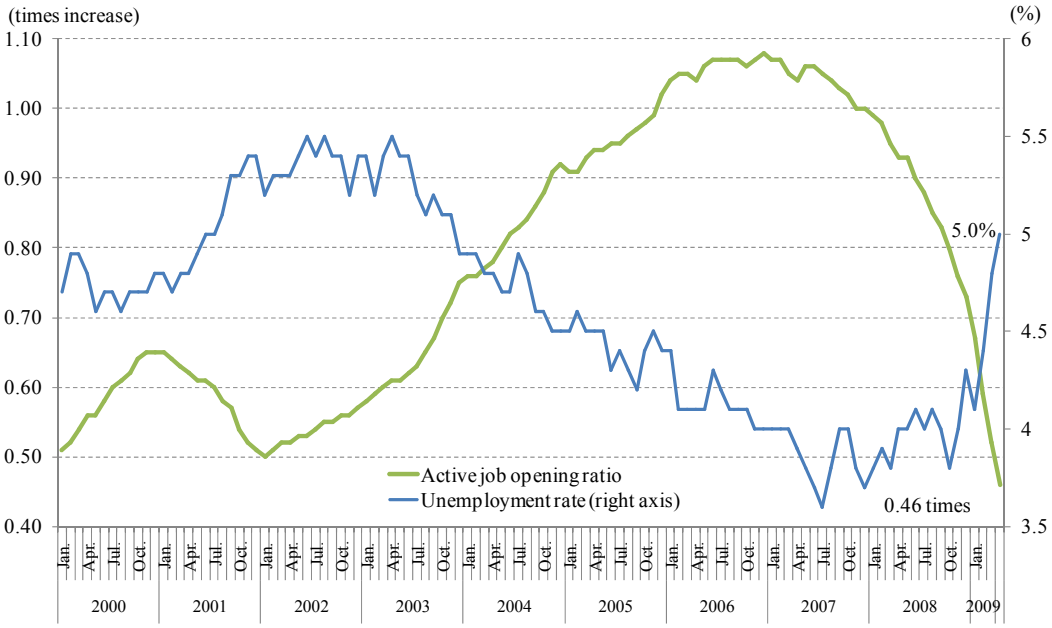


Source: *Indexes of Business Conditions* (Cabinet Office).

(C) Impact on employment

The environment surrounding employment has grown more severe since last autumn. The active job opening ratio dropped sharply, particularly after January 2009. In April, such ratio declined to 0.46, which was equivalent to the worst level ever, recorded in June 1999. The unemployment rate has been rising since February 2009 (Figure 2-1-2-5).

Figure 2-1-2-5 Changes in active job opening ratio and unemployment rate of Japan



Source: *Labour Force Survey* (Ministry of Internal Affairs and Communications), *SHOKUGYO ANTEI GYOMU TOKEI* (Ministry of Ministry of Health, Labour and Welfare).

(2) Backgrounds to serious impacts

The following are the backgrounds that are thought to have given rise to serious impacts on the

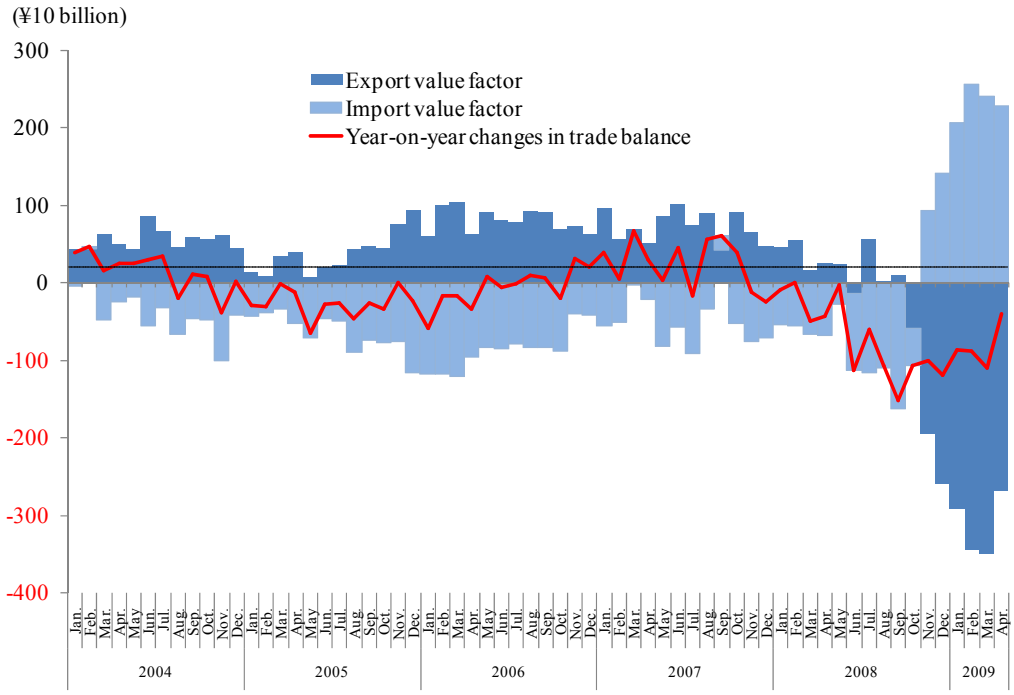
Japanese economy:

(A) Japan's export composition

According to the "Quarterly Estimate of GDP" published by the Cabinet Office, the real GDP growth rate for the fourth quarter of 2008 was −13.5% on a quarter-to-quarter basis (annualized rate), containing an external demand contribution rate of −12.6%. Therefore, it is possible that a rapid change in international trade trends has brought about serious impacts on the Japanese economy.

Based on the breakdown of the trade balance (year-on-year changes) into an export value factor and an import value factor, for the purpose of verification of the details of trends in international trade, the major factor forcing down the balance was a large increase in the value of imports since October 2007, as triggered by soaring resource and food prices (Figure 2-1-2-6). The figure shows that, in November 2008, the import value factor turned upward, as influenced by a drop in resource and food prices, but that the export value factor's exceeding of the import value factor made a largely negative contribution and therefore served as the major factor for worsened trade balance.

Figure 2-1-2-6 Decomposition of trade balance (year-on-year changes)



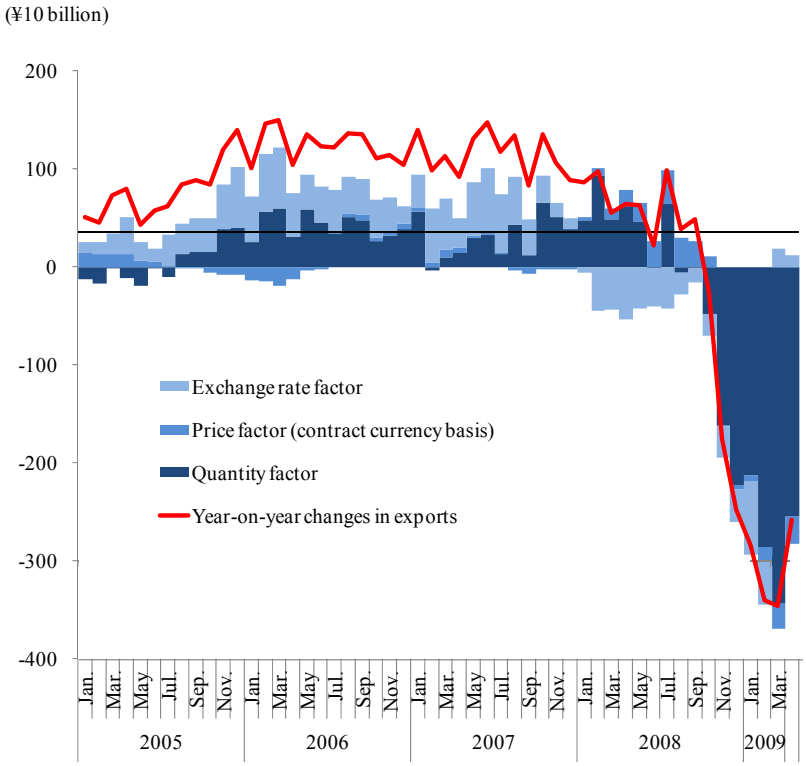
Source: *Trade Statistics* (Ministry of Finance).

Breaking down the value of exports (year-on-year changes) into the export quantity factor, the export price factor (contract currency basis) and the exchange rate factor[7] show that the exchange rate factor gave a negative contribution owing to the soaring yen, but that the major factor for the decline

[7] In this document, exports (year-on-year changes) (Y) are broken down into the export quantity factor (a), the export price factor (b) and the exchange rate factor (Y-a-b), by using the export quantity index (year-on-year changes) published monthly by the Ministry of Finance and the export price index on the basis of the contract currency (year-on-year changes) published monthly by the Bank of Japan.

in the value of exports since September 2008 has been the rapid decline in the quantity of exports (Figure 2-1-2-7).

Figure 2-1-2-7 Decomposition of exports (year-on-year changes)



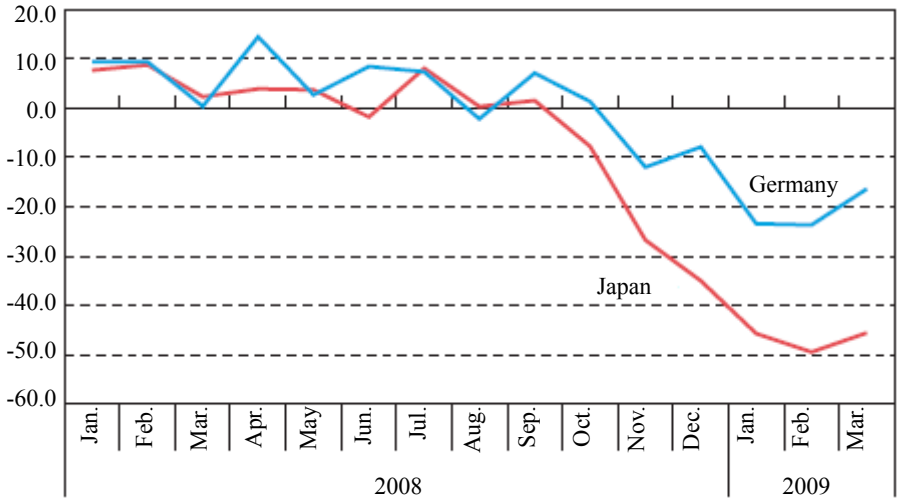
Source: *Trade Statistics* (Ministry of Finance), *Corporate Goods Price Index* (Bank of Japan).

Such sharp decline in exporting may be attributed to the following factors, etc.:

(a) Decline in exports to the U.S., which Japan relies upon excessively

Japanese major export industries, such as the transportation equipment industry, the general machinery industry and the electrical machinery industry, have depended excessively on the U.S. market. The declining range of exports of Japan surpasses that of Germany, which also depends on exporting (Figure 2-1-2-8). The grounds for such decline may be the substantial decrease in exports to the U.S., which Japanese major export products have depended upon more heavily than in the case of Germany.

Figure 2-1-2-8 Percentage change in Japanese and German exports

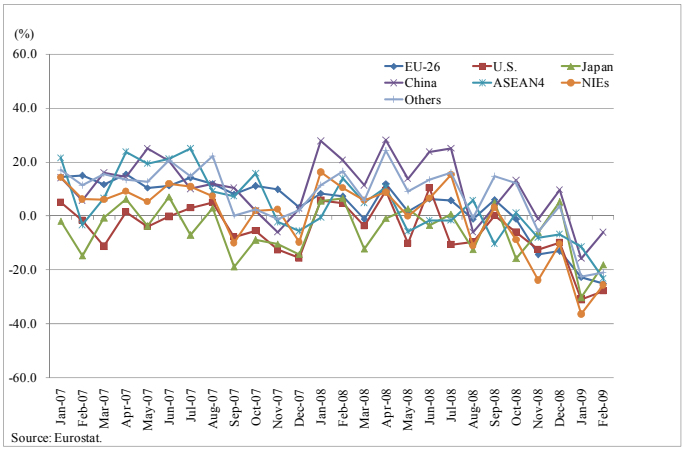


Source: *World Trade Atlas.*

According to a comparison of the rate of change in value of exports by country and region in the case of Germany and Japan (Figure 2-1-2-9), exports from Japan to all regions have largely decreased since November 2008; however, the rates of change in the case of Germany vary according to export destination, and the declining range is comparatively small. Regarding Germany, the contribution rates of change by region revealed that the contributions of both the EU27 and North America, etc. were negative until October 2008, but a positive contribution was sustained in regard to exports to all other regions (Figure 2-1-2-10). This shows that German manufacturers are abating impacts on their entire exports, by way of expanding exports to regions comparatively less affected by the present financial and economic crisis, such as South America, the Middle East and Africa. In addition to this, German intra-EU exports have decreased substantially since November; however, the contribution of the U.S. to German exports is not as crucial as it is in the case of Japan's exports.

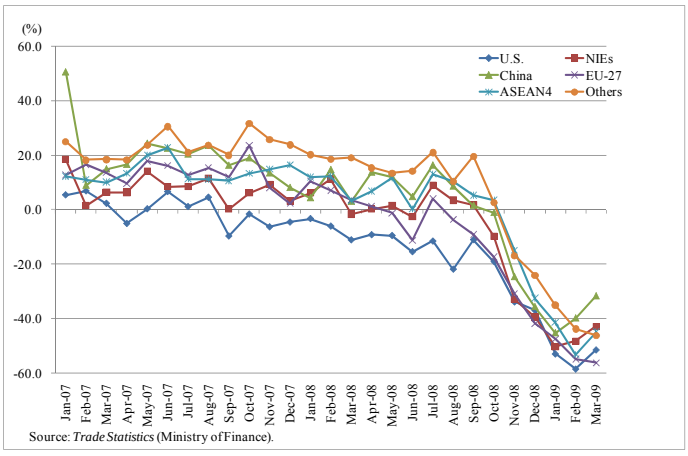
Figure 2-1-2-9 Trends in percentage change in Japanese and German exports by country and region

Percentage change in German exports by country and region



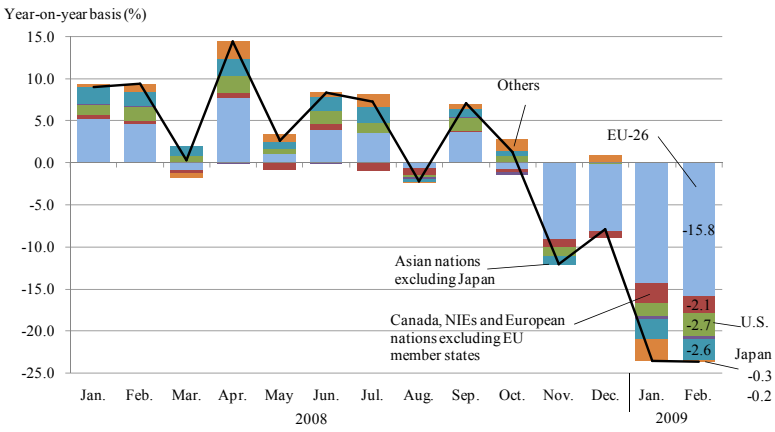
Source: Eurostat.

Percentage change in Japanese exports by country and region

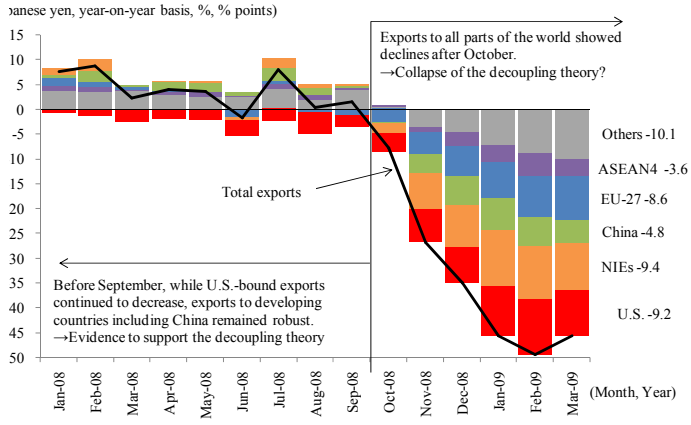


Source: *Trade Statistics* (Ministry of Finance).

Figure 2-1-2-10 Percentage contribution to German and Japanese exports by country and region



Notes: NIEs: South Korea, Taiwan, Hong Kong and Singapore.
Source: Eurostat.

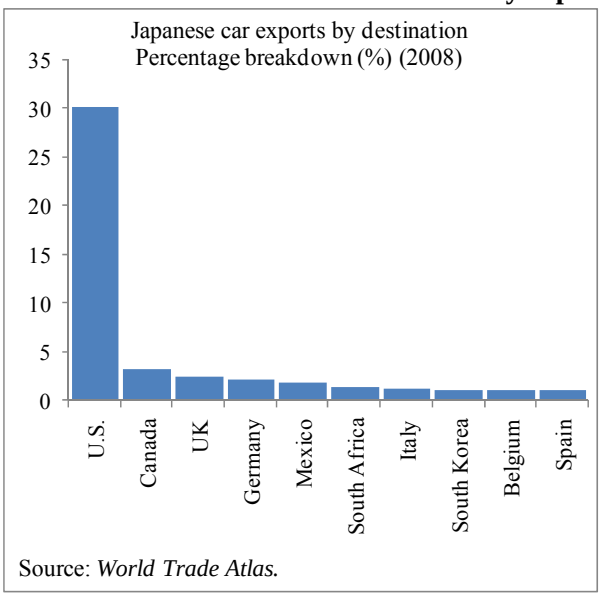


otes: ASEAN4: Indonesia, the Philippines, Thailand and Malaysia.
ource: *Trade Statistics* (Ministry of Finance).

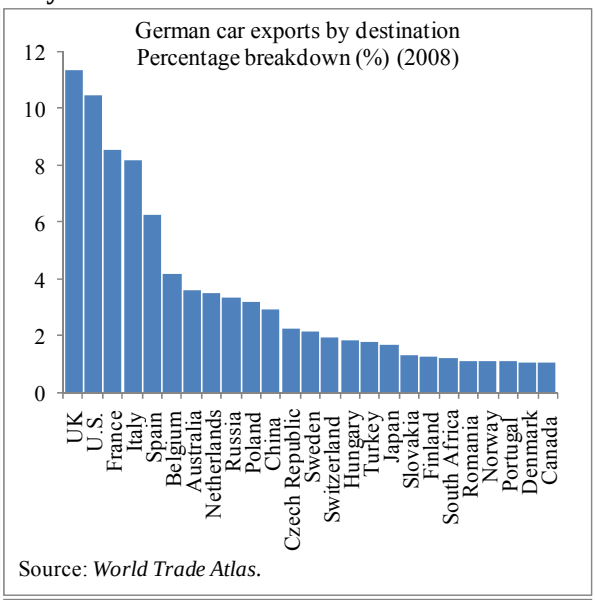
As a background to the difference between Germany and Japan, it is highly possible that Japan's expansion in exports to the U.S. in regard to its major export goods has resulted in a stronger direct impact of decreasing U.S. consumption, compared with Germany, which had been promoting diversification of its exporting partners (Figure 2-1-2-11).[8]

[8] However, in recent years, Japanese-owned companies have expanded their manufacturing and sales activities throughout the world. If overseas local production is taken into account, dependence upon exports to the U.S. may not be as heavy as shown in the table. In the case of automobiles, according to the material published by Japan Automobile Manufacturers Association, Inc., Japanese automobile manufacturers exported 2,318,254 automobiles to the U.S. in 2008, which accounted for 34.5% of the exports. On the other hand, 2,893,466 automobiles were manufactured by Japanese manufacturers in the U.S., more than the number of exported automobiles, and the proportion to overseas production was 24.8%, which was lower than in the case of exports.

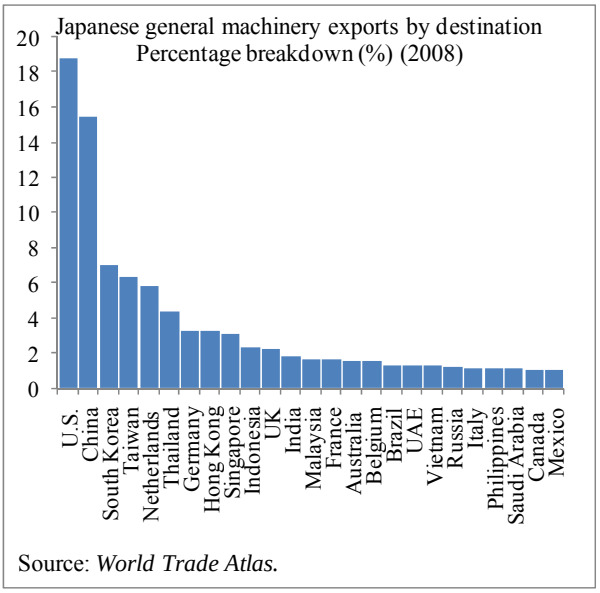
Figure 2-1-2-11 Composition of Japanese and German car, general machinery and electrical machinery exports by destination



Source: *World Trade Atlas.*



Source: *World Trade Atlas.*



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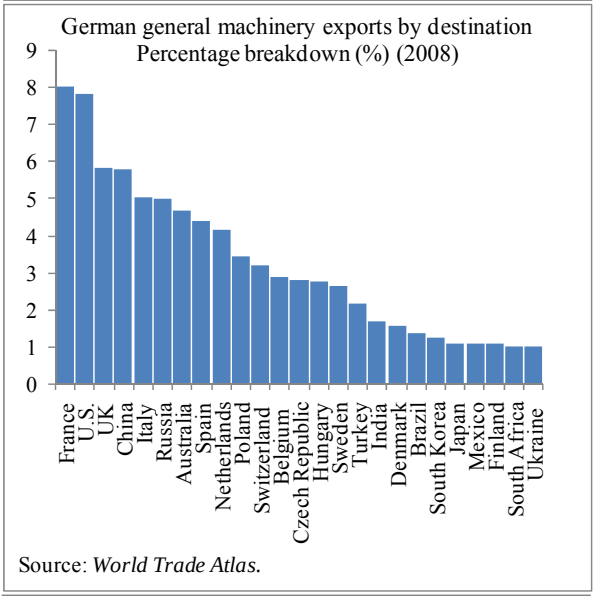
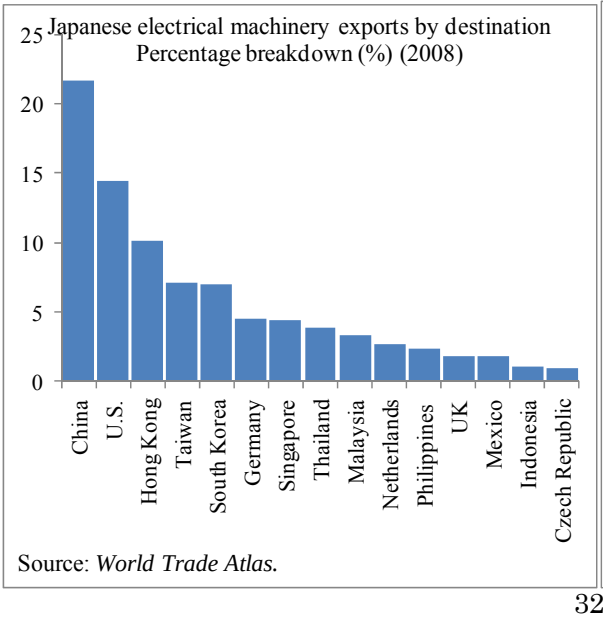


Source: *World Trade Atlas.*



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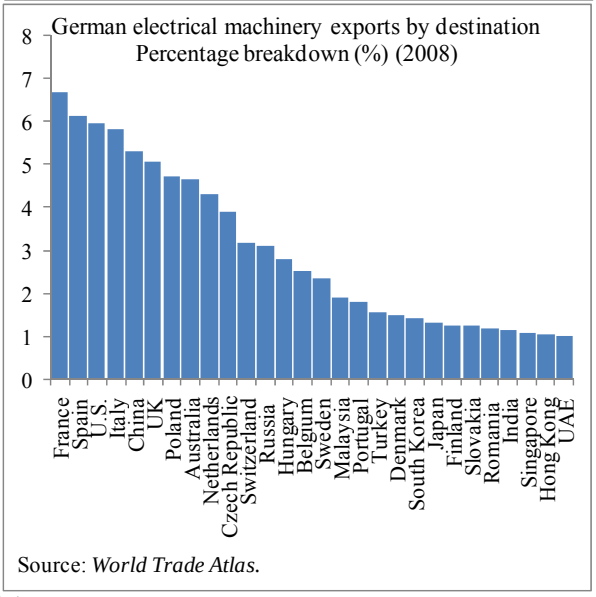


Source: *World Trade Atlas.*

(b) Decline in indirect exports to Europe and the U.S. via Asia

Foreign-owned companies, including Japanese-owned companies, have actively accessed China, NIEs, and ASEAN nations, as a result of which a borderless production network has been formed in East Asian. In such a network, Japan has strengthened its function as a supplier of intermediate goods, such as parts and processed goods.

Looking at the composition of Japan's exports in 2007, categorized by goods, the proportion of intermediate products, such as parts and processed goods, exceeded 50%. Such intermediate goods tend to be exported to China, NIEs and ASEAN nations. The amount of intermediate products (total of processed goods and parts) exported to those countries and regions in 2007 was approximately $242.3 billion, accounting for 62.6% of the $387.2 billion worth of intermediate products exported from Japan. In addition, such share has increased by 10.1 points, compared with that in 2000 (Figure 2-1-2-12).[9]

Table 2-1-2-12 Composition of Japanese exports by type of goods

Exports to worldwide destinations ($million)

	2000		2007		Growth
	Exports	Percentage	Exports	Percentage	(2007 divided by 2002)
Materials	1,922	0.4%	7,216	1.0%	275.5%
Processed goods	98,295	19.5%	181,501	25.4%	84.6%
Parts	170,016	33.8%	205,728	28.8%	21.0%
Capital goods	140,093	27.8%	176,413	24.7%	25.9%
Consumer goods	93,007	18.5%	142,682	20.0%	53.4%
Total	503,333		713,540		41.8%

Exports to Asia (China, NIEs and ASEAN nations) ($million)

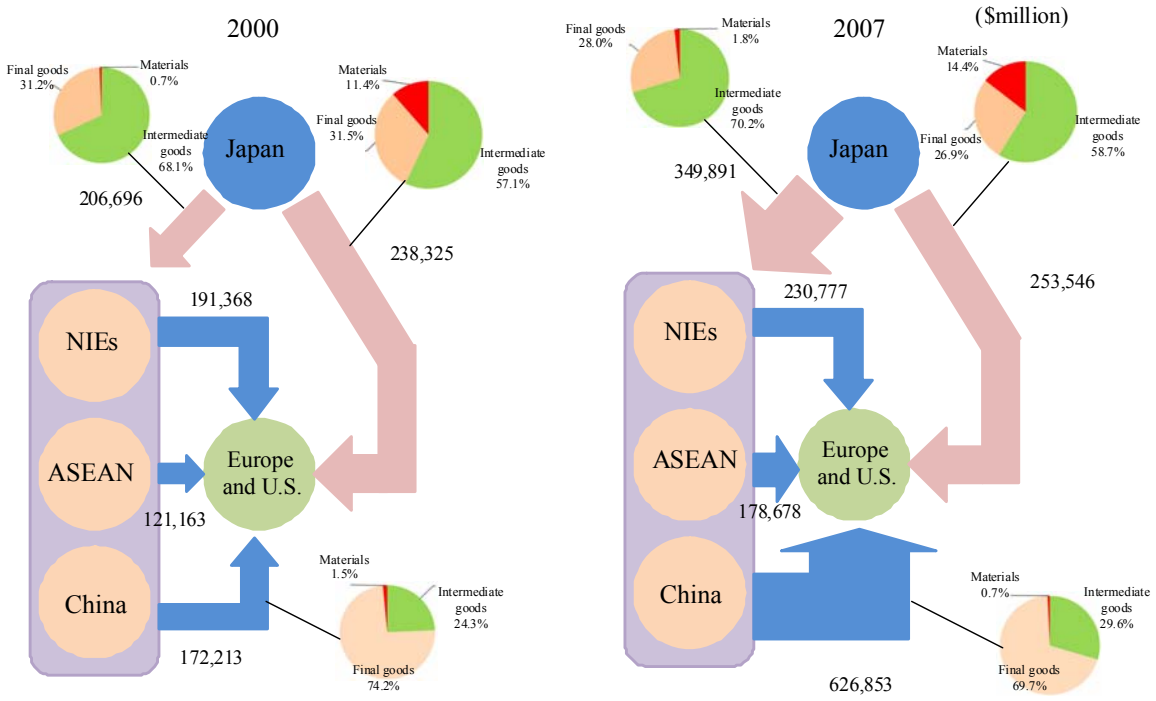
	2000		2007		Growth
	Exports	Percentage	Exports	Percentage	(2007 divided by 2002)
Materials	1,435	0.7%	6,117	1.8%	326.3%
Processed goods	61,996	30.0%	127,827	37.1%	106.2%
Parts	78,782	38.1%	114,429	33.2%	45.2%
Capital goods	52,300	25.3%	79,105	22.9%	51.3%
Consumer goods	12,183	5.9%	17,413	5.0%	42.9%
Total	206,696	100.0%	344,891	100.0%	66.9%

Source: RIETI-TID 2008 (Research Institute of Economy, Trade and Industry).

Intermediate goods exported from Japan to Asia are processed into final goods, including consumer goods and capital goods in the region, and are then exported to Europe and the U.S. In particular, China has actively carried out processing trade, and has expanded its exports to Europe and the U.S., mainly consisting of final goods, by more than 300%, during the period between 2000 and 2007 (Figure 2-1-2-13).

[9] Intermediate products exported to China, NIEs and ASEAN countries in 2000 amounted to $140.8 billion, accounting for 52.5% of all intermediate product exports from Japan, valued at $268.3 billion.

Figure 2-1-2-13 Trade Structure Among Japan, Asian nations, Europe and the United States



Notes: Europe in this figure refers to the 27 member states of the EU.
Source: *RIETI-TID 2008* (Research Institute of Economy, Trade and Industry).

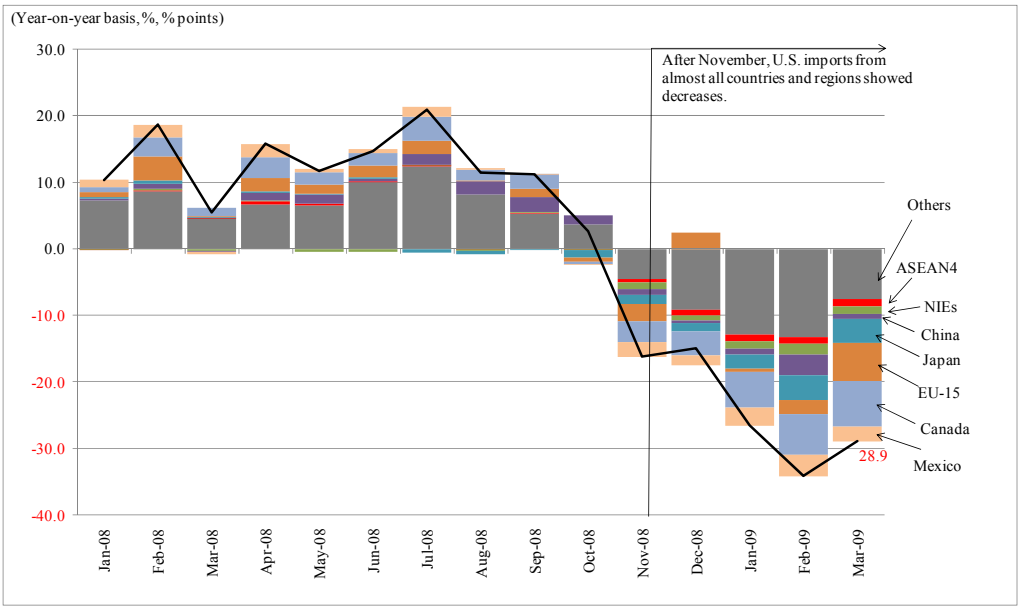
Thus, economic recession in Europe and the U.S. entails a decrease in exports of intermediate products from Japan to Asia, in addition to a decrease in exports to Europe and the U.S.

As a matter of fact, exports from Japan to all regions have turned downward tremendously since October 2008, while in November 2008, the contribution rate for decline related to exports to China and Asian NIEs nations exceeded that related to exports to North America, which had been showing the largest contribution rate thus far (Figure 2-1-2-10 above).[10]

The trends in imports of the U.S. by region show that imports from all countries and regions, including Asia, turned downward in November (Figure 2-1-2-14). This fact suggests that the recession in the U.S. economy, through the East Asia production network, which is the producer of final products to be exported to Europe and the U.S., has begun to have a significant impact on Japan's exports of intermediate products.

[10] According to the trends in Japanese exports categorized by destination country and region for the period from January to September 2008, exports to the U.S. had already slowed down before September However, exports to other countries, including many emerging nations, such as China and other East Asian nations, and Middle East oil producing countries, were steady, sufficiently supplementing deficit in exports to the U.S. Therefore, a concept called the "decoupling theory" was proposed, which asserted that Asian economies are not affected by economic recession in the U.S.

Figure 2-1-2-14 Changes in percentage contribution to U.S. imports by country and region



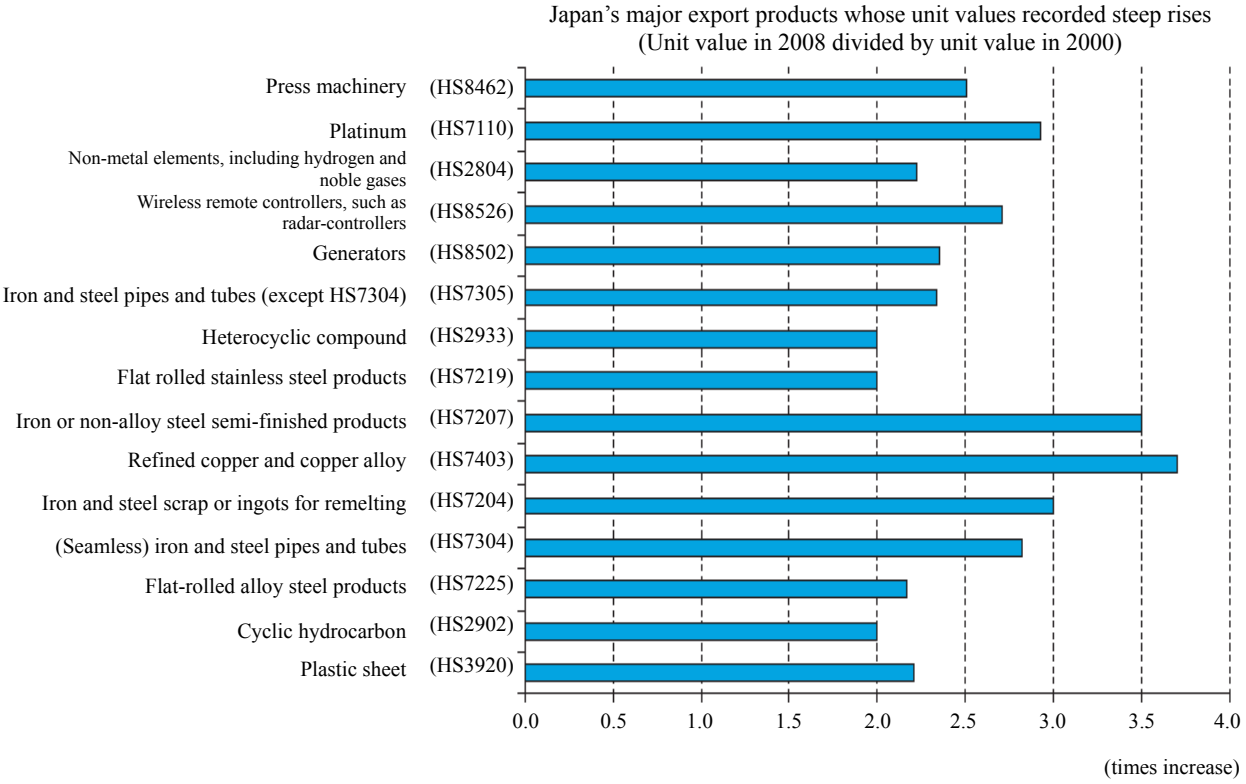
Notes:
1. EU-15: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, the Netherlands, Portugal, Spain, Sweden and the UK.
2. NIEs: South Korea, Taiwan, Hong Kong and Singapore.
3. ASEAN4: Indonesia, the Philippines, Thailand and Malaysia.
Source: *World Trade Atlas*.

(c) High added value of Japan's export products

In addition, enhancement of added value on Japan's export products may be considered as one of the causes for the decrease in exports, resulting in a serious impact on the domestic economy.

Since 2000, the unit values of many Japanese export products have increased. Looking at the unit value of export products, as an alternative index showing value added to export goods, a comparison of unit value in 2000 and 2008 in regard to 54 items, whose unit value can be calculated, out of 100 export products ranked highly on the basis of HS 4-digit codes, showed that unit value for 15 items more than doubled (Figure 2-1-2-15).

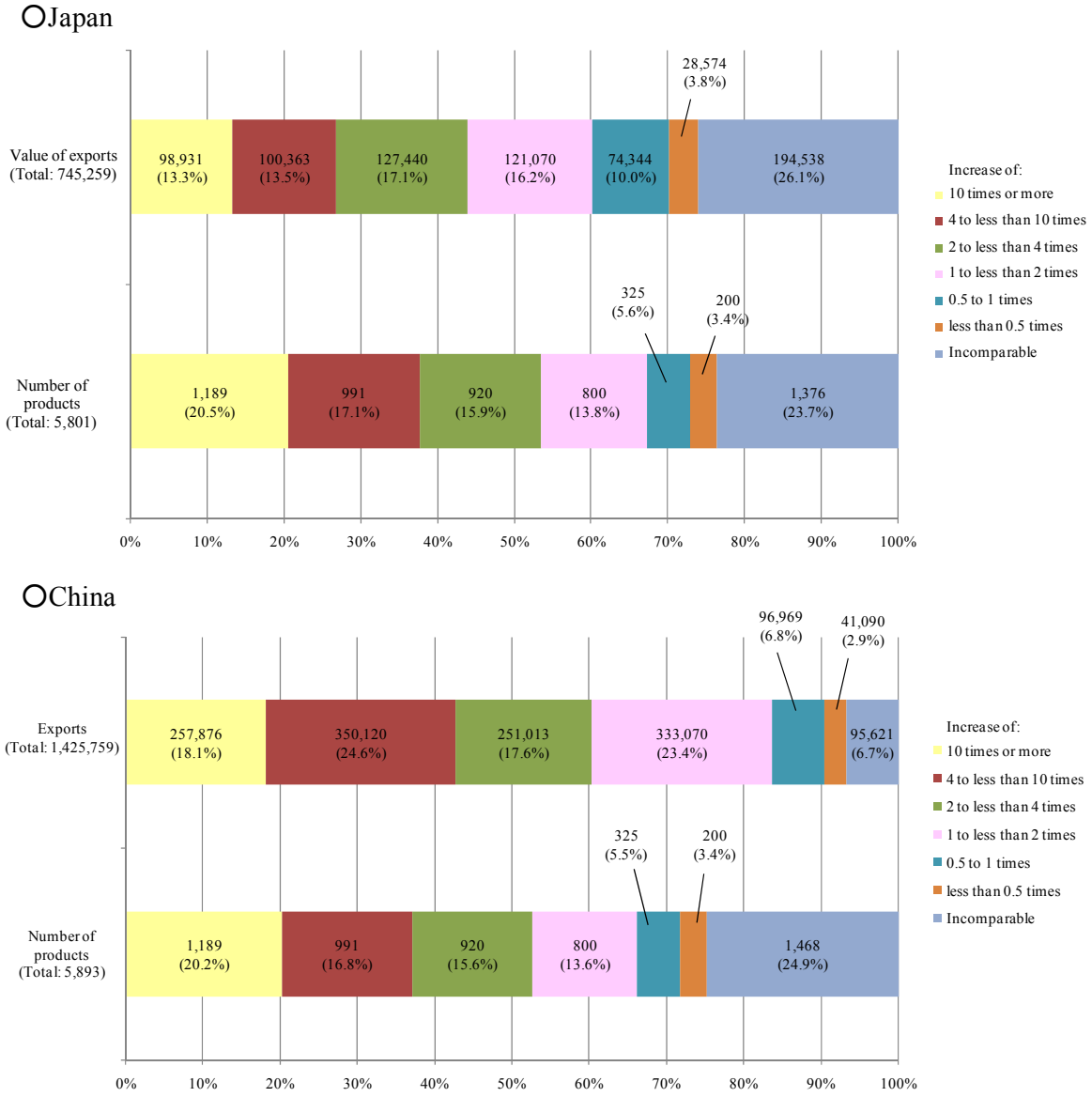
Figure 2-1-2-15 Japan's major export products whose unit values recorded steep rises



Source: Source: *World Trade Atlas.*

The comparison with China shows that the unit value of many Japanese export products exceeds that of Chinese export products, suggesting that Japanese export products have more value added than Chinese products have (Figure 2-1-2-16).

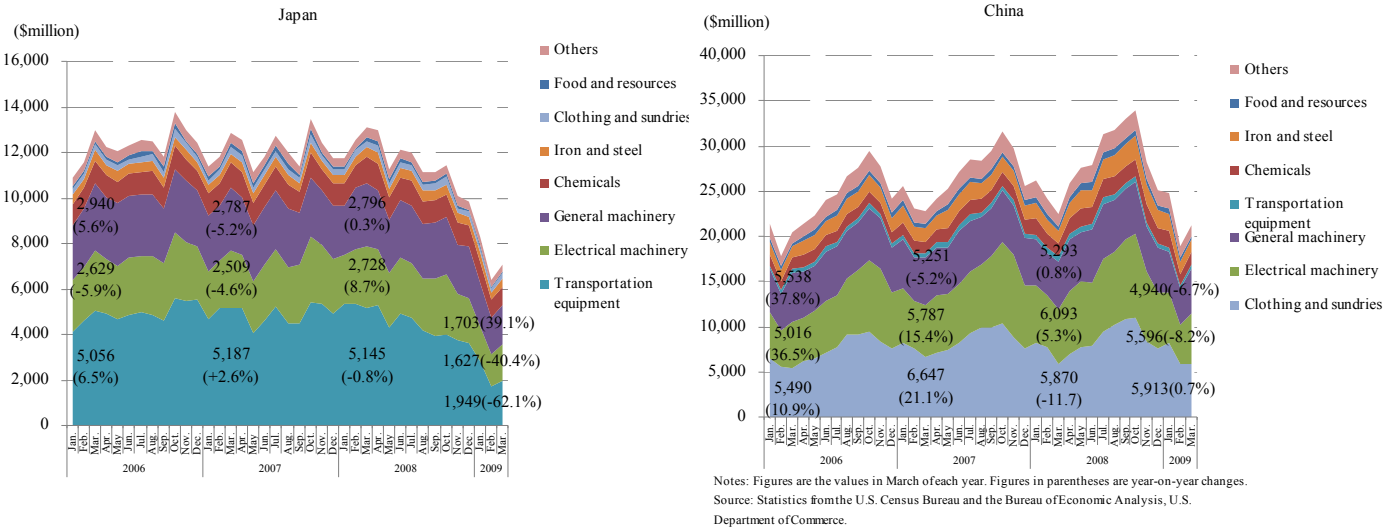
Figure 2-1-2-16 Comparison of Japan and China's export unit values



Notes:
1. For Japan and China's export products in 2008 (HS 6-digit classification basis; Japan's 5801 products and China's 5893 products), Japan's export unit value is divided by China's export unit value to calculate the percentage breakdown of the value of exports or the number of products.
2. Products being exported only by Japan or China, products whose export values are very small, and products whose unit value data is not available are classified as "Incomparable."
Source: *World Trade Atlas.*

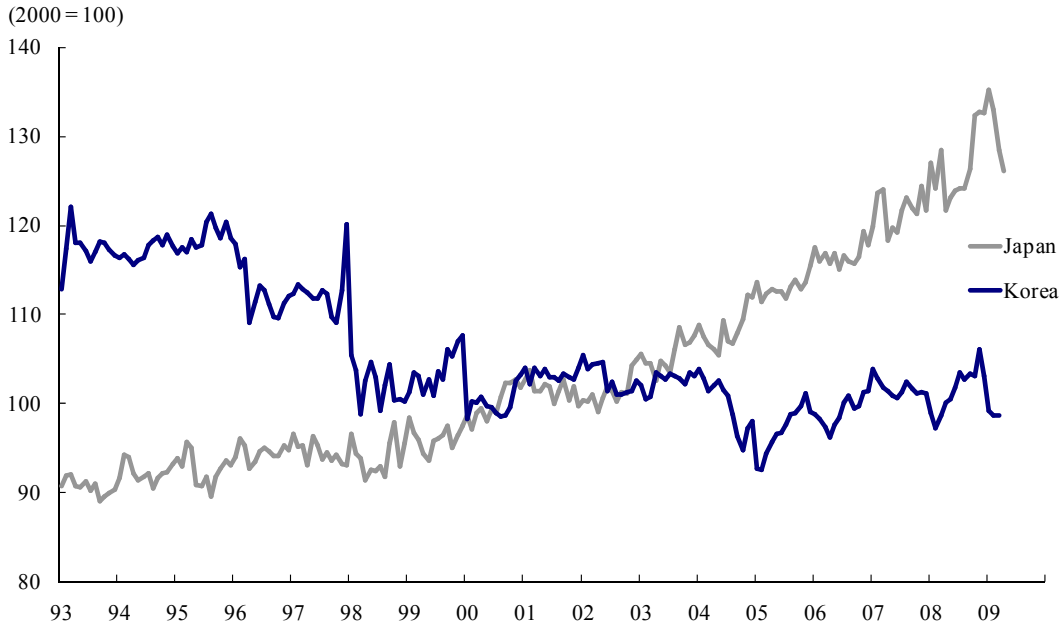
Thus, in relation to the decrease in exports last autumn, Japan, which primarily exported highly value-added products, such as transportation equipment, suffered significant impact in terms of added value. On the other hand, China, which has exported a large quantity of products with less value added, such as clothing and miscellaneous goods in addition to electrical machinery and general machinery, is assumed to have suffered less impact caused by the decrease in exports on its economy than Japan (Figure 2-1-2-17).

Figure 2-1-2-17 Product composition of Japanese and Chinese exports to the U.S.



Notes: Figures are the values in March of each year. Figures in parentheses are year-on-year changes.
Source: Statistics from the U.S. Census Bureau and the Bureau of Economic Analysis, U.S. Department of Commerce.

Figure 2-1-2-18 Comparison of Japan and Korea's high-value-added export indices



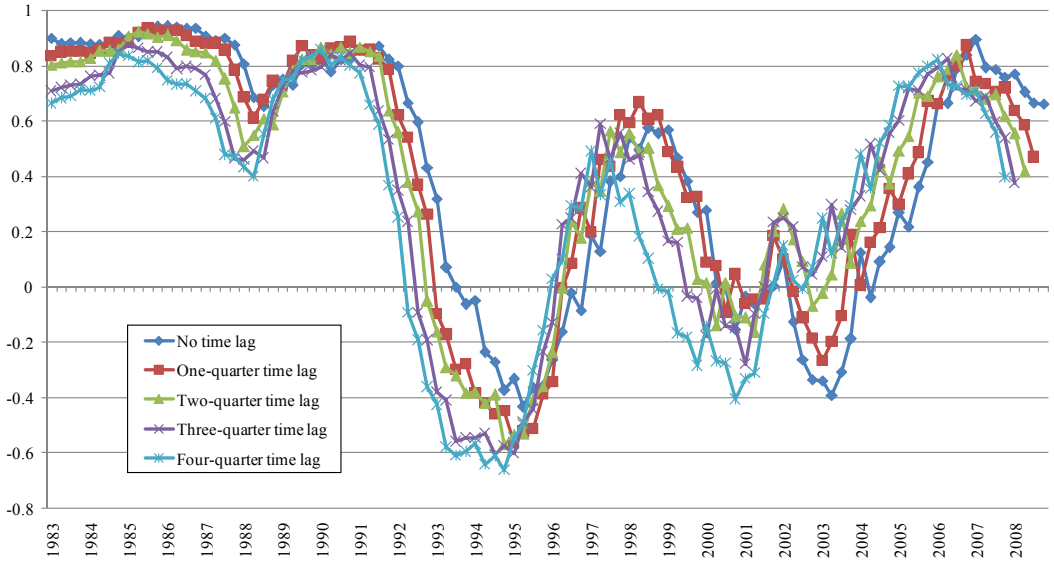
Source: Production of High Value-added Goods and Capital Investment (Mitsubishi UFJ Securities).

(B) Japanese production system is becoming more and more dependent upon exporting

As for the domestic demand sector for the fourth quarter of 2008, capital investment gave a negative contribution. The correlation between capital investment and exports, however, has become stronger in recent years, suggesting the possibility that a decline of exports involves a negative impact on capital investment. The time-lag correlation coefficient between Japanese exports and capital investment was nearly zero in around 2000, but it surged thereafter until it reached a level of approximately 0.8 in 2007. In addition, for the period from around 2002 to 2007, the correlation coefficient for the second to fourth quarter was higher, but the correlation coefficient without time lag has become higher since 2007. This suggests that Japanese exporters came to adjust capital investment

shortly after the change in exports (Figure 2-1-2-19).

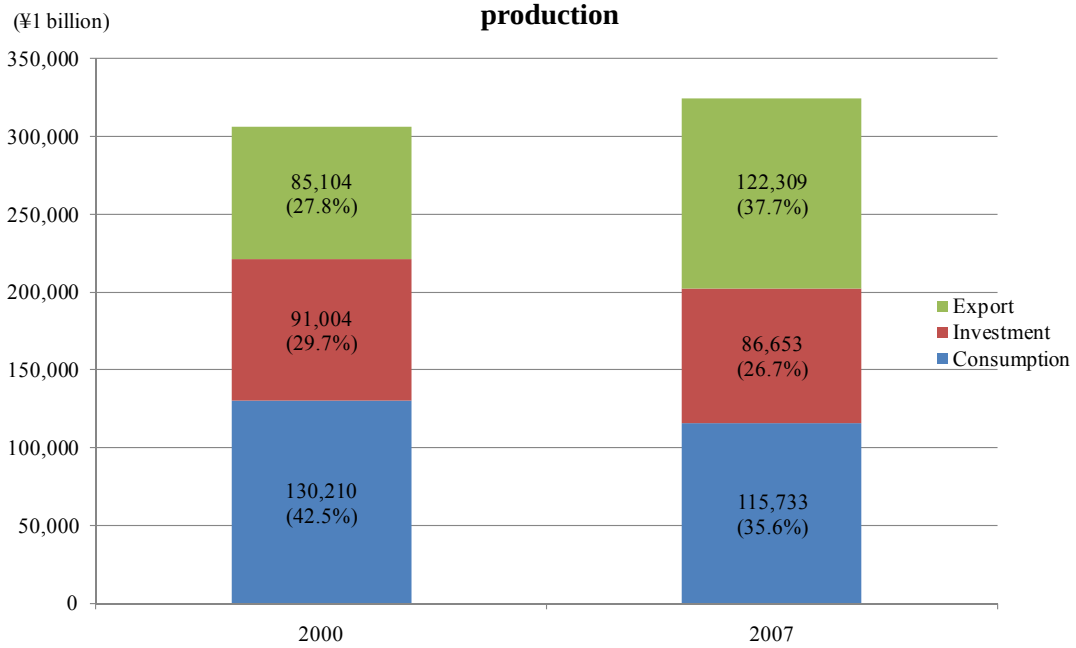
Figure 2-1-2-19 Changes in time-lag correlation coefficient between Japanese industrial shipments index (export) and new fixed capital formation



Source: *Financial Statements Statistics of Corporations by Industry* (Ministry of Finance), *The Indices of Industrial Domestic Shipments and Exports* (Ministry of Economy, Trade and Industry).

In addition, the relationship between production and exports has become closer. The transition of domestic products induced by individual demand items in relation to manufacturing industries (i.e. the amount of production of manufacturing industries generated by consumption, investment and exports) shows that in 2000, the proportion of the amount of production induced by consumption was approximately 42.5%, but this proportion decreased to 35.6% in 2007 (Figure 2-1-2-20). On the other hand, the amount of production induced by exports has been increasing, surpassing the amount induced by consumption in 2007 and becoming the demand item which holds the most influence on production by manufacturing industries.

Figure 2-1-2-20 Japanese manufacturing sector's production by type of demand-inducing production



Source: "HEISEI 19 NEN KAN-I ENCHO SANGYO KANRENHYO (Ministry of Economy, Trade and Industry).

In fact, the export ratio and ripple effects on production of Japanese major exporting industries, i.e., transportation equipment, general machinery and electrical machinery, are far higher than the average of all industries (Figure 2-1-2-21). These industries heavily depend upon exporting, and have a significant impact on domestic production. Any decline on production by these industries due to a decrease of exporting may produce a large impact on domestic production.

Table 2-1-2-21 Three major exporting industries' percentage contribution to exports, export ratio, and ripple effects on production

Type of industry	Percentage share of exports	Export ratio	Ripple effects on production (increase)
Transportation equipment	23.7%	29.0%	2.82 times
General machinery	19.7%	27.9%	2.20 times
Electrical machinery	19.1%	34.9%	2.14 times
Average of all industries	-	7.6%	1.93 times

Source: *Trade Statistics 2008* (Ministry of Finance), "HEISEI 17 NEN SANGYO KANRENHYO KIHONHYO" (Ministry of Internal Affairs and Communications).

Thus, the fact that capital investment and production in Japan has become more and more dependent on exports may be considered as a factor exacerbating economic recession caused by a decrease in exports.

3. Reconsideration of external demand, enhancement of productivity and expansion of domestic demands required for the Japanese economy

The Japanese economy has suffered severe conditions triggered by a decline in external demand, which is the result of the global financial crisis and the subsequent slowdown in the global economy. In order to prevent the risk of reaching rock bottom, it is important to swiftly implement the economic policies determined so far.

The world's leading nations, including Japan, one after another, have already published and implemented economic policy measures. (Figure 1-2-7-1 above). In the absence of such policy measures, the economy would have sank into severer conditions.

In addition, in order to achieve economic restoration of the Japanese economy in the medium to long term, commitment to the following issues is necessary, considering the fact that the characteristic of the Japanese economy — namely its dependence on exports, especially to the U.S. — backfired in the economic recovery period in recent years.

(1) Reconsideration of external demand

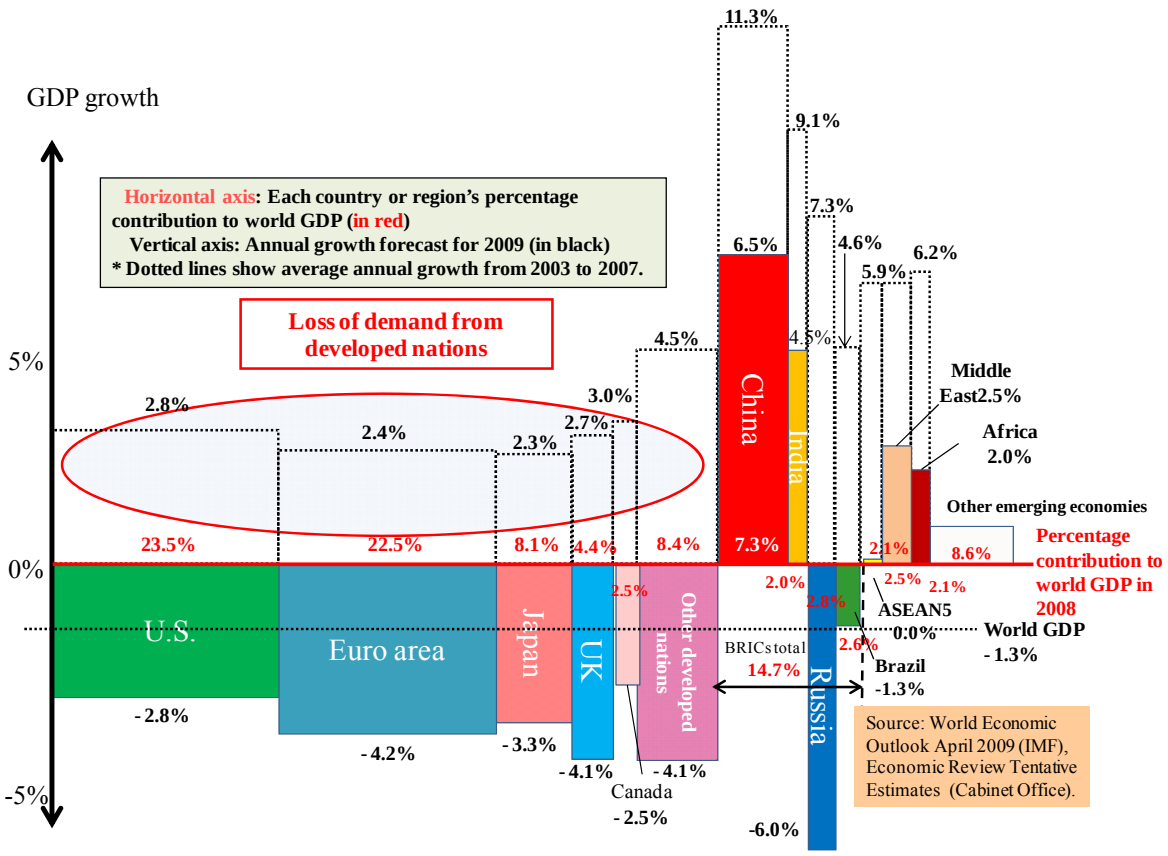
(A) Diversification in exports — toward markets in emerging economies and Asian economic zone

As pointed out thus far, Japan has expanded its exports to Europe and the U.S. and at the same time developed a production network in Asia, in the course of the recent economic-recovery process. Japan has exported capital goods and intermediate products to Asian nations, and final products processed in such nations have been further exported to Europe and the U.S. Such cycle has lead to negative impacts, as triggered by a slowdown in the economies of Europe and the U.S.

Since it is hard to expect a quick recovery in economies of Europe and the U.S., as argued in Chapter 1, it is necessary to reconsider the final destinations and items of export products, which have primarily targeted Europe and the U.S., and diversify the counterparties to export.

For such purposes, the Asian economic zone and emerging nations, in which continually high growth rates are expected even after the financial crisis, would be strong candidates for new counterparties to exports of Japanese goods and services. IMF predicts that in 2009 all developed countries will see negative growth for the first time in the 60 years since the end of World War II. Nevertheless, it is predicted that emerging nations, including China and India, will achieve a certain degree of growth even in the severe environment (Figure 2-1-3-1).

Figure 2-1-3-1 Countries' and regions' percentage contribution to world GDP and economic growth forecasts (2009)



Source: *World Economic Outlook April 2009* (IMF), *Tentative Estimation of Economic Outlook for FY2009* (Cabinet Office).

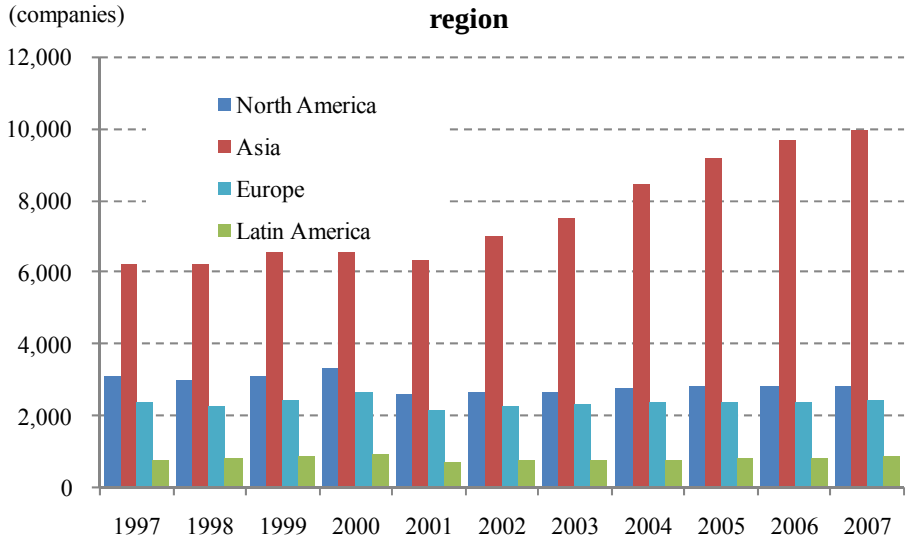
These nations' markets are being developed and are assumed to have characteristics different from that of developed countries, such as price-sensitiveness. The provision of products and services reflecting the characteristics of these markets may lead to the exploration of new markets, which will be comparable to developed countries' markets in the future.

(B) Expansion of direct investment to emerging nations and Asian economic zone

In addition to diversification of export destinations, increasing access to emerging nations and the Asian economic zone, which are expected to grow through direct investment, is also an effective way to diversify the source of Japanese economic growth.

Japanese-owned companies developed overseas production networks, mainly in Asia, in the mid 1990s and their appetite for expanding business to Asia has been strengthened. The number of overseas affiliated companies established by Japanese-owned companies in North America and Europe has remained almost unchanged, but the number of overseas affiliated companies in Asia has increased from approximately 6,000 in 1997 to approximately 10,000 in 2006, which is an increase of more than 1.5 times in the ten years (Figure 2-1-3-2).

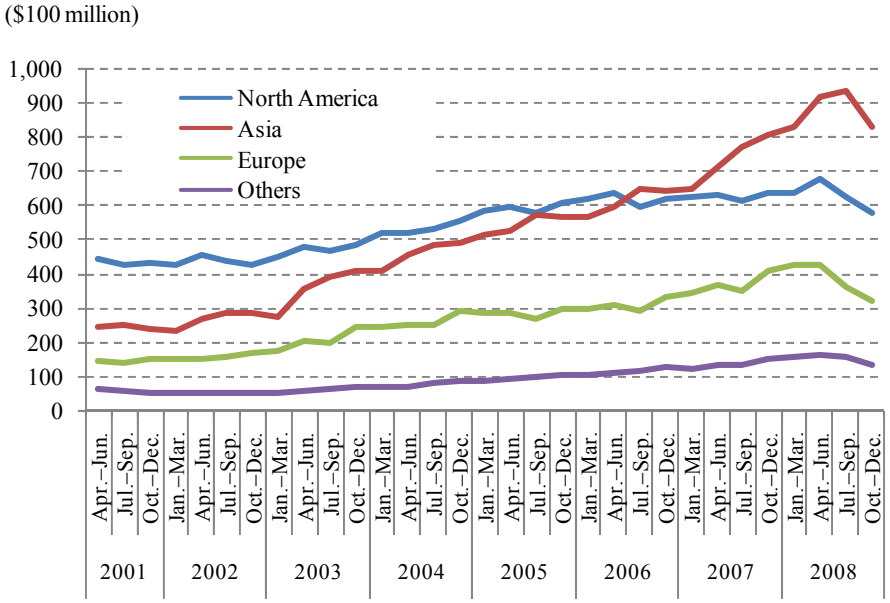
Figure 2-1-3-2 Changes in the number of Japanese-owned companies' overseas affiliates by region



Source: *Basic Survey of Overseas Business Activities* (Ministry of Economy, Trade and Industry).

Such business expansion to Asia has contributed to an improvement of sales volume and profitability of Japanese-owned companies. The transition of sales volume of overseas affiliated companies shows a decline in the latter half of 2008 due to the effect of the world economic crisis; however, it also shows that sales volume in Asia, which demonstrates a high economic growth rate, has been expanding more rapidly than in the case of any other region. Such sales volume in Asia exceeded that in North America in the third quarter of 2006, making Asia the region generating the largest sales volume (Figure 2-1-3-3).

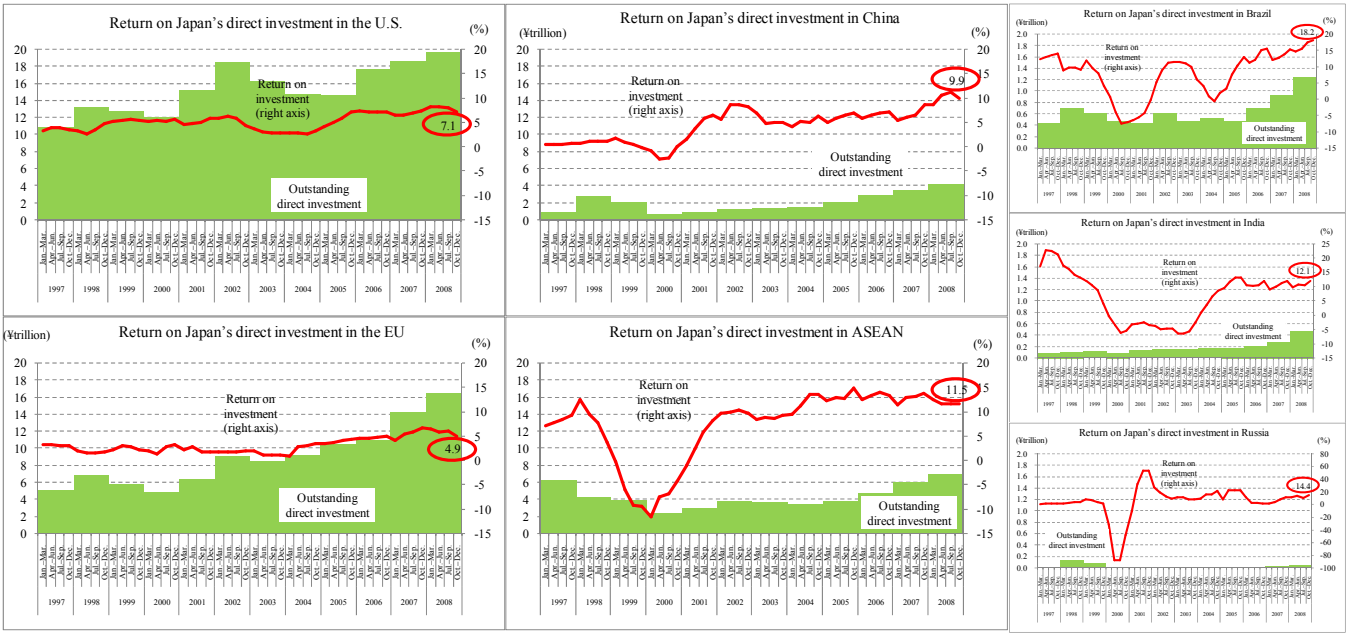
Figure 2-1-3-3 Sales trends of Japanese-owned companies' overseas affiliates by region



Source: *Quarterly Survey of Overseas Subsidiaries* (Ministry of Economy, Trade and Industry).

When viewing the return on investment of Japan's direct investment abroad by region, the rate for Europe and the U.S. remained within the range of 0 to 10%. The rate for China and ASEAN nations largely declined due to the Asian Financial Crisis of the late 1990s but thereafter restored gradually to a level exceeding that for Europe and the U.S. In addition, the return on investment in regard to Brazil, India and Russia has risen to higher levels than that for China and ASEAN nations, due to factors such as their strong currencies (Figure 2-1-3-4), though the amount of direct investment from Japan in these countries has far lower than that in emerging economies such as China and ASEAN countries. The return of investment is Japan's direct investment outstanding in the emerging nations of Brazil, India and Russia has been lower than that in the emerging nations of China and ASEAN nations, and the return on investment in regard to the former is very volatile.

Figure 2-1-3-4 Changes in Japan's direct investment abroad outstanding and return on investment by country or region



Such direct investment pushed up the Japanese income surplus, which has exceeded trade balance surplus since 2005. In 2008, trade balance surplus significantly declined to ¥4.338 trillion, and income surplus was ¥15.8324 trillion, the first downturn in six years, and remained at a level equivalent to that in the previous year.

However, as the production network developed by Japanese-owned companies in Asia had formerly supplied final products for developed countries in Europe and the U.S., it is highly possible that the increase in sales volume and profits generated from such production network is based on the precondition to export the products to Europe and the U.S. In order to expand the destinations of final products so as to include emerging nations and the Asian economic zone in the future, how to utilize the network and to maintain and enhance its profitability is a critical issue.

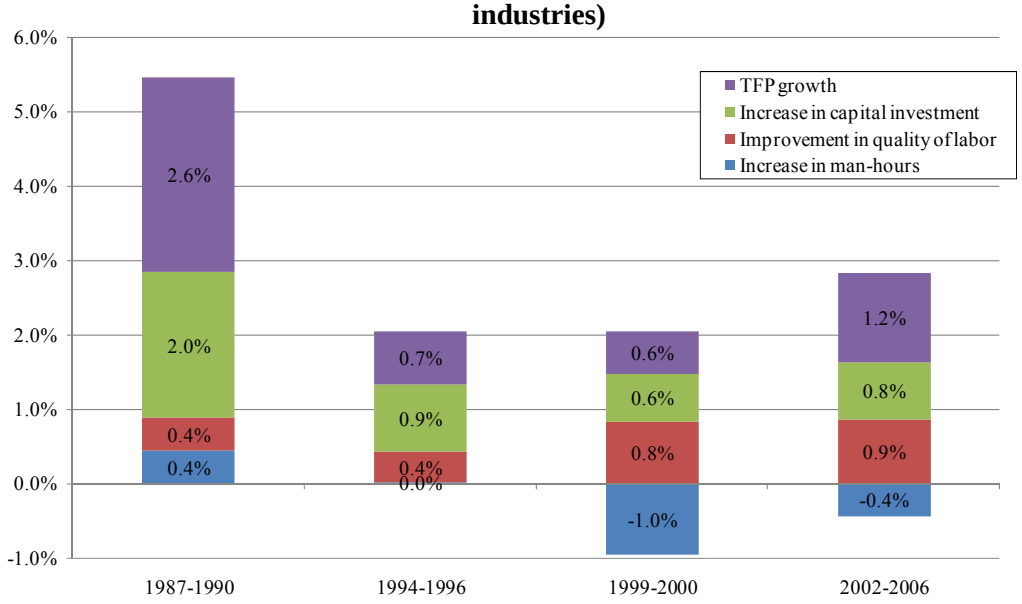
Emerging nations and Asian economic zones are facing problems arising from rapid economic

growth, such as bottlenecks of growth caused by insufficient infrastructure, and environmental deterioration. Efforts to find solutions related to such fields would give rise to big business opportunities for Japanese-owned companies. In addition, given that profit generated from direct investment abroad is returned to companies in Japan, the generation of a virtuous circle of growth would be possible through putting such profit return in capital investment, research and development, employment, etc. Therefore, it is also important to encourage the return of profit generated from direct investment abroad to Japan.

(2) Enhancement of productivity

We decomposed Japanese economic growth in the economic recovery periods to capital investment, labor input (quality enhancement and increase of man hour) and total factor productivity (TFP), for the purpose of studying medium- to long-term growth in the Japanese economy. This decomposition shows that the growth rate of TFP made a substantial contribution, but the contribution of the growth rate of TFP sharply lowered after the 1990s. It increased slightly in 2000, but has remained sluggish at a level lower than that of the 1980s (Figure 2-1-3-5).

Figure 2-1-3-5 Decomposition of Japan's economic growth factors during its recovery (all industries)

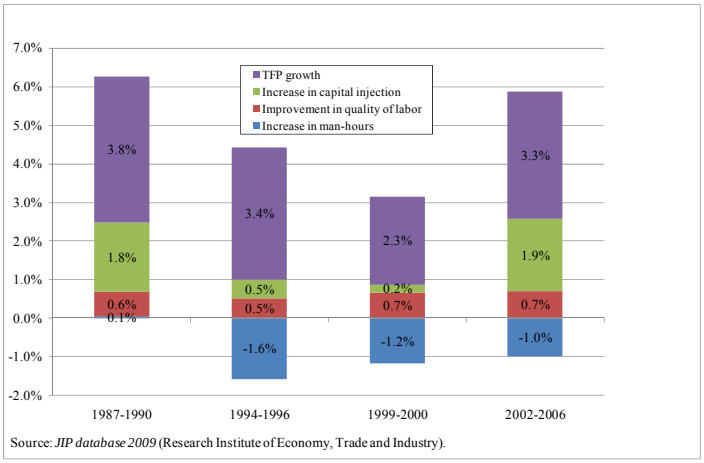


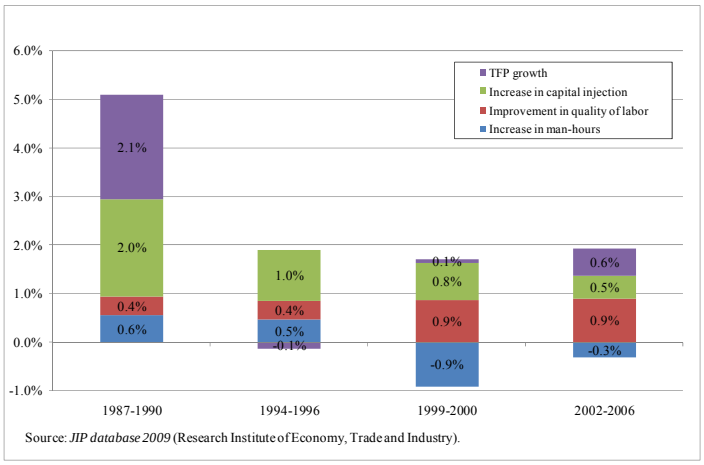
Source: *JIP database 2009* (Research Institute of Economy, Trade and Industry).

Such stagnancy in the TFP growth rate, which means stagnancy in productivity, is conspicuous in the area of non-manufacturing sectors (Figure 2-1-3-6).[11]

[11] *White Paper on International Economy and Trade 2007*, Chapter 3, "4. Productivity growth in Japanese service sector: issues and measures," analyzes the causes of stagnating productivity in service sectors and identifies such causes as insufficiency in IT capital investment and the stagnating TFP growth rate.

Figure 2-1-3-6 Decomposition of Japan's economic growth factors during its recovery (manufacturing and non-manufacturing sectors)





The TFP growth rate itself is a residual of the growth rate of value added, which cannot be attributed to capital investment and labor inputs. A relationship exists between the TFP growth rate, and research and development investment and IT investment. As Japan will face limitations on labor expansion due to its declining population, it is important to pursue an increase in capital investment and an enhancement in the TFP growth rate, through research and development, IT investment, etc.

In addition, in order for the Japanese economy to survive amid globalization, enhancement of productivity is essential. The growth of emerging nations' economies means the growth of their companies and industries. From the beginning of this century, the industries of emerging nations have developed steadily, as seen in the expansion of trade between those nations, and the gradual increase in the proportion of machinery to the export products of those nations.

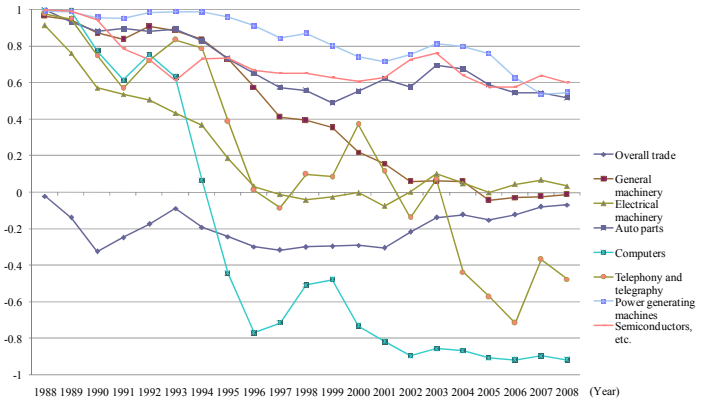
The development of emerging nations' industries would compete with Japanese industries. For example, China, which shows conspicuous economic growth among the emerging nations, began to produce electrical and general machinery and export it to foreign countries in the mid 1990s. As for the relationship between China and Japan, Japan has been expanding imports of electrical machinery and general machinery from China since the mid 1990s, and the imports and exports have almost tied ever since the beginning of this century (Figure 2-1-3-7).[12]

Japan's major export items for the U.S., are also increasingly being replaced by Chinese products as China has gradually expanded its exports to the U.S. (Figure 2-1-3-8).[13]

[12] Analysis of the net export ratio categorized by individual item shows that, in the late 1980s, final products, including computers and communication devices, were unilaterally exported from Japan to China, but that such items exported from China to Japan have now come to surpass those exported from Japan to China. On the other hand, even now, more parts, such as motors, auto parts and electrical parts like semiconductors, are exported from Japan to China than are exported from China to Japan.

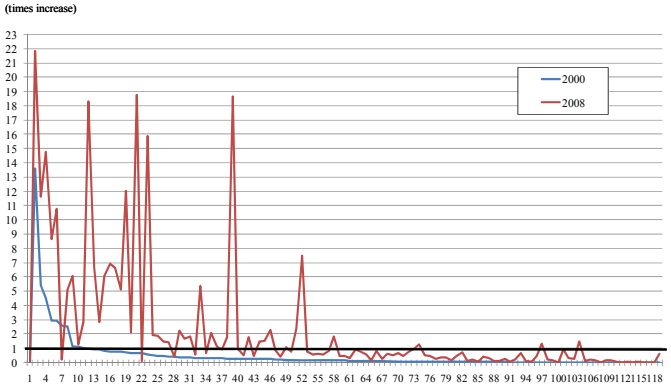
[13] According to a publication by the General Administration of Customs of the People's Republic of China, 55.4% of exports from China in 2008 were exported by foreign-owned companies in China. Therefore, it is possible that the data on some items may actually be due to Japanese-owned companies doing business in China exporting such items from China, instead of from Japan. However, not all foreign-owned companies in China are Japanese-owned companies, and Japanese-owned companies in China do not always transfer to Japan all profits generated in China. Therefore, it can be said that the tendency for exports from Japan to

Figure 2-1-3-7 Changes in Japan's trade specialization coefficient with China by type of product



Notes: Trade specialization coefficient = (Exports − imports) / (exports + imports)
Source: *Trade Statistics* (Ministry of Finance).

Figure 2-1-3-8 Ratio of U.S. imports from China relative to the same products among major U.S. imports from Japan

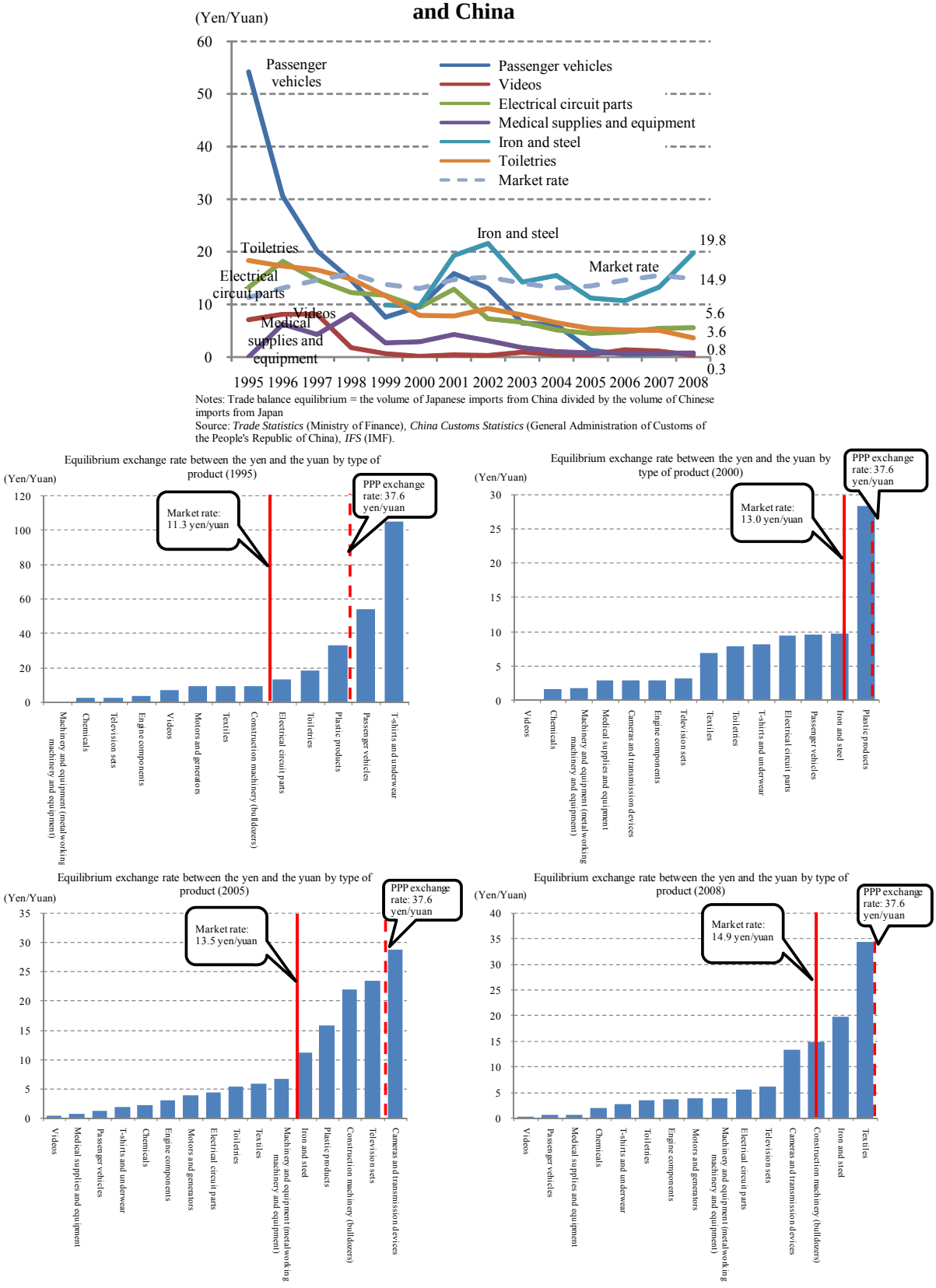


Notes: The 119 products account for 90.1% of U.S. imports from Japan in 2008.
Source: *Trade Statistics* (Ministry of Finance).

Furthermore, when calculating the trade balance equilibrium exchange rate between Japan and China as categorized by product item, and looking at the transition thereof, the trade balance equilibrium exchange rate has increased in regard to many items, connoting enhancement in competitiveness of products manufactured in China (Figure 2-1-3-9).

be replaced by exports from China has contributed to a decline in the sales amount of Japanese products.

Figure 2-1-3-9 Changes in the trade balance equilibrium of major trade products between Japan and China



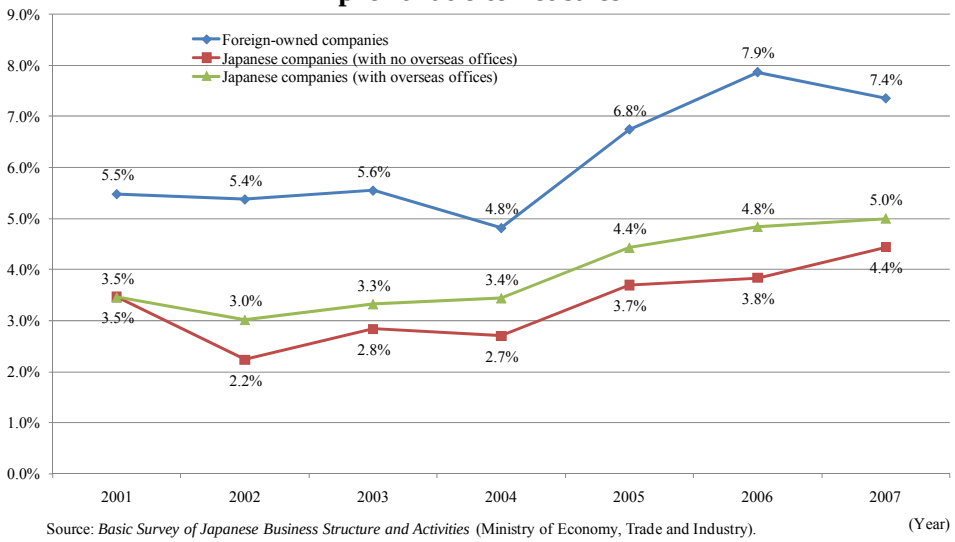
Notes: Trade balance equilibrium = the volume of Japanese imports from China divided by the volume of Chinese imports from Japan
Source: *Trade Statistics* (Ministry of Finance), *China Customs Statistics* (General Administration of Customs of the People's Republic of China), *IFS* (IMF).

Notes: The statistics cover the top 50 trade products (in terms of the value of trade) between Japan and China for which numerical data is available. The PPP exchange rate is based on 2005 figures.
Source: *Trade Statistics* (Ministry of Finance), *China Customs Statistics* (General Administration of Customs of the People's Republic of China), *IFS* (IMF), *ICP* (World Bank).

If emerging nations' industries continue to grow, domestic industries, especially labor-intensive industries, would relatively lose competitiveness. Enhancement of productivity would be a particularly important issue for those domestic industries. However, if it is difficult for them to enhance their productivity, withdrawal from business or conversion of business to different fields (and therefore the promotion of employees' switching jobs to different fields) would be critical issues.

In addition, the promotion of inward direct investment is a key factor for discussing the enhancement of productivity of Japanese industries. Foreign companies launching businesses in Japan, on average, are superior to Japanese-owned companies in terms of profitability. As it is necessary for a company to make a certain initial investment if it is to expand business overseas, substantial profitability is required as a precondition. Foreign-owned companies doing business in Japan are also superior in terms of current profit ratio to net sales, compared to Japanese-owned companies doing business overseas, which are regarded as being as profitable as such foreign-owned companies. It is expected that foreign-owned companies' business expansion in Japan would contribute to the enhancement of productivity of Japanese-owned companies (Figure 2-1-3-10).

Figure 2-1-3-10 Changes in foreign-owned companies' and Japanese-owned companies' current profit ratio to net sales



Source: *Basic Survey of Japanese Business Structure and Activities* (Ministry of Economy, Trade and Industry).

(3) Domestic demand

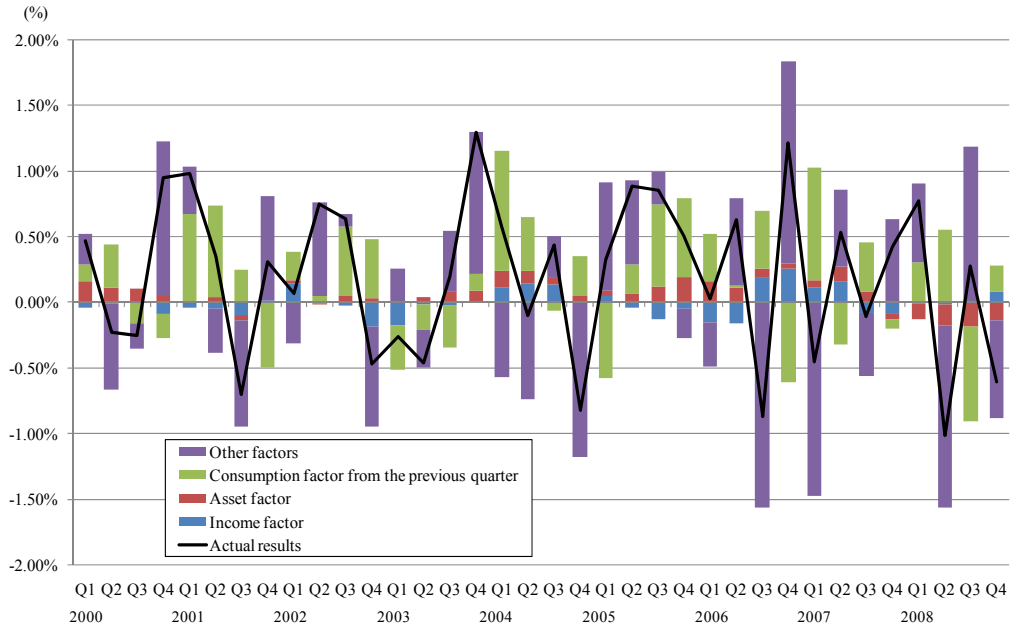
The increase in the influence of exports on the Japanese economy means a decline in the influence of domestic demand.

Since the 1990s, the expansion of domestic demand had been promoted in Japan, however, it was difficult to implement. In particular, as previously mentioned, private final consumption, which constitutes approximately 60% of demand in Japan, stayed sluggish during the most recent economic recovery period.

As the background, income, which is an influential factor on consumption growth, stagnated and therefore produced a negative effect. Based on the consumption function of Japan, estimated by setting real household income and real net financial assets as explanatory variables, changes in income since

2000 have not been sufficient to affect consumption (Figure 2-1-3-11).[14]

Figure 2-1-3-11 Decomposition of factors affecting real consumption



Source: Ministry of Economy, Trade and Industry.

In the economic recovery period after 2002, income had remained almost unchanged. For example, based on the aggregate amount of cash salaries stated in "Monthly Labour Survey," published by the Ministry of Health, Labour and Welfare, salaries decreased in 2003 and 2004, which were the initial stages of economic recovery, then turned upward in 2005 and 2006, and took a downward turn again in 2007 (Figure 2-1-3-12). A comparison of such transition with the case of the economic recovery period in the late 1980s shows a striking difference.

[14] The period for estimation of the consumption function was from the first quarter of 1983 to the fourth quarter of 2008. The explained variable was a real final consumption of households (excluding imputed rent for owner-occupied dwellings). The explanatory variables were real household income (Salary income of workers' households (excluding farming households) as shown in "Family Income and Expenditure Survey" published by the Ministry of International Affairs and Communications, deflated by the final consumption of households), real household financial assets (difference between financial assets and liabilities of households as shown in "Flow of Funds," published by the Bank of Japan, deflated by the final consumption of households), and real final consumption of households for the previous quarter. All of these had been logarithmized.

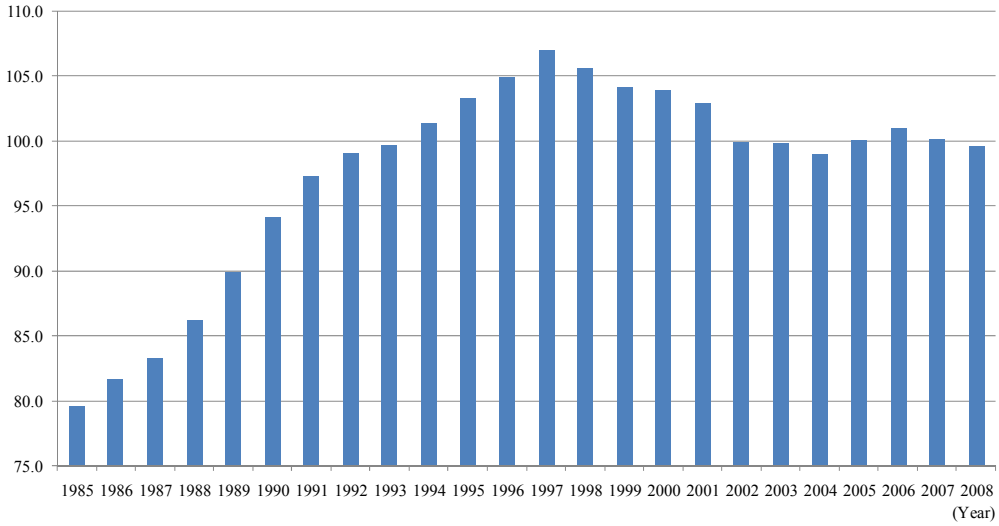
The estimation results were as follows:

	Coefficient	Standard deviation	t value
Real income by household	0.186145	0.0650392	2.86
Real household financial assets	0.07469	0.0198528	3.76
Real household consumption (-1)	0.707327	0.072924	9.7
Constant term	-0.02702	0.3953961	-0.07

Adjusted coefficient of determination = 0.9952; the Breush=Godfrey Test showed Prob > F = 0.9292, and the Durbin Alternative test showed Prob > F = 0.9315, and the null hypothesis on the lack of serial correlation was sustained.

Figure 2-1-3-12 Total cash earnings in establishments with 30 or more employees

(2005 = 100; full-time and part-time workers)



Source: *Monthly Labour Survey* (Ministry of Health, Labour and Welfare).

One of the factors leading to a sluggish income increase may be an influx of inexpensive products from Asian nations, including China, in larger quantities than in the past, which served as a factor putting pressure on corporate profit. For verification of such argument, the labor demand function categorized by business sector was estimated and the significance of the import price index was examined, based on which the statistical significance of correlation between the decline in prices of import products and the decrease in the number of workers was confirmed in the general machinery, transportation equipment and chemicals sectors (Table 2-1-3-13).

Table 2-1-3-13 Labor demand functions by business sectors in the manufacturing sector, estimated from panel data

Explained variable: Number of employees at companies

Explanatory variable	General machinery	Electrical machinery	Transportation equipment	Precision machinery	Chemicals	Iron and steel	Metal	Others
Number of employees in the previous quarter	0.0942	0.0121	0.0450	-0.1137	0.0091	0.0717	-0.0877	-0.1228
	0.0284	0.0437	0.0422	0.0655	0.0319	0.0471	0.0313	0.0275
Number of employees in the quarter before the previous quarter	0.0715	0.0379	0.0668	0.0420	0.0490	0.0349	0.0625	0.0109
	0.0168	0.0215	0.0247	0.0332	0.0166	0.0239	0.0221	0.0109
Wages per employee	-0.0877	-0.1517	-0.1642	-0.0862	-0.0975	-0.0762	-0.0911	-0.0908
	0.0144	0.0218	0.0253	0.0224	0.0124	0.0170	0.0167	0.0161
Non-labor costs	0.5155	-0.0534	-2.0682	-0.0313	-0.0447	0.2184	0.0684	0.0534
	0.1415	0.2170	0.3633	0.5246	0.0232	0.0354	0.0457	0.0517
Import prices	0.1642	0.0052	0.8334	-0.0206	0.0652	0.0710	-0.0170	-0.0854
	0.0330	0.0513	0.2267	0.1252	0.0196	0.0256	0.0348	0.0296
Observed value	3084	2847	2223	648	3827	823	2443	7997
Sargan Test	65.5604	8.1737	89.3195	15.7487	10.5428	9.3226	14.4975	55.6265
	[0.00]	[0.42]	[0.00]	[0.05]	[0.23]	[0.32]	[0.07]	[0.00]
Arellano-Bond test (first-order autocorrelation of the error term)	-1.552	-1.7134	0.5233	-2.9165	-1.913	-2.1176	-0.9685	-0.0318
	[0.12]	[0.09]	[0.60]	[0.00]	[0.06]	[0.03]	[0.33]	[0.97]
Arellano-Bond test (second-order autocorrelation of the error term)	-0.4924	1.498	-1.4913	1.3675	1.7066	-0.3093	-0.7509	0.5274
	[0.62]	[0.13]	[0.14]	[0.17]	[0.088]	[0.75]	[0.45]	[0.60]

Notes:
1. Figures are estimates based on the difference-GMM estimator.
2. Constant terms are omitted.
3. The sources of data are as follows.
Non-labor costs: *Input-Output Price Index of the Manufacturing Industry by Sector* (Bank of Japan)
Import prices: *Corporate Goods Price Index* (Bank of Japan)
Others: Panel data from 2002 to 2007 for the manufacturing sector, obtained from *the Basic Survey of Japanese Business Structure and Activities* (Ministry of Economy, Trade and Industry).
4. Larger figures are estimated coefficients, and smaller figures are standard deviations. Underlined figures are statistically superior estimated coefficients.
5. Figures in parentheses are p-value.
6. See Supplementary Note 2-1 for the outline of the estimation method. For further details, refer to Import Competition and Manufacturing Employment, authored by Sasaki and published in 2006.

As for other business sectors, a significant relationship between labor demand and the prices of import products has not been found. However, given that the economies of emerging nations and Asia are likely to grow further and imports of relatively inexpensive industrial products will most probably increase further, the impact on domestic employment may expand.

In order for Japanese industries to survive such international competition, continue to create job opportunities, and to stimulate domestic demand, it is necessary for each industry to strive to enhance labor productivity and shift production factors from an industry not making progress in competitiveness to an industry with competitiveness.

However, in fact, such adjustment among industries has not been smoothly implemented so far. Acceleration in adjustment among industries is supposed to equalize productivities and salaries among different sectors of business; however, a comparison of marginal productivity of Japanese industries categorized by type of business shows a widening gap of the industry in the marginal productivity among the manufacturing industry and the wholesale/retail industry and service sector (Figure 2-1-3-14).[15]

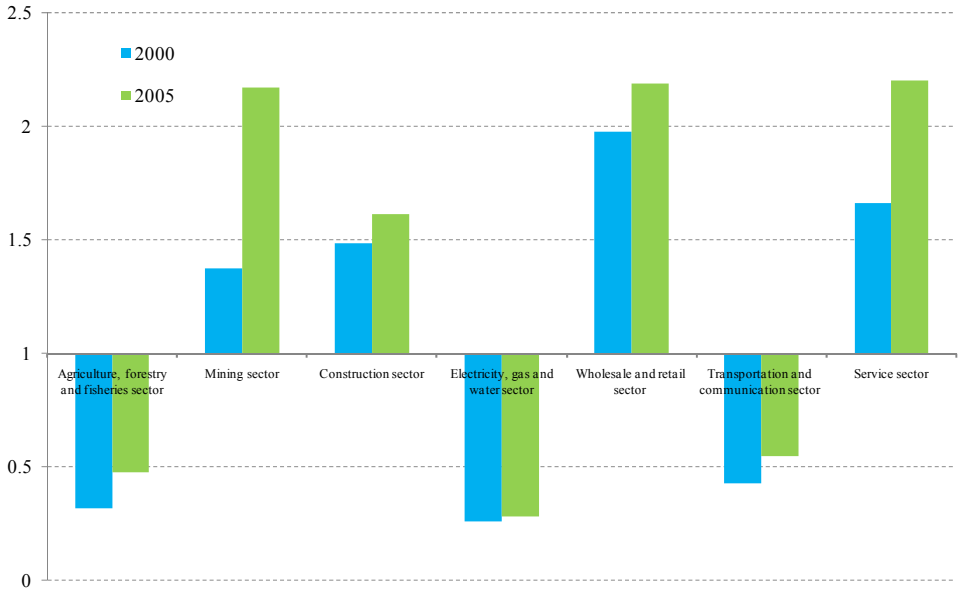
[15] Suppose the production function of sector i is a homogenous function of the first degree, wherein the production elements are capital and labor. In such a case, with regard to sector i, if wages is w_i, return on capital is r_i, labor share is α_i, and the capital equipment ratio is k_i, the following formula can be derived:

$w_i/r_i = \alpha_i/(1-\alpha_i) \cdot k_i$

With regard to the right-hand side of the equation, capital share and the capital equipment ratio were calculated by each sector, and the manufacturer was indicated as 1.

Under perfect competition, given that production factors are transferred smoothly among sectors, and that wages and return on capital are equalized, the figures on the right-hand side will be the same. However, given that production factors are imperfectly transferred, there would be divergence among sectors. For

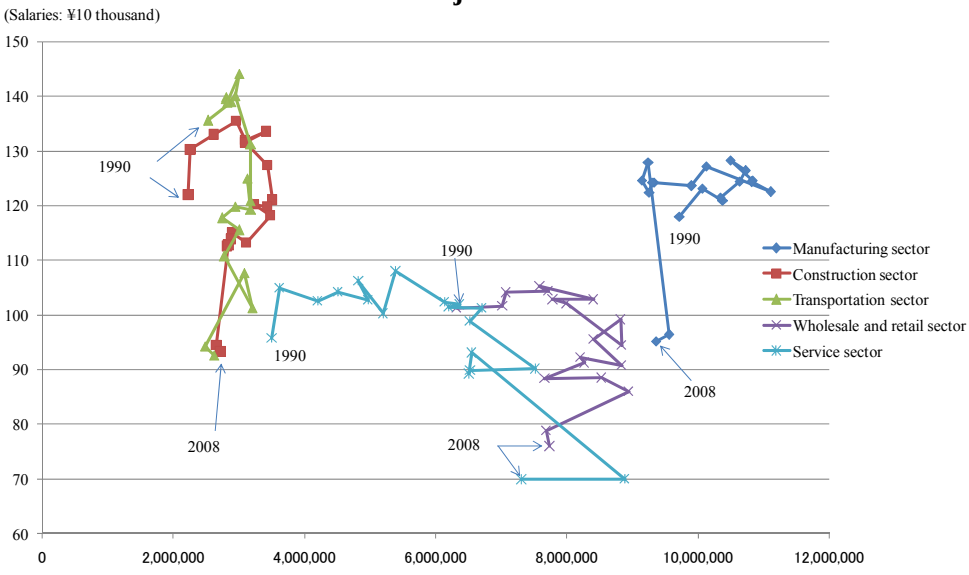
Figure 2-1-3-14 Gaps in marginal productivity among sectors



Source: *Financial Statements Statistics of Corporations by Industry* (Ministry of Finance), *Labour Force Survey* (Ministry of Internal Affairs and Communications), *JIP database 2009* (Research Institute of Economy, Trade and Industry).

In addition, based on the transition in the number of employees and the amount of salaries for major industries after 1990, industries with low salary levels, such as the service and wholesale/retail industries, expanded employment until the mid 2000s, but industries with high salary levels such as the manufacturing and, construction industries, have maintained or downsized employment. Such facts show failure in the progress of wage equalization (Figure 2-1-3-15).

Figure 2-1-3-15 Changes in the number of employees and the amount of salaries per employee for major industries

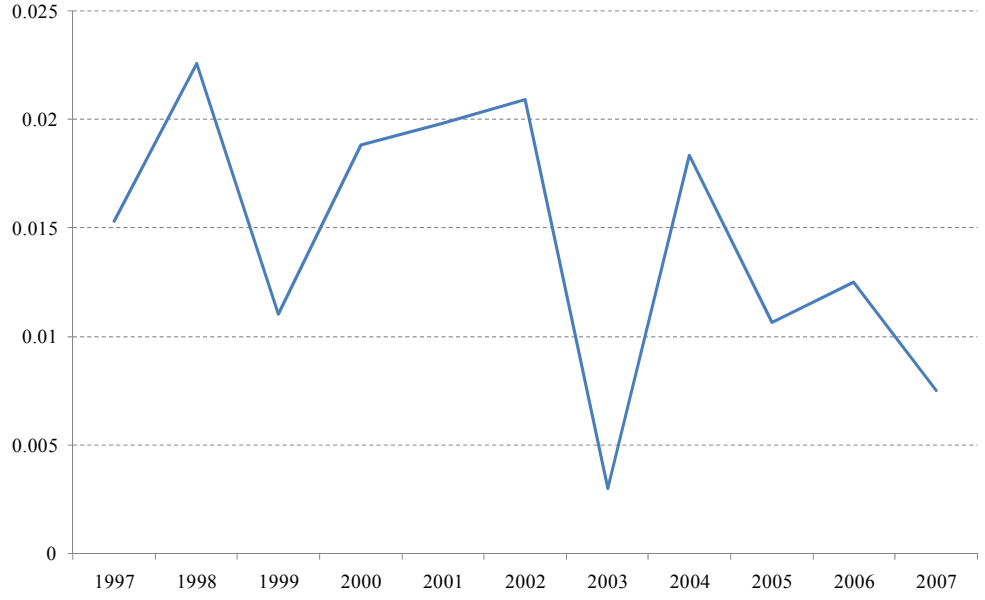


Notes: Figures at the end of the fourth quarter from 1990 to 2008.
Source: *Financial Statements Statistics of Corporations by Industry, Quarterly* (Ministry of Finance) (Number of employees)

further details, see Otani, S., S. Shiratsuka and M. Nakakuki (2004), *SEISAN YOSO SHIJO NO YUGAMITO KOKUNAI KEIZAI CHOSEI*.

Labor mobility among industries has become less active. Looking at the transition in Lilien index, which shows liquidity in labor mobility among industries, such index has been declining since 2004, albeit with some fluctuations, and the adherence of labor mobility has been strengthened (Figure 2-1-3-16).[16]

Figure 2-1-3-16 Lilien index for labor mobility



Source: *System of National Accounts* (Cabinet Office).

Based on the aforementioned analysis, in Japan, the shifting of production elements among industries has not been smoothly advanced, and it may not be easy to increase wages through the shifting of production elements among industries. Therefore, it is extremely important for Japan to establish an environment that enables enhancement of efficiency in the labor market and capital market.

Since September 2008, the employment of temporary workers has become a prominent issue. As pointed out in the *White Paper on International Economy and Trade 2008*, the background to this issue was that industries with low productivity had remained. From the beginning of this century, companies engaged in business sectors with low productivity have tended to cut wages per worker and

[16] The Lilien index is an index that presents a divergence of change in labor inputs in individual sectors and change in the number of labor inputs of a nation as a whole, and adds the number of workers per industry as a weight. Given that L denotes the number of workers of a nation as a whole, Li represents the number of workers in industry i, and Si represents the share of the number of employees of industry i, the Lilien Index βi would be indicated as follows:

$$\beta i = [\sum_{i} Si\ (\Delta Li/Li - \Delta L/L)^2]^{1/2}$$

For further details, see Miyagawa (2003), "'USHINAWARETA JUNEN' TO SANGYO KOZO NO TENKAN – NAZE ATARASHII SEICHO SANGYO GA UMARENAINOKA"; and Otani, S., S. Shiratsuka and M. Nakakuki (2004), "SEISAN YOSO SHIJO NO YUGAMITO KOKUNAI KEIZAI CHOSEI."

to increase workers receiving a lower wage, such as temporary workers.[17] Quite a few companies fell into vicious cycles, wherein insufficient human capital investment cools down productivity of such companies and thereby such companies are compelled to cut wages further. This issue also essentially calls for adjustment of production factors among industries over the medium to long term.

In addition, in order to stimulate domestic demand, it would also be effective to newly provide attractive products and services. In this sense, it is important to pursue innovation, and to strive to enhance productivity as a result of such innovation.

[17] See METI (2008), *White Paper on International Economy and Trade 2008*, Chapter II, Section 4, 1. "Necessity of structural adjustment in Japan for the effective use of domestic management resources"