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Effects of China's Auto/Home Appliance Subsidies on Production in Japan

Two perspectives of production in Japan and by Japanese companies

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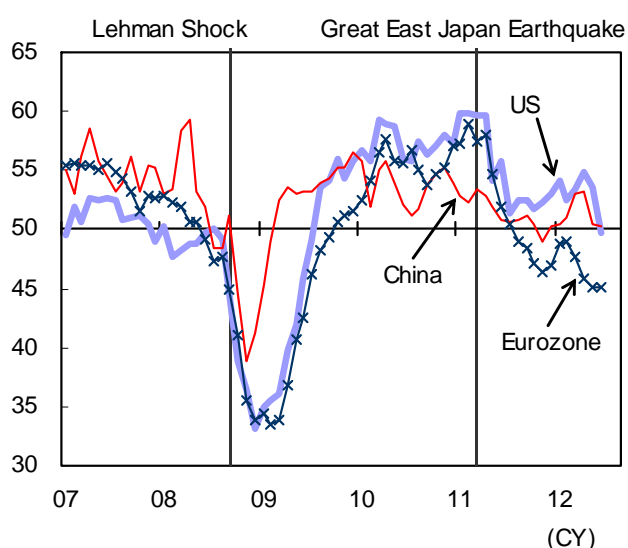
Summary

- The slowdown in the global economy has impacted Japan's economy through stagnation in Japan's exports and industrial shipments for export, raising concerns over production in Japan, which had recently traced a moderate recovery supported by domestic demand. China introduced a subsidy package in May that raises hopes for a positive impact on production in Japan through increases in exports.
- We have estimated the effects of subsidies in China on production in Japan based on *Japan-China Input-output Tables* (METI) and came to two conclusions: (1) the subsidies will have a small impact on production in Japan, and (2) the impact is insufficient to change the course of Japan's exports to China, which have been on a downtrend. We also found that compared to subsidy programs in China, public works measures there will have a larger impact on production in Japan.
- While subsidies in China will have only a limited impact on production in Japan, they should be beneficial for Japanese companies with production bases in China. With regard to the automobile industry, although the ratio of overseas production has risen, the industry maintains global competitiveness. Thus, the shift to production abroad does not currently mean a "bad" hollowing out for the industry.

Slowdown in Global Economy Hampering Japan's Economy

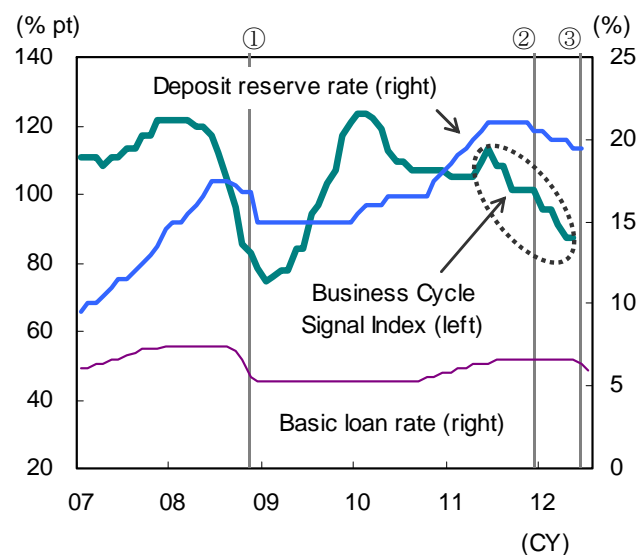
In the wake of the European sovereign debt problem, international trade dwindled and the global economy began to decelerate. Now, the deceleration of the global economy has intensified. For example, after improving through April 2012, reflecting large-scale monetary easing worldwide, manufacturing PMIs began to deteriorate for China and the US, reflecting the deepening of the European problem following the Greek general election in May, as well as the housing market slump in China and the US (Chart 1.1). At the same time, China's Business Cycle Signal Index indicates the nation's economy has been on a downtrend (Chart 1.2). The slowdown in the global economy has hampered Japan's economy through stagnation in Japan's exports and industrial shipments for export (Chart 2), raising concerns over production in Japan, which had traced a moderate recovery supported by domestic demand.

Manufacturing PMI in Major Economies (%)
Chart 1.1



Source: US Institute for Supply Management, National Association of Purchasing Management in China, Bloomberg; compiled by DIR.

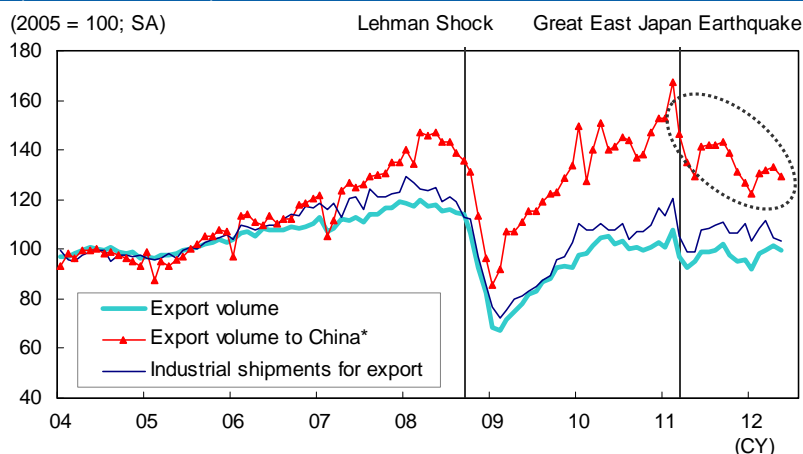
China: Business Cycle Signal Index
Chart 1.2



Source: National Bureau of Statistics of China, People's Bank of China, CEIC Data, Bloomberg; compiled by DIR.

Note: Figures in circles indicate: (1) announcement of large-scale stimulus package of CNY4 tril; (2) series moves to lower deposit reserve rate; (3) series of loan rate cuts.

Japan's Exports and Industrial Shipments for Export
(2005 = 100; SA) Chart 2



Source: Ministry of Finance; compiled by DIR.
* SA by DIR.

Growing Hopes for China's Stimulus Packages

In terms of international trade structure, the cause of stagnation in the global economy was the European sovereign debt problem, which will continue to be the highest risk for Japan's economy. In the meantime, China began to shift its monetary and fiscal stance to a stimulus strategy, while Japan's exports to China have declined in line with the slide in China's Business Cycle Signal Index. As China's large-scale fiscal package played a significant role in the global economy breaking out of the global recession in the wake of Lehman Shock, the impact of stimulus measures in China has been attracting global attention.

In relation to the European crisis, the People's Bank of China announced a cut in the deposit reserve rate in November 2011 when the manufacturing PMI dipped below 50 (breakeven point of economic conditions). The reserve rate was lowered in December. When concerns over the economic downturn in China intensified after the deepening of the European crisis in May 2012, the Chinese central bank lowered the policy interest rate for the first time in three and a half years in June, and lowered it again in July. In May, the government introduced fiscal measures to spur consumption, including subsidies for energy-saving home electrical appliances (CNY26.5 bil) and those for small-size cars (CNY6 bil). While the scale of the May 2012 package is small compared to that introduced in the wake of the Lehman Shock, it will be effective for only one year and is expected to boost consumption in China for a short period. At the same time, hopes are rising that the package will have a positive impact on production in Japan through increased exports from Japan.

Effects of China's Auto/home Appliance Subsidies on Production in Japan

Under the background stated above, we have estimated the effects of auto/home appliance subsidies in China on production in Japan based on *2007 Japan-China Input-output Tables* (released Mar 2012 by Ministry of Economy, Trade, and Industry). We came to two conclusions: (1) the subsidies will have a small impact on production in Japan, and (2) the impact is insufficient to change the course of Japan's exports to China, which have been on downtrend.

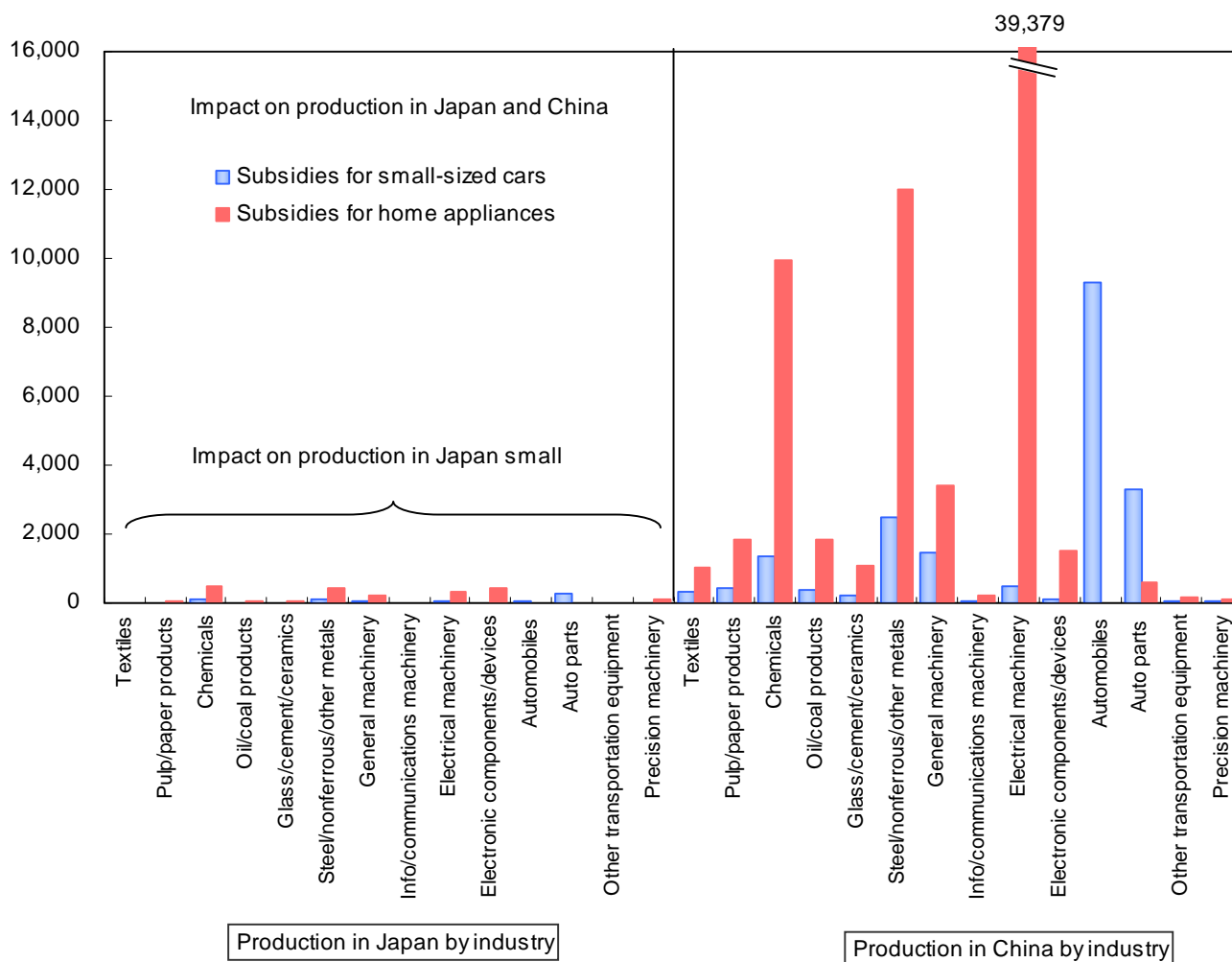
In this report, we have estimated the impact as follows. First, assuming the ratio of subsidies to consumption spending to be around 10%, subsidies of CNY26.5 billion for energy-saving household electrical appliances will boost spending on home appliances by CNY265 billion in China, and subsidies of CNY6 billion for small-size cars will pump-prime spending on automobiles by CNY60 billion. Then, based on METI's *2007 Japan-China Input-output Tables*, we estimated the effect on production in Japan and China of increases in spending on household appliances and automobiles in China¹.

Chart 3 shows increases in production in Japan and China accompanied by subsidies for home appliances and small-size cars in China. As shown in the chart, the effect of the subsidies on production in Japan is small—production will see limited increases for industries such as chemicals, steel/nonferrous/other metals, electrical machinery, electronic devices/components, and auto parts. In the case of China, while production will increase for similar industries as those in Japan, the degree of increase is substantial. Under this background, however, it should be noted that production of the electronic device/component industry in China is significantly smaller than other industries, which is different from Japan. Behind this is the trading pattern of China, where electronic devices/components and other intermediate goods are imported, then assembled, and final goods are exported to the US, Europe, and other regions.

1. It should be noted that the estimation result allows some degree of latitude as (1) the latest input-output tables are based on 2007 figures and do not reflect structural changes thereafter, (2) our assumption of the ratio of subsidies to consumption spending is based on a loose definition, and (3) increases in spending include spending not induced by subsidies.

The estimation result is not promising for Japan's economy. However, the green-car subsidies in Japan re-introduced end-2011 only benefitted production in Japan and did little to push up production abroad. Thus, we should not expect much in the way of benefits of subsidy programs introduced in other nations. In other words, subsidies in China are unlikely to boost production in Japan or push up industrial shipments to China. Thus, the impact of the subsidies will be insufficient to change the course of Japan's exports to China, which have stagnated due to the slowdown in China's economy.

Impact of Subsidies in China on Production in China and Japan (Increase in production; ¥100 mil) **Chart 3**



Source: Ministry of Economy, Trade, and Industry, 2007 Japan-China Input-output Tables; compiled by DIR.

Assumptions: 1) Assuming ratio of subsidies to consumption spending around 10%, subsidies of CNY26.5 bil for energy-saving household appliances will boost spending on them by CNY265 bil in China, and those of CNY6 bil for small-size cars will pump-prime spending on automobiles by CNY60 bil; increases in spending include spending not induced by subsidies.
 2) Currency rate to be JPY12.5/CNY.

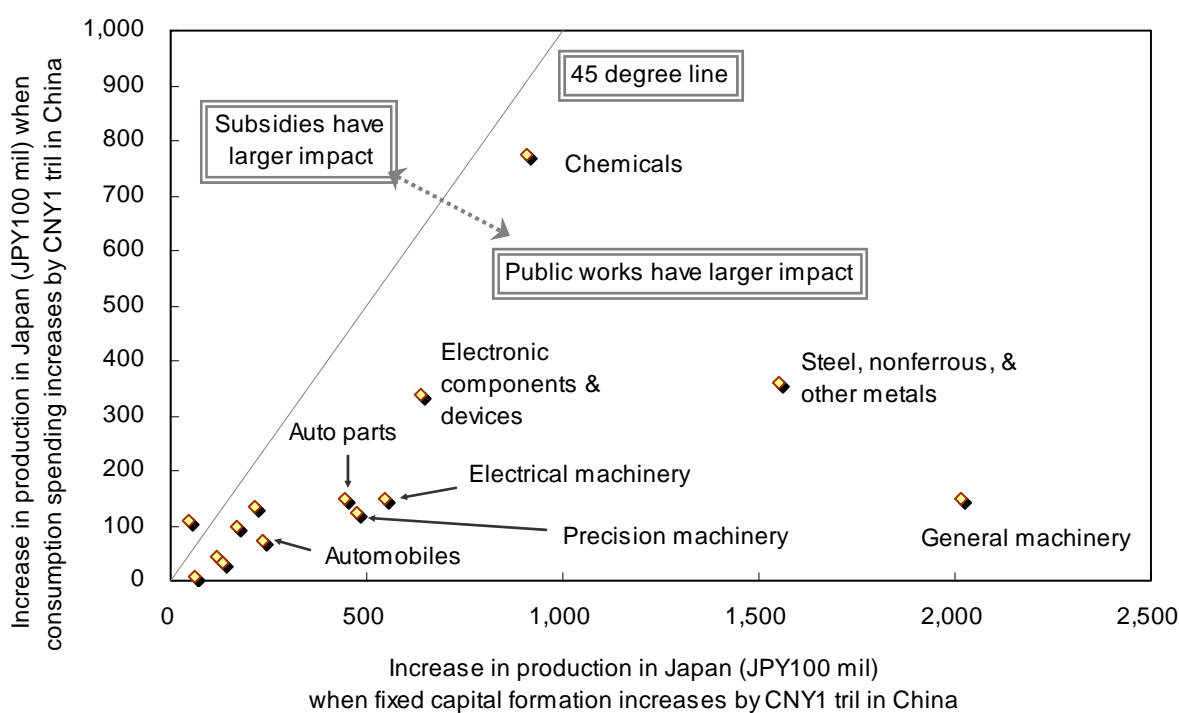
Impact on Production in Japan of China's Policy Measures: Subsidies vs. Public Works

The market will watch whether the Chinese government will introduce a large-scale public works package following the May subsidy program. China's Business Cycle Signal Index declined almost to the level seen in November 2008, when the government announced a large-scale public works program. If the European situation deteriorates and China's economy decelerates further, the Chinese government would have no other choice than to introduce additional stimulus measures, besides the May subsidy program. As such, we have analyzed the impact of public works projects in China on

production in Japan compared to that of subsidy measures in terms of production inducement coefficients. Specifically, we have estimated the coefficients of (a) fixed capital formation in China² and (b) consumption spending in China for production in Japan by industry based on *Japan-China Input-output Tables*.

Chart 4 shows the increase in production in Japan by industry when (a) fixed capital formation in China and (b) consumption spending in China respectively increase by CNY1 trillion. The chart indicates that (1) increases in the fixed capital formation will push up production for general machinery, steel/nonferrous/other metals, and chemicals in Japan, and (2) almost all industries are plotted below the 45 degree line³. The former indicates that fixed capital formation will increase demand for construction machinery and materials in China, pushing up exports of these goods from Japan, which will in turn increase production in Japan for these industries. The latter indicates that compared to subsidy programs in China, public works measures there will have larger impact on production in Japan.

Impact on Production in Japan of China's Policy Measures: Subsidies vs. Public Works Chart 4



Source: Ministry of Economy, Trade, and Industry, 2007 *Japan-China Input-output Tables*; compiled by DIR.
Assumption: Currency rate being JPY12.5/CNY.

The 12th Five-year Plan for National Economic and Social Development (2011-15) made it clear that China will shift the economic driver from public works spending/exports to consumer spending. The government has been quick to introduce subsidies for autos/home appliances when the economy began

2. Fixed capital formation includes public works spending, capex, and housing investment.

3. As indicated by the increased presence of Chinese general machinery makers and steel mills in China compared to 2007 (base year for latest *Japan-China input-output tables*), our estimation for production in Japan of goods placed under fierce competition with China should be discounted to some extent.

to decelerate, a move consistent with the five-year plan⁴. We believe that shifting the driver to consumption would be critical for China's economy to sustain growth. However, as discussed above, in terms of effects on production in Japan, China's stimulus measures, centering on public works, are favorable compared to those spurring consumption. Indeed, behind ongoing stagnation in Japan's exports of construction machinery and iron/steel to China is restrained growth in public works spending in China. While we believe public works projects will increase over the long term, centering on inland areas where infrastructure development is slow, we will monitor whether public works spending increases substantially over the short term, supported by another stimulus package, as well as easing of monetary policy.

Production in Japan and by Japanese Companies

As discussed above, subsidy programs in China will have a limited impact on production in Japan. However, in terms of production by Japanese companies, the degree of impact such programs will have will be different from that on production in Japan. Production by Japanese companies means production both in Japan and abroad. Production in Japan roughly corresponds to corporate performance on a parent basis, or GDP, an indicator showing domestic economic activity. Production in both Japan and abroad by Japanese companies corresponds to corporate performance on a consolidated basis, an indicator to measure corporate performance. While the difference between production in Japan and that by Japanese companies was not large when weightings of domestic production were high for Japanese manufacturers, it began to diverge when Japanese companies actively pursued production abroad in line with economic globalization. Therefore, if subsidies in China have only a limited impact on production in Japan, they would be beneficial for Japanese companies that have production bases in China.

We have reviewed the situation surrounding domestic and overseas production for the automobile industry. Chart 5.1 shows the ratio of production abroad for automobiles in terms of number of units. The number domestically made cars peaked in 1990 and has since dwindled. In contrast, those made abroad continued to increase, hitting a high in 2011. As such, the overseas production ratio continued to increase, surpassing 50% in 2007 for the first time. In terms of production abroad by region, it is worth noting that production in Asia (excl. Japan) has rapidly increased since 2000 and that in Latin America has increased steadily, posting a record high in 2011 (Chart 5.2). Meanwhile, Japanese automakers have joined the Chinese market through joint companies with Chinese automakers. Japanese-affiliated companies will also benefit from auto subsidies in China, pushing up their production in China.

4. In contrast to the current situation, in the wake of the Lehman Shock, China introduced measures related to (1) exports, (2) public works, and (3) consumption, in this order. First, when the yuan started to appreciate sharply on the heels of the US subprime loan problem, adversely impacting export industries, China curbed the appreciation by virtually returning to a dollar-peg system in Jul 2008. China then announced a stimulus package of CNY4 tril, centering on public works spending, in Nov 2008. Finally, the government introduced the home appliance subsidy program in rural areas in Feb 2009, then a series of auto and home appliance subsidy packages.

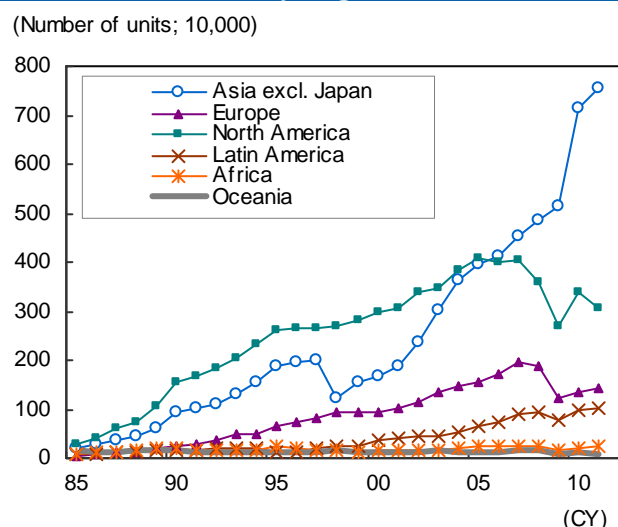
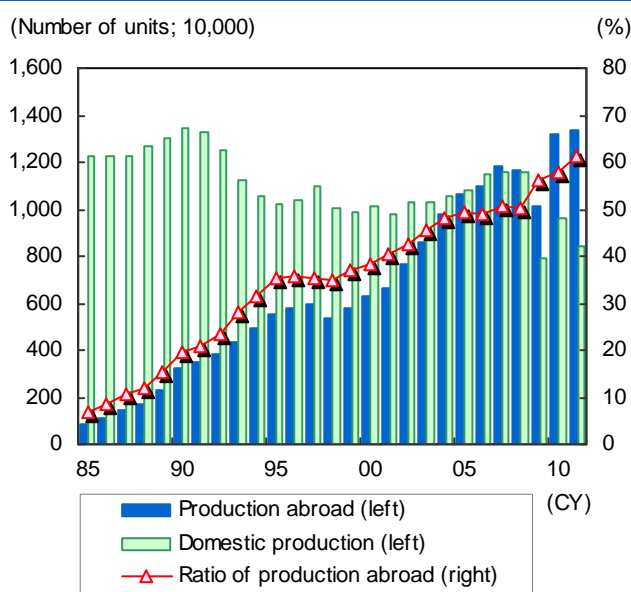
Trend of Production Abroad by Japanese Automakers

Ratio of Production Abroad

Chart 5.1

Production Abroad by Region

Chart 5.2



Source: Japan Automobile Manufacturers Association.

Note: Excl. motorcycles.

Global Competitiveness

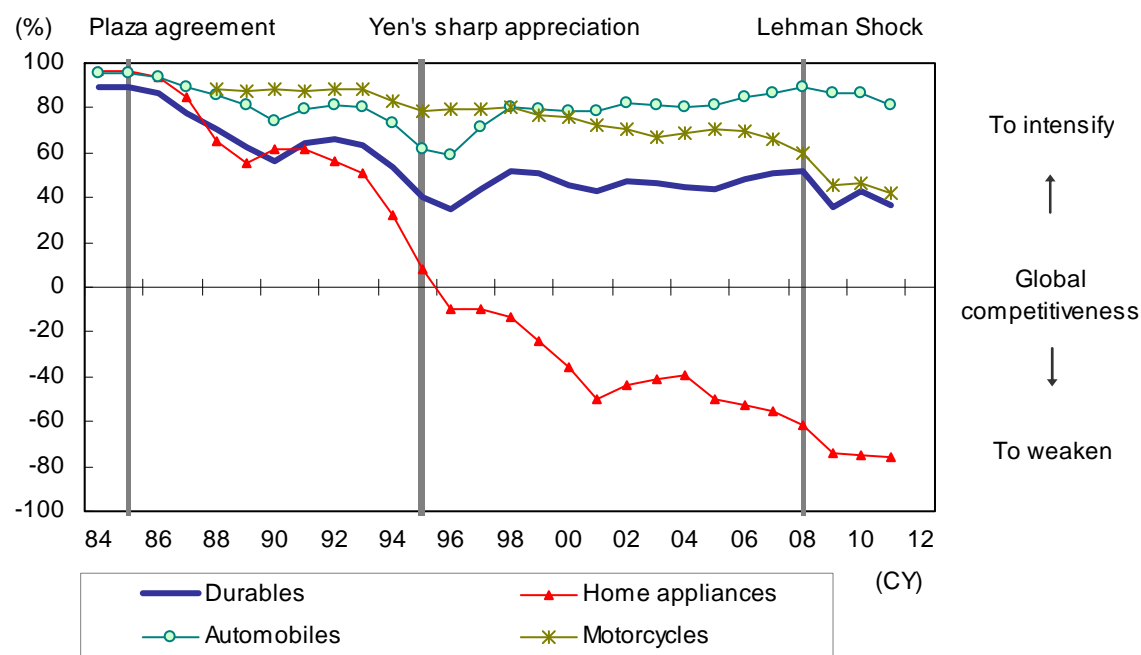
How should we interpret the situation where the shift to production abroad has depressed production in Japan, while production by Japanese companies has increased? In other words, how should we understand the situation where subsidies in China will barely affect production in Japan but will boost production by Japanese companies? We have analyzed this situation in terms of global competitiveness, which is shown as trade specialization coefficients by durable goods (Chart 6)⁵.

In the chart, the trade specialization coefficient for the home electronic appliance industry has been on a downtrend over the long term, turning to a negative figure in 1996 after yen's sharp appreciation in 1995. This means that global competitiveness has slackened. At the same time, the ratio of overseas production has risen. Thus, the situation surrounding the industry is unfavorable in terms of production in Japan and that by Japanese companies. In contrast, although the ratio of overseas production has risen for the automobile industry, the industry maintains global competitiveness as shown by the high level of the coefficient. Thus, the shift to production abroad does not currently mean a "bad" hollowing out for the industry. However, it should be noted that the coefficient for motorcycles, which was higher than that for automobiles in the 1990s, began to decline in the 2000s. Given that automakers have launched plans for reducing production lines in Japan and that imports of foreign-made Japanese cars to Japan have risen gradually, the coefficient for the automobile industry is likely to begin to slide from the current level, which is maintained at a level of strong competitiveness by corporate efforts.

5. There are other measures to determine global competitiveness, including market share, share of export value.

Trade Specialization Coefficient for Durable Goods (%)

Chart 6



Source: Ministry of Finance; compiled by DIR.

Note: Trade specialization coefficient = $(\text{exports} - \text{imports}) / (\text{exports} + \text{imports}) \times 100$.

Conclusion

There are four major points in this report. First, subsidies for autos and household appliances introduced in China in May 2012 will have little effect on production in Japan and will not be promising as a factor pushing up exports from Japan to China. Second, stimulus measures in China, centering on public works, will have a larger impact on production in Japan than subsidy programs spurring consumption. Third, the current subsidy programs in China will have positive effects on production of Japanese companies that have manufacturing bases in China. Fourth, although the ratio of overseas production has risen for the automobile industry, the industry maintains global competitiveness as shown by the high level of the coefficient, and therefore, the shift to production abroad does not currently mean a “bad” hollowing out for the industry.