Section 2 Changes in Japan's trade structure

1. Changes in the trade structure as viewed from the trade balance by major commodity

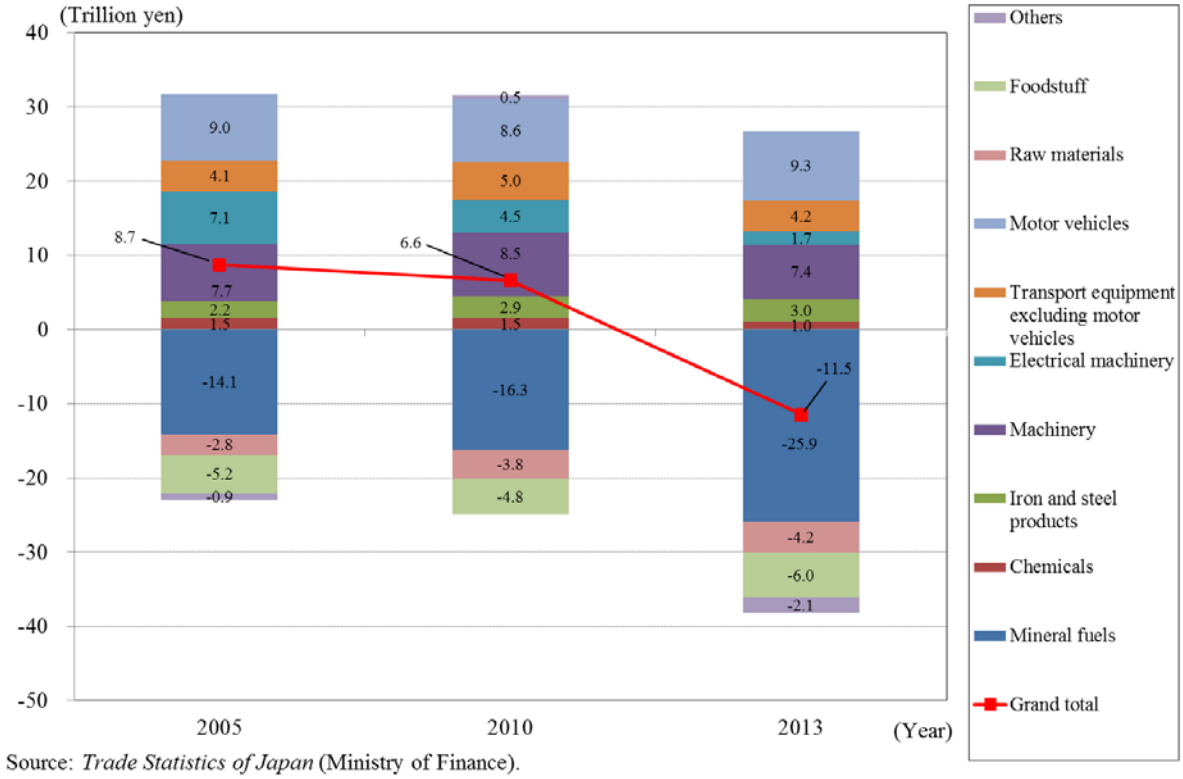
This section looks at trends in the trade structure by comparing the trade balance by major commodity in 2005, 2010 and 2013.

In 2013, the trade balance regarding many commodities deteriorated compared with 2005. In particular, the trade deficit regarding mineral fuels increased by approximately 11.8 trillion yen and the trade surplus regarding electrical machinery decreased by approximately 5.4 trillion yen. On the other hand, the trade surplus regarding motor vehicles and iron and steel products increased. Compared with 2010, the trade balance deteriorated with regard to all commodities except for motor vehicles and iron and steel products: the trade deficit regarding mineral fuels expanded by approximately 9.6 trillion yen; the trade surplus regarding electrical machinery shrank by approximately 2.8 trillion yen; and the trade surplus regarding machinery declined by approximately 1.1 trillion yen (Figures I-2-2-1 and I-2-2-2).

A further breakdown of electrical machinery and machinery shows that behind the steep fall in the trade surplus regarding electrical machinery is the deterioration in the trade balance in commodities including: telephony/telegraphy (mobile phones, etc.) from a surplus of approx. 0.1 trillion yen in 2005 to a deficit of approx. 0.6 trillion yen in 2010 and to a deficit of approx. 2.2 trillion yen in 2013; audio and visual apparatus (including components) (TV, etc.) from a surplus of approx. 1.6 trillion yen in 2005 to a deficit of approx. 0.1 trillion yen in 2013; and semiconductors, etc. (photovoltaic cells, etc.) from a surplus of approx. 2.1 trillion yen in 2005 to a surplus of approx. 1.1 trillion yen in 2013 (Figure I-2-2-3).

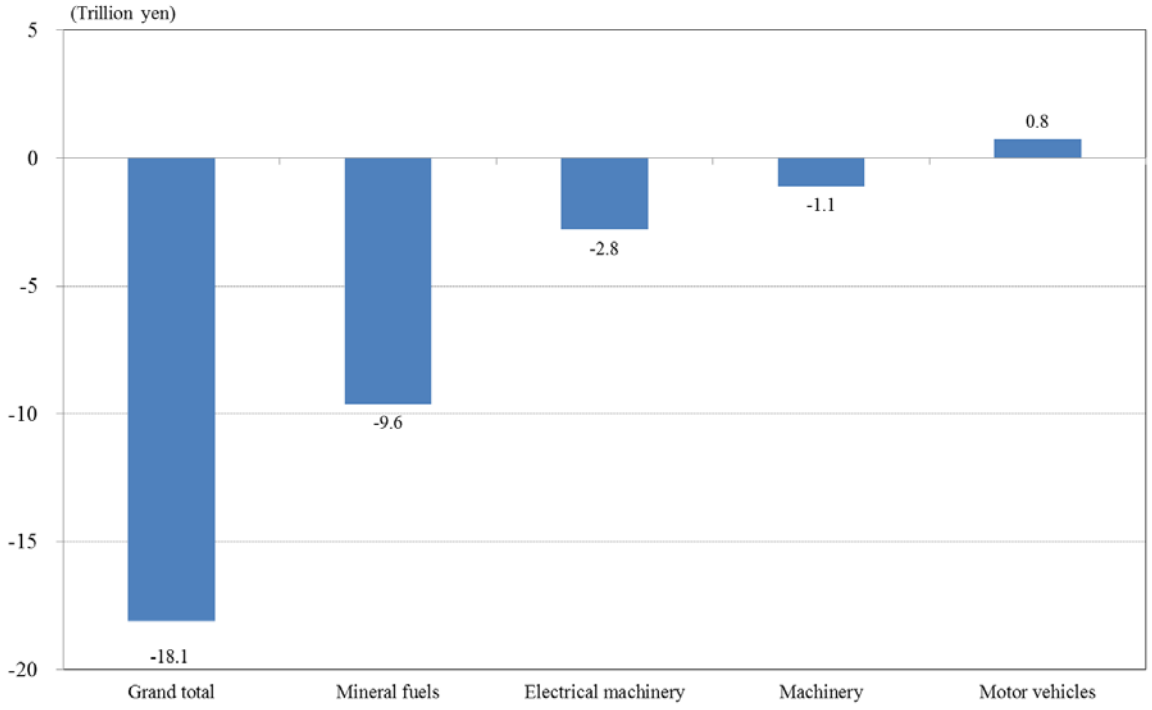
Behind the decrease in the trade surplus regarding machinery is the deterioration of the trade balance regarding semiconductor-manufacturing equipment from a surplus of approx. 1.5 trillion yen in 2010 to a surplus of approx. 1.1 trillion yen in 2013, and computers and units (personal computers, etc.) from a deficit of approximately 1.1 trillion yen in 2010 to a deficit of approx. 1.6 trillion yen in 2013 (Figure I-2-2-4).

Figure I-2-2-1 Comparison of trade balance by principal commodity (2005, 2010, 2013)



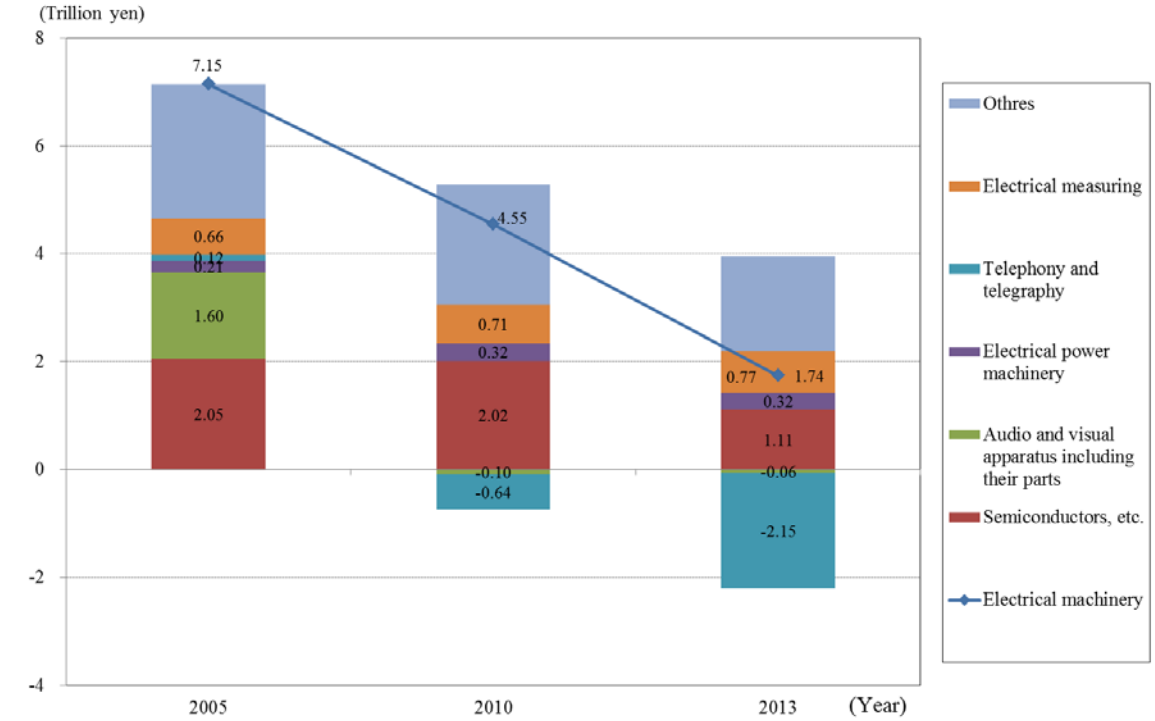
Source: *Trade Statistics of Japan* (Ministry of Finance).

Figure I-2-2-2 Trends in trade balance from 2010 to 2013



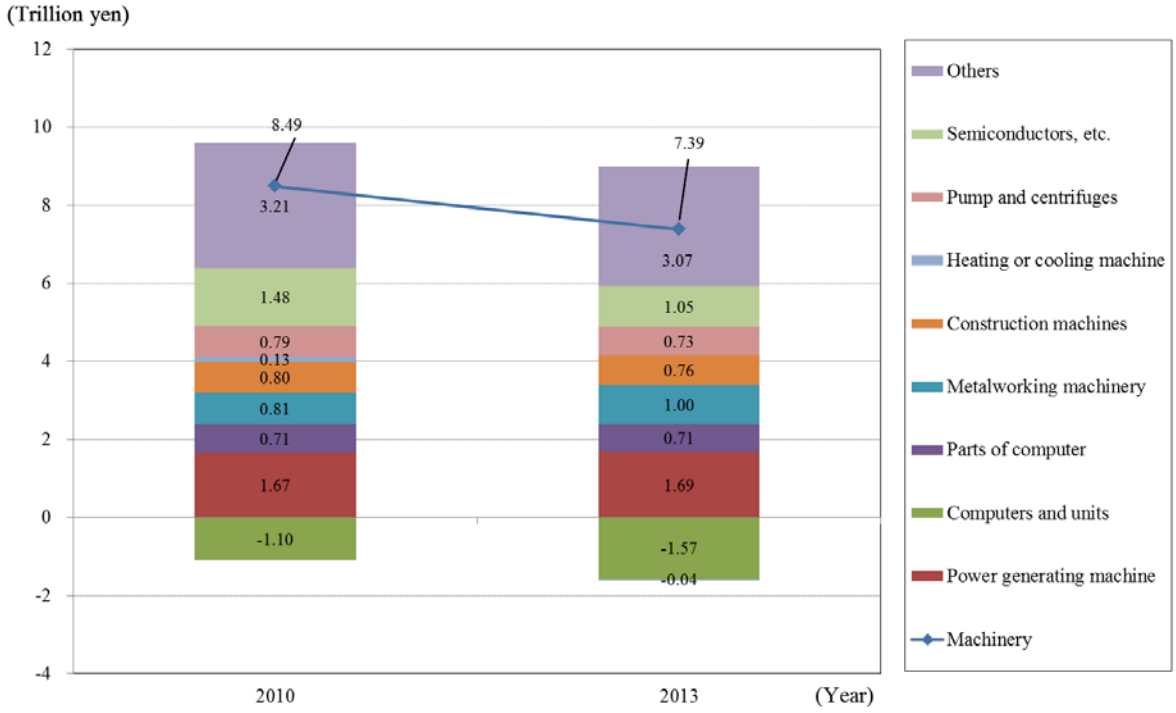
Source: *Trade Statistics of Japan* (Ministry of Finance).

Figure I-2-2-3 Comparison of trade balance by principal commodity in the field of electrical machinery (2005, 2010, 2013)



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

Figure I-2-2-4 Comparison of trade balance by principal commodity in the field of machinery



Notes: Regarding the machinery, import values in 2010 and 2013 alone are compared since it is difficult to access such values for many commodities in 2005.
Source: *Trade Statistics of Japan* (Ministry of Finance).

2. Trends in the trade structure as viewed from the export competitiveness of major export items

Below, we look at trends in the export competitiveness and trade structure by comparing the trade specialization coefficient, the growth rate of the value of exports (compared with the previous year) and trends in the value of exports in Japan and other countries with regard to Japan's major export items. The trade specialization coefficient[16] indicates how much each industry specializes in export (net export): "1" means full specialization in export, "0" means a balanced export-import and "-1" means full specialization in import. Export competitiveness is measured according to the degree of specialization in export.

According to the classification based on the two-digit HS codes, Japan's top five export items in 2013 were motor vehicles, machinery, electrical machinery, precision instruments, and iron and steel products, which together account for more than 60% of Japan's overall value of exports (Table I-2-2-5). Regarding these five items, we look at trends of Japan's trade specialization coefficient, growth rate of the value of exports (compared with the previous year) and trends in the value of exports from 2000 to 2013 in comparison with Germany, ROK and China.

Table I-2-2-5 Top 5 products about export values in Japan (products classified in the two-digit group of the HS Code system as of 2013)

Place	Product name	Export value (billion dollars)	Ratio accounting for export values
1	Motor vehicles (HS87)	148.5	20.8%
2	Machinery(HS84)	135.1	18.9%
3	Electrical machinery(HS85)	108.2	15.1%
4	Precision instruments(HS90)	40.1	5.6%
5	Iron and steel products (HS72)	35.3	4.9%

Source: Global Trade Atlas database.

(1) Motor vehicles

Regarding motor vehicles, we look at passenger motor cars (HS8703) and parts and accessories for motor vehicles (HS8708).

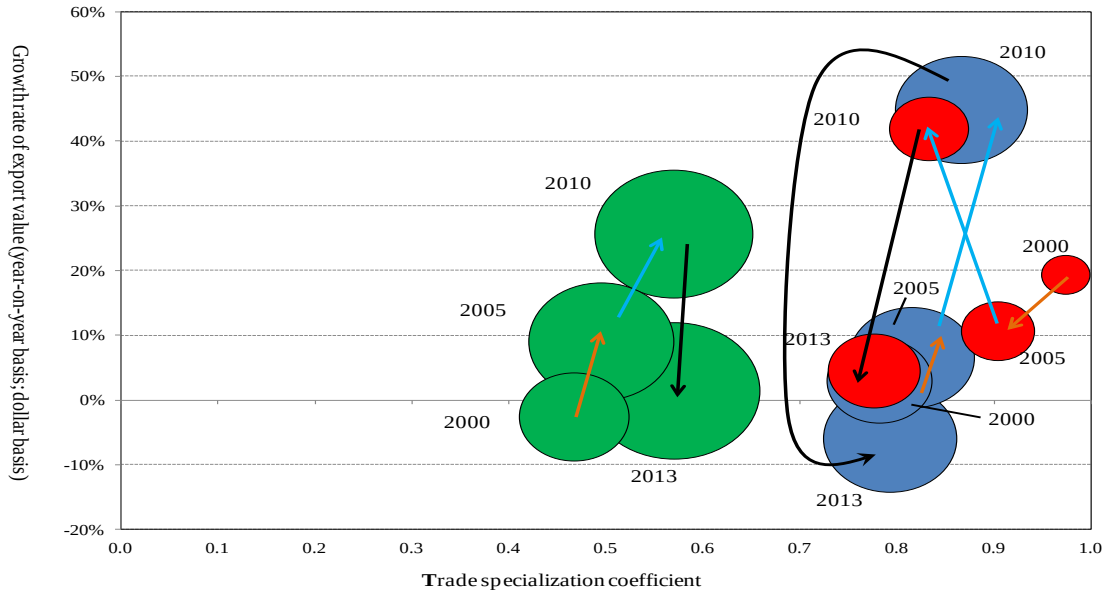
First, a comparison regarding passenger motor cars between Japan, Germany, ROK and China shows that Japan's trade specialization coefficient has remained stable at a high level and was the highest of the four countries in 2013. Japan's growth rate of the value of exports (compared with the previous year) showed similar movements to Germany's growth rate. Although ROK's value of exports in 2013 almost quadrupled from 2000, it was smaller than Japan's and Germany's value, while ROK's trade specialization coefficient is declining. China's trade specialization coefficient in 2013 was -0.82, the only negative figure among the four countries. China's value of exports in 2013 was the smallest of the four countries (Figure I-2-2-6).

Regarding comparison of parts and accessories for motor vehicles among Japan, Germany, ROK,

[16]Trade specialization coefficient=value of trade surplus/total value of trade=(export-import)/(export+import)

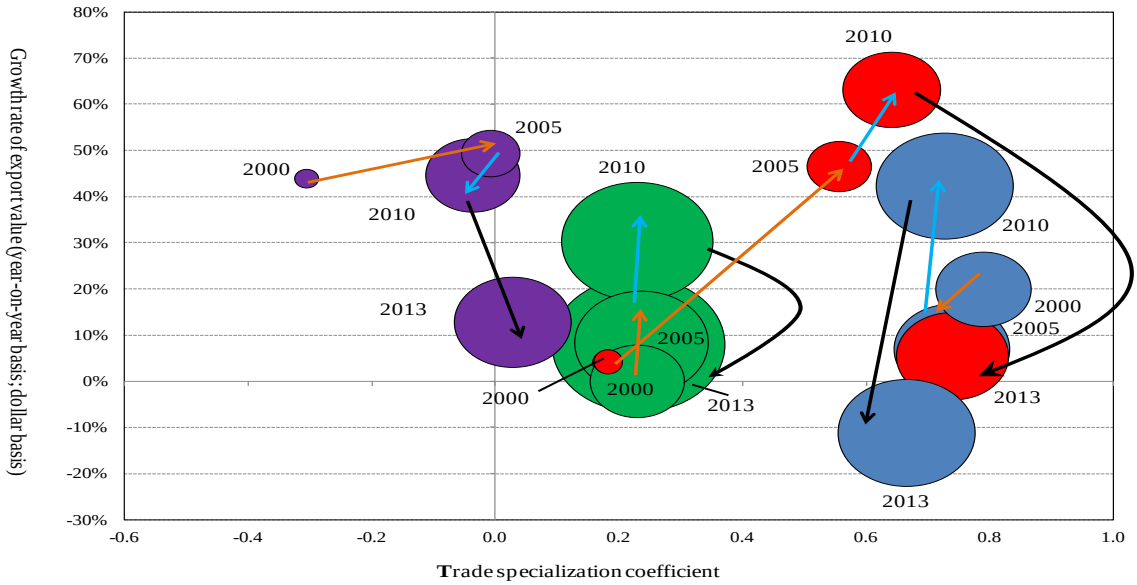
and China, Japan's trade specialization coefficient has remained stable at a high rate and its value of exports was the second largest after that of Germany. For China and ROK, the value of exports and the trade specialization coefficient rose steeply. ROK's trade specialization coefficient rose particularly steeply. While ROK's trade specialization coefficient was lower than Japan's and Germany's in 2000, it surpassed Japan's coefficient in 2013 to become the highest of the four countries. (Figure I-2-2-7).

Figure I-2-2-6 Trade specialization coefficient & growth rate of export value (year-on-year basis) and trends in export value of passenger motor cars (HS8703) in Japan, Germany and ROK



Notes: The size of a circle represents the scale of the export value; Blue: Japan, green: Germany, Red: ROK, purple: China.
Source: Global Trade Atlas database, United Nations Comtrade database.

Figure I-2-2-7 Trade specialization coefficient & growth rate of export value (year-on-year basis) and trends in export value of accessories for motor vehicles (HS8708) in Japan, Germany and ROK

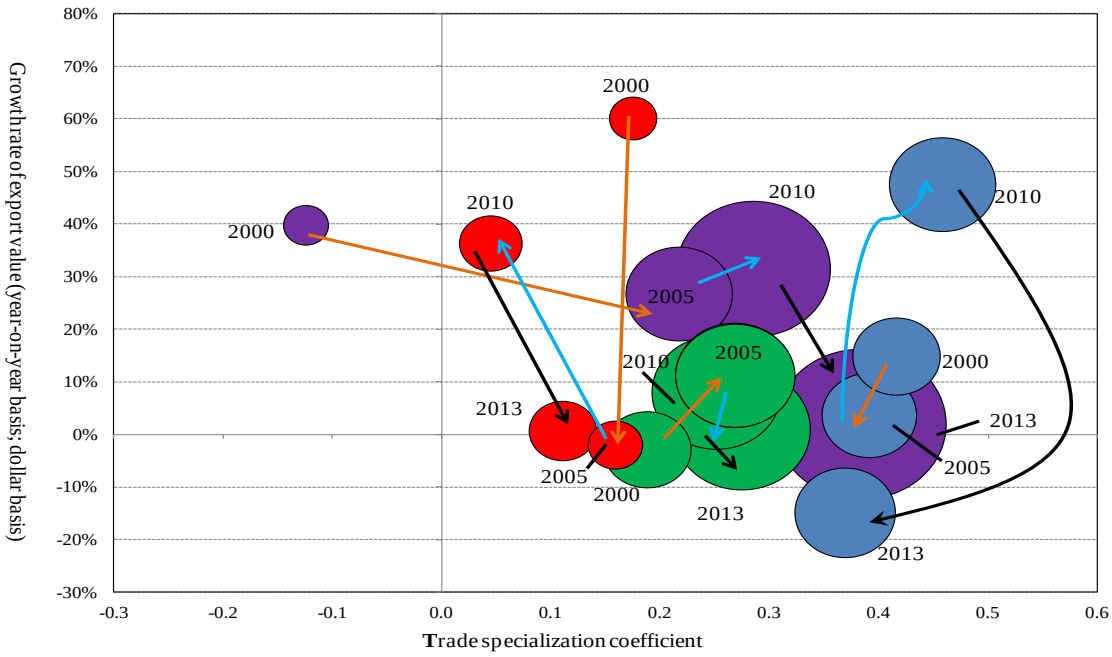


Notes: The size of a circle represents the scale of the export value; Blue: Japan, green: Germany, Red: ROK, purple: China.
Source: Global Trade Atlas database, United Nations Comtrade database.

(2) Machinery

Regarding machinery, a comparison between Japan, Germany, ROK and China shows that China's growth is notable. China's trade specialization coefficient was the lowest of the four countries in 2000 but surpassed Japan's coefficient in 2013 to become the highest of the four countries. Although China's value of exports was the smallest of the four countries in 2000, it increased by a factor of around 14 by 2013 compared with 2000 to become the largest of the four countries. Germany's trade specialization coefficient and value of exports rose steadily and its growth rate of the value of exports (compared with the previous year) showed the smallest fluctuations. Regarding Japan, the trade specialization coefficient declined somewhat but remained stable at a relatively high level. Japan's growth rate of the value of exports (compared with the previous year) showed wild swings, just as ROK's growth rate did. (Figure I-2-2-8).

Figure I-2-2-8 Trade specialization coefficient & growth rate of export value (year-on-year basis) and trends in export value of machinery (HS84) in Japan, Germany, ROK and China

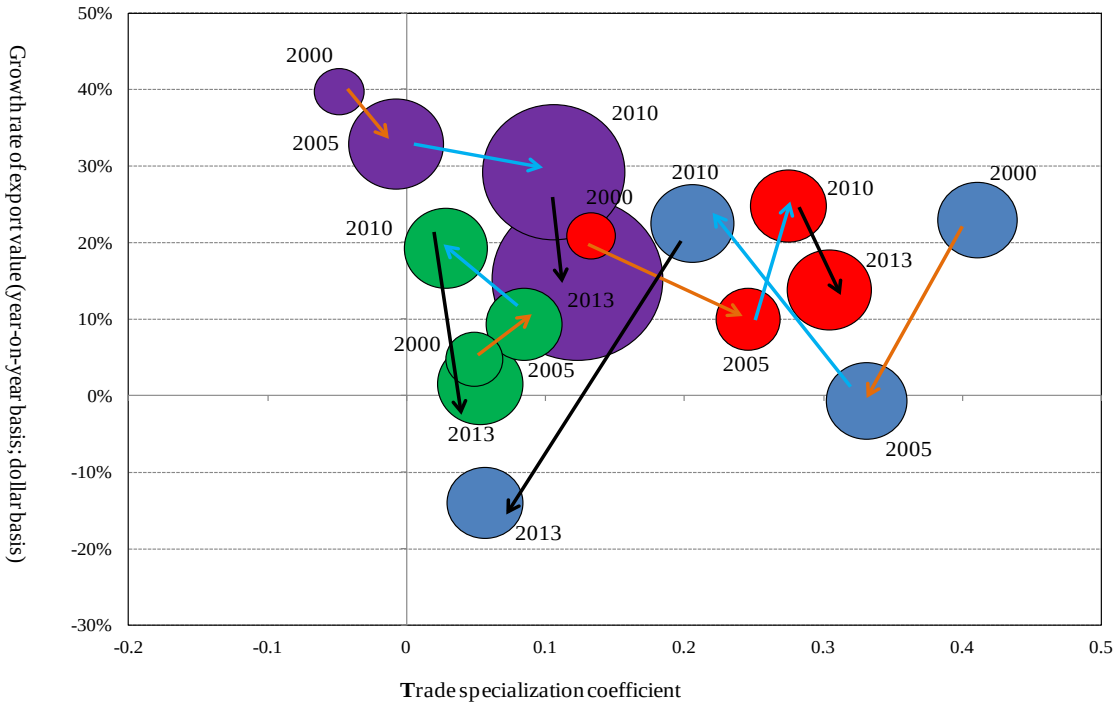


Notes: The size of a circle represents the scale of the export value; Blue: Japan, green: Germany, Red: ROK, purple: China.
Source: Global Trade Atlas database, United Nations Comtrade database.

(3) Electrical machinery

Regarding electrical machinery, a comparison between Japan, Germany, ROK and China shows that Japan's trade specialization coefficient was by far the highest of the four countries in 2000 but continued to decline between 2005 and 2010 and was below China's and ROK's coefficients in 2013. Japan's growth rate of the value of exports (compared with the previous year) showed wild swings. China's and ROK's trade specialization coefficients and value of exports continued to rise. Although China's trade specialization coefficient was negative in 2000 and 2005, it surpassed Japan's coefficient in 2013 to become the second highest after ROK's coefficient. China's value of exports was the smallest of the four countries in 2000 but increased by a factor of around 12 by 2013 compared with 2000 to become the largest of the four countries. ROK's trade specialization coefficient was by far the highest of the four countries in 2013, and its value of exports in 2013 tripled compared with 2000. Germany's value of exports in 2013 was about double the level in 2000 but its trade specialization coefficient remained at a relatively low level among the four countries (Figure I-2-2-9).

Figure I-2-2-9 Trade specialization coefficient & growth rate of export value (year-on-year basis) and trends in export value of electrical machinery (HS85) in Japan, Germany, ROK and China

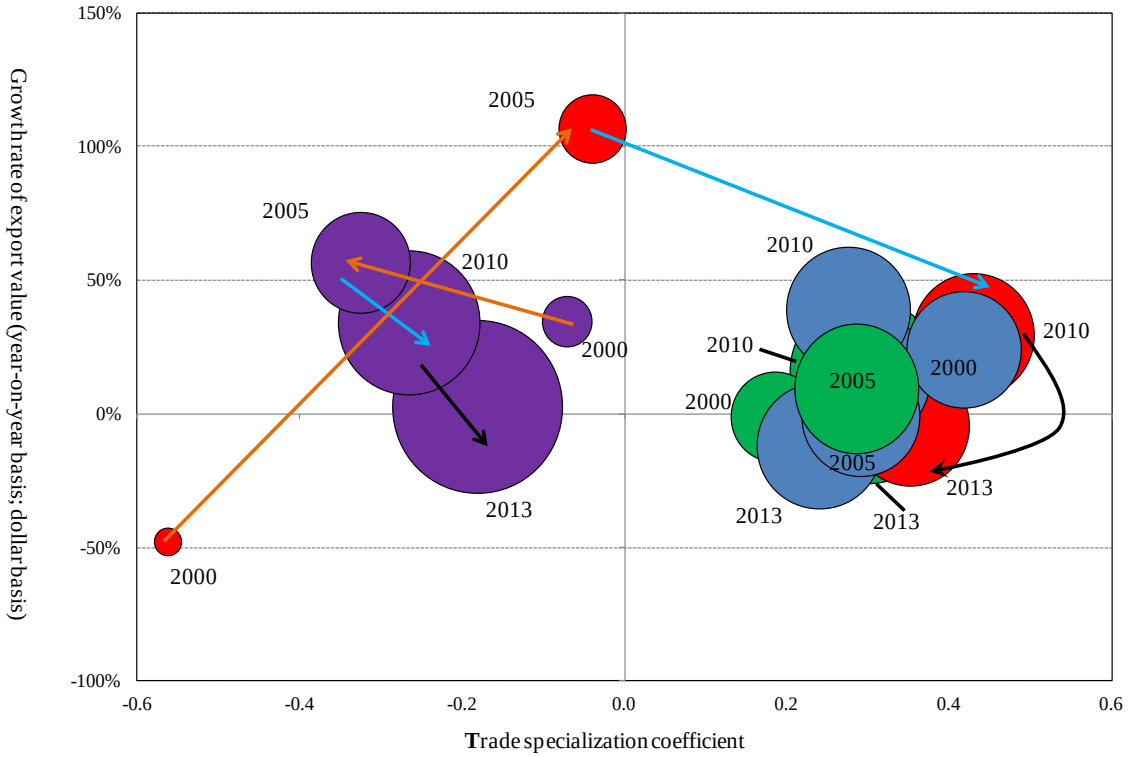


Notes: The size of a circle represents the scale of the export value; Blue: Japan, green: Germany, Red: ROK, purple: China.
Source: Global Trade Atlas database, United Nations Comtrade database.

(4) Precision instruments

Regarding precision instruments, a comparison between Japan, Germany, ROK and China shows that both Japan's trade specialization coefficient and value of exports were the highest of the four countries in 2000 but the trade specialization coefficient later declined as the value of exports lacked growth. ROK recorded the highest growth in exports. In 2000, ROK's trade specialization coefficient and value of exports were the lowest of the four countries, but its value of exports grew rapidly, recording a growth rate of more than 100% in 2005. In 2013, ROK's trade specialization coefficient was the highest of the four countries and its value of exports was around 20 times as large as in 2000. While China's trade specialization coefficient has been on an uptrend, it was in the minus column in 2013. On the other hand, China's value of exports in 2013 was around 12 times as large as the value in 2000 and was the largest of the four countries. While Germany's trade specialization coefficient did not show major changes, its value of exports in 2013 was 3 times as large as in 2000 (Figure I-2-2-10).

Figure I-2-2-10 Trade specialization coefficient & growth rate of export value (year-on-year basis) and trends in export value of precision instruments (HS90) in Japan, Germany, ROK and China



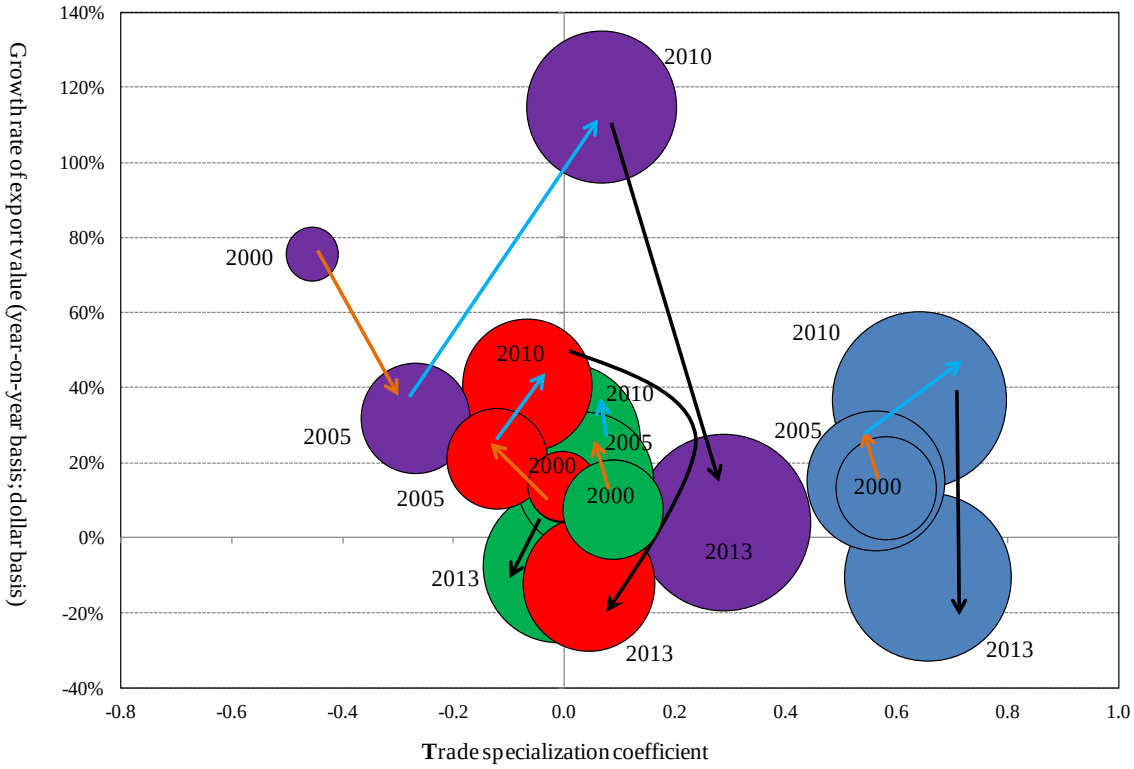
Notes: The size of a circle represents the scale of the export value; Blue: Japan, green: Germany, Red: ROK, purple: China.
Source: Global Trade Atlas database, United Nations Comtrade database.

(5) Iron and steel products

Finally, regarding iron and steel products, a comparison between Japan, Germany, ROK and China shows that Japan's trade specialization coefficient was the highest of the four countries and remained stable. Its value of exports in 2013 was around 3 times as large as in 2000. Japan's growth rate of the value of exports (compared with the previous year) fell steeply in 2013, as did the growth rates of Germany, ROK and China. ROK's trade specialization coefficient was in the minus column in 2000, 2005 and 2010 but moved into the plus column in 2013. Its value of exports in 2013 was around 4 times as large as in 2000. Germany's value of exports as of 2013 was around 3 times as large as in 2000, while its trade specialization coefficient was positive in 2000 and 2005 and it turned to negative as of 2013. China's trade specialization coefficient was in the minus column in 2000 and 2005 but was the second highest after Japan's coefficient in 2013. China's value of exports was the smallest of the four countries in 2000, but in 2013, it was around 10.7 times as large as in 2000 and was the second largest after Japan's value of exports (Figure I-2-2-11).

Regarding the five items examined above, Japan still maintains a high level of export competitiveness regarding motor vehicles, and iron and steel products. However, regarding electrical machinery, machinery and precision instruments, Japan's relative superiority in terms of export competitiveness has been declining presumably because of the effects of the growth of ROK and China, among other factors.

Figure I-2-2-11 Trade specialization coefficient & growth rate of export value (year-on-year basis) and trends in export value of iron and steel products (HS72) in Japan, Germany. ROK and China



Notes: The size of a circle represents the scale of the export value; Blue: Japan, green: Germany, Red: ROK, purple: China.
Source: Global Trade Atlas database, United Nations Comtrade database.