Section 2 Manufacturing renaissance & reshoring in the United States and the effects of the shale revolution

1. U.S. economy since the global economic crisis

The United States entered a recession in December 2007 due to the subprime mortgage problem and plunged into a serious economic crisis following the collapse of Lehman Brothers in September 2008. President Barack Obama, who took office in January 2009 amid the crisis, actively implemented crisis response measures, such as bailing out the auto industry through the injection of public funds based on the Troubled Assets Relief Program (TARP), which was enacted in October 2008 under the administration of his predecessor, President George W. Bush, since immediately after assuming the presidency. In February 2009, the American Recovery and Reinvestment Act of 2009 (ARRA) was enacted and economic measures were started to be implemented on the largest-ever scale. In addition to introducing tax credits for working families and extending the duration of unemployment benefits, the ARRA provided for investments intended to promote economic growth and job creation from the long-term perspective[72].

Thanks to the quick implementation of this large-scale package of financial and economic measures[73], in June 2009, the United States pulled out of the recession phase that lasted for 18 months[74].

Figure II-1-2-1 shows trends in real GDP of developed countries/regions and emerging economies, with the level in the fourth quarter of 2007, when the United States entered the recession phase, as the base figure of 100. Among developed countries, the United States, as well as Germany, restored real GDP to pre-crisis levels, ahead of other countries[75]. Among emerging economies, India and Indonesia did not experience much of a recession, while other countries suffered an economic slowdown but later recovered at a much faster pace than the United States.

In the United States, real GDP recovered to the pre-recession level in the second quarter of 2011.

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[72] In such fields as infrastructure, science, clean energy, healthcare and education. For further details, refer to "Chapter 1, Section 2. 1. U.S. economy facing balance sheet adjustments, (4) U.S. countermeasures to economic and financial problems," *White Paper on International Economy and Trade 2009.*

[73] The 2014 Economic Report of the President points out that the ARRA has brought significant positive effects to employment and production. The report estimates that the ARRA alone raised the level of GDP by between 2% and 2.5% from late 2009 through mid-2011 and that the ARRA and subsequent countercyclical fiscal measures provided a cumulative boost to GDP between 2009 and 2012 that is equivalent to 9.5% of GDP in the fourth quarter of 2008. It also estimates that the ARRA not only has produced short-term macro-economic effects but also will generate growth in the long term after its expiry through investments in clean energy, education, healthcare and infrastructure.

[74] According to an announcement made by the U.S. National Bureau of Economic Research in September 2010.

[75] According to the 2014 Economic Report of the President, of the 12 countries that experienced financial crises in 2007 and 2008, only the United States and Germany have seen real GDP per working-age person return to pre-crisis levels.

Compared with during past recession phases, real GDP and the number of employees declined more steeply and it took longer time to recover to the pre-recession level[76]. Nonfarm payroll employment has not yet recovered to the pre-recession level[77] (Figure II-1-2-2).

A breakdown of real GDP by expenditure shows that personal consumption expenditures and exports/imports regained their pre-recession levels and have continued to grow thereafter. Meanwhile, although residential fixed investment has continued to recover since hitting bottom in the third quarter of 2010, it is still far below the pre-recession level and is notable for its weakness compared with other items. Non-Residential Fixed Investment recovered to the pre-recession level in the fourth quarter of 2013 at long last (Figure II-1-2-3).

As for real GDP by industry, the mining industry recorded remarkable growth due to the effects of shale gas and oil production, while the construction industry lagged behind in recovery. The wholesale trade industry has not yet regained the pre-recession level, either (Figure II-1-2-4).

A look at employment by industry indicates that the number of employees has continued to grow significantly in the oil and gas extraction industry without declining during the recession phase due to the effects of shale gas and oil production and other factors. The number of employees in the educational services and healthcare industries has also stayed firm. On the other hand, the numbers of employees fell steeply in construction, manufacturing and other industries and they remained still far below the pre-recession levels as of April 2014 (Figure II-1-2-5).

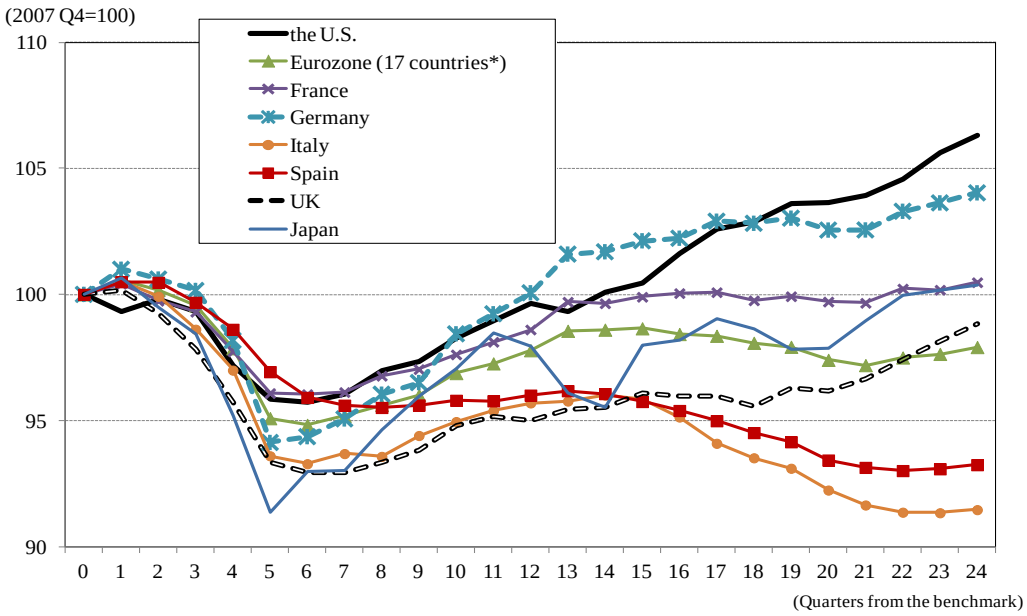
The Obama administration has placed top priority on strengthening the middle class through the creation of high quality jobs in the process of overcoming the crisis and underlined its emphasis on the manufacturing industry.

Below, we first look at the recent trends in the U.S. manufacturing industry.

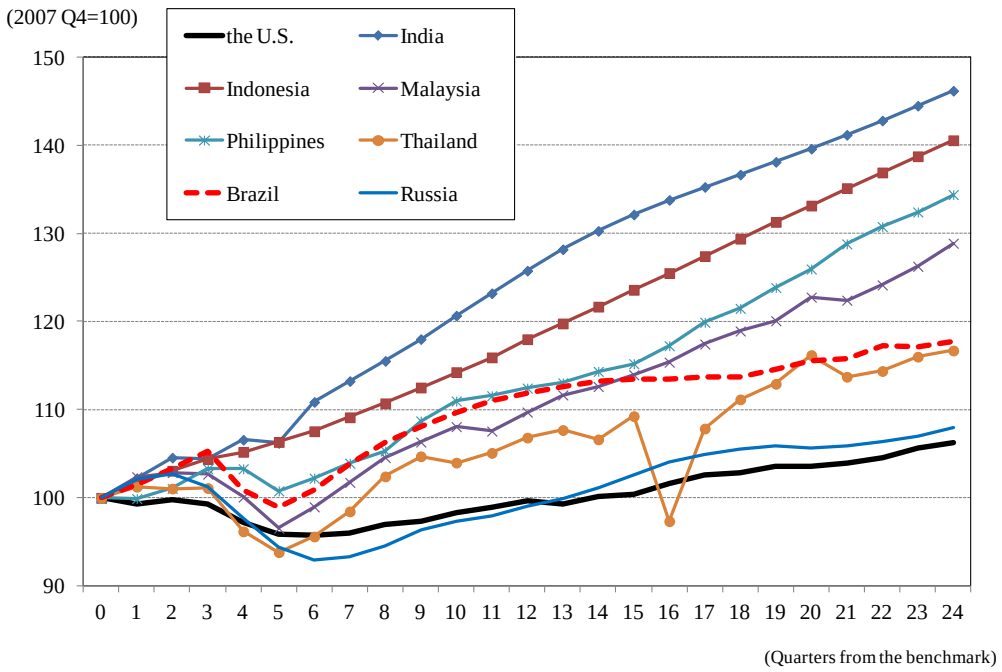
[76] According to the 2014 Economic Report of the President, the annual growth rate of 2.3% projected for U.S. real potential GDP for the period from the third quarter of 2013 to the fourth quarter of 2024 is lower than the average growth rate of 3.3% from the second quarter of 1953 to the fourth quarter of 2007.

[77] Nonfarm payroll employment (including employment in the government sector) was 138.25 million people in April 2014, lower than the 138.35 million in December 2007, when the U.S. economy entered the recession phase. However, nonfarm payroll employment in the private sector alone, at 116.38 million people, was higher than the 115.97 million in December 2007.

Figure II-1-2-1 Changes in real GDP during the U.S. recession (left: developed countries and regions; right: emerging economies)

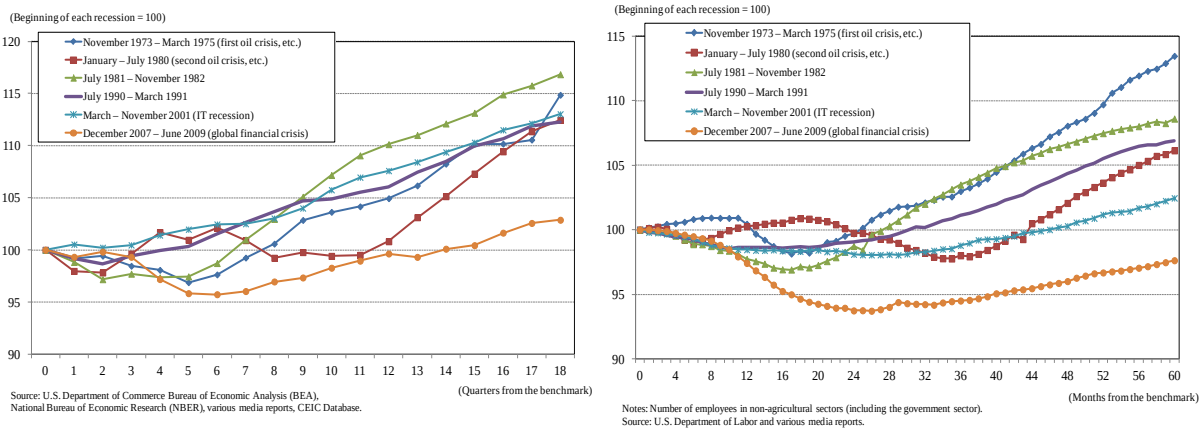


Notes: Before Latvia's introduction of the Euro.
Source: The Cabinet Office, the U.S. Department of Commerce Bureau of Economic Analysis (BEA), and Eurostat.



Notes: In the case of India, Indonesia and Brazil, seasonally-adjusted values are calculated in the CEIC Database.
Source: The U.S. Department of Commerce Bureau of Economic Analysis (BEA), statistics published by each country, and the CEIC Database.

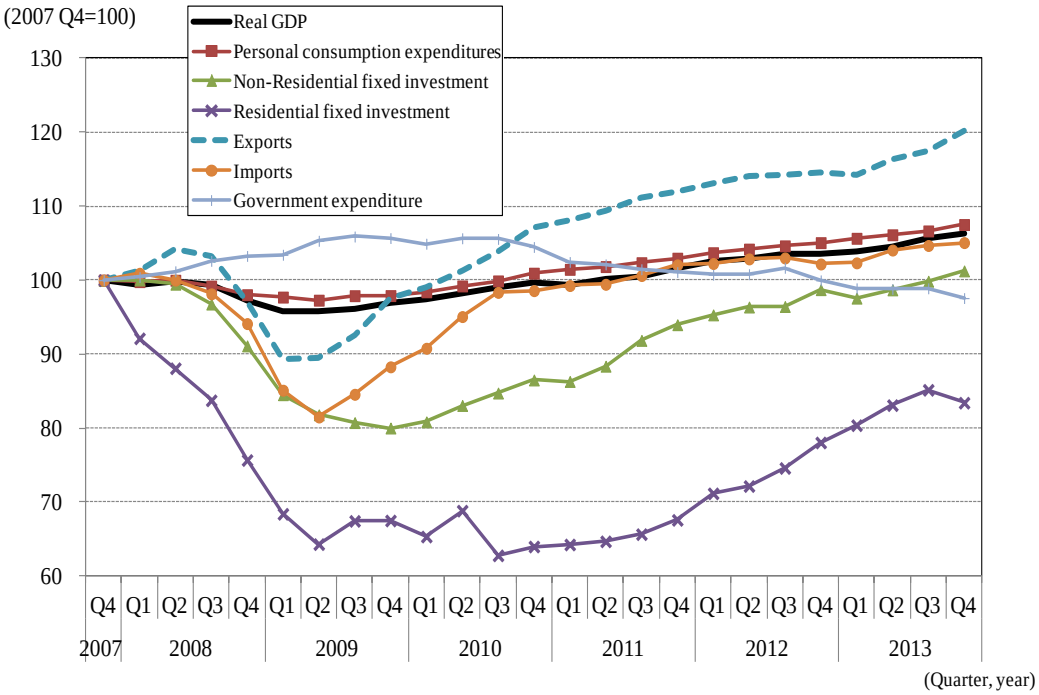
Figure II-1-2-2 Comparison of trends in recovery from recession (left: real GDP; right: number of employees)



Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA), National Bureau of Economic Research (NBER), various media reports, CEIC Database.

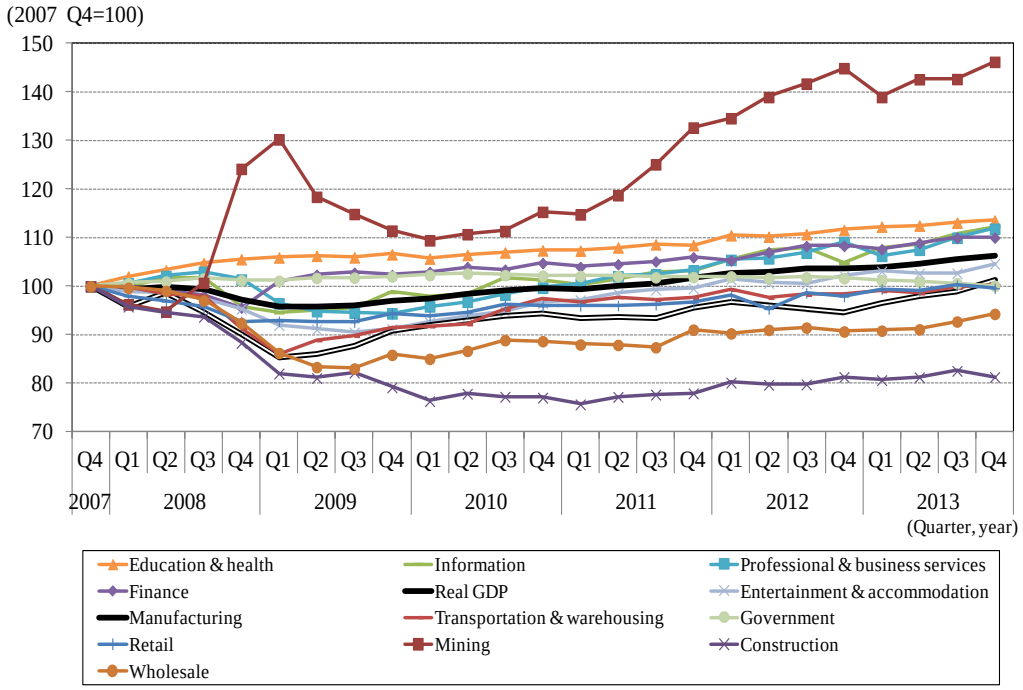
Notes: Number of employees in non-agricultural sectors (including the government sector).
Source: U.S. Department of Labor and various media reports.

Figure II-1-2-3 Trends in real GDP by expenditure



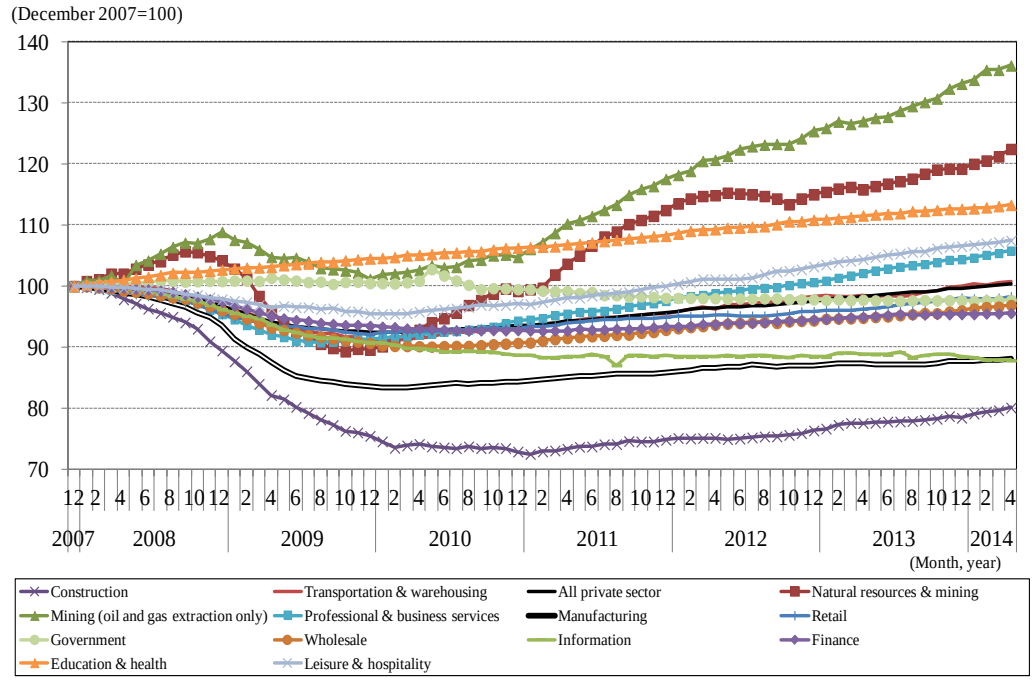
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA), CEIC Database.

Figure II-1-2-4　Trends in real GDP by industry



Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA), CEIC Database.

Figure II-1-2-5　Trends in the number of employees by industry



Source: U.S. Department of Labor, CEIC Database.

2.　Trends in the U.S. manufacturing industry

(1)　Emphasis on the manufacturing industry

Since taking office, President Obama has placed emphasis on the manufacturing industry as the key to creating high quality jobs by promoting innovation and realizing a robust middle class.

Among the reasons cited for the renewed attention recently paid to the manufacturing industry are (1) that the wage level for jobs in the manufacturing industry is high compared with that for comparable jobs in other industries, thus the manufacturing industry is important from the perspective of providing high-quality jobs to people without adequate education and maintaining a robust middle class[78], (2) that production activity in the manufacturing industry has positive multiplier effects on other economic entities, so its loss may lead to the loss of economic and social benefits[79], and (3) that 70% of research development in the U.S. private sector is conducted in the manufacturing industry, and a decline of the manufacturing industry may lead to a decline of innovation by eroding the innovation-inducing environment (Figure II-1-2-6). As for countries' shares in global nominal value added, the United States' share declined in the 2000s in the services industry but is still the largest in the world. On the other hand, in the manufacturing industry, China's share surpassed the United States' share in 2010 (Figure II-1-2-7).

Under these circumstances, in the State of the Union Address in 2012, which made clear the stance of placing emphasis on the manufacturing industry, President Obama stated: "…we have a huge opportunity, at this moment, to bring manufacturing back." In the State of the Union Address in 2013, President Obama emphasized again the importance of the manufacturing industry by referring to the need to improve the domestic business environment through tax system reform and other measures in order to make America a magnet for new jobs and manufacturing[80].

From the perspective of manufacturing renaissance, the Obama administration is pursuing two objectives: (1) encouraging U.S. companies with overseas operations to reshore manufacturing bases: namely bring manufacturing back to the United States, and (2) fostering advanced manufacturing with high added value by utilizing 3D printing and other technologies. Below, we take a look at reshoring of manufacturing bases.

Figure II-1-2-6 Manufacturing R&D as a share of all R&D expenditure (private sector, 2011)

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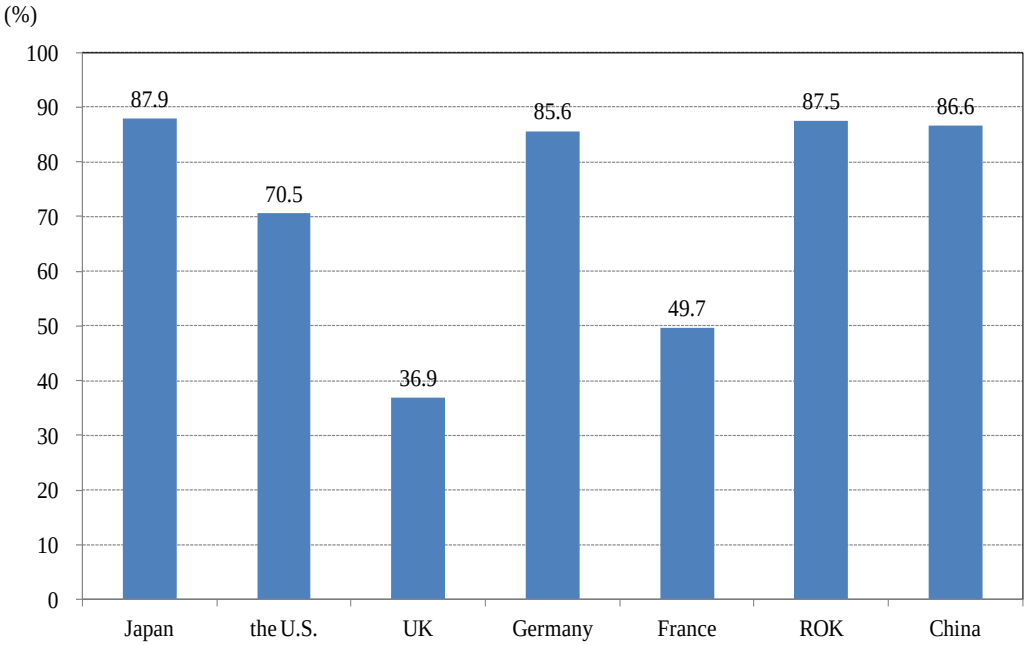
[78] According to the 2013 Economic Report of the President, employee compensation is 14% higher in the manufacturing industry than in other industries, after controlling for factors such as education, age, gender, race, etc.

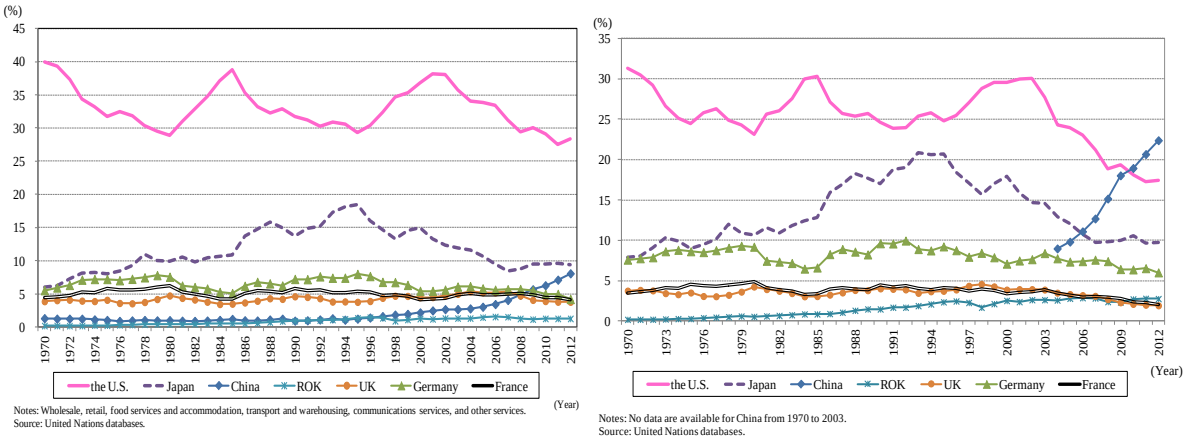
[79] According to the Advanced Manufacturing National Program Office, a government agency, manufacturing activity has a larger multiplier effect than any other major economic activity, with one dollar spent in the manufacturing industry generating 1.35 dollars in additional economic activity. (http://www.manufacturing.gov/mfg_in_context.html)

[80] For specific measures, refer to a White House Fact Sheet released in February 2013. The measures include proposals such as creating a network of 15 manufacturing innovation institutes across the United States (1 billion-dollar one-time investment), lowering the corporate tax rate for manufacturers to 25%, expanding and making permanent the research and development tax credit and providing financial assistance worth 113 million dollars for communities to attract investment in manufacturing.
http://www.whitehouse.gov/the-press-office/2013/02/13/fact-sheet-president-s-plan-make-america-magnet-jobs-investing-manufactu



Notes: Figures for the U.S. are for 2010.
Source: *Main Science and Technology Indicators* (OECD).

Figure II-1-2-7 Nominal value added by each country as a share of worldwide nominal value added (left: service industry; right: manufacturing industry)



Notes: Wholesale, retail, food services and accommodation, transport and warehousing, communications services, and other services.
Source: United Nations databases.

Notes: No data are available for China from 1970 to 2003.
Source: United Nations databases.

(2) Reshoring of manufacturing bases

In August 2011, a report titled "Made in America, Again -Why Manufacturing Will Return to the U.S." was released by Boston Consulting Group (BCG). The report attracted attention for its analysis predicting that manufacturing of products bound for the North American market that is currently outsourced to China will return to the United States due to a narrowing of the manufacturing cost gap between the two countries, which was projected to virtually narrow to between 10% and 15% within five years[81] [82].

[81] According to another report issued by the BCG in August 2013, the manufacturing cost gap in 2015 will

Below, from among changes in the business environment pointed out as factors promoting the reshoring, we take a look at changes in the wage, transport, energy and other costs. We also examine whether there are signs of a change in the position of the manufacturing industry in the U.S. economy from the macroeconomic viewpoint.

(A) Changes in the business environment

(a) Wage costs

Average annual wages (dollar-based) in the manufacturing industry in China, the main outsourcing destination of U.S. manufacturing of products for the domestic market, is approximately 6,600 dollars, around a sixth of the level in the United States, which stands at approximately 37,690 dollars. However, annual wages in China increased at an average annual rate of around 16% between 1999 and 2012, and exceeded the levels in Thailand and Mexico (Figure II-1-2-8). A look at wages by province on an all-industry basis, including the manufacturing industry, shows that the wage level is high in regions where the business environment is well developed and foreign investment is active, so the relative advantage of manufacturing activity in China in terms of wage costs has been declining (Figure II-1-2-9).

In contrast, in the United States, the growth in hourly employee compensation has been low compared with other advanced countries. Although the wage level in the United States was the highest of advanced countries in 2000, it was at a middle level in 2012 (Figure II-1-2-10).

By region, hourly employee compensation is low in the states of Michigan (Midwest), Ohio (Midwest) and Texas (South), and the reshoring movement is prominent particularly in these regions (Figure II-1-2-11).

The change in the labor cost situation is enhancing the advantage of the business environment in the United States as U.S. companies consider the location strategy – where and how to do business in order to maximize efficiency ― including the effects of foreign exchange rates.

According to the U.S. Department of Commerce's Economics and Statistics Administration[83], the unit labor cost (per-capita employee compensation/labor productivity, local currency basis), which adds the perspective of labor productivity to labor cost (compensation for employees), declined 17% in the United States between 2000 and 2011, while in China, it rose 85% during the same period (Figure II-1-2-12). In China, the growth in per-capita employee compensation outpaced the growth in

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narrow further, with the cost in China at 95% of the cost in the United States.

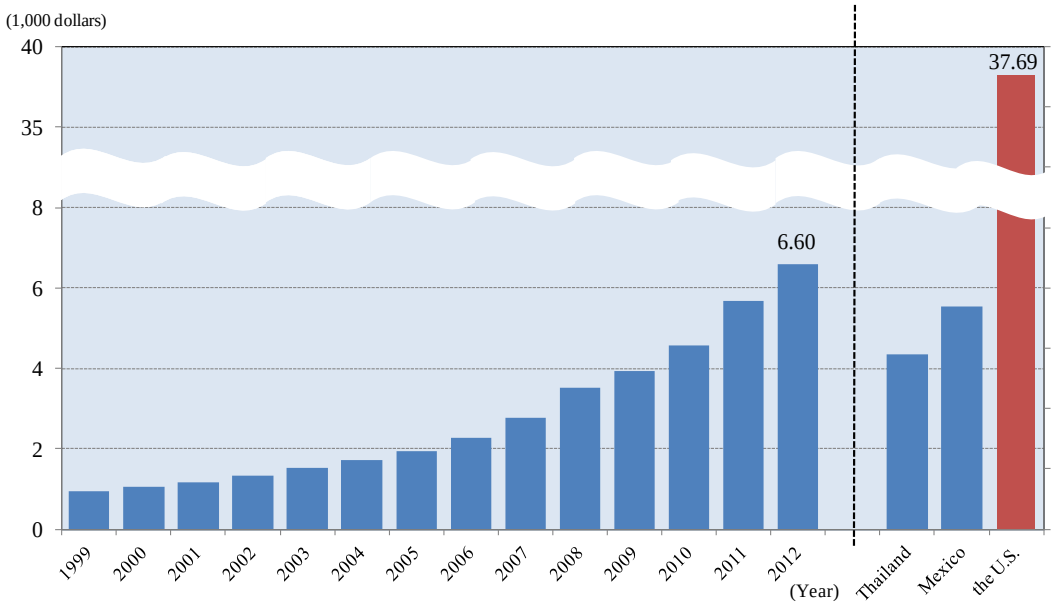
[82] There are also skeptical views concerning reshoring. Jan Hatzius (2013), the chief economist of Goldman Sachs, argues that "manufacturing renaissance," which refers to the return of manufacturing operations to the United States, is cyclical, not structural. Meanwhile, the IMF, while admitting that the recovery of the U.S. manufacturing industry since the global economic crisis has been remarkable, says it does not expect that industry to act as the main growth engine and that it does not recognize a "manufacturing renaissance".

[83] Langdon (2013), "Assess Costs Everywhere: Today's Cheap Labor May Be More Costly Tomorrow" http://www.esa.doc.gov/print/Blog/2013/04/22/assess-costs-everywhere-today%E2%80%99s-cheap-labor-may-be-more-costly-tomorrow

labor productivity, resulting in a rapid rise in labor cost per value-added created. Moreover, Figure II-1-2-12 is on a local currency basis and so does not take account of the effects of foreign exchange rates, but since the middle of 2010, the Chinese yuan has appreciated against the dollar (strong yuan), which indicates that the dollar-based unit labor cost in China has risen further.

Although the unit labor cost during the same period was still higher in the United States than in China, the gap has been rapidly narrowing (Figure II-1-2-13).

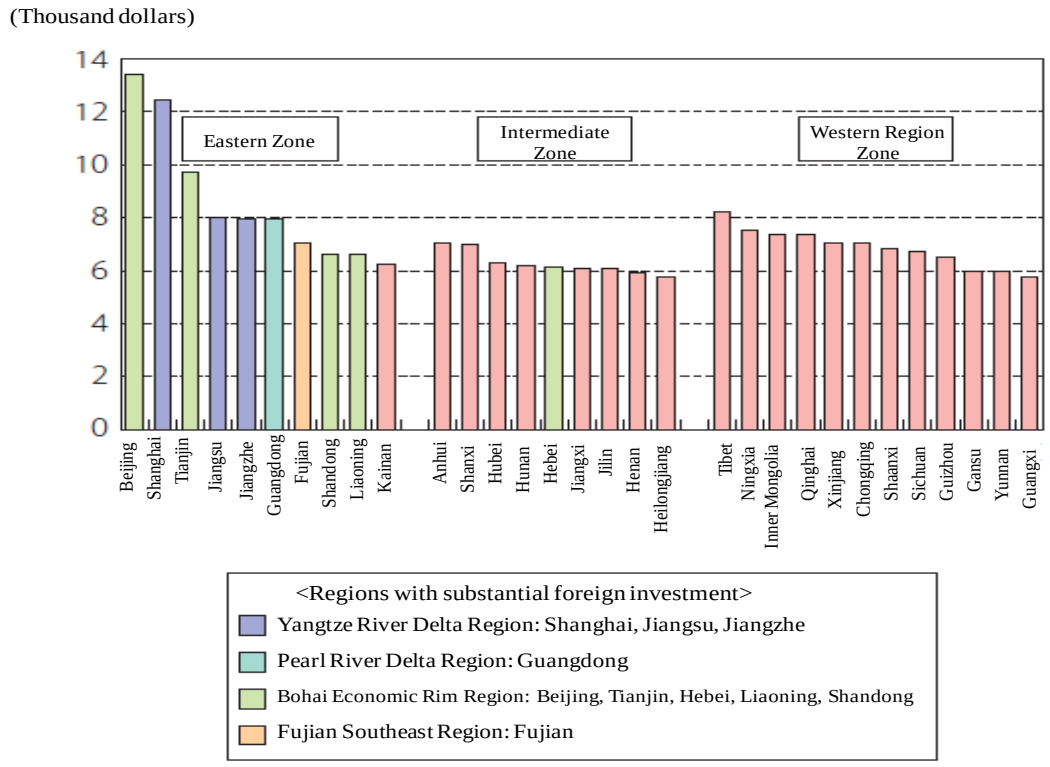
Figure II-1-2-8　Trends in annual average wage and the growth rate thereof (compared with the previous year) in China's manufacturing industry



Notes: Figures for Thailand, Mexico, and the U.S. are for 2013. In the case of Mexico, this is calculated as the average daily wage × 250 (number of working days).
Figures for the U.S. use the median value rather than the mean average.
Source: U.S. Department of Labor, National Bureau of Statistics of China, National Statistical Office of Thailand, Mexican Secretariat of Labor and Social Welfare, CEIC Database.

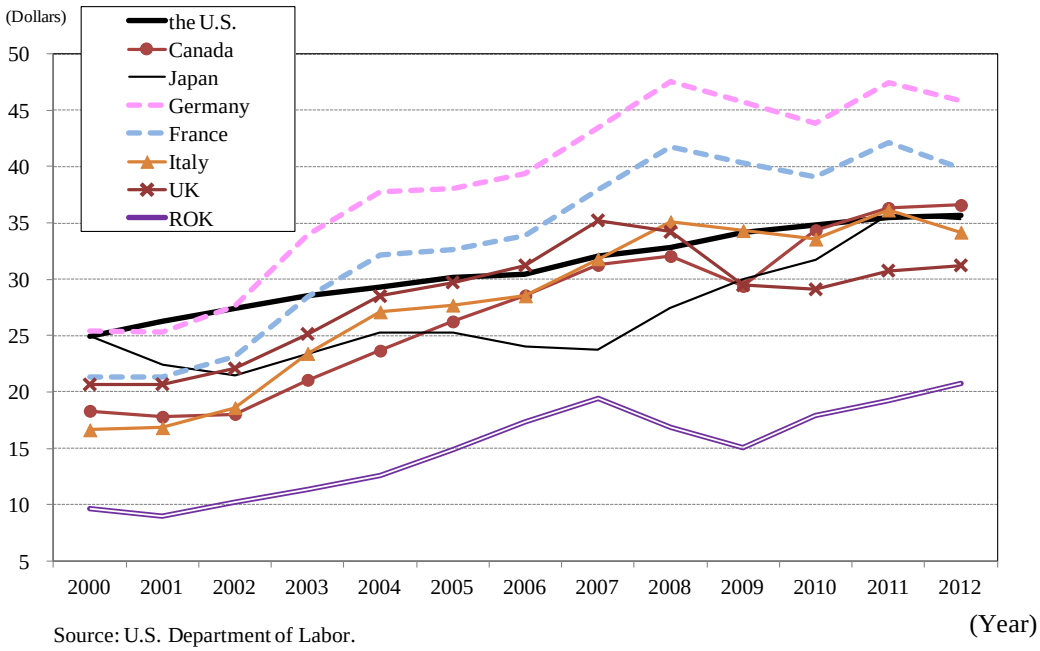
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Growth rate % (Comparison with previous year)	12.3	11.7	12.6	15.2	12.5	12.9	17.6	21.6	26.3	11.7	16.4	24.2	16.4

Figure II-1-2-9 Trends in annual average wage by province in China (all industries, 2012)



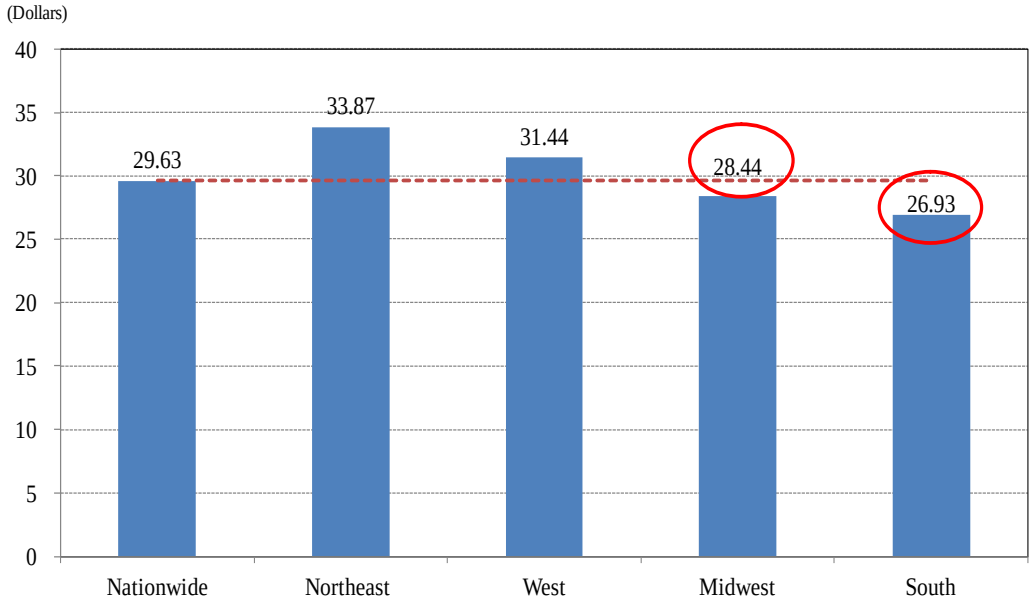
Source: National Bureau of Statistics of China, CEIC Database.

Figure II-1-2-10 International comparison of employee compensation in manufacturing industry (dollar equivalent)



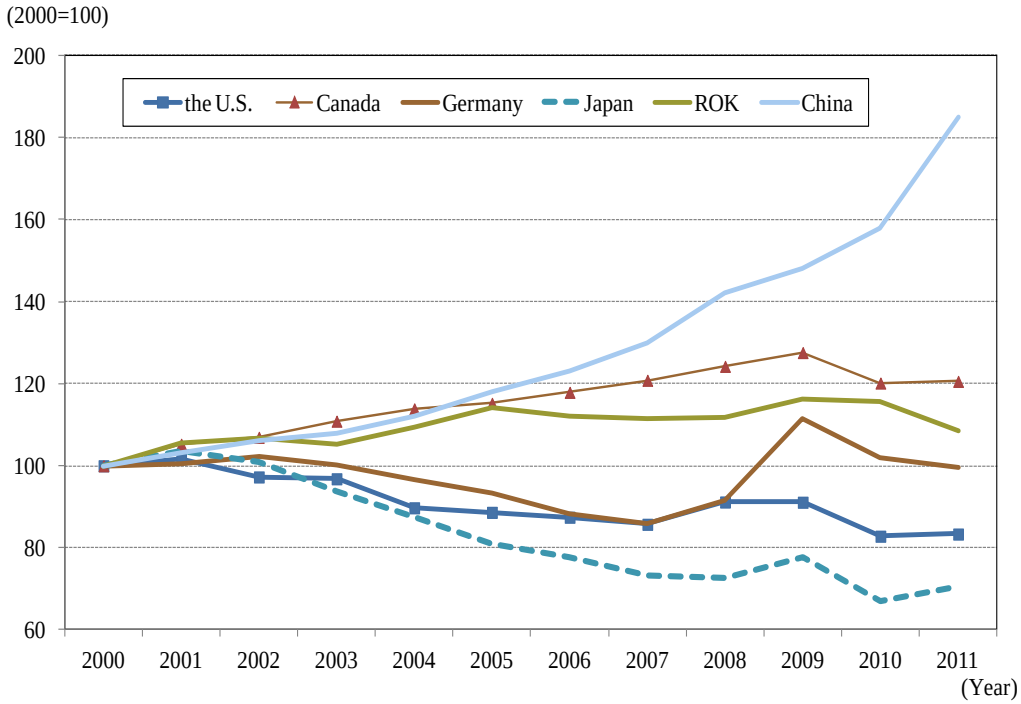
Source: U.S. Department of Labor.

Figure II-1-2-11 Hourly employee compensation by region in the U.S. (December 2013)



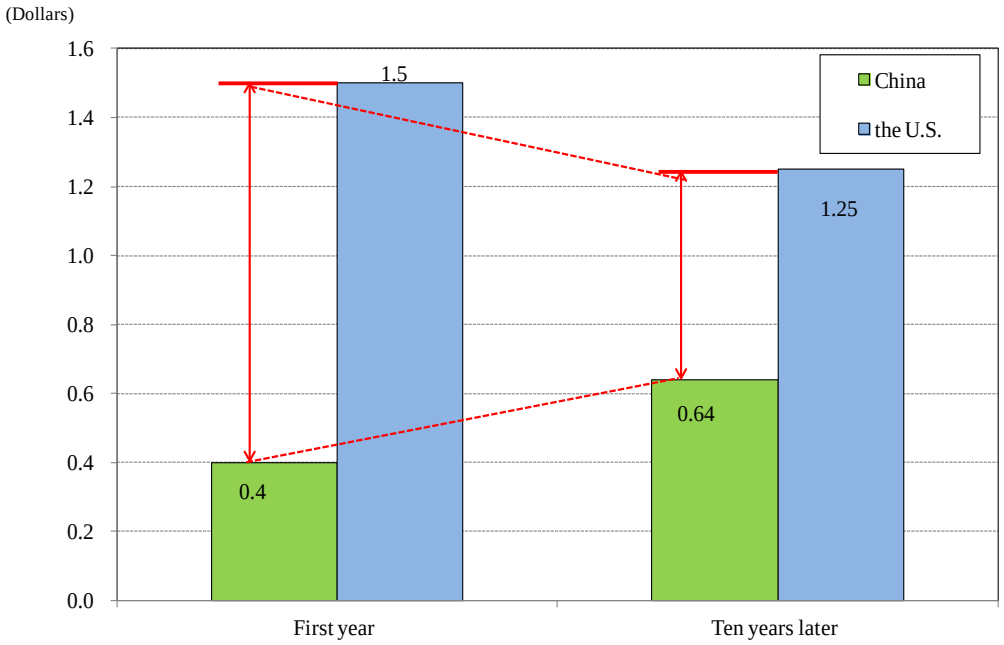
Notes: Northeast: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, Pennsylvania
West: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming, Alaska, California, Hawaii, Oregon, Washington
Midwest: Illinois, Indiana, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota
South: Delaware, Washington, D.C., Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, Texas
Source: U.S. Department of Labor.

Figure II-1-2-12 International comparison of unit labor costs in manufacturing industry (local currency, 2000 = 100)



Notes: Figures for China are economy-wide figures.
Source: U.S. Department of Labor, Department of Commerce Economics and Statistics Administration (ESA).

Figure II-1-2-13 Unit labor cost levels in manufacturing industry (dollar equivalent)



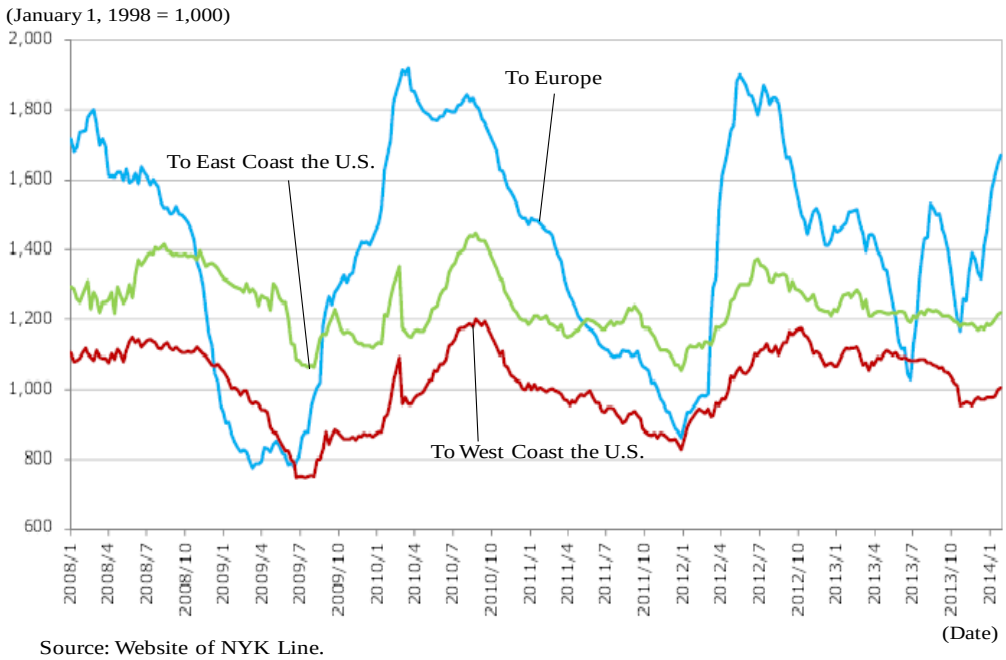
Source: U.S. Department of Commerce Economics and Statistics Administration (ESA).

(b) Transport costs

Around 2009-2010, when U.S. companies started to consider reshoring, the cost of container transport bound for North America, which had slumped due to the impact of the global economic crisis, started to rise gradually. As a result, the cost of transporting products manufactured in China to the United States increased (Figure II-1-2-14).

In addition, the crude oil price, which has remained at a high level since the global economic crisis, has become a cause of concern about a possible increase in the transport cost (Figure II-1-2-15).

Figure II-1-2-14 Trends in the index of container freight rates from China



Source: Website of NYK Line.

Figure II-1-2-15 Trends in the price of WTI crude oil futures

Source: Thomson Reuters Eikon.

(c) Energy costs

In the United States, production costs have declined due to an advance in the technology to extract shale gas and oil, and production of shale gas and oil, which was previously difficult in terms of cost, has become commercially feasible, leading to the acceleration of development since the middle of the 2000s (See “3. Effects of shale gas and oil”). As a result of the expansion of production

volume, the natural gas price in the United States fell steeply, leading to a decline in the cost of energy for domestic industries.

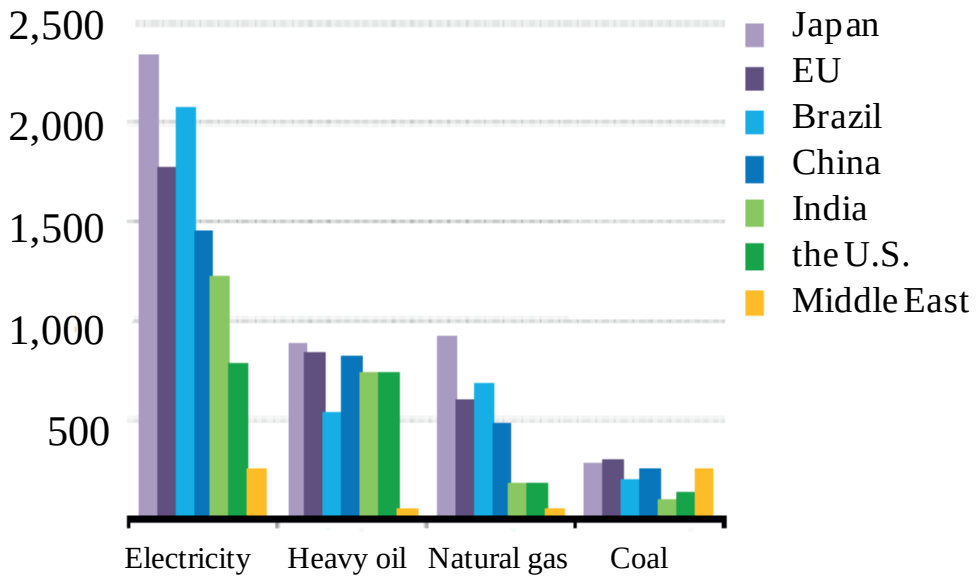
The International Energy Agency (IEA)[84] pointed out that the price of natural gas traded in the United States was a third of the import price in the EU and a fifth of the import price in Japan and that the industrial electricity rates in Japan and the EU are more than double the rate in the United States while the rate in China is about double the rate in the United States. Although the energy price differences by region are expected to narrow in the future, the United States is expected to maintain an energy cost advantage in 2035 (Figures II-1-2-16 and II-1-2-17).

An energy price decline will be beneficial for the international competitiveness of energy-intensive industries, such as chemicals. According to the IEA, countries like China and India are expected to increase their share of exports in the global market in the period through 2035, while the EU and Japan are expected to lose share. Meanwhile, the United States is expected to maintain its current share (Figure II-1-2-18).

As described above, energy-intensive industries in the United States, including chemicals, metals, and cement, may increase their price competitiveness in the domestic market through the decline of energy and raw material cost due to the increased production of shale gas oil.

Figure II-1-2-16 Industrial energy prices in 2012 (including tax)

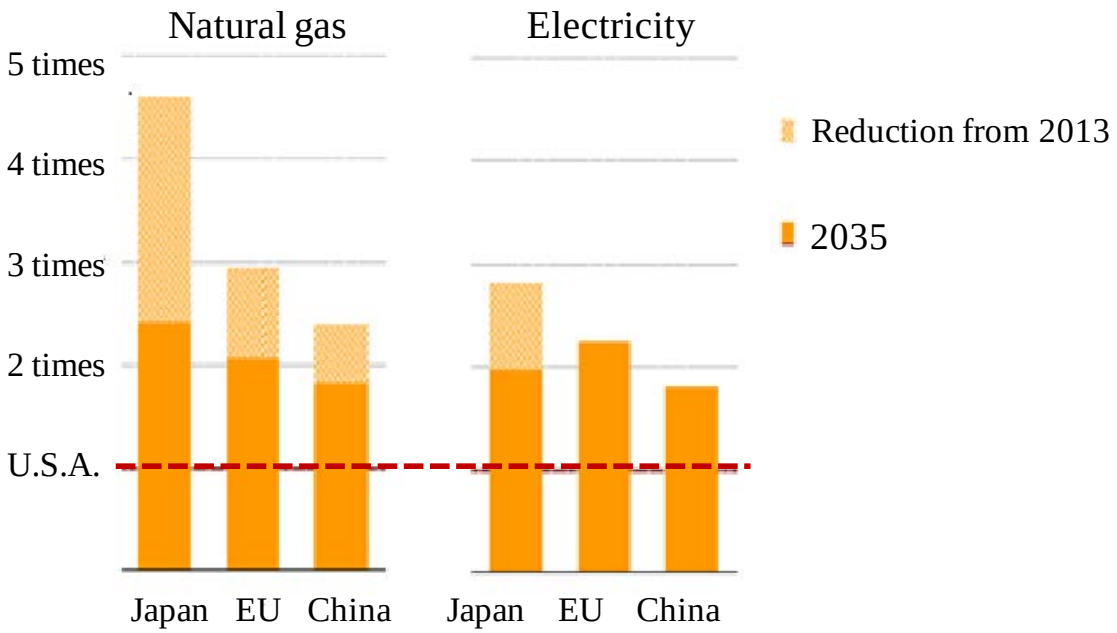
(Dollars/tons oil equivalent)



Source: *World Energy Outlook 2013* (IEA).

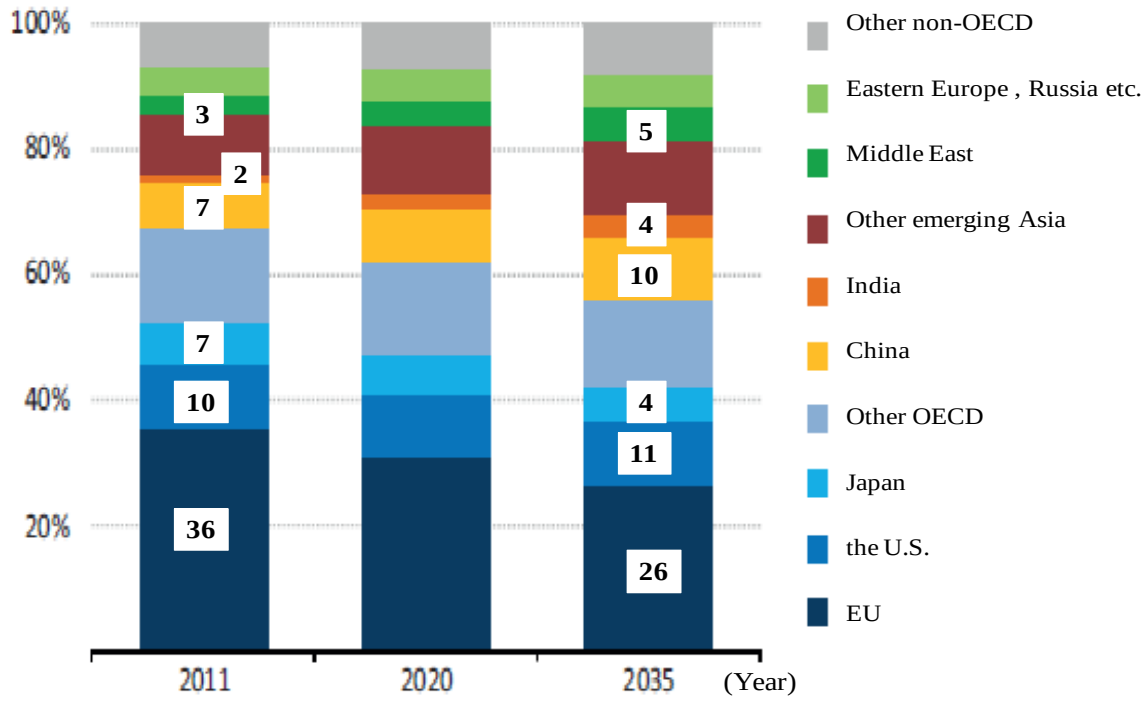
[84] IEA (2013).

Figure II-1-2-17 Ratio of industrial energy prices relative to the U.S.



Source: *World Energy Outlook 2013 (Summary)* (IEA).

Figure II-1-2-18 Trends in the shares of international markets in exports of energy-intensive Goods



Source: *World Energy Outlook 2013* (IEA).

(d) Other costs

While an increasing number of companies aim to reduce costs through offshoring, some of them fail to achieve as much cost reduction as they initially expect. The presence of "hidden costs" that have currently arisen or may arise in the future in relation to operation outside the United States has been cited as one major reason. The hidden costs include direct and indirect costs and short-term and long-term costs. Moreover, in some cases, unforeseen costs may arise due to changes that will occur with the passage of time. Table II-1-2-19 shows specific examples of hidden costs[85].

Also, the view was presented that when offshoring manufacturing and R&D operations separately, it is necessary to take into consideration not only the viewpoint of cost reduction but also the relevance of the effects of manufacturing processes on innovation. In reference to the modularity-maturity matrix[86], the authors of this view argues that when the manufacturing process and innovation are inextricably connected with each other, there is a very high risk that innovation will suffer because of offshoring of manufacturing operations, so it is necessary to keep manufacturing operations at home[87](Table II-1-2-20).

Moreover, it is pointed out that as outsourcing results in the loss of "industrial commons" (common assets necessary for manufacturing activity) that are essential to manufacturing activity, including suppliers, skilled workers with expertise and managers with operational experiences, it would not be easy to reshore manufacturing operations outsourced to other countries.

Presumably, the presence of "hidden costs" and the increased recognition of the importance of interaction between manufacturing processes and innovation are also background factors for the reshoring trend.

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[85] Porter & Rivkin (2012). Porter & Rivkin (2012) make a reference to the fact that the presence of such hidden costs was pointed out in "What lies beneath? –The hidden costs of entering rapid-growth markets," a survey conducted by Ernst & Young in 2010.
(http://www.ey.com/Publication/vwLUAssets/CFO_Study_Master_series_What_lies_beneath/$FILE/CFO_Study_Master_series_What_lies_beneath.pdf)

[86] "Modularity" represents the perspective of whether or not the separation of information concerning research, development and design of products from the manufacturing process creates problems, while the "maturity" represents the perspective of whether or not there is room for improving manufacturing process technology.

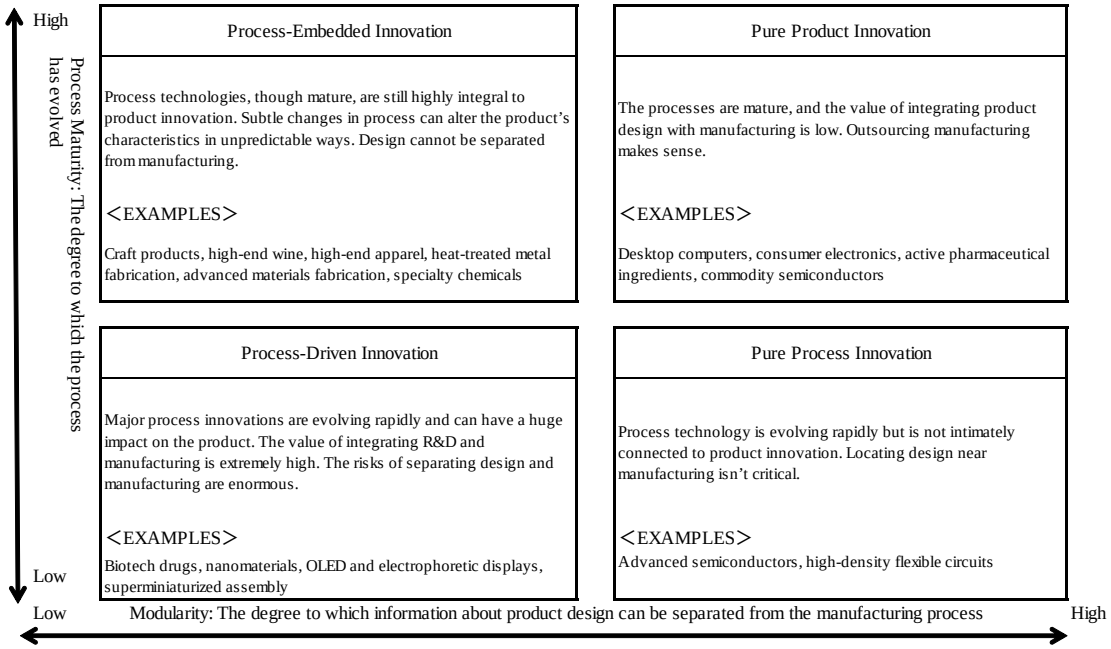
[87] Pisano & Shih (2012). Pisano & Shih (2012) points out that by actively outsourcing manufacturing operations as a mere cost center without giving due consideration to the possible effects of the manufacturing process on innovation, U.S. companies have lost innovation capability and that the United States' superiority in promising fields, such as environmental technologies, energy, biotechnology, aerospace, and high-tech medical equipment, is now under threat.

Table II-1-2-19 Examples of hidden costs

Short-term direct costs	Long-term direct costs
・Increase in employees hired ・Inefficient use of raw materials ・Initial quality reduction ・Rise in the scrap rate	・Wage inflation ・Costs resulting from a rising attrition rate ・Rise in the price of the local currency
Short-term indirect costs	**Long-term indirect costs**
・Increased management or training costs ・Increased inspection or security measures ・Rise in shipping costs ・Increased inventory costs ・Increased packaging costs ・Increased travel or communications costs	・Reduced ability to respond to changes in demand ・Loss of intellectual property ・Adjustment costs incurred ・Negotiations with partners

Source: Diamond Harvard Business Review, June 2012.

Table II-1-2-20 The Modularity-Maturity Matrix



Source: Diamond Harvard Business Review, June 2012 edition.

(e) Corporate behavior responding to changes in the business environment

According to a survey conducted on U.S.-based manufacturing executives at companies with sales greater than one billion dollars by Boston Consulting Group (BCG) in August 2013[88], 54% said they were "planning to bring back production to the U.S. from China or are actively considering it," up

[88] BCG Press Release (September 24, 2013).
http://www.bcg.com/media/pressreleasedetails.aspx?id=tcm:12-144944

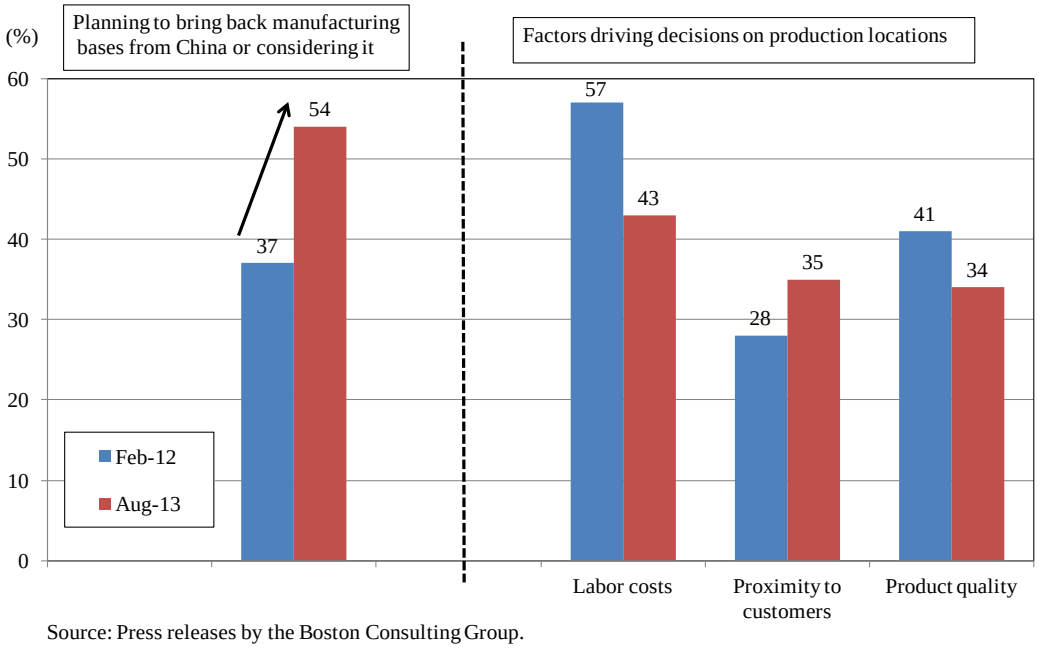
from 37% in the previous survey[89] (February 2012). In addition, the share of respondents who said they were "actively doing this" (moving production to the United States) or that they "will move production to the U.S. in the next two years" came to 21%, more than double the share in the previous survey.

The priority factors cited as driving future decisions on production locations were (i) labor costs (43%), (ii) proximity to customers (35%), and (iii) product quality (34%). More than 80% of respondents cited at least one of these reasons as a key factor. Other leading factors include access to skilled labor, transportation costs, and ease of doing business (Figure II-1-2-21).

In some of the specific examples of reshoring, companies reshored operations not only because of changes in the business environment, such as a rise in labor costs in China and increasing production of shale gas and oil but also for the purpose of gaining access to an abundance of skilled labor in the United States and proximity to consumers in the United States, which is the world's main market (Table II-1-2-22).

In other examples, non-U.S. companies established new operations or expanded existing ones with an eye on the increasing production of shale gas and oil and future potential of the U.S. market (Table II-1-2-23).

Figure II-1-2-21 Views on reshoring among U.S. manufacturing executives



Source: Press releases by the Boston Consulting Group.

[89] BCG Press Release (April 20, 2012).
http://www.bcg.com/media/PressReleaseDetails.aspx?id=tcm:12-104216

Table II-1-2-22 Examples of reshoring and domestic investment by U.S. companies

Industry Type	Date Announced	Announcement Details	Main Reasons
ATMs	Oct 2009	Establishment of a new technology-focused plant in Georgia. Production for the North American market. Due to create around 870 new jobs over the next three years.	Proximity to customers, improved system for partnership within the company, reduced operational costs, taking into account future prospects for ATMs in financial markets.
Construction machinery	June 2011	Investment of $130 million in substantially expanding the production capacity of a hydraulic excavator plant currently under construction in Texas. Additional investment of $70 million. Creation of 100 new jobs within the new plant, with the prospect of employing 600 once the plant is fully operational.	Responding to demand for hydraulic excavators, which is expected to increase.
	Feb 2012	Transfer of compact construction machine production from Japan to Georgia. Investment of around $200 million. As well as directly employing 1,400 new staff once fully operational, it is anticipated that around 2,800 full-time jobs will be created at suppliers supporting the new plant. The Japanese plant will continue to operate as a hi-tech components plant. The local government in the area to which the plant is to be relocated will waive taxes worth $30 million (approx. ¥3 billion) over the next 20 years.	To expand production through the U.S. investment in order to prepare for the growth of emerging economies. To get closer to the company's customer base in North America and Europe. The existence of highly-skilled suppliers and an abundant, capable workforce with manufacturing experience.
Motor vehicles	Oct 2011	Agreement with the United Automobile Workers (UAW) to invest $6.2 billion and create jobs for 12,000 people at plants within the U.S., including through the relocation of operations from Mexico, China, and Japan.	Proximity to customers. To strategically respond to current and future motor vehicle demand.
Elevators	Oct 2011	Relocation and integration of production processes from Mexico and Indiana to a new manufacturing center in South Carolina. Will reduce lead times by bringing manufacturing, engineering and logistics operations together in a single location. Will create at least 360 new jobs.	To respond rapidly to customer needs and reduce lead times.
Household electrical appliances	Feb 2012, etc.	Transfer of production of energy-saving water heaters from China to a plant in Kentucky. Investment of $38 million in products and plant equipment. The relocation will enable the company to reduce the retail price by $300, as well as offering a product with better performance than the Chinese-manufactured items. The company will invest $1 billion between 2009 and 2014 in efforts to relocate production of other household electrical appliances from China and Mexico back to the U.S. and intends to create at least 1,300 new jobs.	Rise in Chinese labor costs, need to reduce costs and improve product performance.
Household electrical appliances	Mar 2012	Production of LCD televisions within the U.S. (Michigan) to commence for the first time in over a decade.	Soaring wage costs in China, etc.
Chemicals	Apr 2012, etc.	Closure of plants worldwide and construction of new plants on the Gulf of Mexico coast (Texas and Louisiana) to increase operational efficiency. A series of investment plans to be carried out over 5-7 years on the Gulf of Mexico coast is expected to result in the employment of 5,000 people at the peak of plant construction, with an employment spillover effect of more than 35,000 jobs throughout the U.S. economy as a whole.	To strengthen competitiveness by using raw materials such as cheap U.S.-produced shale gas.

Source: Websites of each company.

Table II-1-2-23 Examples of U.S. investment by foreign companies

Industry Type	Date Announced	Announcement Details	Main Reasons
Steel (France)	Feb 2010	Investment of $650 million for the construction of a seamless small-diameter oil well casing pipe plant in Ohio. Will create 350 new direct employment opportunities.	Long-term demand for the product is anticipated, due to the intensification of unconventional gas production.
Motor vehicles (Japan)	June 2010	Establishment of a new plant in Mississippi, to begin operating in the autumn of 2011. Its annual production capacity will be 150,000 vehicles. About 2,000 people will be employed at the plant.	Part of the company's strategy of localization and self-reliance, given North America's importance as a production base.
	Apr 2013	Transfer of production of models destined for sale in North America from the Kyushu plant to a plant in Kentucky. Around $360 million is due to be invested. Around 50,000 vehicles are due to be produced annually. Around 750 new jobs are due to be created. Vehicles for regions other than North America will continue to be produced in Kyushu. Around $360 million is due to be invested.	Proximity to customers.
Motor vehicles (Germany	May 2011	Establishment of a plant in Tennessee with a production capacity of 150,000 vehicles annually. Investment of $1 billion. As of the time of the announcement, 1,700 people are to be employed.	To lay the foundations for capturing market share in the U.S., which is the world's largest and most important market.
Tires (Japan)	Sept 2011	Construction of a new plant in South Carolina to manufacture large and extra-large radial tires for construction and mining vehicles. In conjunction with this, production capacity at plants in Tennessee and Japan will be increased in an investment project worth a total of ¥82.5 billion.	To respond rapidly to the steady growth in demand worldwide, primarily in the Americas.
Gas turbines (Germany)	Nov 2011	Construction of a gas turbine plant in North Carolina. Investment worth more than $350 million in total. Will create 700 new jobs. A further 400 new jobs are expected to be created by 2014. Will not only produce turbines for the U.S. market, but will also be positioned as an export hub. The value of exports is expected to increase by more than $400 million annually.	Responding not only to the appeal of the U.S. market, but also to growing global demand for high-efficiency gas-fired power plants.
Tires (France)	Apr 2012	Investment of $750 million in the construction and expansion of a new plant in South Carolina to produce large radial tires for construction and mining vehicles. Due to create 500 new jobs. Will produce tires not only for North America, but also for export to other regions.	To maintain and enhance competitiveness in this product field.
Computers (China)	Oct 2012	Relocation from China to North Carolina, to produce and sell goods for the U.S. market. Will create 115 new manufacturing jobs.	Growth in the U.S. is anticipated, give the long-term strength of the U.S. PC market.
Aircraft engines (UK)	Nov 2012	Components for aircraft engines have been manufactured at the Virginia plant since 2011; a major expansion in the scale of the plant was announced in November 2012. Investment of around $138 million, creating 140 highly-skilled jobs.	To bring R&D and production closer together.
Motor vehicles (Japan)	Dec 2012	Construction of a plant to manufacture lithium-ion batteries for the company's 100% electric-powered vehicles, the U.S. construction of which is due to start in early 2013; the battery plant begins operating in December 2012. To date, more than 300 jobs have been created in the field of battery and electric vehicle production, with up to a further 1,000 expected to be created in the future. Obtained a loan of up to $1.4 billion from the U.S. Department of Energy.	Part of a comprehensive strategy.
Compressors (Japan)	Oct 2013	Construction of a new compressor production and service center in Texas, to enhance the company's ability to provide a one-stop service that can swiftly meet demand.	To capture demand associated with new petrochemical plants and the replacement of existing plants, arising from the shale revolution in the U.S.

Source: Websites of each company.

(B) Position of the manufacturing industry in the U.S. economy

(a) GDP and the number of employees

A look at industries' shares in nominal GDP shows that although the manufacturing industry's share declined gradually from the 1990s onward, it stopped declining in 2009 (Figure II-1-2-24).

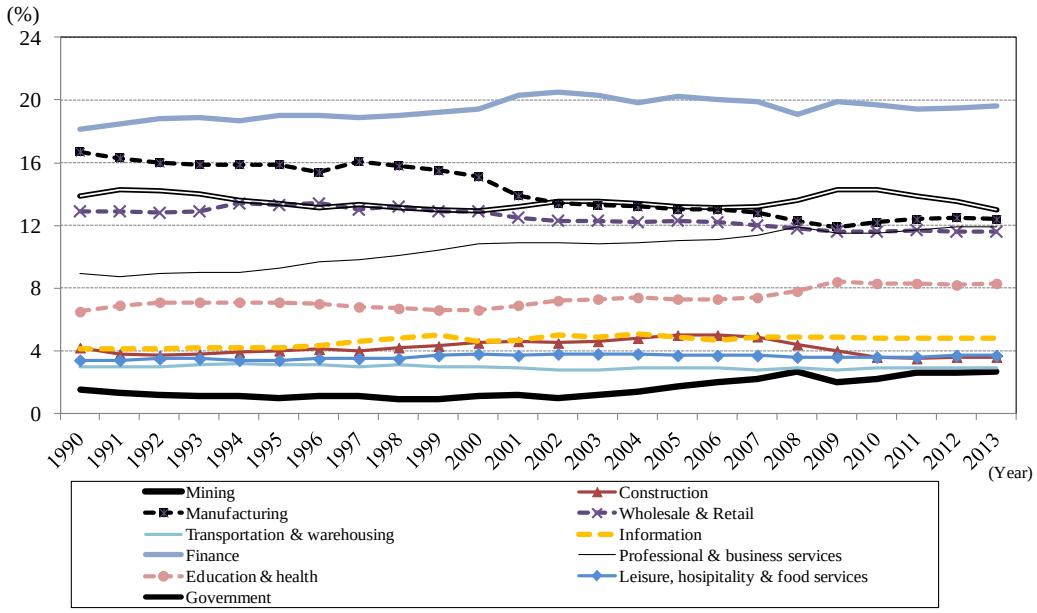
Meanwhile, the number of employees in the manufacturing industry was on a downtrend from the 1990s onward, but it has remained almost flat since 2009 (Figure II-1-2-25).

A breakdown of the manufacturing industry's share of nominal GDP by sector shows that the shares of the chemical products sector and the petroleum and coal products sector have been growing (Figure II-1-2-26).

As described above, as a result of increased business activity in the chemicals industry, where positive effects of production of shale gas and oil are expected, investments in related fields are also expected to increase. However, as there is a tendency of employment being curbed due to labor cost reduction and automation, it is possible that the job creation effect of reshoring will not be

particularly strong[90].

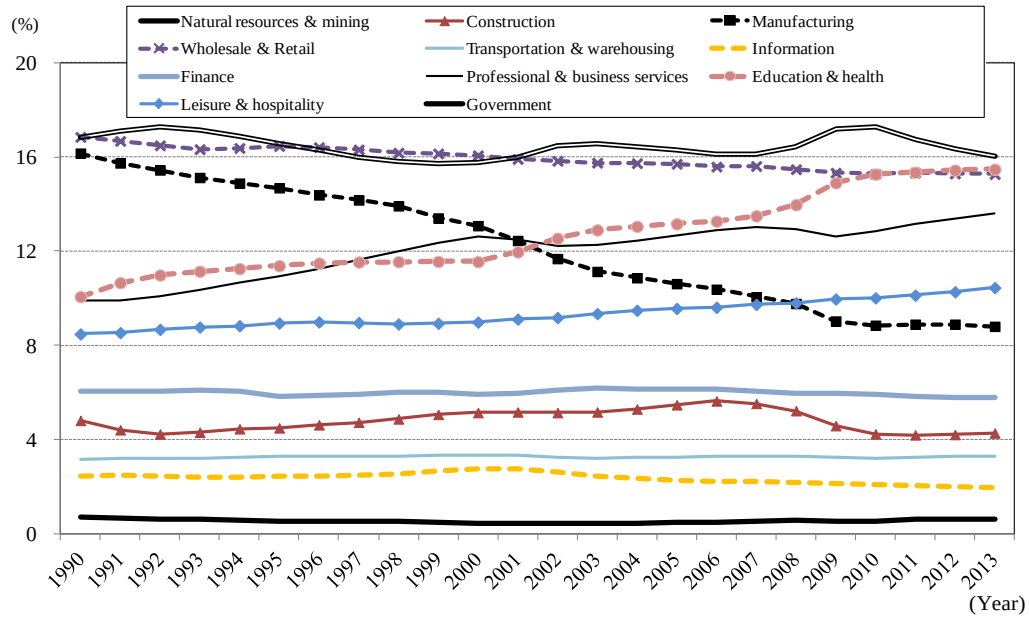
Figure II-1-2-24 Trends in nominal GDP share by industry



Notes: Figures for 1997 onward based on revised benchmarks.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

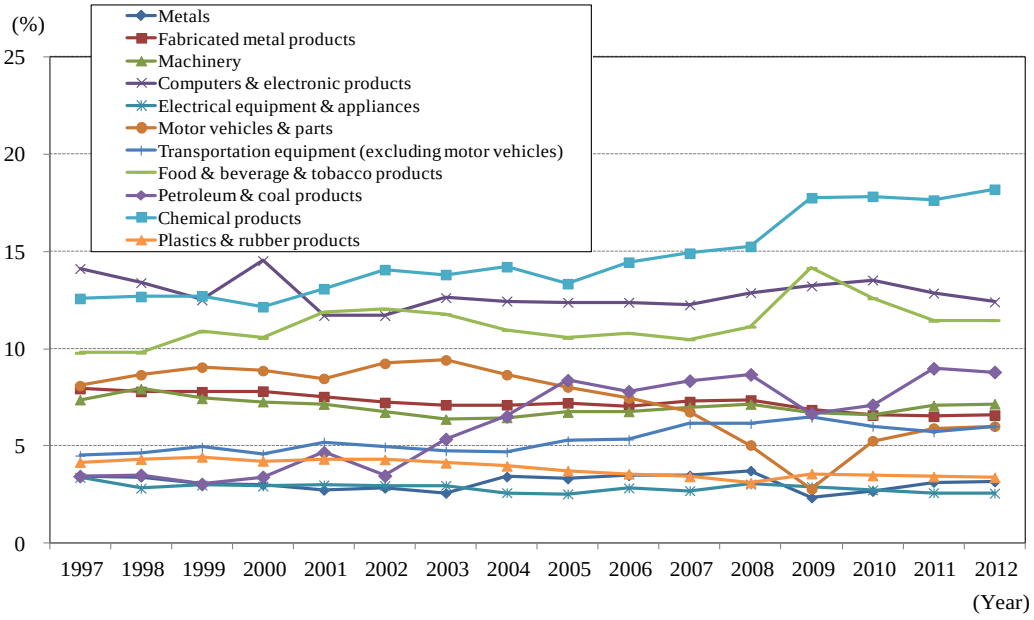
[90] According to Nishikawa (2013), while a halt in the decline in the manufacturing industry's share of nominal GDP is a sign of structural change, it comes against the backdrop of an end to the downtrend of the manufacturing deflator (manufacturing deflation). Among the background factors behind the end of manufacturing deflation are a decline in labor's share of income (curb on employee compensation) and a slowdown of the drop in the unit labor cost (a slowdown of the rise in labor productivity), so a virtuous cycle of employment and income improvement is unlikely to arise. Nishikawa (2013) points out that this is a cause of concern from the perspective of the sustainable growth potential of the United States as a whole.

Figure II-1-2-25 Trends in share of number of employees by industry



Notes: The number of employees is the annual average of the number of employees each month. Non-agricultural sectors.
Source: U.S. Department of Labor, CEIC Database.

Figure II-1-2-26 Trends in the share of nominal GDP for manufacturing by industry



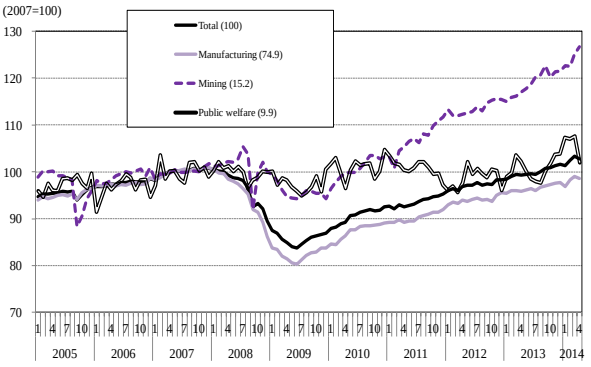
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

(b) Industrial production index

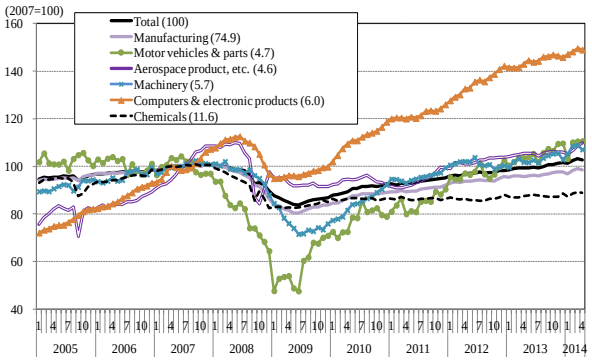
As for changes in the industrial production index, the production index for mining has been rising significantly due to the effects of shale gas and oil. The production index for manufacturing has continued to rise after falling steeply because of the global economic crisis. However, by March 2014, the production index for manufacturing had not yet recovered to the level in 2007, before the global economic crisis.

By sector, the production index has been rising notably for the computer and electronic products sectors and the motor vehicles and parts sectors. On the other hand, the production index for the chemicals products sector, unlike the sector's share of nominal GDP, has not yet shown signs of recovery despite positive effects expected from shale gas and oil (Figure II-1-2-27).

Figure II-1-2-27 Trends in the industrial production index (left: major industries; right: major manufacturing industries)



Notes: Figures in brackets in the legend indicate the weighting within the total (2013 average).
Source: FRB, CEIC Database.



Notes: Figures in brackets in the legend indicate the weighting within the total (2013 average).
Source: FRB, CEIC Database.

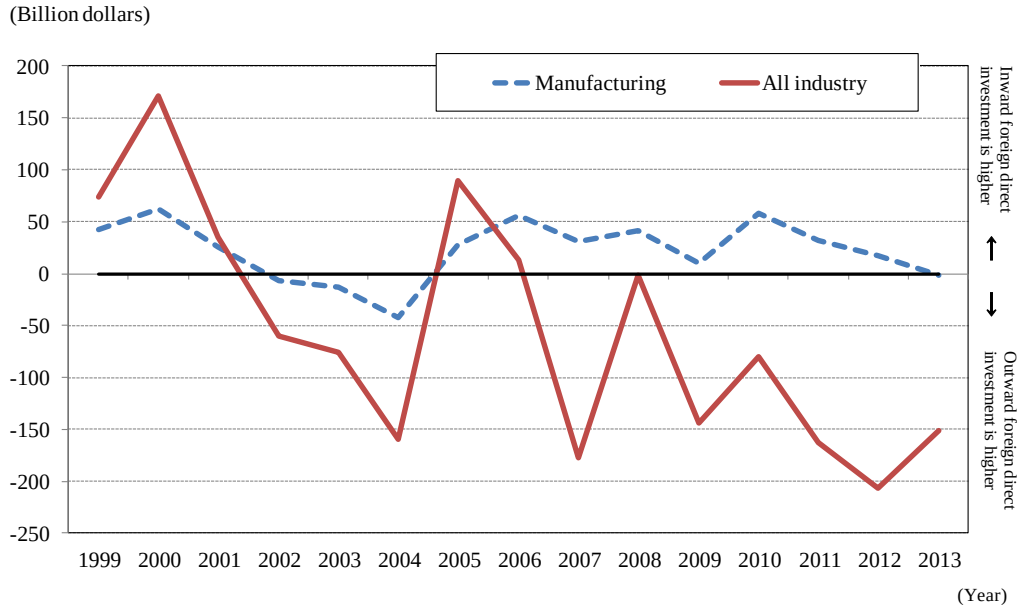
(c) Inward and outward foreign direct investment

A look at changes in inward and outward foreign direct investment on a net basis shows a continuous capital outflow on an all-industry basis, with outward foreign direct investments exceeding inward ones. Meanwhile, the manufacturing industry continued to record a net capital inflow from 2005 to 2012, with inward foreign direct investment exceeding outward ones, although it registered a net capital outflow of 1.87 billion dollars in 2013 (Figure II-1-2-28).

By sector, inward foreign direct investments in the chemicals sector, where the positive effects of shale gas and oil are expected, have been increasing (Figure II-1-2-29).

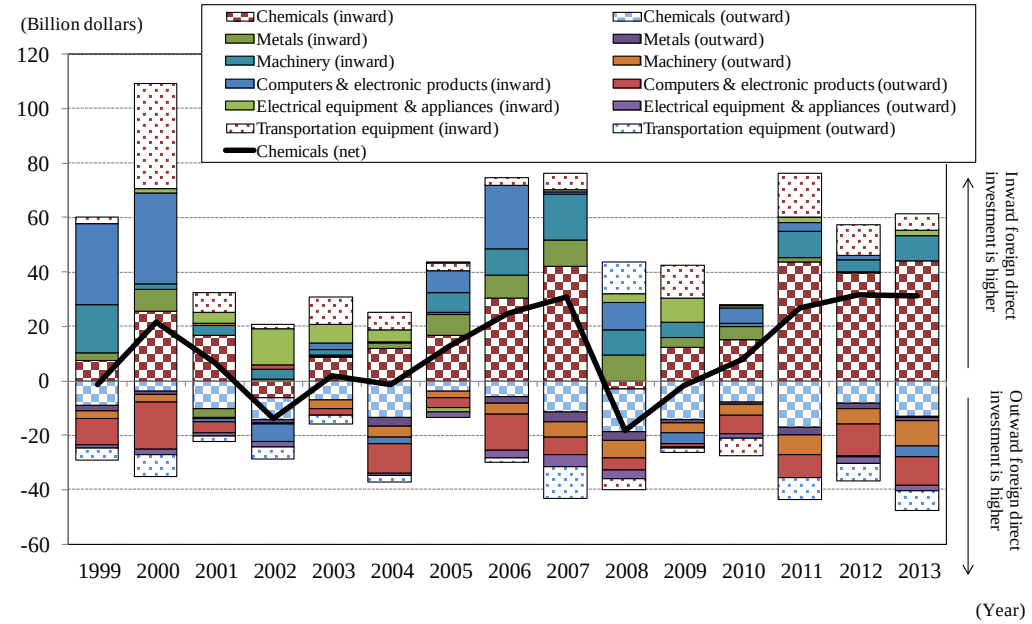
Outward foreign direct investments in China have been on an uptrend even after 2009, when U.S. companies started to consider reshoring (Figure II-1-2-30).

Figure II-1-2-28 Trends in the net value of inward and outward foreign direct investment



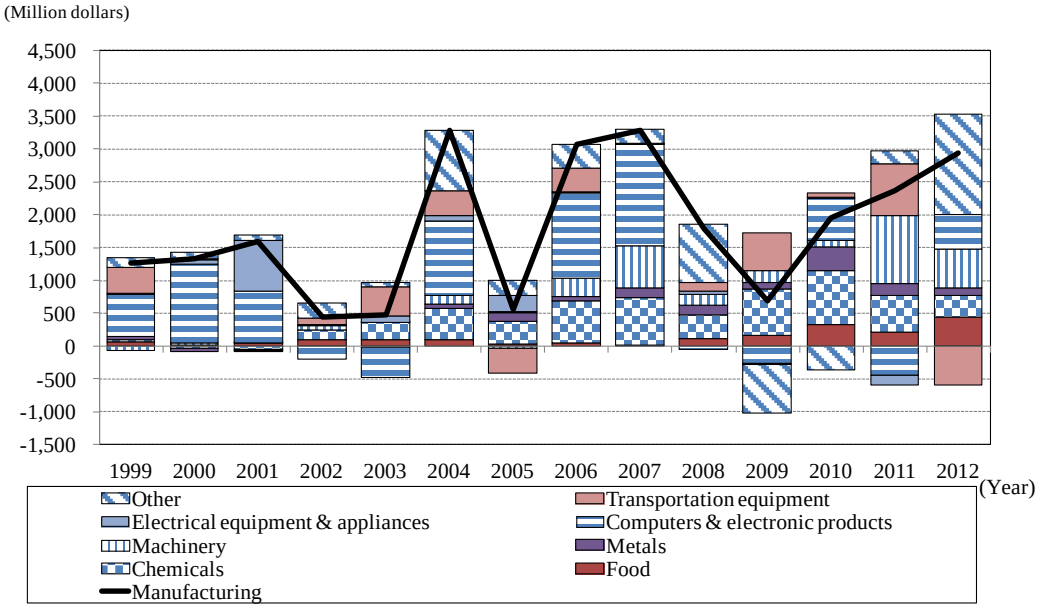
Notes: Figures for outward foreign direct investment are indicated by a minus sign.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA), CEIC Database.

Figure II-1-2-29 Trends in inward and outward foreign direct investment (major manufacturing industries)



Notes: Figures for outward foreign direct investment are indicated by a minus sign.
Source: U.S. Department of Commerce, CEIC Database.

Figure II-1-2-30 Value of U.S. outward foreign direct investment in China (manufacturing industry)



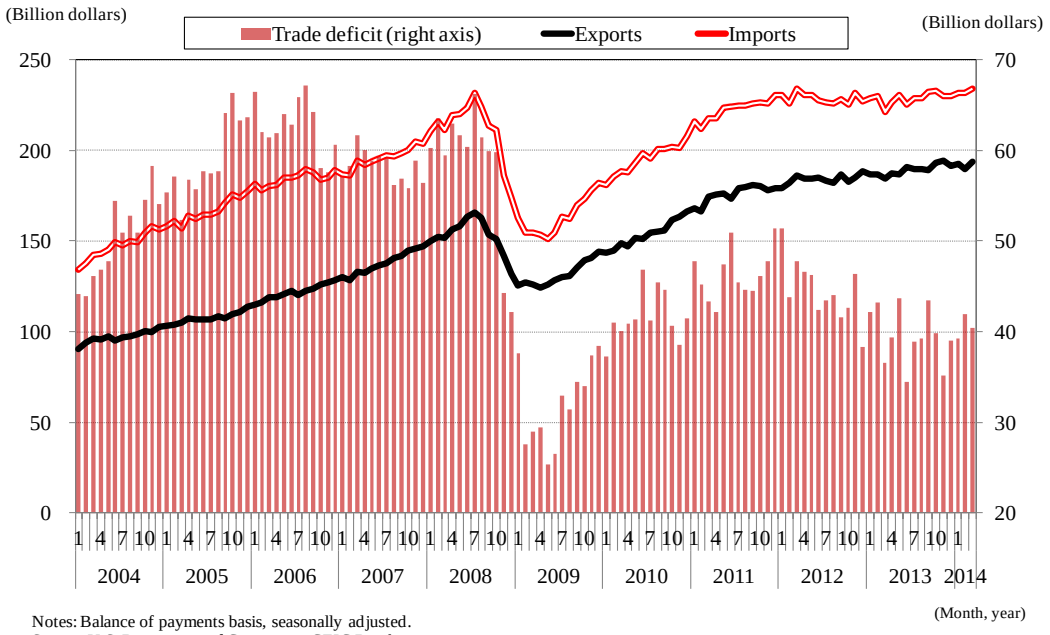
Notes: 1999-2002 figures for "Other" have been calculated by deducting each industry from the total for all manufacturing industry.
Expenditure in each period on an unadjusted basis.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

(d) Trade balance

A look at the trade balance trend shows that the trade deficit has recently been shrinking. In February 2014, exports increased 6.1% compared with January 2012, when the monthly trade deficit hit a peak for recent years, whereas imports grew only 0.6% (Figure II-1-2-31). In particular, the trade deficit regarding industrial supplies has been declining in recent years (Figure II-1-2-32).

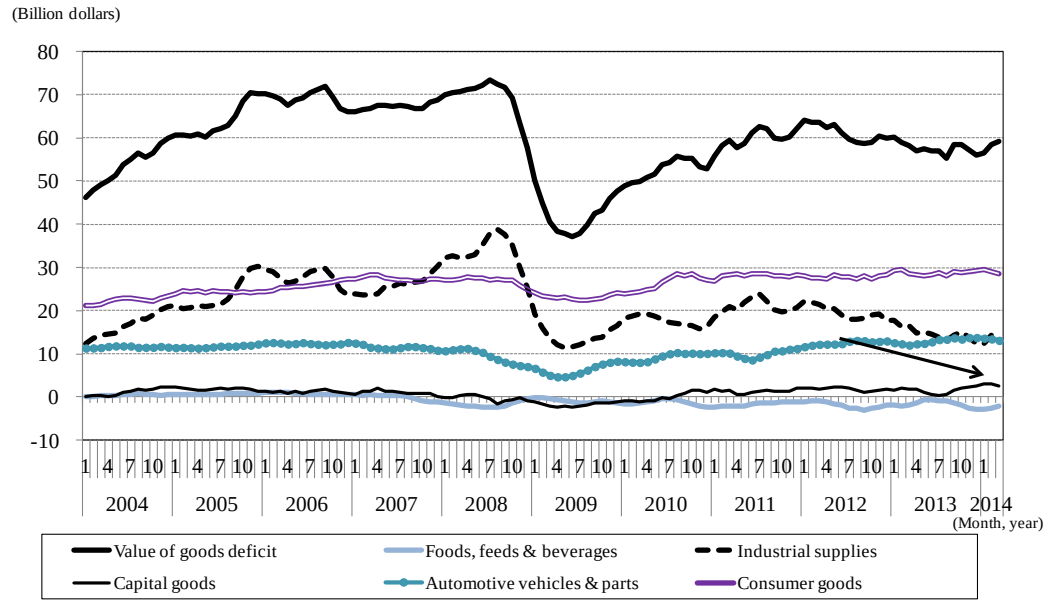
Regarding industrial supplies, fuel oil, natural gas, petroleum products and liquefied natural gas were the top four items in terms of growth in export value between January 2000 and February 2014. However, the import value of these items has been declining, an indication of the effects of increasing production of shale gas and oil (Figure II-1-2-33).

Figure II-1-2-31 Trends in the U.S. balance of trade



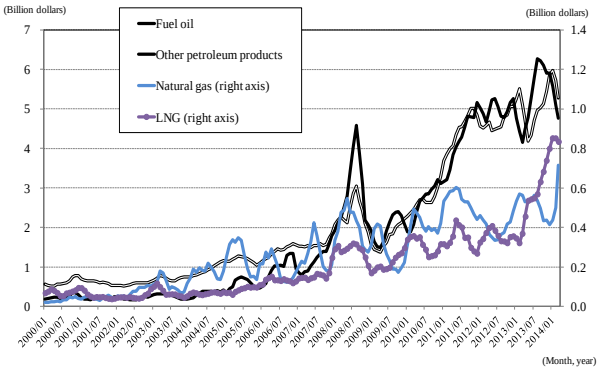
Notes: Balance of payments basis, seasonally adjusted.
Source: U.S. Department of Commerce, CEIC Database.

Figure II-1-2-32 Trends in the U.S. goods deficit

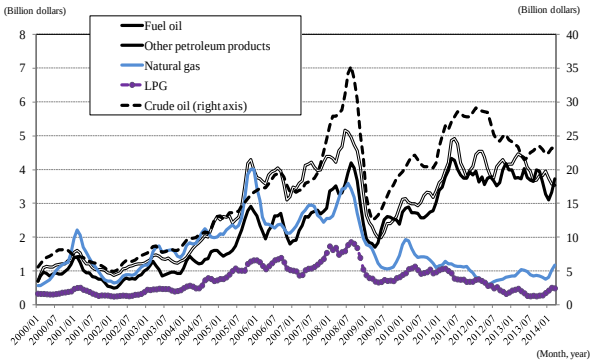


Notes: The vertical axis is calculated on the basis of a moving average of imports – exports for each category for the previous three months.
Customs clearance basis, seasonally-adjusted values.
Source: U.S. Department of Commerce, CEIC Database.

Figure II-1-2-33 Trends in trade in major industrial supplies (left: exports; right: imports)



Notes: Calculated on the basis of a moving average for the previous three months. Customs clearance basis, seasonally-adjusted values.
Source: U.S. Department of Commerce, CEIC Database.



Notes: Calculated on the basis of a moving average for the previous three months. Customs clearance basis, seasonally-adjusted values.
Source: U.S. Department of Commerce, CEIC Database.

(e) Labor costs

A look at changes in hourly real wages in the United States shows that although the level of hourly wages in the manufacturing industry (all employees) is higher than the level in all private industries, the gap has been narrowing since the global economic crisis.

Meanwhile, the level of hourly real wages in the manufacturing industry (factory floor employees), which has been declining steeply, fell below the level in all private industries (non-managerial employees) in 2006 for the first time, and the gap has been widening (Figure II-1-2-34).

Presumably, factors behind these trends include the decline of bargaining powers caused by the introduction of the Right to Work Law[91] and the two-tier wage system[92], an indication that precedence is given to securing jobs over wage increases for factory floor workers.

In some cases of reshoring, which refers to bringing jobs outsourced to other countries back to the United States, companies set the wage level lower than before or reduced pension and healthcare benefits.

For example, an aircraft manufacturer announced a plan to manufacture next-generation aircraft in the United States. While this is expected to create tens of thousands of jobs, the manufacturer and the union agreed on reducing the employer's burden by changing the pension contract from the defined benefit type to the defined contribution type. Meanwhile, a construction machinery manufacturer that had shifted production to the United States agreed with the union on a wage contract that included the freezing of wage increases for skilled workers with high levels of wages, abolition of the defined benefit type pension system and an increase in employees' share of the burden of healthcare costs.

As shown above, there are cases in which the business strategy of securing profits by curbing the wage level and companies' burden of pensions and other costs forces a decision as to "jobs or wages".

Regarding the unit labor cost, as mentioned in "(i) Changes in the business environment," the gap

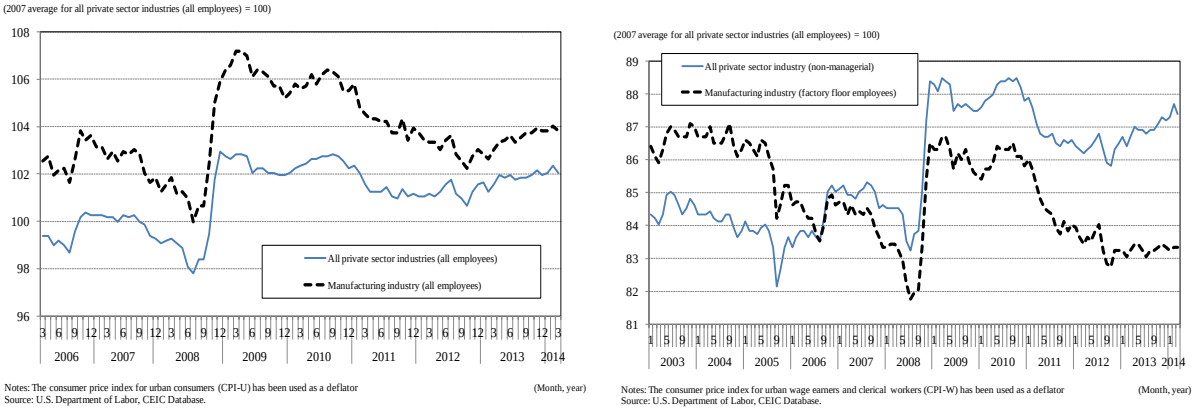
[91] The Right To Work Law (RTW Law) prohibits compulsory union membership as an employment condition and makes illegal compulsory collection of union fees from all employees. It grants workers the right to not join a labor union. According to data compiled by the U.S. Department of Labor, the wage level for non-unionized workers is around 20% lower than that for unionized members.

[92] Under this system, the wage level for future employees will be set at a lower level than that for existing employees.

with China has been narrowing, so the labor cost situation in the United States is presumably improving.

A breakdown of the unit labor cost in the manufacturing industry into per-capita employee compensation and labor productivity shows that until 2007, the unit labor cost continued to fall because labor productivity grew more than per-capita employee compensation. However, in recent years, the unit labor cost has been rising despite limited growth in per-capita employee compensation because labor productivity growth has remained stagnant (Figure II-1-2-35).

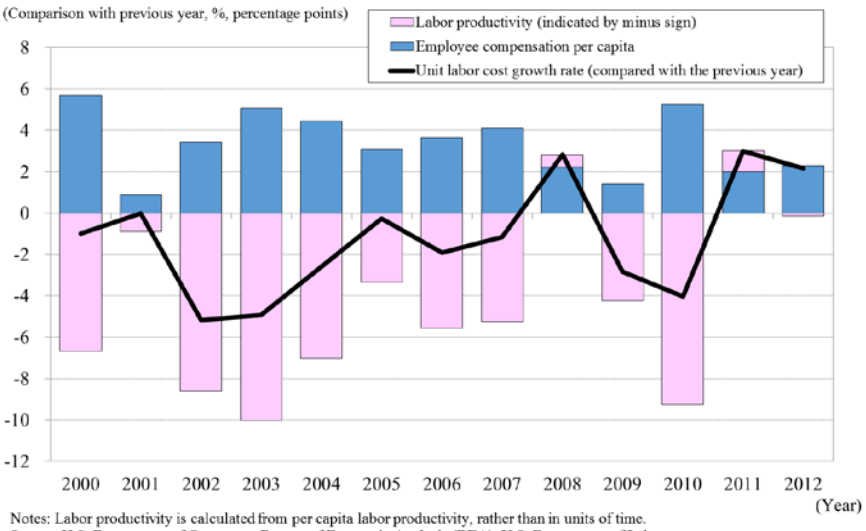
Figure II-1-2-34 Trends in hourly real wages in the U.S. (left: all employees; right: shop floor employees and non-managerial workers)



Notes: The consumer price index for urban consumers (CPI-U) has been used as a deflator
Source: U.S. Department of Labor, CEIC Database.

Notes: The consumer price index for urban wage earners and clerical workers (CPI-W) has been used as a deflator
Source: U.S. Department of Labor, CEIC Database.

Figure II-1-2-35 Factor analysis of the rate of change in unit labor costs in manufacturing industry (compared with the previous year)



Notes: Labor productivity is calculated from per capita labor productivity, rather than in units of time.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA), U.S. Department of Labor.

(f) Current status of the manufacturing industry from the perspective of the U.S. macroeconomy

As shown above, reshoring that brings outsourced manufacturing of goods, mainly those intended for U.S. customers, to the United States is attracting attention against the backdrop of the narrowing of the unit labor cost gap with China due to a wage rise there, an improvement in the business environment, such as production of shale gas and oil, and the need to quickly respond to customer needs by gaining proximity to customers.

As for macroeconomic indicators concerning the manufacturing industry, some effects of increasing production of shale gas and oil are starting to appear. The effects include: a halt of the decline in the manufacturing industry's share of nominal GDP; active investments in the chemical industry, where positive effects of shale gas and oil as targets of inward foreign direct investment are expected; and narrowing of the trade deficit. However, these effects are limited, as shown by the absence of notable signs of recovery in industrial production, so a structural change that deserves to be called a manufacturing renaissance is not observed for the moment.

Regarding the employment situation as well, a significant improvement has not been observed for the moment, and the unit labor cost is rising due to sluggish growth in labor productivity, so creating high-quality jobs continues to be a challenge.

3. Effects of shale gas and oil

(1) Production of shale gas and oil and the trade balance

In the United States, because of an advance in the technology to extract natural gas and crude oil from shale rock formations, the extraction of unconventional resources, including shale gas and oil, which has until recently been unprofitable, is starting in earnest.

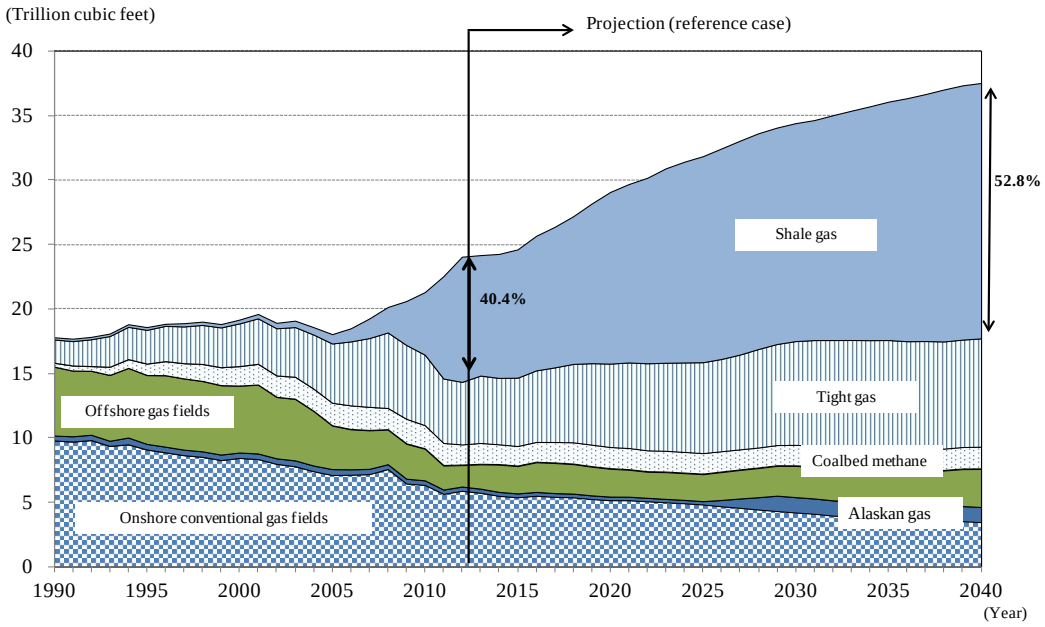
Regarding natural gas, while production of conventional gas has been declining, production of shale gas, which is categorized as unconventional gas, has been increasing. The increase in shale gas production since 2006 is remarkable, and production is expected to continue increasing until 2040. According to the U.S. Energy Information Agency (EIA), shale gas's share of overall natural gas production, which was appropriately 40.4% in 2012, is projected to expand to more than 50% by 2040 (Figure II-1-2-36).

Meanwhile, production of crude oil, which was previously on a downtrend, has been increasing since 2009 due to the increased production of tight oil including shale oil. However, unlike production of natural gas, production of crude oil is expected to decline after peaking at 9.6 million barrels per day in 2019, falling to 7.5 million barrels per day in 2040. Production of tight oil, which is categorized as unconventional oil, is projected to peak at 4.8 million barrels per day in 2021 (Figure II-1-2-37). As shown above, shale development has had much stronger effects on production of natural gas than on production of crude oil.

Regarding natural gas, which has been greatly affected by shale development, the United States is expected to become a net exporter in 2018. On the other hand, regarding oil and other liquid fuels, the United States is expected to continue to be a net importer in 2040, when its import dependence is estimated at 32.2%. Nevertheless, the important dependence will be much lower than the 60.3% in

2005[93] (Figure II-1-2-38).

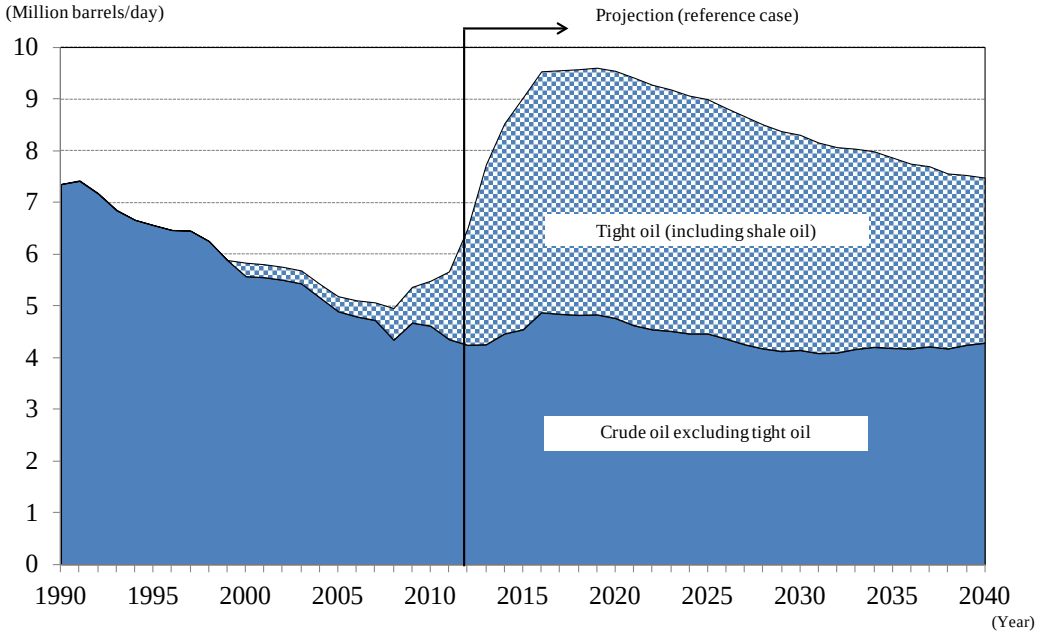
Figure II-1-2-36 Trends in U.S. natural gas production volumes and future prospects



Source: *Annual Energy Outlook 2014* (U.S. Energy Information Administration).

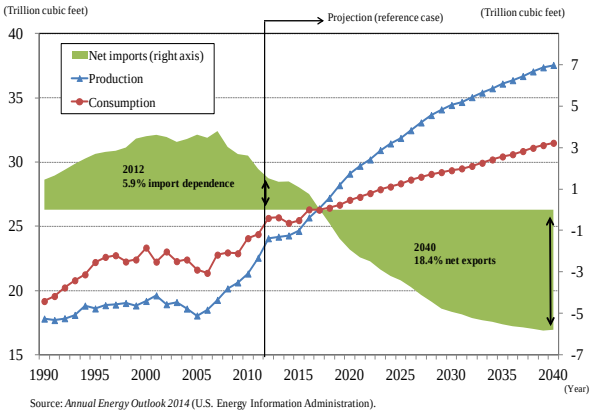
[93] According to projections by the International Energy Agency (November 2013), the United States is expected to surpass Saudi Arabia and Russia in oil production to become the largest oil producing country in the world as early as 2015 and to reduce its import dependence for crude oil while maintaining that position until the first half of the 2030s (in 2035, Saudi Arabia is expected to become the largest oil producer in the world again).

Figure II-1-2-37　Trends in U.S. crude oil production volumes and future prospects

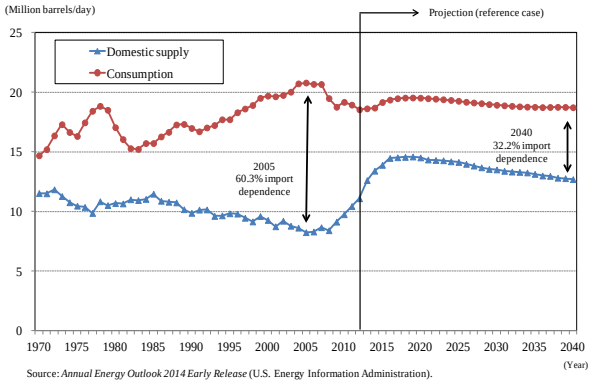


Source: *Annual Energy Outlook 2014 Early Release* (U.S. Energy Information Administration).

Figure II-1-2-38　Trends in the volume of U.S. energy supplied and consumed domestically and future prospects for this (left: natural gas; right: oil and other liquid fuels)



Source: *Annual Energy Outlook 2014* (U.S. Energy Information Administration).



Source: *Annual Energy Outlook 2014 Early Release* (U.S. Energy Information Administration).

(2)　Effects on regional economies

Following the start of full-fledged production of shale gas and oil, energy costs in the United States have been kept low, a situation presumed to be a factor contributing to the reshoring trend. Moreover, in response to the considerable expansion of production, the U.S. economic situation surrounding shale gas and oil has been changing. Below, we look at the effects of the expansion of production of shale gas and oil on producing regions.

The GDP growth rate is higher and the unemployment rate is lower in U.S. states and regions where shale gas and oil is extracted, including North Dakota, where the Bakken field, the largest shale field in the United States, is located; Texas, where the Eagle Ford and Permian Basin fields are located; West Virginia, where the Marcellus field is located; and Midwest, where the Niobrara field is

located, than the national average.

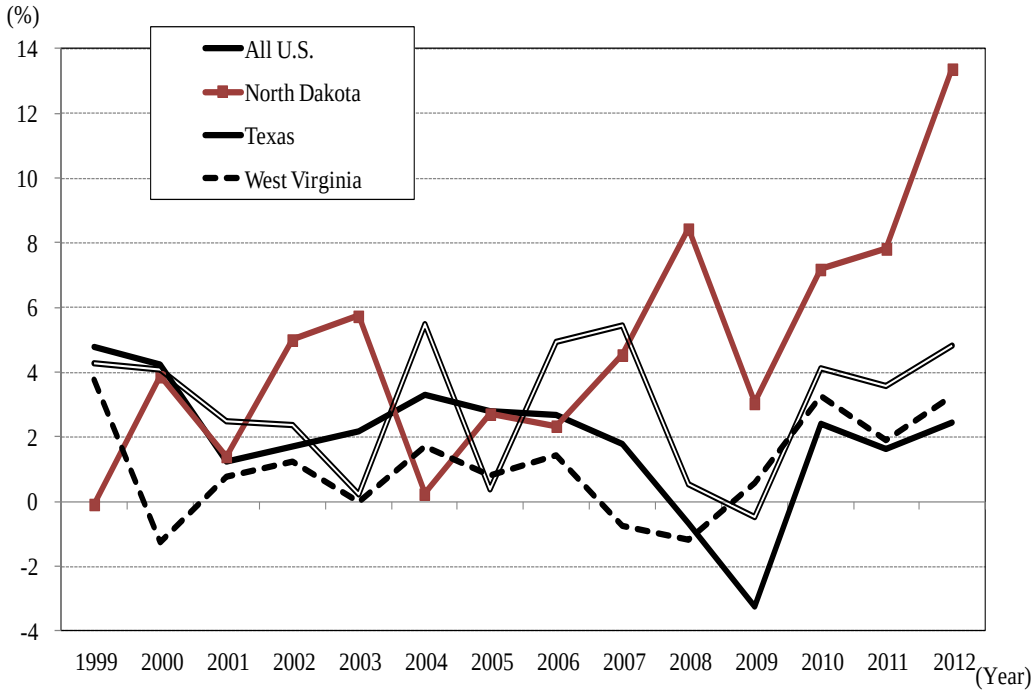
In each of the major states where shale gas and oil fields are located, the real GDP growth rate was lower than the national average in 1999 but has been higher than the national average since the mid-2000, when production of shale gas and oil started in earnest (Figure II-1-2-39).

As for contributions to the growth rate of real GDP by industry, not only the mining industry but also the construction, wholesale and retail trade industries have made significant contributions in those states compared with in the whole of the United States although there are some differences from state to state. This indicates that the multiplier economic effect of production of shale gas and oil is reaching a broad range of sectors. In particular, in North Dakota, where the real GDP growth rate exceeded 10% in 2012, a wide range of sectors contributed to the growth, including the wholesale and retail trade sectors (2.3 percentage points), the transportation and warehousing sector (1.8 percentage points) and the construction sector (1.3 percentage points) (Figure II-1-2-40).

As for the unemployment rate trend, in North Dakota, the unemployment rate has been lower than the nationwide rate since before the development of shale gas and oil, and in Texas and West Virginia, the unemployment rate has consistently been lower than the nationwide rate since the mid-2000s, when the shale development became vigorous (Figure II-1-2-41).

As shown above, the expansion of production of shale gas and oil has had positive effects on producing regions.

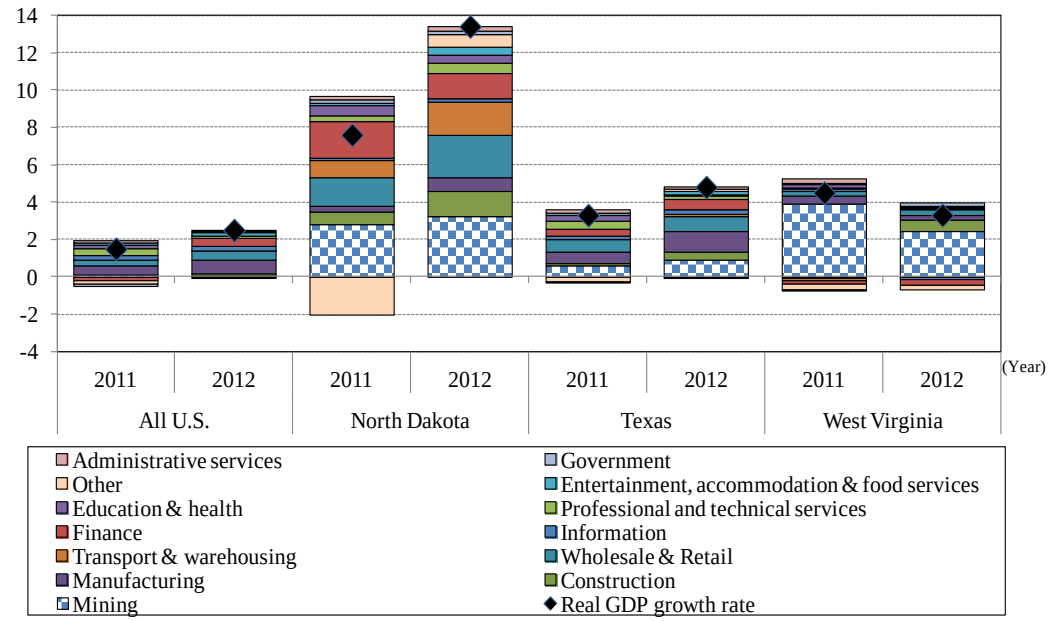
Figure II-1-2-39　Trends in the real GDP growth rate in states producing shale gas and oil



Notes: Figures for "All U.S." use a different method of calculating GDP from that used to calculate national income so the figures differ.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

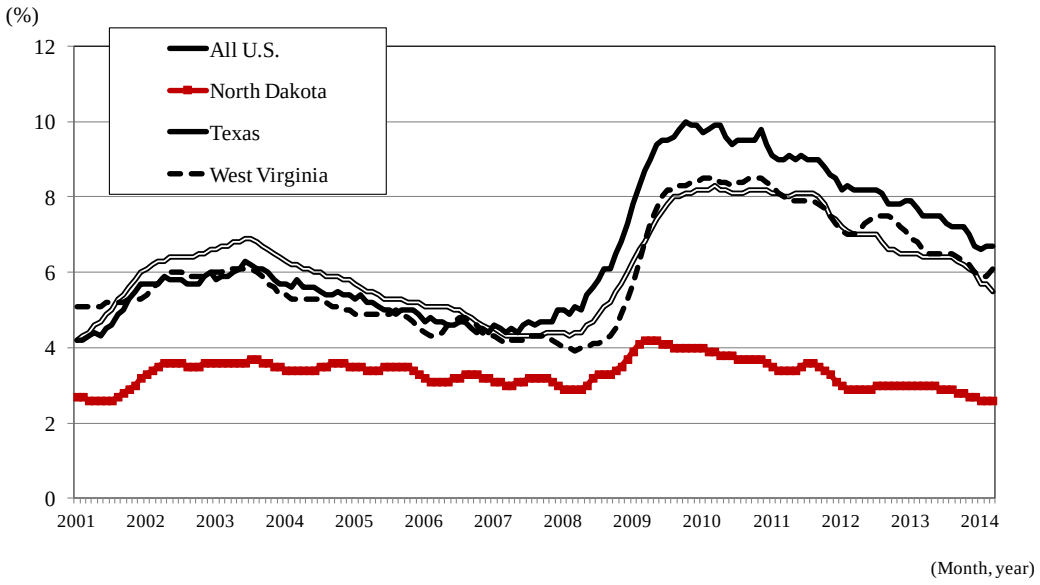
Figure II-1-2-40　Contribution to the real GDP growth rate by industry

(Comparison with previous year, %, percentage points)



Notes: All calculated on the basis of preliminary results. "Other" consists of the agriculture and fisheries industry, public welfare, and other services.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

Figure II-1-2-41 Trends in the unemployment rate in states producing shale gas and oil



Source: U.S. Department of Labor, CEIC Database.

Column 8 Effects of unconventional energy on the U.S. economy

"America's New Energy Future: Volume 3: A Manufacturing Renaissance" (2013) by IHS estimates an increase in capital expenditures (capital investment) in the value chains of energy production (upstream sector[94], and midstream/downstream sectors) and in energy-related chemical sectors, the number of jobs created in related industries, an increase in value added and an increase in federal and state revenues in the period until 2025 (Column Table 8-1).

Regarding the effects on the trade balance, the report estimates that the trade balance will steadily improve until 2022 because of positive effects of unconventional energy in terms of both exports and imports including (i) an increase in exports of refined energy products; (ii) a decrease in imports of crude oil; and (iii) an improvement in the international competitiveness of energy-intensive industries due to a decline in energy prices and that positive effects worth approximately 180 billion dollars will be generated annually thereafter. The report estimates that energy-related chemical industries in particular will receive significant benefits.

Moreover, invigoration of the value chains of production of unconventional energy and energy-related chemical industries is expected to lead to an increase in annual disposal income through a decline in household energy and an increase in wages (Column Table 8-2).

Houser and Mohan (2013) conducted multi-faceted analysis, including region-by-region and industry-by-industry analysis, of the effects of increased production of unconventional energy while taking account of the mutual effects of changes in energy production and the economy.

They argued that increased production of unconventional energy bring effects similar to those generated by an economic stimulus package combining infrastructure investments and tax reduction and estimated that it will push up GDP by an average ranging from 0.6% to 2.1%[95] between 2013 and 2020 (by an annual average ranging from 0.09% to 0.19%). In addition, nonfarm payroll employment is projected to grow by a range of 0.5% to 1.8% and the unemployment rate is projected to decline by a range of 0.2% to 0.6%.

In the long term, interest rates and hourly labor costs are expected to rise because efforts to secure the labor force and capital necessary for energy production trigger competition between the energy and other industries and within the energy industry. As a result, the effects of unconventional energy in the period beyond 2020 are expected to be limited. Between 2021 and 2035, real GDP is expected to be pushed up by a range of 0.4% to 1.0%, the potential growth rate is expected to be raised by a range of 0.4% to 1.3%, and nonfarm payroll employment is expected to be raised by a range of 0.3% to 0.6%. As for the nature of the change, Houser and Mohan pointed out that the change brought by unconventional energy is fundamentally different from the IT revolution in the 1990s and does not entail sustainable growth[96].

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[94] The upstream sector is analyzed mainly in a previous report titled "America's New Energy Future: Volume 1: National Economic Contributions."

[95] These figures have a certain range, as conservative and optimistic estimates are provided.

[96] The IT industry gave a 3% boost to U.S. GDP between 1995 and 2000 through sustainable productivity

As for the trade balance, Houser and Mohan pointed out that although unconventional energy will reduce the U.S. dependence on energy imports and energy-related trade deficit, there are concerns that as a result, the United States may be afflicted by the "Dutch disease," which refers to the situation of the Netherlands in the 1960s, when the country's industries lost competitiveness due to a currency appreciation caused by the development oil and gas and increased exports of the resources. They also pointed to the possibility that if the dollar strengthens due to a rise in its effective exchange rate caused by a decrease in energy imports, that may have negative effects on the competitiveness of most sectors of the U.S. manufacturing industry that are not energy-intensive[97].

Table Column 8-1 Impact of the unconventional energy revolution on the U.S. economy

(Year)	2012	2020	2025
Value of increase in capital expenditure (capital investment) (billion dollars)	121	189	240
Upstream sector	87	173	228
Mid/downstream sector	29	7	5
Energy-related chemicals industry	5	9	7
Number of jobs created (thousand people)	2,126	3,336	3,874
Upstream sector	1,749	2,985	3,499
Mid/downstream sector	324	74	57
Energy-related chemicals industry	53	277	319
Increase in value added (billion dollars)	284	468	533
Upstream sector	238	417	475
Mid/downstream sector	39	9	7
Energy-related chemicals industry	7	43	51

improvement, providing a new model of business activity in the United States. In the field of energy, a shift from firewood to coal and one from coal to electricity also had a similar impact on industrial activity. However, the ongoing energy boom in the United States merely provides existing types of energy at a lower cost. It is pointed out that although its effects should not be underestimated, the energy boom will not bring nationwide structural changes in the long term but will be a temporary phenomenon that will not promote sustainable economic growth.

[97] Naturally, some industries receive the benefits of low prices of natural gas in the form of demand expansion and increased international competitiveness. However, the revival of the manufacturing industry triggered by the oil and gas revolution in the United States is limited to some sectors of the industry and it is not a simple exercise to evaluate its effects, so it is pointed out that the number of employees who belong to industries which can receive positive effects is not necessarily large compared with the total number.

Increase in federal/state government revenue (billion dollars)	74	126	138
Upstream sector	63	113	124
Mid/downstream sector	10	2	2
Energy-related chemicals industry	2	10	12

Table Column 8-2 Value of increase in household annual disposable income due to the rise in unconventional energy production

(Year)	2012	2020	2025
Value of rise in household annual disposable income (dollars)*	1,200	2,700	3,500

*Calculated by totaling factors including the rise in wages and the fall in household energy costs.

4. Trends in U.S. companies' overseas expansion

As shown in "2. Trends in the U.S. manufacturing industry", the reshoring movement in the manufacturing industry is occurring against the backdrop of changes in the domestic and overseas business environments. However, the impact on the overall trend of the U.S. economy is limited at the moment, because reshoring and the above changes in the business environment mainly concern manufacturing of goods for consumption in the United States. Below, we look at U.S. companies' overseas expansion abroad, including in emerging economies that have expanded their presence since the global economic crisis[102].

(1) Trend in outward direct investment

(A) Value of outward direct investments (flow and stock)

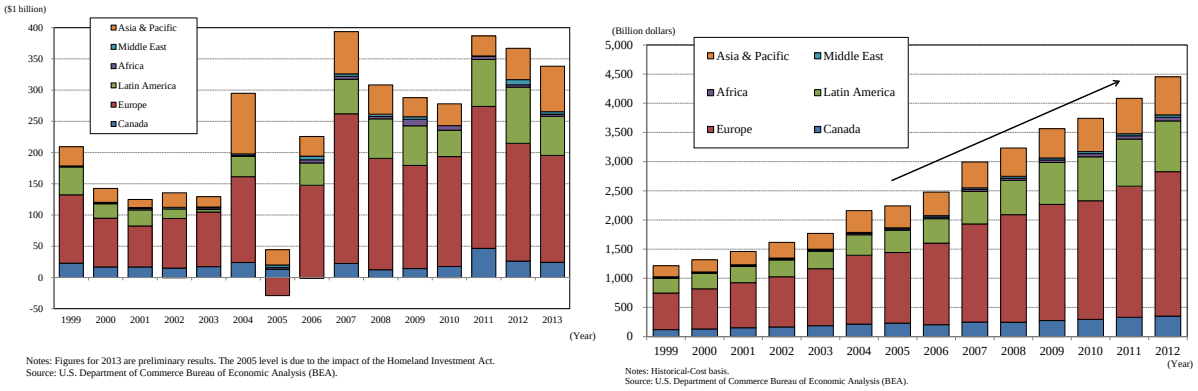
The value of U.S. outward foreign direct investments on a flow basis (international balance of payments basis) hit a record high of 414.0 billion dollars in 2007. The value declined for three consecutive years between 2008 and 2010 due to the impact of the global economic crisis and other factors, but in 2010, it was 301.0 billion dollars and still far higher than the record high for Japanese outward direct investments, 13.2 trillion yen (approximately 132.0 billion dollars), which was registered in 2013. In 2011, the value of U.S. outward direct investments came to 409.0 billion dollars,

[102] Regarding U.S. companies' overseas business operations, cases have been reported in which it is difficult to accurately identify the actual status of business activities based on data for such reasons as because companies in charge of managing intellectual properties are located in low-tax countries and intellectual property fees from other countries are collected there. Here, we examine the status of business activities based on data published by the U.S. Department of Commerce (Bureau of Economic Analysis).

the second highest level after the record in 2007, almost regaining the level before the global economic crisis[103]. As for investment destinations, investments in advanced countries accounted for a large share of U.S. outward direct investments, with the share of investments in Europe at around 50% and the share of investments in OECD member countries at more than 70%[104] each year.

The stock of U.S. outward direct investments has continued to grow consistently. As for the regional mix of the stock of U.S. outward direct investments, investments in Europe accounted for the largest share of the stock, and there has not been any major change in shares by region (Figures II-1-2-42 and II-1-2-43).

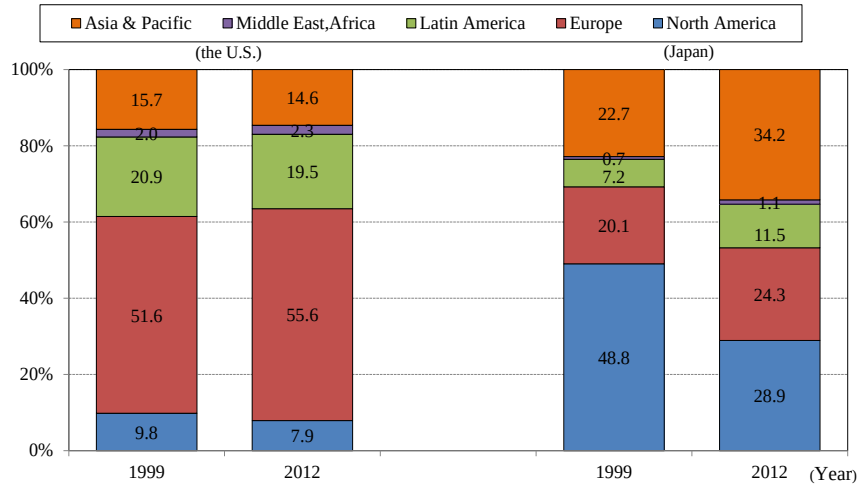
Figure II-1-2-42 Value of U.S. outward foreign direct investment by region (left: flow; right: balance)



Notes: Figures for 2013 are preliminary results. The 2005 level is due to the impact of the Homeland Investment Act.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

Notes: Historical-Cost basis.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

Figure II-1-2-43 Share by region of outward foreign direct investment by the U.S. and Japan (1999, 2012)



Notes: In the figures for the U.S., the figure for North America indicates Canada. Historical-Cost basis.
In the figures for Japan, the 1999 figure for Europe is the total for Western Europe, Eastern Europe, and Russia.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA) , Bank of Japan.

[103] This figure is different from the total of investments on a flow basis for individual years in Figure II-1-2-42 because it includes unclassified investments.

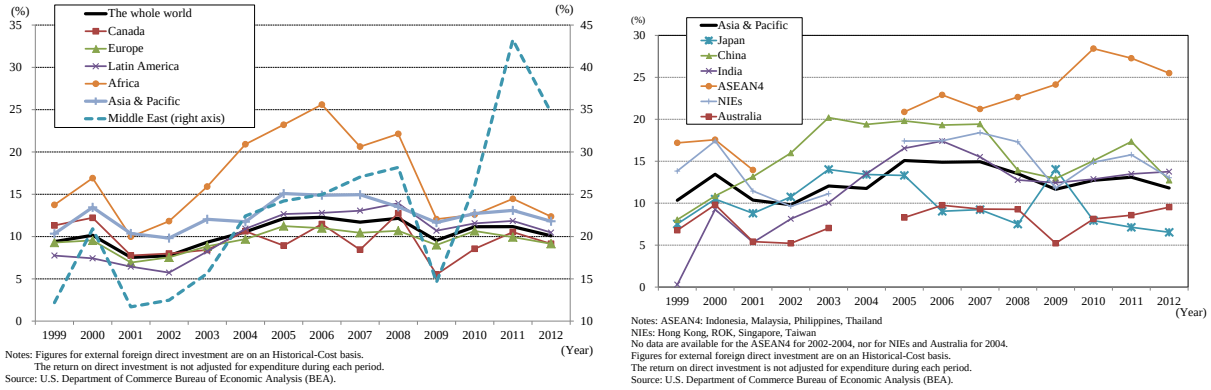
[104] The OECD countries' share (excluding the United States' share) of outward direct investments on a flow basis was 71.5% in 2009, 80.9% in 2010, 76.3% in 2011 and 71.7% in 2012.

(B) Return on outward direct investment

The return on U.S. outward direct investments has stayed at around 10% worldwide. By country/region, the return in the Middle East has been high in recent years. While the investment return in Europe and Canada has been lower than the average, the investment return in the Asia-Pacific region, Africa and Central and South America has been higher than the average.

A further breakdown of the Asia-Pacific region shows that the investment return has been lower in Japan and Australia than in the region as a whole. In ASEAN4 and China, the investment return has been higher than in the region as a whole. The investment return in India, which was 0.3% in 1999: much lower than the investment return in the region as a whole, which stood at 10.3%, has tended to be higher than the region as a whole since 2004 (Figure II-1-2-44).

Figure II-1-2-44 U.S. external foreign direct investment profitability rate (left: worldwide; right: in Asia & Pacific)



Notes: Figures for external foreign direct investment are on an Historical-Cost basis.
The return on direct investment is not adjusted for expenditure during each period.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

Notes: ASEAN4: Indonesia, Malaysia, Philippines, Thailand
NIEs: Hong Kong, ROK, Singapore, Taiwan
No data are available for the ASEAN4 for 2002-2004, nor for NIEs and Australia for 2004.
Figures for external foreign direct investment are on an Historical-Cost basis.
The return on direct investment is not adjusted for expenditure during each period.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

(2) Movements of U.S. multinational companies

Above, we looked at the overall trend in U.S. outward direct investments. Below, we look at trends in U.S. multinational companies' overseas business operations in light of major indicators.

In 2011, foreign affiliates in which U.S. companies owned at least 10% of voting rights had combined gross assets of 22.9 trillion dollars (75% of the parent companies' assets), combined sales of 7.0 trillion dollars (65.3% of the parent companies' sales) and a total of 13.68 million employees (59.8% of the parent companies' employees). Of each of these figures, majority-owned foreign affiliates accounted for around 90% — combined gross assets of 20.7 trillion dollars, combined sales of 6.0 trillion dollars and a total of 11.79 million employees. Below, majority-owned foreign affiliates shall be referred to as "foreign affiliates."

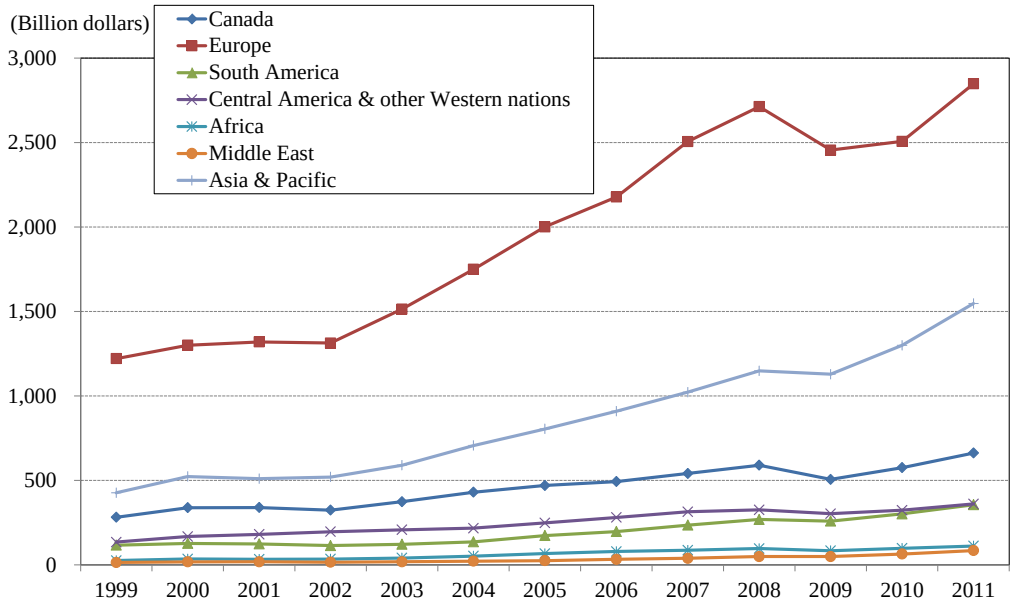
(A) Sales

As for sales of foreign affiliates by region, sales in Europe account for a share of around 50%, but Europe's share has been declining in recent years, while the Asia-Pacific region's share has been growing (Figure II-1-2-45).

Next, a look at destinations of foreign affiliates' sales of goods by region shows that sales to the United States by foreign affiliates in Europe are small, with more than 90% of their sales bound for

Europe and third countries. Around 70% of sales by foreign affiliates in South America are bound for the region and sales to the United States are very small. Meanwhile, slightly less than 30% of sales by foreign affiliates in Central America, including Mexico, and other Western Hemisphere countries are bound for the United States. As for foreign affiliates in the Asia-Pacific region, most of sales by those in Japan, China and India are bound for the respective home markets. However, most of sales by foreign affiliates in Malaysia and the Philippines are bound for the United States, while most of sales by those in Indonesia are bound for third countries. As shown above, foreign businesses have been operated in accordance with the scale of the consumer markets of individual countries and regional characteristics (Table II-1-2-46).

Figure II-1-2-45 Trends in the turnover of foreign subsidiaries by region (top: value; bottom: share)



Notes: Figures for 1999 to 2008 exclude the banking industry.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

(%)	1999	2005	2011
Canada	12.7	12.4	11.1
Europe	55.0	52.8	47.7
South America	5.3	4.6	6.0
Central America & other Western nations	6.1	6.5	6.0
Africa	1.2	1.8	1.9
Middle East	0.6	0.7	1.4
Asia & Pacific	19.2	21.2	25.9

Table II-1-2-46 Shares by region of destinations of goods (excluding services) sold by foreign subsidiaries (2011)

(%)	Share of total world sales	To the U.S.	To the local market	To a third country
World	100	10.1	55.4	34.5
Canada	11.7	25.3	70.1	4.6
Europe	47.1	6.3	47.8	45.9
France	3.8	3.3	62.5	34.2
Germany	6.4	3.9	60.8	35.3
Ireland	5.0	16.8	20.8	62.4
Netherlands	3.8	3.5	37.6	59.0
Switzerland	5.1	8.5	22.6	69.0
the U.S.	9.2	7.1	59.9	33.0
South America	6.2	4.9	70.9	24.2
Brazil	3.6	3.0	75.9	21.1
Central America & other Western nations	5.5	25.7	53.2	21.1
Mexico	3.7	28.6	62.0	9.4
Africa	2.2	21.4	42.8	35.9
Middle East	1.2	15.7	53.8	30.5
Asia & Pacific	26.0	6.9	60.4	32.7
Australia	2.6	3.8	69.6	26.6
China	3.9	8.3	72.1	19.7
India	0.7	4.0	83.9	12.1
Indonesia	0.6	0.4	42.3	57.3
Japan	4.1	2.8	87.4	9.7
ROK	1.1	8.3	58.0	33.7
Malaysia	1.1	15.7	48.6	35.7
Philippines	0.4	27.3	50.9	21.8
Singapore	7.6	7.4	39.1	53.5
Thailand	1.2	7.0	67.3	25.6
Other Asia	0.2	9.3	72.0	18.7

Notes: Regional classifications are based on the classifications used by the U.S. Department of Commerce Bureau of Economic Analysis (BEA).

Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

(B) Net income

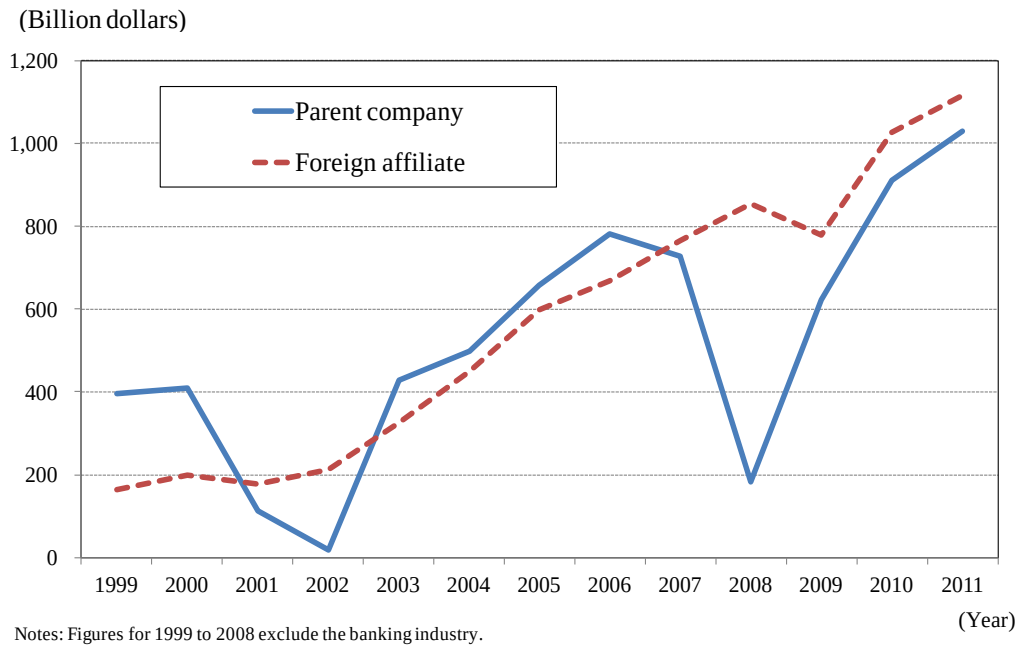
As for the trend in net income of U.S. multinational parent companies and foreign affiliates, while parent companies' net income fell steeply in the recession phase in 2001 and 2008, foreign affiliates' net income continued to grow steadily. Since 2007, foreign affiliates' net income has been higher than parent companies' net income (Figure II-1-2-47).

By region, net income earned in Europe is the highest, accounting for around 60% of the total. Although the level of net income earned in the Middle East and Africa is low, these regions' shares of net income have steadily been rising (Figure II-1-2-48).

As for the relationship between sales as described in (i) and net income, Central America and other Western Hemisphere countries' shares of net income are high compared with their shares of sales, indicating that sales tend to easily generate net income in this region. However, although the Asia-Pacific region's share of sales is relatively large, its share of net income is limited.

By industry, net income earned through management of nonbank companies and enterprises[105] has stayed higher than net income earned by the manufacturing industry, accounting for around 50% of the total net income in 2011 (Figure II-1-2-49).

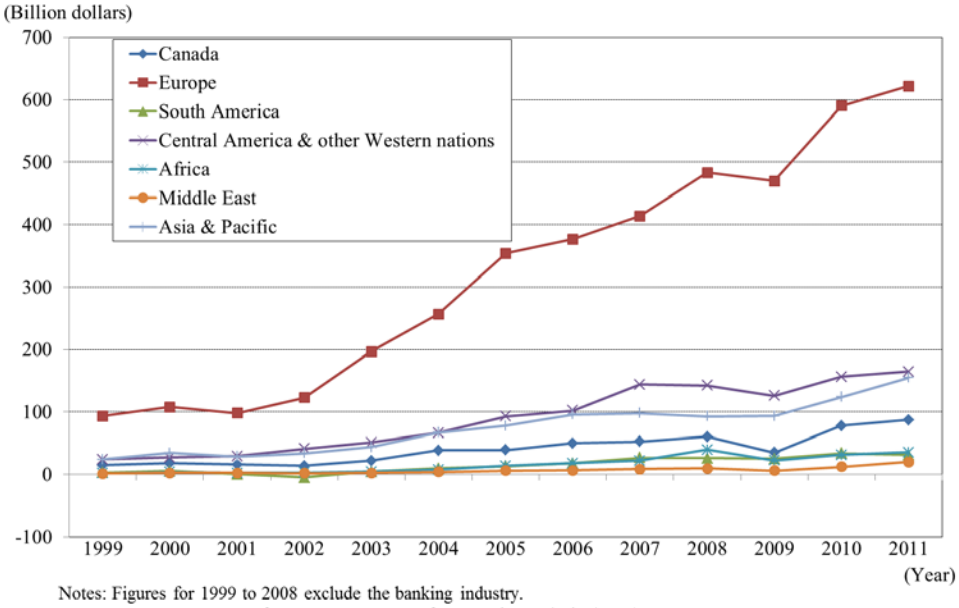
Figure II-1-2-47 Trends in the net income of U.S. multinationals



Notes: Figures for 1999 to 2008 exclude the banking industry.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

[105] "Nonbank companies and enterprises" refer to holding companies other than bank holding companies and regional headquarters companies under whose control companies in various business sectors are placed.

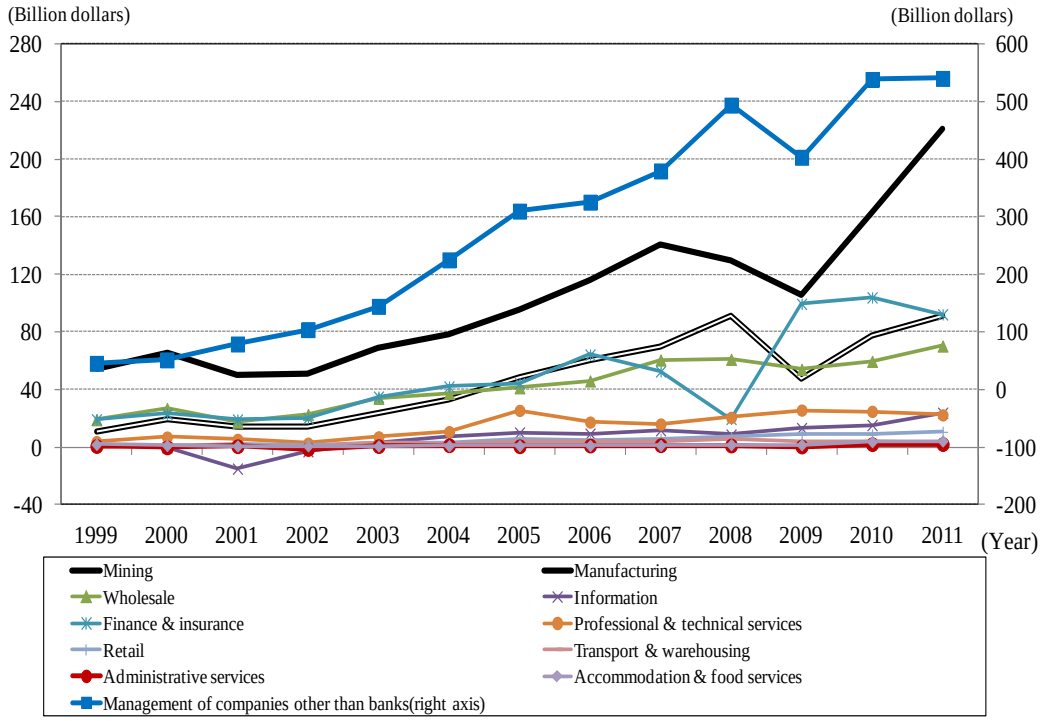
Figure II-1-2-48 Trends in the net income of foreign affiliates by region (top: value; bottom: share)



Notes: Figures for 1999 to 2008 exclude the banking industry.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

(%)	1999	2005	2011
Canada	9.1	6.6	7.8
Europe	57.3	59.2	55.8
South America	1.9	2.2	2.8
Central America & other Western nations	14.8	15.6	14.8
Africa	1.3	2.3	3.2
Middle East	0.7	1.0	1.8
Asia & Pacific	14.9	13.1	13.9

Figure II-1-2-49 Trends in the net income of foreign affiliates by industry (top: value; bottom: share)



Notes: Figures for finance and insurance from 1999 to 2008 exclude the banking industry.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

(%)	1999	2005	2011
Mining	6.5	8.1	8.1
Manufacturing	33.3	16.0	19.8
Wholesale	11.7	6.9	6.3
Information	0.9	1.7	2.1
Finance & insurance	11.8	7.4	8.3
Professional & technical services	2.3	4.3	2.0
Retail	0.7	0.9	1.0
Transport & warehousing	0.0	0.7	0.3
Administrative services	0.5	0.1	0.2
Accommodation & food services	1.2	0.2	0.4
Management of companies other than banks	27.9	51.8	48.4

(C) Number of employees

The total number of employees at parent companies and foreign affiliates declined between 1999 and 2004 and in 2008, when Lehman Brothers collapsed. However, since 2009, following the global economic crisis, the total number of employees has been increasing moderately.

The share of employees at foreign affiliates[106] in the total has been on an uptrend, standing at 34% in 2011 (Figure II-1-2-50).

By region, the number of employees at foreign affiliates in the Asia-Pacific region, which was at a similar level to the number of employees in Central and South America in 1999, has shown a notable increase, approaching close to the level in Europe in recent years (Figure II-1-2-51). Looking at a

[106] The number of employees at foreign affiliates includes not only employees dispatched from parent companies but also locally hired employees.

breakdown of the Asia-Pacific region by country, the number of employees has grown remarkably in China since 2003 and in India since 2008 (Figure II-1-2-52).

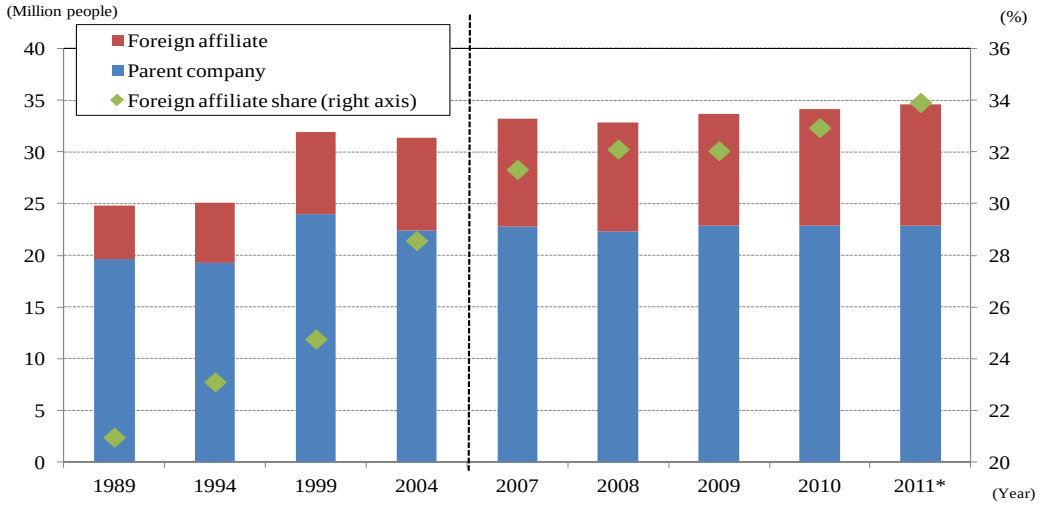
In China, the number of employees in the manufacturing industries has grown significantly, while in India, the number of employees has shown a remarkable increase in the professional, scientific and technical services industry (construction, engineering, computer systems design, management, scientific and technical consulting, advertising and related services, etc.) (Figure II-1-2-53).

According to the U.S. Department of Commerce (2012), India, which has such advantages as low operating costs and a relatively large population of English speaking people, is host to the world's largest number of employees in the professional, scientific and technical services industry, because the operations of foreign affiliates that support multinational companies' business processes should ideally be located in places where the relevant services can be provided at low cost. U.S. multinational companies improve the efficiency of their business processes by taking advantage of foreign affiliates and strengthen and maintain their competitiveness by utilizing foreign technologies and personnel, so the presence of foreign affiliates is judged to have been beneficial particularly in the recession phase in 2007 through 2009.

While the number of employees in the professional, scientific and technical services industry increased at an annual average rate of 8.5% at foreign affiliates in all countries around the world between 1999 and 2011, it grew at an annual average rate of 40% at foreign affiliates in India, contributing to an increase in the number of employees in the country.

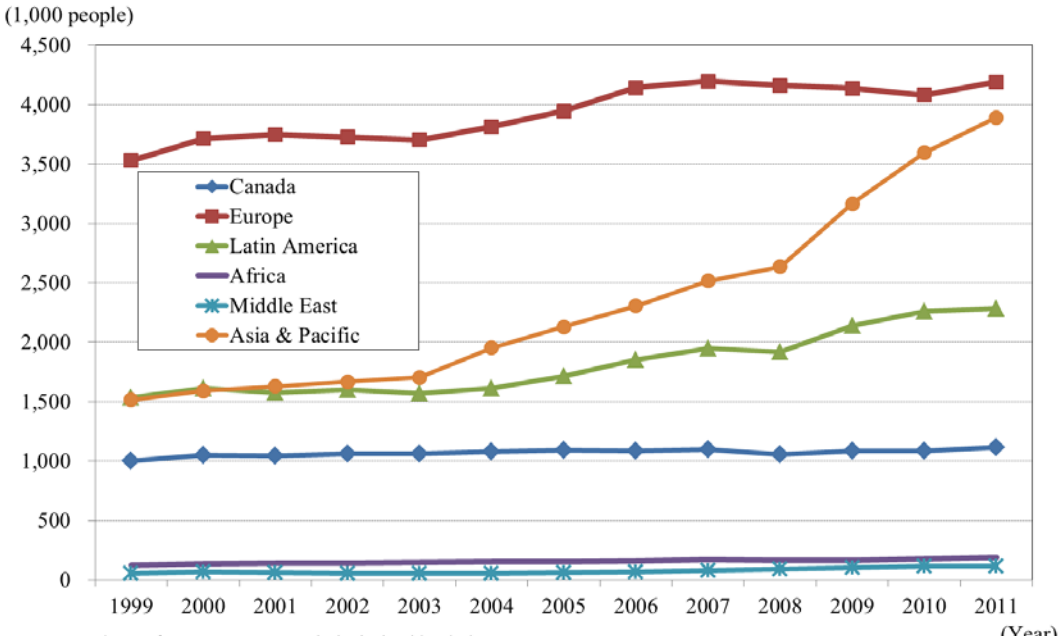
By industry, the number of employees increased from 4.36 million (2000) to 4.76 million (2011) in the manufacturing industry and from 410,000 (2000) to 1.22 million (2011) in the retail trade industry. As for industries' shares of employees, although the manufacturing industry's share has continued to be large, it has been declining, while the shares of the retail trade industry, the professional, scientific and technical services industry and the administration, support and waste management industry have been growing (Figure II-1-2-54).

Figure II-1-2-50 Trends in the number of employees of parent companies and foreign affiliates in multinationals



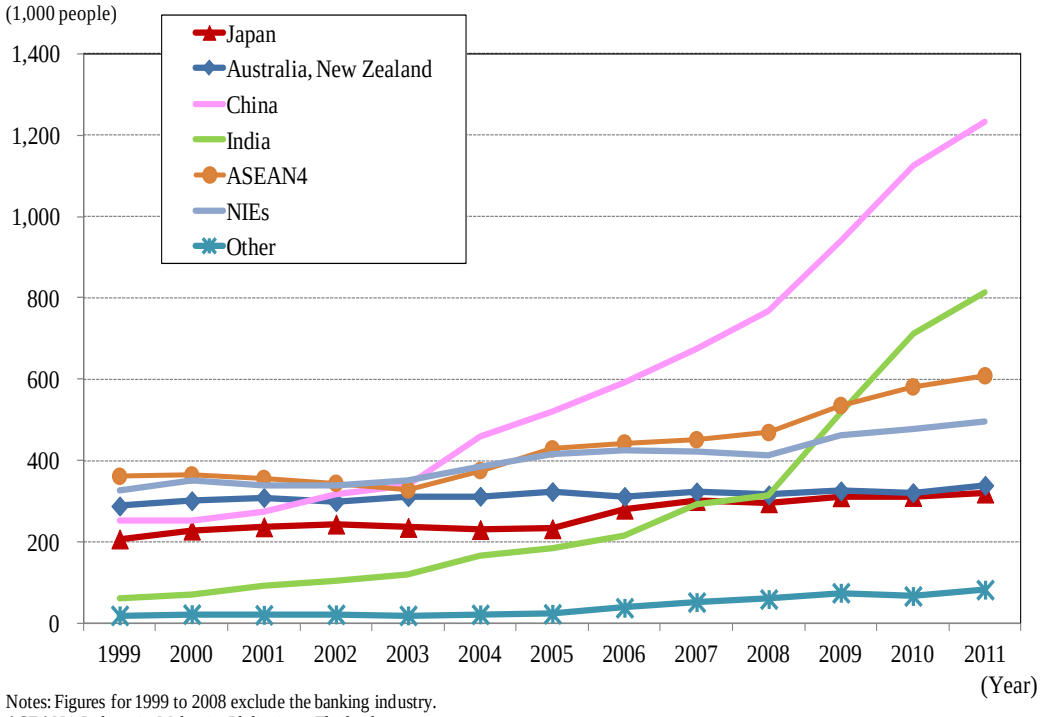
Notes: Figures for 1999 onward include very small companies (subsidiaries with assets, turnover, and net income each less than $7 million and parent companies that have only such subsidiaries). * indicates preliminary results.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

Figure II-1-2-51 Trends in the number of employees of foreign affiliates by region



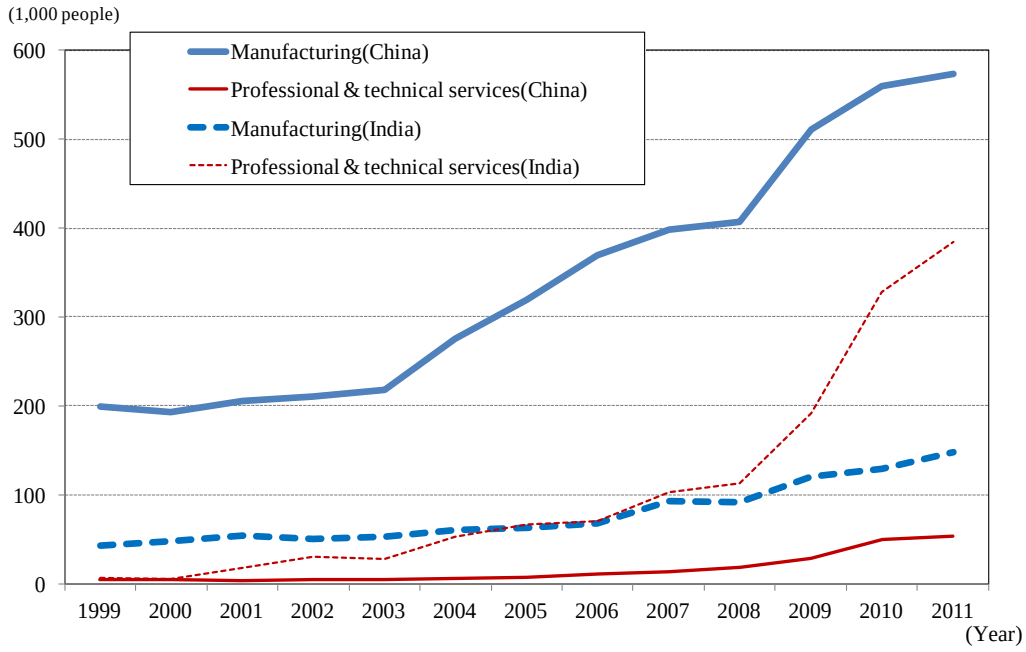
Notes: Figures for 1999 to 2008 exclude the banking industry.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

Figure II-1-2-52 Trends in the number of employees of foreign affiliates in the Asia and Pacific region



Notes: Figures for 1999 to 2008 exclude the banking industry.
ASEAN4: Indonesia, Malaysia, Philippines, Thailand
NIEs: Hong Kong, ROK, Singapore, Taiwan
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

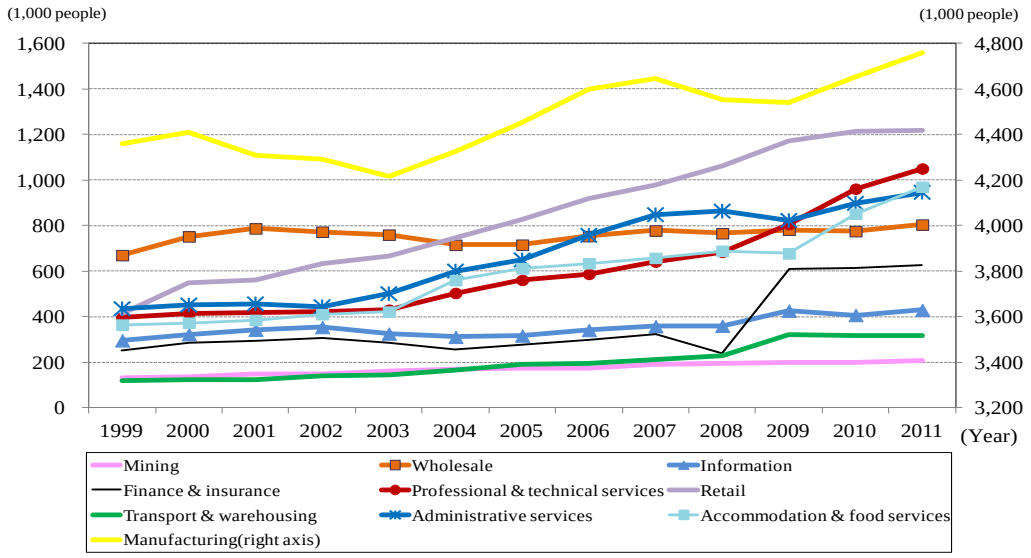
Figure II-1-2-53 Trends in the number of employees of foreign affiliates in China and India



Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

Figure II-1-2-54 Trends in the number of employees of foreign affiliates by industry (top:

number of employees; bottom: share)



Notes: Figures for finance and insurance from 1999 to 2008 exclude the banking industry.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

(%)	1999	2005	2011
Mining	1.7	1.9	1.8
Manufacturing	56.1	48.9	40.4
Wholesale	8.6	7.9	6.8
Information	3.8	3.5	3.6
Finance & insurance	3.3	3.0	5.3
Professional & technical services	5.1	6.2	8.9
Retail	5.3	9.1	10.4
Transport & warehousing	1.5	2.1	2.7
Administrative services	5.6	7.1	8.0
Accommodation & food services	4.7	6.7	8.2

(D) Value added (total production)

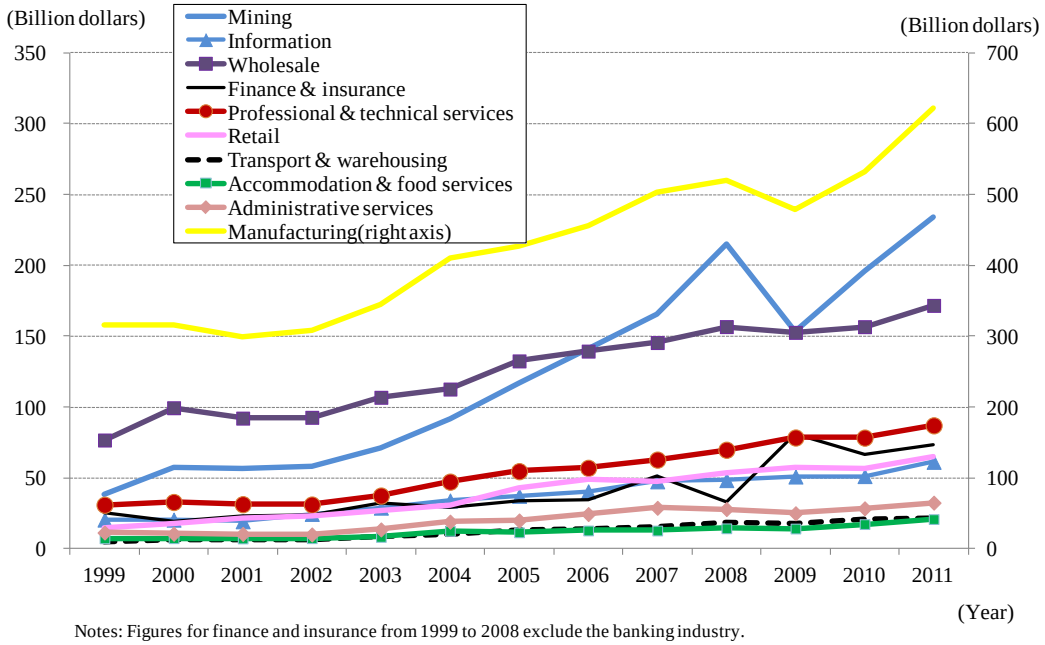
Looking at a breakdown by industry of the nominal value added created abroad by foreign affiliates, the nominal value added in many industries has been on an uptrend, although the margin of growth and the severity of the slump at the time of the global economic crisis differ from industry to industry (Figure II-1-2-55).

The manufacturing industry's share of value added, the largest of all industries, declined from 55.8% in 1999 to 43.0% in 2011, while the mining industry's share has been increasing significantly. The finance and insurance industry, which has the largest share of nominal U.S. GDP, has a low share of value added created by foreign affiliates (Figure II-1-2-24 (presented earlier)).

A breakdown of the manufacturing industry shows that the chemicals industry, the computer and electronic products industry, the petroleum and coal products industry and the transportation equipment industry have been creating a large amount of value added (Figure II-1-2-56).

Figure II-1-2-55 Trends in the nominal value added by foreign affiliates by industry (top:

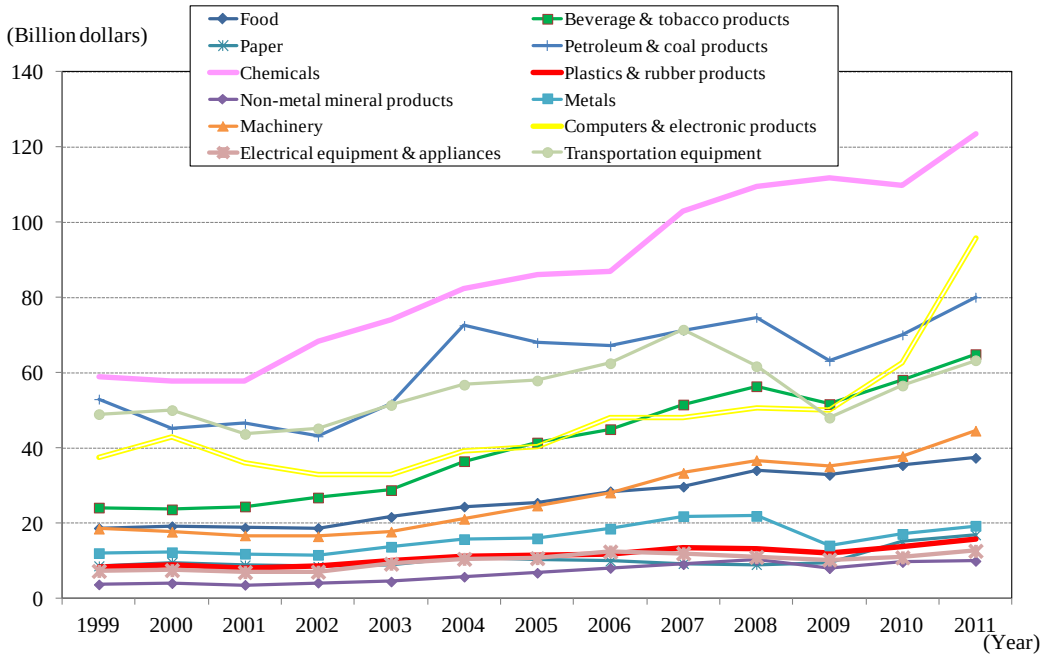
value; bottom: share)



Notes: Figures for finance and insurance from 1999 to 2008 exclude the banking industry.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

(%)	1999	2005	2011
Mining	6.8	12.8	16.2
Manufacturing	55.8	46.9	43.0
Wholesale	13.6	14.5	11.9
Information	3.6	4.1	4.2
Finance & insurance	4.5	3.7	5.1
Professional & technical services	5.5	6.0	6.0
Retail	2.6	4.7	4.5
Transport & warehousing	0.9	1.5	1.5
Administrative services	2.0	2.2	2.3
Accommodation & food services	1.3	1.3	1.5

Figure II-1-2-56 Trends in the breakdown of nominal value added by foreign affiliates in the manufacturing industry (top: value; bottom: share)



Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

(%)	1999	2005	2011
Food	5.9	6.0	6.0
Beverage & tobacco products	7.6	9.7	10.4
Paper	2.8	2.4	2.7
Petroleum & coal products	16.8	15.9	12.9
Chemicals	18.6	20.1	19.9
Plastics & rubber products	2.6	2.7	2.5
Non-metal mineral products	1.2	1.6	1.6
Metals	3.8	3.7	3.1
Machinery	5.9	5.8	7.2
Computers & electronic products	11.9	9.4	15.4
Electrical equipment & appliances	2.3	2.5	2.0
Transportation equipment	15.5	13.5	10.2

(E) Capital expenditures (capital investment)

Foreign affiliates' share of multinational companies' overall capital expenditures has been rising as a long-term trend (Figure II-1-2-57).

At foreign affiliates in the Asia-Pacific region in particular, the amount of capital expenditures was similar to the level at foreign affiliates in Canada until 2005 but has far surpassed it since then and is rising close to the level at foreign affiliates in Europe. As for regions' share of capital expenditures, Europe's share has declined significantly, while the shares of the Asia-Pacific region and the Middle East have risen (Figure II-1-2-58).

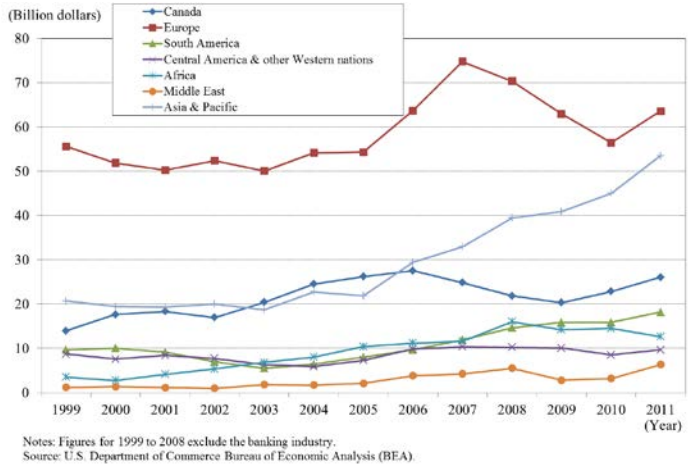
A breakdown of the Asia-Pacific region by country shows that capital expenditures in Australia and China have grown remarkably. In Australia, the main target of expenditure was resource investment (mining), and in China, the main targets were the manufacturing industry and the

wholesale and retail trade industries, reflecting these countries' respective characteristics (Figure II-1-2-59 and Table II-1-2-60).

Figure II-1-2-57 Trends in capital expenditure (capital investment) by parent companies and foreign affiliates in multinationals

Notes: Figures for 1999 onward include very small companies (subsidiaries with assets, turnover, and net income each less than $7 million and parent companies that have only such subsidiaries). * indicates preliminary results. Figures for the banking industry for 2007 and earlier are estimated values.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

Figure II-1-2-58 Trends in capital expenditure (capital investment) by foreign affiliates (top: value; bottom: share)

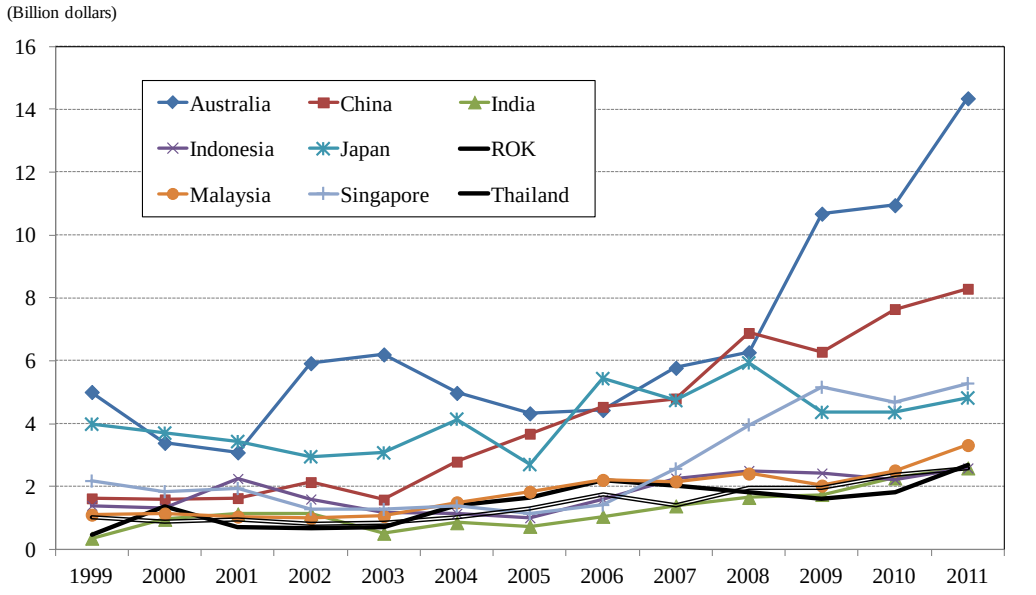


Notes: Figures for 1999 to 2008 exclude the banking industry.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

(%)	1999	2005	2011
Canada	12.3	20.1	13.7
Europe	49.1	41.8	33.5
South America	8.5	6.1	9.6
Central America & other Western nations	7.7	5.6	5.1
Africa	3.1	8.0	6.7
Middle East	1.0	1.6	3.3
Asia & Pacific	18.3	16.8	28.2

Figure II-1-2-59 Trends in capital expenditure (capital investment) in the Asia and Pacific

region



Notes: Figures for 1999 to 2008 exclude the banking industry.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

Table II-1-2-60 Trends in capital expenditure (capital investment) in major Asian and Pacific countries (2011)

(Million dollars)	Total value	Mining	Manufacturing	Wholesale & retail	Information	Finance & insurance	Professional & technical services	Other
Australia	14,344	10,811	1,179	596	254	431	321	751
China	8,287	772	5,042	1,123	169	36	227	919
India	2,590	15	1,190	146	172	55	798	214
Indonesia	2,587	2,134	237	18	**	*	**	*
Japan	4,812	**	1,265	1,240	230	1,034	455	587
ROK	2,692	*	1,646	96	20	68	11	*
Malaysia	3,316	1,658	1,525	30	*	3	6	*
Singapore	5,272	88	3,790	265	142	176	111	701
Thailand	2,574	*	1,005	88	**	*	6	40

* indicates that figures have not been published, to avoid personal information being revealed.
** indicates that figures have not been published due to the small value involved.

(F) Research and development expenditures

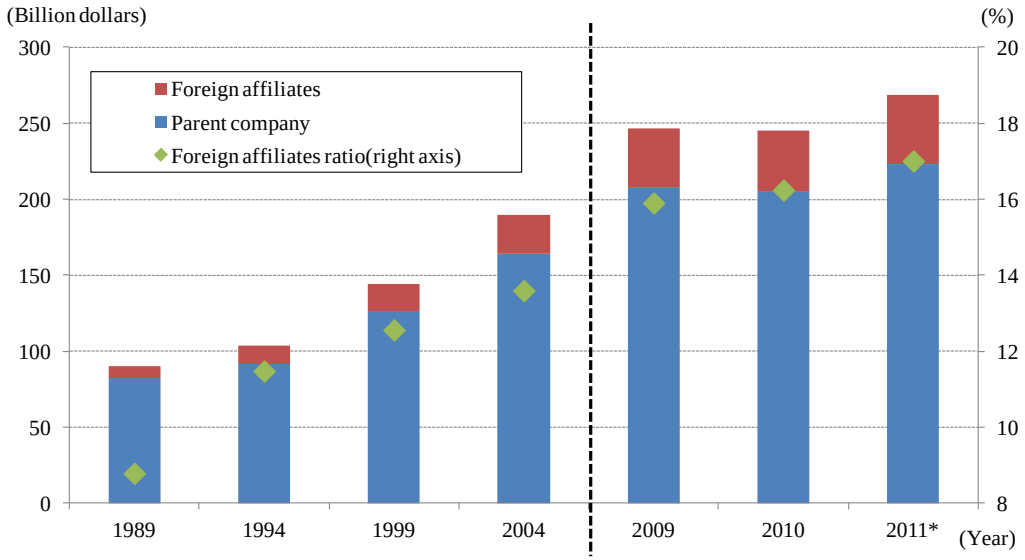
Looking at the trend in research and development (R&D) expenditures at U.S. multinational parent companies and foreign affiliates, foreign affiliates' share of the overall R&D expenditures has been rising (Figure II-1-2-61).

Presumably, U.S. multinational companies are making efforts to strengthen innovation and improve productivity through overseas R&D activities and also to identify customers' needs and reflect them in product improvement in a short period of time.

By region, R&D expenditures in Europe account for the largest share, but Europe's share has been on a downtrend. On the other hand, the shares of Central and South America, the Middle East and the Asia-Pacific region have been increasing (Figure II-1-2-62). In the Asia-Pacific region, Japan's share, which was around 50% in 1999, has been nearly halved, while the shares of China and India have grown markedly. R&D expenditures in India have recorded a particularly remarkable rise, climbing to

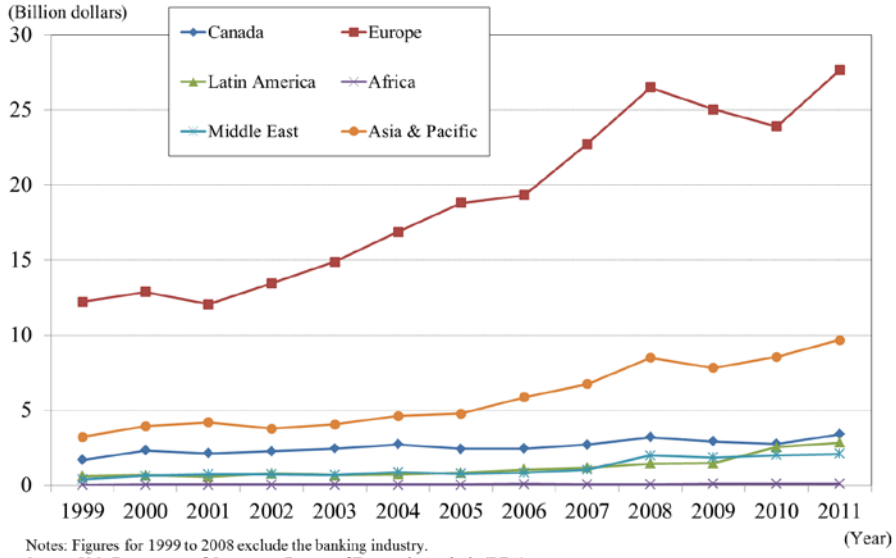
almost the same level as expenditures in Japan (Figure II-1-2-63) in 2011. As was mentioned earlier, the performance of the professional, scientific and technical services industry is outstanding in India, and R&D expenditures in this industry accounted for 1.03 billion dollars of the total expenditures of 2.08 billion dollars in India in 2011.

Figure II-1-2-61 Trends in research and development expenditure by parent companies and foreign affiliates in multinationals



Notes: Figures for 1999 onward include very small companies (subsidiaries with assets, turnover, and net income each less than $7 million and parent companies that have only such subsidiaries). * indicates preliminary results. Figures for 2009 and earlier exclude the banking industry.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

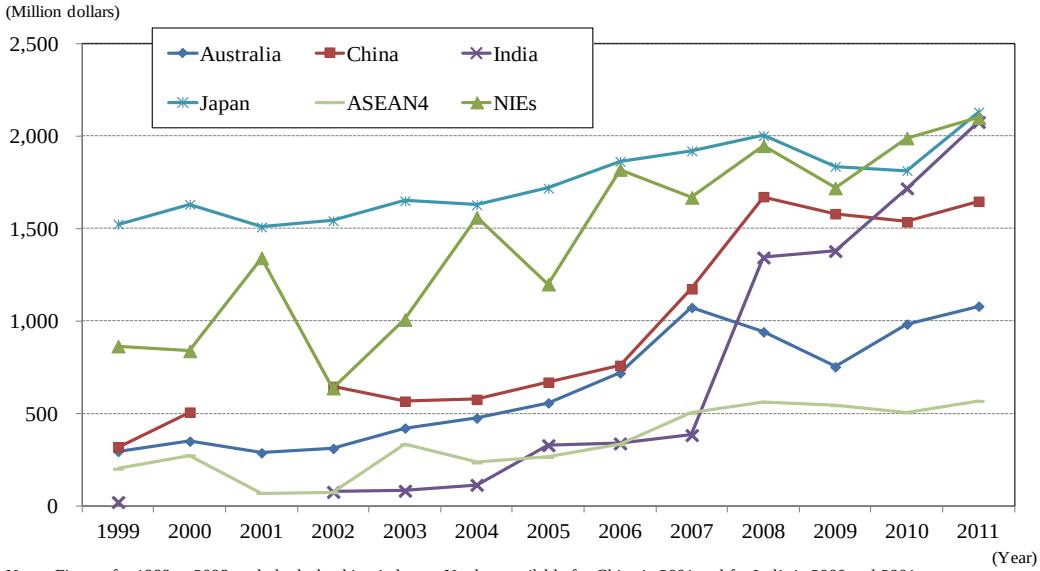
Figure II-1-2-62 Trends in research and development expenditure by foreign affiliates by region (top: value; bottom: share)



Notes: Figures for 1999 to 2008 exclude the banking industry.
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

(%)	1999	2005	2011
Canada	9.3	8.8	7.4
Europe	67.3	68.0	60.4
Latin America	3.4	3.0	6.2
Africa	0.1	0.1	0.2
Middle East	2.1	2.8	4.5
Asia & Pacific	17.8	17.2	21.1

Figure II-1-2-63 Trends in research and development expenditure in the Asia and Pacific region (top: value; bottom: share)



Notes: Figures for 1999 to 2008 exclude the banking industry. No data available for China in 2001 and for India in 2000 and 2001.
ASEAN4: Indonesia, Malaysia, Philippines, Thailand
NIEs: Hong Kong, ROK, Singapore, Taiwan
Source: U.S. Department of Commerce Bureau of Economic Analysis (BEA).

(%)	1999	2005	2011
Australia	9.1	11.7	11.2
China	9.9	14.0	17.0
India	0.6	6.9	21.5
Japan	47.2	36.0	22.0
ASEAN4	6.2	5.5	5.9
NIEs	26.8	25.1	21.7

(G) Current status of U.S. companies' overseas business operations

The reshoring movement is attracting attention in the United States. However, even after the reshoring movement started attracting attention, U.S. companies have been actively operating abroad.

In recent years, the importance of overseas income has grown at multinational companies, as foreign affiliates' net income has been larger than their parent companies' net income. There have also been moves to enhance the deployment of business resources, such as capital expenditures (capital investment) and R&D expenditures, to foreign affiliates. U.S. multinational companies are striving to improve business process efficiency and maintain and strengthen competitiveness by making strategic business operations that suit individual countries' characteristics, such as intensive investments in the manufacturing industry in China and in the professional, scientific and technical services industry in India.