# Annual Report on the Japanese Economy and Public Finance 2012

## —From Economic Reconstruction to Prosperous Creation—

## Summary

July 2012

Cabinet Office
Government of Japan

# Contents



This material has been tentatively prepared to explain the "Annual Report on the Japanese Economy and Public Finance." For quotation and other purposes, please refer to the text of the "Annual Report on the Japanese Economy and Public Finance."

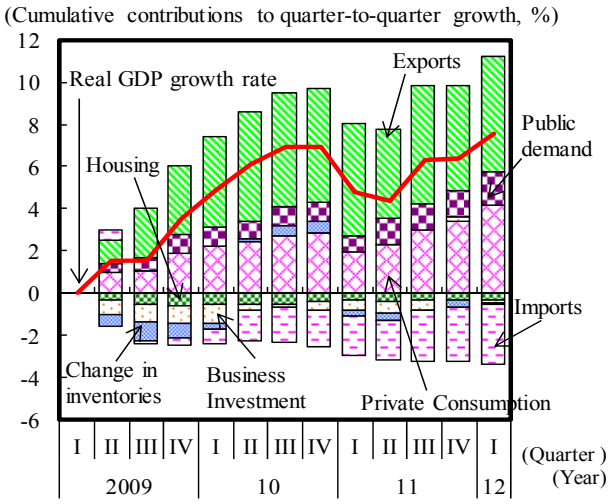
# Chapter 1 The Economy on the way to Recovery

## Section 1 Current Economic Conditions

- The Japanese economy is on the way to recovery at a moderate pace partly owing to reconstruction demand.
- After the Great East Japan Earthquake, the trade balance swung into deficit due to (1) a lack of growth in export volume, (2) an increase in import volume, and (3) a rise in import prices.

**Figure 1-1-1 (1) Changes in real GDP growth**

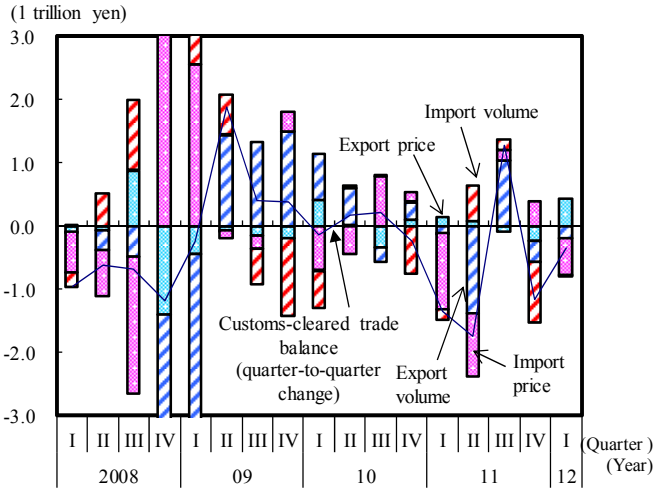
The Japanese economy is on the way to recovery at a moderate pace.




(Note) Compiled based on the System of National Accounts, the Cabinet Office. Figures are seasonally adjusted series.

**Figure 1-1-3 (2) Breakdown of the trade balance (custom clearance basis)**

The trade balance based on the custom clearance basis has tended to be in deficit due to a rise in import prices and a decline in export volume.

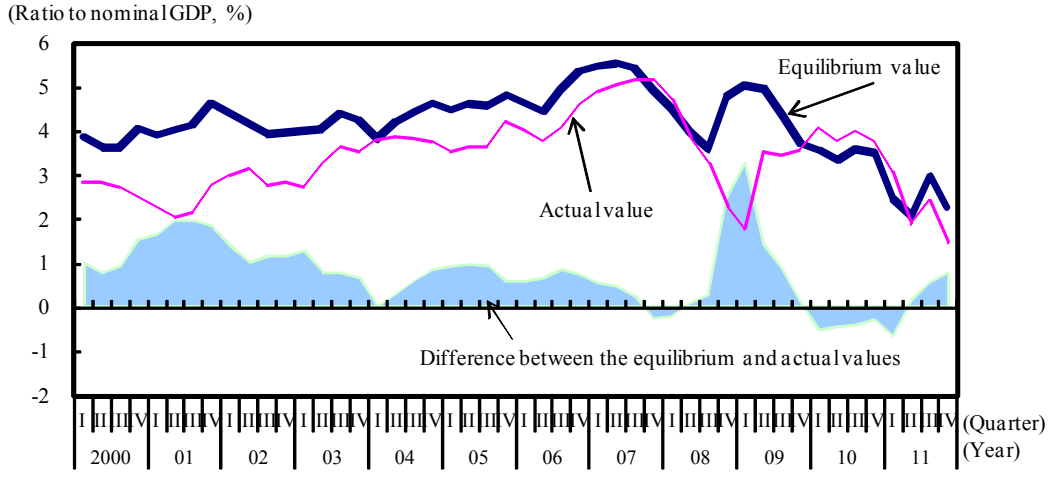



(Note) Compiled based on the Trade Statistics, the Ministry of Finance. Figures are seasonally adjusted series.

- In the early 2000s, the actual value of the current account surplus was smaller than the equilibrium value, but they almost matched around the time of the Lehman Shock in 2008. Since then, both values have been declining.

**Figure 1-1-6 (1) Changes in the ratio of the equilibrium nominal current account balance to nominal GDP**

The ratio of the equilibrium nominal current account surplus to GDP has been declining since around 2007.




(Note) The equilibrium nominal current account balance is calculated based on potential GDP and potential domestic demand (difference between savings and investment).

- Consumption has been increasing moderately partly as a result of policy effects.
- The household burden and benefits in FY 2012 will remain almost flat.

**Figure 1-1-16 (2) Consumption expenditure by type**

Consumption has been increasing moderately in part as a result of policy effects.

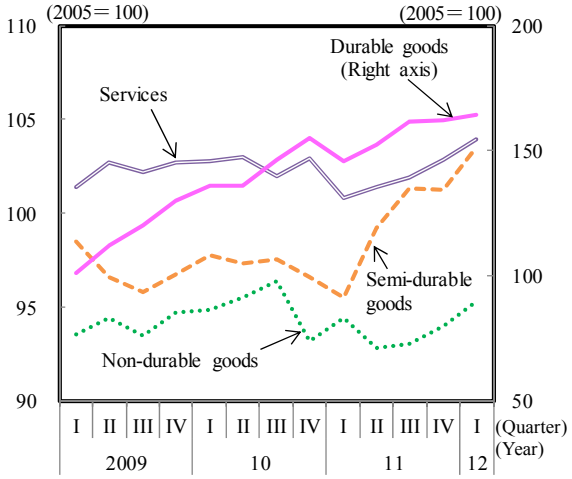
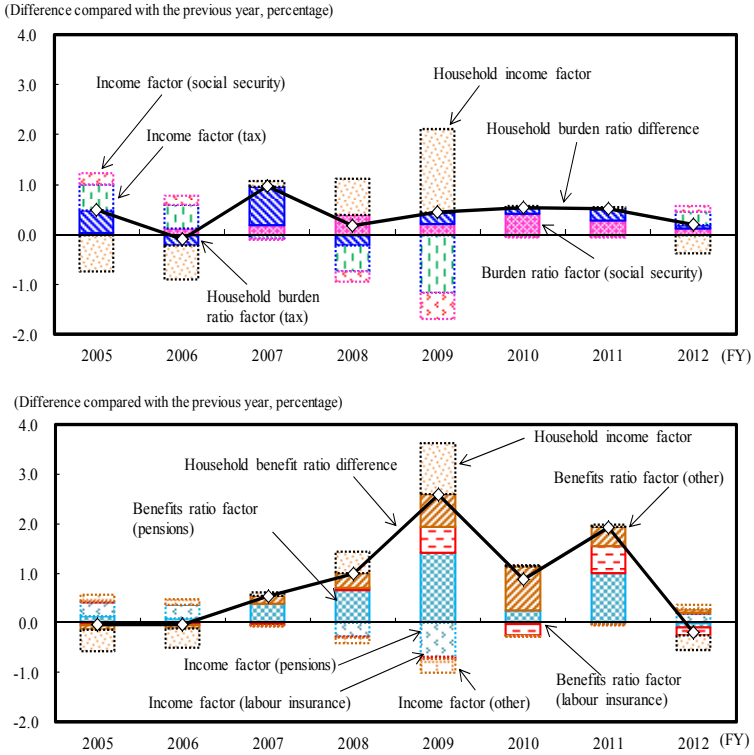



**Figure 1-1-17 Breakdown of changes in the household burden and benefits ratios**

The household burden and benefits in FY2012 remained almost flat.

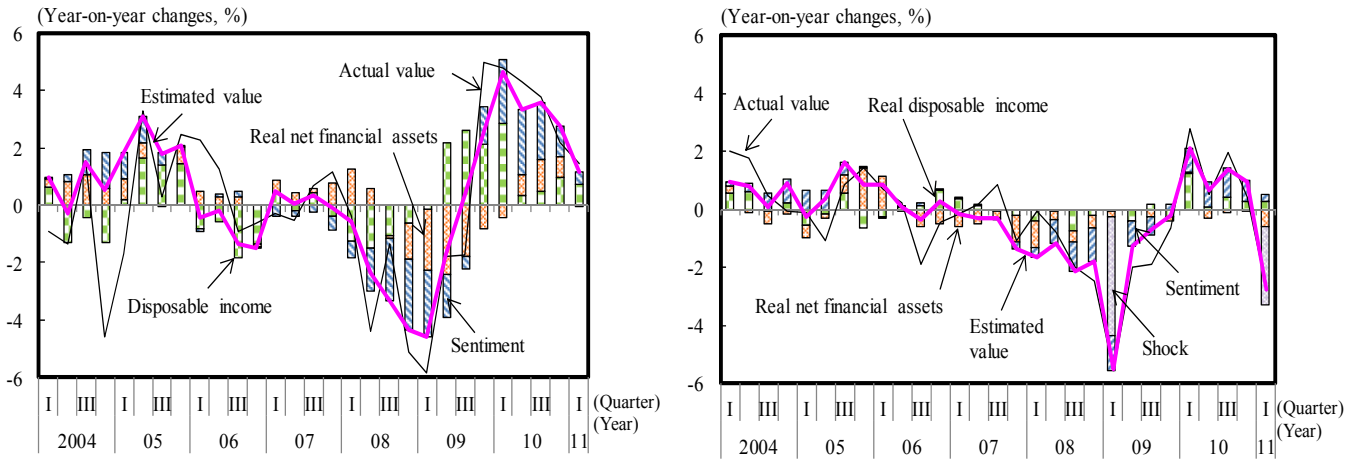



(Note for the left figure) Compiled based on the System of National Accounts, the Cabinet Office.
(Note for the right figure) Compiled based on the System of National Accounts, the fiscal 2012 economic outlook and basic stance on economic and fiscal policy management, the Cabinet Office; the breakdown of national and local taxes and the White Paper on Local Public Finance, the Ministry of Internal Affairs and Communications; and the FY 2012 national burden ratio, the Ministry of Finance. The figures for the years till FY2010 are actual results, those for FY2011 are estimates, and those for FY2012 are forecasts

- Consumption by elderly households changes significantly according to the changes in financial assets and economic sentiment.

**Figure 1-1-18 Determinant factors of consumption**

(1) Elderly households (actual consumption per household)　(2) Non-elderly households (actual consumption per household)

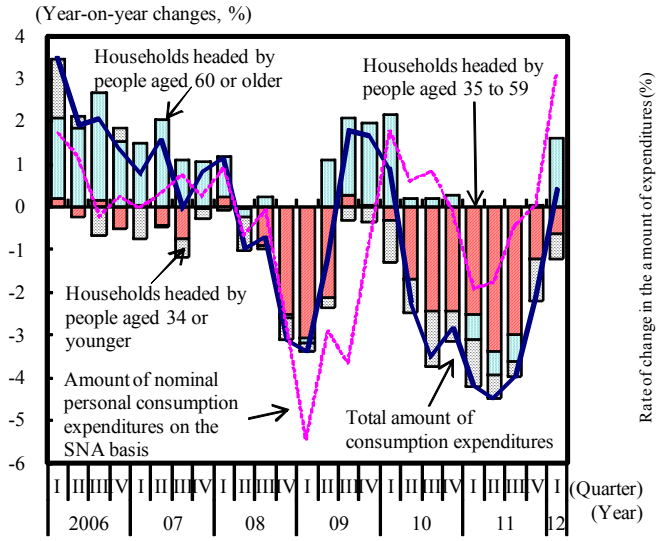



(Note) Estimated and compiled based on the System of National Accounts, the Consumer Confidence Survey and the single-person household consumption survey, the Cabinet Office; the Family Income and Expenditure Survey, the Population Census and the Population Estimates, Ministry of Internal Affairs and Communications; and the Flow of Funds Accounts, the Bank of Japan.

- Consumption is led by elderly households partly due to an increase in the number of elderly households caused by aging.
- As a result, demand for travel, social activities and health/medical services are growing.

**Figure 1-1-19 (4) Consumption expenditure by age group**

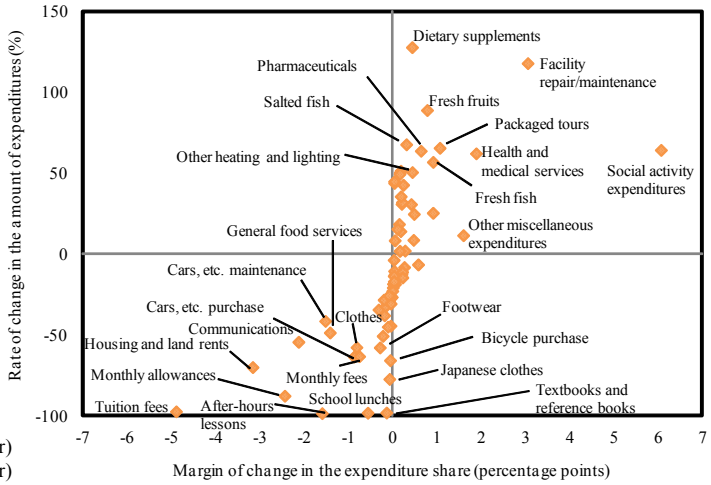
Households headed by person aged 60 or older are leading consumption.




(Note) The amount of expenditures was calculated by multiplying the amount of expenditures per household in each age group by the number of households (the population number in the Population Census adjusted with linear interpolation)

**Figure 1-1-20 (2) Consumption characteristics of non-working elderly households**

Expenditures on travel, social activities, health and insurance service increase, while those on child care, education, cars and general food services decrease, relative to young households.

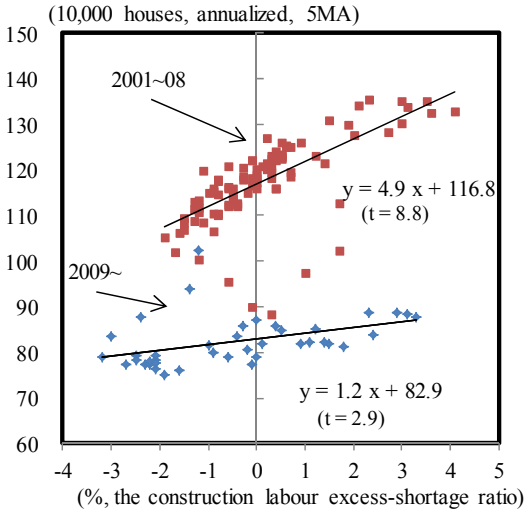



(Note) Changes in the amount and share of expenditures by households with two or more persons headed by people aged 60 or older compared with such households headed by people aged 59 or younger.

- The house-building capacity estimated by new housing starts may have undergone a level shift since 2009.
- The working population is expected to continue shrinking due to the further aging of society.

**Figure 1-1-21 (3) Construction labour excess-shortage ratio and housing starts**

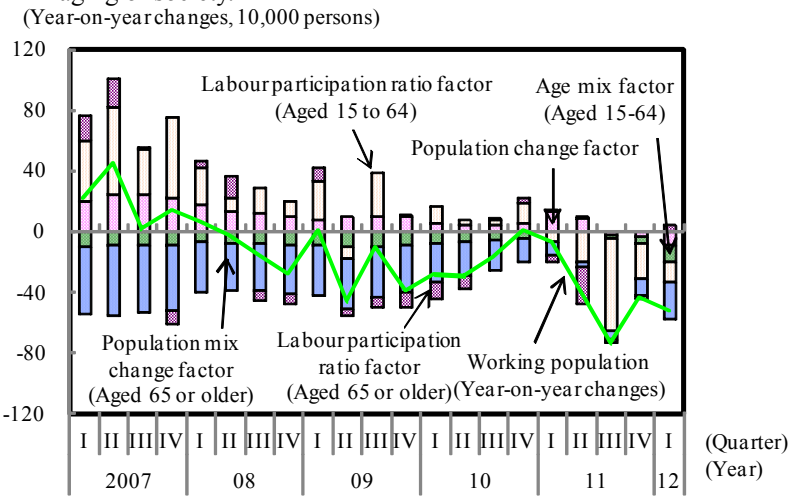
There is a correlation between the construction labour excess-shortage ratio and housing starts.




(Note) The construction labour excess-shortage ratio is calculated by deducting the number of workers who became redundant after being hired from the number of workers that employers hoped but failed to hire, and then dividing that figure by the sum of the number of workers hired and the number of workers that employers hoped but failed to hire.

**Figure 1-1-24 (1) Breakdown of changes in the labour population by factor**

The number of workers is declining due to the further aging of society.




(Note)
1. Compiled based on the Labour Force Survey, the Ministry of Internatl Affairs and Communications, and the Population Projections for Japan (medium-variant projection of births (medium-variant projection of deaths), the National institute of Population and Social Security Research.
2. Explanations of factors:
Population change factor: Caused by change in the population of people aged 15 or older.
Age mix factor: Caused by change in the age mix.
Labour participation ratio change factor: Caused by the rate of change in the labour participation ratio in the relevant age group.

- Although the women's labour force participation ratio has been rising, there is room for a further rise compared with other OECD countries. The difference lies in whether or not women aged 30 to 40 will continue to be employed.

**Figure 1-1-25 (1) Cohort analysis of changes by gender and age group**

Younger women's labour force participation ratio has been rising.

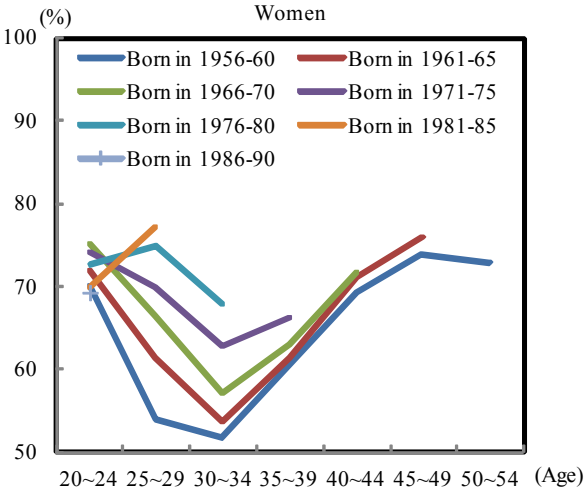
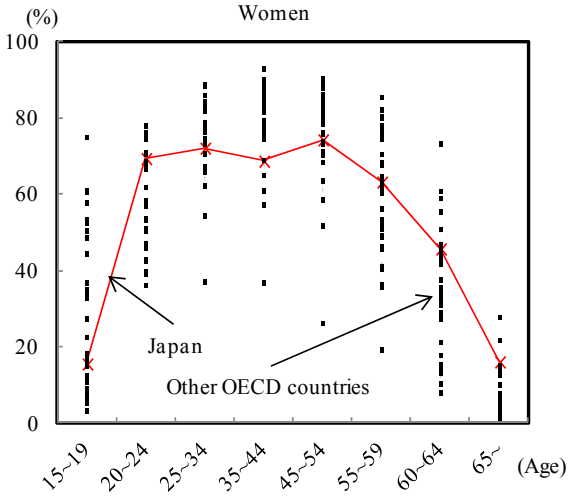



**Figure 1-1-25 (2) International comparison of the labour force participation ratio**

Japan declined in the ranking of the labour force participation ratio among OECD countries due to obstacles to continued employment for the 30-40 age group.




(Note) Compiled based on the Labour Force Survey, the Ministry of Internal Affairs and Communications.

- The ratios of both non-regular workers and short-hour workers have been rising.
- The rise comes against the backdrop of an increase in the ratio of non-regular workers aged 55 to 64.

**Figure 1-1-28 (1) Ratio of non-regular workers by the length of working hours and contract period**

The ratios of non-regular workers and short-hour workers have been rising.

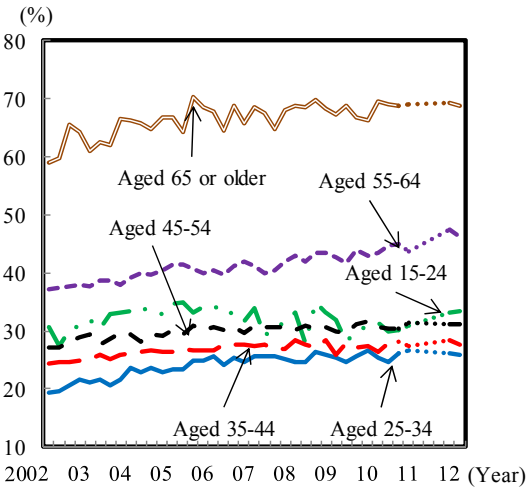
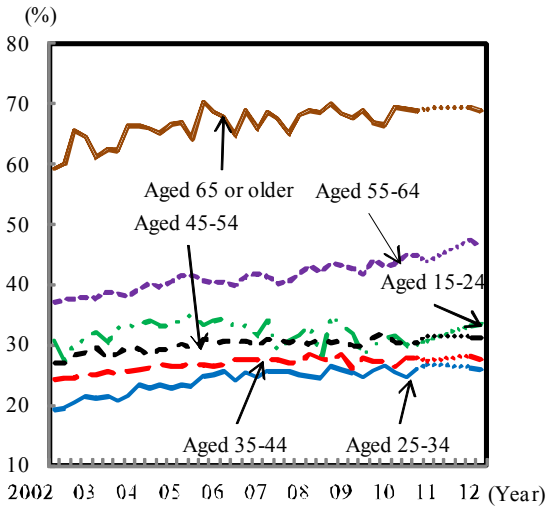



**Figure 1-1-28 (2) Ratio of non-regular workers by age group**

The ratio of non-regular workers has been rising in the 55-64 age group.

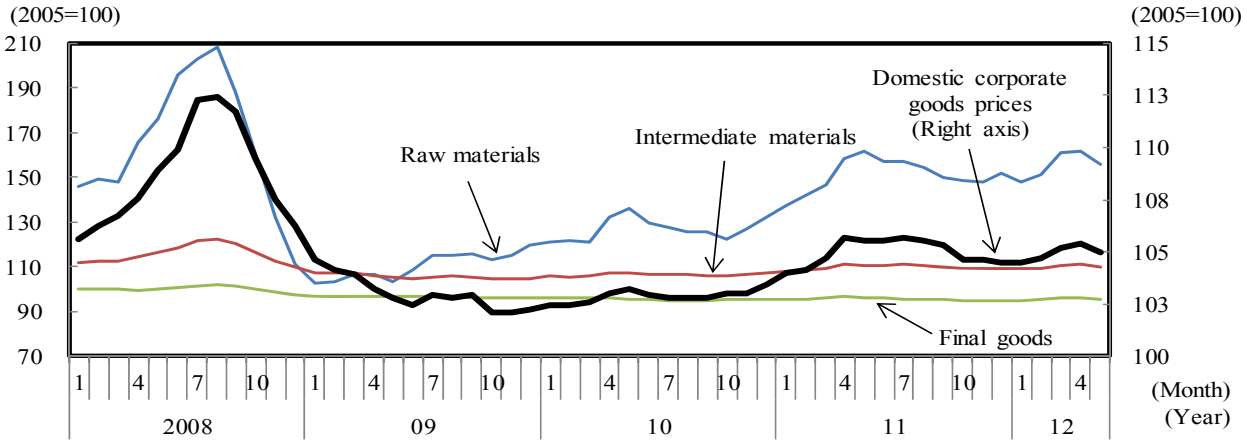



(Note) Compiled based on the Labour Force Survey, the Ministry of Internal Affairs and Communications.

# Section 2 Issues related to Prices

- Domestic corporate goods prices stayed higher year-on-year due to contributions by raw materials and intermediate goods.

**Figure 1-2-1 Changes in corporate goods prices (2) Changes in the index by demand stage and application**

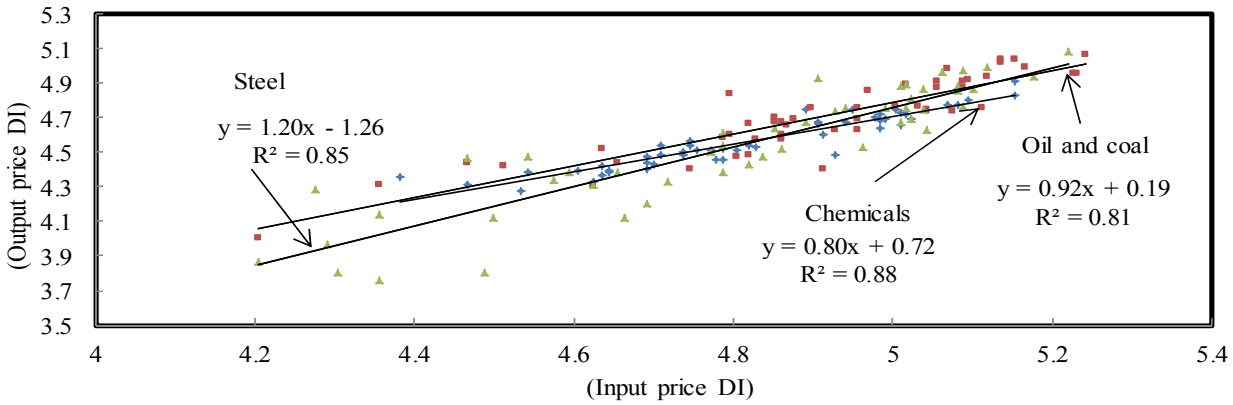



（Note）Compiled based on the Corporate Goods Price Index, the Bank of Japan.

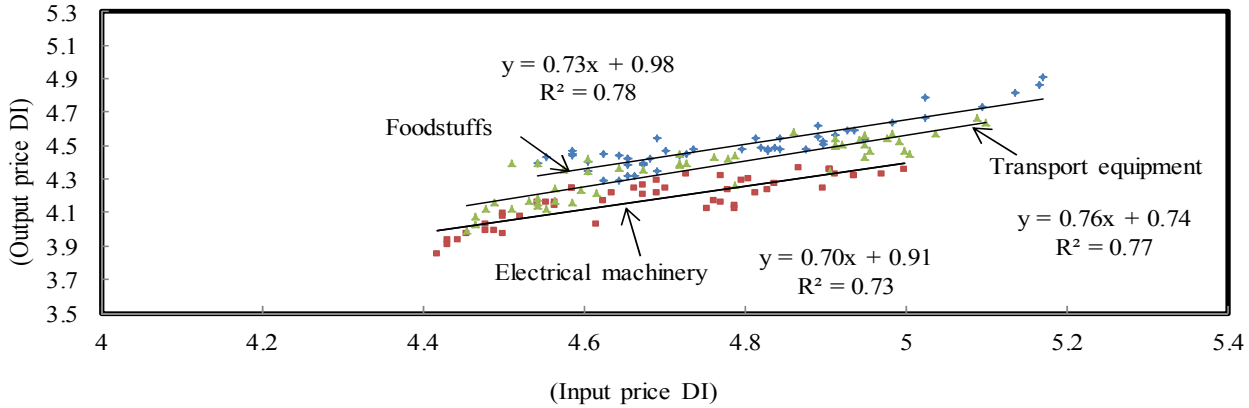
- The pass-through rate as represented by the price judgment DI is high in raw materials industries and low in processing industries.

**Figure 1-2-2 Input structure and pass-through rate**

(2) Quasi-terms of trade of raw materials industries




(3) Quasi-terms of trade of processing industries

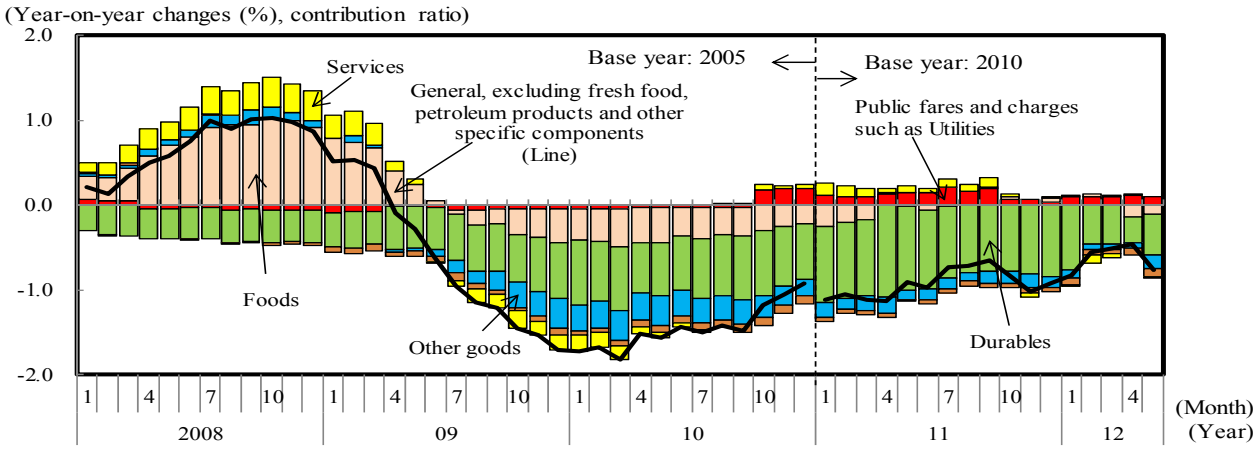



(Note) Compiled based on the Tankan report, the Bank of Japan. The figures for quasi-terms of trade represent the numbers calculated by logarithmizing the DIs plus 100. Therefore, the co-efficient of the regression formula is elasticity.

- The drop in so-called “core-core CPI”, which exclude petroleum product prices, etc. slowed down.

**Figure 1-2-3 Changes in consumer prices**

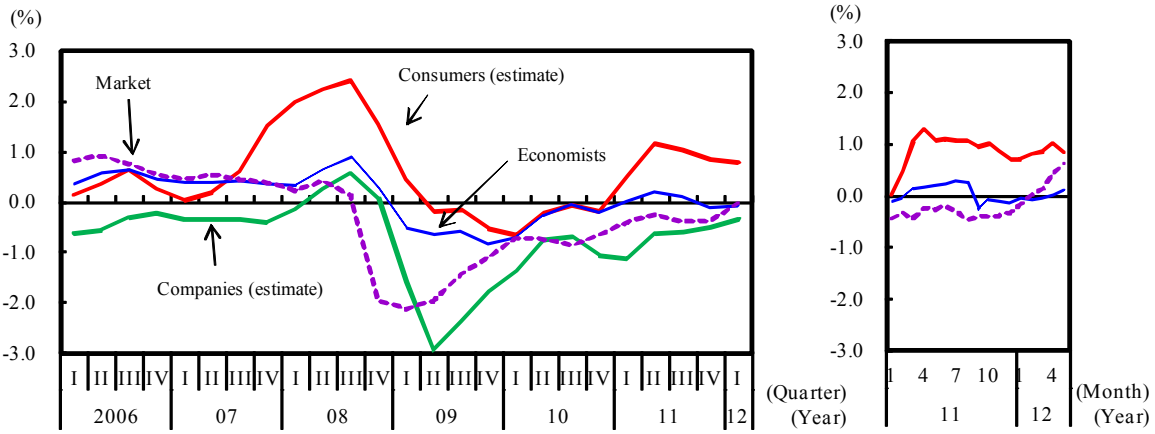
(2) Decomposition of contributions to changes in “CPI general, excluding fresh food, petroleum products and other specific components (core-core)”




(Note) Compiled based on the Consumer Price Index, the Ministry of Internal Affairs and Communications. The above figure represents the breakdown of contributions to the chain base index.

- The expected inflation rate rose moderately.

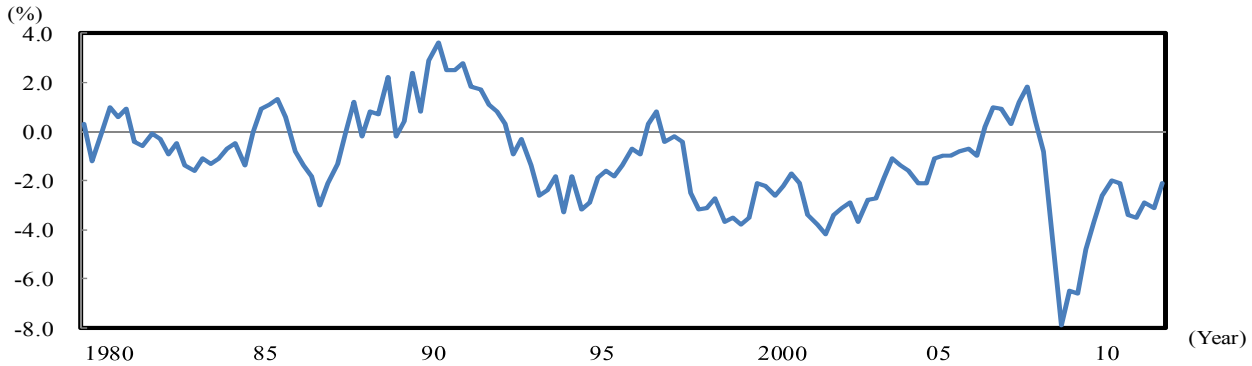
**Figure 1-2-4 (3) Expected inflation rate by subject**




(Note) Compiled based on the Consumer Confidence Survey, the Cabinet Office; the Consumer Price Index, the Ministry of Internal Affairs and Communications; the Corporate Goods Price Index and the tankan report, the Bank of Japan; the ESP Forecast Survey, the Japan Center for Economic Research; and data from Bloomberg. Consumers’ expected inflation rate and companies’ expected inflation rate (sales prices) were estimated using the Carlson and Parkin method. Economists’ expected inflation rate is the average of forecasts of the rate one year from the time of the survey. The term of the bonds used in the formula “the yield on inflation-indexed bonds − the JGB yield” (break-even inflation rate) is 10 years. However, regarding the second quarter of 2009 and subsequent quarters, the term is seven years.

- The supply-demand gap has gradually narrowed since demand was depressed by the earthquake.

**Figure 1-2-5 (1) Changes in the GDP gap**

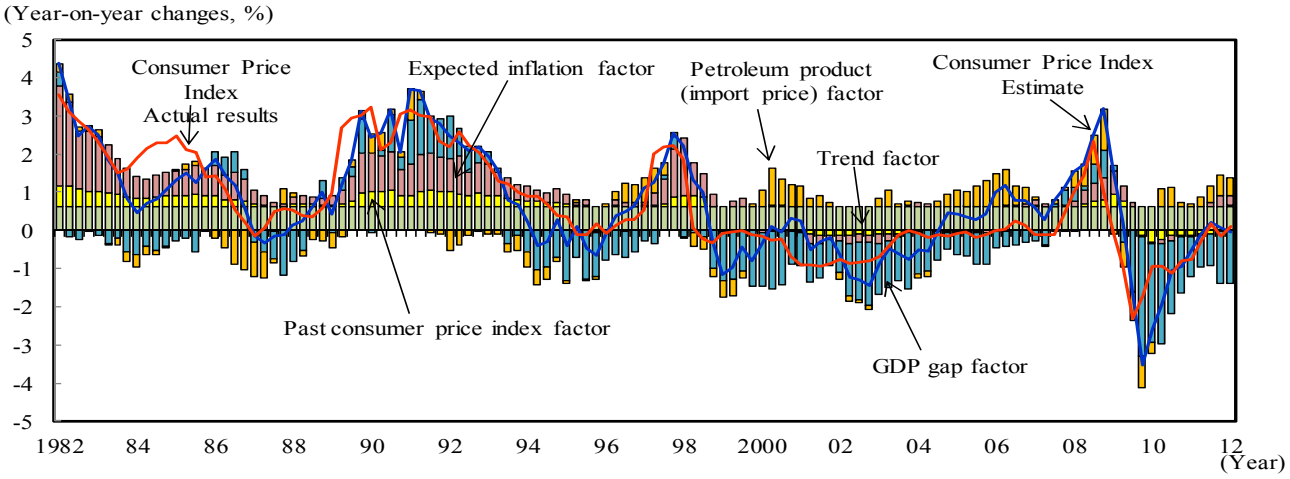



(Note) Estimated by the Cabinet Office.

- As a result, the deflationary pressure on consumer prices has been easing with some time lag.

**Figure 1-2-6 (3) Breakdown of the Consumer Price Index (general excluding fresh-food)**

Although the supply-demand gap is primarily cyclical, it seems to have continuously exerted downward pressure on the economy in the early 2000s. The expected inflation rate continued to make positive contributions until the late 1990s, but its contributions have stayed close to zero since then. Petroleum-product-related factors were temporary.




(Note) Estimated and compiled based on the Consumer Price Index, the Ministry of Internal Affairs and Communications; the Corporate Goods Price Index, the Bank of Japan; and the Consumer Confidence Survey and the System of National Accounts, the Cabinet Office. The GDP gap was estimated by the Cabinet Office.

- The drop in consumer prices was also affected by the selection of items covered by the price index and product-specific price movements, such as the supply-demand balance. Among durable consumer goods, TV sets made significant contributions.

**Figure 1-2-7 (2) Contribution ratio of TV sets to consumer prices (core-core)**

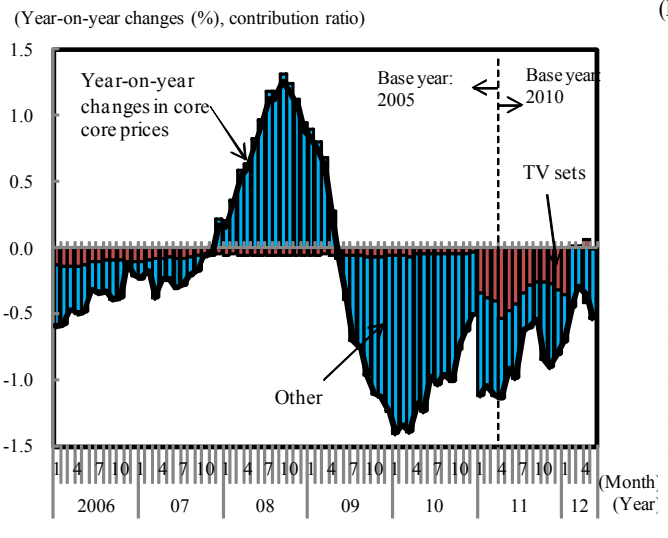
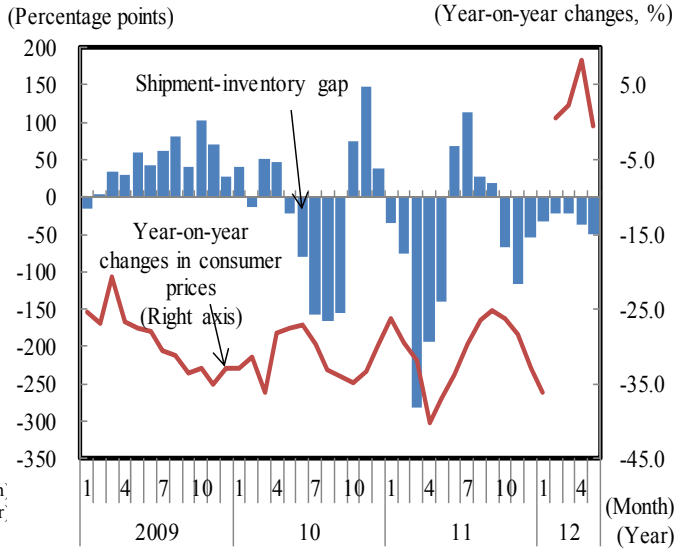



**Figure 1-2-8 (2) Price index of TV sets and shipment-inventory gap**

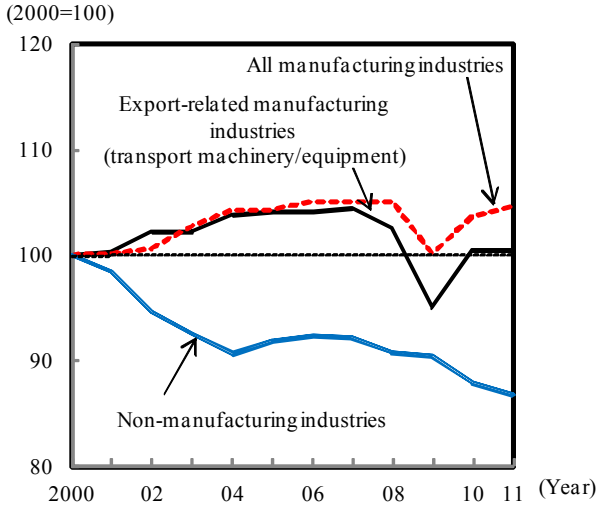



(Note) Compiled based on the Consumer Price Index, the Ministry of Internal Affairs and Communications; and the Current Survey of Production, the Ministry of Economy, Trade and Industry. The year-on-year changes in consumer prices were calculated by the Cabinet Office based on the price index of TV sets. It should be noted that the price level has changed due to the revision in February 2012 of the basic items covered by the data (month-on-month change of 48.6%).

- While wages in manufacturing industries recovered in line with the recovery, wages in non-manufacturing industries remained sluggish. However, wages (hourly wages) of part-time workers in the service industry show signs of rising.

**Figure 1-2-13 (2) Regular salaries (in terms of hourly wages)**

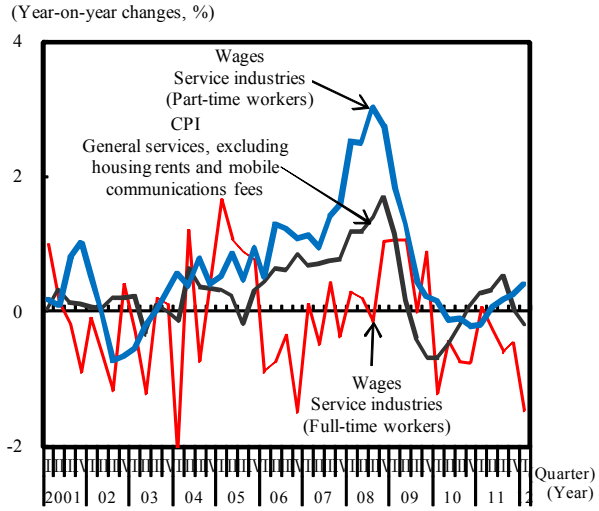
Regular salaries (including overtime pay) as expressed in terms of hourly wages have increased in manufacturing industries but have declined in non-manufacturing industries.




(Note) Compiled based on the Current Employment Statistics, the Ministry of Health, Labour and Welfare. The data cover business facilities with a workforce of 30 or more employees. The figures are in nominal terms. The hourly wages were calculated by dividing regular salaries in each industry by the total working hours.

**Figure 1-2-16 (1) Changes in service prices and wages in service industries**

While a correlation is observed between wages (hourly wages) in service industries and prices, wages (hourly wages) for part-time workers are rising.




(Note) Compiled based on the Consumer Price Index, the Ministry of Internal Affairs and Communications; and the Current Employment Statistics, the Ministry of Health, Labour and Welfare. The data cover business facilities with a workforce of 30 or more employees. Wages in service industries are hourly wages calculated by dividing regular salaries in non-manufacturing industries excluding construction by the total real working hours.

- The elasticity of service prices to wages of part-time workers is estimated around 0.5.
- Wages for part-time workers change prior to those of full-time workers.

**Figure 1-2-16 (2) Service prices' elasticity against wages in service industries**

There is a strong correlation between service prices and part-time workers' wages.

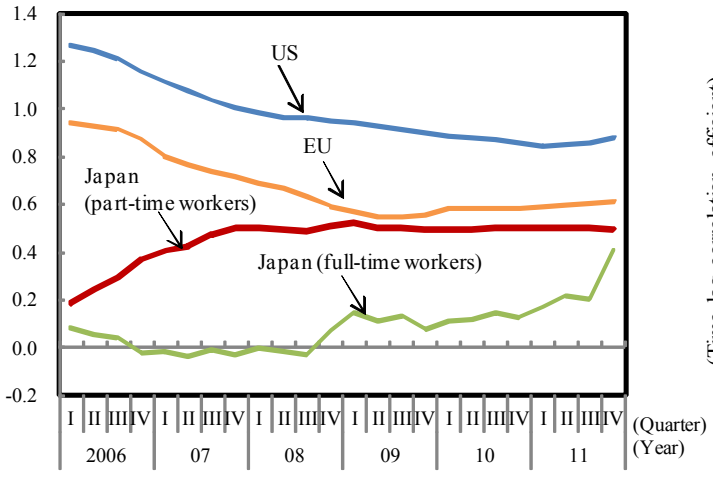
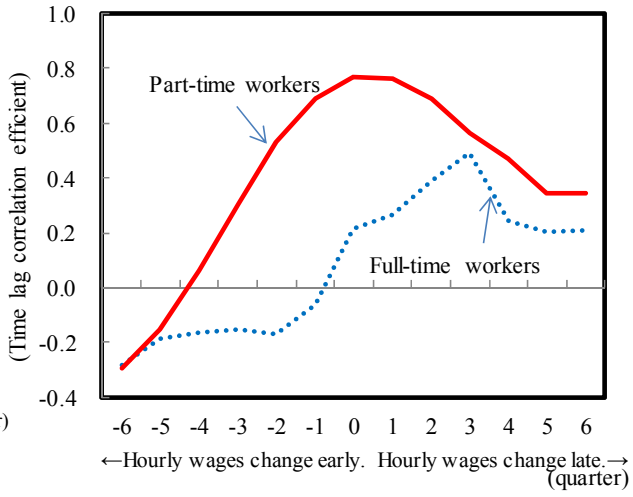



**Figure 1-2-16 (3) Time lag correlation between service prices and hourly wages in Japan**

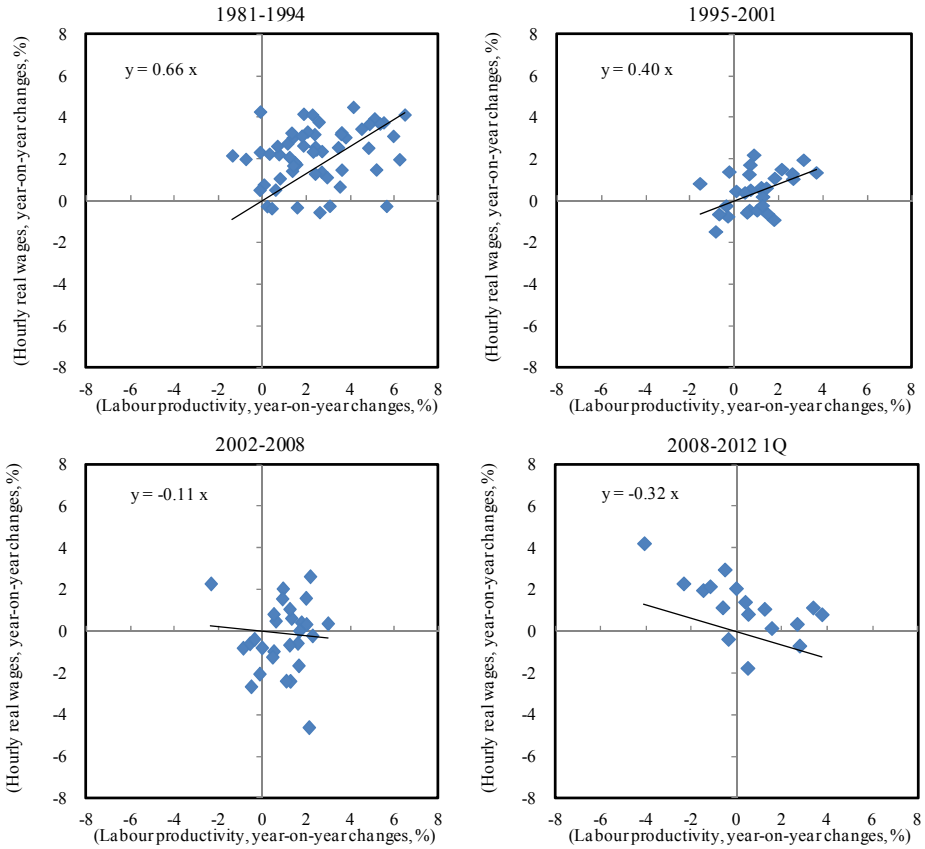
Part-time workers' wages tend to change before full-time workers' wages.




(Note) Estimated and compiled based on the Consumer Price Index, the Ministry of Internal Affairs and Communications; the Current Employment Statistics, the Ministry of Health, Labour and Welfare; the Consumer Price Indexes and the Current Employment Statistics, the United States Bureau of Labor Statistics; the Harmonised Indices of Consumer Prices and the Labour Cost Index, Eurostat. (2) indicates the time series of regression co-efficients of year-on-year changes in service prices and wages in service industries in the past five years. (3) indicates the time-lag correlation co-efficients calculated based on year-on-year changes in service prices and wages in service industries in the first quarter of 2001 through the fourth quarter of 2011.

- The correlation between real wages and labour productivity has disappeared since some time during the 2000s.

**Figure 1-2-18 Hourly real wages and labour productivity**



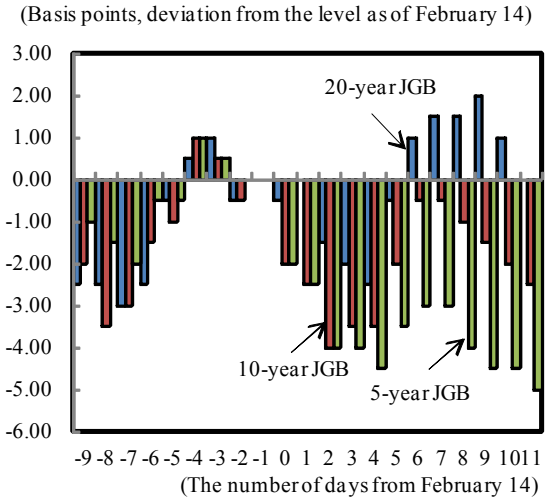

(Note) Compiled based on the System of National Accounts, the Cabinet Office; and the Labour Force Survey, the Ministry of Internal Affairs and Communications.

- The Bank of Japan set a goal at 1 percent of year-on-year rise in the CPI for the time being at a Monetary Policy Meeting in February 2012. Various markets may have reacted to the clarification of the CPI target.

**Figure 1-2-23 Spillover channels of monetary policy**

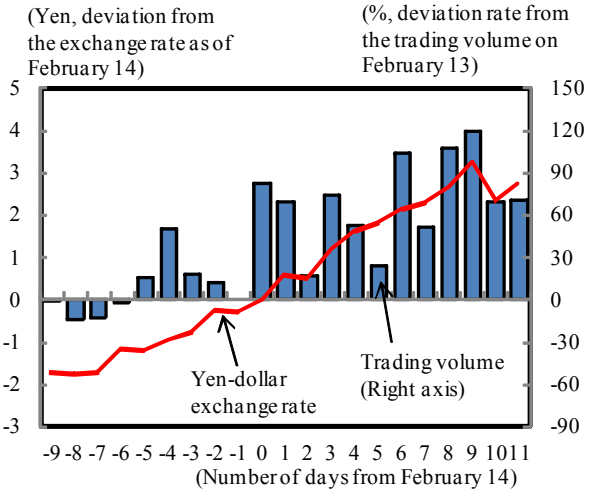
(1) Effects on interest rates

The yield on 5-year JGBs dropped steeply.




(2) Effects on foreign exchange rates

The yen's weakness continued and trading volume increased steeply.

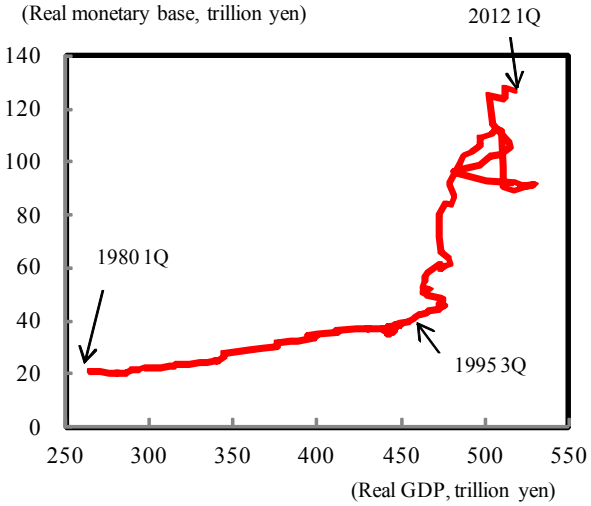



(Note) Compiled based on data from Bloomberg and Nikkei NEEDS.

- The relationship between the monetary base and GDP has changed since the late 1990s.
- Changes in foreign exchange rates (dollar-yen rate) are affected by interest rate and price differentials.

**Figure 1-2-25 (1) Relationship between the real monetary base and real GDP**

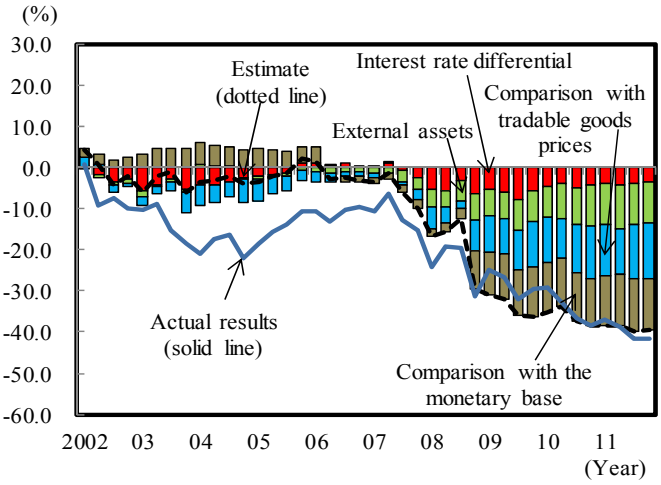
Money demand has changed since the late 1990s.




(Note) Compiled based on the System of National Accounts, the Cabinet Office; and the Monetary Base, the Bank of Japan.

**Figure 1-2-26 (2) Breakdown of cumulative contributions to exchange rate changes (since the first quarter of 2002)**

The yen's rapid rise after the Lehman Shock was due to such factors as interest rate differentials.




(Note) Estimated and compiled based on the Corporate Goods Price Index, the Monetary Base and the overnight call rate, the Bank of Japan; the National Income and Product Accounts, BEA; the Aggregate Reserves of Depository Institutions and the Monetary Base, the FRB; International Financial Statistics, IMF; and data from Bloomberg and Nikkei Needs.

- The interest rate estimated by the supply-demand gap and the expected inflation rate is still negative.
- While the previous interest rate hike was in line with the Taylor rule, prices remained weak.

**Figure 1-2-27 Interest rates based on Taylor's rule**

The Taylor rule indicates a negative interest rate.

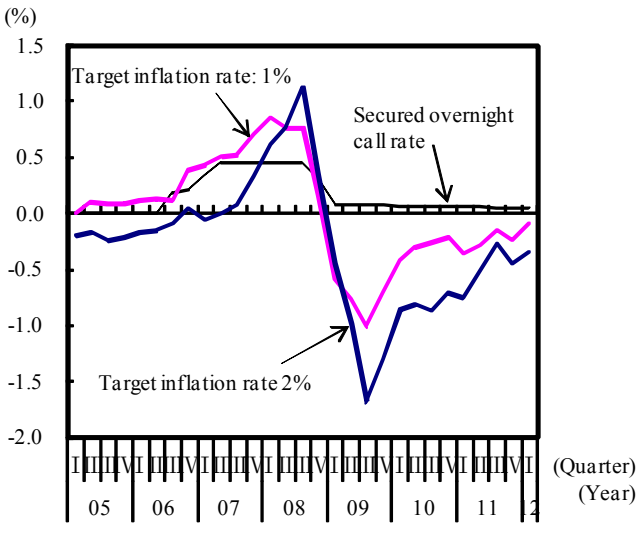
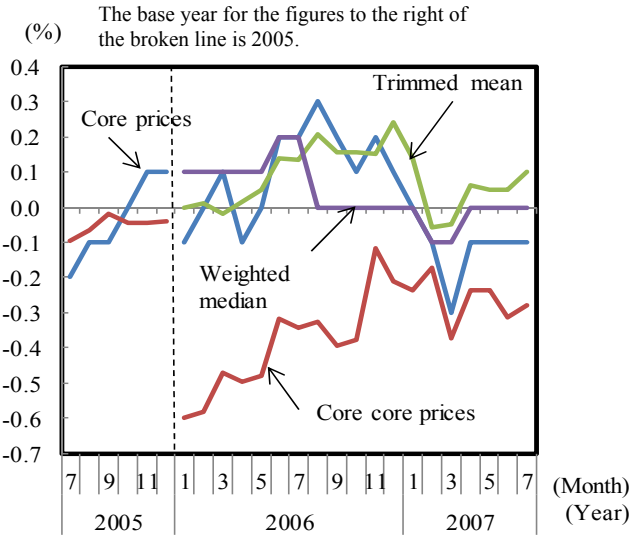



**Figure 1-2-28 Credit tightening phase in 2006 through 2007 (4) CPI (year-on-year changes)**

In 2006, the interest rate based on the Taylor rule was positive, but prices remained weak.




(Note) The Taylor rule is a theoretical interest adjustment rule that assumes the adjustment of the policy interest rate for a) the deviation of the actual inflation rate from the desirable inflation rate, and b) the deviation of the actual GDP from the potential GDP (GDP gap). The above figure indicates the target interest rate based on the Consumer Price Index (excluding fresh foods, adjusted for the consumption tax) and the GDP gap as estimated by the Cabinet Office on the assumption of the target inflation rates of 1.0% and 2.0%.

# Section 3 Challenges on the Path to Sustainable Growth

- The TFP growth rate declined in the 1990s but it was similar to the OECD average in the 2000s.
- An increase in R&D investment moderately contributes to the acceleration of the TFP growth rate.

**Figure 1-3-1 Changes in the overall productivity growth rate in OECD countries**

Although the rate of rise in Japan's productivity dropped steeply in the 1990s, it was similar to the OECD average in the 2000s.

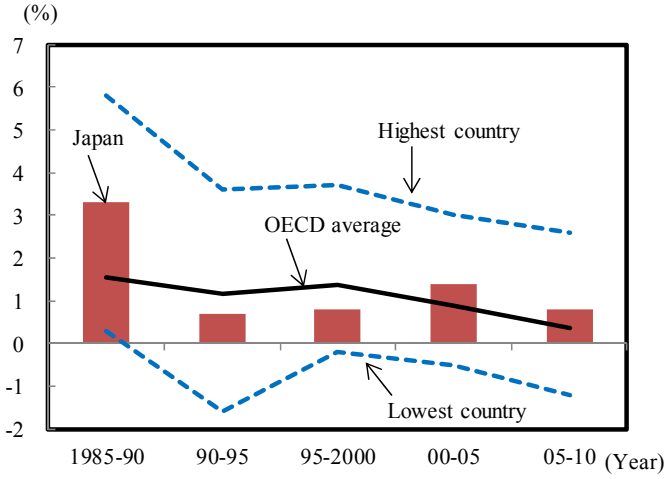
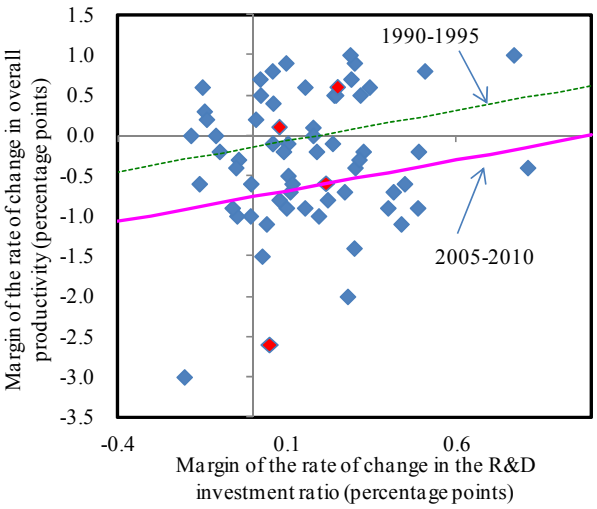



**Figure 1-3-3 R&D investment ratio and TFP growth rate**

The relationship between R&D and productivity in Japan is similar to the OECD average.

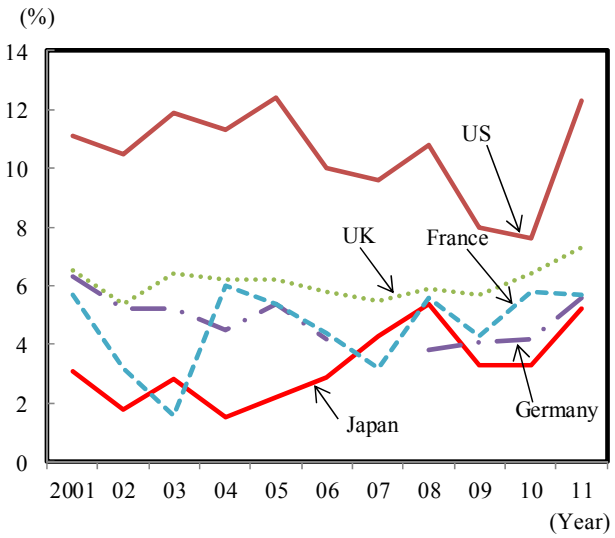



(Note) Both of the above figures were compiled based on data from OECD. The trend line in the right figure indicates △ (rate of change in TFP) = 0.76 × (△R&D investment ratio) − 0.77 + period dummy.

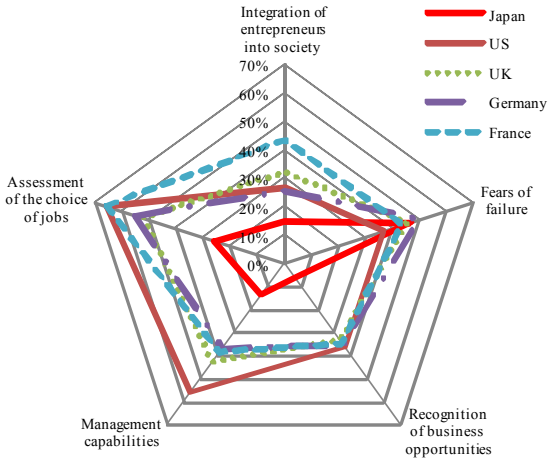
- The entrepreneur activity ratio rose moderately. While there are common concerns related to business startups (fears of failure) among countries, what are notable about Japan is society's low evaluation of entrepreneurs and the lack of knowledge necessary for starting business.

**Figure 1-3-7 International comparison of entrepreneurship**

(1) Changes in the entrepreneur activity ratio*

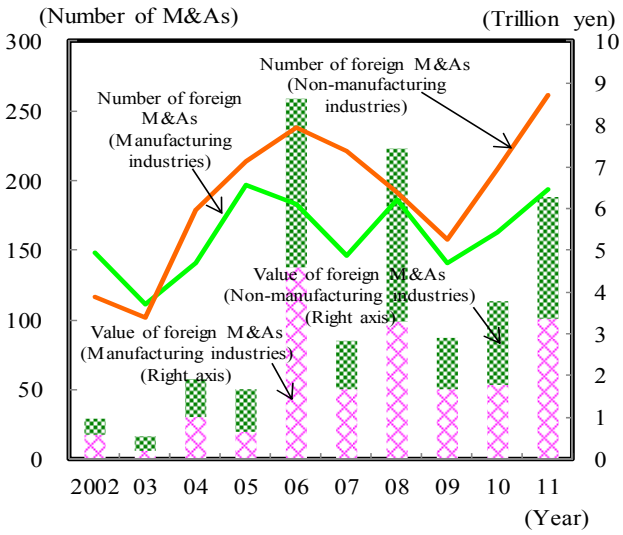



(2) Comparison in FY2011



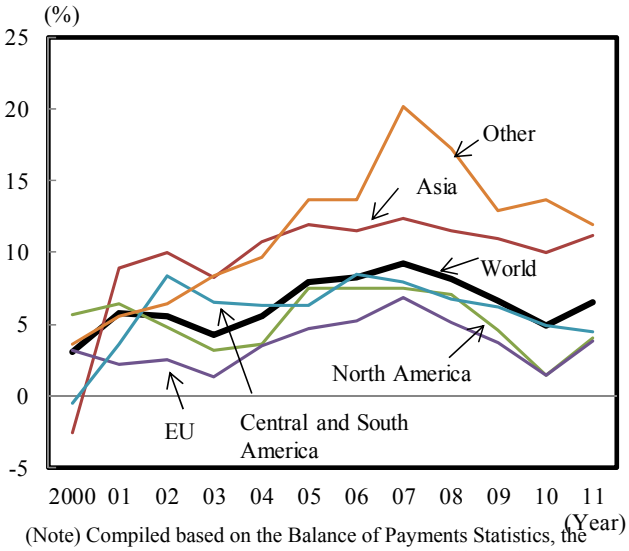

(Note) Compiled based on the report on the fiscal 2011 business startup support program (survey on entrepreneurship), the Ministry of Economy, Trade and Industry (2012). *The entrepreneur activity ratio, which is a yardstick of the vigorousness of entrepreneur activity, refers to the ratio of the total number of people involved in business startups (individuals who are preparing to start a new business, whether independently or within companies, and who have not received salaries) and people involved in new businesses (company owners who have received salaries for a period of 3.5 years or less) to the overall survey subjects.

- Acquisitions of foreign companies were active, mainly in non-manufacturing industries.
- The rate of return on outward FDI was high in Asian and other regions but low in Europe and North America.




(Note) Compiled based on RECOF M&A Database, RECOF Corporation.

**Figure 1-3-11 (2) Changes in the rate of return on outward FDI by region**

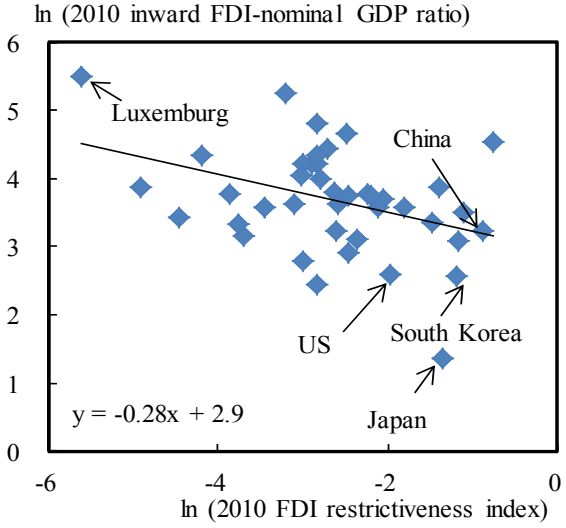



(Note) Compiled based on the Balance of Payments Statistics, the Ministry of Finance. The rate of return on FDI is defined as: (Return on FDI in the current year) ÷ (Balance of FDI in the previous year + balance of FDI in the current year ÷ 2).

- Inward FDI remained sluggish.
- Raising the ratio of foreign students who obtain jobs in Japan will be a measure that may be taken to acquire high-quality human resources.

**Figure 1-3-12 (1) Relationship between inward FDI and the FDI restrictiveness index**

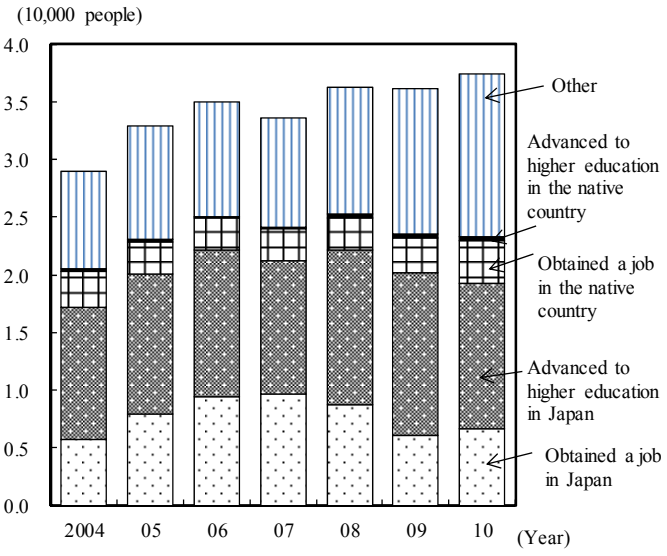
There is a negative correlation between the OECD's FDI restrictiveness index and the ratio of inward FDI to nominal GDP.




(Note) Estimated and compiled based on the 2012 FDI Restrictiveness index by Country," OECD.Stat; and Doing Business Data, the World Bank.

**Figure 1-3-15 (1) Academic and career path of foreign students**

The number of foreign students in Japan who obtain jobs or advance to higher education in Japan has been declining.




(Note) Compiled based on the survey on foreign students, the Japan Student Services Organization; and the School Basic Survey, the Ministry of Education, Culture, Sports, Science and Technology.

- Power-saving effects were found in electricity demand for industrial and household use in the service area of Tokyo Electric Power and for household use in the service area of Kansai Electric Power.

**Figure 1-3-20 Actual results and forecasts of power demand for industrial use**

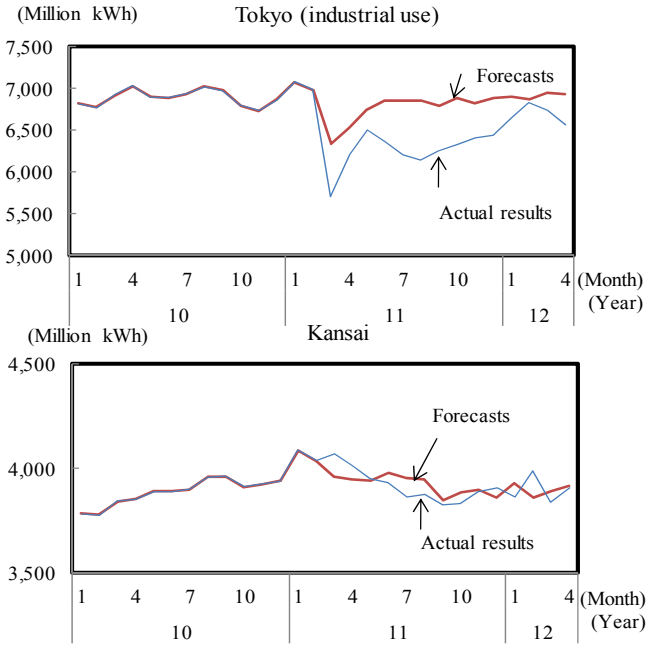
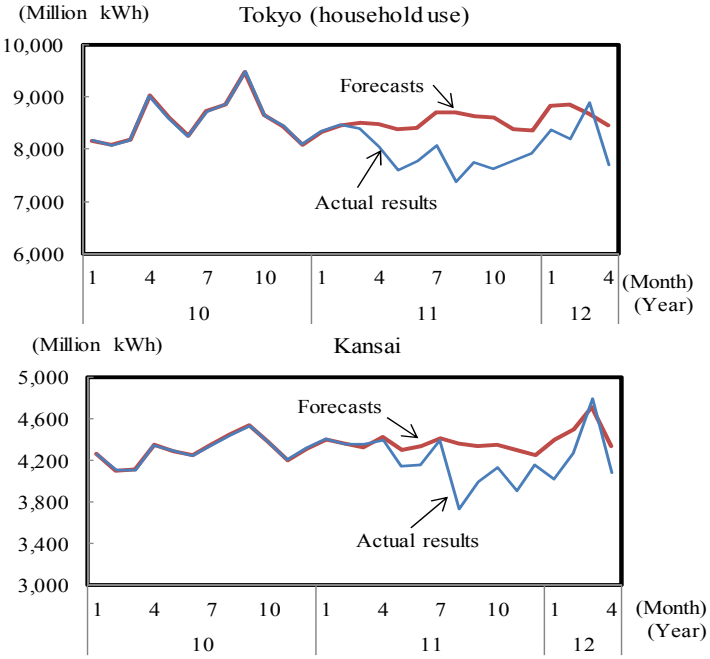



**Figure 1-3-21 Actual results and forecasts of power demand for household use**

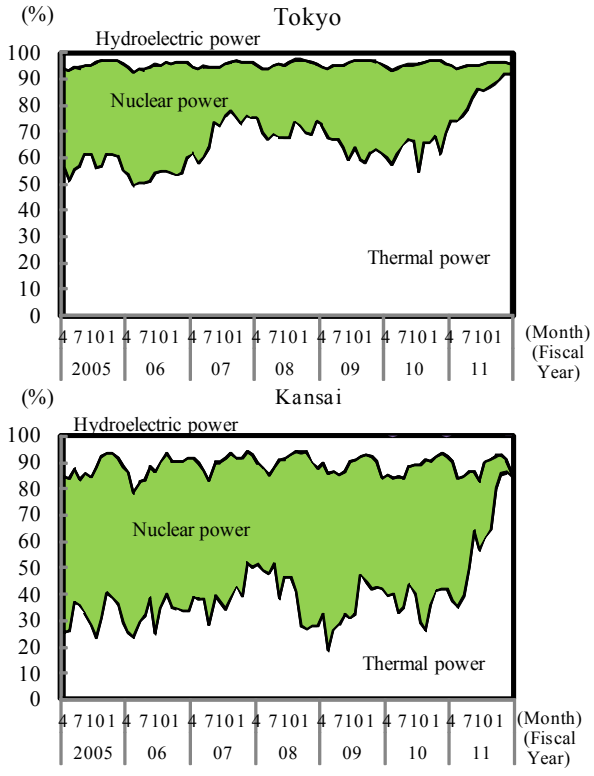



(Note) Estimated and compiled based on the electric power statistics, the Federation of Electric Power Companies of Japan; the Industrial Production Index and the 60-year statistics on the electric power industry, the Ministry of Economy, Trade and Industry; and the meteorological observation data, the Meteorological Agency.

- Since the earthquake, there has been a shift in power generation sources, from nuclear power to thermal power, in various regions.
- The cost of fuel for thermal power generation rose significantly in 2011.

**Figure 1-3-22 Changes on the supply side**

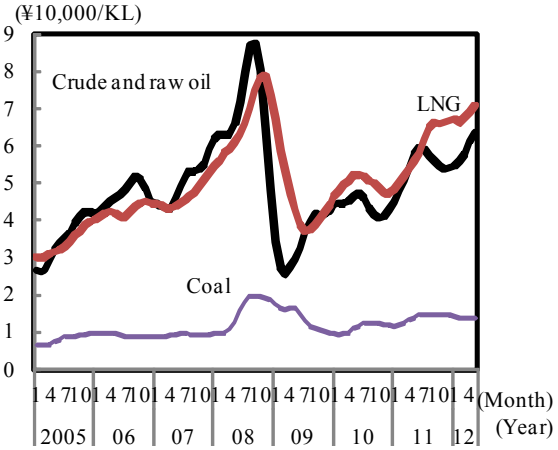
Nuclear power generation's share decreased as it was replaced by thermal power.




(Note) Compiled based on Electric Power Investigation Statistics, the Agency for Natural Resources and Energy

**Figure 1-3-23 (2) Changes in raw materials prices**

Prices of LNG and raw fuels have been rising.




(Note) Compiled based on Trade Statistics, the Ministry of Finance

**Figure 1-3-23 (3) Cost by thermal power plant type**

| | 2004 model | 2010 model |
|---|---|---|
| Coal-fired | ¥5.7/kWh | ¥9.5/kWh |
| LNG-fired | ¥6.2/kWh | ¥10.7/kWh |
| Oil-fired | ¥16.5/kWh | ¥22.1-36.0/kWh |

(Note) Compiled based on the report on the review of cost, etc., the cost review committee of the Energy and Environment Council.

- The utilization rate of photovoltaic power generation facilities varies from region to region.
- The purchase price of photovoltaic-derived electricity is more than double the cost of electric power companies.

**Figure 1-3-27 (1) Utilization rate of photovoltaic power generation facilities (facilities from which surplus electricity was purchased)**

In Tokyo and Shikoku, the utilization rate was relatively high on average.

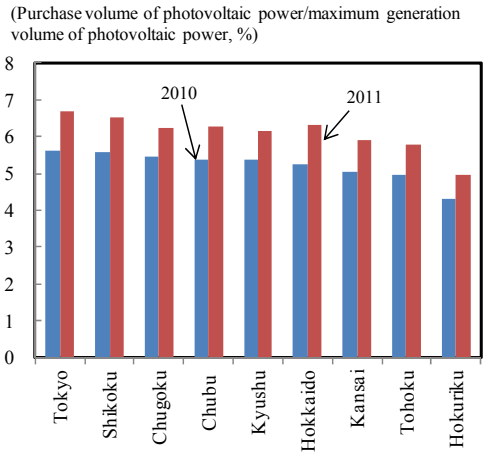
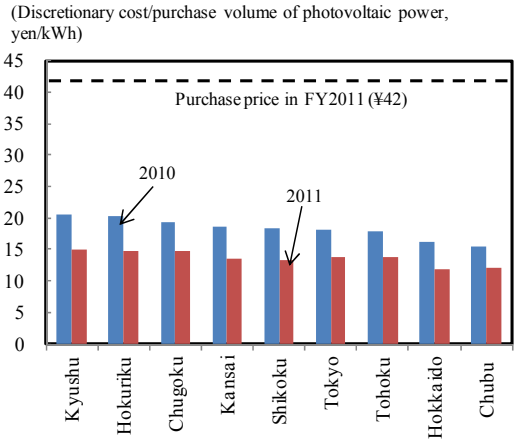



**Figure 1-3-27 (2) Unit cost reduction due to purchase and unit purchase price**

The purchase price is more than double the unit cost reduction made by electric power companies.




(Note) The "maximum generation volume of photovoltaic power" in (1) represents the number calculated by multiplying the capacity of photovoltaic power generation facilities in each region by 24 hours and by 365 days. The purchase volumes of photovoltaic power in (1) and (2) and the discretionary cost in (2) were cited from data compiled by the Agency for Natural Resources under the Ministry of Economy, Trade and Industry (2012) and the Advisory Committee for Natural Resources and Energy under the Ministry of Economy, Trade and Industry (2011). The discretionary cost refers to the cost that the purchase of photovoltaic power enables general electric power companies to avoid incurring as a result of a decrease in the volume of power generated in order to supply sufficient power to meet demand.

- The rate of return on investment in photovoltaic power generation under the feed-in tariff program is around 9% on average.
- The surcharge for each household is rising due to the diffusion of photovoltaic power generation.

**Figure 1-3-28 Rate of return on investment regarding purchase of surplus power**

In the past two years, the rate of return on investment under the feed-in-tariff program was around 9%, and there is a 3% subsidy for household photovoltaic power generation in the first year (the figure below is for FY2011).

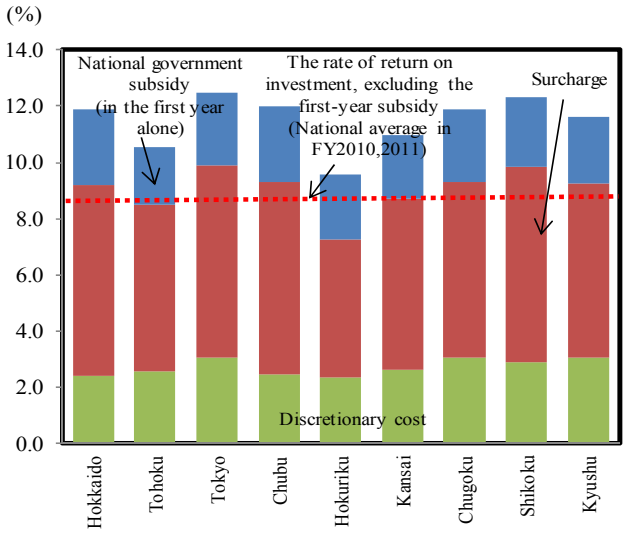
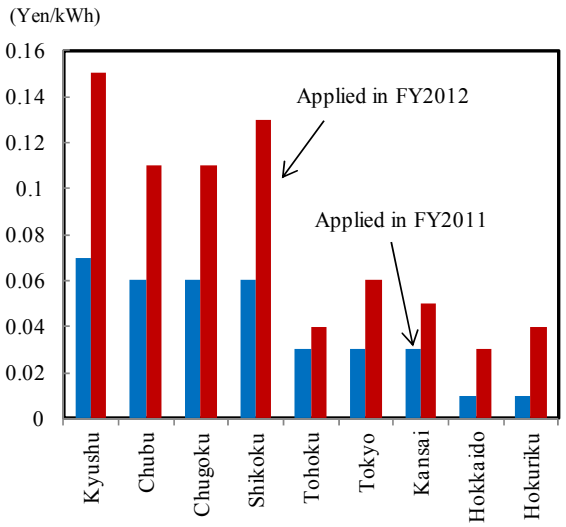



**Figure 1-3-29 (1) Photovoltaic power surcharge by region**

The photovoltaic power surcharge is rising.




(Note) Compiled based on "Regarding approval of electricity rates following the determination of the unit price of photovoltaic power surcharges for FY2012 (January 25, 2011)," the Agency for Natural Resources and Energy, and "Materials 2" used at the 13th meeting of the feed-in tariff program working group of the New and Renewable Energy Subcommittee of the Advisory Committee for Natural Resources and Energy (January 25, 2011). The rates of return on investment in the left figure were calculated through the formula: (Total purchase value − annual repair cost ÷2) ÷ (capital for power generation ÷ 2). The subsidy portion was calculated through the formula: Subsidy for household photovoltaic power generation ÷ capital for power generation.