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Bank of Japan

# **Outlook for Economic Activity and Prices**

January 2017

(English translation prepared by the Bank's staff based on the Japanese original)

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## The Bank's View<sup>1</sup>

### Summary

- Japan's economy is likely to continue growing at a pace above its potential through the projection period -- that is, through fiscal 2018 -- on the back of highly accommodative financial conditions and the effects of the government's large-scale stimulus measures, with the growth rates in overseas economies increasing moderately.
- The year-on-year rate of change in the consumer price index (CPI, all items less fresh food) is likely to increase from about 0 percent and become slightly positive, reflecting developments in energy prices. Thereafter, it is expected to increase toward 2 percent as the aggregate supply and demand balance (the output gap) improves and medium- to long-term inflation expectations rise.
- Comparing the current projections with the previous ones, the projected growth rates are somewhat higher, mainly reflecting improvement in overseas economies and the yen's depreciation. The projected rates of increase in the CPI are more or less unchanged.
- With regard to the risk balance, risks to both economic activity and prices are skewed to the downside. On the price front, the momentum toward achieving the price stability target of 2 percent is maintained, but is not yet sufficiently firm, and thus developments in prices continue to warrant careful attention.
- As for the conduct of monetary policy, the Bank will continue with "Quantitative and Qualitative Monetary Easing (QQE) with Yield Curve Control," aiming to achieve the price stability target of 2 percent, as long as it is necessary for maintaining that target in a stable manner. It will continue expanding the monetary base until the year-on-year rate of increase in the observed CPI (all items less fresh food) exceeds 2 percent and stays above the target in a stable manner. The Bank will make policy adjustments as appropriate, taking account of developments in economic activity and prices as well as financial conditions, with a view to maintaining the momentum toward achieving the price stability target.

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<sup>1</sup> The text of "The Bank's View" was decided by the Policy Board at the Monetary Policy Meeting held on January 30 and 31, 2017.

## **I. The Current Situation of Economic Activity and Prices in Japan**

Japan's economy has continued its moderate recovery trend. Overseas economies have continued to grow at a moderate pace, although emerging economies remain sluggish in part. In this situation, exports have picked up. On the domestic demand side, business fixed investment has been on a moderate increasing trend as corporate profits have been at high levels and business sentiment has improved somewhat. Against the background of steady improvement in the employment and income situation, private consumption has been resilient, and housing investment has continued its pick-up. Meanwhile, public investment has been more or less flat. Reflecting these moderate increases in demand both at home and abroad and the progress in inventory adjustments, industrial production has picked up. Financial conditions are highly accommodative. On the price front, the year-on-year rate of change in the CPI (all items less fresh food, and the same hereafter) has been about 0 percent. Inflation expectations have remained in a weakening phase.

## **II. Baseline Scenario of the Outlook for Economic Activity and Prices in Japan**

### **A. Baseline Scenario of the Outlook for Economic Activity**

With regard to the outlook, Japan's economy is likely to turn to a moderate expansion. Domestic demand is likely to follow an uptrend, with a virtuous cycle from income to spending being maintained in both the corporate and household sectors, on the back of highly accommodative financial conditions and fiscal spending through the government's large-scale stimulus measures. Business fixed investment is likely to maintain its moderate increasing trend, supported by accommodative financial conditions, heightened growth expectations, and increases in Olympic Games-related demand. Private consumption is expected to continue increasing moderately as employee income continues to improve. Public investment is projected to increase through fiscal 2017, due mainly to the positive effects resulting from a set of stimulus measures, and thereafter remain at a relatively high level with Olympic Games-related demand. Meanwhile, the growth rates of overseas economies are expected to increase moderately as advanced economies continue growing steadily and a recovery in emerging economies takes hold gradually on the back of the steady growth in advanced economies and the effects of policy measures taken by emerging

economies. Exports are expected to follow a moderate increasing trend on the back of the improvement in overseas economies.

Reflecting this outlook, Japan's economy is likely to continue growing at a pace above its potential through the projection period -- that is, through fiscal 2018.<sup>2</sup> Comparing the current projections with the previous ones, the projected growth rates are somewhat higher, mainly reflecting improvement in overseas economies and the yen's depreciation, in addition to an upward revision to the GDP due to the comprehensive revision to GDP statistics.

Looking at the financial conditions assumed in the above outlook, short- and long-term real interest rates are expected to be in negative territory through the projection period as the Bank pursues "QQE with Yield Curve Control."<sup>3</sup> Financial institutions' proactive lending attitudes as well as favorable conditions for corporate bonds and CP issuance are both likely to be maintained and support firms' and households' activities from the financial side. Thus, financial conditions are likely to remain highly accommodative.

The potential growth rate is expected to follow a moderate uptrend through the projection period against the backdrop of the following: progress in implementation of the government's growth strategy, including regulatory and institutional reforms; an increase in labor participation by women and the elderly under such strategy; firms' continued efforts toward improving productivity and discovering potential domestic and external demand; and steady progress in overcoming of deflation. Along with this, the natural rate of interest is projected to rise, thereby enhancing monetary easing effects.

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<sup>2</sup> Under a specific methodology, Japan's potential growth rate is estimated to be around 0.5 percent, revised upward from being in the range of 0.0-0.5 percent due to the comprehensive revision to GDP statistics. However, the estimate of the potential growth rate varies depending on the methodologies employed and could be revised as the sample period becomes longer over time. Thus, it should be regarded as being subject to a considerable margin of error.

<sup>3</sup> Individual Policy Board members make their forecasts taking into account the effects of past policy decisions and with reference to views incorporated in financial markets regarding future policy. Specifically, each Policy Board member makes an assumption about the future path of short- and long-term interest rates based on their market rates, with the difference in the outlook for prices between that presented in the *Outlook for Economic Activity and Prices* (Outlook Report) and that of market participants in mind.

## **B. Baseline Scenario of the Outlook for Prices**

The outlook for prices is as follows. The year-on-year rate of change in the CPI is likely to increase from about 0 percent and become slightly positive, reflecting developments in energy prices. Thereafter, it is expected to increase toward 2 percent as the output gap improves and medium- to long-term inflation expectations rise. Comparing the current projections with the previous ones, the projected rates of increase in the CPI are more or less unchanged. The timing of the year-on-year rate of change in the CPI reaching around 2 percent will likely be at the end of the projection period -- that is, around fiscal 2018.

The background to these projections is as follows. First, medium- to long-term inflation expectations have remained in a weakening phase as the adaptive component has played a large role in their formation, reflecting the observed inflation rate having been slightly negative.<sup>4</sup> However, various market indicators and survey results indicate that medium- to long-term inflation expectations have stopped declining on the whole, and some of them show a rise in such expectations. As for the outlook, based on the aforementioned projections, firms' price-setting stance is expected to revert to raising prices as private consumption is expected to continue increasing moderately, and their wage-setting stance is likely to shift toward raising wages driven by the tightening of labor market conditions. Against this backdrop, because of the following two factors, medium- to long-term inflation expectations are likely to follow an increasing trend and gradually converge to around 2 percent: (1) in terms of the adaptive component, the observed inflation rate is expected to rise, mainly reflecting energy prices starting to push up prices and the recent yen depreciation, and (2) in terms of the forward-looking component, the Bank will pursue monetary easing through its strong commitment to achieving the price stability target.

Second, the output gap, which shows the utilization of labor and capital, had been more or less unchanged at around 0 percent as the tightening of labor market conditions continued, but it has shown some improvement recently. Going forward, the output gap is expected to

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<sup>4</sup> Medium- to long-term inflation expectations can be regarded as consisting of two components: a forward-looking component, in which inflation expectations converge to the price stability target set by the central bank, and a backward-looking, or adaptive, component that reflects the observed inflation rate. For details, see the Bank's *Comprehensive Assessment: Developments in Economic Activity and Prices as well as Policy Effects since the Introduction of Quantitative and Qualitative Monetary Easing (QQE)* released in September 2016.

move into positive territory toward the end of fiscal 2016 and widen further within that territory. This is likely to be supported by the continued tightening of labor market conditions, due in part to the effects resulting from the set of stimulus measures becoming evident, in addition to an improvement in capacity utilization rates brought about by a pick-up in exports and production.

Third, regarding import prices, the effects of the past decline in international commodity prices including crude oil prices -- which had been exerting downward pressure on consumer prices -- are likely to largely dissipate through the end of fiscal 2016. Thereafter, a pick-up in international commodity prices is expected to push up consumer prices. As for the impact of foreign exchange rates on consumer prices through import prices, amid a gradual waning of downward pressure stemming from the past yen appreciation, the recent yen depreciation is likely to increase upward pressure on prices after the turn of fiscal 2017.

### **III. Upside and Downside Risks to Economic Activity and Prices**

#### **A. Upside and Downside Risks to Economic Activity**

The following are upside and downside risks to the Bank's baseline scenario regarding the economy. First, there is uncertainty regarding developments in overseas economies. Specifically, the following are considered as risks: developments in the U.S. economy and the impact of its monetary policy on global financial markets; developments in emerging and commodity-exporting economies, particularly China; the consequences stemming from the United Kingdom's vote to leave the European Union (EU) and their effects; prospects regarding the European debt problem, including the financial sector; and geopolitical risks. If these risks were to materialize, they could exert downward pressure on economic activity. On the other hand, as market participants and economic entities factor them in to a certain extent, the economy could deviate upward from the baseline scenario depending on how they play out.

Second, firms' and households' medium- to long-term growth expectations may be either raised or lowered depending on the following: efforts to address medium- to long-term issues such as the aging population; developments in regulatory and institutional reforms,

particularly in the labor market; innovation in the corporate sector; and the employment and income situation.

Third, in the event that confidence in fiscal sustainability in the medium to long term declines, the economy may deviate downward from the baseline scenario through increasing concerns regarding the future and the rises in long-term interest rates associated with them. On the other hand, there is also a possibility that the economy will deviate upward from the baseline scenario if confidence in the path toward fiscal consolidation strengthens and concerns regarding the future are alleviated.

## **B. Upside and Downside Risks to Prices**

Other than risks to economic activity, the specific factors that could exert upside and downside risks to prices are as follows. The first factor is developments in firms' and households' medium- to long-term inflation expectations. Amid the continued considerable uncertainties surrounding the economic outlook, mainly for overseas economies, there is a risk that firms' price- and wage-setting stance will remain cautious. In this context, how the labor-management wage negotiations this spring will develop warrants particular attention.

The second factor is the fact that there are items for which prices are not particularly responsive to the output gap. There is a particular concern about the continued dull responses of administered prices and some services prices, even amid the tightening of labor market conditions. In addition, a decline in housing rent has accelerated recently, possibly constraining CPI inflation by more than projected.

Third, developments in foreign exchange rates and international commodity prices going forward, as well as the extent to which such developments will spread to import prices and domestic prices, may lead prices to deviate either upward or downward from the baseline scenario.



#### **IV. Conduct of Monetary Policy**

In the context of the price stability target, the Bank assesses the aforementioned economic and price situation from two perspectives and then outlines its thinking on the future conduct of monetary policy.<sup>5</sup>

The first perspective concerns an examination of the baseline scenario for the outlook. The year-on-year rate of change in the CPI is expected to increase toward 2 percent. The momentum toward achieving the price stability target is maintained, but is not yet sufficiently firm, and thus developments in prices continue to warrant careful attention.

The second perspective involves an examination of the risks considered most relevant to the conduct of monetary policy. With regard to the outlook for economic activity, risks are skewed to the downside, particularly those regarding developments in overseas economies. With regard to the outlook for prices, risks are skewed to the downside, especially those concerning overseas economies and developments in medium- to long-term inflation expectations. Examining financial imbalances from a longer-term perspective, there is no sign so far of excessively bullish expectations in asset markets or in the activities of financial institutions. Furthermore, prolonged downward pressure on financial institutions' profits under the continued low interest rate environment could create risks of a gradual pullback in financial intermediation and of destabilizing the financial system. However, at this point, these risks are judged as not significant, mainly because financial institutions have sufficient capital bases.

As for the conduct of monetary policy, the Bank will continue with "QQE with Yield Curve Control," aiming to achieve the price stability target of 2 percent, as long as it is necessary for maintaining that target in a stable manner. It will continue expanding the monetary base until the year-on-year rate of increase in the observed CPI (all items less fresh food) exceeds 2 percent and stays above the target in a stable manner. The Bank will make policy adjustments as appropriate, taking account of developments in economic activity and prices as well as financial conditions, with a view to maintaining the momentum toward achieving the price stability target.

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<sup>5</sup> As for the examination from two perspectives in the context of the price stability target, see the Bank's statement released on January 22, 2013, entitled "The 'Price Stability Target' under the Framework for the Conduct of Monetary Policy."

**Forecasts of the Majority of Policy Board Members**

y/y % chg.

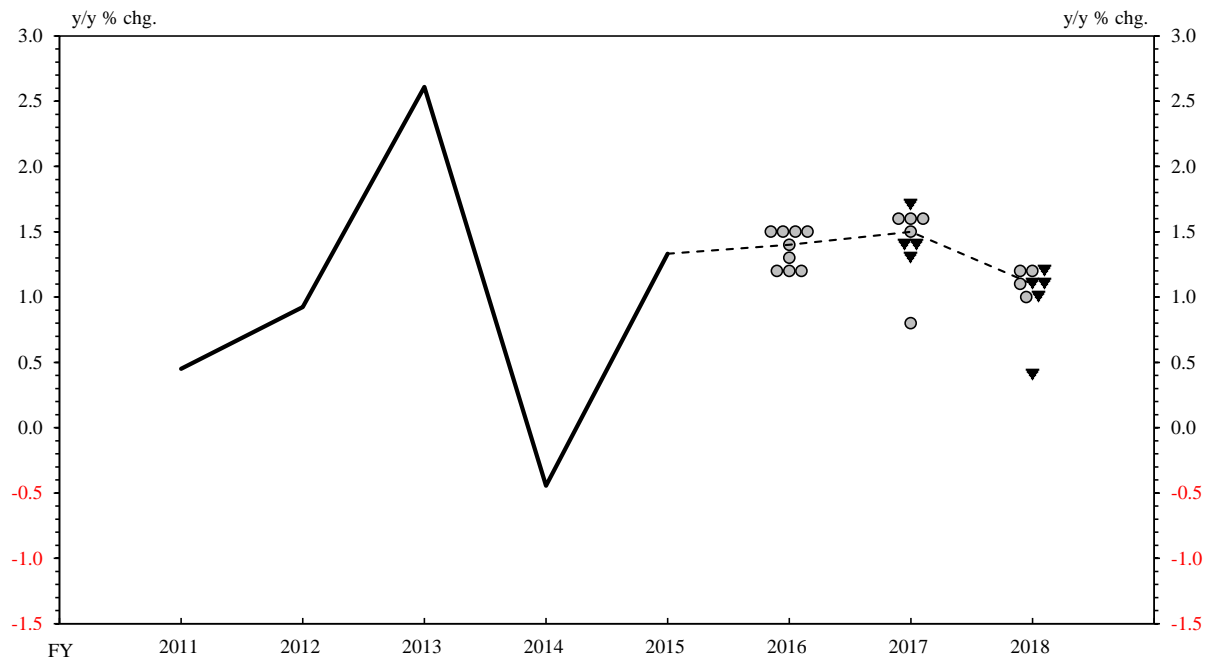
	Real GDP	CPI (all items less fresh food)
Fiscal 2016	+1.2 to +1.5 [+1.4]	-0.2 to -0.1 [-0.2]
Forecasts made in October 2016	+0.8 to +1.0 [+1.0]	-0.3 to -0.1 [-0.1]
Fiscal 2017	+1.3 to +1.6 [+1.5]	+0.8 to +1.6 [+1.5]
Forecasts made in October 2016	+1.0 to +1.5 [+1.3]	+0.6 to +1.6 [+1.5]
Fiscal 2018	+1.0 to +1.2 [+1.1]	+0.9 to +1.9 [+1.7]
Forecasts made in October 2016	+0.8 to +1.0 [+0.9]	+0.9 to +1.9 [+1.7]

Notes: 1. Figures in brackets indicate the median of the Policy Board members' forecasts (point estimates).

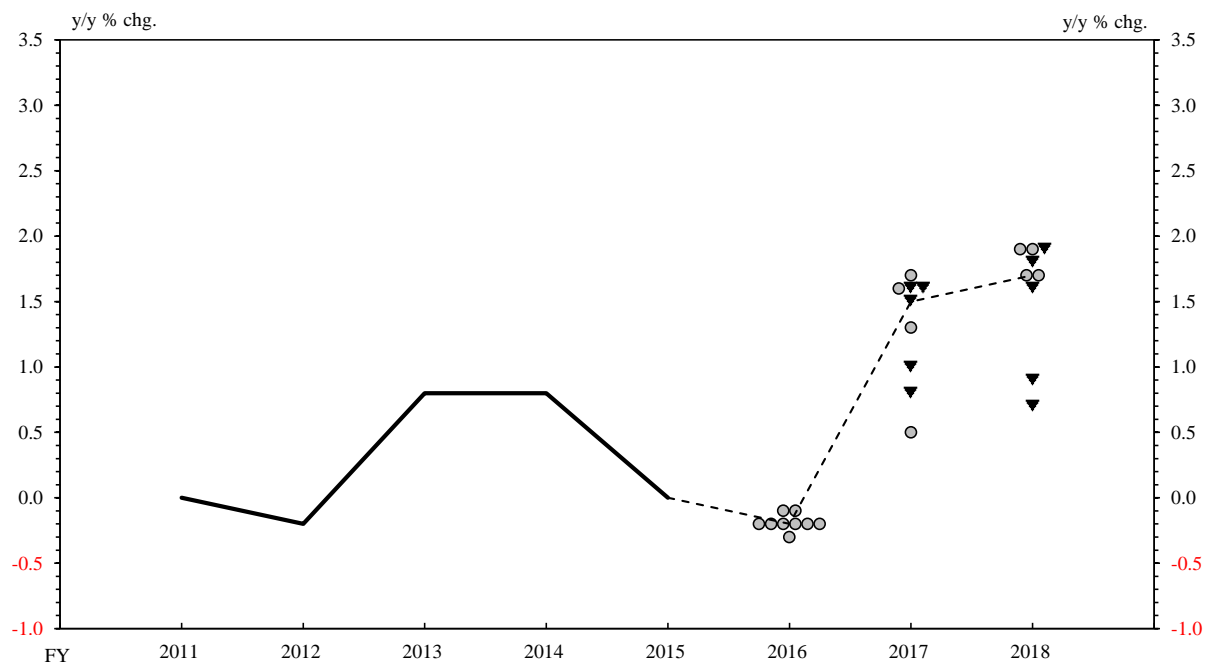
2. The forecasts of the majority of the Policy Board members are constructed as follows: each Policy Board member's forecast takes the form of a point estimate -- namely, the figure to which he or she attaches the highest probability of realization. These forecasts are then shown as a range, with the highest figure and the lowest figure excluded. The range does not indicate the forecast errors.
3. Individual Policy Board members make their forecasts taking into account the effects of past policy decisions and with reference to views incorporated in financial markets regarding future policy. Specifically, each Policy Board member makes an assumption about the future path of short- and long-term interest rates based on their market rates, with the difference in the outlook for prices between that presented in the Outlook Report and that of market participants in mind.
4. From the January 2015 interim assessment through the October 2016 Outlook Report, each Policy Board member made their forecasts based on the same assumption about crude oil prices due to the fact that such prices had been exerting a considerable impact on consumer prices. In this January 2017 Outlook Report, each member has made an assumption about crude oil prices individually in making their forecasts in light of the fact that the contribution of energy items to the year-on-year rate of change in the CPI (all items less fresh food) has lessened. The contribution is estimated to be approximately minus 0.6 percentage point for fiscal 2016 and reach around 0 percentage point in early 2017, becoming slightly positive thereafter.
5. Individual Policy Board members' forecasts are based on the assumption that the consumption tax will be raised to 10 percent in October 2019.

## Policy Board Members' Forecasts and Risk Assessments

### (1) Real GDP



### (2) CPI (All Items Less Fresh Food)



Notes: 1. Solid lines show actual figures, while dotted lines show the medians of the Policy Board members' forecasts (point estimates).

2. The locations of  $\circ$ ,  $\Delta$ , and  $\blacktriangledown$  in the charts indicate the figures for each Policy Board member's forecasts to which he or she attaches the highest probability. The risk balance assessed by each Policy Board member is shown by the following shapes:  $\circ$  indicates that a member assesses "upside and downside risks as being generally balanced,"  $\Delta$  indicates that a member assesses "risks are skewed to the upside," and  $\blacktriangledown$  indicates that a member assesses "risks are skewed to the downside."

3. Figures for the CPI exclude the direct effects of the consumption tax hikes.

## **The Background<sup>6</sup>**

### **I. The Current Situation of Economic Activity and Its Outlook**

#### **A. Economic Developments**

Looking back at Japan's economy since the October 2016 Outlook Report, the real GDP growth rate for the July-September quarter of 2016 was 0.3 percent on a quarter-on-quarter basis and its annualized rate was 1.3 percent, representing an increase for three consecutive quarters (Chart 1). The real GDP growth rate saw a slight deceleration from the April-June quarter; however, this was mainly attributable to a deceleration in inventory investment, and final demand -- which excludes this factor -- has instead accelerated, due mainly to an increase in external demand.<sup>7</sup> Having been pushed down by the slowdown in emerging economies and sluggishness in private consumption, the real GDP growth rate had only been at about the same level as the potential growth rate when fluctuations are smoothed out. However, the rate has started to revert to a growth path recently, exceeding the potential, mainly led by a pick-up in exports and production. The output gap -- which captures the utilization of labor and capital -- had been more or less unchanged at around 0 percent, but it has shown some improvement recently, as is also suggested by a survey conducted on firms (Chart 3). Monthly indicators for October to December suggest that the economic recovery has taken hold more firmly, as seen in (1) a continued pick-up in exports and production with the slowdown in emerging economies abating and (2) private consumption, which had declined, having maintained its improving trend.

Going forward, the economy is highly likely to continue growing at a pace above its potential through the projection period, as fiscal expansion through the large-scale stimulus measures and the Bank's powerful monetary easing under "QQE with Yield Curve Control" stimulate the economy, while preventing "crowding out" effects. The projected growth rates have been revised somewhat upward on the back of an improvement in the outlook for

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<sup>6</sup> "The Background" provides explanations of "The Bank's View" decided by the Policy Board of the Bank of Japan at the Monetary Policy Meeting held on January 30 and 31, 2017.

<sup>7</sup> The growth rate of final demand (i.e., real GDP minus inventory investment), which is defined by the Cabinet Office, for the July-September quarter of 2016 was 0.6 percent on a quarter-on-quarter basis, increasing firmly from 0.2 percent for the April-June quarter on the same basis.

overseas economies, the yen's depreciation, and a rise in stock prices, in addition to an increase in the potential growth rate due to the comprehensive revision to GDP statistics.<sup>8,9</sup>

Details of the outlook for each fiscal year are as follows. The economy is likely to continue its moderate recovery trend toward the end of fiscal 2016 driven by an increase in demand at home and abroad, albeit with the effects of the slowdown in emerging and commodity-exporting economies remaining in part. Exports are expected to continue picking up generally on the back of a rise in the growth rates of overseas economies. Corporate profits are projected to improve again owing to the recent yen depreciation in addition to a pick-up in exports. Under these circumstances, business fixed investment is likely to continue its moderate rising trend, albeit with sluggishness remaining in manufacturing. Private consumption is expected to increase its resilience, supported by an increase in employee income and the wealth effects resulting from a rise in stock prices. Meanwhile, public investment is projected to increase moderately, particularly in that related to the disaster relief construction and a variety of infrastructure enhancements, underpinned by the implementation of the second supplementary budget for fiscal 2016, which reflects the set of stimulus measures. Industrial production is likely to continue picking up in light of the aforementioned increase in demand at home and abroad and progress in inventory adjustments. Reflecting these developments, the output gap will likely turn slightly positive from the current level of around 0 percent.

In fiscal 2017, the economy is expected to continue expanding firmly -- driven by domestic demand -- against the background of policy effects brought about by the set of stimulus

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<sup>8</sup> Due to the implementation of 2008SNA and an update of the base year from 2005 to 2011, the real GDP growth rates for fiscal 2013 through 2015 increased by approximately 0.5 percentage point from the 2005 base.

<sup>9</sup> The capital stock series data that are consistent with business fixed investment in GDP statistics based on the new base year are currently analyzed; thus, the potential growth rate using the existing production function approach is not estimated in this Outlook Report. However, according to the formula "real GDP growth rate - potential growth rate = change in the output gap + estimation errors," it is possible to make a rough estimation of the change in the potential growth rate due to the comprehensive revision to GDP statistics. It is now estimated that the potential growth rate is at around 0.5 percent, which was previously estimated to be in the range of 0.0-0.5 percent, although it should be regarded as being subject to a considerable margin of error.

measures and monetary easing. Turning to domestic demand, public investment is likely to continue rising on the back of measures for restoration and rebuilding following the Kumamoto Earthquake and a variety of infrastructure enhancements, which are included in the set of stimulus measures. Moreover, private consumption is likely to increase moderately on the back of an improvement in disposable income, and business fixed investment is projected to maintain its solid increasing trend underpinned by monetary easing effects, Olympic Games-related demand, and effects resulting from the set of stimulus measures such as projects conducted under the Fiscal Investment and Loan Program and tax reductions for capital investment. Meanwhile, exports are likely to start increasing moderately, reflecting a further improvement in overseas economies. As a result of these economic developments, in fiscal 2017, the real GDP growth rate is projected to clearly exceed the potential and the output gap is likely to widen further within positive territory.

In fiscal 2018, the economy is likely to maintain a moderate expansion with domestic and foreign demand increasing in a well-balanced manner. Looking at this in detail, the pace of increase in exports is projected to moderately climb, reflecting the improvement in overseas economies; domestic private demand, on the back of accommodative financial conditions and Olympic Games-related demand, is also expected to continue to see a steady increase. Meanwhile, public investment is likely to decline from the previous fiscal year because the positive effects resulting from the set of stimulus measures will diminish, but is projected to maintain its high level underpinned by Olympic Games-related demand. On this basis, the real GDP growth rate for fiscal 2018 is projected to continue exceeding the potential, although weaken compared to the previous fiscal year, and the output gap is likely to continue improving.

## **B. Developments in Major Expenditure Items and Their Background**

### ***Government Spending***

Public investment has been more or less flat recently (Chart 4). Going forward, it is likely to rise moderately through the middle of fiscal 2017, underpinned by the implementation of the second supplementary budget for fiscal 2016, which reflects the large-scale stimulus

measures. Thereafter, it is expected to start declining, due mainly to the diminishing of the positive effects resulting from the set of stimulus measures, but remain at a high level as investment related to hosting the Olympic Games increases gradually.

### *Overseas Economies*

Overseas economies have continued to grow at a moderate pace, although emerging economies remain sluggish in part (Chart 5). An improvement in business sentiment of manufacturing firms has become evident recently on a global basis, mainly on the back of an increase in IT-related demand led by that for smartphones and of the progress observed in emerging economies in inventory adjustments of materials (Chart 6). Looking at developments by major region, the U.S. economy has continued to recover firmly, mainly in household spending, owing to a steady improvement in the employment and income situation. The European economy also has continued to recover moderately, mainly in the household sector. The Chinese economy has continued to see stable growth on the whole, supported by policy effects resulting from such factors as a rise in public investment and a sales tax cut on small cars. Other emerging economies and commodity-exporting economies have started to pick up on the whole, particularly reflecting a bottoming out of commodity prices and the effects of economic stimulus measures of those economies, although some economies have remained subdued.

In terms of the outlook, the growth rates of overseas economies are expected to increase moderately as advanced economies continue growing steadily and a recovery in emerging economies takes hold gradually on the back of the steady growth in advanced economies and the effects of policy measures taken by emerging economies. Looking at the weighted averages of projected real GDP growth rates of individual economies and regions released by the International Monetary Fund (IMF) in January 2017, by value of exports from Japan, the growth rates of overseas economies are projected to increase through 2018 (Chart 5). Compared to the time when the October 2016 Outlook Report was published, the weighted average is revised upward marginally since the effects of expansionary fiscal policy expected to be taken in the United States have been factored in.

By major region, the U.S. economy is expected to continue to see firm growth driven by domestic private demand. The European economy will likely follow a moderate recovery trend, while uncertainty -- associated with political issues such as those regarding the United Kingdom's vote to leave the EU and with the European debt problem, including the financial sector -- is likely to be a burden on economic activity. The Chinese economy is likely to broadly follow a stable growth path as authorities proactively carry out measures to support economic activity. The growth rates of other emerging economies and commodity-exporting economies are likely to increase gradually, due mainly to the effects of the economic stimulus measures and the spread of the effects of steady growth in advanced economies.

### ***Exports and Imports***

Exports have picked up, mainly led by automobile-related exports to advanced economies and IT-related exports to emerging economies in Asia, as the effects of the slowdown in emerging economies wane (Charts 7, 8, and 9). A rise in exports observed until around last summer had been supported largely by temporary factors such as an acceleration of automobile production to more than offset the impact of the earthquake and an increase in production of electronic parts for new smartphone products. However, this rise seems to have been even more persistent recently, as there is a steady rise in the number of items of which export volume increased, mainly backed by firmness in IT-related demand expanding and by inventory and capital stock adjustments progressing in emerging economies, amid an improvement in business sentiment of manufacturing firms on a global basis.<sup>10</sup>

Exports will likely continue their pick-up trend for the time being, as the effects of the slowdown in emerging economies wane. Thereafter, Japan's exports are projected to moderately increase with the growth rate of the world trade volume accelerating gradually as a result of the rise in the growth rates of overseas economies, and as Japan's share of exports increases moderately due in part to a worldwide recovery in the sector of capital goods and to the yen's depreciation (Chart 10).<sup>11</sup>

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<sup>10</sup> As for recent features of Japan's exports by type of goods, see Box 1.

<sup>11</sup> The world trade volume is calculated by adding up real imports in each country.



Looking at this in detail, the world trade volume has tended to grow at a slower pace than world economic growth -- the so-called slow trade -- since 2011, and its pace has further decelerated since end-2014, when commodity prices had declined significantly due in part to the slowdown in emerging economies.<sup>12</sup> The pace of increase in the world trade volume is projected to remain slower than that in world economic growth for some time, but will likely accelerate gradually, reflecting a global recovery in production and trade activity of the manufacturing sector. Toward the end of the projection period, the pace of increase in the world trade volume is expected to be gradually closer to that in world economic growth as pressure to adjust capital stock overhang in emerging and commodity-exporting economies dissipates.

Japan's share of exports in world trade has been rising recently, reflecting increases in such categories as automobile-related and IT-related goods, of which Japan has a large share in world trade volume. It is expected to rise moderately as exports of capital goods -- in which Japan has a comparative advantage -- gradually pick up supported by a cyclical recovery in business fixed investment globally, and as the yen's depreciation underpins export competitiveness.

Imports have been more or less flat recently (Chart 7 [1]). Going forward, they are expected to increase moderately, mainly reflecting developments in domestic demand.

### ***External Balance***

The pace of improvement in the nominal current account surplus had decelerated temporarily, due mainly to the decline in the surplus of the primary income balance that reflected the past yen appreciation; however, the surplus has increased again recently, mainly reflecting an improvement in the trade balance (Chart 11 [3]).<sup>13</sup> The nominal

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<sup>12</sup> For details on slow trade, see the Bank's research paper "Slow Trade: Structural and Cyclical Factors in Global Trade Slowdown" released in December 2016.

<sup>13</sup> Meanwhile, the services balance has followed a moderate improving trend, albeit with fluctuations, owing to (1) an increase in receipts of "charges for the use of intellectual property n.i.e." led by an expansion of overseas production by Japanese firms and (2) an improvement in the travel balance reflecting a pick-up in inbound demand (Chart 11 [1] and [2]).

current account surplus will likely increase moderately on the back of improvement both in the trade balance that reflects the aforementioned outlook for exports and imports as well as in the income balance brought about by the yen's depreciation and a rise in long-term interest rates globally.

### ***Industrial Production***

Industrial production has picked up, reflecting a moderate increase in demand at home and abroad as well as the progress in inventory adjustments, mainly in capital goods and producer goods (Charts 12 and 13). Transport equipment production has somewhat gained further momentum, with an increase in shipments to advanced economies and a shift of production sites from overseas back to Japan both exerting upward pressure, as well as with the recovery in production following the earthquake from around summer to early autumn 2016 (Chart 12 [2]). A pick-up in the production of electronic parts and devices has become evident, driven in part by an increase in demand for data centers, with smartphone-related demand being firm on the back of the introduction of new models and expanded memory capacity. The production of machinery (i.e., "general-purpose, production and business oriented machinery" in the *Indices of Industrial Production*) has picked up on the whole as production of semiconductor production equipment has increased firmly, although the production of some capital goods -- such as metal cutting machines and construction machines -- to be exported to emerging and commodity-exporting economies has remained sluggish.

Industrial production is projected to increase moderately, reflecting a rise in final demand at home and abroad, with the effects of the slowdown in emerging economies waning and the effects resulting from the set of stimulus measures materializing.<sup>14</sup>

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<sup>14</sup> Based on interviews with firms, industrial production for the October-December quarter of 2016 is projected to increase firmly by 2 percent on a quarter-on-quarter basis, and that for the January-March quarter of 2017 is likely to continue increasing steadily.

### ***Corporate Profits***

Corporate profits have been at high levels. According to the *Financial Statements Statistics of Corporations by Industry, Quarterly* (FSSC), the ratio of current profits to sales for all industries and enterprises is currently rising due to an increase in non-operating income, which seems to be a temporary factor; however, excluding such fluctuations, it is more or less unchanged at a level close to the record high (Chart 14). Meanwhile, business sentiment has improved somewhat (Chart 15). The diffusion index (DI) for business conditions for all industries and enterprises in the December 2016 *Tankan* (Short-Term Economic Survey of Enterprises in Japan) suggested that business conditions have improved, albeit marginally, for two consecutive quarters, mainly against the background of corporate profits at high levels, the recent pick-up in exports, improvement in market developments, and an increase in public investment order.

Corporate profits are projected to follow a steady increasing trend again, supported by the increase in demand at home and abroad in addition to the recent yen depreciation.

### ***Business Fixed Investment***

Business fixed investment has been on a moderate increasing trend as corporate profits have been at high levels (Chart 16). According to the December *Tankan*, firmness has continued to be seen in business fixed investment plans for fiscal 2016 as a whole, although delays in the construction progress and postponement of opening new shops, both triggered by labor shortages, have been observed in some small nonmanufacturing firms (Charts 17 and 18). Reflecting firms' positive fixed investment stance, machinery orders and construction starts (in terms of planned expenses for private and nondwelling construction), as leading indicators, have continued a moderate increasing trend, albeit with some fluctuations (Chart 19).

For the time being, the past slowdown in emerging economies and yen appreciation are likely to exert downward pressure on business fixed investment, mainly in manufacturing firms, with some time lag. However, throughout the projection period, it is likely to continue to see a moderate uptrend on the back of (1) an improvement in corporate profits,

(2) extremely stimulative financial conditions, such as low interest rates and accommodative lending attitudes, (3) the effects of fiscal measures including projects conducted under the Fiscal Investment and Loan Program and tax reductions for capital investment, and (4) moderate improvement in growth expectations. In relation to corporate profits, investment undertaken independently from temporary developments in corporate profits is likely to increase steadily, particularly (1) in redevelopment projects in view of the 2020 Tokyo Olympics, (2) in research and development for growth areas, (3) in labor-saving machinery and equipment in order to deal with labor shortages, and (4) for maintenance and replacement of equipment to address deterioration from aging.

### ***The Employment and Income Situation***

Supply-demand conditions in the labor market have continued to improve steadily and employee income has increased moderately. The rate of increase in the *Labour Force Survey*-based number of employees has remained at a high level of about 1.5 percent (Chart 20 [1]). Against this backdrop, the active job openings-to-applicants ratio has followed a steady uptrend, and a perception of labor shortage suggested by the employment conditions DI in the December *Tankan* has heightened further; both indicators show a tightening at almost the same levels seen around 1991-1992 (Chart 20 [2] and [3]). The unemployment rate has continued on a moderate declining trend, albeit with some fluctuations, and has been about 3 percent recently, which is around the structural unemployment rate (Chart 21 [1] and [2]).<sup>15</sup> Meanwhile, labor force participation rates -- especially those for women and the elderly -- have remained on an uptrend, albeit with fluctuations, after bottoming out around the end of 2012 (Chart 21 [3]).<sup>16</sup> As Japan's economy is likely to continue growing

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<sup>15</sup> The structural unemployment rate can be described in a variety of ways, but in Chart 21 (1), it is defined, based on the idea of the so-called Beveridge Curve, as one where the unemployment rate and the vacancy rate are equal to each other (i.e., when the aggregate supply-demand conditions in the labor market -- excluding unemployment arising from the mismatch between job openings and job applicants -- is judged as being in equilibrium). Therefore, the structural unemployment rate defined here differs from the concept of the Non-Accelerating Inflation Rate of Unemployment (NAIRU), and does not show a direct relationship with prices or wages.

<sup>16</sup> For the background to the increase in dual-income households in recent years and its effects, see Box 2.

at a pace above its potential, it is expected that the number of employees will keep increasing and that the supply-demand conditions in the labor market will further tighten.

On the wage side, total cash earnings per employee have risen moderately, albeit with some fluctuations (Chart 22 [1]). Looking at this in detail, scheduled cash earnings have maintained their moderate increase due mainly to a rise in wages of full-time employees, although the rise in the ratio of part-time workers has continued to exert downward pressure (Chart 22 [2]). The rise in hourly cash earnings has accelerated moderately, albeit with fluctuations (Chart 22 [3]). Specifically, the year-on-year rate of change in hourly cash earnings of part-time employees, which are responsive to labor market conditions, has seen a relatively high increase, being in the range of around 1.5-2.0 percent when fluctuations are smoothed out. Meanwhile, although real wages have been adversely affected recently by a rise in prices of fresh food, the year-on-year rate of increase is on an uptrend with such fluctuations smoothed out (Chart 24 [1]).

With regard to the outlook for wages, the pace of increase in full-time employees' cash earnings is expected to accelerate, as corporate profits improve and a heightening of inflation expectations becomes evident. The rate of increase in hourly cash earnings of part-time employees is also likely to accelerate steadily in response to the marked tightening of labor market conditions and an increase in minimum wages. Under this situation, overall employees' hourly cash earnings are projected to increase moderately at almost the same pace as labor productivity growth in nominal terms (Chart 42 [2]).

In light of the aforementioned employment and wage conditions, the rate of increase in employee income has accelerated moderately, albeit with fluctuations (Charts 23 [1] and 24 [2]). Going forward, through the projection period, the rate of increase is expected to continue rising at around the same rate as nominal GDP growth. The labor share will likely remain at around the current level through the projection period, which is clearly below the long-term average (Chart 23 [2]).

## *Household Spending*

Private consumption has been resilient against the background of steady improvement in the employment and income situation. From the viewpoint of gauging consumption activity in a comprehensive manner, the Consumption Activity Index (CAI, adjusting travel balance) -- which is calculated by combining various sales and supply-side statistics -- had continued to be somewhat weak in part since the beginning of 2016, against the background of the negative wealth effects brought about by the decline in stock prices and of irregular weather; however, the CAI has picked up recently (Charts 25 and 26 [1]).<sup>17</sup> As the employment and income situation has continued to improve, (1) temporary factors such as the wealth effects resulting from a rise in stock prices and the dissipation of the effects of irregular weather and (2) pressure from stock adjustments of durable goods having started to wane compared to before are both considered to support the pick-up in the CAI.<sup>18</sup>

Turning to individual indicators, the aggregate supply of consumer goods -- that is, the supply-side statistics -- had been more or less unchanged until around summer 2016, but it is increasing recently (Chart 26 [2]). According to various sales statistics, retail sales value was relatively weak in the first half of 2016, but has picked up recently (Chart 27). Sales at department stores had continued to show somewhat weak developments until around mid-2016, but have started to level off recently, reflecting a pick-up in sales to the wealthy brought about by the rise in stock prices, and a recovery in demand from foreign visitors to Japan due to the yen's depreciation, in addition to the dissipation of the effects of irregular weather. Sales at supermarkets have increased at a moderate pace recently, due in part to the rise in prices of fresh food. Those at convenience stores have continued to rise firmly. Turning to durable goods, sales of automobiles have increased recently, albeit with fluctuations, reflecting the effects of the introduction of new models, and those of household electrical appliances also have increased, partly due to the effects of the release of new models of smartphones as well as favorable sales of heating appliances, reflecting a temperature decline (Chart 28 [1]). With regard to services consumption, travel had been

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<sup>17</sup> For details of the CAI, see the Bank's research papers "The Consumption Activity Index" released in May 2016 and "The Consumption Activity Index: Improvements of Release Contents and Revisions of Compilation Methodology" released in October 2016.

<sup>18</sup> As for the background to the recent improvement in private consumption, see the results of the frequency spectrum analysis in Box 3.

somewhat weak due to terrorist attacks overseas and the effects of the earthquake, but it has picked up recently; dining-out is gaining further momentum (Chart 28 [2]). Looking at confidence indicators related to private consumption, the Consumer Confidence Index has picked up moderately, mainly due to the rise in stock prices (Chart 29). The *Economy Watchers Survey* has improved clearly, mainly on the back of the yen depreciating and stock prices rising, generally recovering to the level before April 2014, when the consumption tax hike took place.

In the outlook, private consumption is expected to increase moderately, supported by a steady improvement in employee income, as well as the wealth effects stemming from a rise in stock prices and the effects resulting from the set of stimulus measures, such as a reduction in contribution rates of employment insurance and the government's provision of simple benefits.<sup>19</sup> The propensity to consume, which is calculated based on disposable income, had declined somewhat considerably, reflecting sluggish consumption -- especially of durable goods -- after the consumption tax hike, but is expected to bottom out and then rise very moderately, mainly supported by a waning of pressure from stock adjustments of durable goods (Chart 25 [2]).

Housing investment has continued to pick up, mainly in terms of housing for rent, which meets the increased demand for asset management and tax saving, on the back of accommodative financial conditions (Chart 30). Against the backdrop of the continued steady improvement in the employment and income situation, housing investment will likely continue picking up for the time being, also supported by low housing loan rates.

## **II. The Current Situation of Prices and Their Outlook**

### ***Developments in Prices***

The producer price index (PPI, adjusted for the effects of seasonal changes in electricity rates) relative to three months earlier has increased, reflecting developments in international commodity prices and foreign exchange rates (Charts 31 and 32 [1]). The year-on-year rate

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<sup>19</sup> Regarding the wealth effects stemming from a rise in stock prices, see Box 5 in the April 2016 Outlook Report.

of change in the services producer price index (SPPI, excluding international transportation) has continued to increase at around 0.5 percent, mainly due to a rise in prices for items related to selling, general and administrative expenses (Chart 32 [2]).

The year-on-year rate of increase in the CPI (all items less fresh food and energy) has remained on a decelerating trend, following the peak of 1.3 percent in December 2015; thereafter, the rate of change is currently fluctuating (Chart 34 [1]). Looking at this in detail, prices of goods -- such as food products, clothes, and durable goods -- have continued to show relatively weak developments, affected by sluggish private consumption since the beginning of 2016 and the yen's appreciation with some time lag (Charts 33 and 38 [1]). General services have remained under downward pressure from a decrease in housing rent, and moves to raise prices of dining-out and other services in response to the increase in labor costs, including the rise in minimum wages, have been limited thus far, with the exception of housework-related services.

The year-on-year rate of change in the CPI (all items less fresh food) has been at around 0 percent on the whole, as the negative contribution of energy prices that reflect past developments in crude oil prices and the positive contribution of the CPI for all items less fresh food and energy largely offset each other (Chart 35).

The recent developments in the indicators for capturing the underlying trend in the CPI are as follows (Chart 34).<sup>20</sup> The rate of increase in the trimmed mean has decelerated since the beginning of 2016, and is at around 0 percent recently.<sup>21</sup> Looking at annual price changes across all items (less fresh food), the share of price-increasing items minus the share of price-decreasing items has continued on a moderate declining trend, albeit remaining in positive territory. The mode has continued to be in the range of 0.0-0.5 percent, despite

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<sup>20</sup> For more details on the core price indicators, see "Core Inflation and the Business Cycle," Bank of Japan Review Series (2015-E-6), and "Performance of Core Indicators of Japan's Consumer Price Index," Bank of Japan Review Series (2015-E-7).

<sup>21</sup> The effects of large relative price fluctuations are eliminated by simply excluding items that belong to a certain percentage of the upper and lower tails of the price fluctuation distribution (10 percent of each tail in this report).



decelerating compared to before, and the weighted median has been at around 0 percent (Chart 36).<sup>22</sup>

The year-on-year rate of change in the GDP deflator has been slightly negative, due in part to the past yen appreciation (Chart 37 [1]). The year-on-year rate of change in the domestic demand deflator has been in the range of minus 0.5 to minus 1.0 percent, mainly reflecting the decline in consumer prices including energy prices (Chart 37 [2]).

### *The Environment surrounding Prices*

In the outlook for prices, the main factors that determine inflation rates are assessed as follows. First, medium- to long-term inflation expectations have remained in a weakening phase since summer 2015 as the adaptive component has played a large role in their formation, reflecting the observed inflation rate having been slightly negative. However, various market indicators and survey results indicate that medium- to long-term inflation expectations have stopped declining recently on the whole, and some of them -- including the break-even inflation (BEI) rates implied by yields on inflation-indexed Japanese government bonds (JGBs) and inflation expectations of economists -- show a rise in such expectations (Charts 39 and 40). As for the outlook, based on the aforementioned projections, firms' price-setting stance is expected to revert to raising prices as private consumption is expected to continue increasing moderately, and their wage-setting stance is likely to shift toward raising wages driven by the tightening of labor market conditions. Against this backdrop, because of the following two factors, medium- to long-term inflation expectations are likely to follow an increasing trend and gradually converge to around 2 percent: (1) in terms of the adaptive component, the observed inflation rate is expected to rise, mainly reflecting energy prices starting to push up prices and the recent yen depreciation, and (2) in terms of the forward-looking component, the Bank will pursue monetary easing through its strong commitment to achieving the price stability target.

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<sup>22</sup> The mode is the inflation rate with the highest density in the distribution. The weighted median is the weighted average of the inflation rates of the items at around the 50 percentile point of the distribution.

Second, the output gap had been more or less unchanged at around 0 percent, but has shown some improvement recently (Charts 3 and 38 [2]). It is projected to turn slightly positive toward the end of fiscal 2016. This is likely to be supported by (1) a marked improvement in capital utilization rates brought about by a pick-up in exports and production, and (2) a further tightening of labor market conditions due to the effects resulting from the set of stimulus measures becoming evident. From fiscal 2017, the output gap is projected to continue expanding moderately in positive territory owing to both the capital and labor factors, as domestic and foreign demand increase in a well-balanced manner.

The third factor is developments in import prices (Charts 31 and 35 [2]). The effects of the past decline in international commodity prices including crude oil prices -- which had been exerting downward pressure on consumer prices -- are likely to largely dissipate through the end of fiscal 2016. Thereafter, a pick-up in international commodity prices is expected to push up consumer prices. As for the effects of foreign exchange rates on consumer prices, although the effects of the past yen appreciation remains to some extent for the time being, the upward pressure mainly on prices of items that are responsive to exchange rates -- specifically durable goods -- is highly likely to rise gradually from fiscal 2017, reflecting the recent yen depreciation trend.

### ***The Outlook for Prices***

With regard to the outlook for prices, the year-on-year rate of increase in the CPI (all items less fresh food and energy) is likely to see a halt to its decelerating trend and start picking up on the back of the following developments in the short run: (1) the rate of decline in durable goods prices is expected to decelerate as the effects of the past yen appreciation wane, and (2) due to a pick-up in private consumption, the rate of increase in prices such as those of food products is expected to accelerate slightly as the decline following the past price rises runs its course. Thereafter, the year-on-year rate of change in the CPI is likely to

increase toward around 2 percent, as inflation expectations gradually rise with an improvement in the output gap becoming evident.<sup>23</sup>

The year-on-year rate of change in the CPI (all items less fresh food) is likely to increase from about 0 percent and become slightly positive at the end of fiscal 2016, due mainly to the negative contribution of energy prices dissipating. Subsequently, as the positive contribution of energy prices increases, albeit with fluctuations, and as the CPI inflation excluding fresh food and energy accelerates further, the year-on-year rate of change in the CPI will likely reach around 2 percent at the end of the projection period -- that is, around fiscal 2018. Comparing the current projection with the one in the October 2016 Outlook Report, the projected rates of increase in the CPI (all items less fresh food) are more or less unchanged.

Such projections are made under the same baseline scenario as before that the inflation rate will respond fairly clearly to the improvement in the output gap compared to the past and that the Phillips curve will gradually shift upward as inflation expectations rise through both the forward-looking and adaptive expectations formation mechanisms (Charts 38 [2] and 41).<sup>24</sup>

With regard to the relationship between prices and nominal wages, the CPI and hourly nominal wages move almost in parallel in the long run and the relationship is stable (Chart 42 [1]). Specifically, there are interactive effects between rises in nominal wages and prices: firms try to pass on cost increases due to nominal wage increases by raising sales prices and households try to keep real income unchanged by demanding wage increases in line with price increases. Under this baseline scenario, hourly cash earnings -- especially scheduled cash earnings -- are expected to rise moderately, reflecting the tightening of labor market

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<sup>23</sup> Housing rent and administered prices, both of which have a certain weight in the CPI, will likely continue showing relatively weak developments for some time, and this is likely to constrain the acceleration of the CPI inflation for all items less fresh food and energy as a whole (Chart 38 [1]). For further details, see Box 4 in the July 2016 Outlook Report.

<sup>24</sup> For the role of forward-looking inflation expectations in projecting price developments, see Box 4.

conditions and the rise in inflation expectations. The underlying rate of increase in the CPI is projected to accelerate gradually in a consistent manner with such wage developments.

### **III. Financial Developments in Japan**

#### ***Financial Conditions***

Financial conditions are highly accommodative.

Under "QQE with Yield Curve Control," the yield curve for JGBs has been in line with the current guideline for market operations, in which the short-term policy interest rate is set at minus 0.1 percent and the target level of 10-year JGB yields is around 0 percent (Chart 43 [1]). That is, the yields for relatively short maturities have been stable in negative territory above minus 0.5 percent, and the 10-year JGB yields have been stable generally at around 0 percent, albeit rising somewhat to positive territory. Meanwhile, the increase in the yields for super-long maturities of 20 years or longer has been somewhat larger. The monetary base has been increasing at a high year-on-year growth rate in the range of 20-25 percent, and its amount outstanding as of end-December 2016 was 437 trillion yen, of which the ratio to nominal GDP was 81 percent (Chart 43 [2]).<sup>25</sup>

With such long- and short-term JGB yields, firms' funding costs have been hovering at extremely low levels. Issuance rates for CP have remained at extremely low levels (Chart 44 [1]). Conditions for CP issuance have been favorable, as suggested by the DI in the December *Tankan* having been at around the highest level since 2008, which is when it was introduced in the *Tankan*. Issuance rates for corporate bonds have remained at extremely low levels (Chart 44 [2]). Lending rates (the average interest rates on new loans and discounts) have been around historical low levels (Chart 45 [1]). In these circumstances, interest payments by firms have been at considerably low levels compared with their profits (Chart 45 [2]).

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<sup>25</sup> It is assumed that the figure for nominal GDP is unchanged from the July-September quarter of 2016.

With regard to the availability of funds for firms, financial institutions' lending attitudes -- as perceived by large as well as small firms -- have been highly accommodative (Chart 46 [1]). In the *Tankan*, the DI for large firms has been at a high level of around the peak in the mid-2000s, and that for small firms has been at a high level last seen at the end of the 1980s. Firms' financial positions have been favorable for both large and small firms (Chart 46 [2]). In the *Tankan*, the DIs for both large and small firms have been at high levels that are almost the same as those seen around 1990.

Demand for funds such as those related to mergers and acquisitions of firms, as well as those for business fixed investment, including for real estate, has continued to increase moderately. In these circumstances, the year-on-year rate of change in the amount outstanding of bank lending has been around 2.5 percent (Chart 47 [1]). Meanwhile, the year-on-year rate of increase in the aggregate amount outstanding of CP and corporate bonds has remained positive (Chart 47 [3]).

The year-on-year rate of change in the money stock (M2) has been around 4 percent, as bank lending has increased (Chart 48 [1]). The ratio of M2 to nominal GDP has been on a moderate increasing trend (Chart 48 [2]).

### ***Developments in Financial Markets***

With regard to developments in global financial markets, in the United States, long-term interest rates have risen significantly and stock prices have been firm at around historically high levels, reflecting the following: expectations for the new administration's economic policy having increased since the presidential election in November 2016; solid economic indicators; and the policy rate hike by the Federal Reserve for the first time in about a year. Against this backdrop, in foreign exchange markets, the U.S. dollar has appreciated against major currencies on the whole.

Yields on 10-year government bonds in the United States have risen significantly, temporarily hitting the range of 2.6-2.7 percent last seen in autumn 2014 (Chart 49 [1]).

Meanwhile, yields on 10-year government bonds in Germany also increased and have remained at a level last seen at the beginning of 2016.

With regard to credit spreads on interbank transactions, the LIBOR-OIS spreads for major currencies show the following developments: those for the U.S. dollar have declined somewhat since the implementation of money market fund (MMF) reform in the United States, while those for the euro and the yen have remained at low levels (Chart 50 [3]). Premiums for U.S. dollar funding through the dollar/yen foreign exchange swap market have remained at relatively high levels, mainly due to the tight supply-demand conditions (Chart 50 [2]). Japanese banks, however, do not face quantitative constraints on foreign currency funding at this moment.

Stock prices in the United States and Europe have increased. Specifically, those in the United States have been at around historically high levels, and those in Europe have increased to a level last seen at end-2015 (Chart 51 [1]). Japanese stock prices have risen significantly, reflecting developments in the U.S. and European stock prices as well as foreign exchange rates, and returned to a level last seen at end-2015. In the Japan real estate investment trust (J-REIT) market, prices have increased somewhat as long-term interest rates have risen only marginally (Chart 51 [2]).

In foreign exchange markets, the yen has depreciated against the U.S. dollar as the yield differential between Japan and the United States has widened (Chart 52). The yen also has depreciated against the euro.

### **(Box 1) Developments in Japan's Exports by Type of Goods**

Exports had been more or less flat for a prolonged period, but as the effects of the slowdown in emerging economies wane, they have moved out of that phase and started to pick up. The features of Japan's exports by type of goods in this pick-up phase are as follows.

When we look at exports by type of goods to advanced economies and emerging and commodity-exporting economies separately, exports of motor vehicles and their related goods to advanced economies have been increasing firmly of late, due in part to a shift of production sites from overseas back to Japan, and exports of IT-related goods -- including semiconductor production equipment -- have seen an increase in their momentum recently, mainly led by those to emerging economies in Asia (Box Chart 1). With regard to exports of IT-related goods, based on interviews with firms, demand for electronic parts has expanded in terms of variety recently, as seen not only in a rise in demand for new models of smartphones but also in (1) expanded memory capacity of Chinese smartphones, (2) an expansion of demand for data servers brought about by cloud computing, and (3) an increase in on-board equipment for motor vehicles. Meanwhile, exports of capital goods (metal cutting machines and construction machines, etc., excluding IT-related goods) and intermediate goods (iron and steel, as well as chemicals, etc.) to emerging and commodity-exporting economies have remained sluggish in part, although they have improved compared to before, reflecting a pick-up in commodity prices and the progress in inventory and capital stock adjustments in Asia.

Going forward, with regard to motor vehicles and their related exports, the pace of increase in export quantity is likely to decelerate, reflecting a peak-out of motor vehicle sales in the United States and Europe; however, a moderate increasing trend will likely be maintained on the back of a rising value-added (i.e., export unit value divided by a rise in the export price index) (Box Chart 2 and Chart 9 [1]).<sup>26</sup> Considering that world semiconductor

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<sup>26</sup> Export unit value is calculated as nominal export value divided by export quantity (for the case of motor vehicles, the number of those exported), and no quality adjustment is made in its calculation. Therefore, for example, even if the export quantity is unchanged, export unit value can rise as the export value increases reflecting improvement in the quality of exported goods. On the other hand,

shipments in the World Semiconductor Trade Statistics (WSTS) are expected to increase steadily even after 2017, supported by expanded memory capacity of smartphones and increasing demand for data servers brought about by cloud computing, Japan's IT-related exports are also projected to be on a moderate increasing trend, albeit with fluctuations. Meanwhile, the rate of increase in exports of capital goods other than IT-related goods is likely to accelerate at a fairly moderate pace, with global fixed investment picking up toward the end of the projection period in line with the IMF's projections.

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the export price index captures the change in prices of goods that are considered to be of the same quality. Therefore, for example, if the rise in export unit value solely results from an improvement in quality rather than pure changes in prices, conceptually the export price index will not rise.

Japan's exports of motor vehicles in recent years show that, although the increase in export quantity is sluggish, the export unit value (yen basis) clearly has risen at a faster pace than the increase in the export price index (yen basis), albeit with fluctuations (Box Chart 2 [1] and [2]). This increase in export unit value is likely to imply rising value-added and functionality of motor vehicles to be exported from Japan, as seen in the increasing weight of high value-added vehicles such as SUVs in exports.

The export price index (contract currency basis, mostly dollar basis) largely has been unchanged. This suggests that, taking account of improved quality, Japan's motor vehicle manufacturers tend to maintain the local prices (pricing-to-market), while exchange rate risks are absorbed by their profits.



## **(Box 2) Increase in Dual-Income Households**

The driver for the rise in employee income in recent years is the increase in the number of employees, particularly in female employees (Chart 23 [1], Box Chart 3 [1] and [2]). Among female employees, the increase in those with spouses has stood out in recent years, and the share of dual-income households has clearly risen since around 2013, deviating upward from the trend that is calculated by taking account of age and generation (Box Chart 3 [3]).<sup>27</sup> By age group, the labor force participation of women with spouses is on the rise in every age group, particularly in the groups of those aged 25-34 and 45-54 years (Box Charts 3 [3] and 4 [1]).

Several factors seem to work jointly behind the increase in dual-income households, and these largely can be divided into the following positive and negative aspects: the positive aspect is that, as the measures to promote female labor force participation that have been taken by the government and firms in the course of the growth strategy have worked well, the labor force participation of women with the motivation to work has risen, mainly within the younger generations; and the negative aspect is that middle-aged and senior women are newly entering the labor market because they have become more concerned about their financial situation in old age -- that is, they have lowered their expectations for permanent income levels -- against the background of the consumption tax hike, reduced pension benefits, and rising social security premium payments.

As concrete initiatives for promoting female labor force participation, with regard to the positive aspect noted above, the government amended the Child Care and Family Care Leave Act and is improving the environment for those workers who need to take care of

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<sup>27</sup> The wife's age dummy is an explanatory variable that captures the change in the share of dual-income households by age, such that the share tends to be high among those in the younger generations without a child and starts to decline after childbirth. The cohort dummy is an explanatory variable that captures the difference in the share of dual-income households depending on the generation, such that the share is low for those who were born in the 1960s and high for those born in the 1980s. Both of these dummies capture the changes in the share of dual-income households driven by demographic changes, and are treated as the trend in this analysis. The recent rise in the share of dual-income households above such trend implies that factors other than age and generation are working to raise the share.

their children and families, such that they can continue in their work with a better sense of security. The government also amended the Act on Child and Childcare Support and encourages firms to set up in-house nursery centers. On the back of these initiatives, the ratio of women who keep working after marriage or childbirth has clearly risen in recent years, along with the increase in part-time female workers for non-job-market reasons related to themselves or their families (Box Chart 4 [2] and [3]). In addition, as one of the initiatives for promoting the empowerment of women, it is expected that the annual income requirement to be eligible for a tax deduction for one's spouse will be lifted from 1.03 million yen to 1.50 million yen as one of the tax code revisions for fiscal 2017. If firms start to revise the limit to spouses' annual income to be eligible for their own dependent spouse benefits, along with this tax code revision, it is expected that the working hours of spouses as part-time workers will increase to some extent, as they so far have been adjusting their working hours, taking the so-called "wall of 1.03 million yen" into consideration.

In order to assess whether the increase in dual-income households is attributable to the heightened concerns about their financial situation in old age, raised earlier as the negative aspect, an econometrical analysis was made using the microdata from the "Survey of Household Finances" conducted by the Central Council for Financial Services Information (Box Chart 5). Specifically, a probit model was estimated with a dummy for double-income households being a dependent variable, and tests whether dummies representing how worried households are about their financial situation in old age are statistically significant or not, while controlling such variables as financial assets, age, number of family members, whether the household includes a child under age 6, house ownership, and factors specific to survey year (year dummies, or year effect). The estimated results show that, while heightened concerns about their financial situation in old age raise the probability for the group of wives aged in their 40s and 50s of changing the structure of their households to dual-income ones in a statistically significant way, such significant results are not observed in other age groups. Furthermore, when such concerns are controlled, the coefficients on year dummies show that the probability of changing the structure to dual-income households has clearly risen since 2013. It can be concluded from such results that the increase in dual-income households in recent years is attributable more to the government's and firms' initiatives for promoting female labor force participation working well amid the

tightening labor market conditions than to the heightened concerns about their financial situation in old age.

### **(Box 3) Update: Frequency Spectrum Analysis of Private Consumption**

Based on the methodology of a frequency spectrum analysis presented in Box 3 in the July 2016 Outlook Report, private consumption is decomposed into cyclical components that have various frequencies. Specifically, private consumption excluding imputed house rent has been decomposed into the following four components: (1) a short-term cycle of less than 2 years; (2) a medium-term cycle of 2-7 years; (3) a long-term cycle of 7-12 years; and (4) a residual, or a trend component, calculated by subtracting these cycle components from the original data.

The economic interpretation of each cycle is as follows. A short-term cycle captures changes that are brought about by temporary fluctuations stemming from a front-loaded increase and subsequent decline in demand prior to and after the consumption tax hikes, as well as by short-term factors such as weather conditions and the wealth effects due to stock price movements. In a medium-term cycle, the underlying developments in consumption that reflect real employee income and a stock cycle of digital appliances for which the average period of use is about 5 years will likely be included. On the other hand, a long-term cycle is influenced mainly by a stock cycle of durable goods, such as automobiles and white goods, for which the average period of use is relatively long.

The results of analysis suggest that the current improvement in private consumption is supported mainly by a push-up in the short-term cycle (Box Chart 6). The short-term cycle had been negative on a quarter-on-quarter basis from end-2015 to early 2016, reflecting irregular weather (i.e., the unusually warm winter) and the negative wealth effects due to a fall in stock prices; since mid-2016, the cycle has been positive backed by the dissipation of the effects of irregular weather and the rise in stock prices. Meanwhile, the medium-term cycle has continued to be slightly positive recently on a quarter-on-quarter basis in reflection of a steady improvement in real employee income.

#### **(Box 4) Inflation Expectations Formation and the Phillips Curve**

Although considerable uncertainties remain regarding the pace of increase in forward-looking inflation expectations, it would be highly problematic to disregard the forward-looking inflation expectations in projecting price developments and focus only on the adaptive or backward-looking inflation expectations.

In this respect, as an example, a simple comparison was made to examine the extent to which the performance of the Phillips curve differs depending on the specifications of inflation expectations, by focusing on the inflation rates since the introduction of QQE (Box Chart 7). Specifically, a dynamic simulation was conducted of inflation developments since the introduction of QQE using the following two types of Phillips curves: (1) a hybrid one, which takes into consideration both the forward-looking and adaptive inflation expectations formation, and (2) a purely backward-looking one, in which only the adaptive inflation expectations formation is taken into account. It should be noted that both of these Phillips curves include a foreign exchange rate as an explanatory variable.

Simulation results indicate that, as the forward-looking inflation expectations have risen clearly in a period of over one year from the introduction of QQE in April 2013 through summer 2014 -- referred to as "Phase 1" in the Bank's Comprehensive Assessment -- the performance of the Phillips curve with purely backward-looking inflation expectations formation is significantly lower than that of the one with the hybrid inflation expectations formation.<sup>28</sup> These results suggest that, in a phase where the forward-looking inflation expectations change significantly -- as in the period since the introduction of QQE -- there is a risk of misperception regarding the change in the underlying trend in the inflation rate if projections are made based only on the adaptive inflation expectations while disregarding the forward-looking inflation expectations. As the environment at present -- in which the yen is depreciating and government spending is expanding -- resembles that of Phase 1, it is

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<sup>28</sup> For details of the division of inflation expectations into phases, see the Bank's *Comprehensive Assessment: Developments in Economic Activity and Prices as well as Policy Effects since the Introduction of Quantitative and Qualitative Monetary Easing (QQE)* released in September 2016.

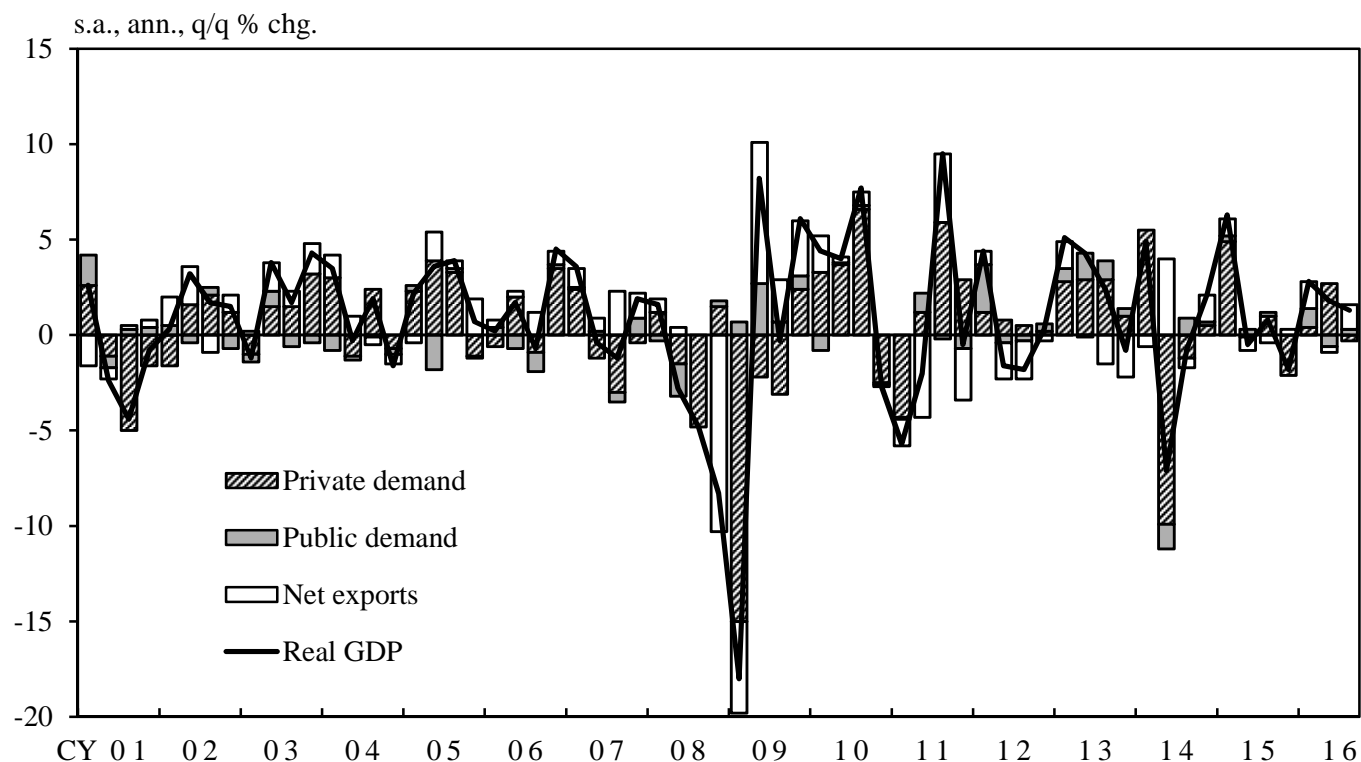
especially important to take into account the forward-looking inflation expectations in making the projections in this Outlook Report.

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## Real GDP

## (1) Real GDP



## (2) Components

s.a., q/q % chg.

	2015		2016		
	Q3	Q4	Q1	Q2	Q3
Real GDP	0.2	-0.4	0.7	0.5	0.3
[Annual rate]	[0.8]	[-1.8]	[2.8]	[1.8]	[1.3]
Domestic demand	0.3	-0.5	0.3	0.5	-0.0
Private demand	0.3	-0.5	0.1	0.7	-0.1
Private consumption	0.3	-0.4	0.2	0.1	0.2
Non-resid. investment	0.1	0.1	-0.0	0.2	-0.1
Residential investment	0.1	-0.0	0.0	0.1	0.1
Private inventory	-0.2	-0.1	-0.1	0.2	-0.3
Public demand	0.1	0.0	0.2	-0.1	0.1
Public investment	-0.0	-0.1	-0.0	0.1	0.0
Net exports of goods and services	-0.1	0.1	0.4	-0.1	0.3
Exports	0.4	-0.1	0.1	-0.2	0.3
Imports	-0.5	0.2	0.2	0.2	0.1
Nominal GDP	0.6	-0.3	0.8	0.2	0.1

y/y % chg.

	2015		2016		
	Q3	Q4	Q1	Q2	Q3
GDP deflators	1.8	1.5	0.9	0.4	-0.2
Domestic demand deflators	0.0	-0.0	-0.3	-0.7	-0.8

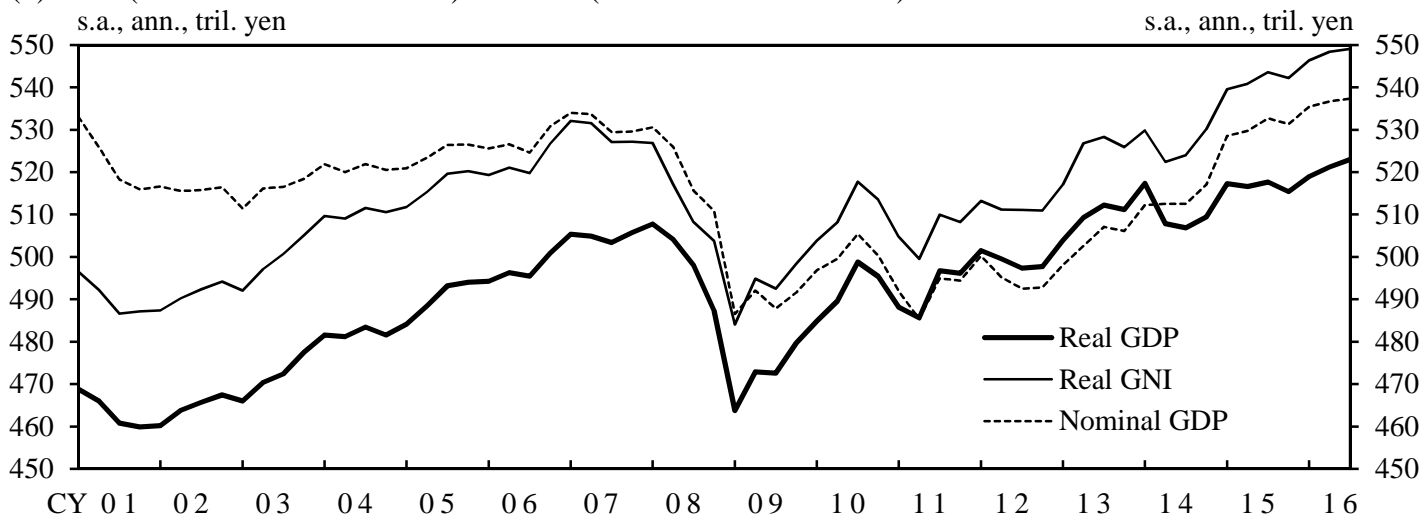
Note: Figures of components in real GDP indicate contributions to changes in real GDP.

Source: Cabinet Office.



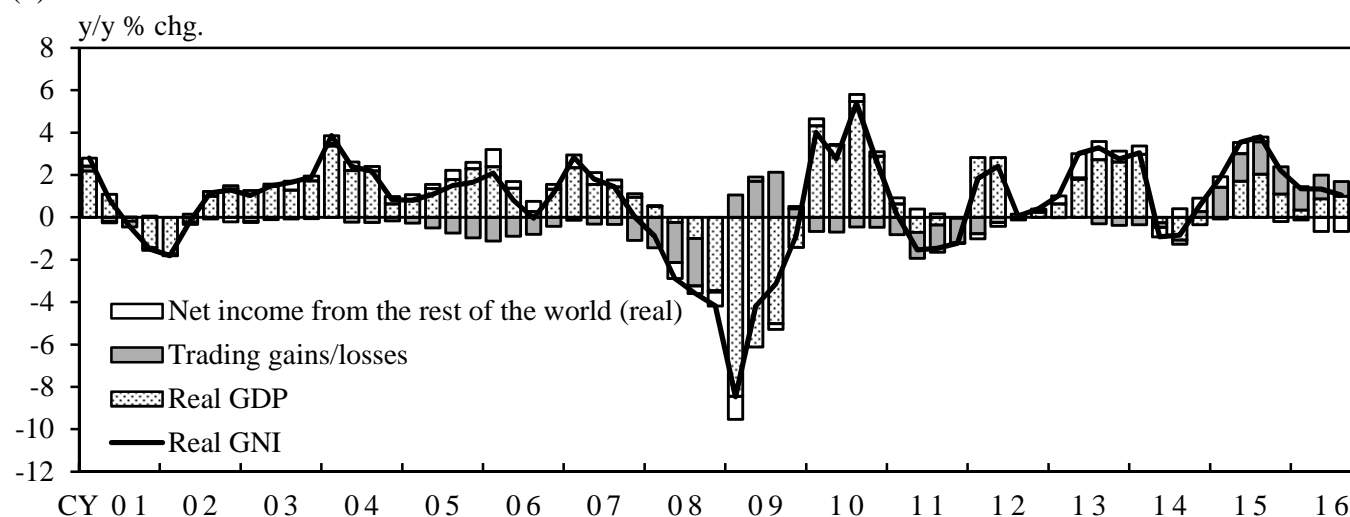
## Aggregate Income Formation and Indexes of Business Conditions

### (1) GDP (Gross Domestic Product) and GNI (Gross National Income)

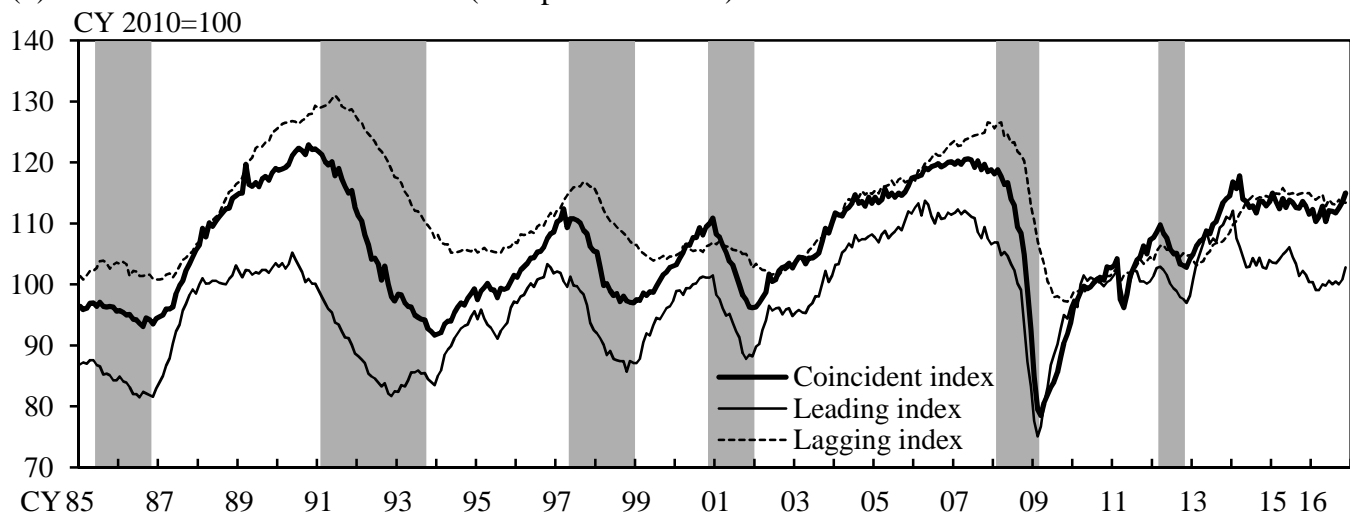


Note: Real GNI = real GDP + trading gains/losses + net income from the rest of the world (real)  
 Trading gains/losses = nominal net exports / weighted average of export and import deflators - real net exports

### (2) GNI



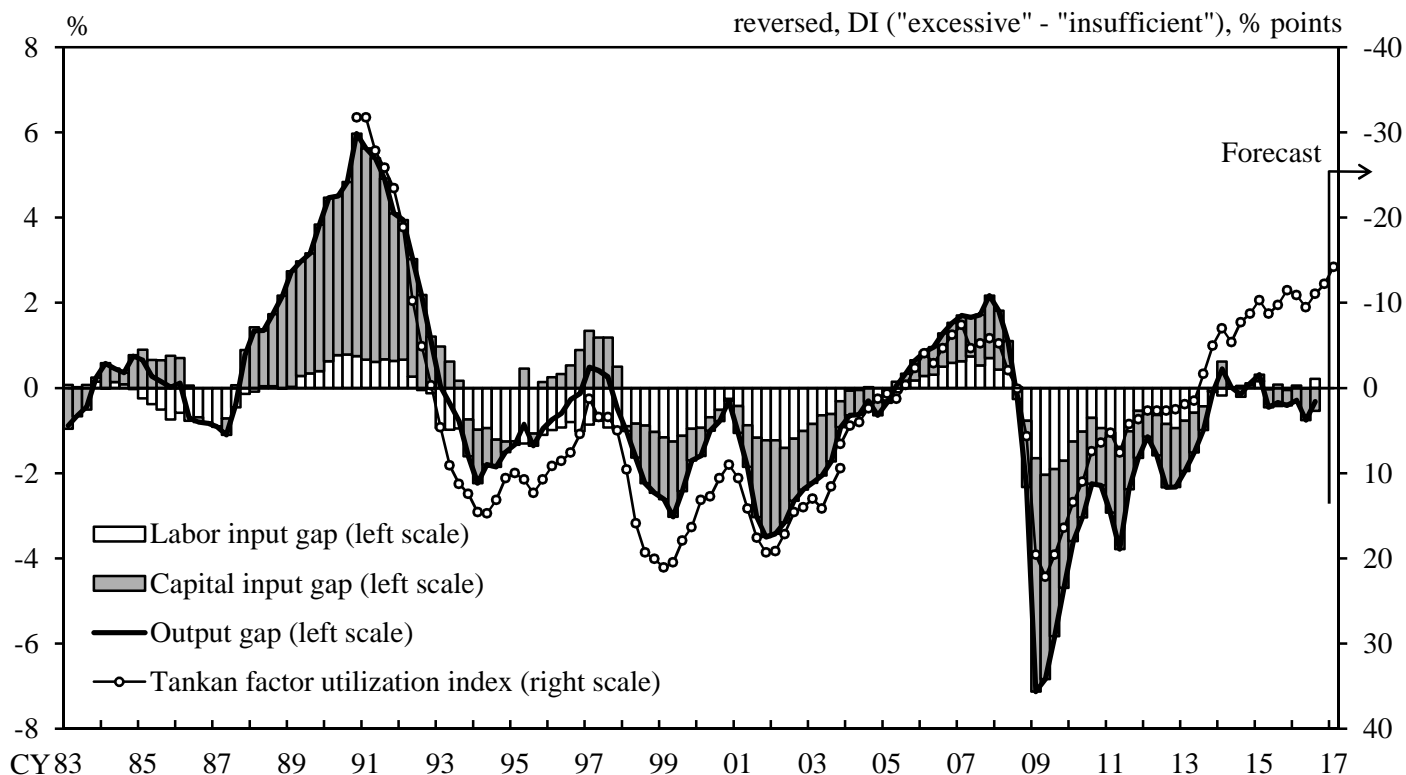
### (3) Indexes of Business Conditions (Composite Indexes)



Note: Shaded areas indicate recession periods.

Source: Cabinet Office.

## Output Gap



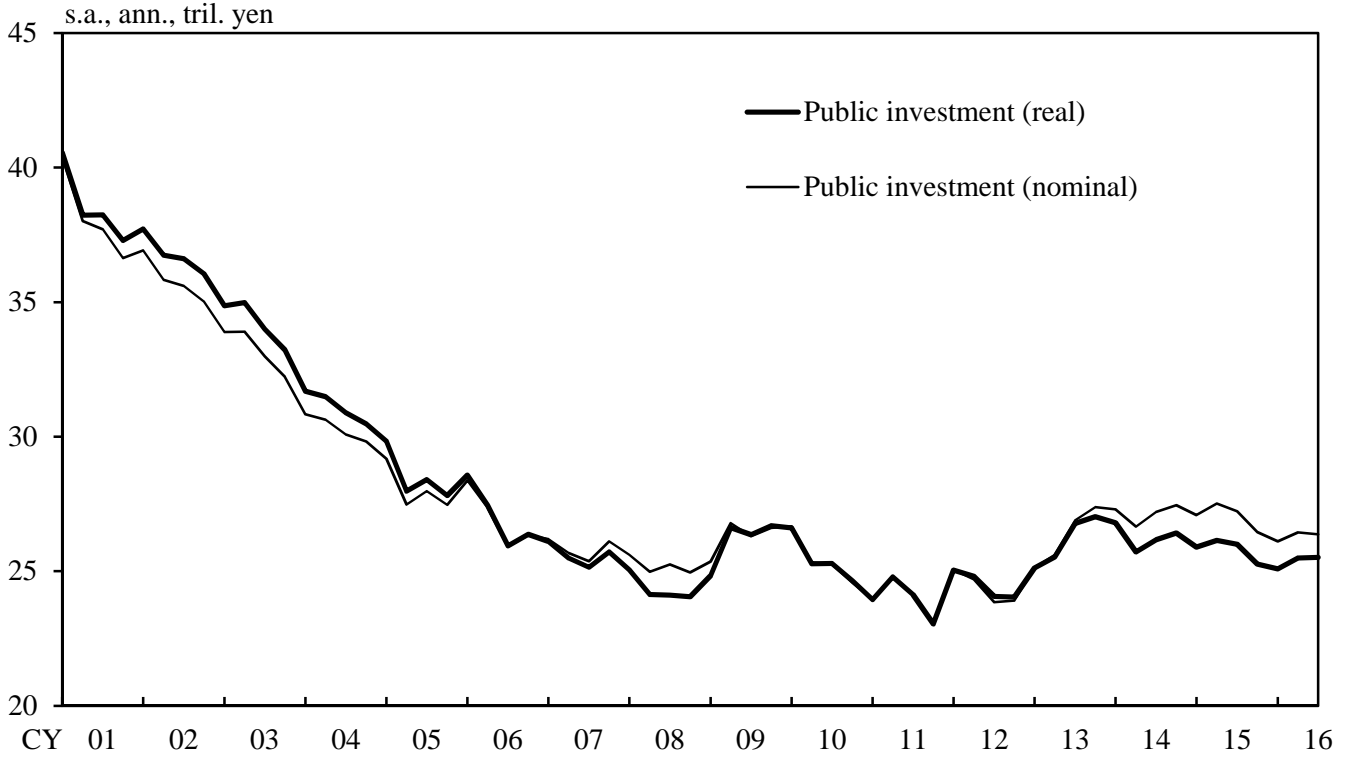
Notes: 1. The output gap is estimated by the Research and Statistics Department, Bank of Japan.

2. The Tankan factor utilization index is calculated as the weighted average of the production capacity DI and the employment conditions DI for all enterprises. The capital and labor shares in the "National Accounts" are used as weights. There is a discontinuity in the data in December 2003 due to a change in the survey framework.

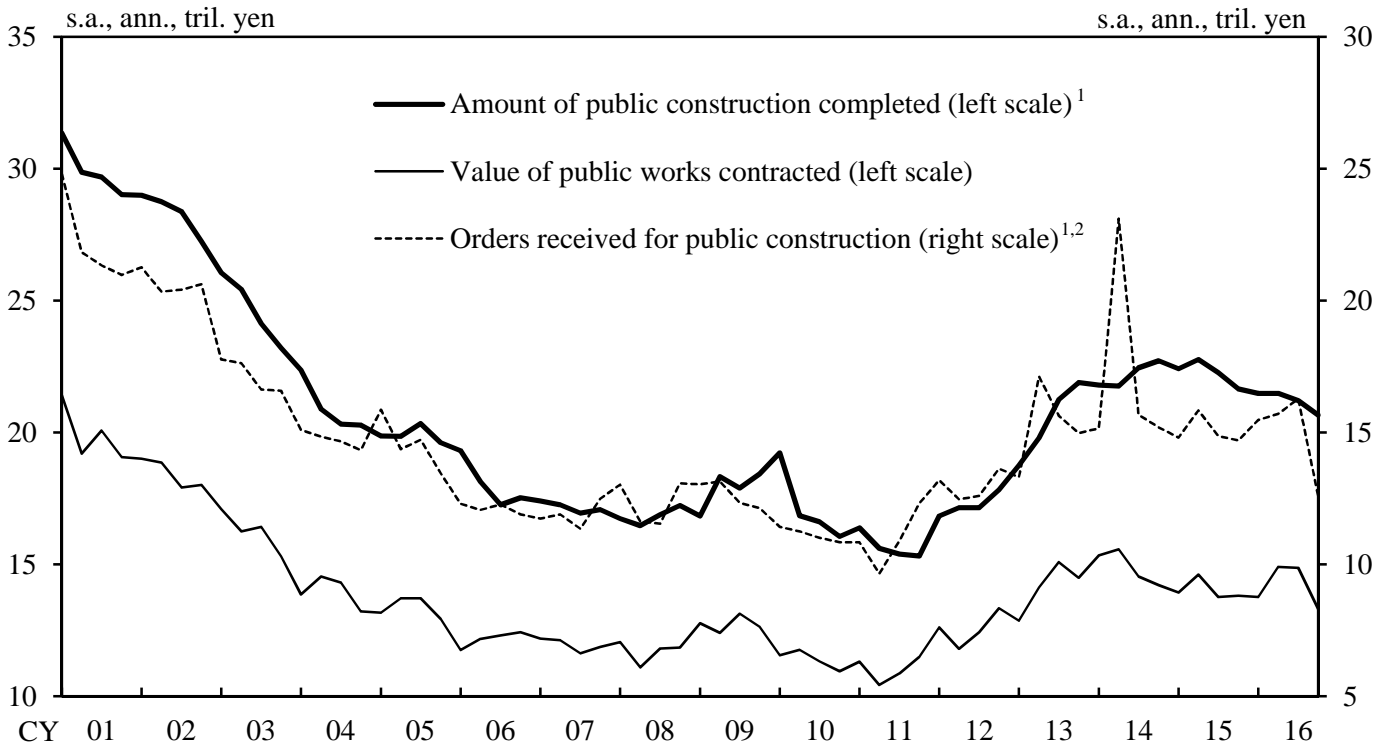
Sources: Cabinet Office; Bank of Japan; Ministry of Internal Affairs and Communications; Ministry of Health, Labour and Welfare; Ministry of Economy, Trade and Industry; Research Institute of Economy, Trade and Industry.

## Public Investment

### (1) Public Investment (SNA Basis)



### (2) Indicators of Public Investment



Notes: 1. Figures for 2016/Q4 are October-November averages.

2. Figures up to 2011/Q4 are adjusted to reflect changes in estimation methods.

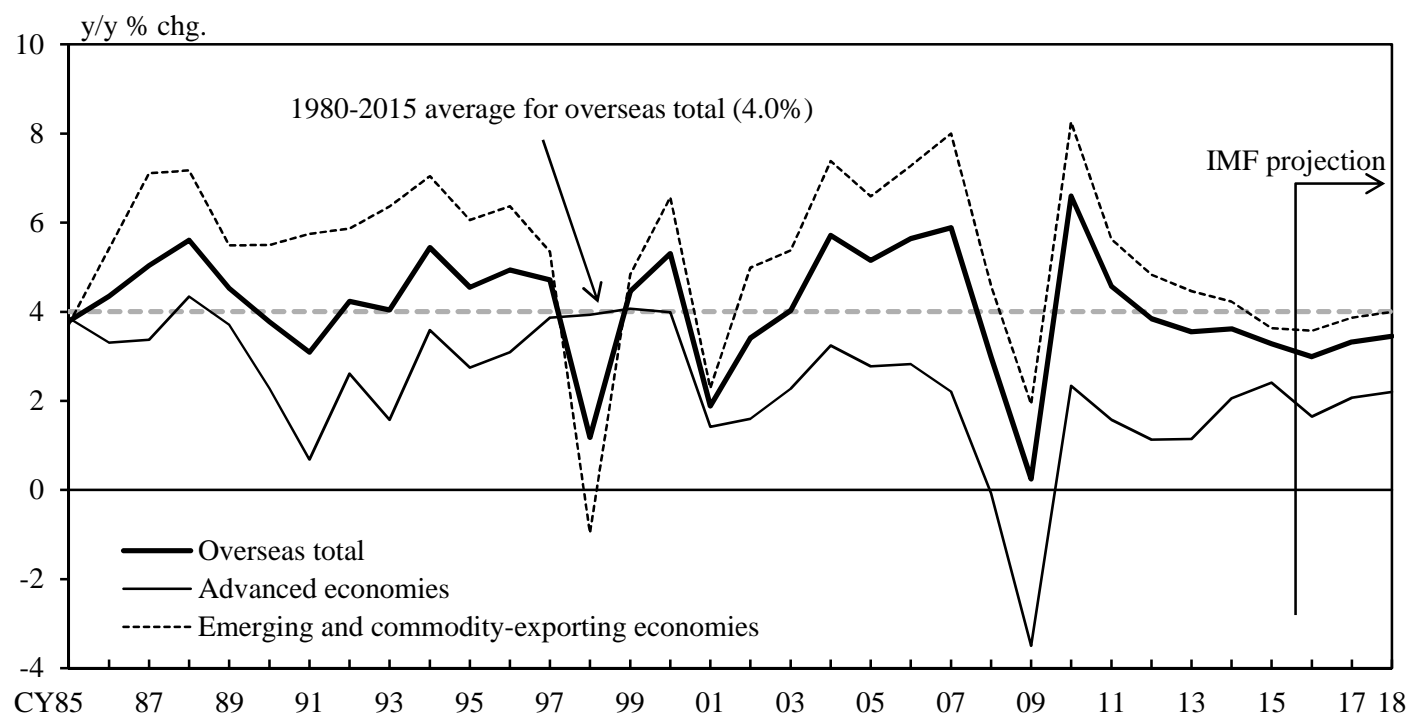
Sources: Cabinet Office; Ministry of Land, Infrastructure, Transport and Tourism; East Japan Construction Surety etc., "Public Works Prepayment Surety Statistics."

## Overseas Economies

(1) Forecast of Real GDP Growth Rates by Major Country and Region

	Quarter (Actual, s.a., ann., q/q % chg.)					CY (Actual or Projection, y/y % chg.)			
	2015 Q4	2016 Q1	Q2	Q3	Q4	2015 Actual	2016 IMF Projection	2017	2018
Overseas total						3.3	3.0 (3.0)	3.3 (3.3)	3.5 (3.4)
Major economies <78.7>	3.1	2.5	3.6	3.9	n.a.	3.6	3.1 (3.1)	3.4 (3.3)	3.4 (3.3)
United States <20.1>	0.9	0.8	1.4	3.5	1.9	2.6	1.6 (1.6)	2.3 (2.2)	2.5 (2.1)
Euro area and U.K. <9.5>	2.2	1.9	1.5	1.8	n.a.	2.1	1.8 (1.7)	1.6 (1.4)	1.6 (1.6)
East Asia <49.0>	4.1	3.4	4.9	4.5	n.a.	4.2	4.0 (4.0)	4.2 (4.1)	4.2 (4.2)
China <17.5>	6.1	5.3	7.8	7.4	7.0	6.9	6.7 (6.6)	6.5 (6.2)	6.0 (6.0)
NIEs <21.7>	2.0	1.5	2.8	2.2	n.a.	2.0	n.a. (1.8)	n.a. (2.2)	n.a. (2.6)
ASEAN4 <9.8>	4.9	4.1	4.3	4.1	n.a.	4.2	4.2 (4.3)	4.3 (4.5)	4.4 (4.4)
Other economies <21.3>						2.2	2.4 (2.5)	3.1 (3.2)	3.5 (3.5)

(2) Real GDP Growth Rates of Overseas Economies



Notes: 1. Figures are the weighted averages of real GDP growth rates using countries' share in Japan's exports as weights. Annual GDP growth rates are from the "World Economic Outlook (WEO)" as of January 2017, while figures in parentheses are as of October 2016. Since for some countries and regions the IMF does not provide projections in the January WEO, some figures are imputed using information provided in the October WEO.

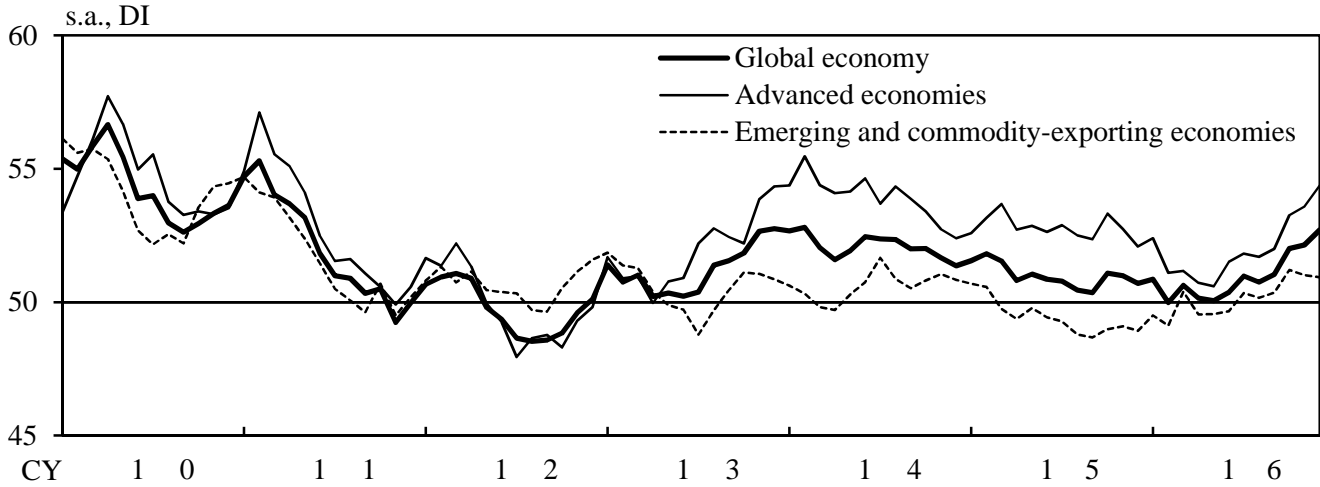
2. Figures in angular brackets show the share of each country or region in Japan's total exports in 2015.

3. Advanced economies consist of the United States, the euro area, and the United Kingdom. Emerging and commodity-exporting economies consist of the rest of the world economy.

Sources: IMF; Ministry of Finance; BEA; European Commission; National Bureau of Statistics of China, etc.

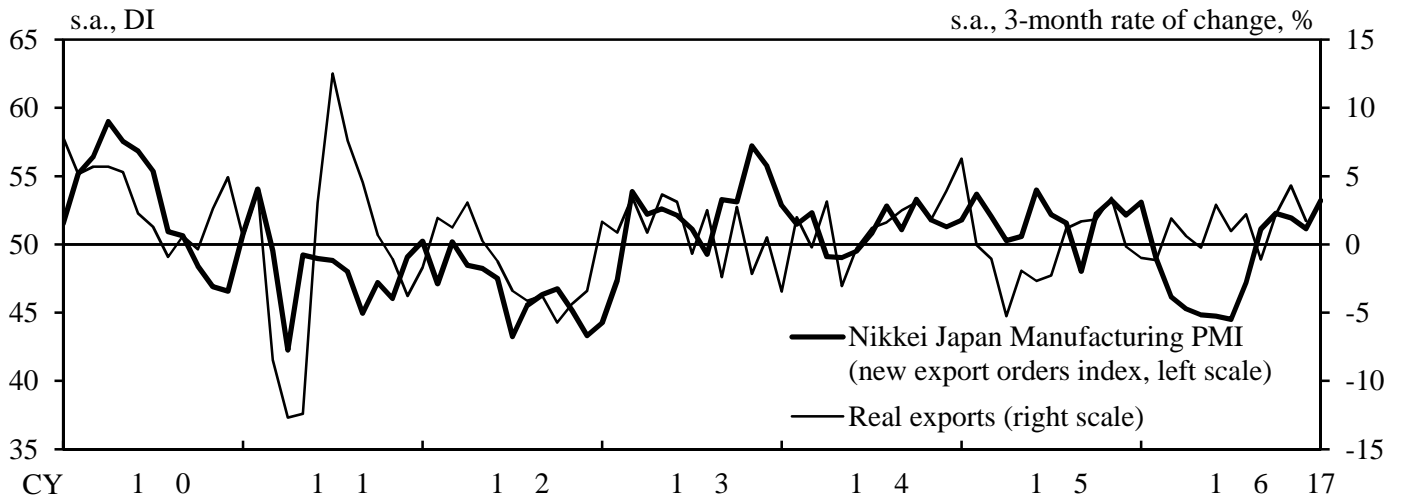
## Environment Surrounding Exports

### (1) Business Confidence (Manufacturing PMI)

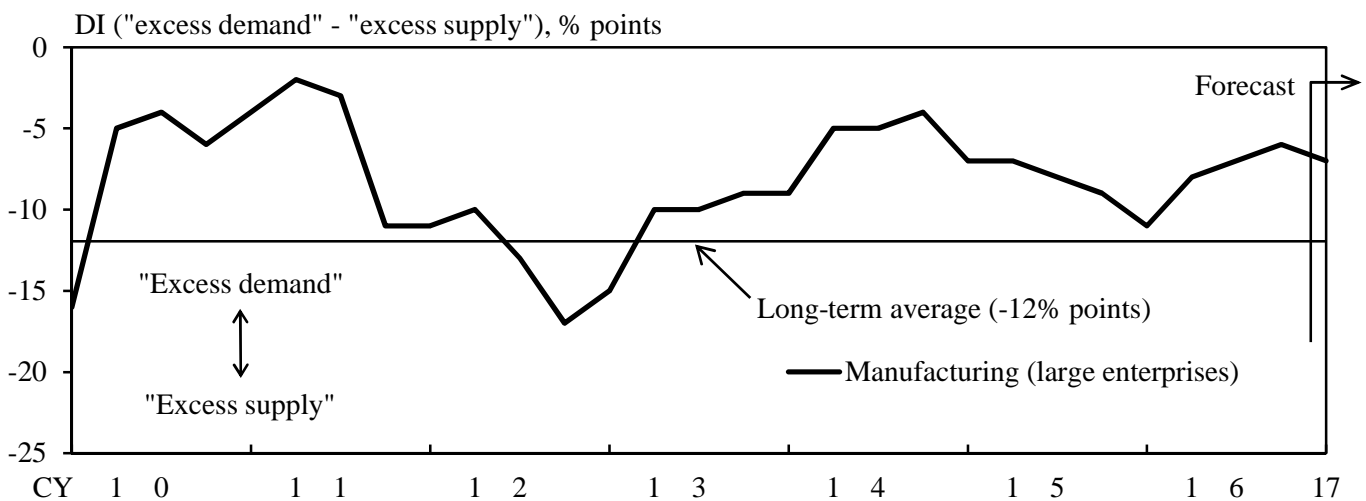


Note: Figures for the global economy are the J.P.Morgan Global Manufacturing PMI. Figures for advanced economies as well as emerging and commodity-exporting economies are calculated as the weighted averages of the Manufacturing PMI using PPP-adjusted GDP shares of world total GDP from the IMF as weights. Advanced economies consist of the United States, the euro area, the United Kingdom, and Japan. Emerging and commodity-exporting economies consist of 17 countries and regions, such as China, South Korea, Taiwan, Russia, and Brazil.

### (2) New Export Orders PMI and Real Exports of Japan



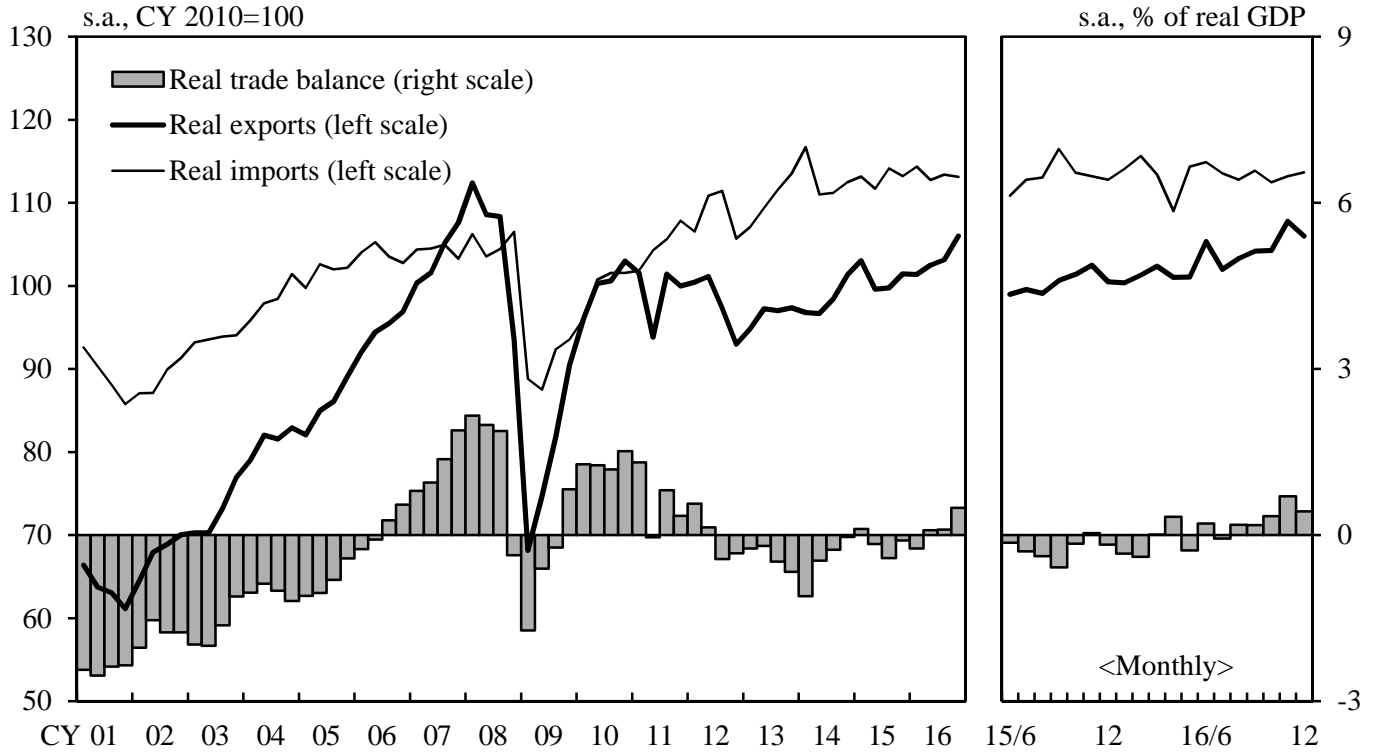
### (3) Overseas Supply and Demand Conditions for Products (*Tankan*)



Sources: IHS Markit (© and database right IHS Markit Ltd 2017. All rights reserved.); IMF; Haver; Ministry of Finance; Bank of Japan.

## Real Exports and Real Imports

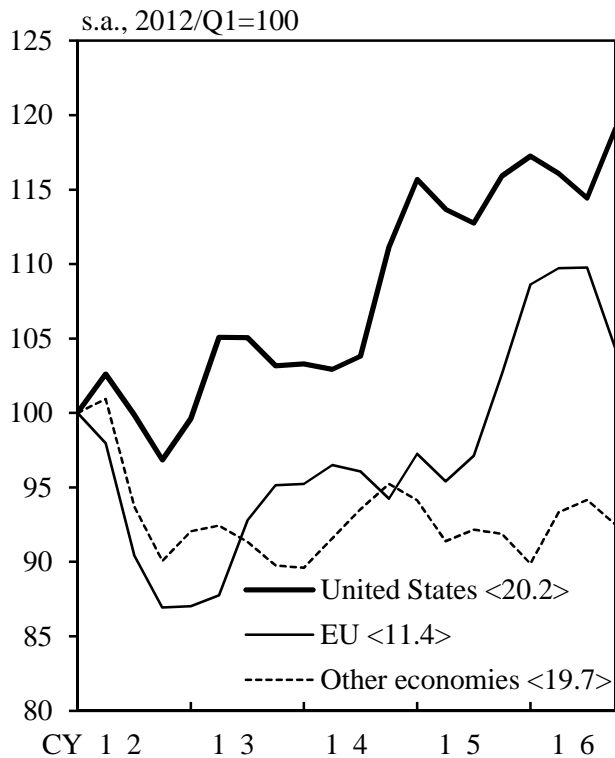
### (1) Real Exports and Real Imports



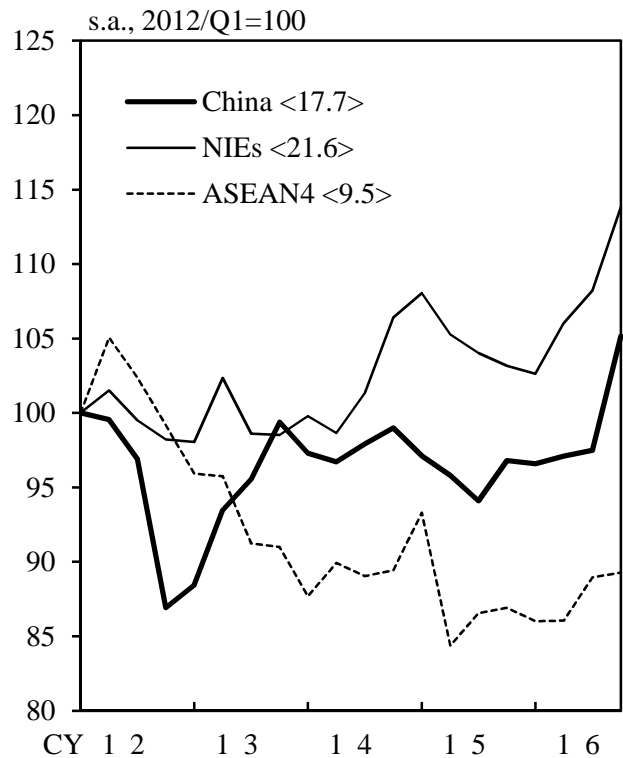
Note: Figures for the real trade balance (as a ratio of real GDP) from October 2016 onward are calculated using real GDP for 2016/Q3.

### (2) Real Exports by Major Country and Region

#### (a) United States, EU, and Other Economies



#### (b) China, NIEs, and ASEAN4



Note: Figures in angular brackets show the share of each country or region in Japan's total exports in 2016.

Sources: Ministry of Finance; Bank of Japan; Cabinet Office.

## Real Exports

## (1) Breakdown by Region

		y/y % chg.		s.a., q/q % chg.					s.a., m/m % chg.		
		CY 2015	2016	2015 Q4	2016 Q1	Q2	Q3	Q4	2016 Oct.	Nov.	Dec.
United States	<20.2>	9.0	2.7	2.8	1.2	-1.0	-1.4	4.0	5.2	-0.5	-0.6
EU	<11.4>	3.0	10.9	5.7	5.8	1.0	0.0	-4.9	-2.3	-0.2	-6.1
East Asia	<48.7>	0.5	2.9	0.7	-0.5	1.7	1.7	5.2	2.3	3.0	1.8
China	<17.7>	-2.0	4.0	2.9	-0.2	0.5	0.4	7.9	5.7	3.0	3.3
NIEs	<21.6>	3.5	3.2	-0.8	-0.5	3.3	2.0	5.2	-0.4	4.4	3.4
ASEAN4	<9.5>	-1.4	0.4	0.4	-1.0	0.1	3.4	0.4	2.8	-0.1	-4.9
Others	<19.7>	-0.1	0.3	-0.3	-2.2	3.8	0.9	-1.7	-5.6	4.5	-8.1
Real exports		2.7	3.0	1.7	-0.1	1.1	0.7	2.7	0.1	3.4	-1.6

## (2) Breakdown by Goods

		y/y % chg.		s.a., q/q % chg.					s.a., m/m % chg.		
		CY 2015	2016	2015 Q4	2016 Q1	Q2	Q3	Q4	2016 Oct.	Nov.	Dec.
Intermediate goods	<18.8>	-0.5	-0.3	1.4	-1.6	1.0	0.4	-0.6	2.3	0.2	-3.4
Motor vehicles and their related goods	<24.9>	1.3	3.6	4.8	-5.1	1.9	3.5	4.1	2.0	2.8	-3.8
IT-related goods	<10.2>	-1.3	0.2	-1.2	0.3	0.2	1.7	4.2	3.6	0.5	1.0
Capital goods and parts	<28.2>	-1.4	2.6	-0.6	1.0	2.1	0.5	3.3	1.0	2.2	-0.3
Real exports		2.7	3.0	1.7	-0.1	1.1	0.7	2.7	0.1	3.4	-1.6

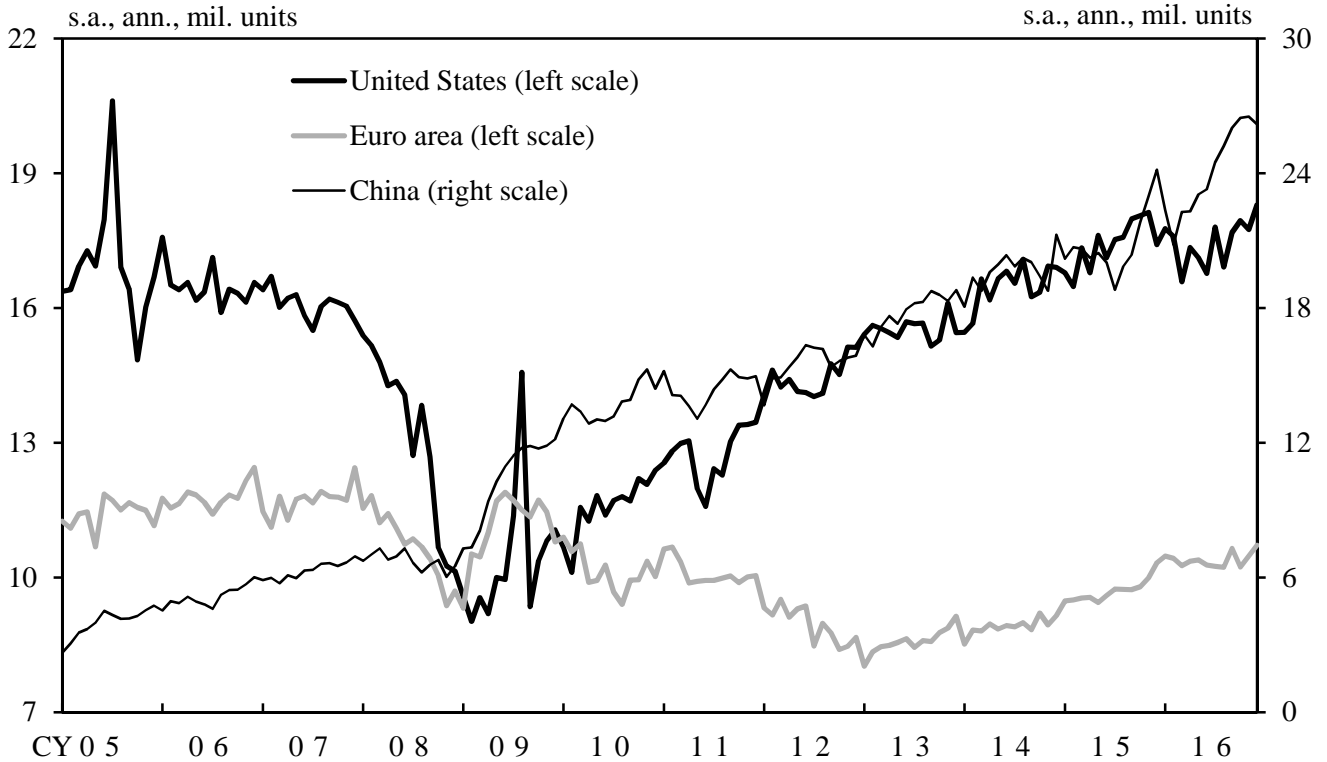
Notes: 1. Figures in angular brackets show the share of each country or region or each type of goods in Japan's total exports in 2016.

2. IT-related goods consist of computers and units, telecommunication machinery, integrated circuits, visual apparatus, audio apparatus, and medical and optical instruments.

3. Capital goods and parts exclude IT-related goods, power generating machinery, and parts of motor vehicles.

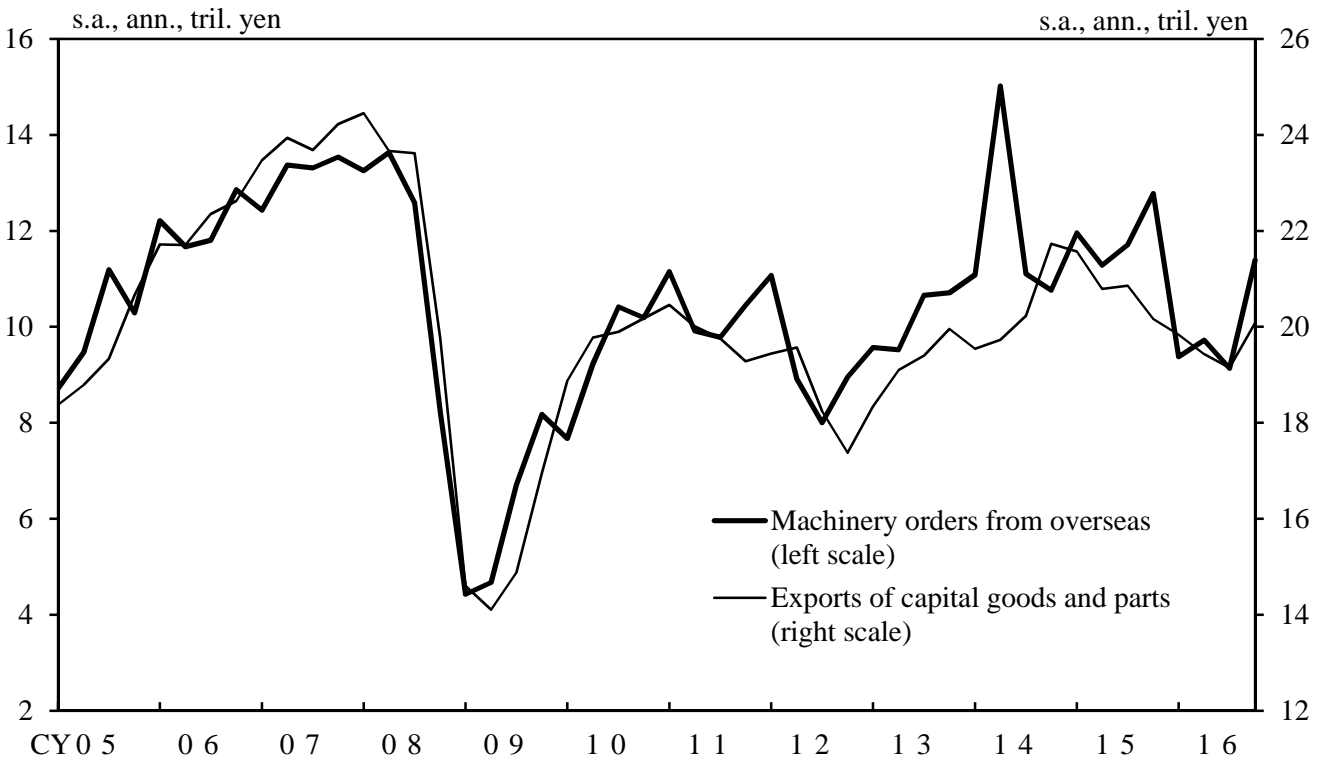
## Overseas Motor Vehicle Sales and Exports of Capital Goods

### (1) Motor Vehicle Sales in Major Economies



Note: Figures for the United States are based on motor vehicle sales excluding heavy trucks. Figures for the euro area are based on new passenger car registrations. Figures for China are based on passenger car sales.

### (2) Machinery Orders from Overseas and Exports of Capital Goods and Parts (Nominal)



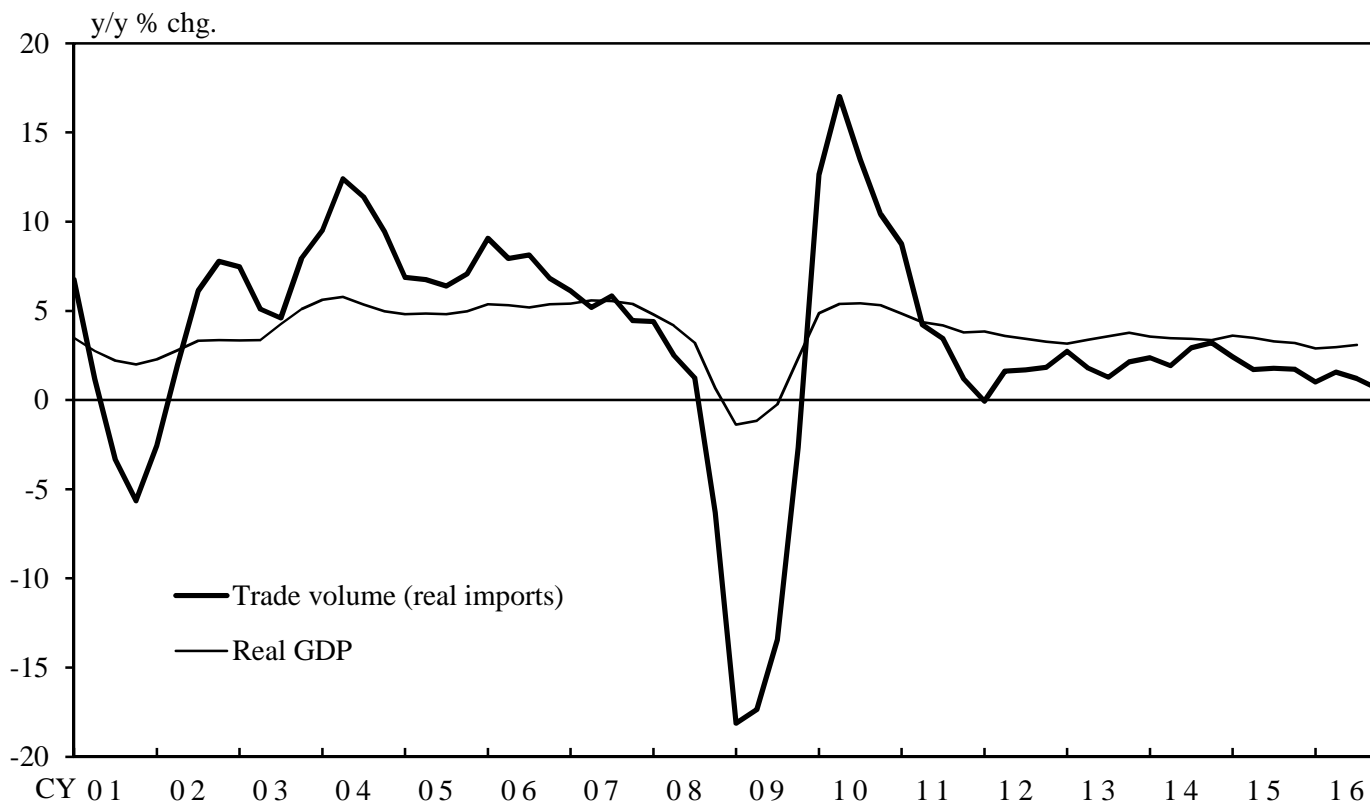
Note: The figure for machinery orders from overseas for 2016/Q4 is the October-November average.

Sources: BEA; ECB; China Association of Automobile Manufacturers; Ministry of Finance; Cabinet Office.



## World Trade Volume and Japan's Share of Exports in World Trade

### (1) Trade Volume and Real GDP of the World Economy



### (2) Japan's Share of Exports in World Trade (Real)



Notes: 1. Figures for 2016/Q4 are October-November averages.

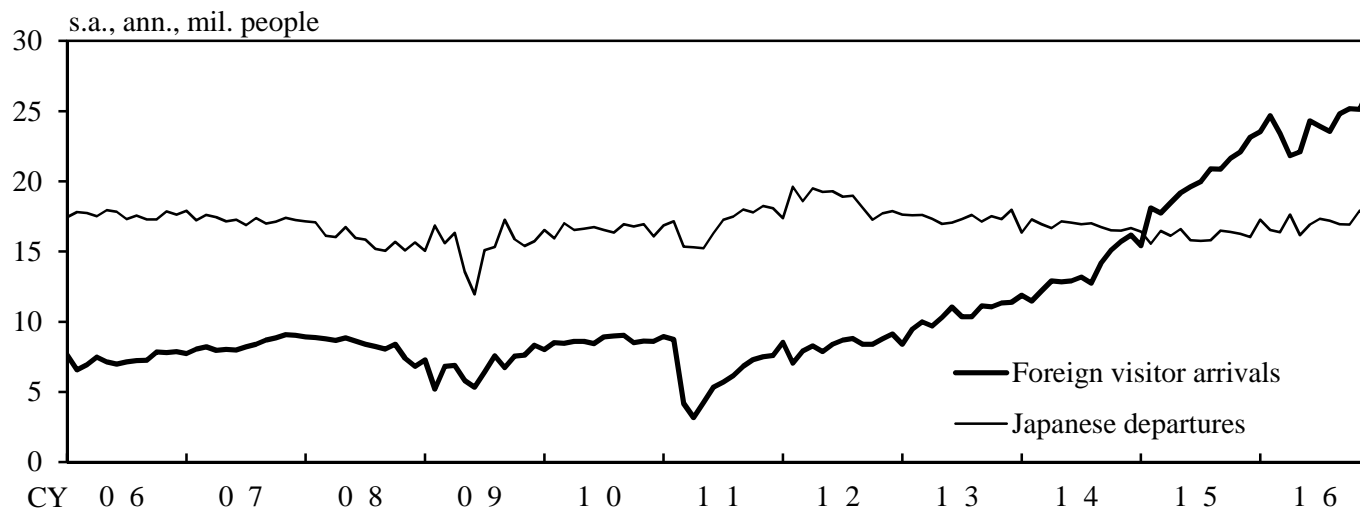
2. Real GDP for the world economy is calculated by the International Department of the Bank of Japan based on IMF data and national and regional GDP growth rates.

3. Japan's share of exports in world trade is obtained by dividing Japan's real exports by world real imports (2010 prices).

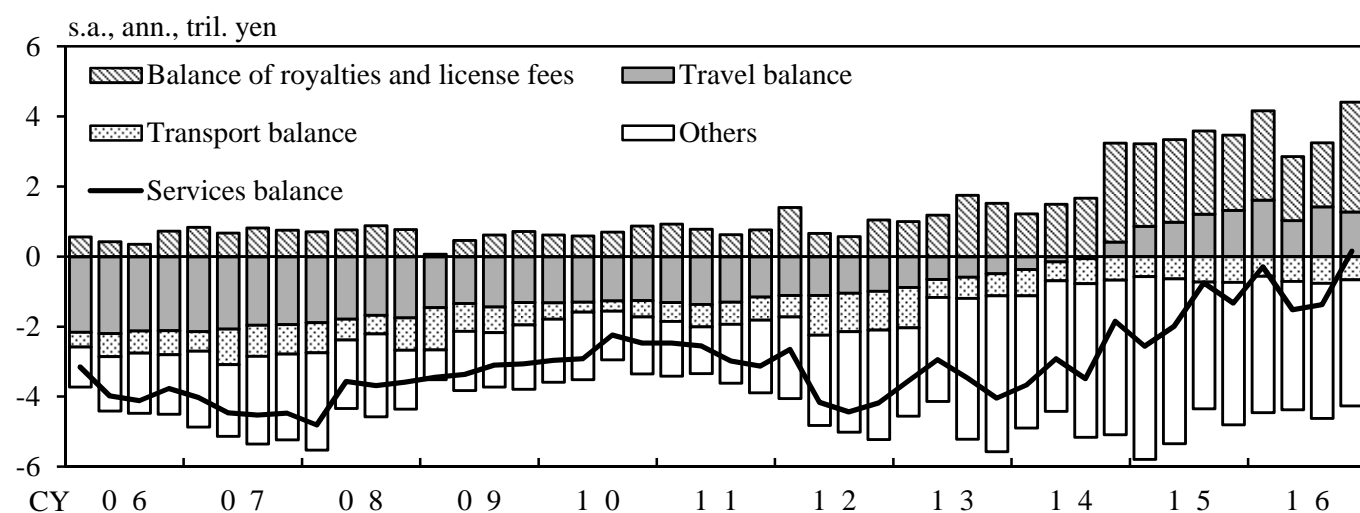
Sources: CPB Netherlands Bureau for Economic Policy Analysis; IMF, etc.

## Services Balance and Current Account

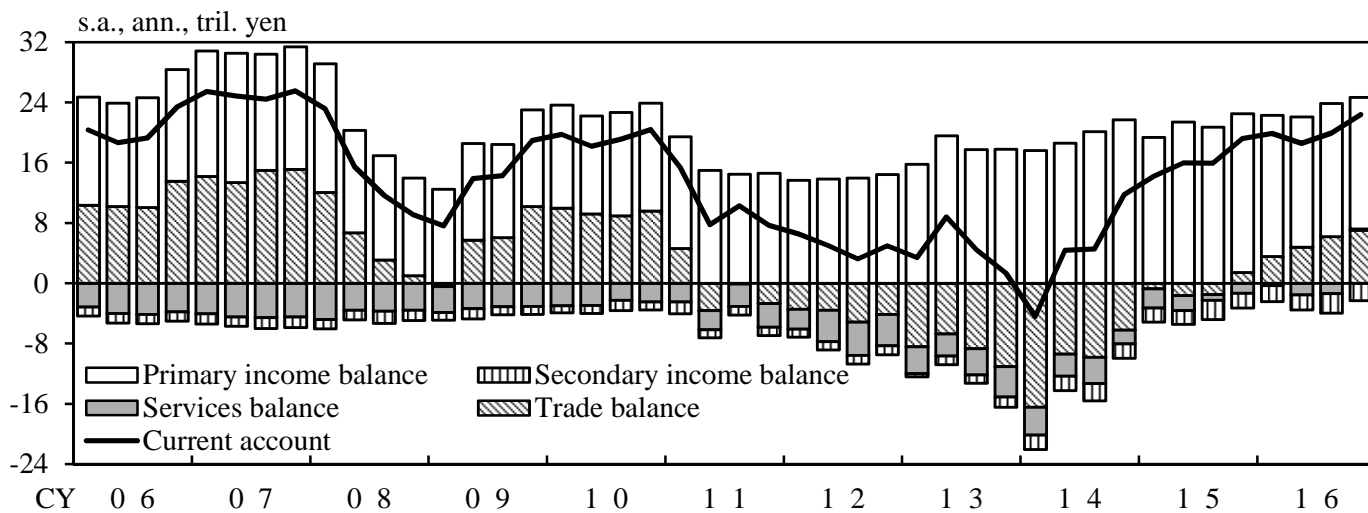
### (1) Foreign Visitor Arrivals and Japanese Departures



### (2) Services Balance



### (3) Current Account

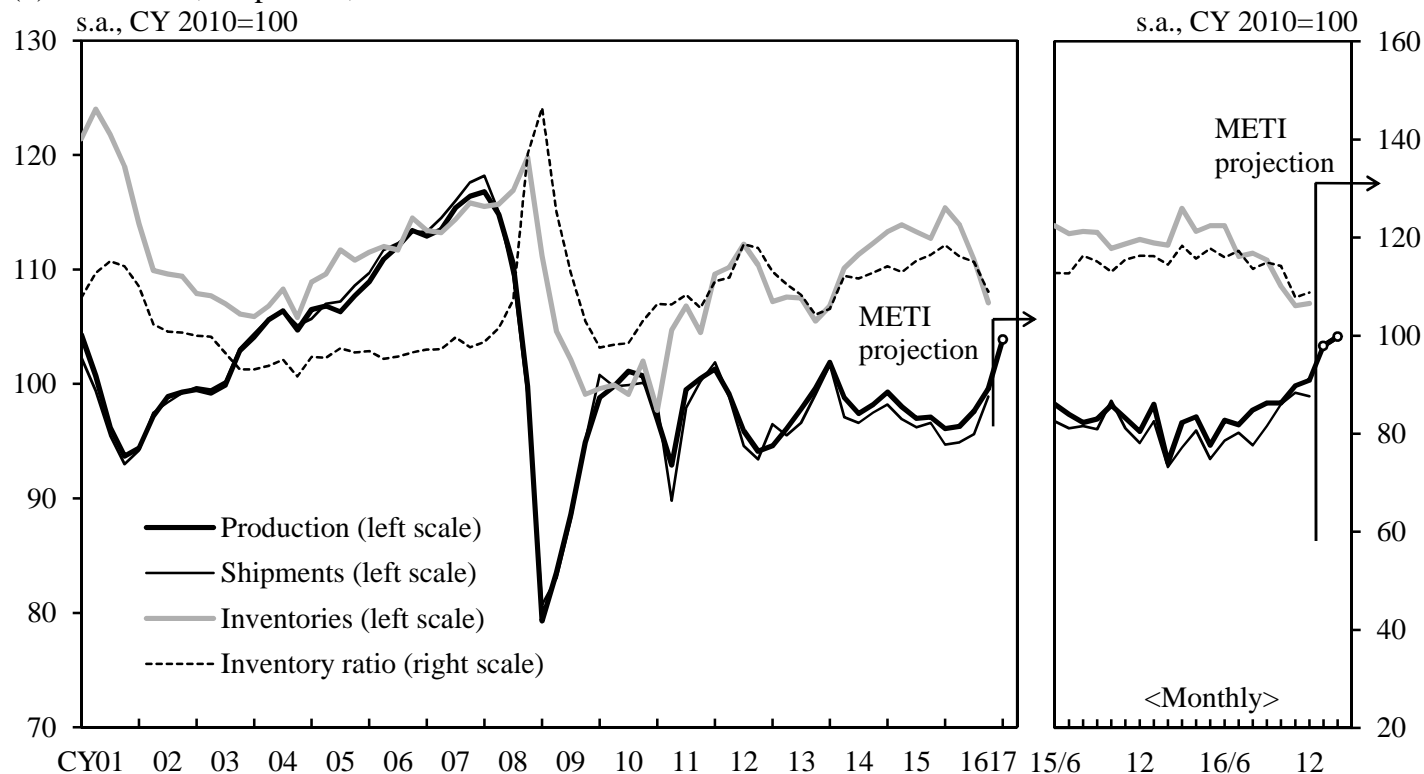


Note: Figures for 2016/Q4 are October-November averages.

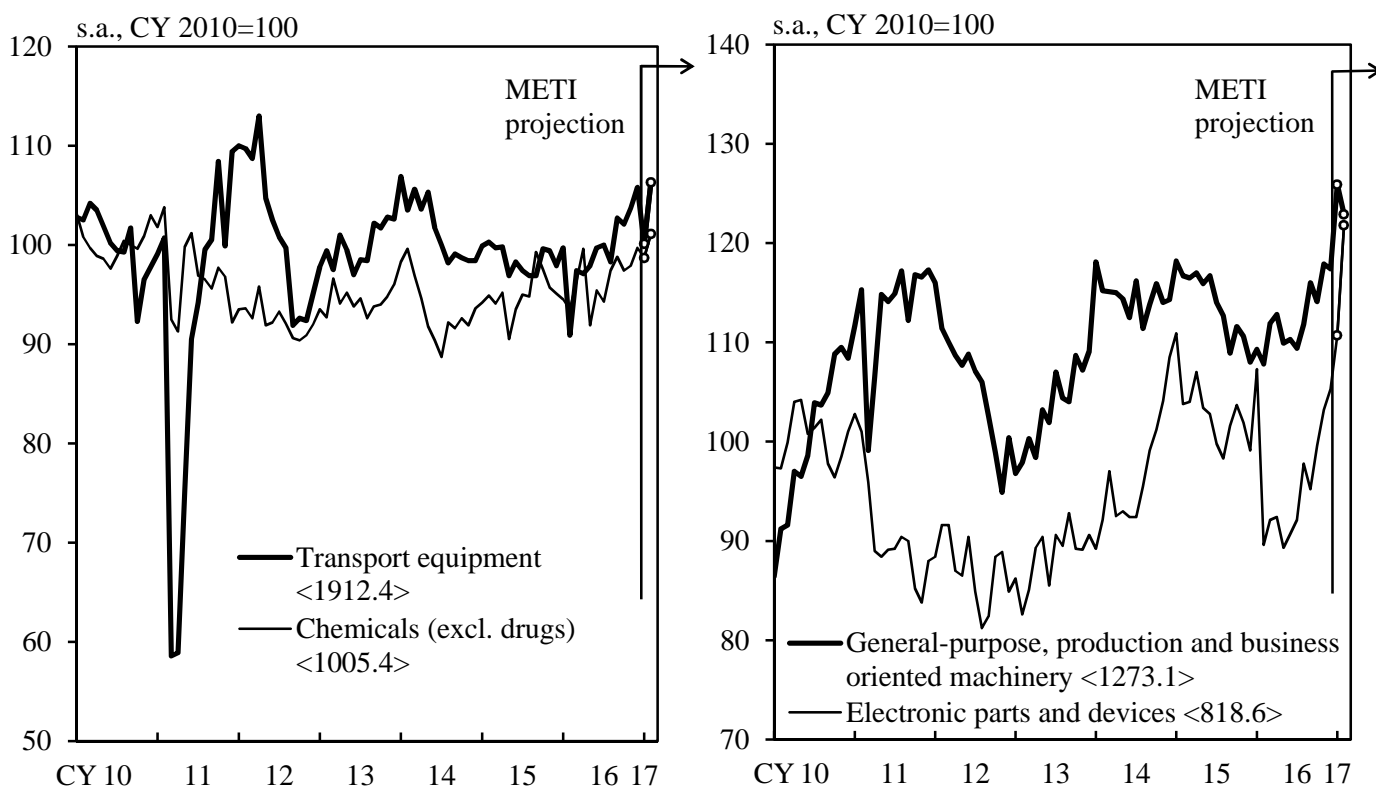
Sources: Japan National Tourism Organization (JNTO); Ministry of Finance and Bank of Japan.

## Production, Shipments, and Inventories

(1) Production, Shipments, and Inventories



(2) Production by Industry



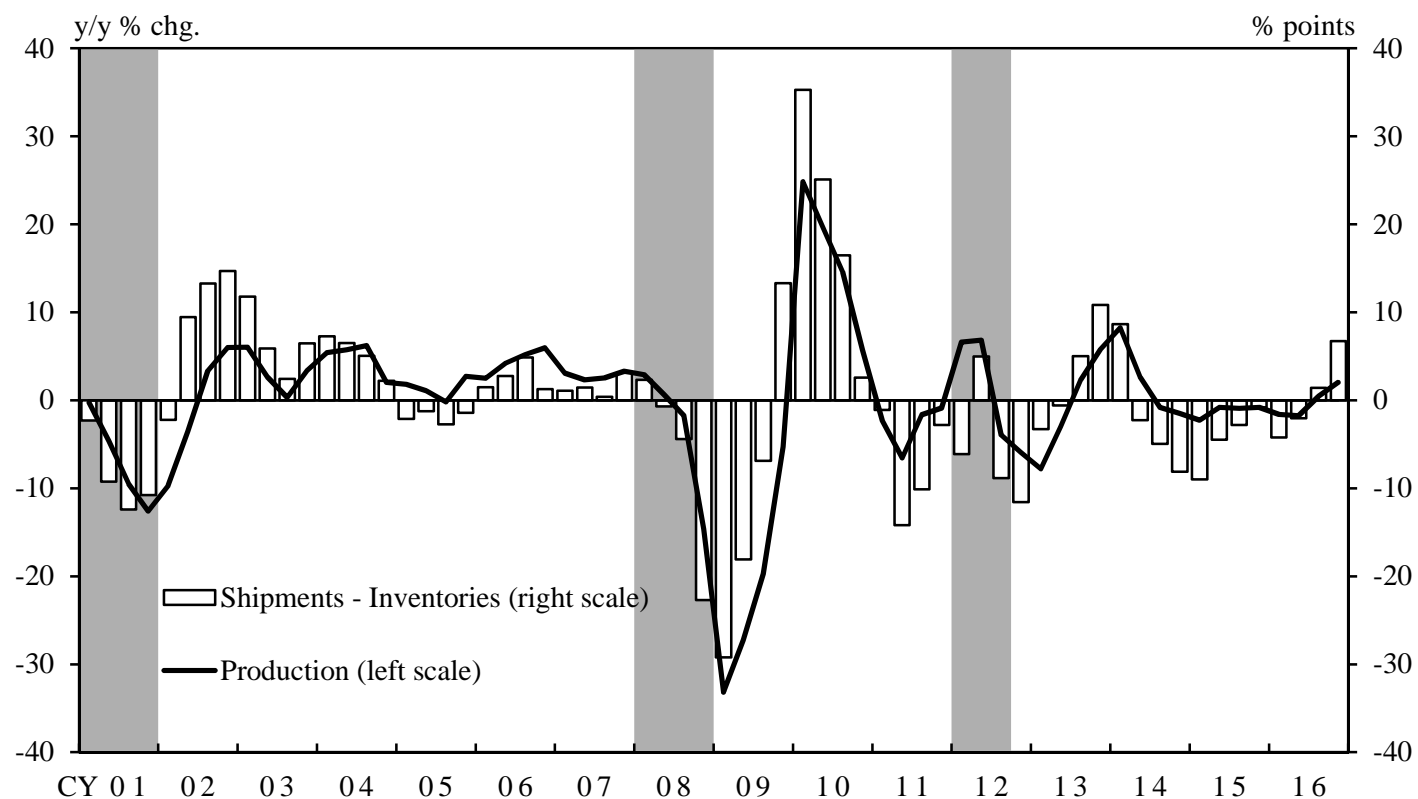
Notes: 1. Figures for 2017/Q1 and January and February 2017 are calculated based on METI projections.

The figure for 2017/Q1 is based on the assumption that the production level in March is the same as February.

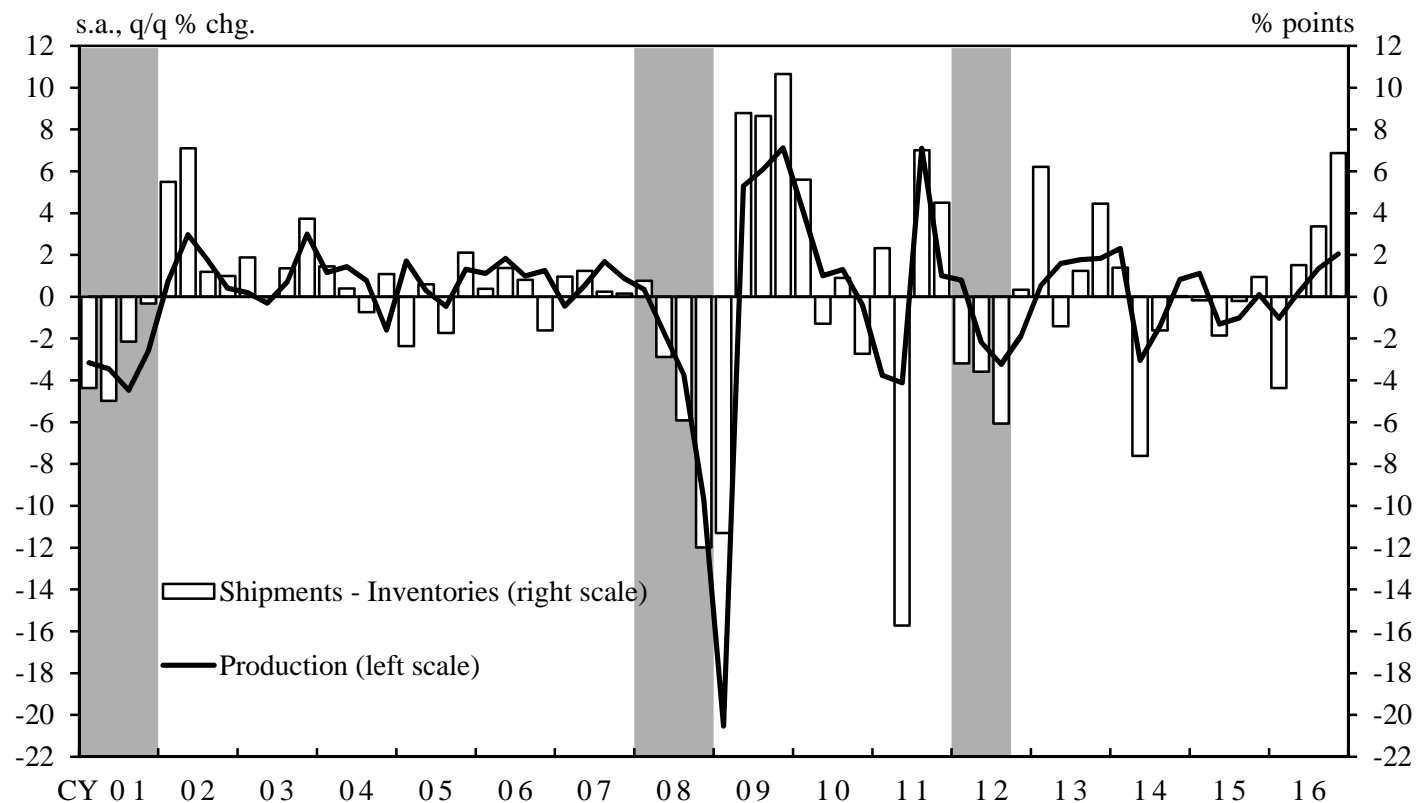
2. Figures in angular brackets show the value added weight in total production (=10,000).

## Shipment-Inventory Balance

### (1) Changes from the Previous Year



### (2) Changes from the Previous Quarter

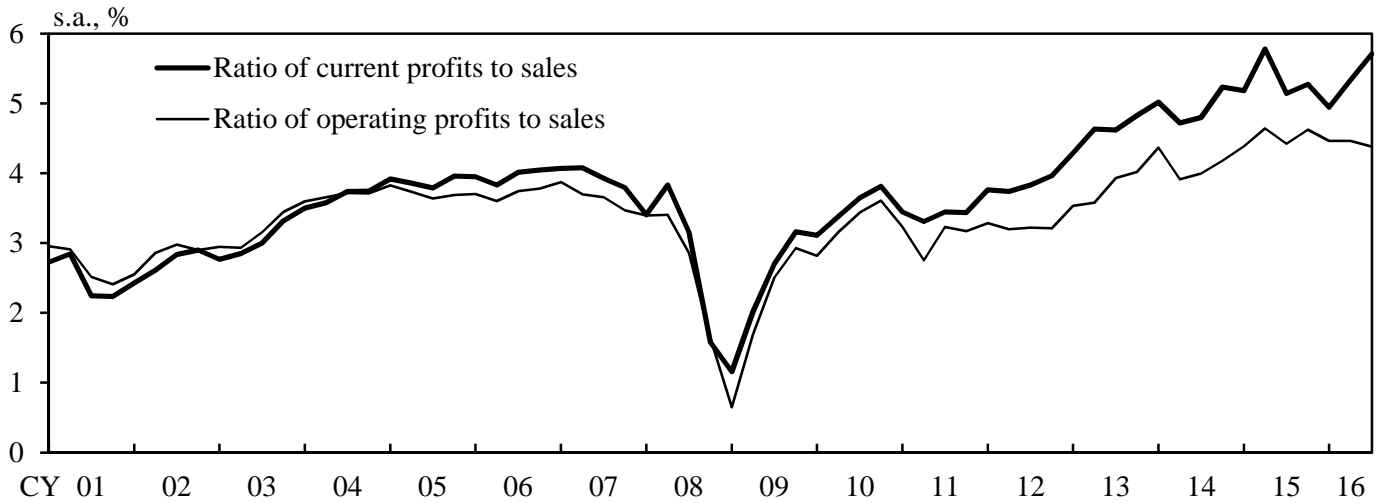


Note: Shaded areas indicate recession periods.

Source: Ministry of Economy, Trade and Industry.

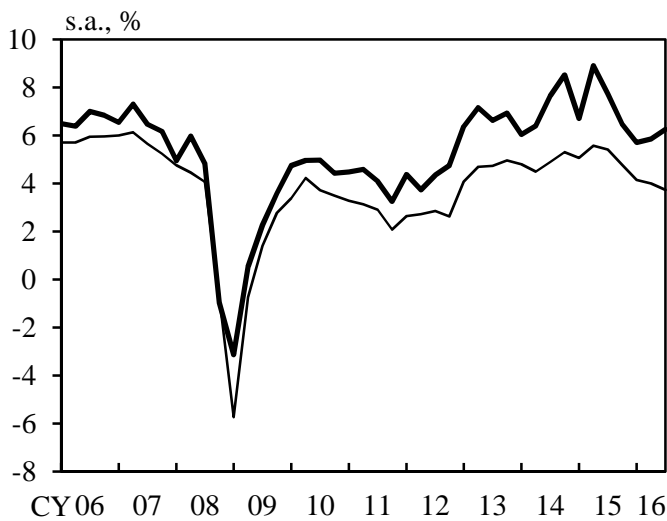
## Corporate Profits, by Industry and Enterprise Size

### (1) All Industries and Enterprises

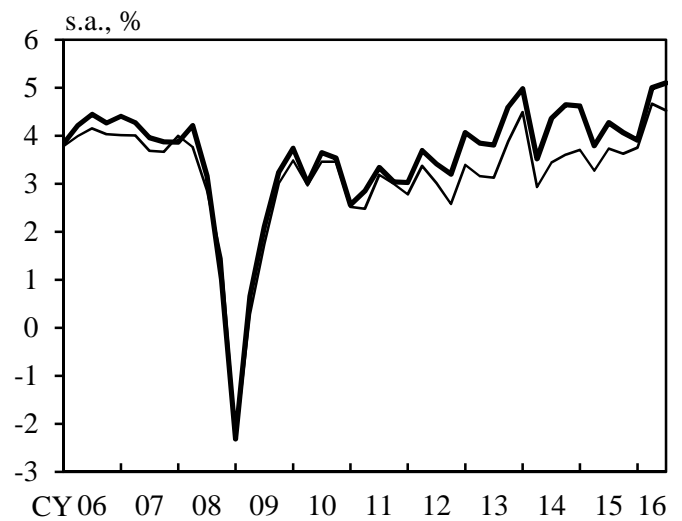


### (2) Manufacturing

#### (a) Large Enterprises

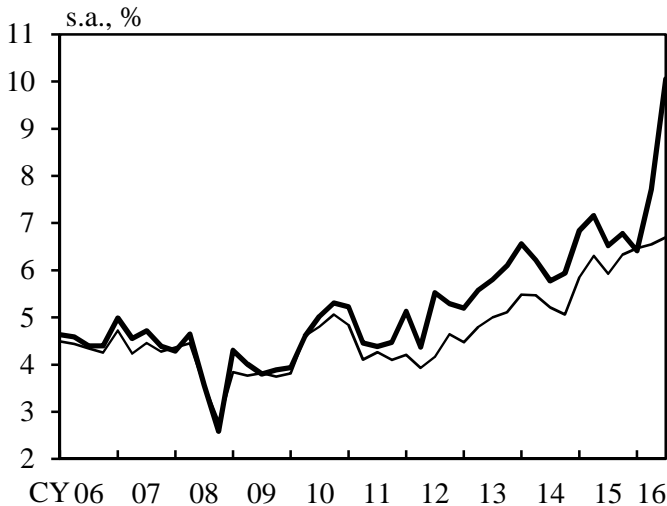


#### (b) Small and Medium-Sized Enterprises

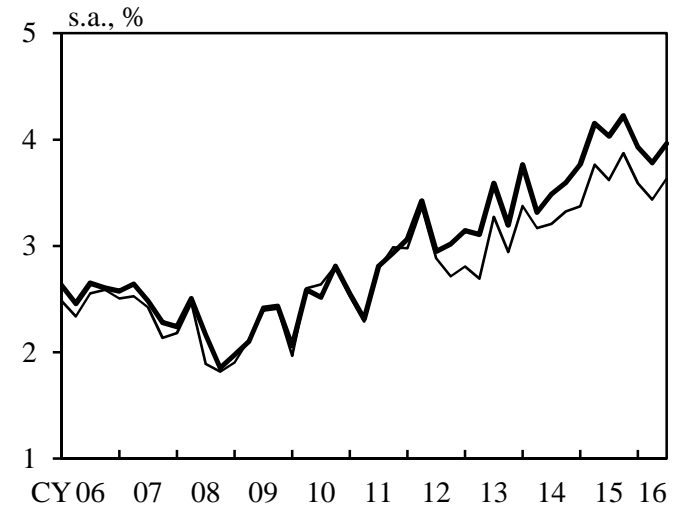


### (3) Nonmanufacturing

#### (a) Large Enterprises



#### (b) Small and Medium-Sized Enterprises



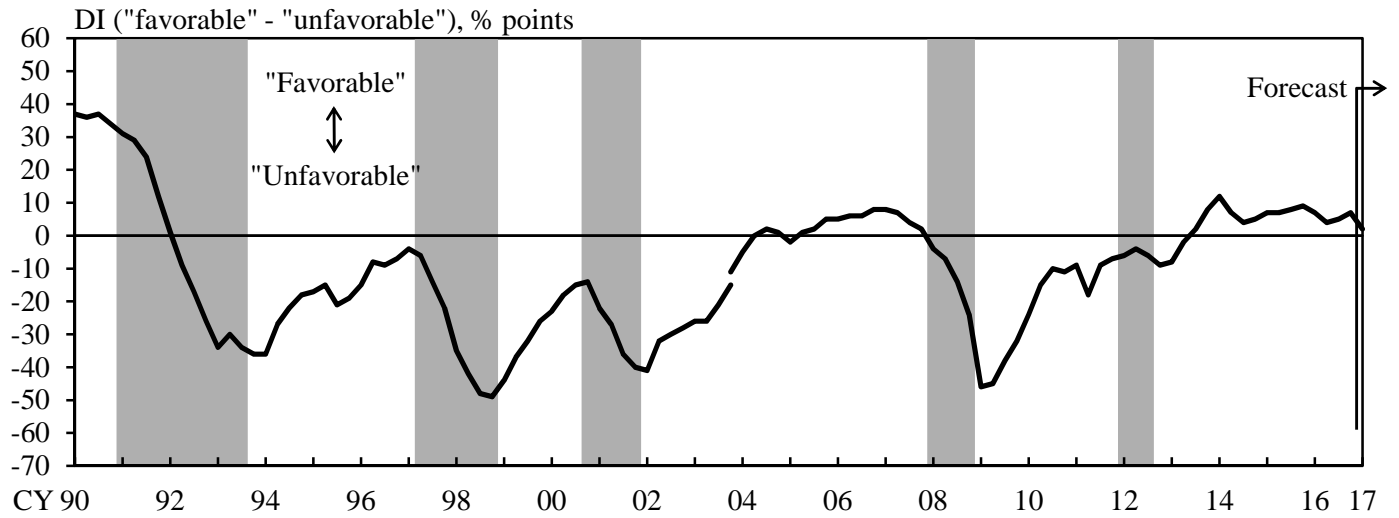
Note: Based on the "Financial Statements Statistics of Corporations by Industry, Quarterly."

Excluding "Finance and Insurance."

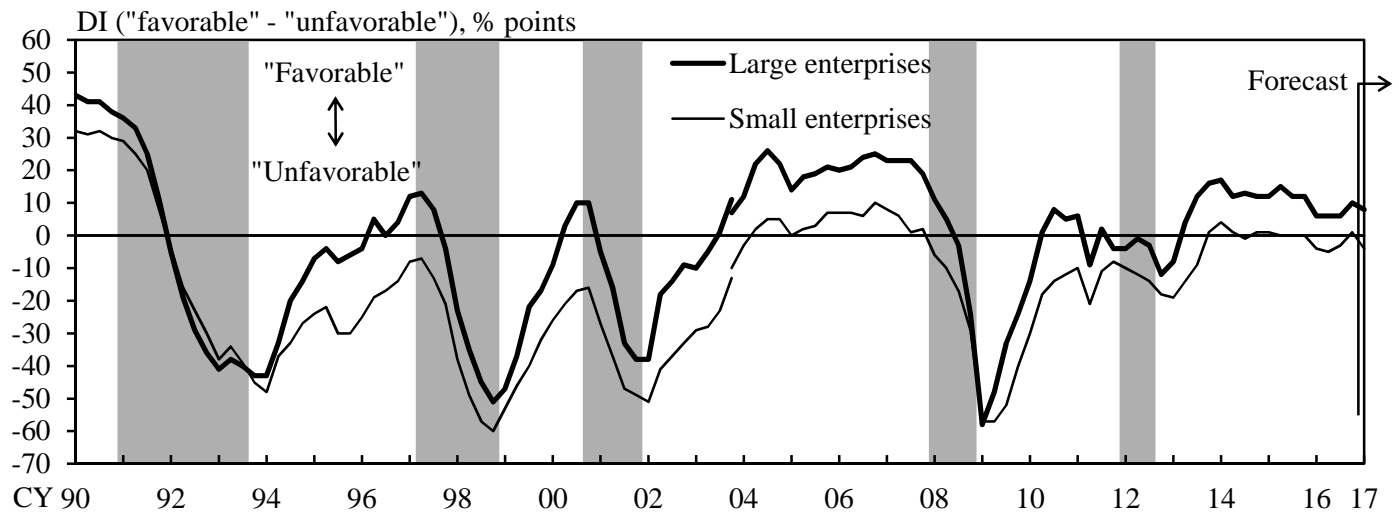
Source: Ministry of Finance.

## Business Conditions

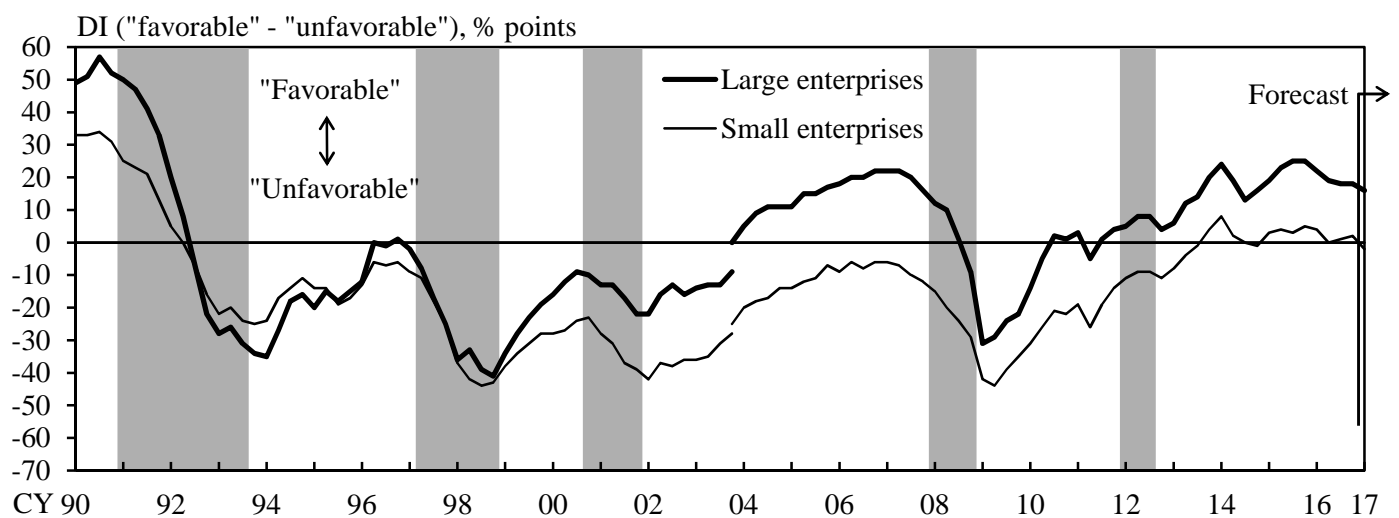
### (1) All Industries and Enterprises



### (2) Manufacturing



### (3) Nonmanufacturing



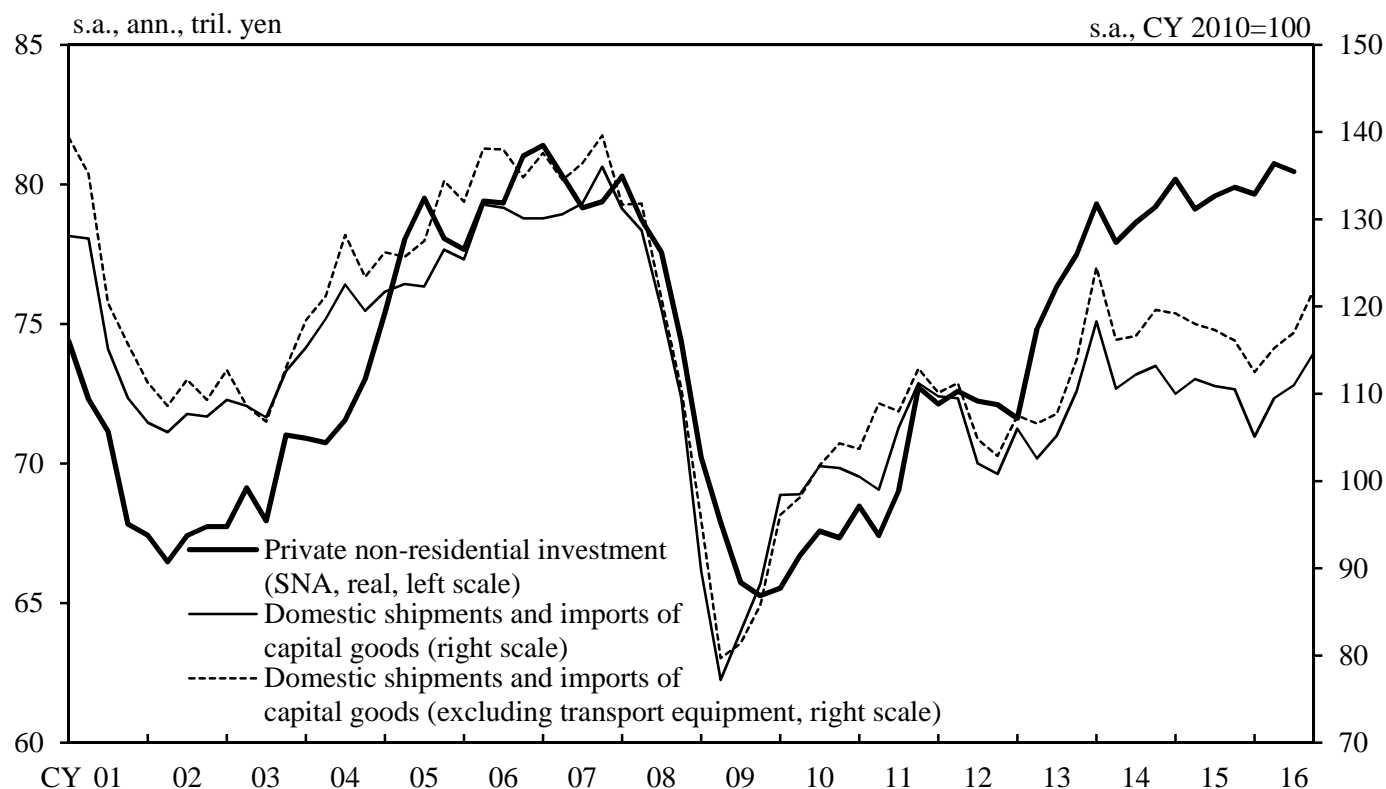
Notes: 1. Based on the *Tankan*. Shaded areas indicate recession periods.

2. There is a discontinuity in the data in December 2003 due to a change in the survey framework.

Source: Bank of Japan.

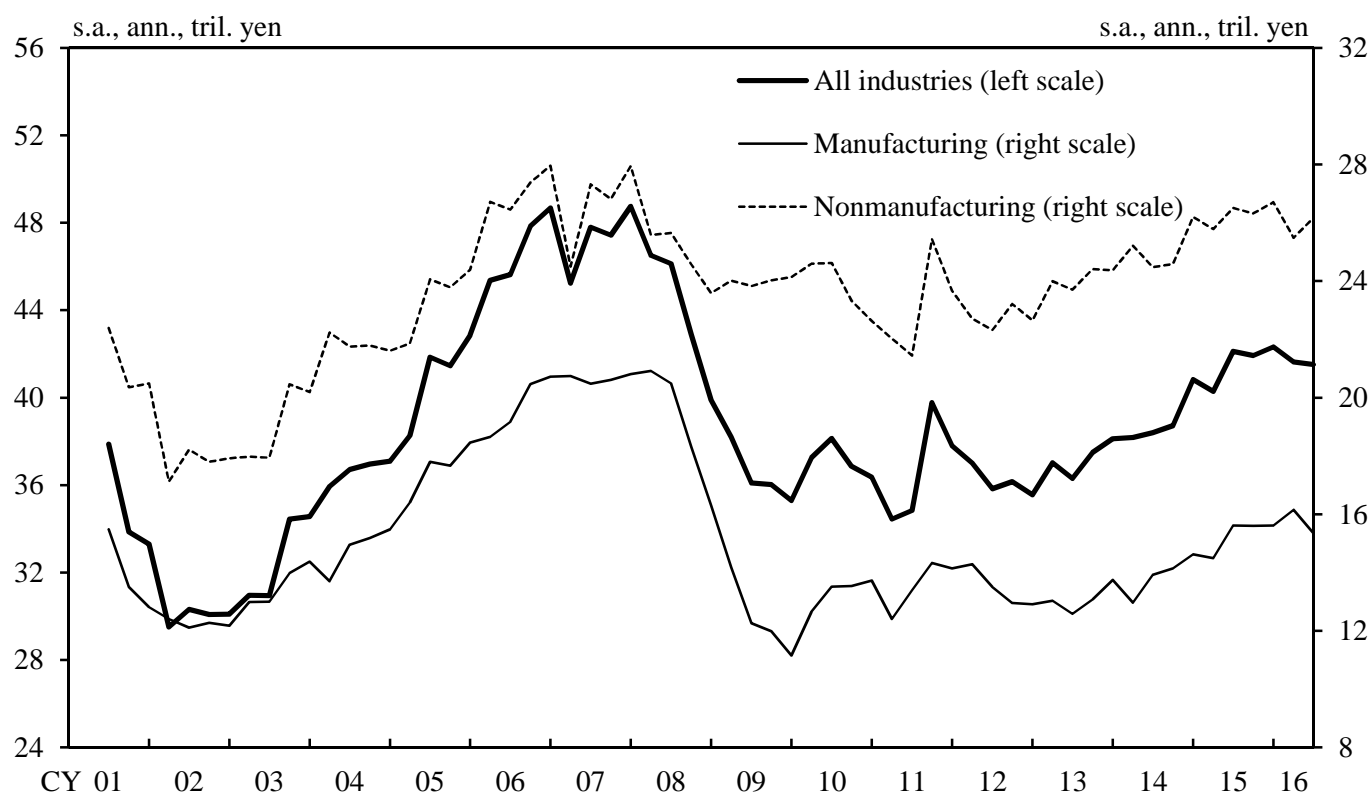
## Coincident Indicators of Business Fixed Investment

(1) Private Non-Residential Investment (SNA Basis), and Domestic Shipments and Imports of Capital Goods



Note: Figures for 2016/Q4 are October-November averages.

(2) Business Fixed Investment (All Enterprises, Excluding Goods Rental and Leasing Industry)



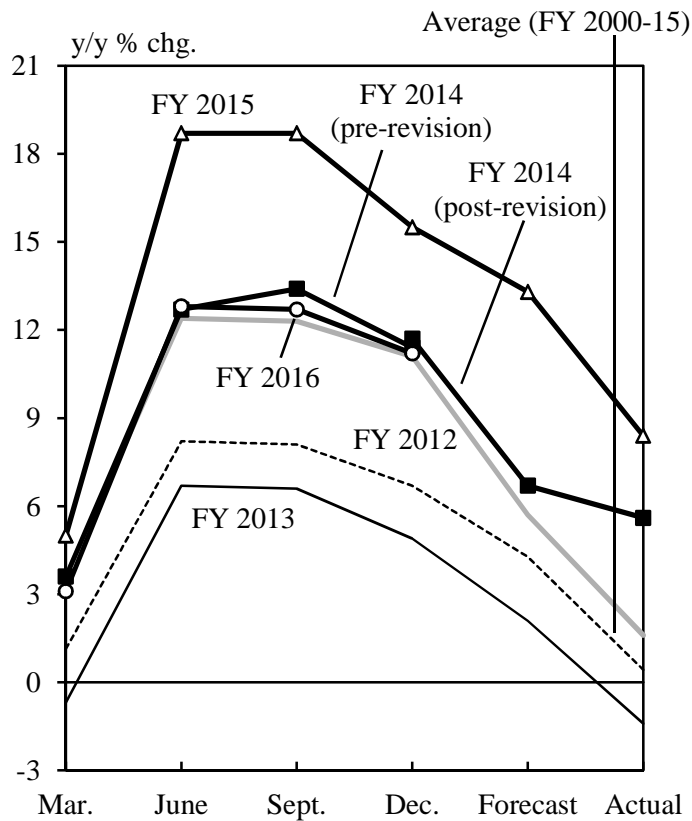
Note: Based on the "Financial Statements Statistics of Corporations by Industry, Quarterly."

Excluding "Finance and Insurance" and "Goods Rental and Leasing," and including software investment.

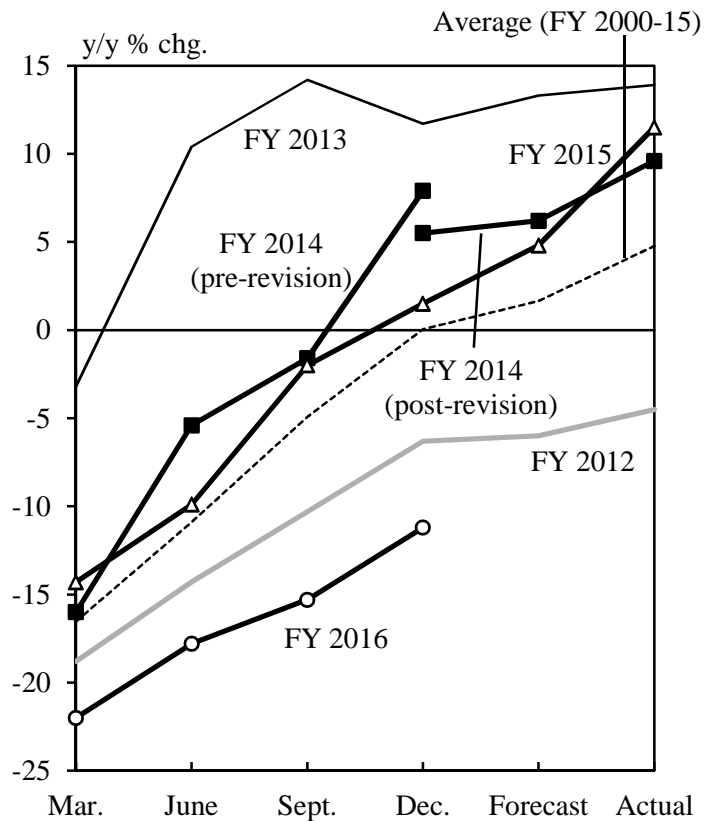
Sources: Cabinet Office; Ministry of Economy, Trade and Industry; Ministry of Finance.

## Business Fixed Investment Plans, by Industry and Enterprise Size

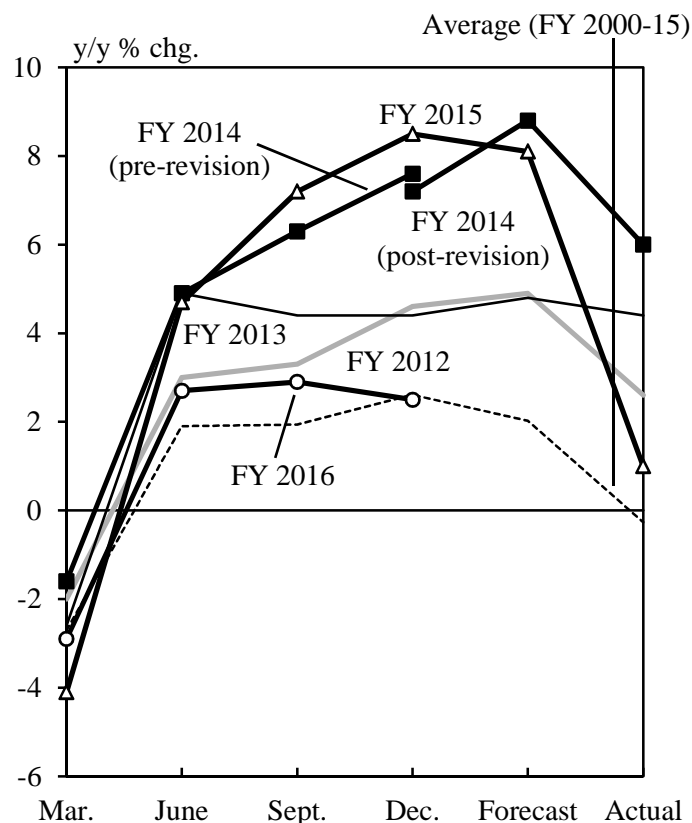
(1) Large Manufacturing Enterprises



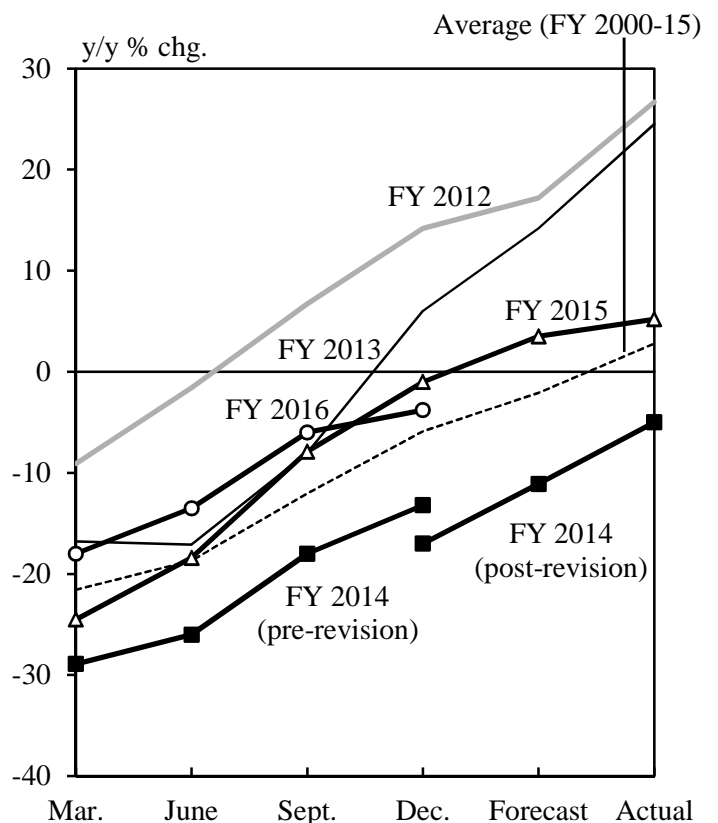
(2) Small Manufacturing Enterprises



(3) Large Nonmanufacturing Enterprises



(4) Small Nonmanufacturing Enterprises



Notes: 1. Based on the *Tankan*. Figures include land purchasing expenses and exclude software investment.

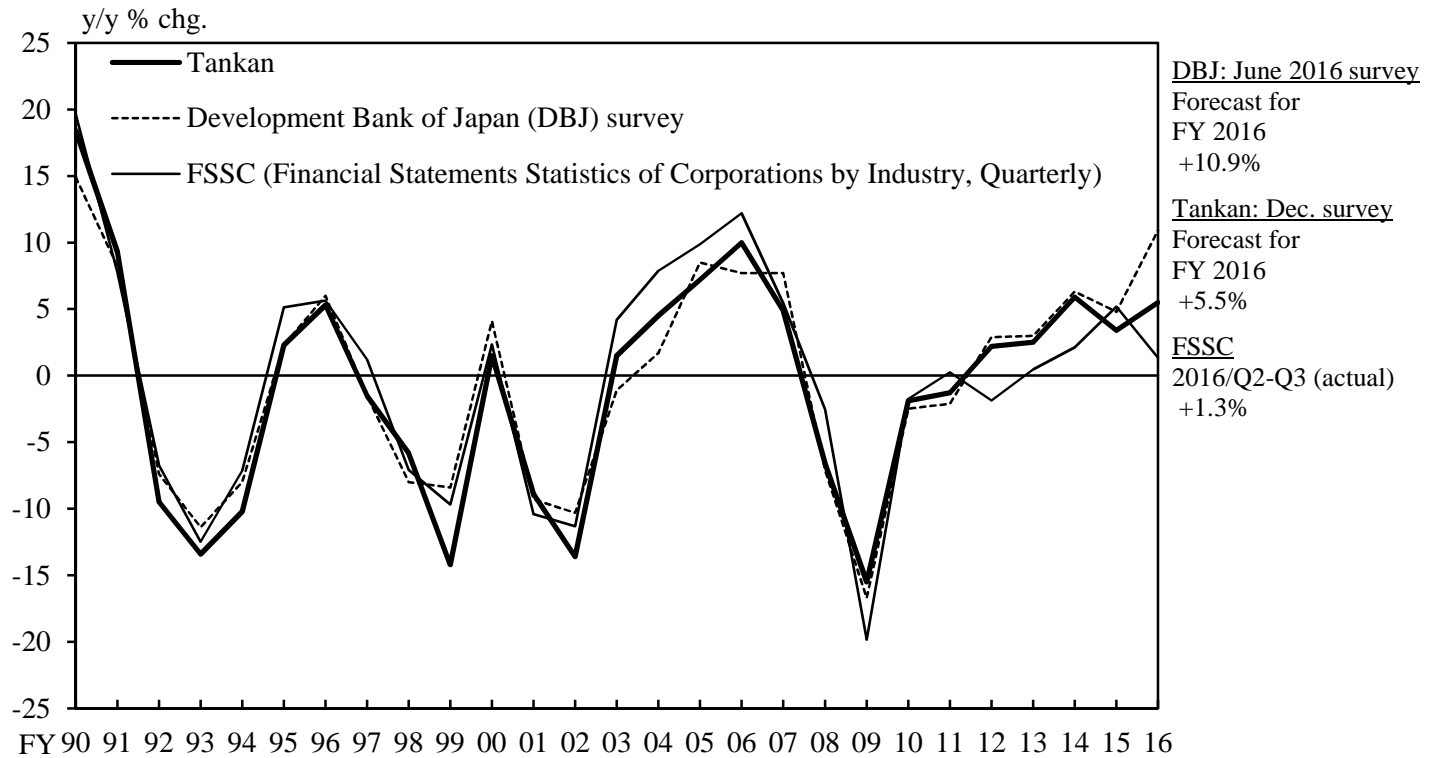
2. There is a discontinuity in the data in December 2014 due to a change in the survey sample.

Source: Bank of Japan.



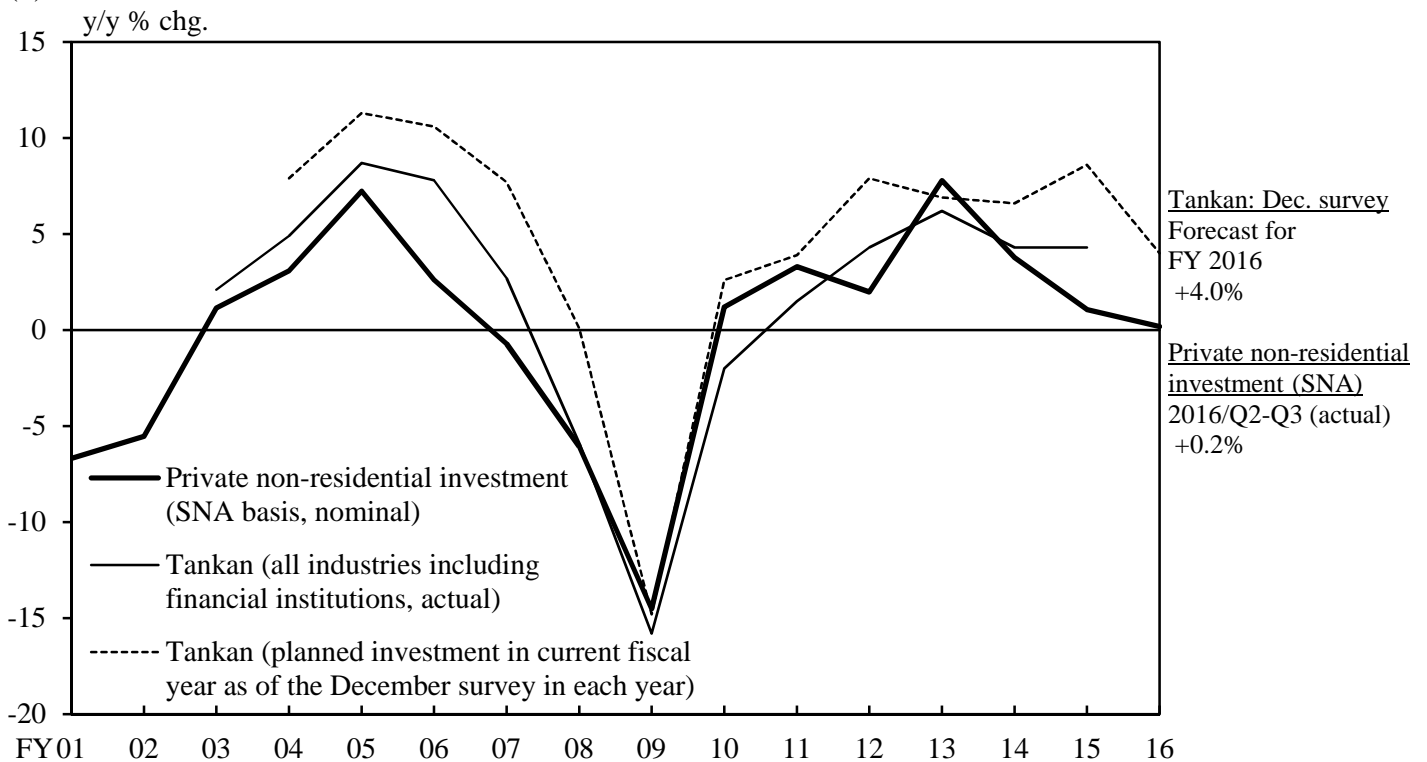
## Planned and Actual Business Fixed Investment

### (1) Planned and Actual Business Fixed Investment in Large Enterprises



Note: Data up to fiscal 2015 are actual changes from the previous fiscal year. Figures are for all industries (excluding "Finance and Insurance"); software investment is excluded. Figures for the *Tankan* and the DBJ survey include land purchasing expenses. Figures for the FSSC exclude "Goods Rental and Leasing."

### (2) Planned and Actual Business Fixed Investment on a Macroeconomic Basis

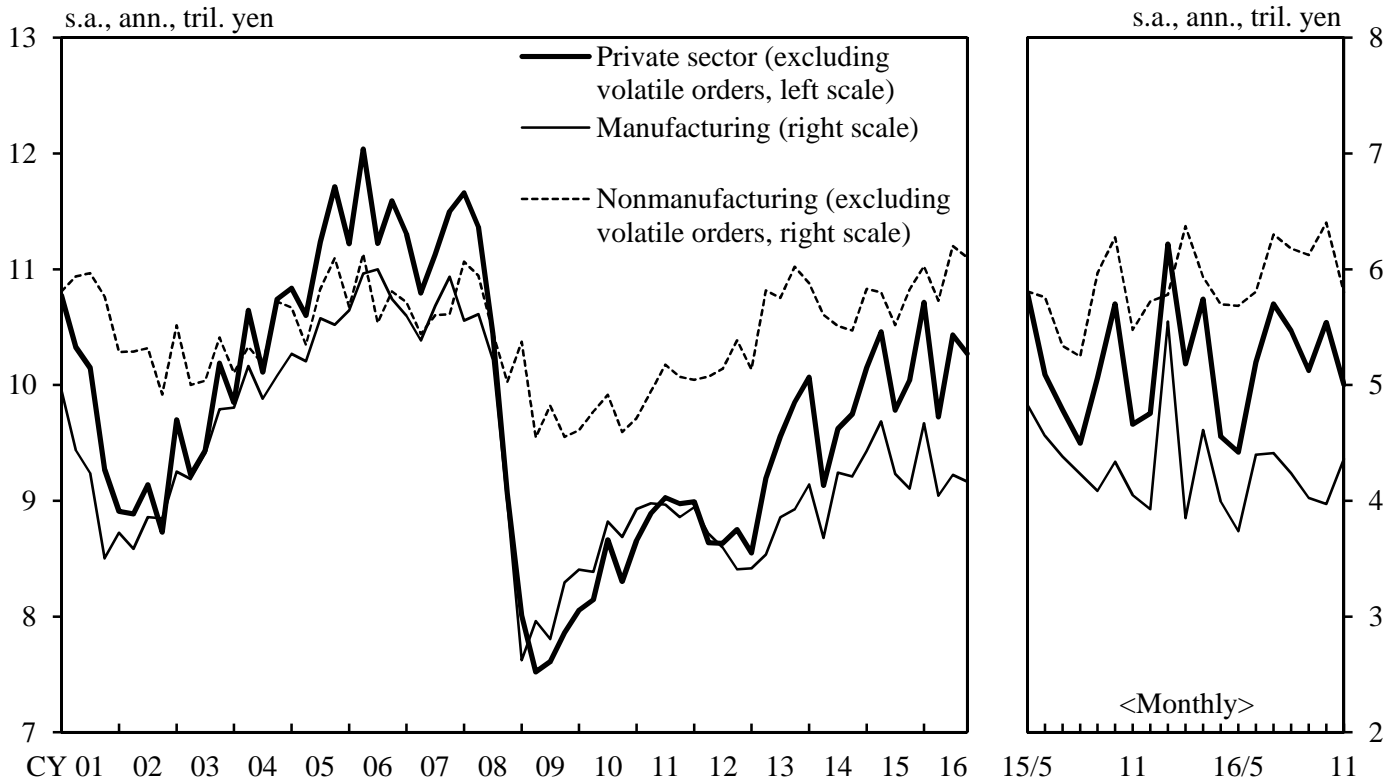


Note: Figures for the *Tankan* include software investment and exclude land purchasing expenses.

Sources: Bank of Japan; Development Bank of Japan; Cabinet Office; Ministry of Finance.

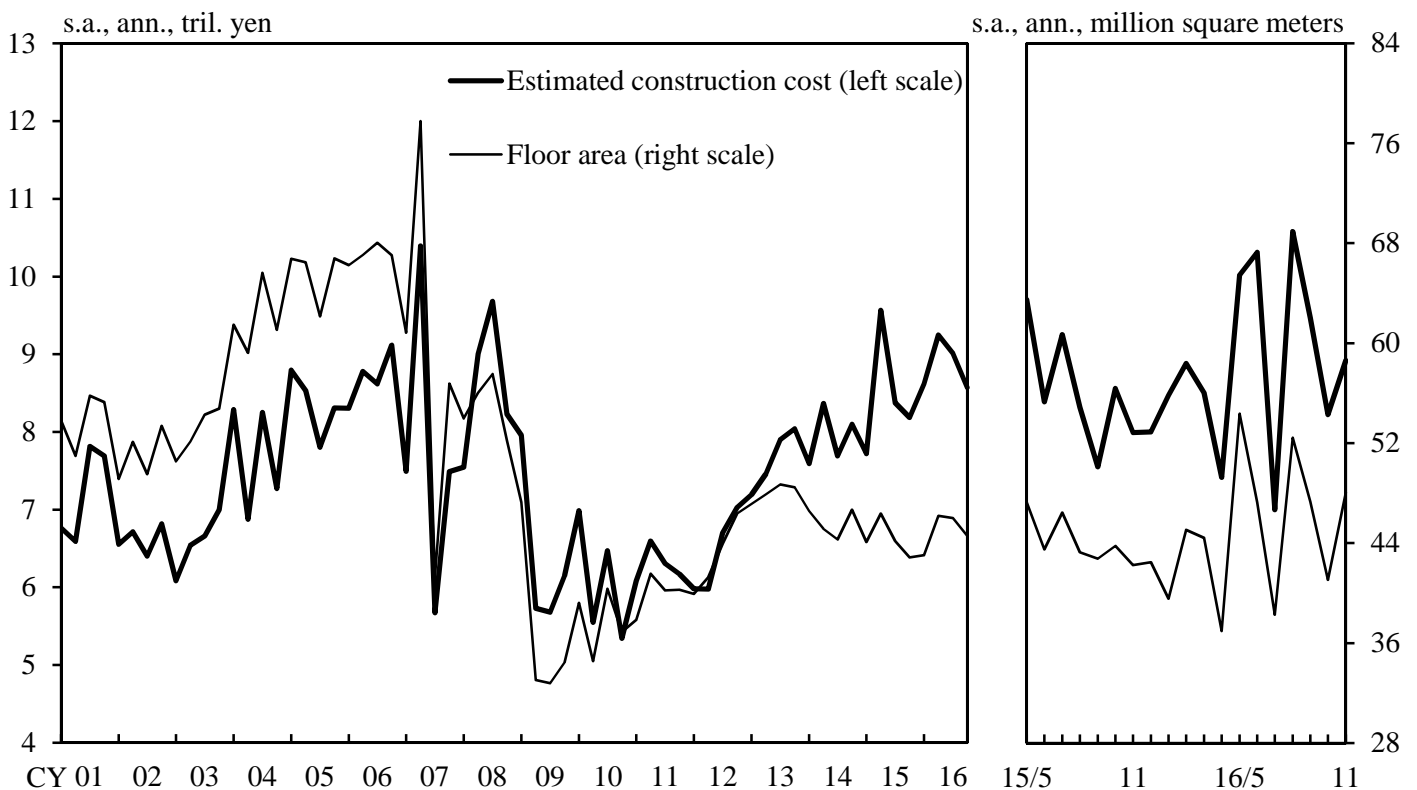
## Leading Indicators of Business Fixed Investment

### (1) Machinery Orders



Notes: 1. Volatile orders: orders for ships and orders from electric power companies.  
 2. Figures for 2016/Q4 are October-November averages. The same applies to the chart below.

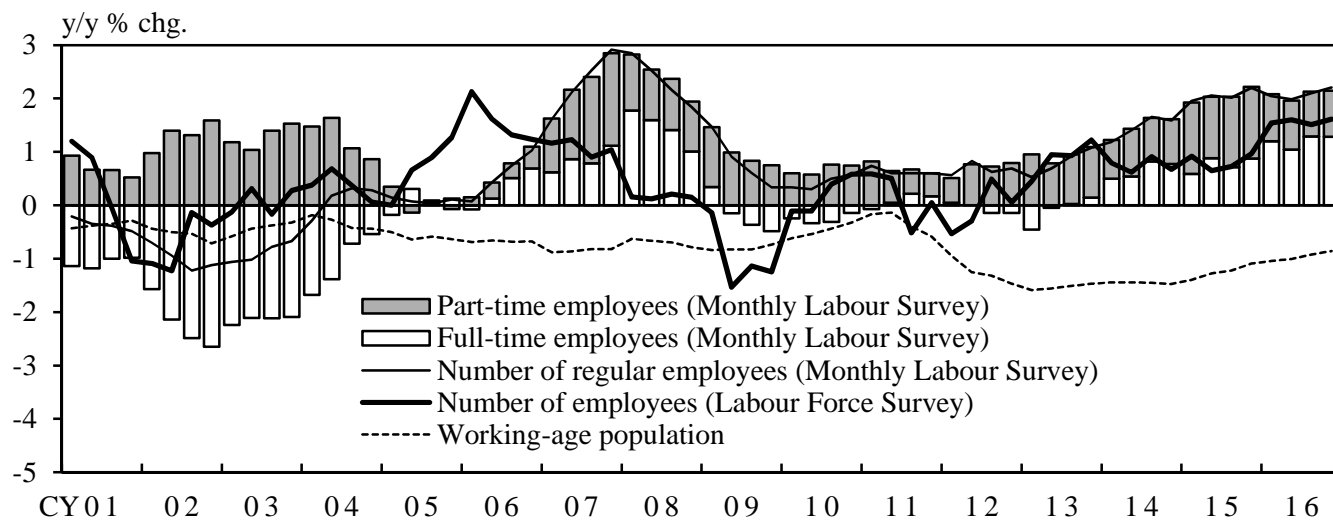
### (2) Construction Starts (Private, Nondwelling Use)



Sources: Cabinet Office; Ministry of Land, Infrastructure, Transport and Tourism.

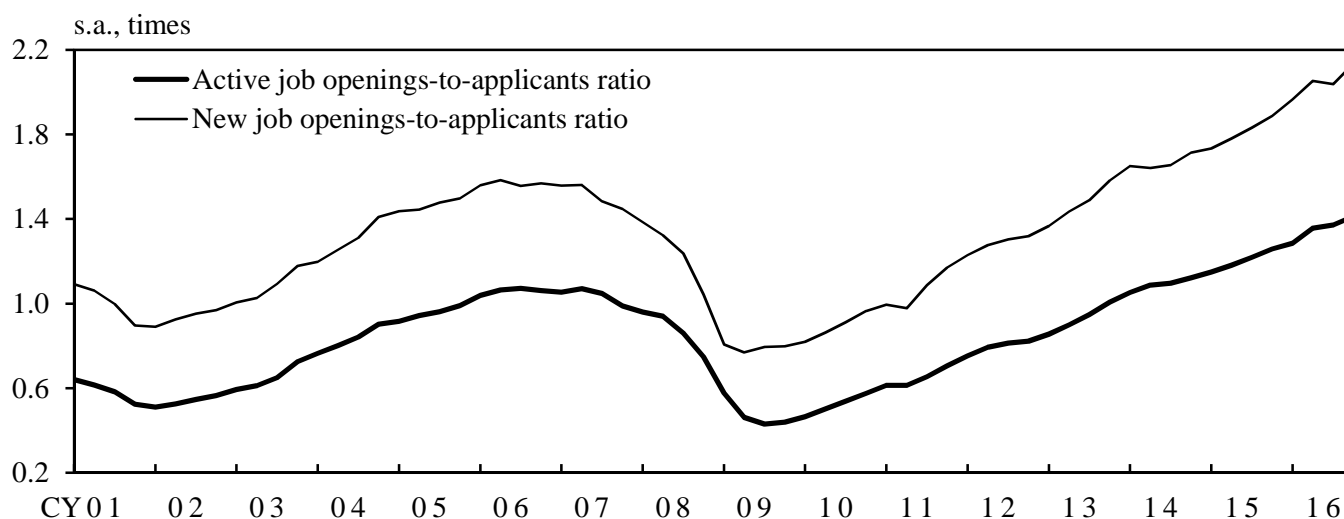
## Employment and Labor Market Conditions

### (1) Number of Employees

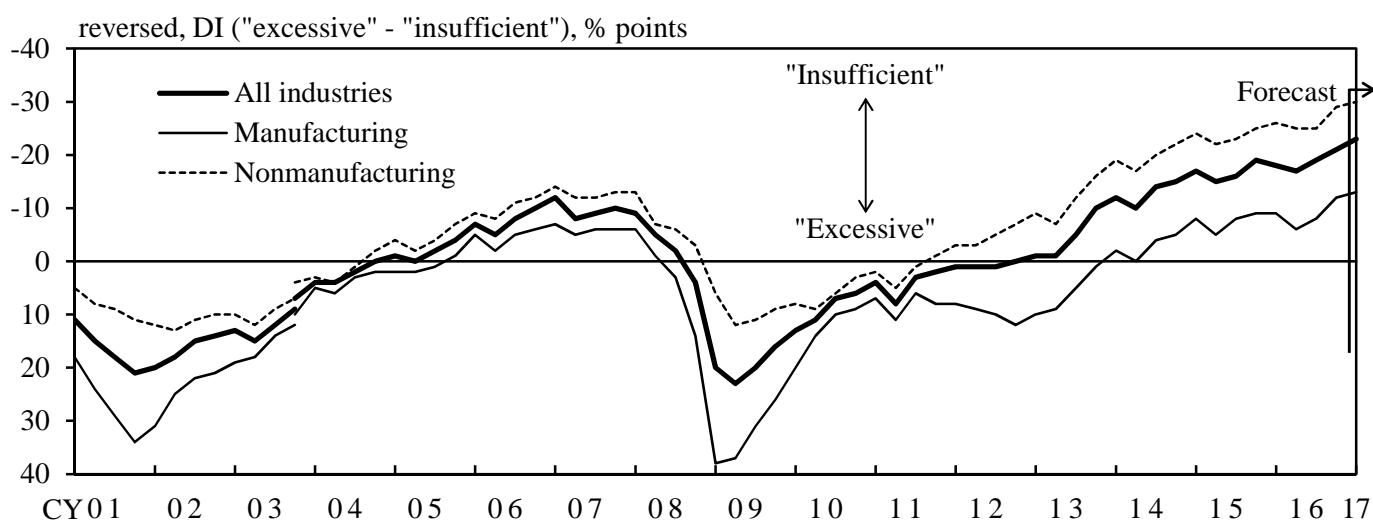


Note: Figures based on the "Monthly Labour Survey" for 2016/Q4 are October-November averages.

### (2) Job Openings-to-Applicants Ratio



### (3) Employment Conditions DI (*Tankan*, Enterprises of All Sizes)

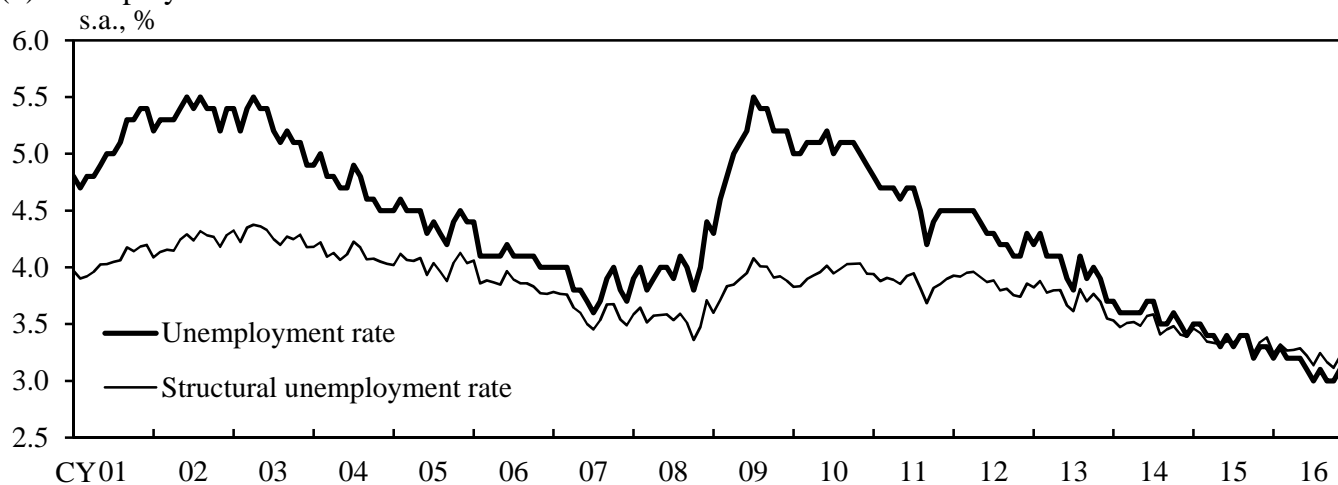


Note: There is a discontinuity in the data in December 2003 due to a change in the survey framework.

Sources: Ministry of Health, Labour and Welfare; Ministry of Internal Affairs and Communications; Bank of Japan.

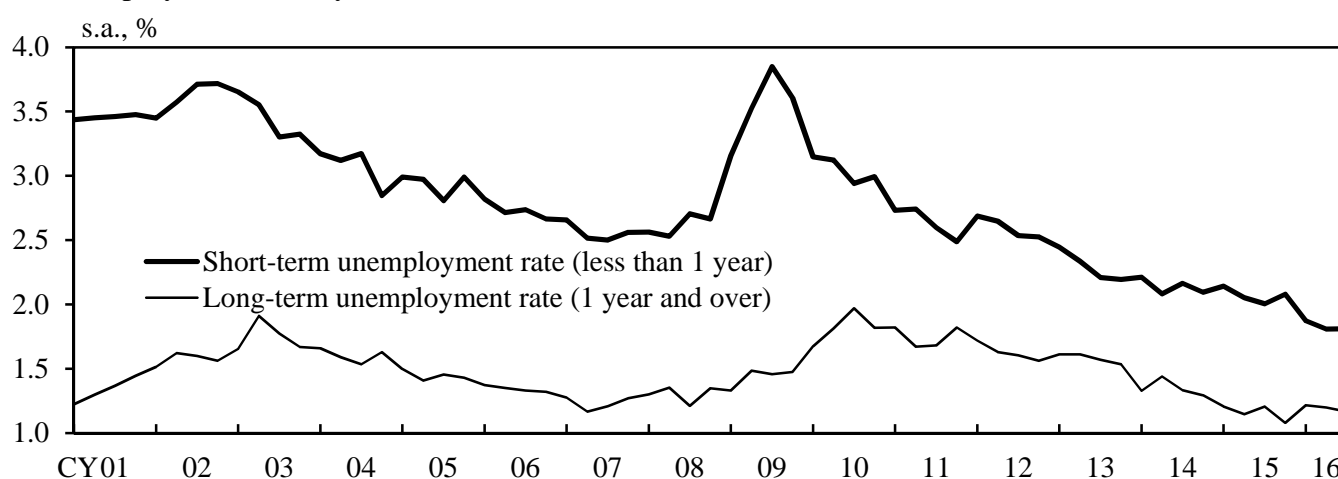
## Unemployment Rate and Labor Force Participation Rate

(1) Unemployment Rate



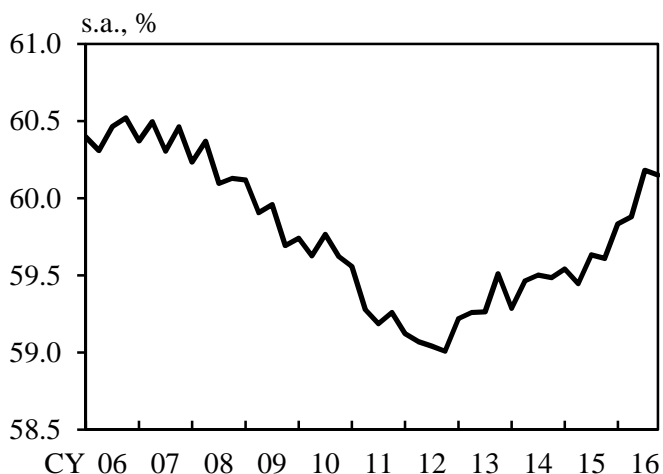
Note: The structural unemployment rate is estimated by the Research and Statistics Department, Bank of Japan.

(2) Unemployment Rate by Duration

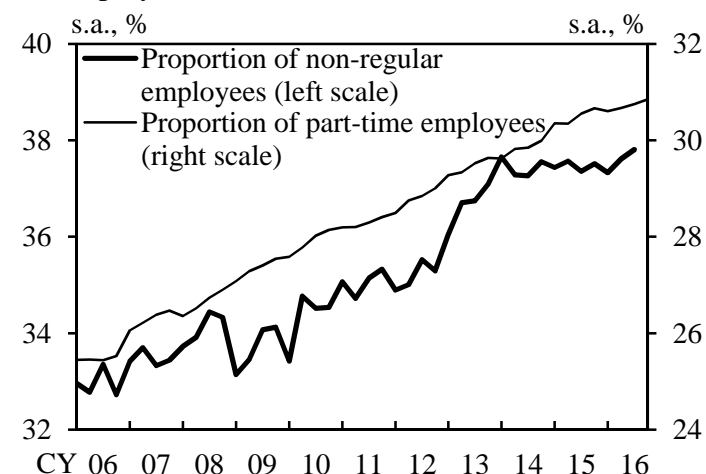


Note: Figures for unemployed persons by duration up through CY 2001 are not seasonally adjusted, since they are on a semiannual basis.

(3) Labor Force Participation Rate



(4) Proportion of Non-Regular and Part-Time Employees

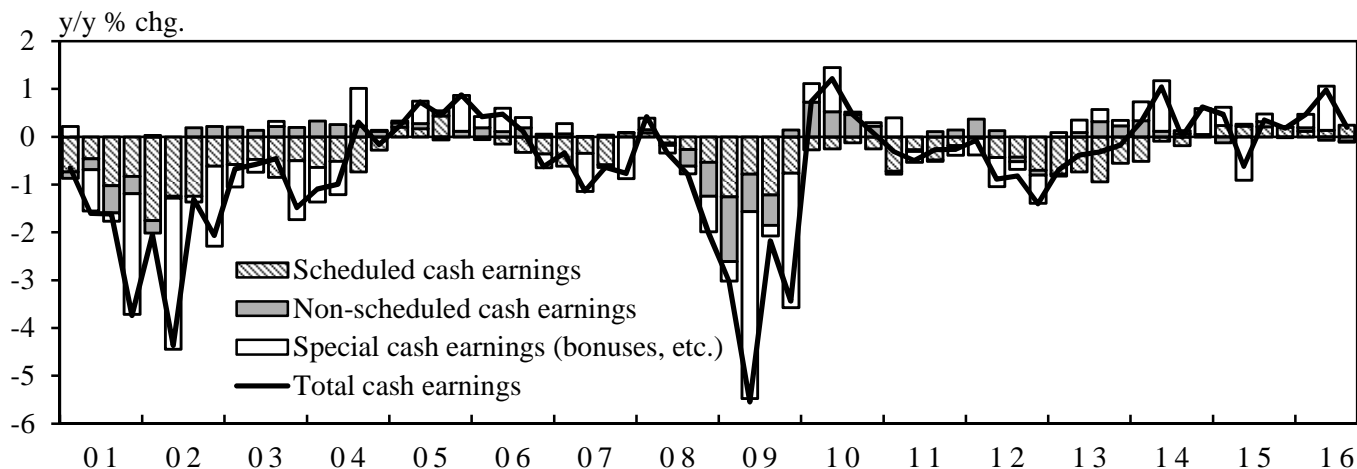


Note: Figures for the proportion of non-regular employees are based on the "detailed tabulation" in the "Labour Force Survey." The figure for the proportion of part-time employees for 2016/Q4 is the October-November average.

Sources: Ministry of Internal Affairs and Communications; Ministry of Health, Labour and Welfare.

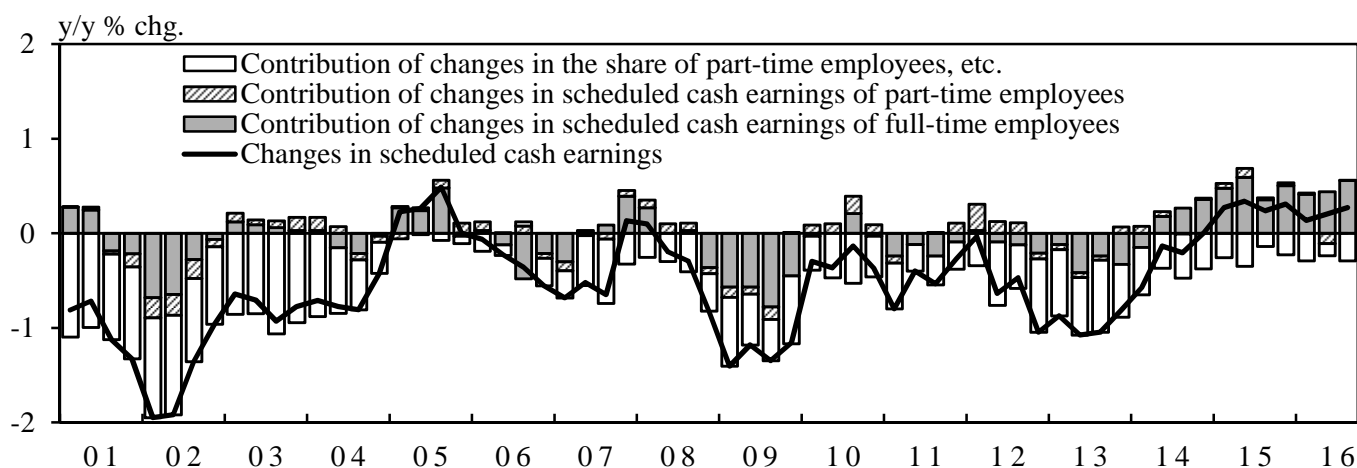
## Nominal Wages

### (1) Total Cash Earnings



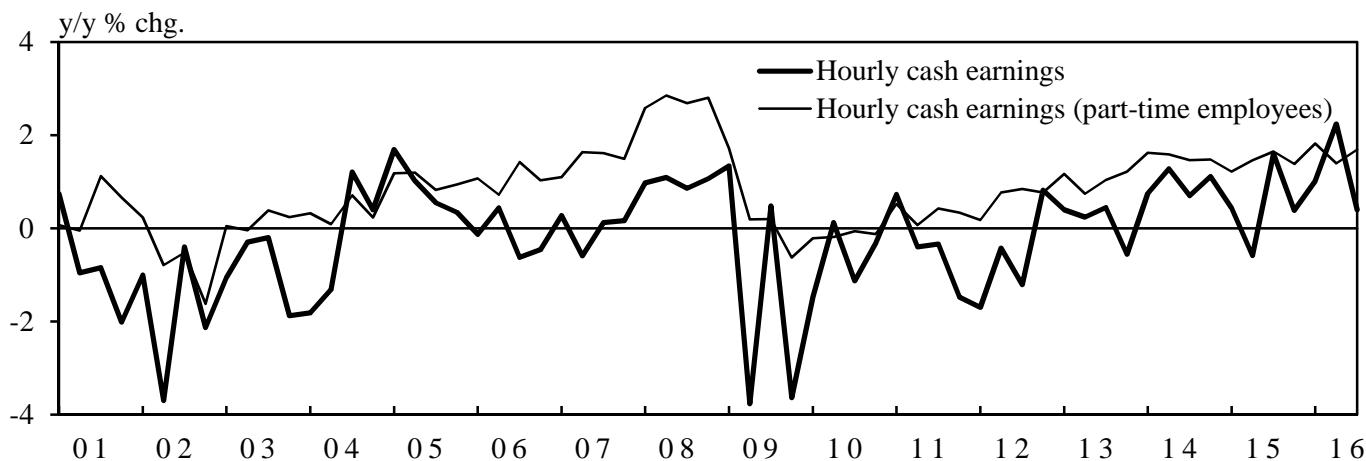
Note: Q1 = March-May, Q2 = June-August, Q3 = September-November, Q4 = December-February.  
The same definition applies to the charts below.

### (2) Scheduled Cash Earnings



Note: The contribution of changes in scheduled cash earnings of part-time (full-time) employees is obtained by multiplying the year-on-year rate of changes in part-time (full-time) scheduled cash earnings and part-time (full-time) employees' share of total scheduled cash earnings in the previous year. The contribution of changes in the share of part-time employees, etc. is calculated as the residual.

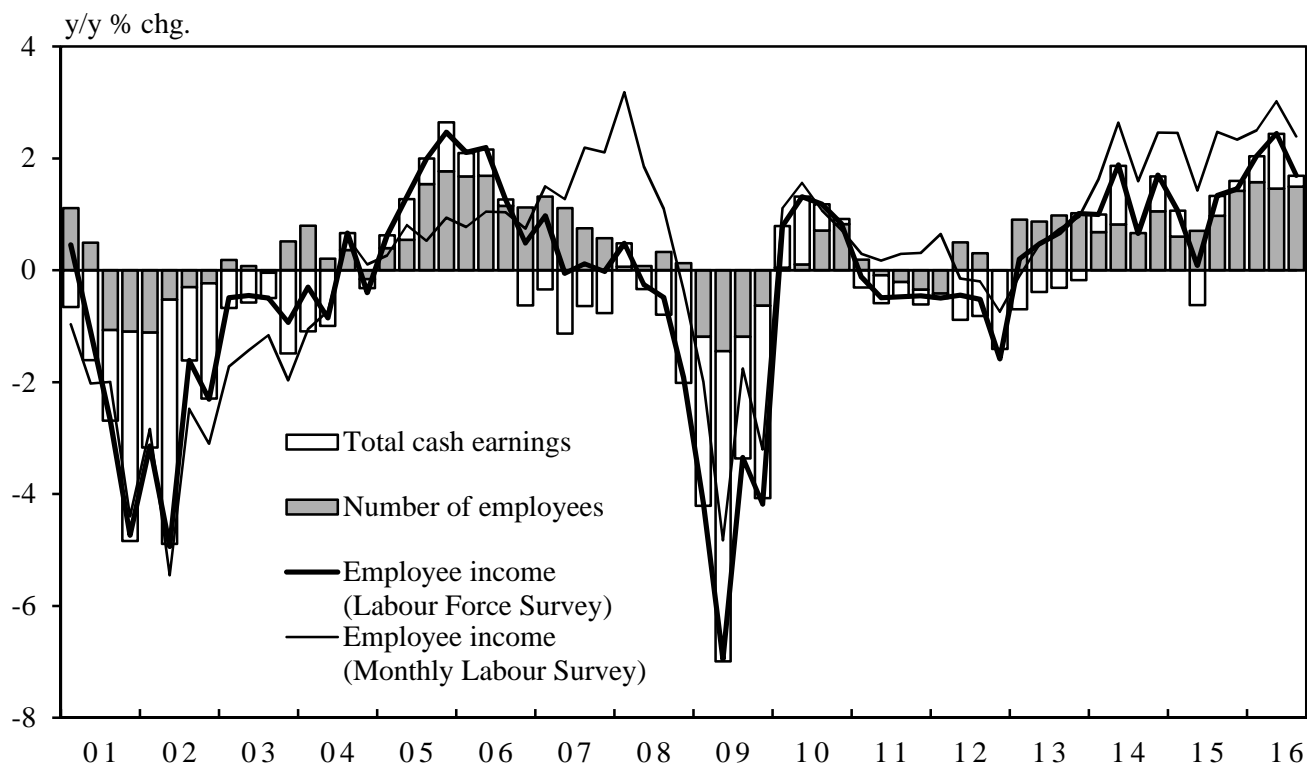
### (3) Hourly Cash Earnings



Source: Ministry of Health, Labour and Welfare.

## Employee Income

### (1) Employee Income

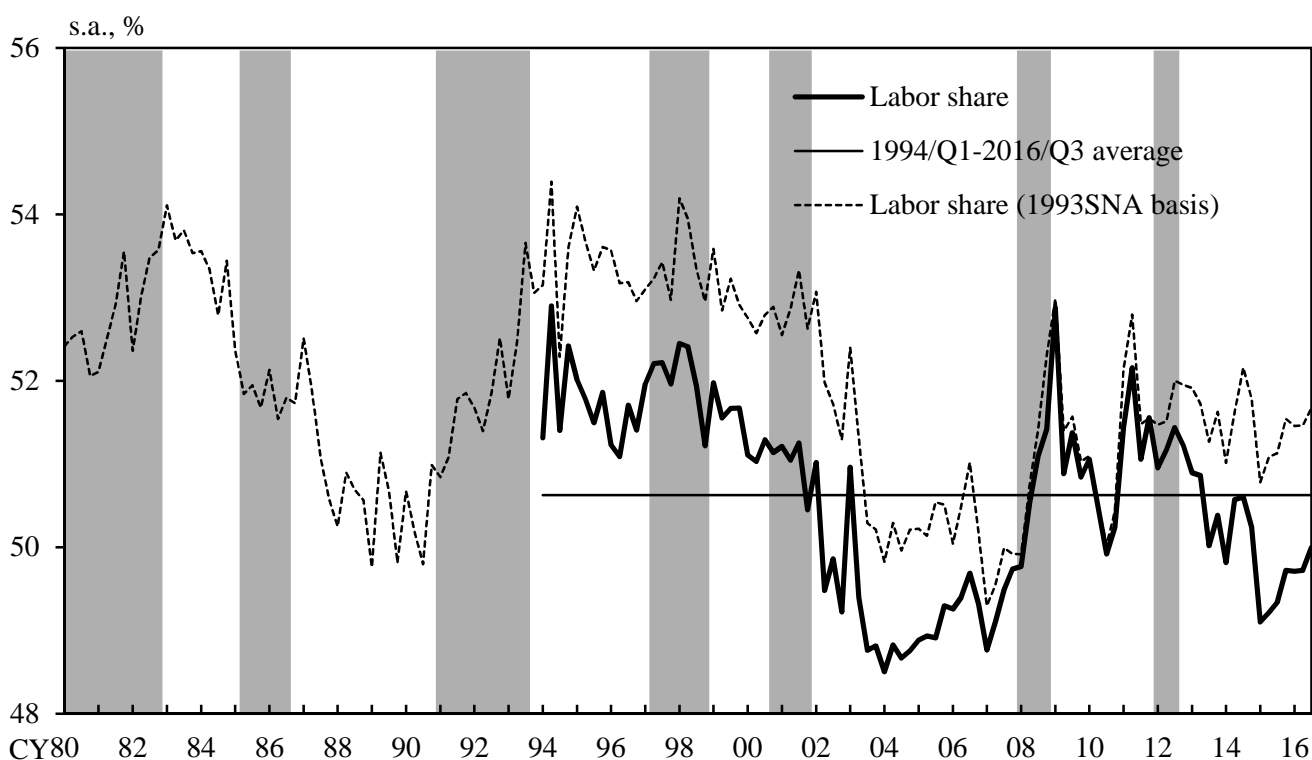


Notes: 1. Q1 = March-May, Q2 = June-August, Q3 = September-November, Q4 = December-February.

2. Employee income (Labour Force Survey) = number of employees (Labour Force Survey) × total cash earnings

Employee income (Monthly Labour Survey) = number of regular employees (Monthly Labour Survey) × total cash earnings

### (2) Labor Share (SNA Basis)



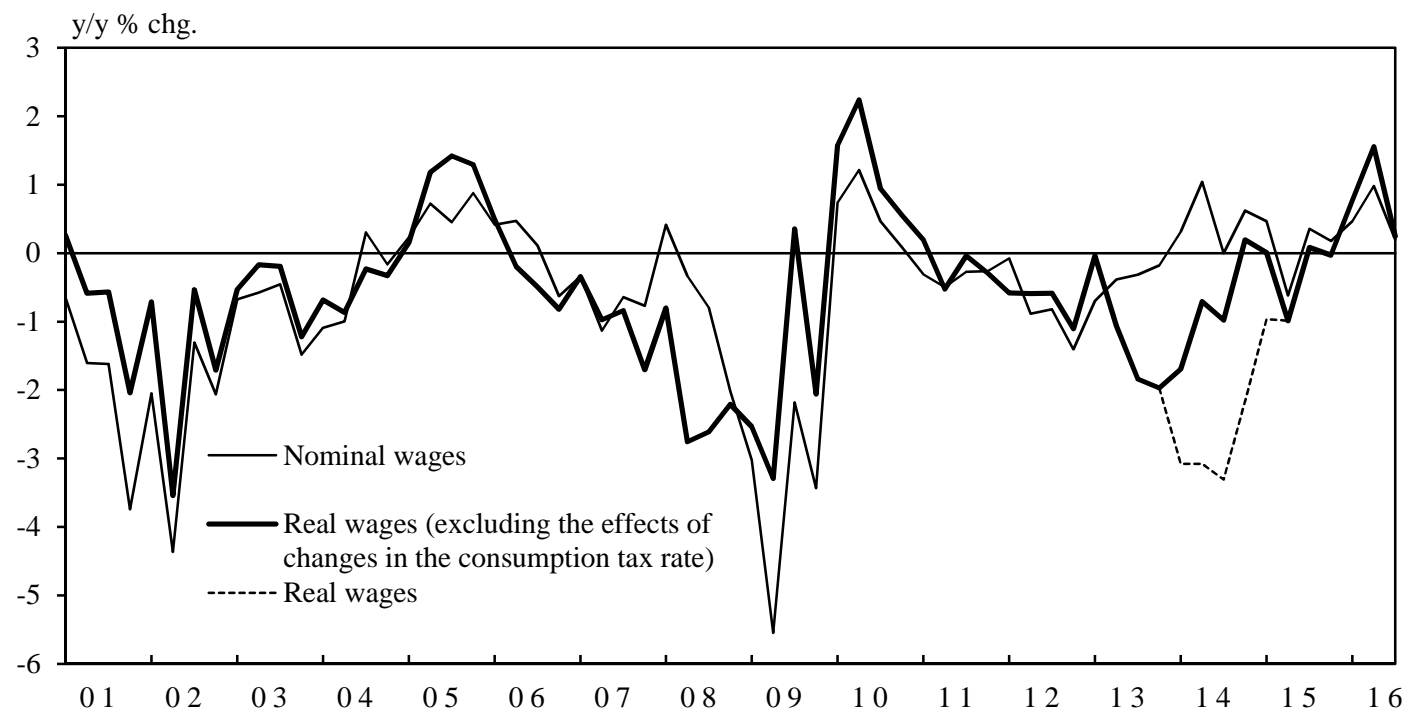
Notes: 1. Labor share = compensation of employees / nominal GDP × 100

2. Shaded areas indicate recession periods.

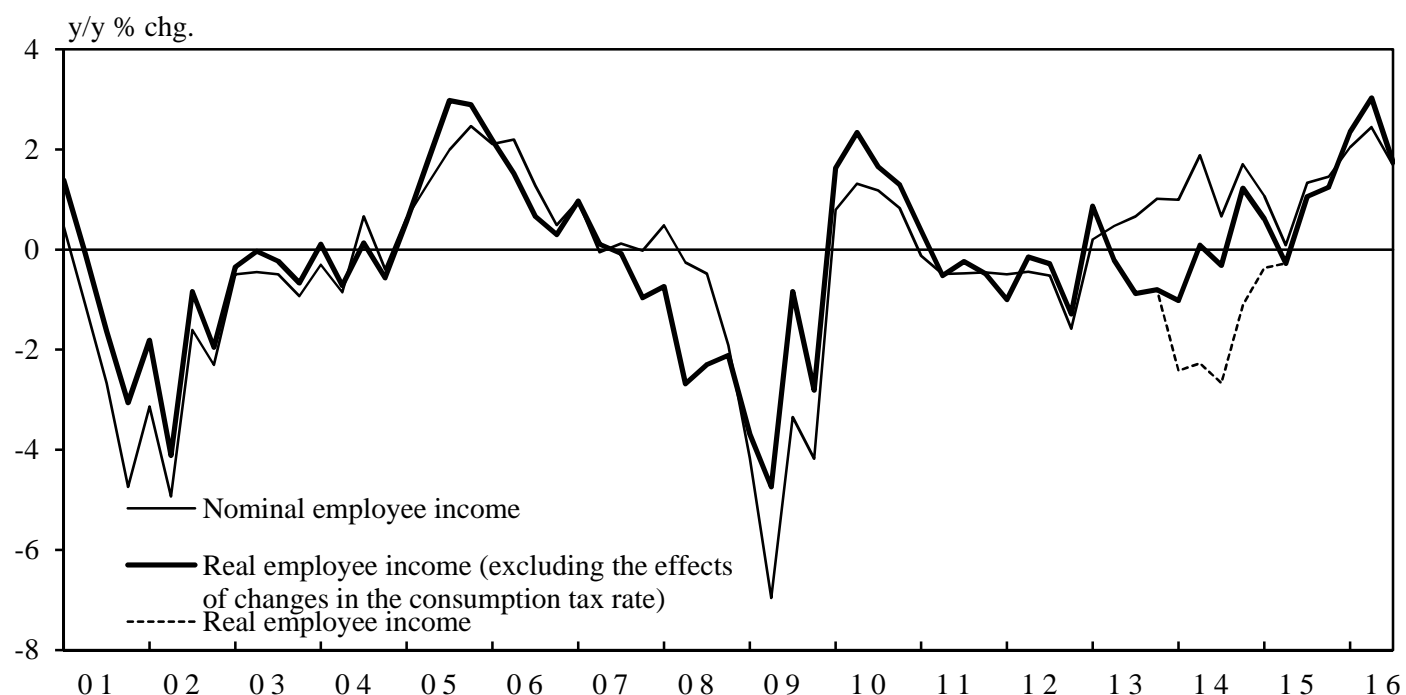
Sources: Ministry of Health, Labour and Welfare; Ministry of Internal Affairs and Communications; Cabinet Office.

## Real Wages and Real Employee Income

### (1) Real Wages



### (2) Real Employee Income



Notes: 1. Q1 = March-May, Q2 = June-August, Q3 = September-November, Q4 = December-February.

2. Real wages are obtained by deflating nominal wages by the CPI (less imputed house rent) and are taken from the Ministry of Health, Labour and Welfare.

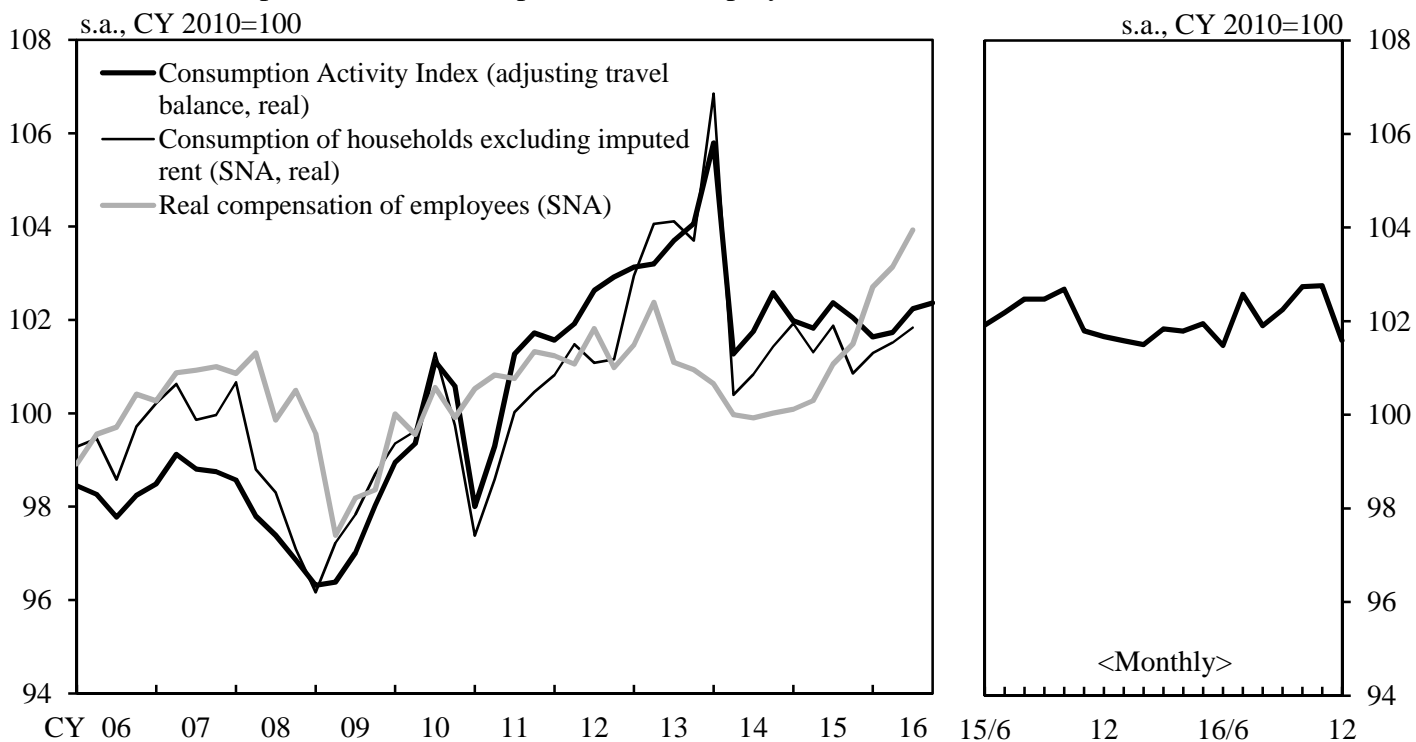
3. Nominal (real) employee income is obtained by multiplying nominal (real) wages and the number of employees (Labour Force Survey).

4. Real wages and real employee income (excluding the effects of changes in the consumption tax rate) are obtained by deflating nominal wages and nominal employee income by the CPI (less imputed house rent, adjusted to exclude the estimated effects of changes in the consumption tax rate).

Sources: Ministry of Health, Labour and Welfare; Ministry of Internal Affairs and Communications.

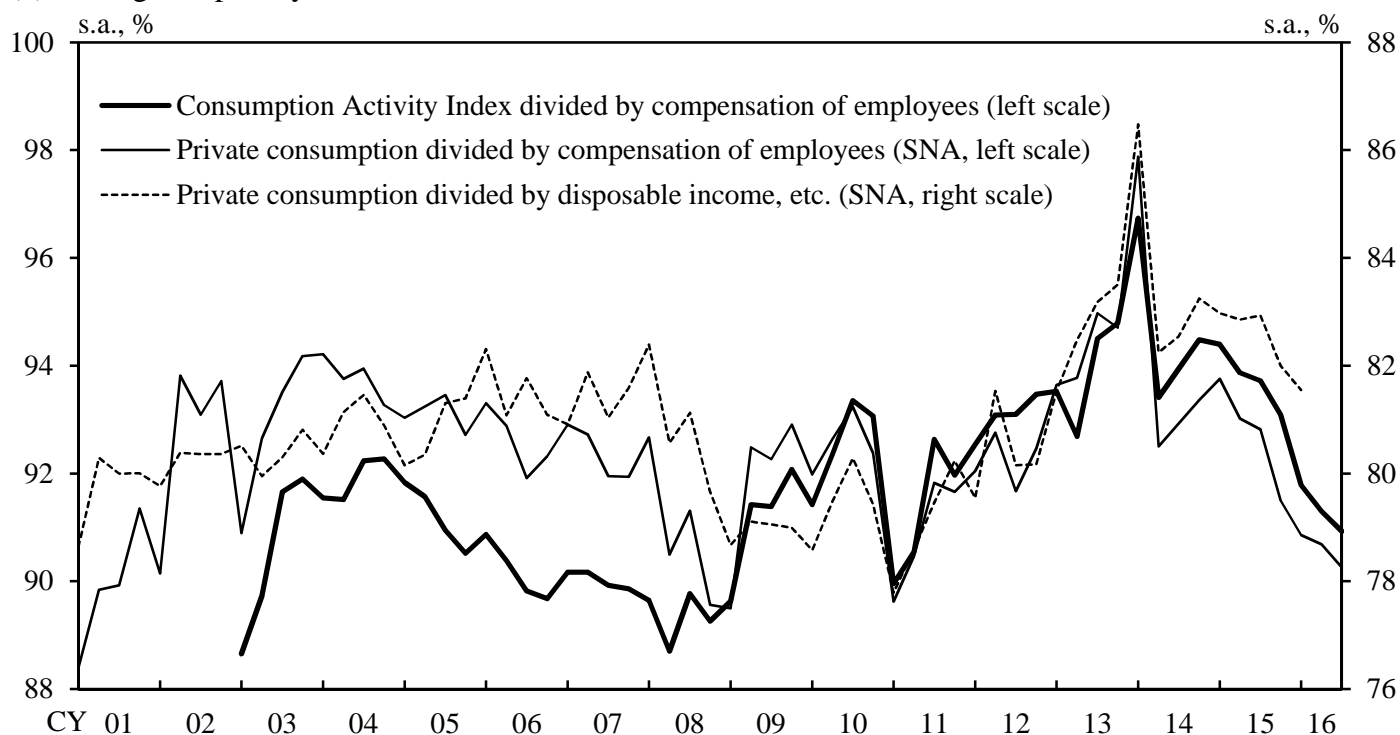
## Private Consumption

### (1) Private Consumption and Real Compensation of Employees



Note: Figures for the Consumption Activity Index (adjusting travel balance) exclude inbound tourism consumption and include outbound tourism consumption. Figures are as of January 30.

### (2) Average Propensity to Consume



Notes: 1. For the calculation, the Consumption Activity Index (nominal index, excluding inbound tourism consumption and including outbound tourism consumption) is converted into nominal values using SNA-based private consumption in 2010.  
 2. Private consumption is consumption of households excluding imputed rent.  
 3. "Disposable income, etc." is obtained by adding adjustment for the change in pension entitlements to disposable income.

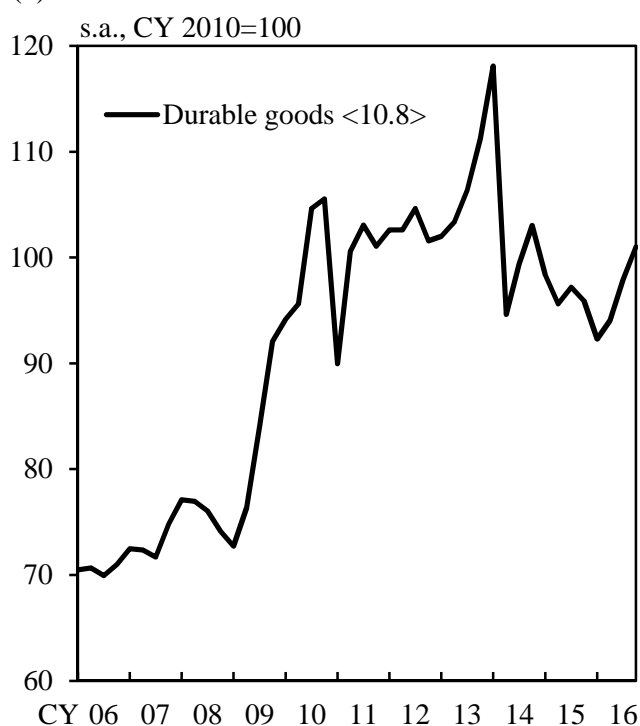
Sources: Cabinet Office; Bank of Japan; Ministry of Economy, Trade and Industry; Ministry of Internal Affairs and Communications, etc.



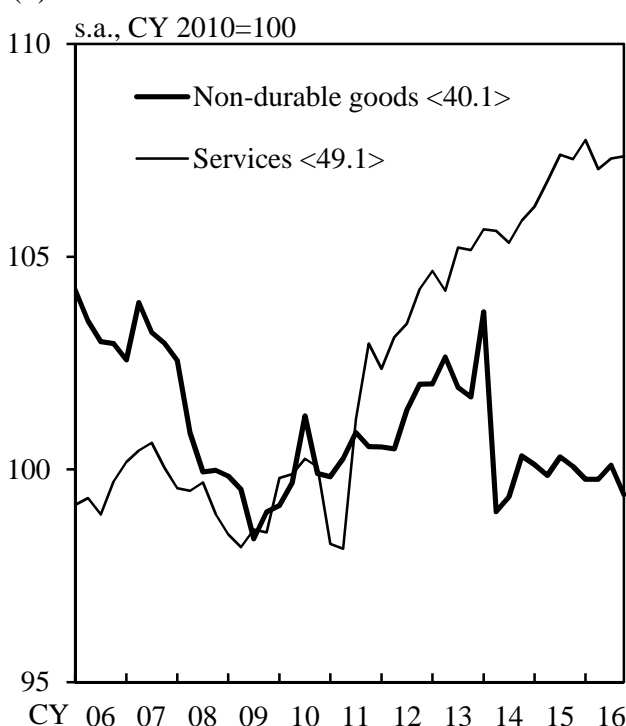
## Private Consumption by Type and Supply and Demand Side Statistics

### (1) Private Consumption by Type in the Consumption Activity Index (Real)

#### (a) Durable Goods



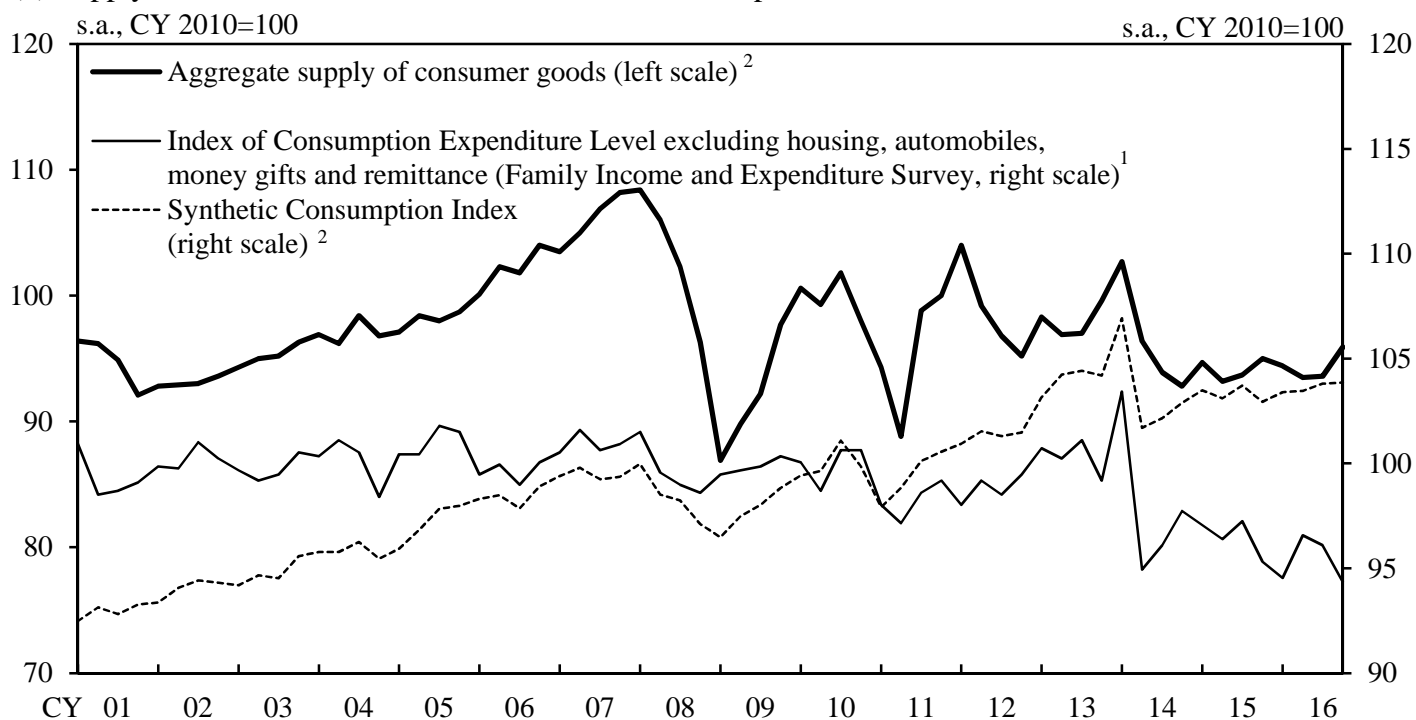
#### (b) Non-Durable Goods and Services



Notes: 1. Figures are as of January 30. Figures in angular brackets show the weights in the Consumption Activity Index.

2. Non-durable goods include goods classified as "semi-durable goods" in the SNA.

### (2) Supply and Demand Side Statistics of Private Consumption



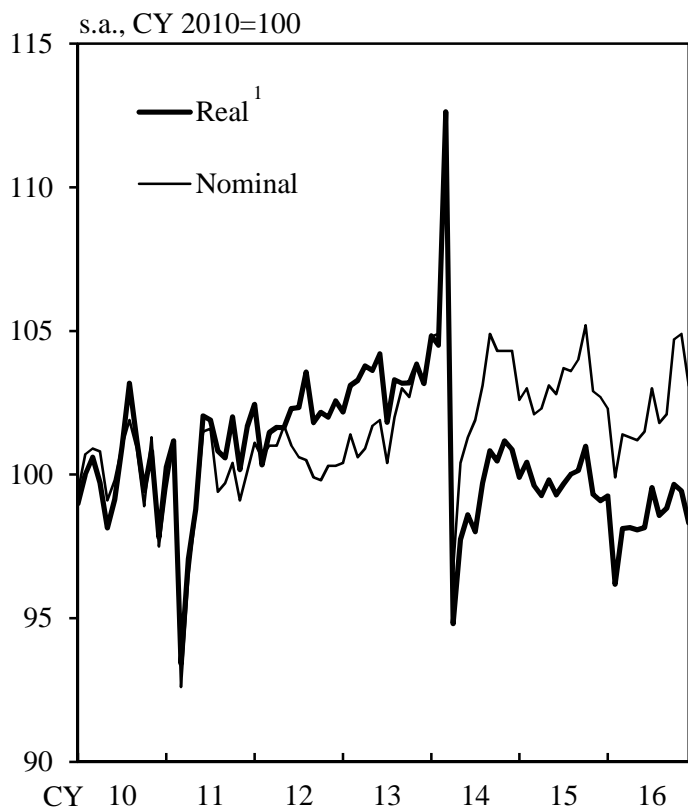
Notes: 1. Figures are based on households with two or more persons and are adjusted using the distribution of households by number of household members and age group of the household head.

2. Figures for 2016/Q4 are October-November averages.

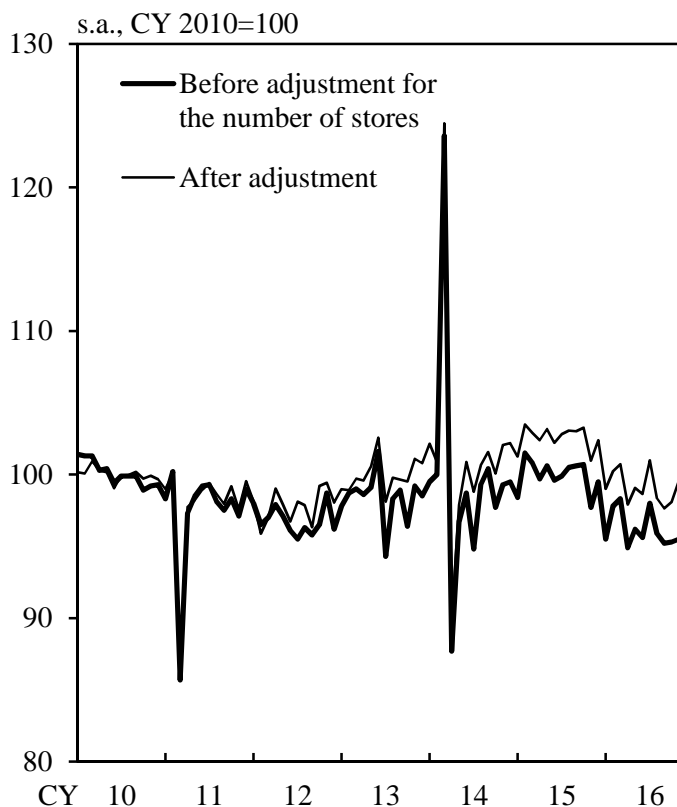
Sources: Cabinet Office; Bank of Japan; Ministry of Economy, Trade and Industry; Ministry of Internal Affairs and Communications, etc.

## Sales Statistics (Current Survey of Commerce)

(1) Sales at Retail Stores

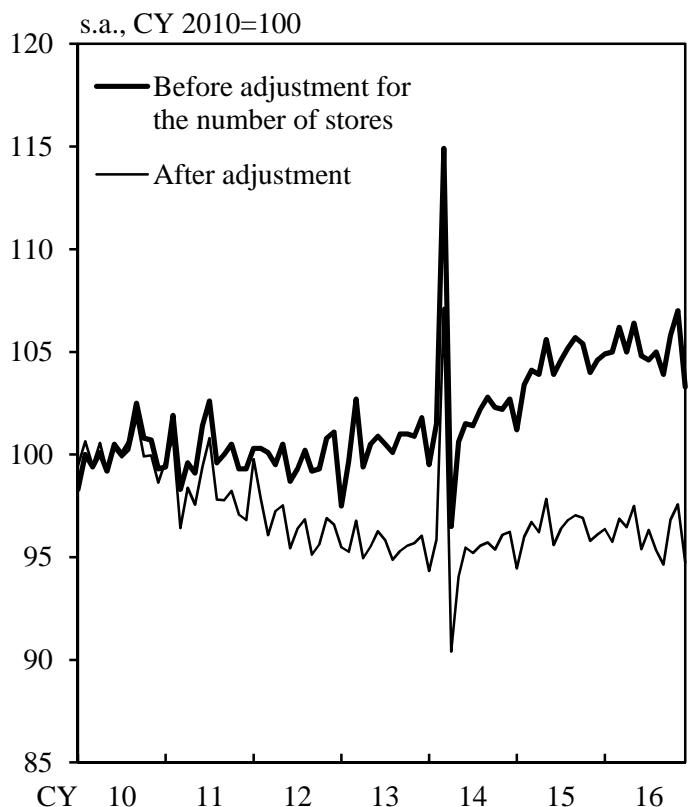


(2) Sales at Department Stores

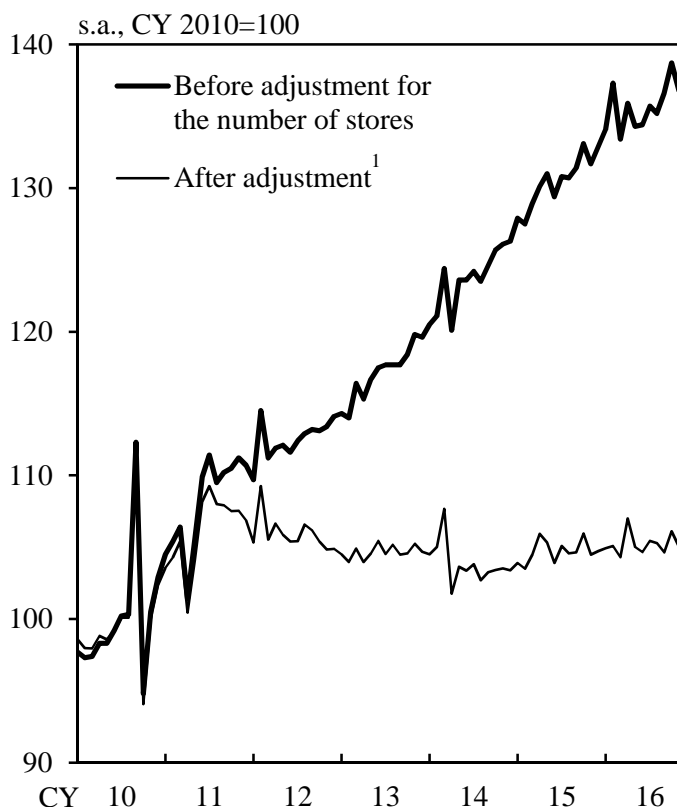


Note: 1. Real sales are obtained by deflating nominal sales by the CPI for goods (excluding electricity, gas & water charges).

(3) Sales at Supermarkets



(4) Sales at Convenience Stores



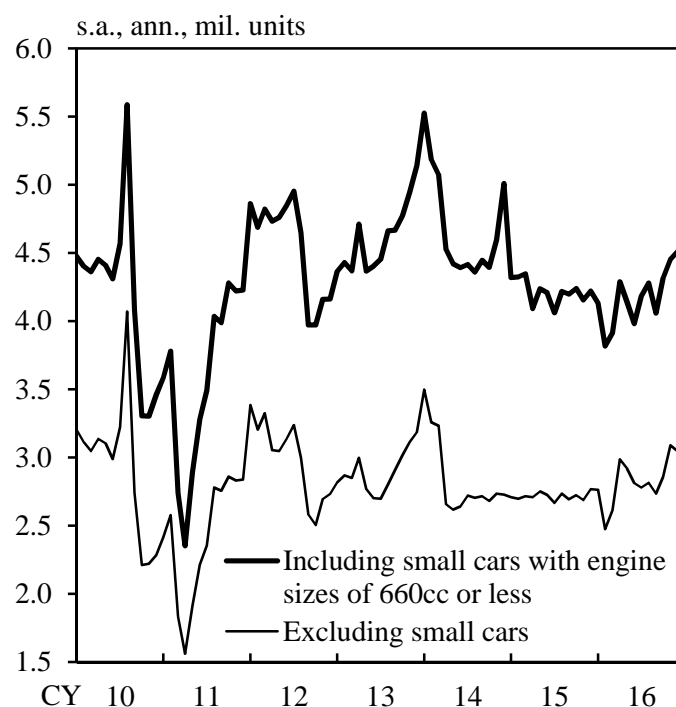
Note: 1. Figures are based on data published by the Japan Franchise Association.

Sources: Ministry of Economy, Trade and Industry; Ministry of Internal Affairs and Communications; Japan Franchise Association, "Convenience Store Statistics."

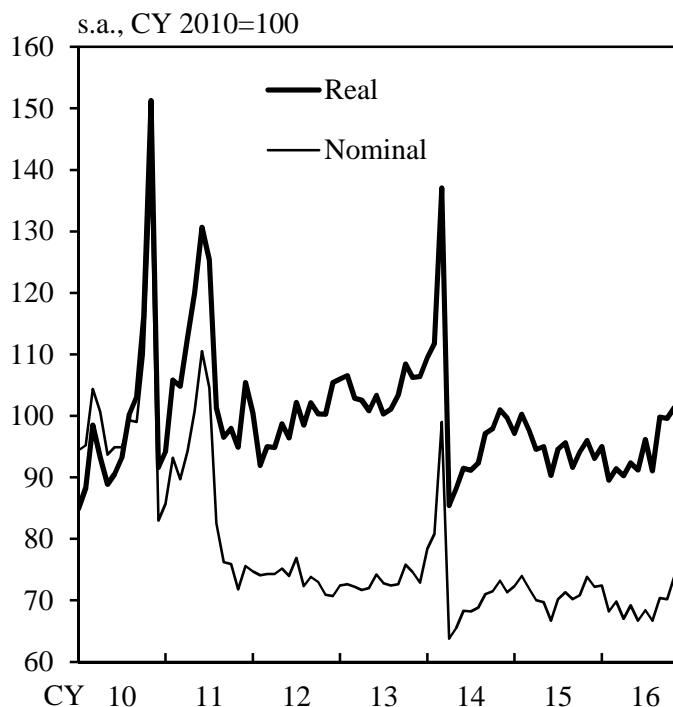
## Consumption of Durable Goods and Services

### (1) Consumption of Durable Goods

(a) New Passenger Car Registrations

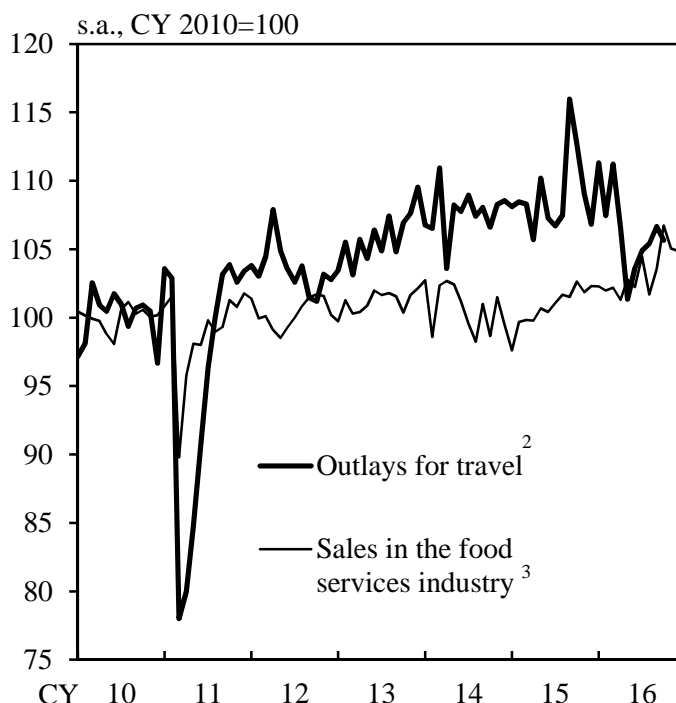


(b) Sales of Household Electrical Appliances<sup>1</sup>

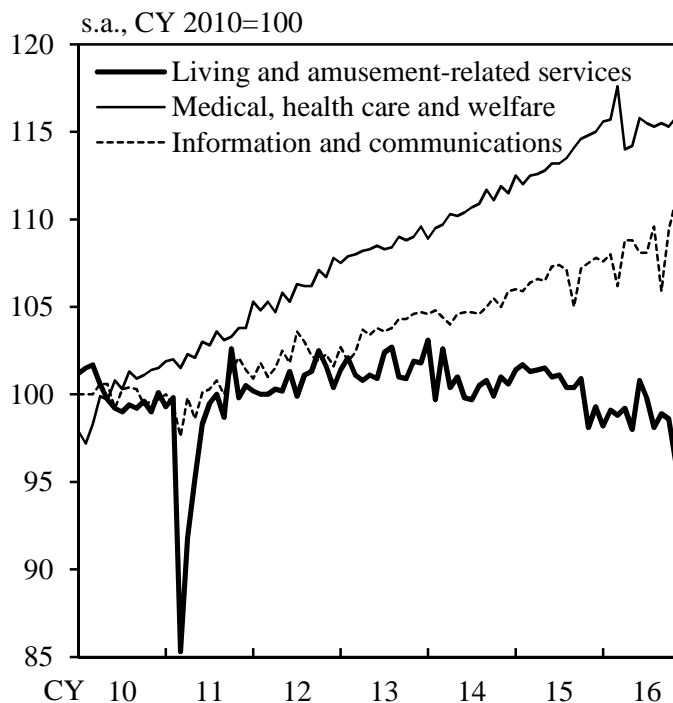


### (2) Consumption of Services

(a) Travel and Food Services (Nominal)



(b) Indices of Tertiary Industry Activity



Notes: 1. Figures are based on the index of retail sales of machinery and equipment in the "Current Survey of Commerce."  
Real sales are obtained by deflating the nominal index by the price index of related items in the CPI.

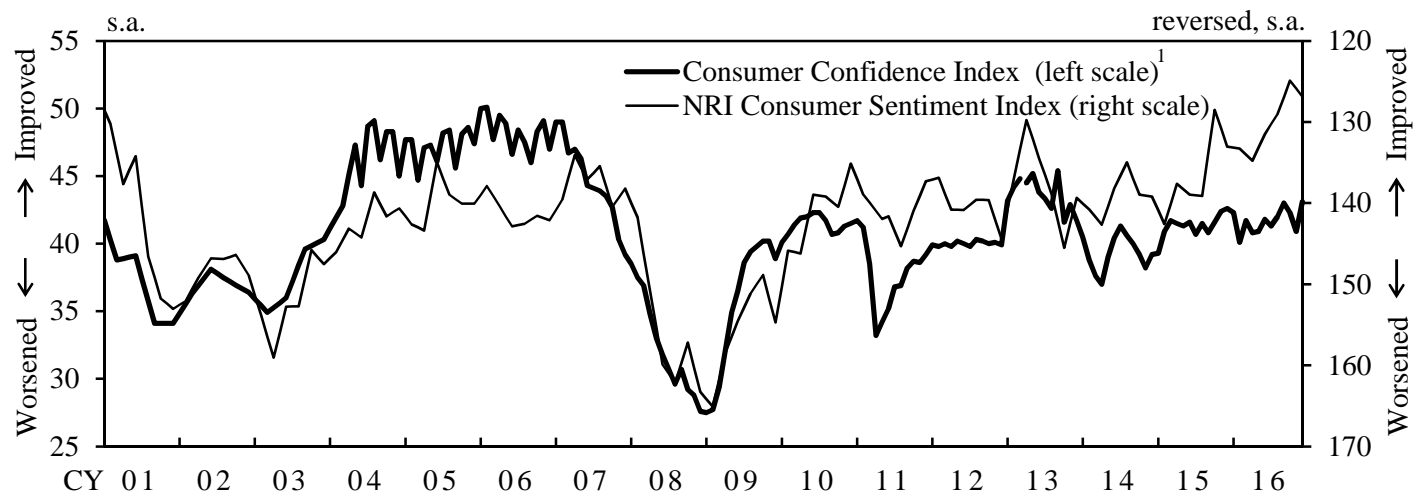
2. Excluding those by foreign travelers. Figures are calculated using the year-on-year rates of change released by the Japan Tourism Agency.

3. Figures are calculated using the year-on-year rates of change released by the Japan Food Service Association.

Sources: Japan Automobile Dealers Association; Japan Light Motor Vehicle and Motorcycle Association; Ministry of Economy, Trade and Industry; Ministry of Internal Affairs and Communications; Japan Tourism Agency; Japan Food Service Association, "Market Trend Survey of the Food Services Industry."

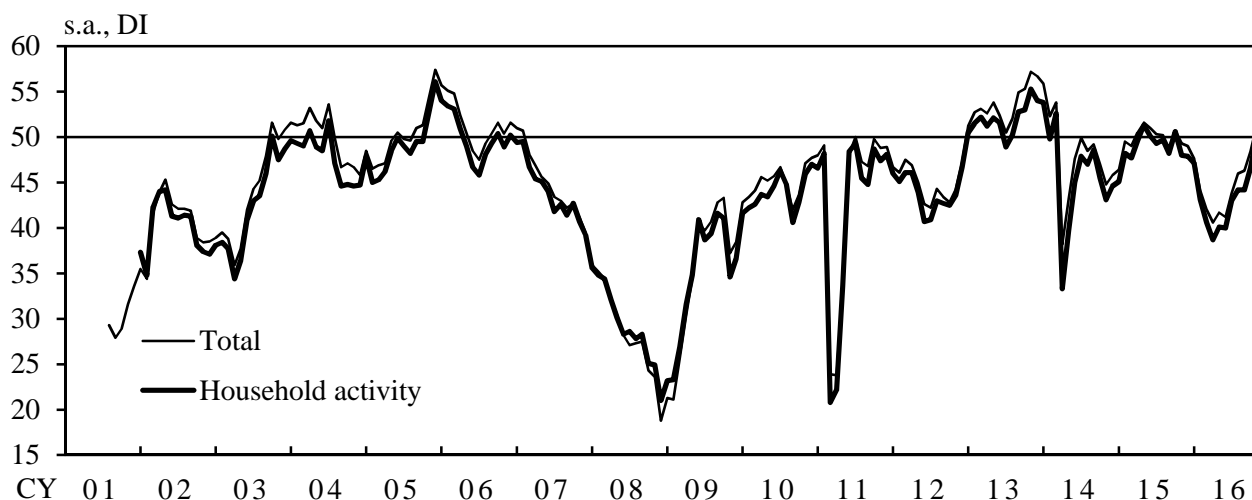
## Confidence Indicators Related to Private Consumption

(1) Consumer Confidence Index and NRI Consumer Sentiment Index

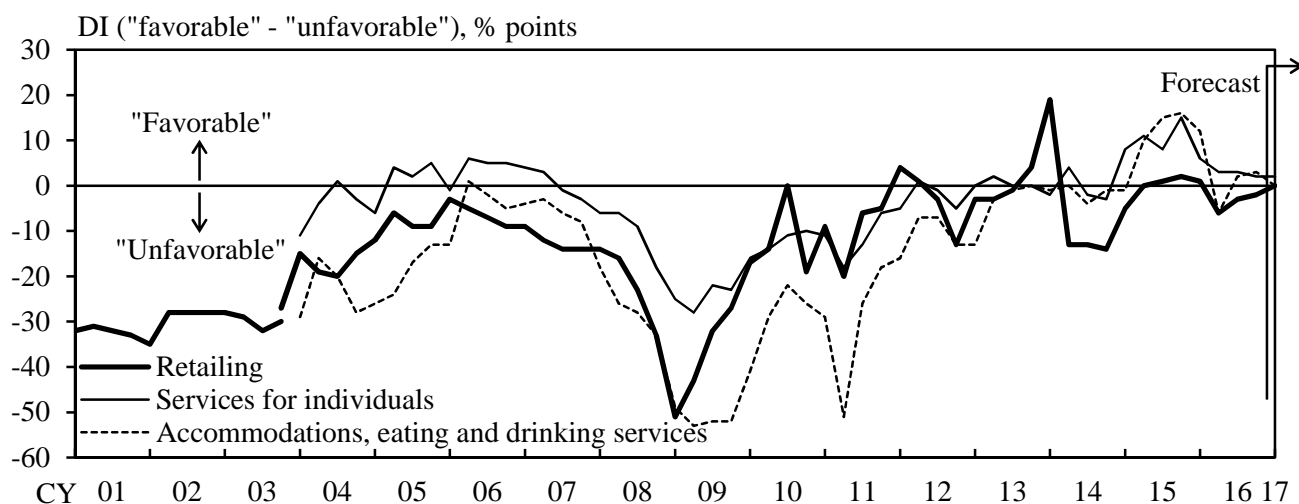


Note: 1. There is a discontinuity in the data in April 2013 due to a change in the survey method.

(2) DI for Current Economic Conditions (Economy Watchers Survey)



(3) Business Conditions of Industries Related to Private Consumption (*Tankan*, Enterprises of All Sizes)

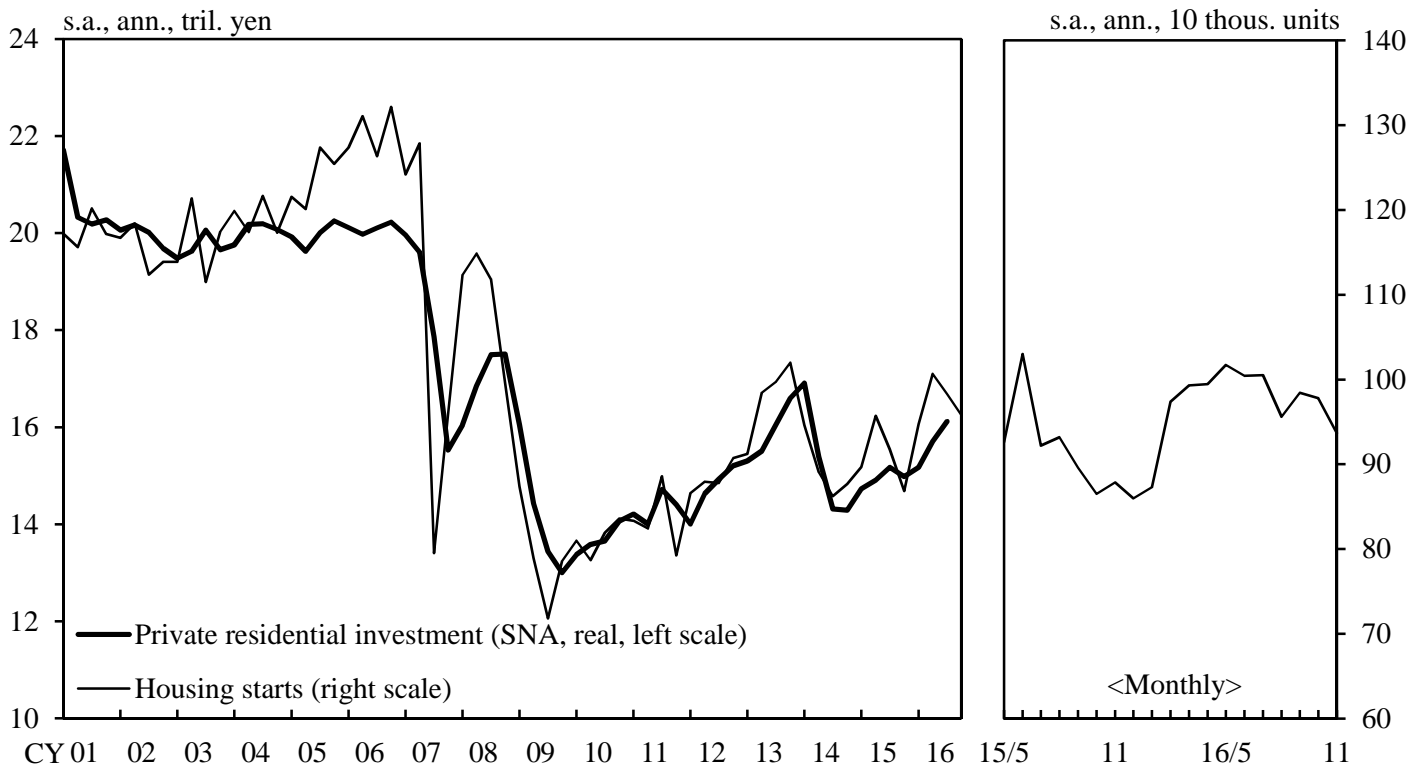


Note: There is a discontinuity in the data in December 2003 due to a change in the survey framework.

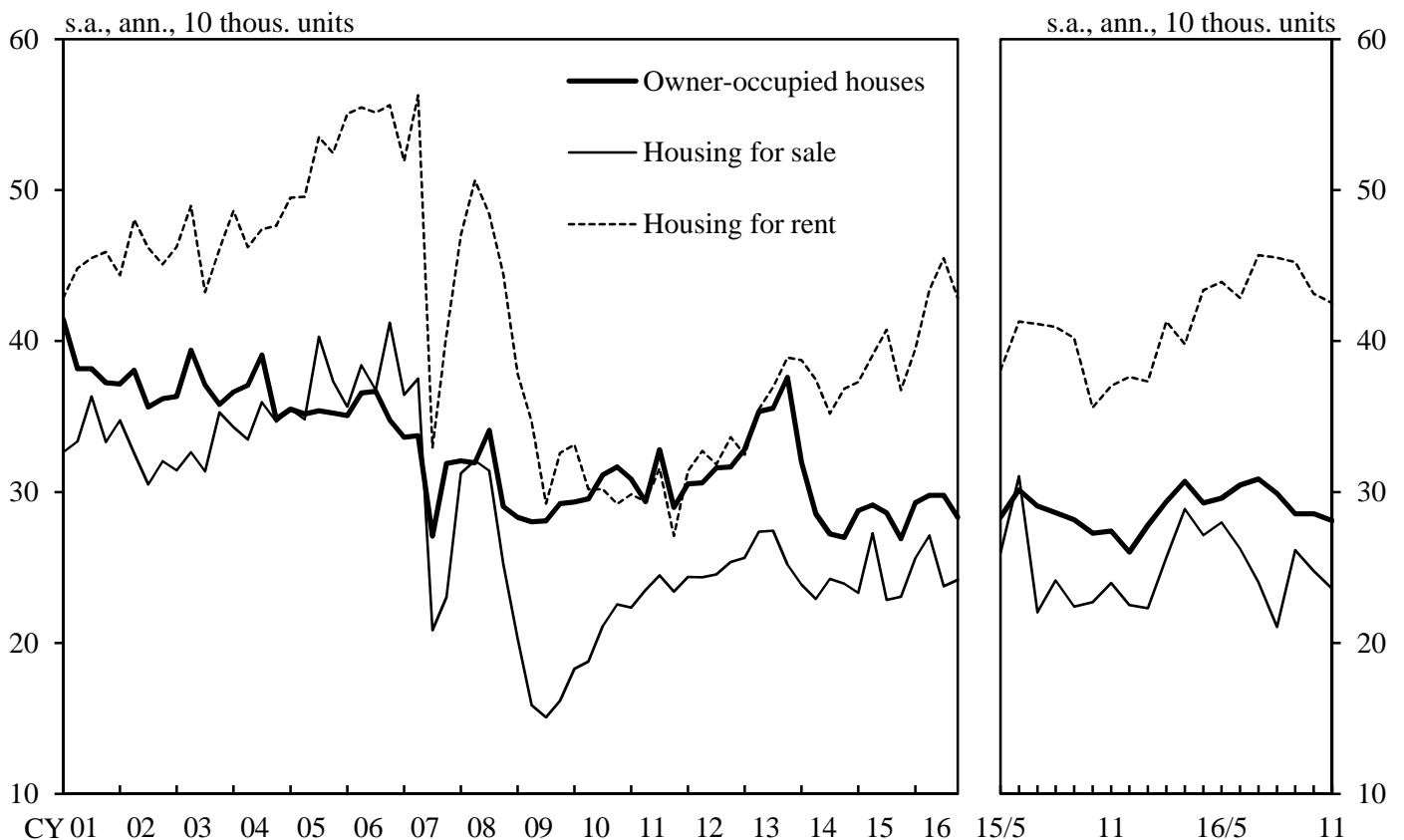
Sources: Cabinet Office; Bank of Japan; Nippon Research Institute (NRI), "Consumer Sentiment Survey."

## Housing Investment

(1) Housing Starts and Residential Investment (SNA Basis)



(2) Composition of Housing Starts

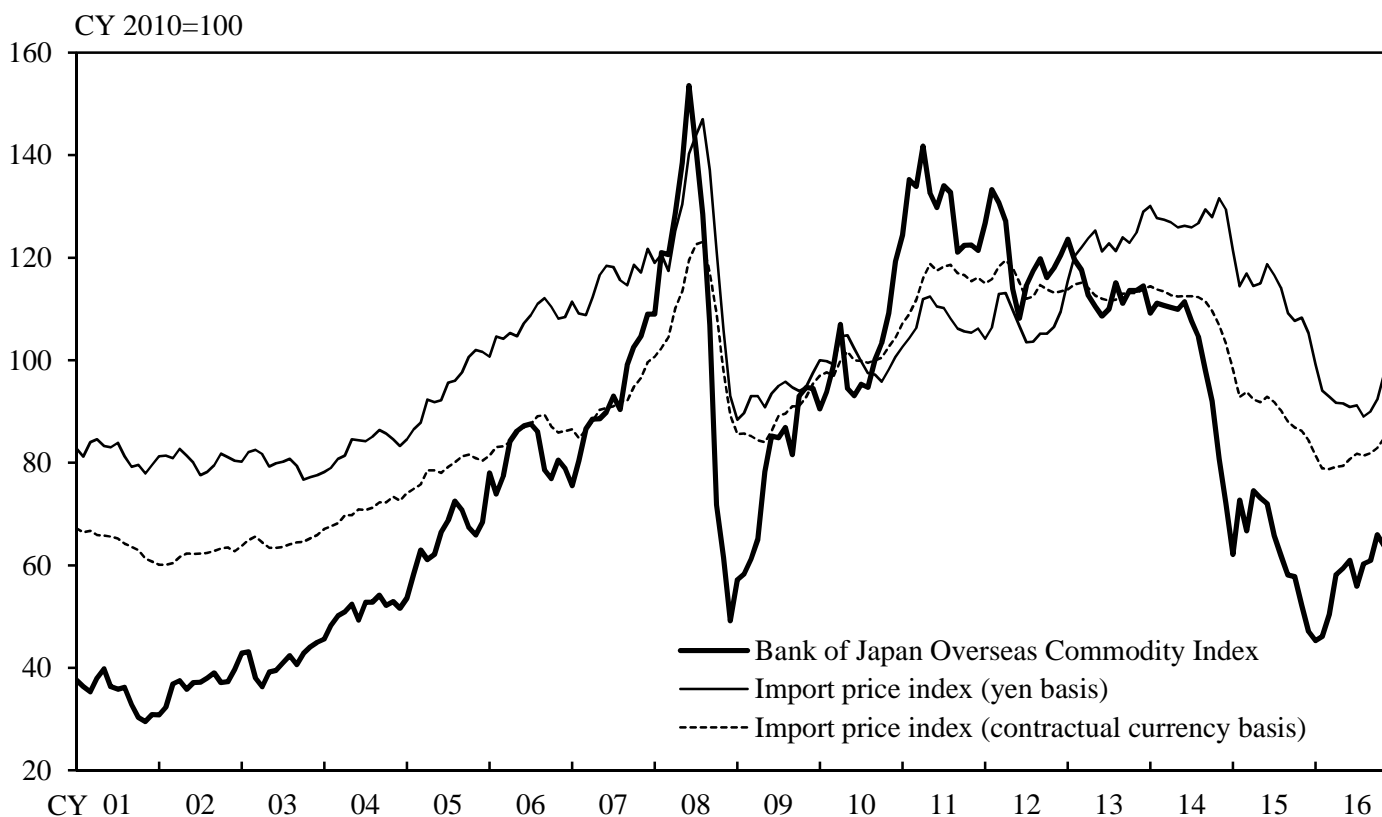


Note: Figures for housing starts for 2016/Q4 are October-November averages.

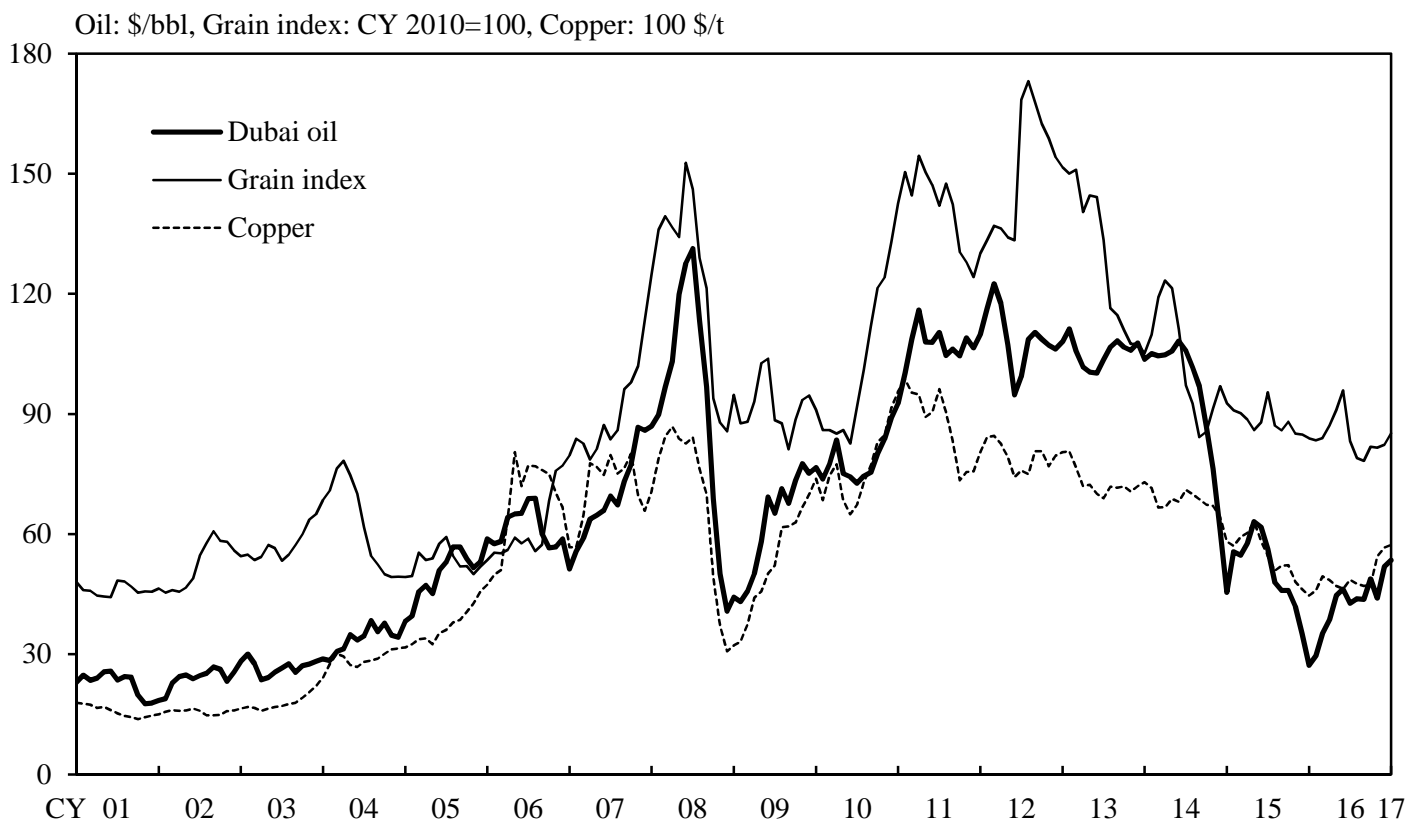
Sources: Cabinet Office; Ministry of Land, Infrastructure, Transport and Tourism.

## Import Prices and International Commodity Prices

### (1) Import Price Index and Overseas Commodity Index



### (2) International Commodity Prices

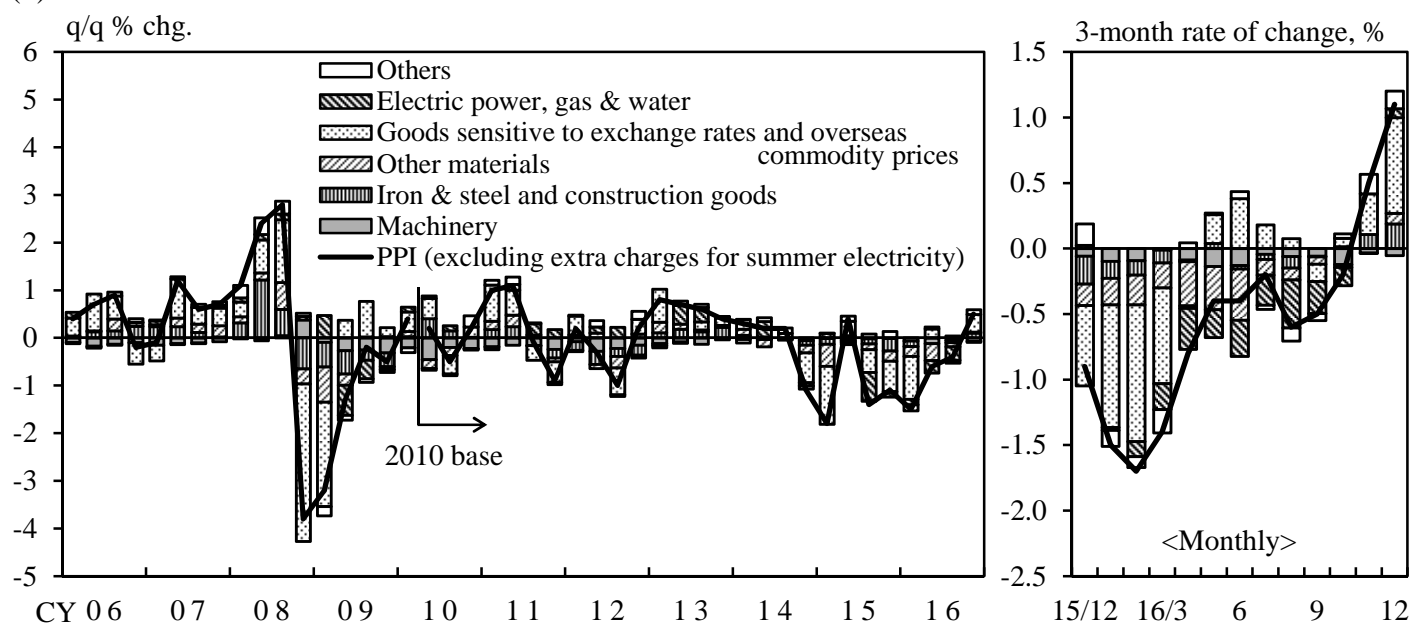


Note: Monthly averages. The grain index is the weighted average of the prices of three selected items (wheat, soybeans, and corn) in overseas commodity markets. The weights are based on the value of imports in the "Trade Statistics."

Sources: Nikkei Inc.; Bloomberg; Ministry of Finance; Bank of Japan.

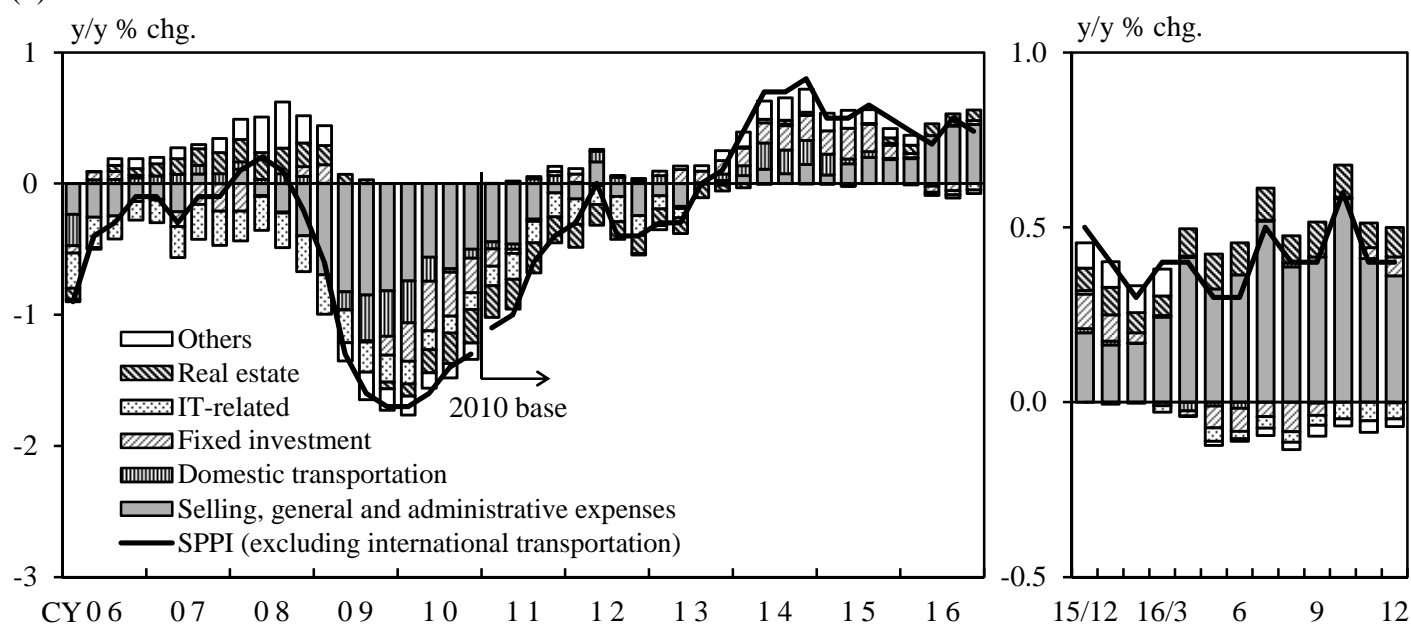
## Producer Price Index and Services Producer Price Index

### (1) Producer Price Index



- Notes: 1. Goods sensitive to exchange rates and overseas commodity prices: petroleum & coal products and nonferrous metals.  
 2. Iron & steel and construction goods: iron & steel, metal products, ceramic, stone & clay products, lumber & wood products, and scrap & waste.  
 3. Other materials: chemicals & related products, plastic products, textile products, and pulp, paper & related products.  
 4. Machinery: general purpose machinery, production machinery, business oriented machinery, electronic components & devices, electrical machinery & equipment, information & communications equipment, and transportation equipment.  
 5. Figures are adjusted to exclude the hike in electric power charges during the summer season from July to September.  
 6. Figures are adjusted to exclude the effects of changes in the consumption tax rate. The same applies to the charts below.

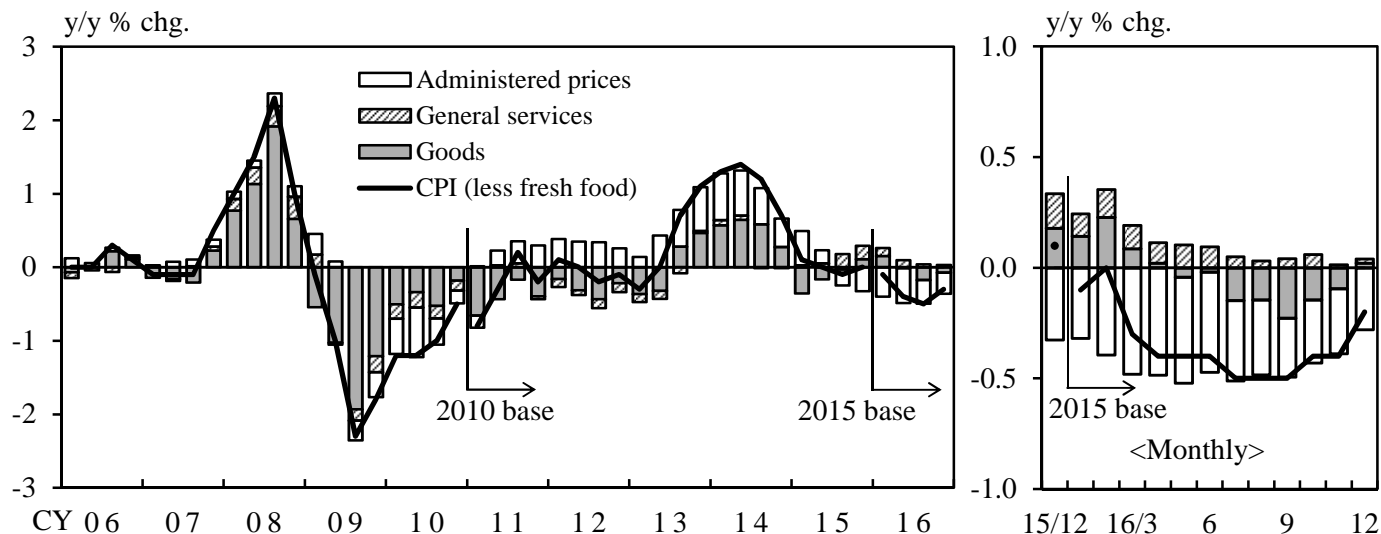
### (2) Services Producer Price Index



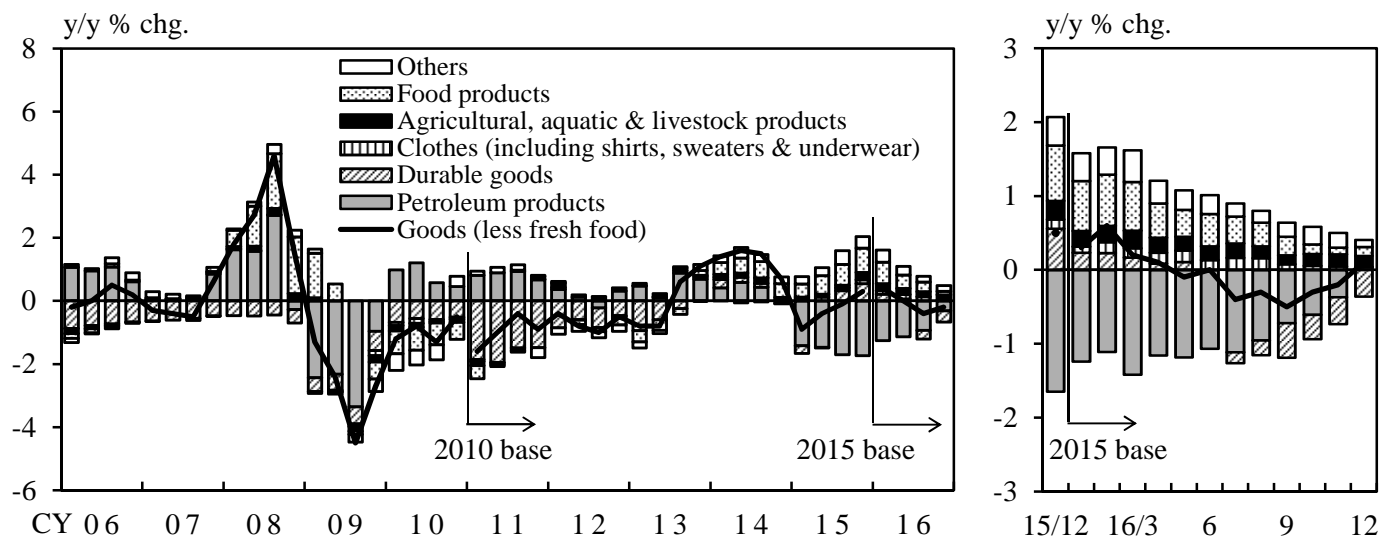
- Notes: 1. Selling, general and administrative expenses: information and communications (excluding newspapers and publishing), advertising services, other services (excluding plant engineering, and civil engineering and architectural services).  
 2. Domestic transportation: transportation and postal services (excluding international transportation and passenger transportation).  
 3. IT-related: leasing of computer and related equipment, and computer rental.  
 4. Fixed investment: leasing and rental (excluding IT-related), and civil engineering and architectural services.

## Consumer Price Index

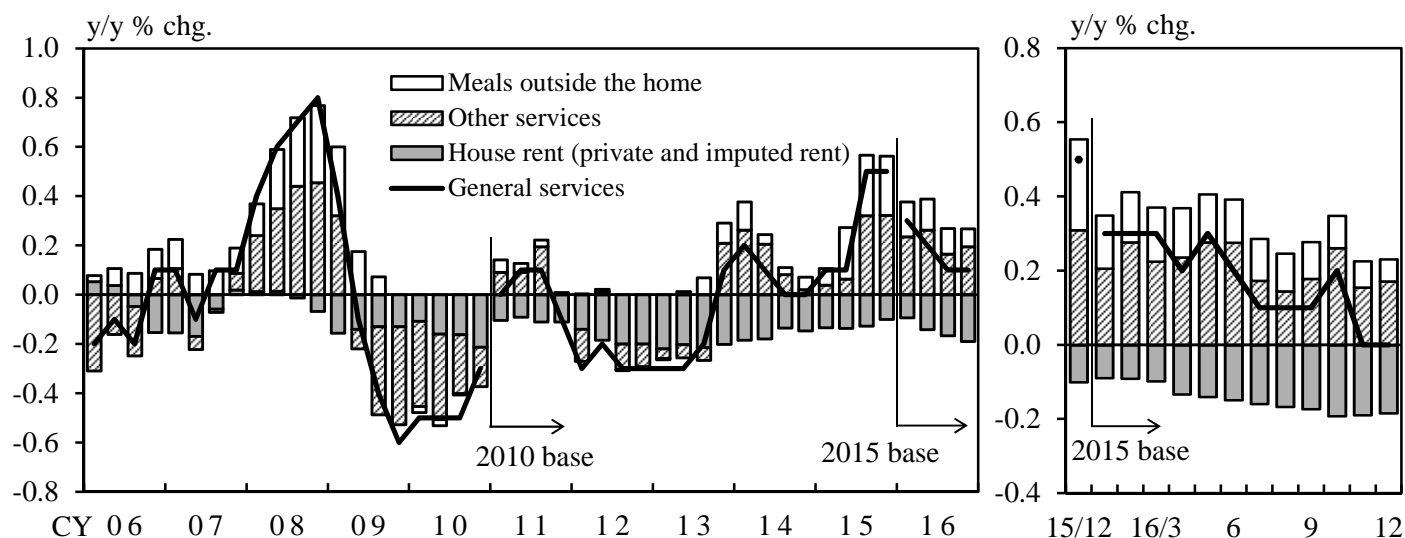
### (1) All Items (Less Fresh Food)



### (2) Goods (Less Fresh Food)



### (3) General Services



Notes: 1. Figures for goods exclude electricity, manufactured & piped gas & water charges.

2. Administered prices consist of public services and electricity, manufactured & piped gas & water charges.

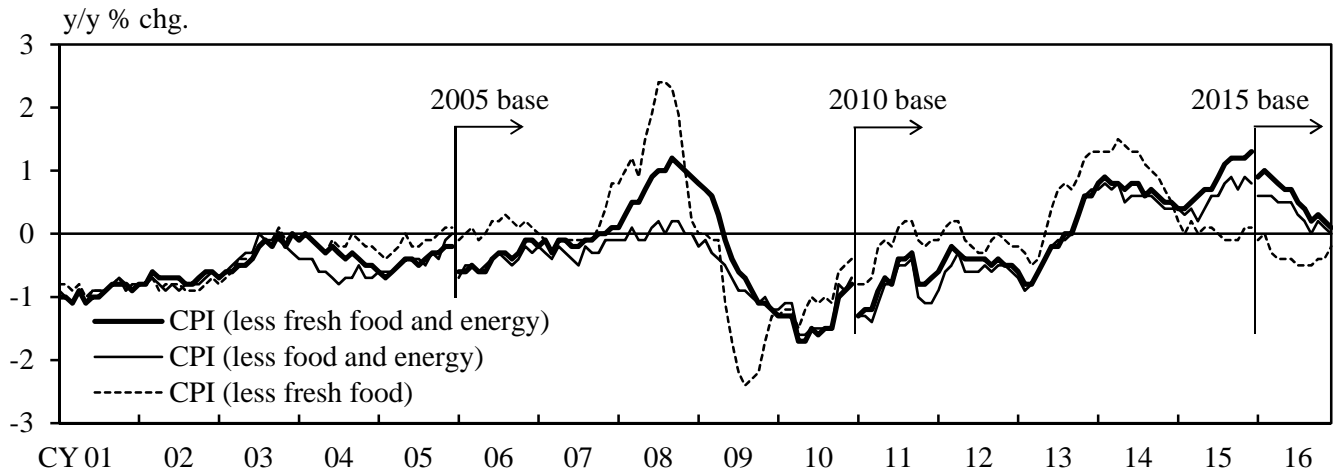
3. Figures for the CPI are adjusted to exclude the estimated effects of changes in the consumption tax rate.

Source: Ministry of Internal Affairs and Communications.



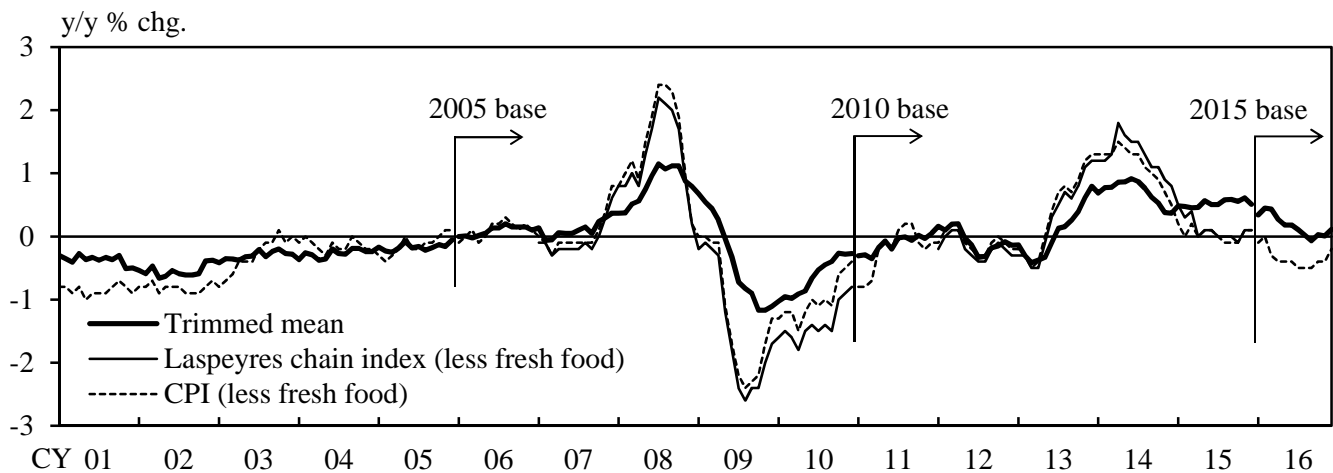
## Measures of Underlying Inflation

### (1) All Items (Less Fresh Food and Energy) and All Items (Less Food and Energy)



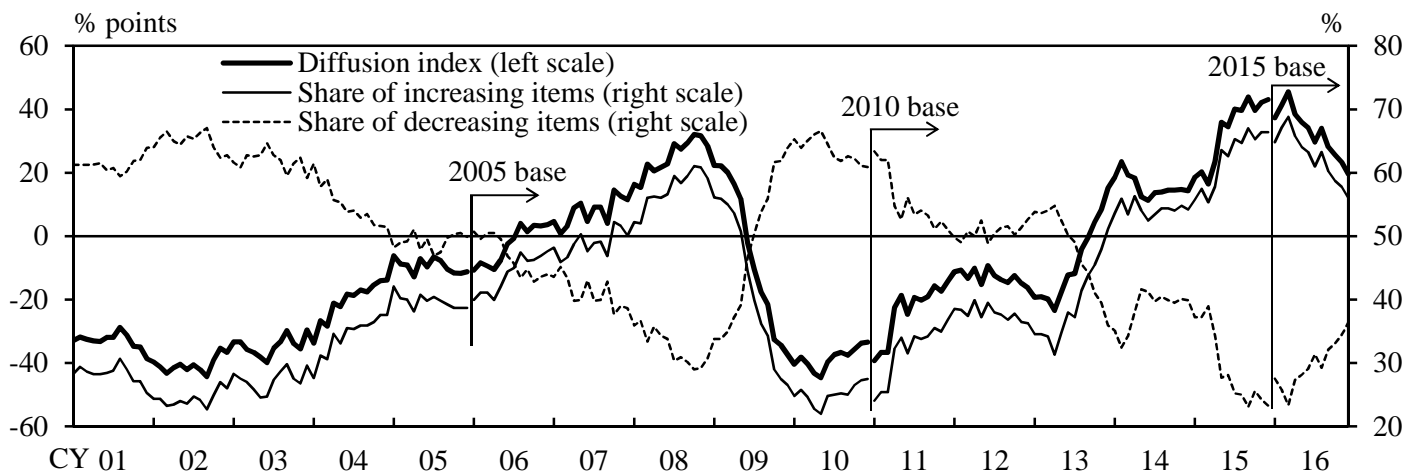
Notes: 1. Figures for the CPI (less fresh food and energy) are calculated by the Research and Statistics Department, Bank of Japan.  
 2. Figures for the CPI are adjusted to exclude the estimated effects of changes in the consumption tax rate. The same applies to the charts below.

### (2) Trimmed Mean and Laspeyres Chain Index



Note: Figures for the trimmed mean are the weighted averages of the year-on-year price changes in all individual items making up the CPI. Items are arranged in ascending order of their year-on-year rate of price change and those falling into the upper and lower 10 percent tails by weight are trimmed.

### (3) Diffusion Index (Share of Increasing Items minus Share of Decreasing Items)

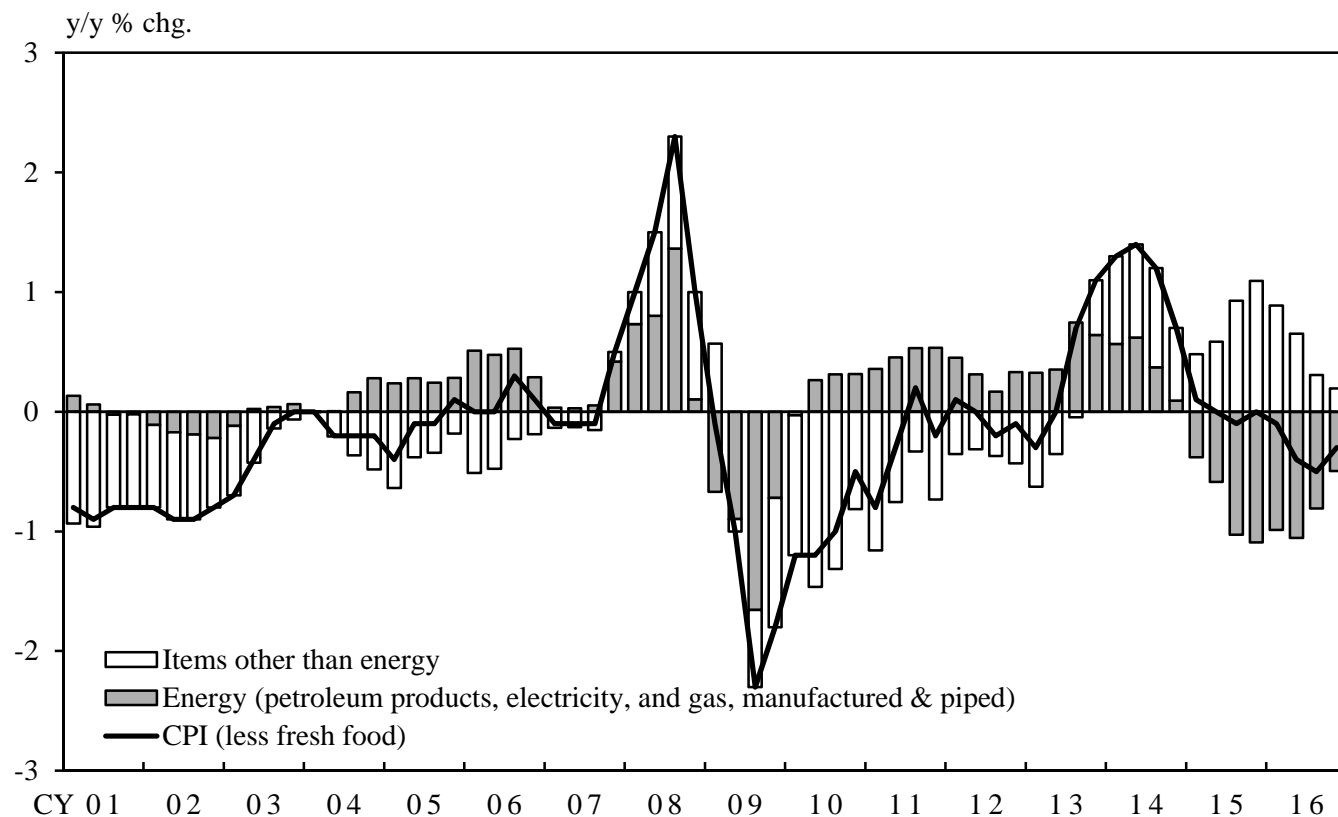


Note: The share of increasing/decreasing items is the share of items in the CPI (less fresh food) whose price indices increased/decreased from a year earlier.

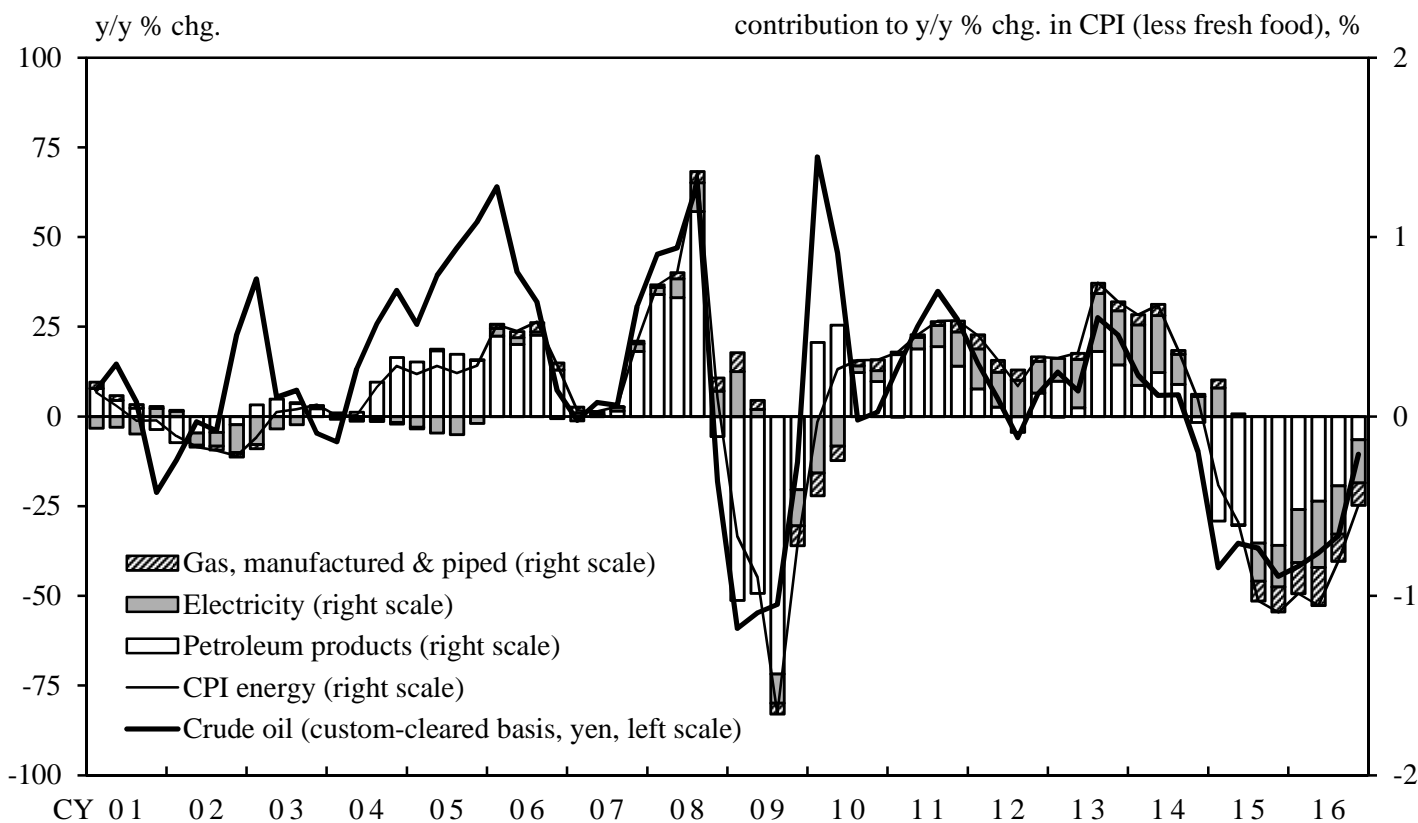
Source: Ministry of Internal Affairs and Communications.

## Consumer Price Index and Energy Prices

### (1) Consumer Price Index



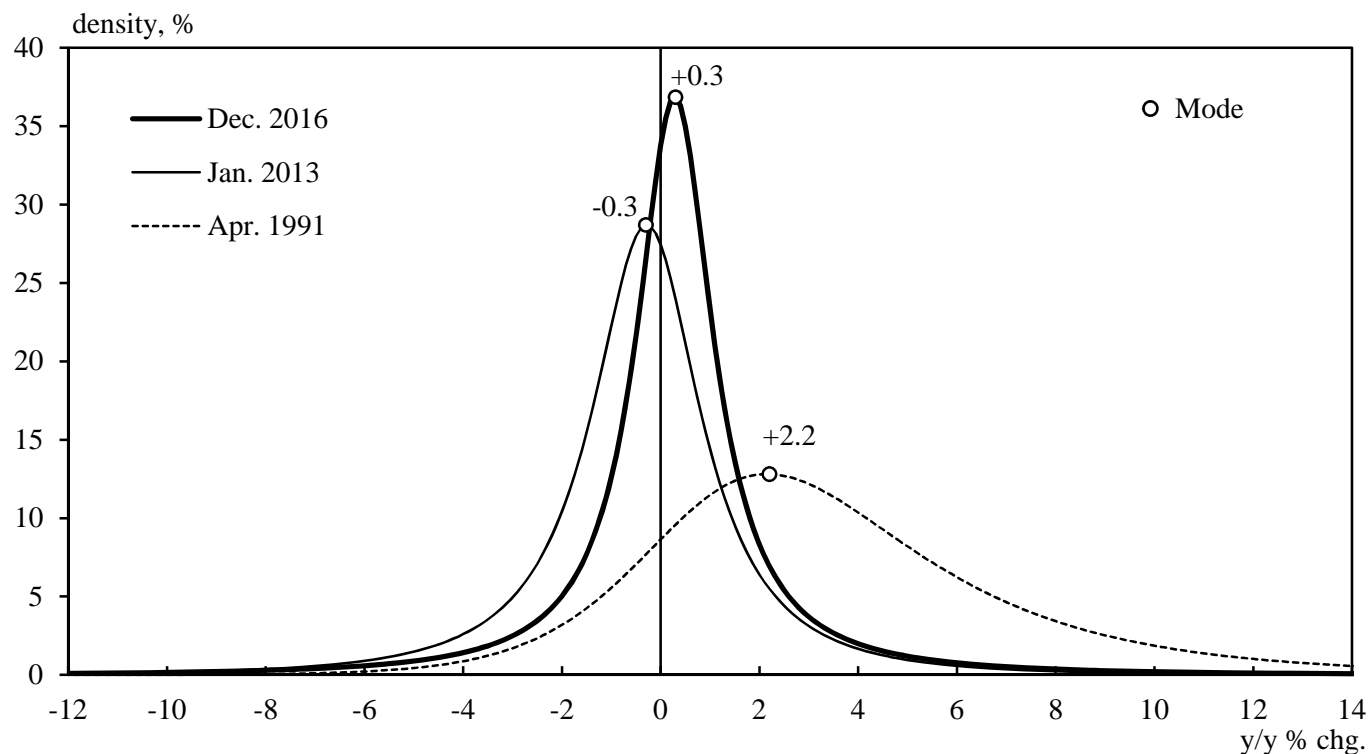
### (2) Crude Oil Prices and Energy Prices



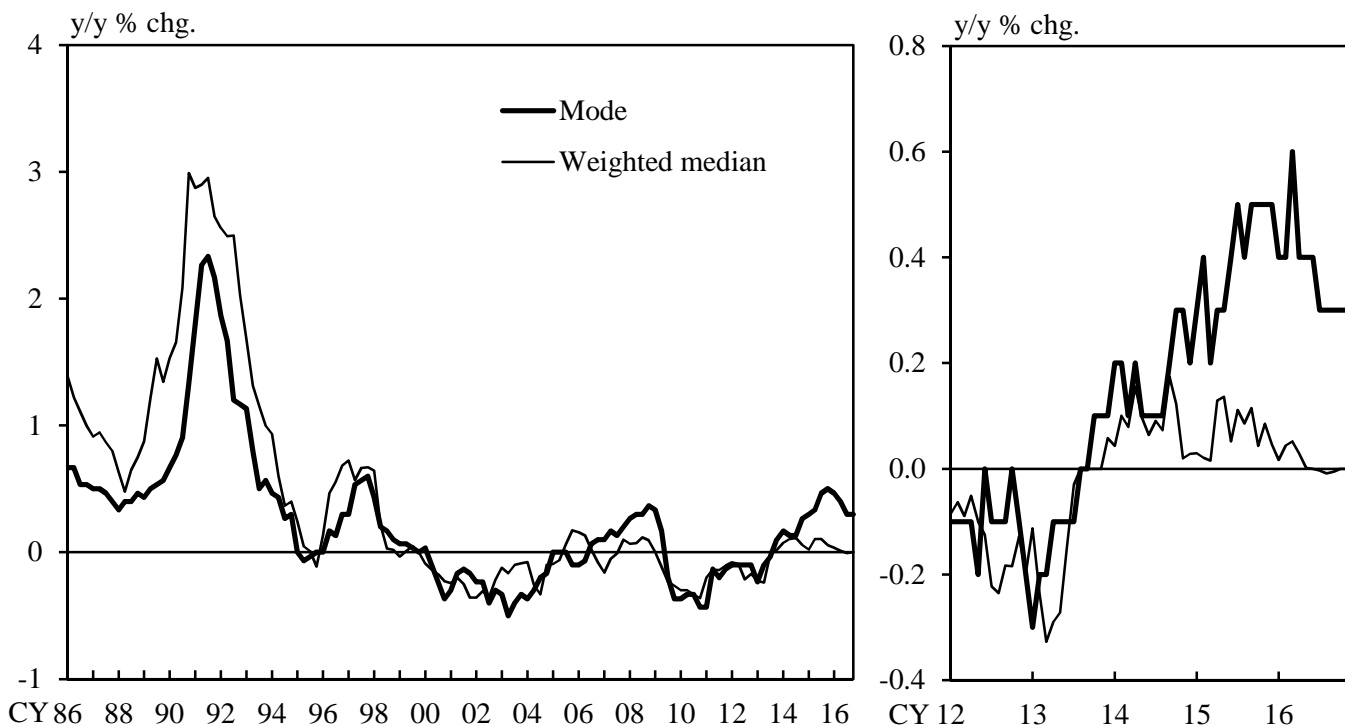
Note: Figures for the CPI are adjusted to exclude the estimated effects of changes in the consumption tax rate.  
Sources: Ministry of Internal Affairs and Communications; Ministry of Finance.

## Distributions of Price Changes and Measures of Underlying Inflation

### (1) Distributions of Price Changes in Individual CPI Items



### (2) Various Measures of Core Inflation



Notes: 1. The distributions of the year-on-year rate of change in individual items of the CPI (less fresh food) are fitted to the normal inverse Gaussian distribution.

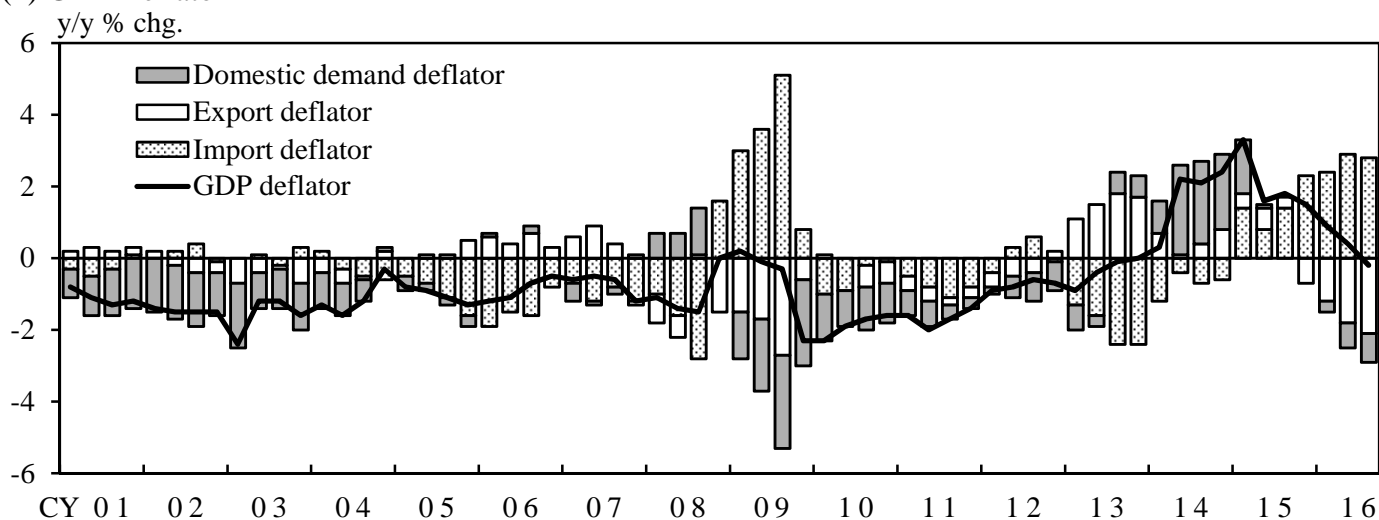
2. The weighted median is calculated using the year-on-year price changes and weights of individual CPI items in each base year. For the period before 2005, the year-on-year price changes of minor groups and subgroups are used.

3. Figures for the CPI are adjusted to exclude the estimated effects of changes in the consumption tax rate.

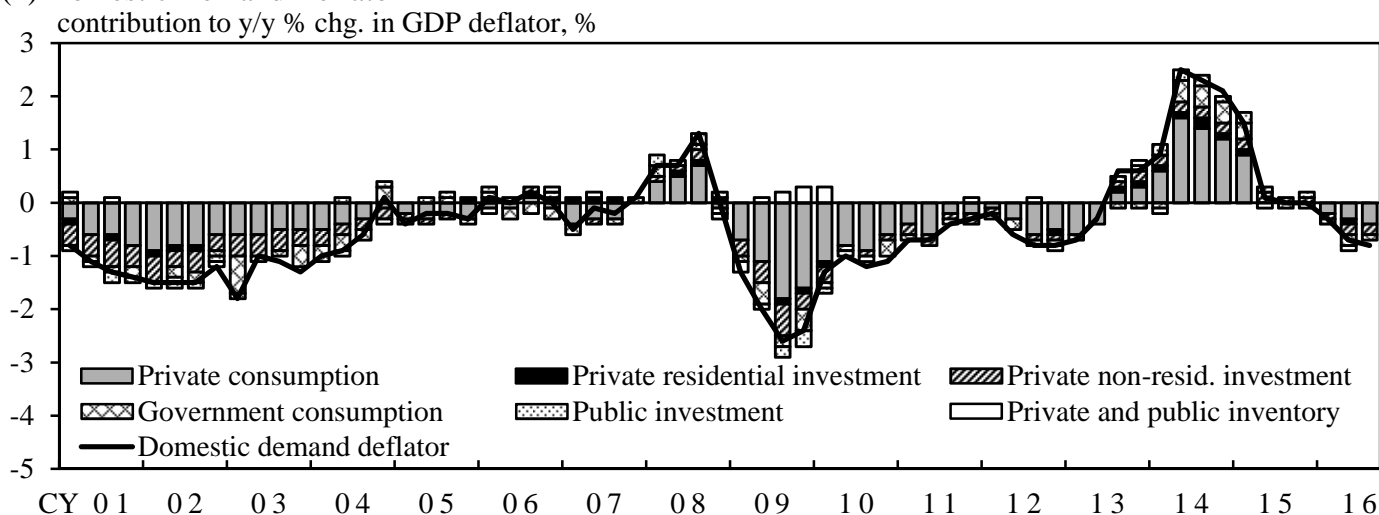
4. Figures for quarterly data are 3-month averages of monthly year-on-year price changes.

## GDP Deflator

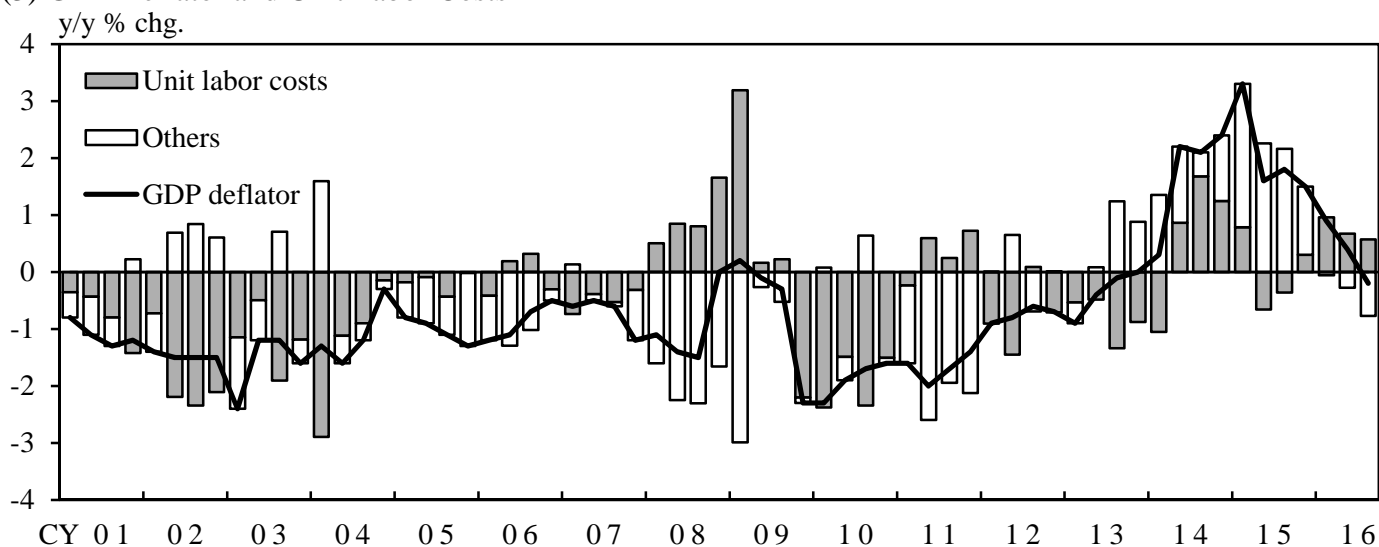
(1) GDP Deflator



(2) Domestic Demand Deflator



(3) GDP Deflator and Unit Labor Costs

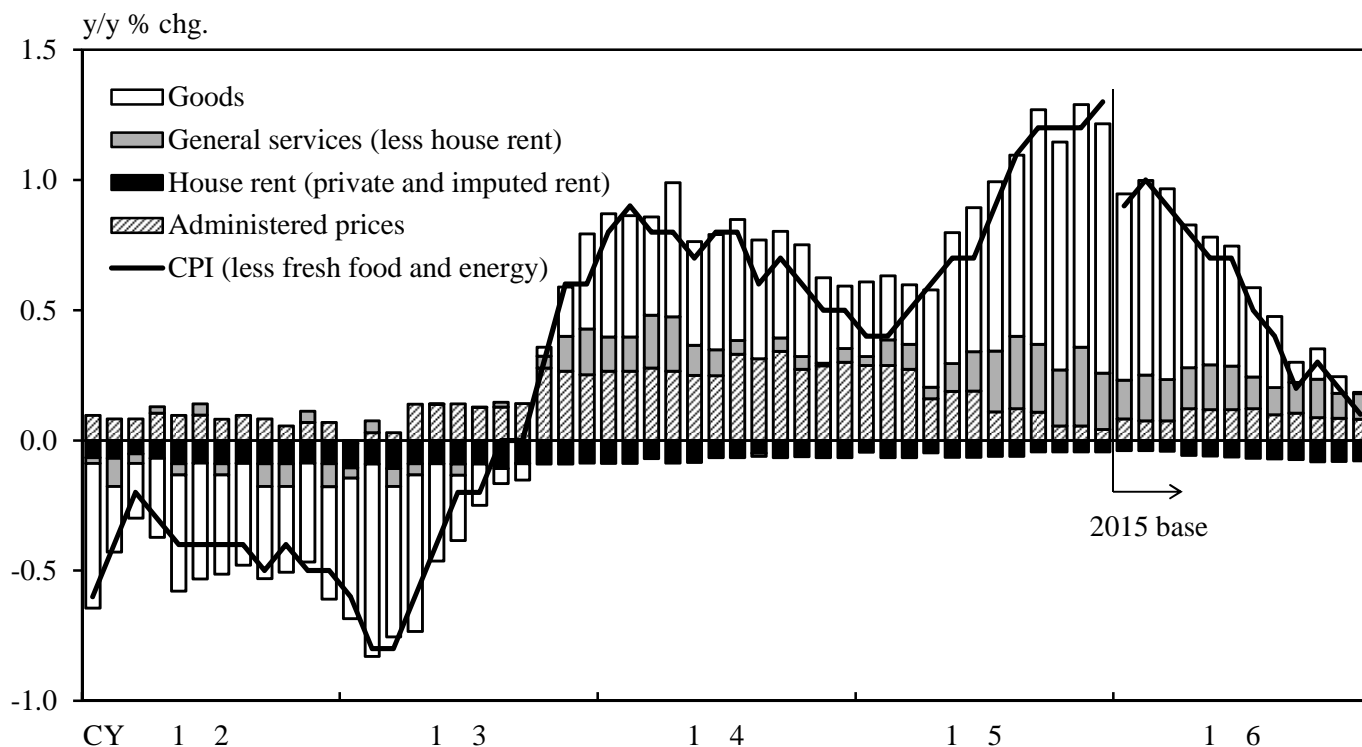


Note: Unit labor costs = nominal compensation of employees / real GDP

Source: Cabinet Office.

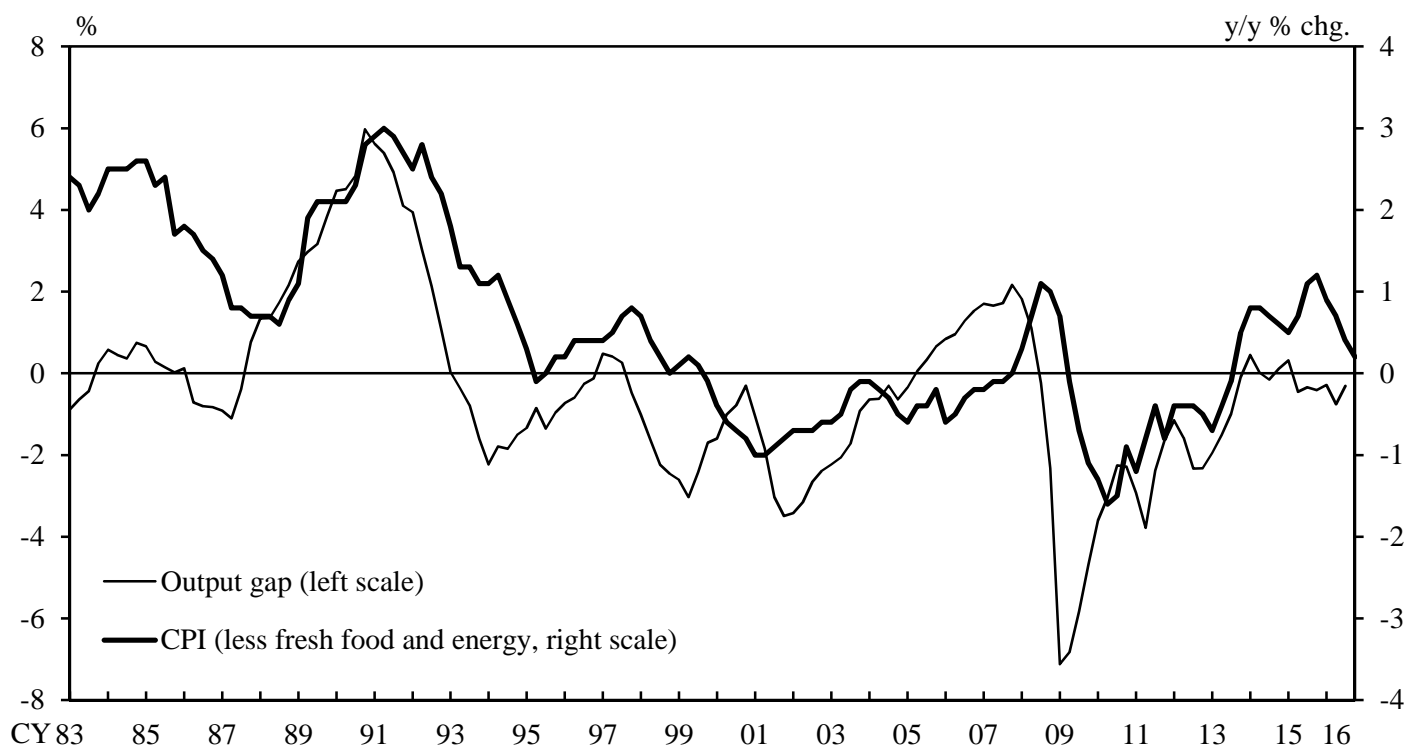
## Consumer Price Index and Output Gap

### (1) Breakdown of CPI (Less Fresh Food and Energy)



- Notes: 1. Administered prices (less energy) consist of public services and water charges.  
 2. Figures for the CPI (less fresh food and energy) are calculated by the Research and Statistics Department, Bank of Japan. The same applies to the chart below.  
 3. Figures for the CPI are adjusted to exclude the estimated effects of changes in the consumption tax rate. The same applies to the chart below.

### (2) Consumer Price Index and Output Gap

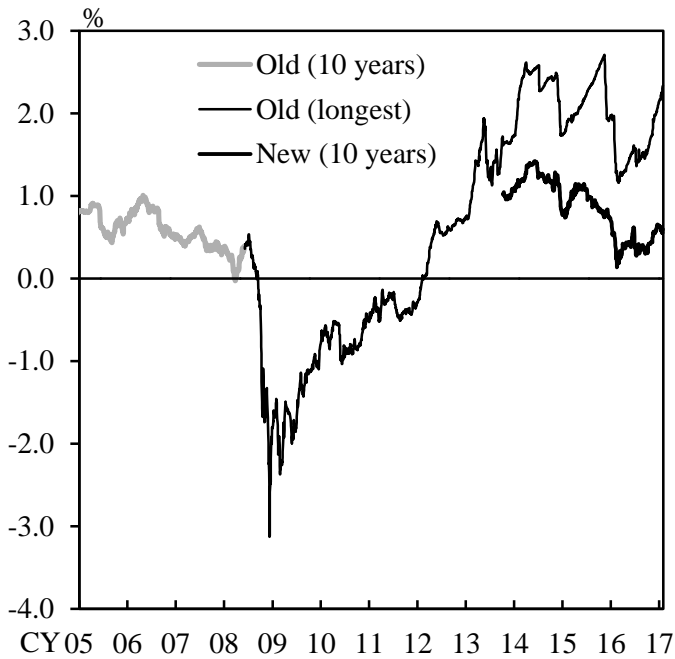


Note: The output gap is estimated by the Research and Statistics Department, Bank of Japan.  
 Sources: Ministry of Internal Affairs and Communications; Cabinet Office, etc.

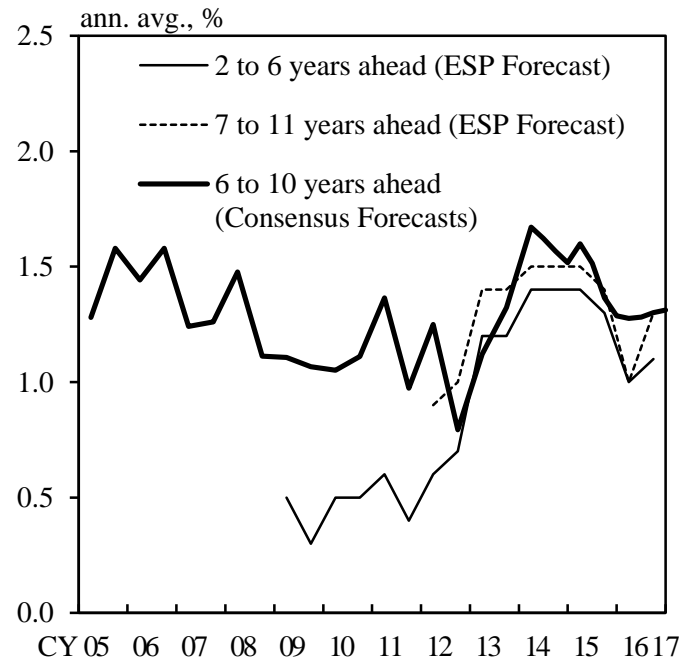
## Inflation Expectations (1)

### (1) Market Participants

(BEI for Inflation-Indexed JGBs)<sup>1</sup>



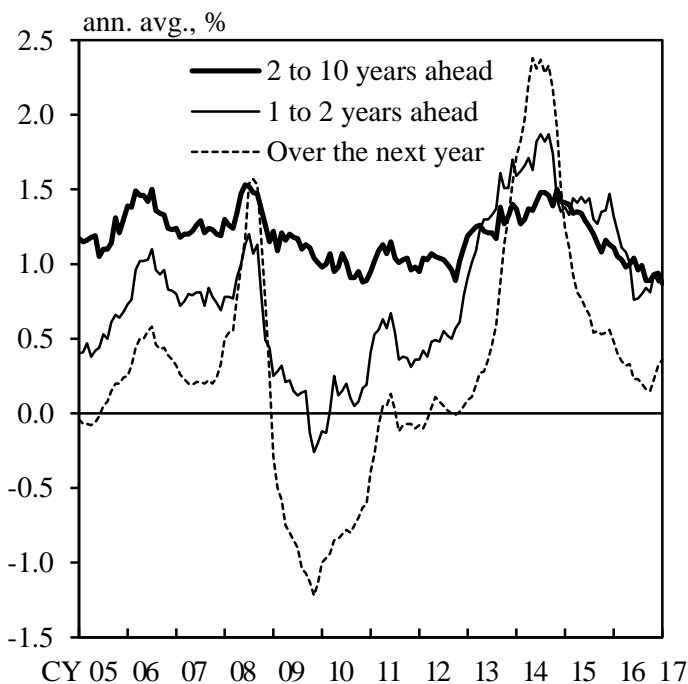
### (2) Economists<sup>2</sup>



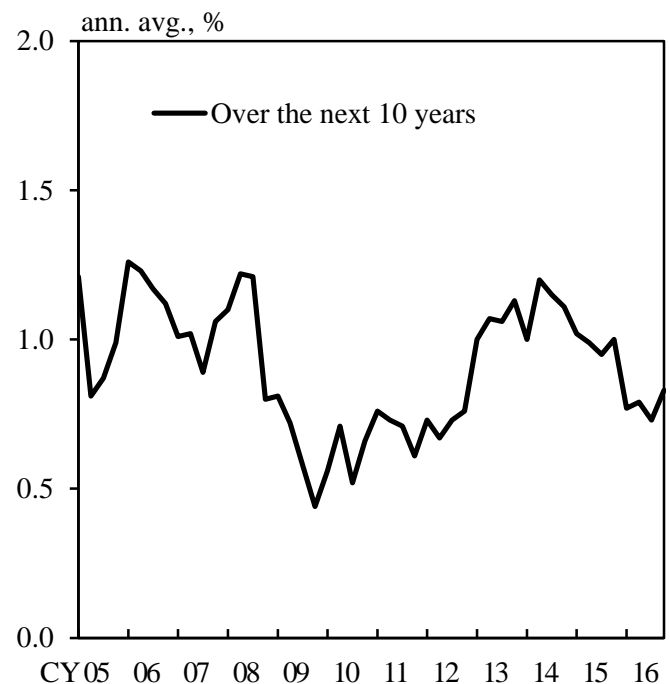
Notes: 1. BEI (break-even inflation) rates are yield spreads between fixed-rate coupon-bearing JGBs and inflation-indexed JGBs. Inflation-indexed JGBs issued since October 2013 are designated as "new," while the rest are designated as "old." Figures for "old (longest)" are calculated using yield data for issue No. 16 of inflation-indexed JGBs, which matures in June 2018.  
 2. Figures for the "Consensus Forecasts" are compiled every January, April, July, and October. Those up through April 2014 were compiled every April and October. Figures for the "ESP Forecast" are compiled every June and December, and exclude the effects of the consumption tax hikes.

### (3) Market Participants

#### (a) QUICK Survey



#### (b) Survey by Mizuho Securities

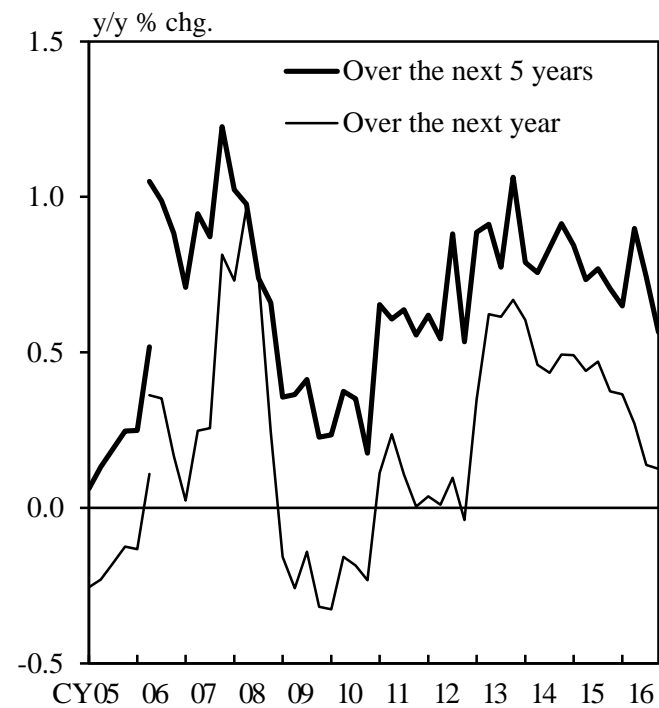


Note: From the September 2013 survey, the "QUICK Monthly Market Survey (Bonds)" asks respondents to include the effects of the consumption tax hikes. Figures for the survey by Mizuho Securities exclude the effects of the consumption tax hikes.  
 Sources: Consensus Economics Inc., "Consensus Forecasts"; JCER, "ESP Forecast"; QUICK, "QUICK Monthly Market Survey (Bonds)"; Mizuho Securities, "Investor Survey"; Bloomberg.

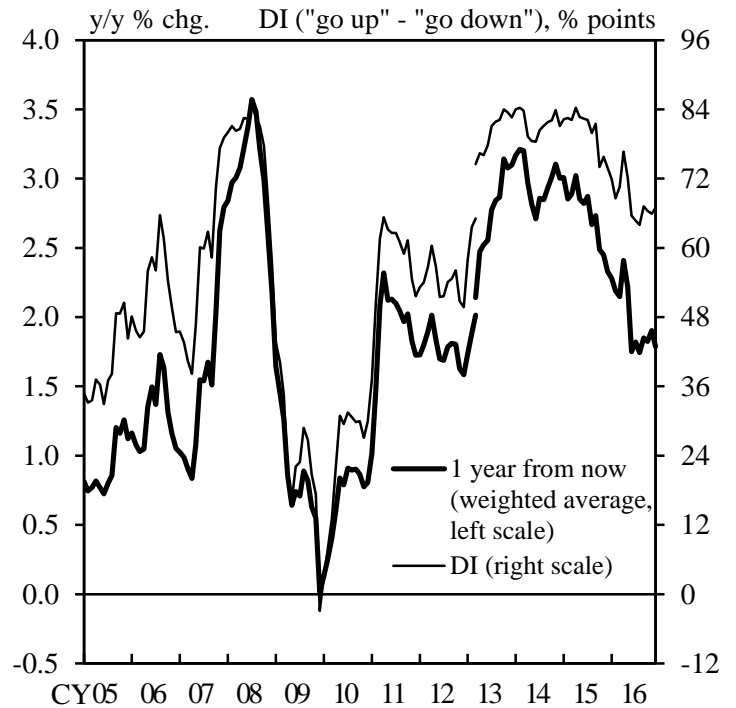
## Inflation Expectations (2)

### (1) Households

(a) Opinion Survey on the General Public's Views and Behavior<sup>1,2</sup>



(b) Consumer Confidence Survey<sup>3,4</sup>



Notes: 1. Figures are estimated using the modified Carlson-Parkin method.

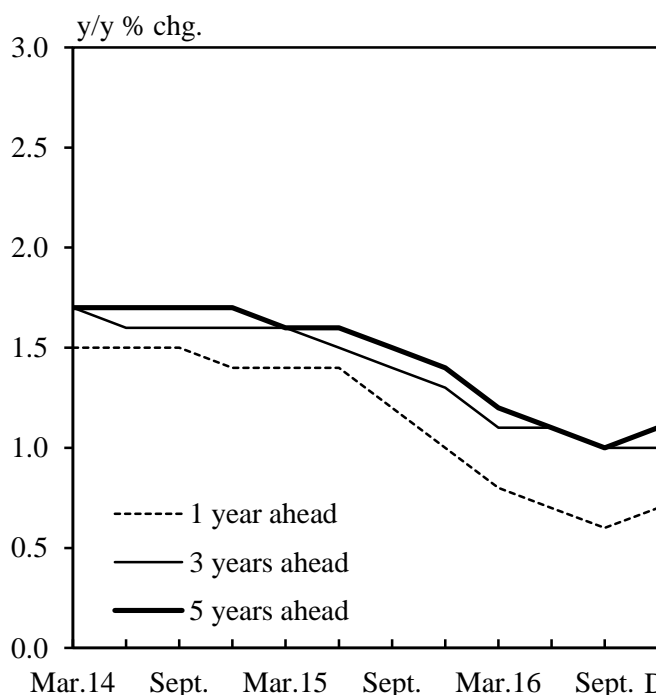
2. From the June 2013 survey, the "Opinion Survey" asks respondents to exclude the effects of the consumption tax hikes.

3. Figures are for all households.

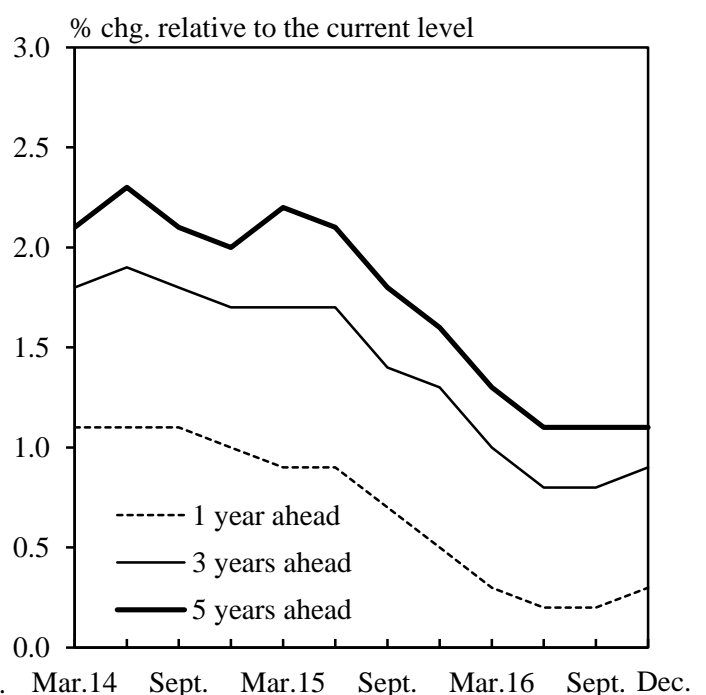
4. The weighted average is calculated based on the following assumption: survey responses chosen by households as their expected inflation rates -- "-5% or below," "from -5% to -2%," "from -2% to 0%," "from 0% to +2%," "from +2% to +5%," and "+5% or above" -- indicate expected inflation rates of -5%, -3.5%, -1%, +1%, +3.5%, and +5%, respectively.

### (2) Enterprises (*Tankan*, All Industries and Enterprises, Average)

(a) Outlook for General Prices



(b) Outlook for Output Prices

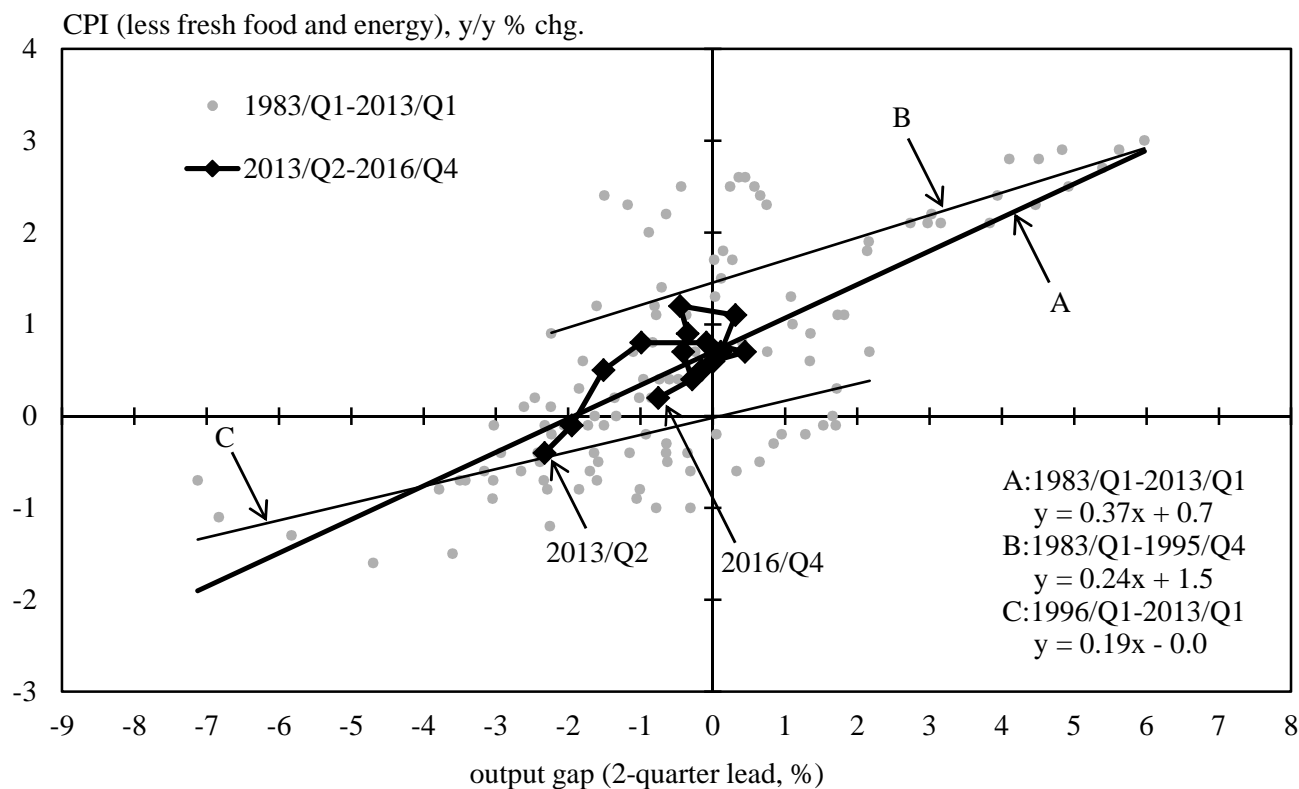


Note: Figures exclude the effects of the consumption tax hikes.

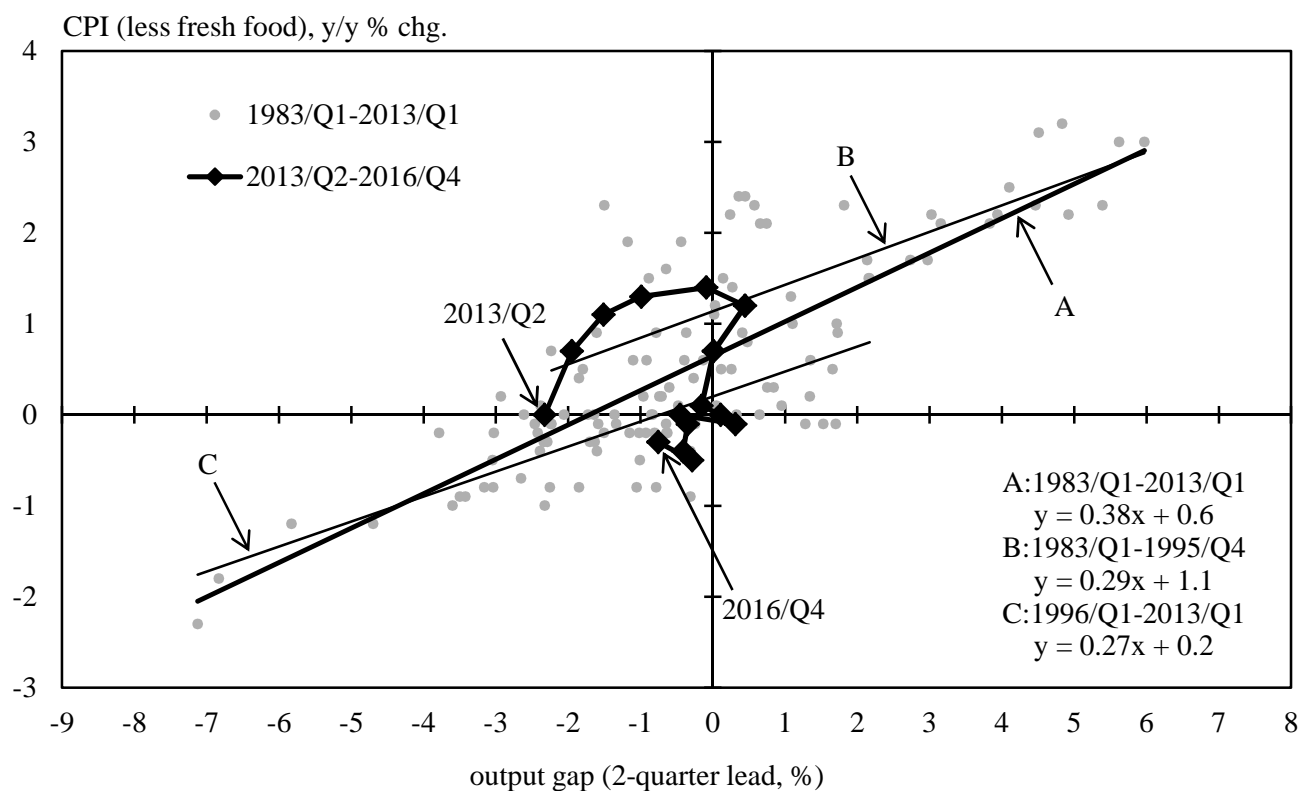
Sources: Bank of Japan; Cabinet Office; Ministry of Internal Affairs and Communications.

## Output Gap and Inflation Rate

### (1) Phillips Curve (CPI All Items Less Fresh Food and Energy)



### (2) Phillips Curve (CPI All Items Less Fresh Food)



Notes: 1. Figures for the CPI (less fresh food and energy) are calculated by the Research and Statistics Department, Bank of Japan.

2. The output gap is estimated by the Research and Statistics Department, Bank of Japan.

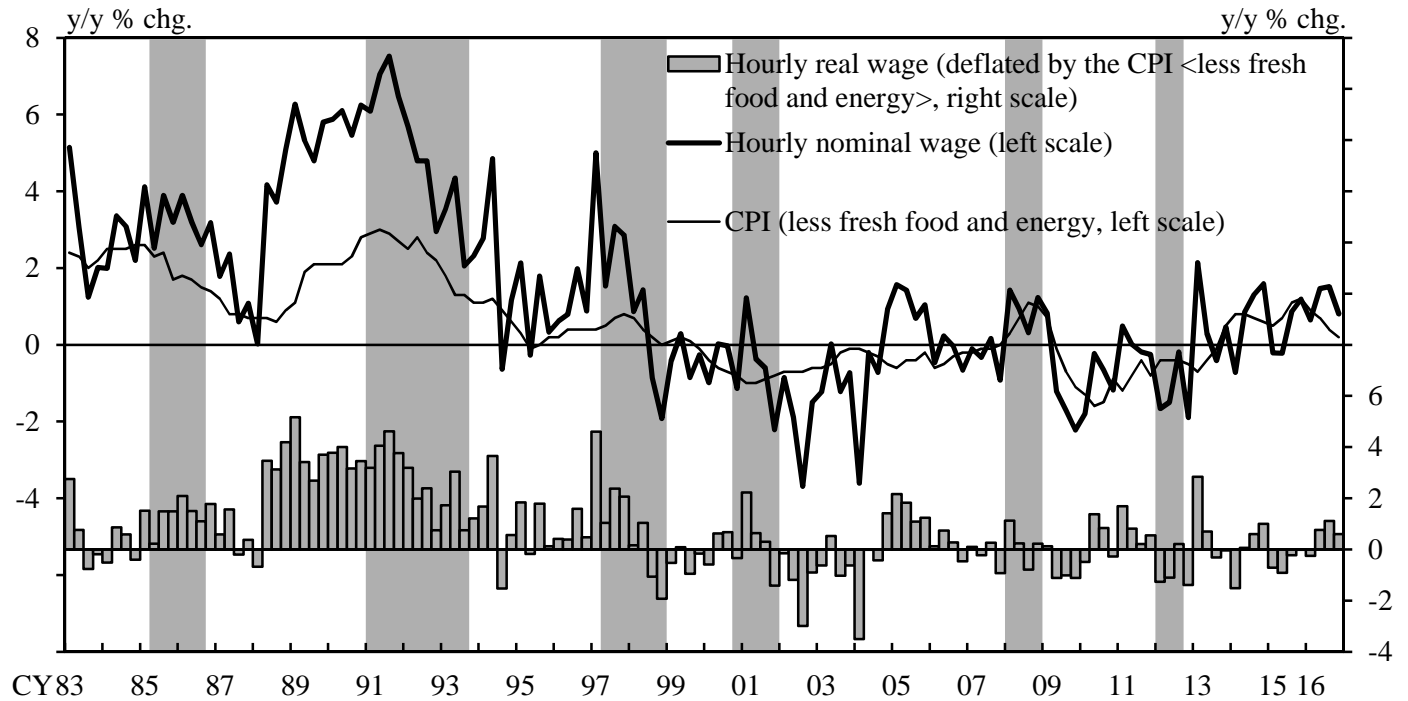
3. Figures for the CPI are adjusted to exclude the estimated effects of changes in the consumption tax rate.

Sources: Ministry of Internal Affairs and Communications; Cabinet Office, etc.



## Prices and Wages

### (1) CPI and Nominal Wage



- Notes: 1. Figures based on the "Monthly Labour Survey" up through 1990/Q4 are for establishments with 30 or more employees. The same applies to the chart below.  
 2. Figures for the CPI (less fresh food and energy) are calculated by the Research and Statistics Department, Bank of Japan, and are adjusted to exclude the estimated effects of changes in the consumption tax rate.  
 3. Shaded areas indicate recession periods.  
 4. Figures for 2016/Q4 are October-November averages.

### (2) Real Wage and Labor Productivity

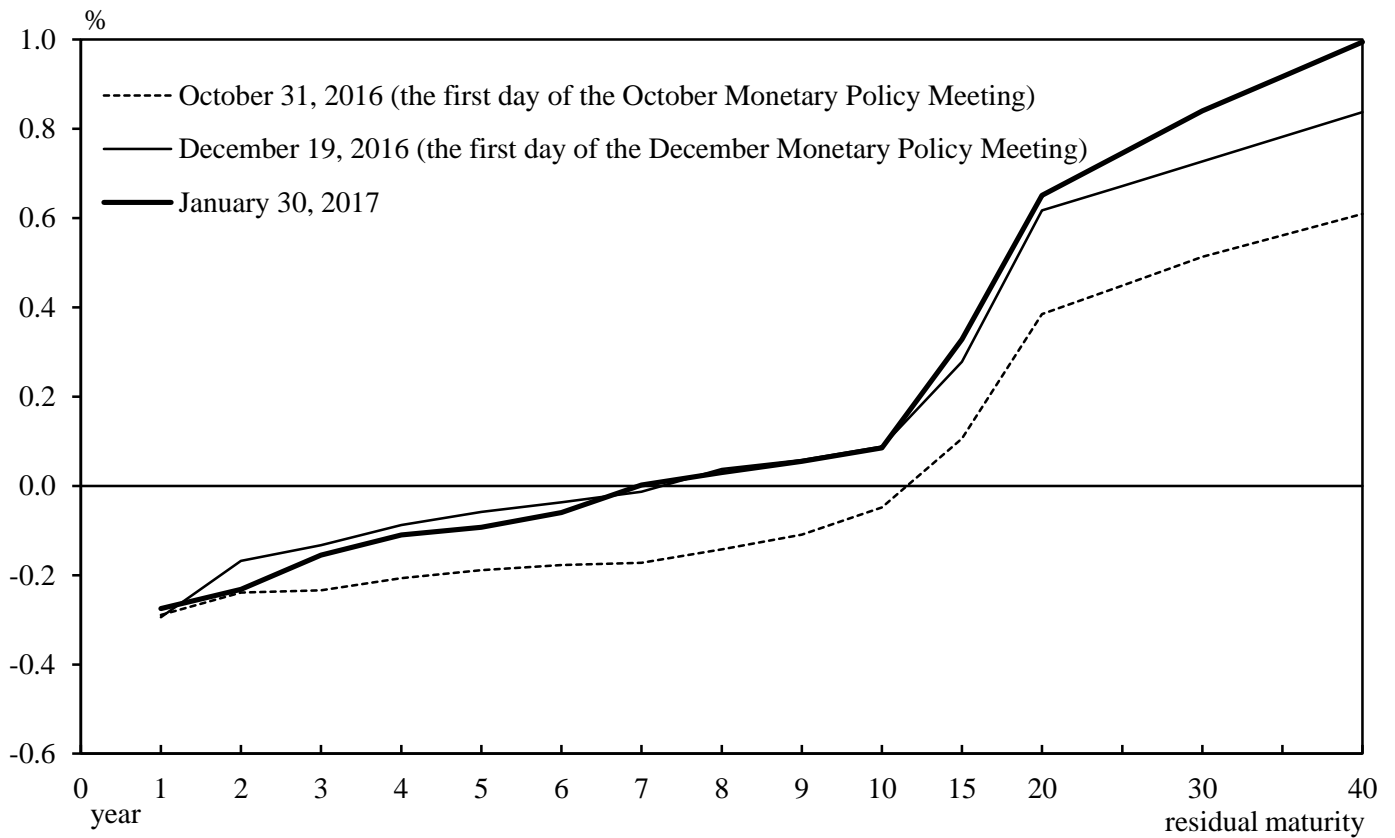


- Notes: 1. Figures for labor productivity and the GDP deflator up to 1994 are based on the 1993SNA.  
 2. Figures for the GDP deflator are adjusted to exclude the effects of the consumption tax hike in 2014. This adjustment is based on estimates by the Cabinet Office in January 2017.

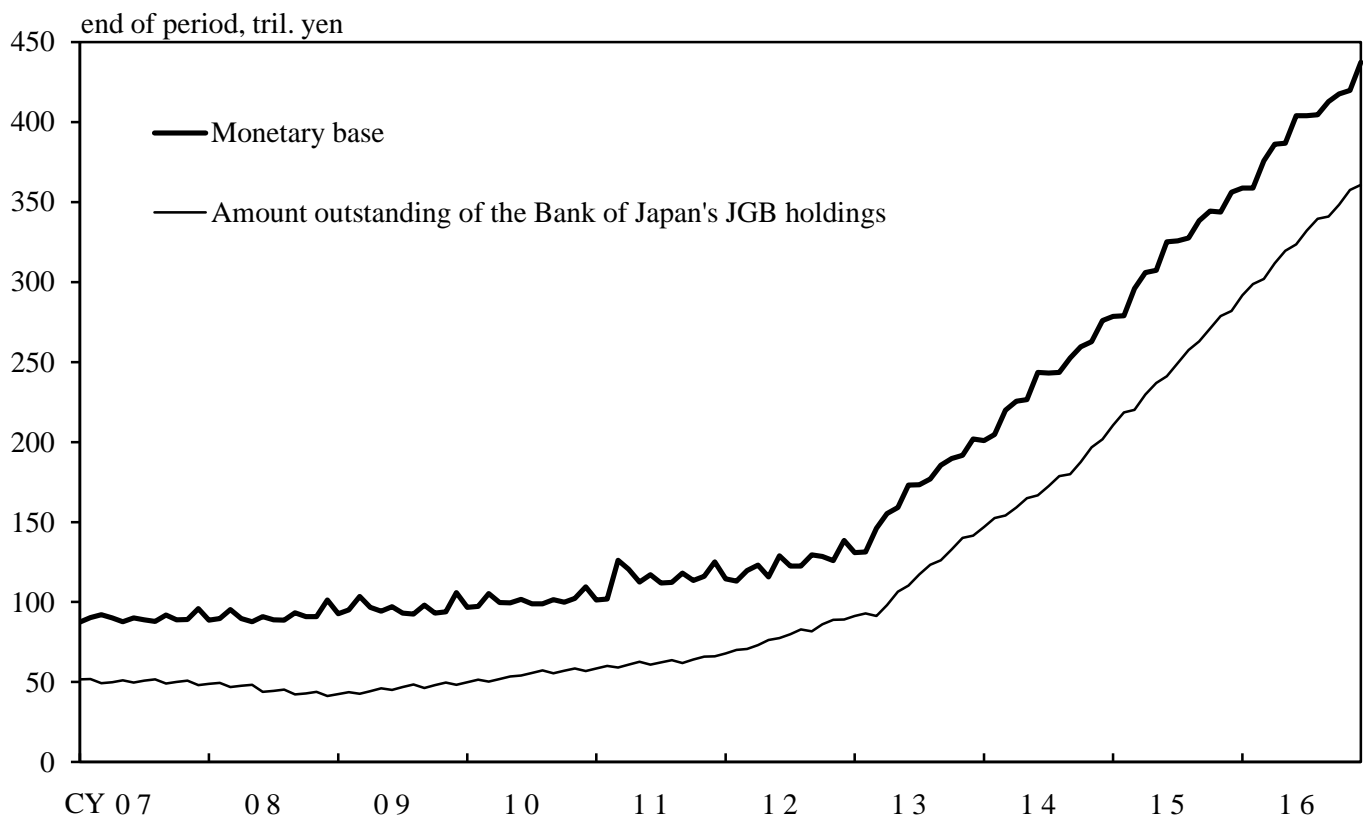
Sources: Ministry of Internal Affairs and Communications; Ministry of Health, Labour and Welfare; Cabinet Office.

## Yield Curve and Monetary Base

### (1) Yield Curve



### (2) Expansion in the Monetary Base and JGB Holdings

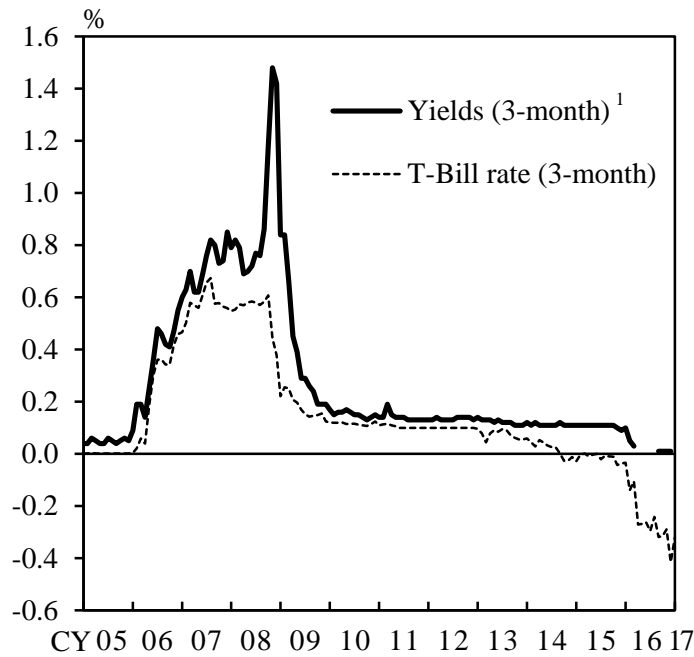


Sources: Bank of Japan; Bloomberg.

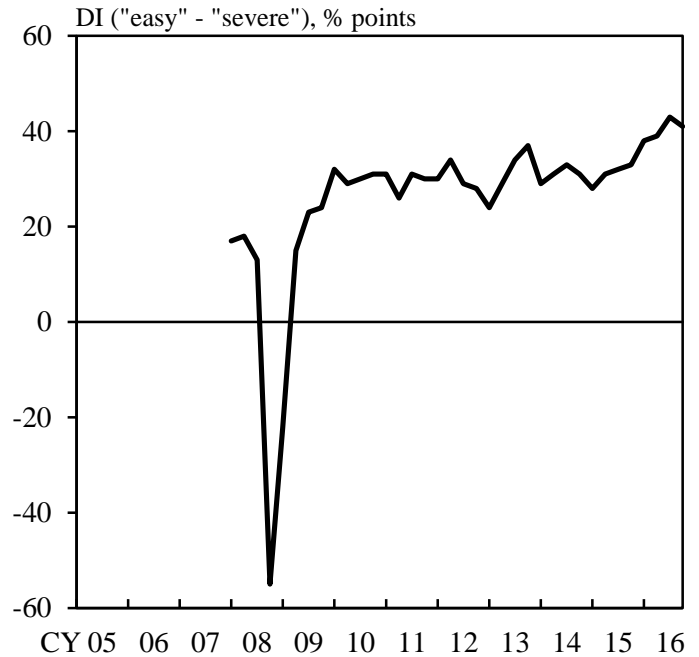
## Issuance Conditions for CP and Corporate Bonds

### (1) Issuance Yields and Conditions for CP Issuance

#### (a) Yields



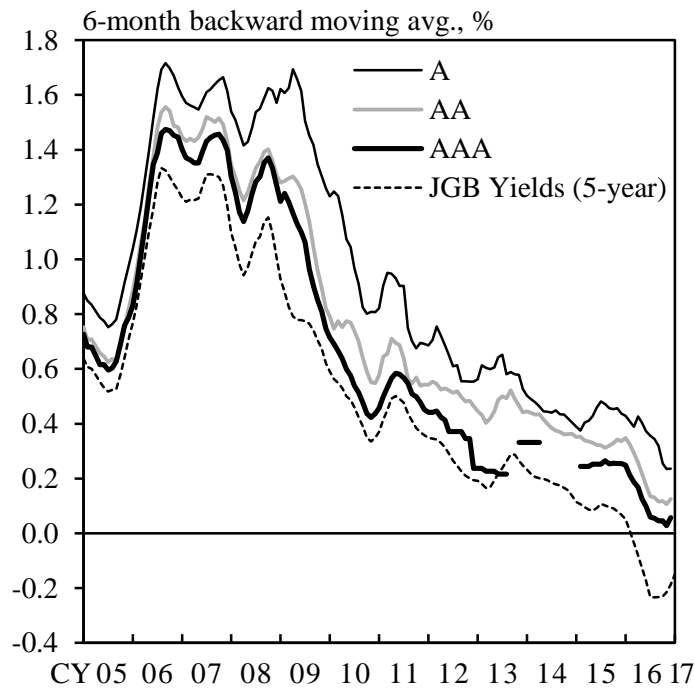
#### (b) Conditions for CP Issuance<sup>2</sup>



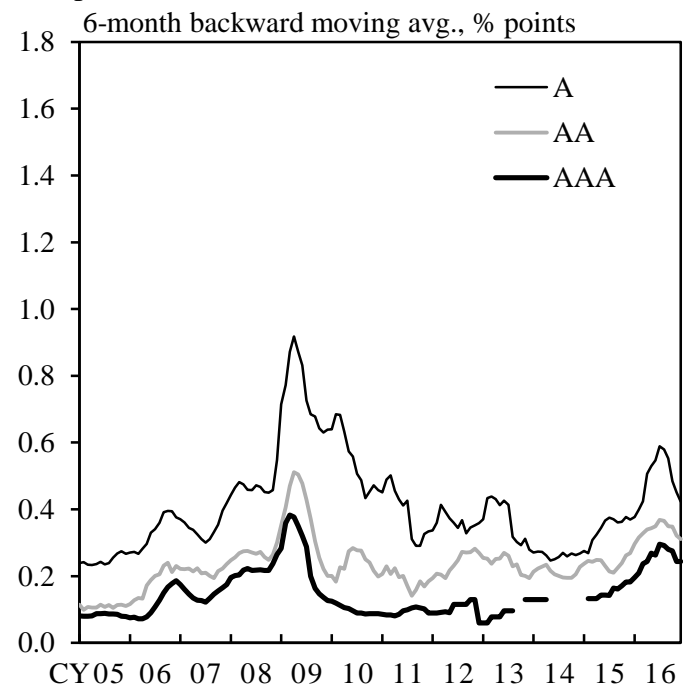
Notes: 1. The break in the line from April 2016 to August 2016 is due to the suspension of the publication of data during this period. Figures up to September 2009 are the average issuance rates of CP (3-month, rated a-1 or higher). Figures from October 2009 are the average issuance rates of CP (3-month, rated a-1).  
 2. Based on the *Tankan*. Figures are for all industries and large enterprises, and are based on responses of CP-issuing enterprises.

### (2) Issuance Yields and Spreads for Corporate Bonds by Securities Rating

#### (a) Yields



#### (b) Spreads

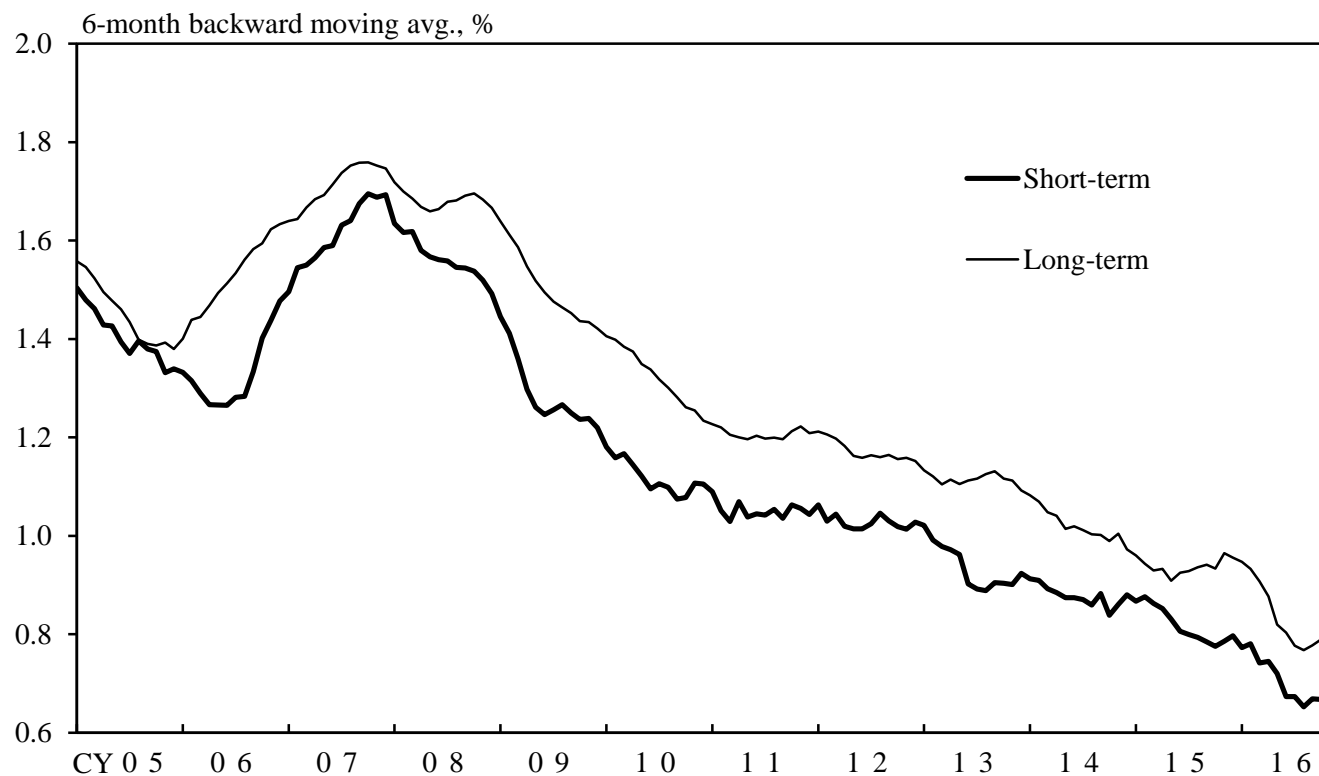


Notes: 1. Figures are the averages for domestically issued bonds launched on a particular date.  
 2. Bonds issued by banks and securities companies, etc., are excluded.  
 3. The issuance spreads for corporate bonds are the issuance rate of these bonds minus the government bond yield.  
 4. Bonds are classified based on the highest rating among the ratings from Moody's, S&P, R&I, and JCR.  
 5. Breaks in a line indicate periods when bonds were not issued for six or more months.

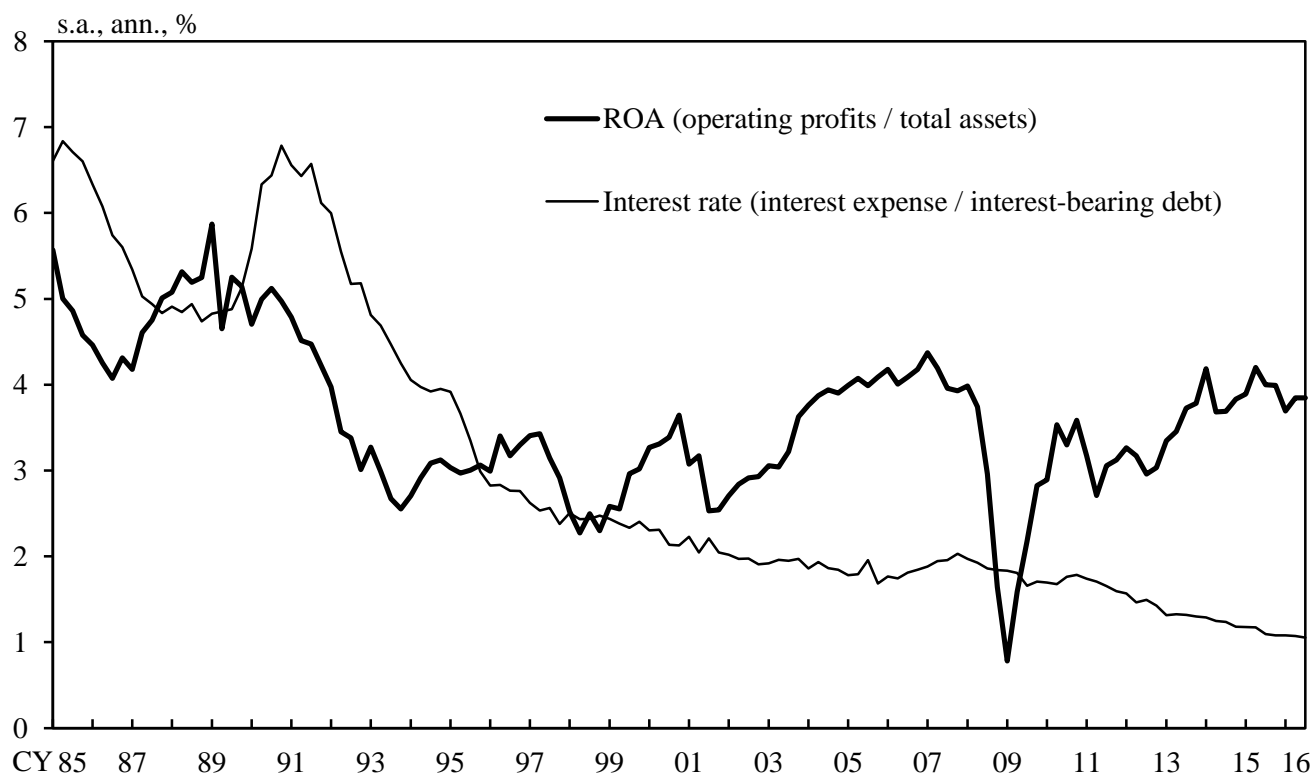
Sources: Bank of Japan; Japan Securities Depository Center; Capital Eye; I-N Information Systems; Bloomberg.

## Bank Lending Rates

(1) Average Contract Interest Rates on New Loans and Discounts



(2) ROA and Interest Rate



Notes: 1. Figures are taken from the "Financial Statements Statistics of Corporations by Industry, Quarterly," and are the total for enterprises of all sizes and in all industries. The finance and insurance industry is excluded.

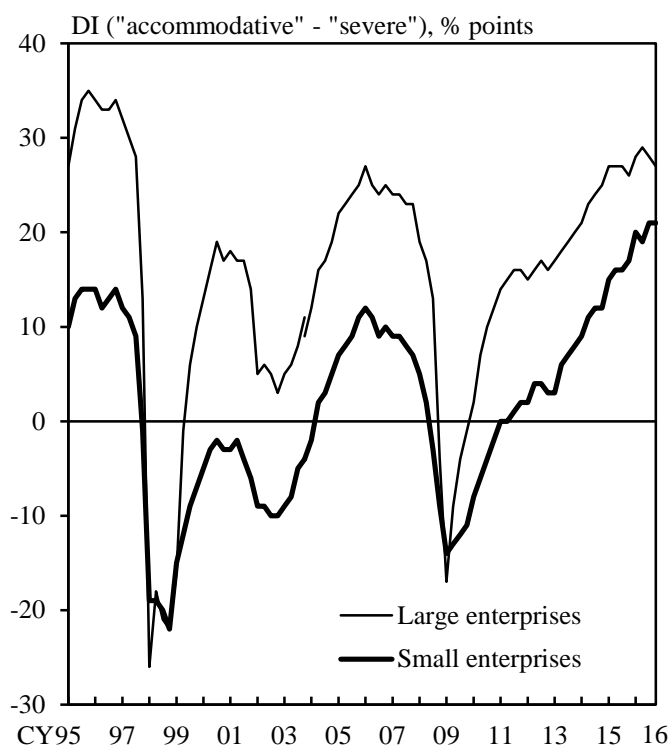
2. Interest-bearing debt is the sum of long- and short-term borrowings, corporate bonds, and bills receivable discounted outstanding.

Sources: Bank of Japan; Ministry of Finance.

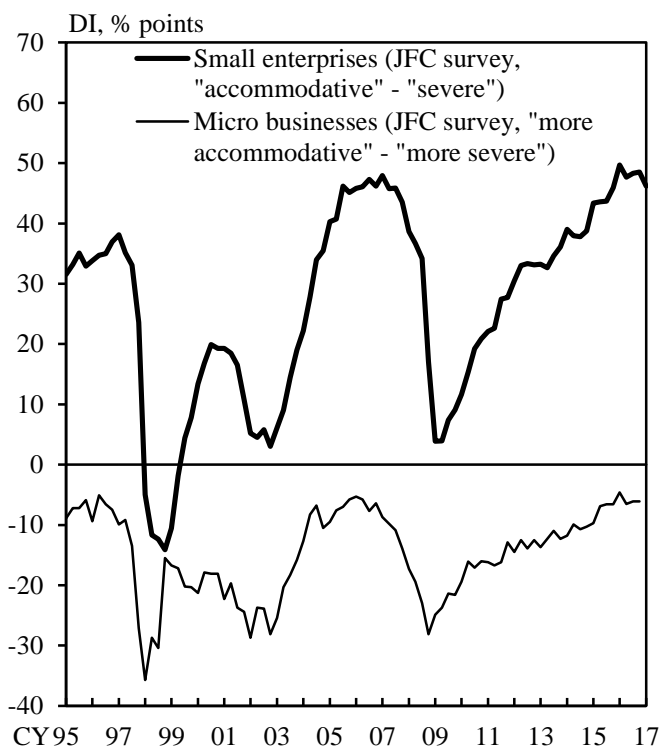
## Corporate Finance-Related Indicators

### (1) Lending Attitude of Financial Institutions as Perceived by Firms

#### (a) *Tankan*

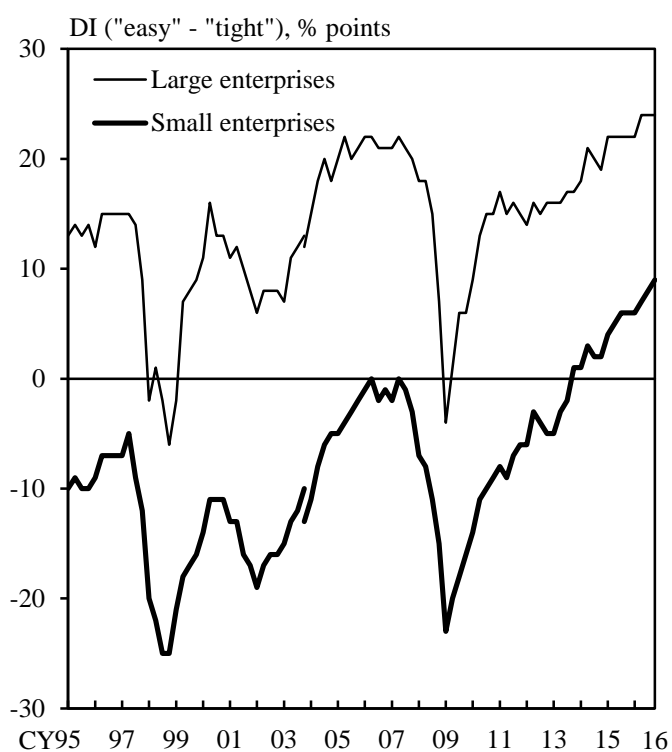


#### (b) Other Surveys

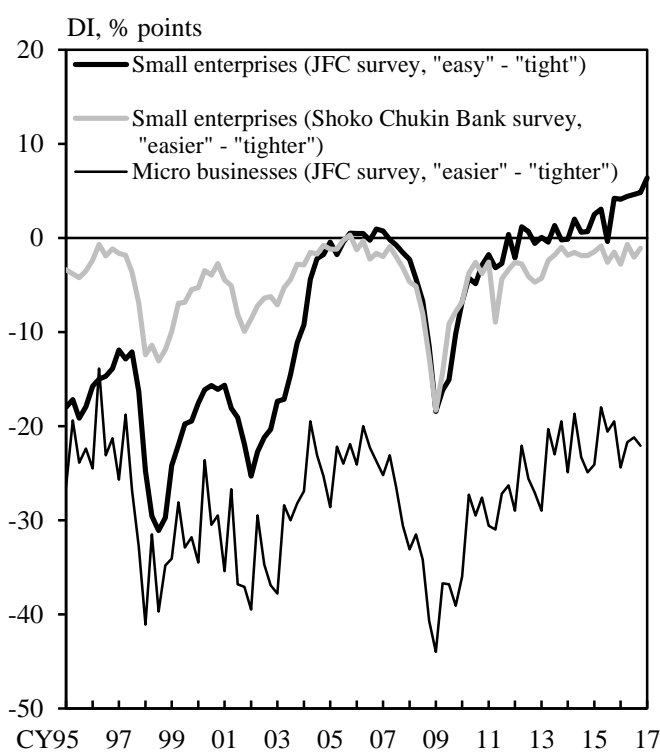


### (2) Financial Position

#### (a) *Tankan*



#### (b) Other Surveys



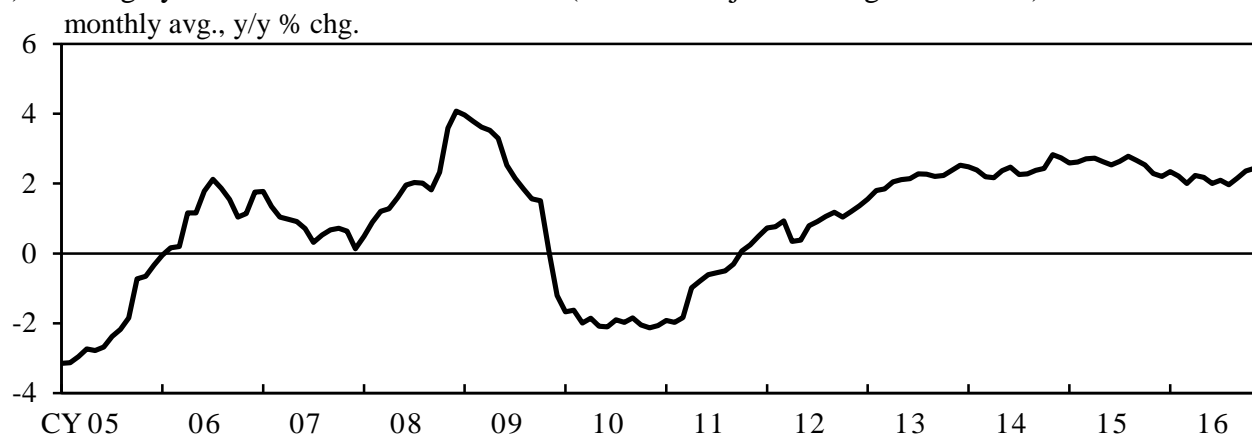
Notes: 1. Data from the *Tankan* are based on all industries. There is a discontinuity in the data in December 2003 due to a change in the survey framework.

2. Figures for 2017/Q1 are those of January.

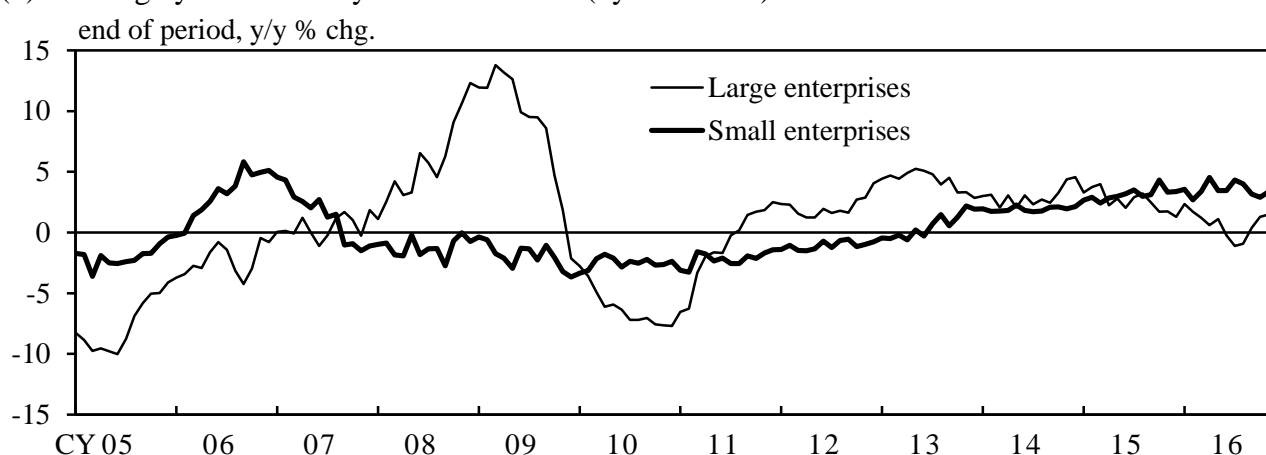
Sources: Bank of Japan; Shoko Chukin Bank; Japan Finance Corporation (JFC).

## Amount Outstanding of Bank Lending, CP, and Corporate Bonds

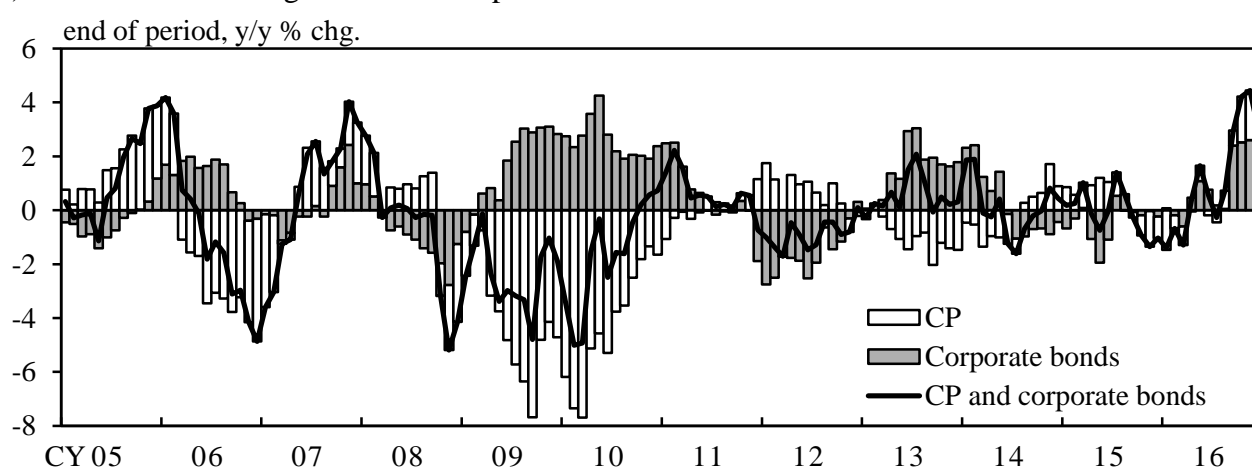
### (1) Lending by Domestic Commercial Banks (Total of Major and Regional Banks)



### (2) Lending by Domestically Licensed Banks (by Firm Size)



### (3) Amount Outstanding of CP and Corporate Bonds



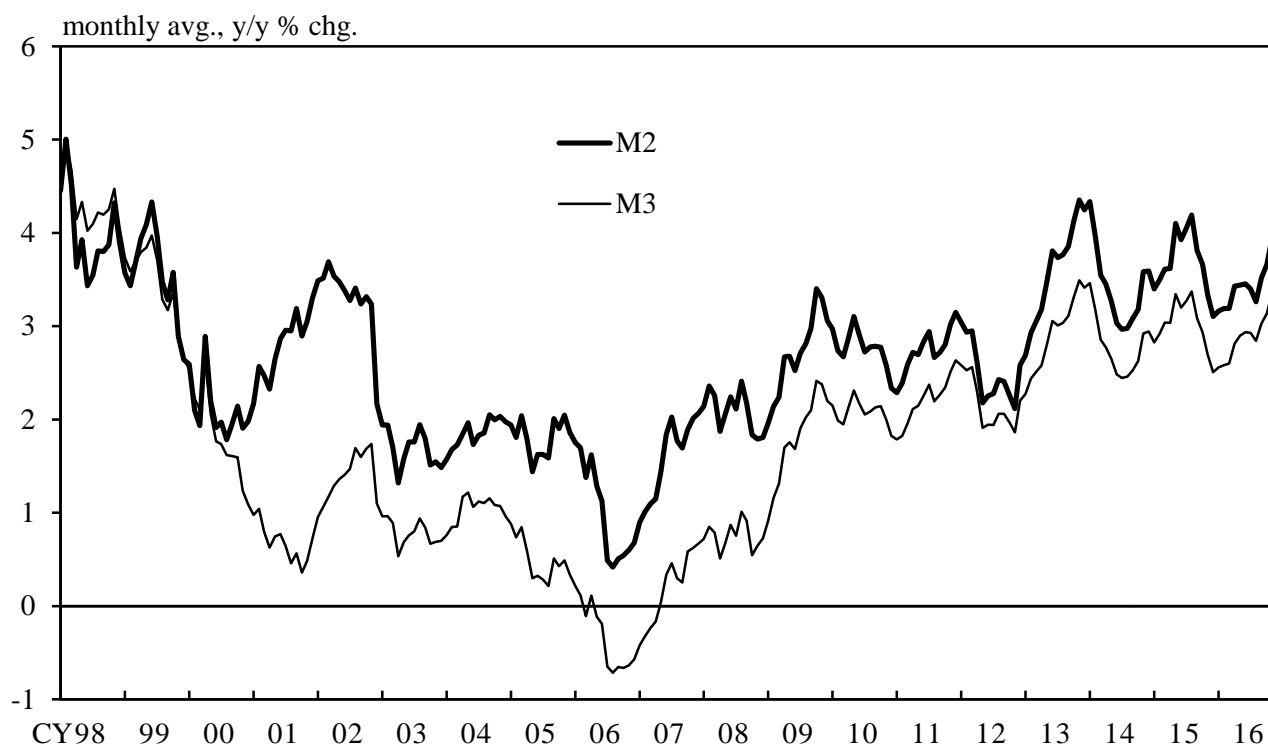
Notes: 1. Figures for CP are those for short-term corporate bonds registered under the book-entry transfer system. Those issued by banks, securities companies, and others such as foreign corporations are excluded; ABCP is included. Figures up to March 2008 are those compiled by the Bank of Japan.

2. Figures for corporate bonds are calculated based on the sum of straight bonds issued in both domestic and overseas markets. Bonds issued by banks and insurance companies are excluded. Domestic bonds are those registered under the book-entry transfer system. The figures for corporate bonds are obtained by splicing figures up to April 2008 published by the Japan Securities Dealers Association with figures from May 2008 published by the Japan Securities Depository Center. Figures up to April 2008 are adjusted to be consistent with figures from May 2008.

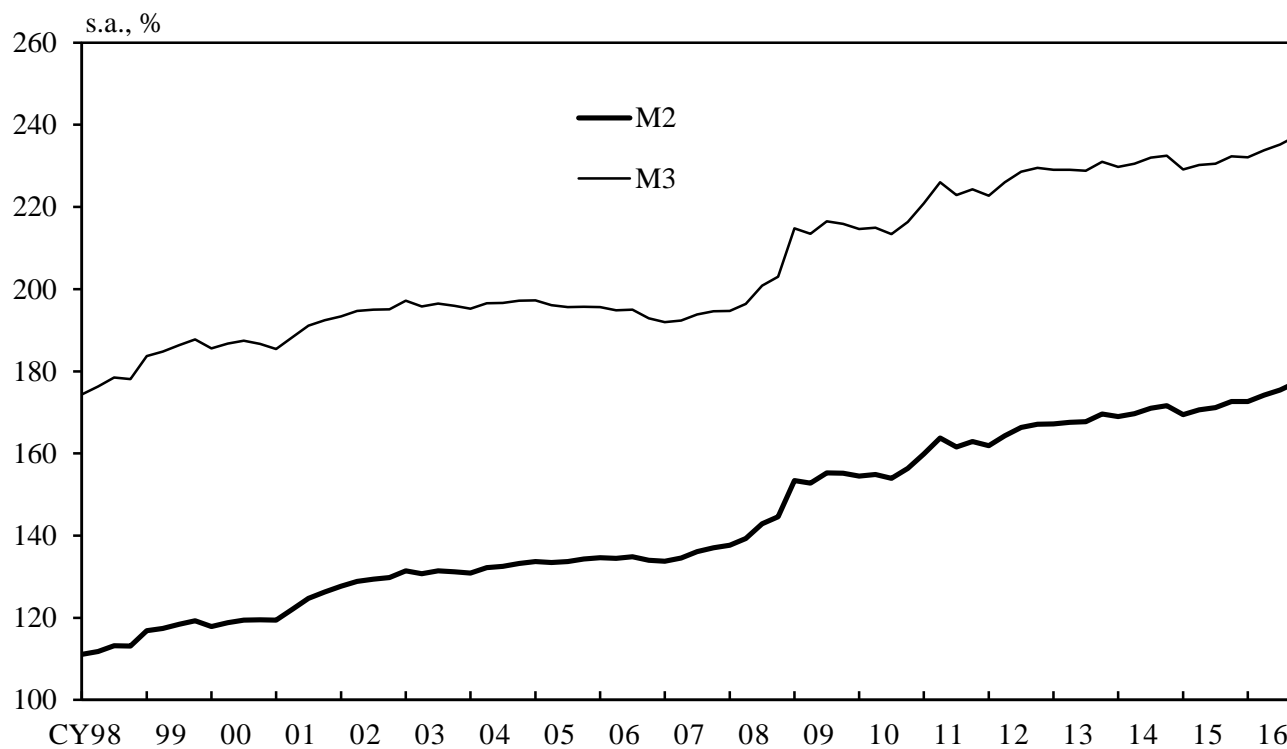
Sources: Bank of Japan; Japan Securities Depository Center; Japan Securities Dealers Association; I-N Information Systems.

## Money Stock

### (1) Changes from a Year Earlier



### (2) Ratio of Money Stock to Nominal GDP



Notes: 1. Figures for M2 up to March 2003 are the former series of the figures for M2+CDs.

2. Figures for M3 up to March 2003 are the former series of the figures for M3+CDs minus the figures for pecuniary trusts.

3. The figure for nominal GDP in 2016/Q4 is assumed to be unchanged from the previous quarter.

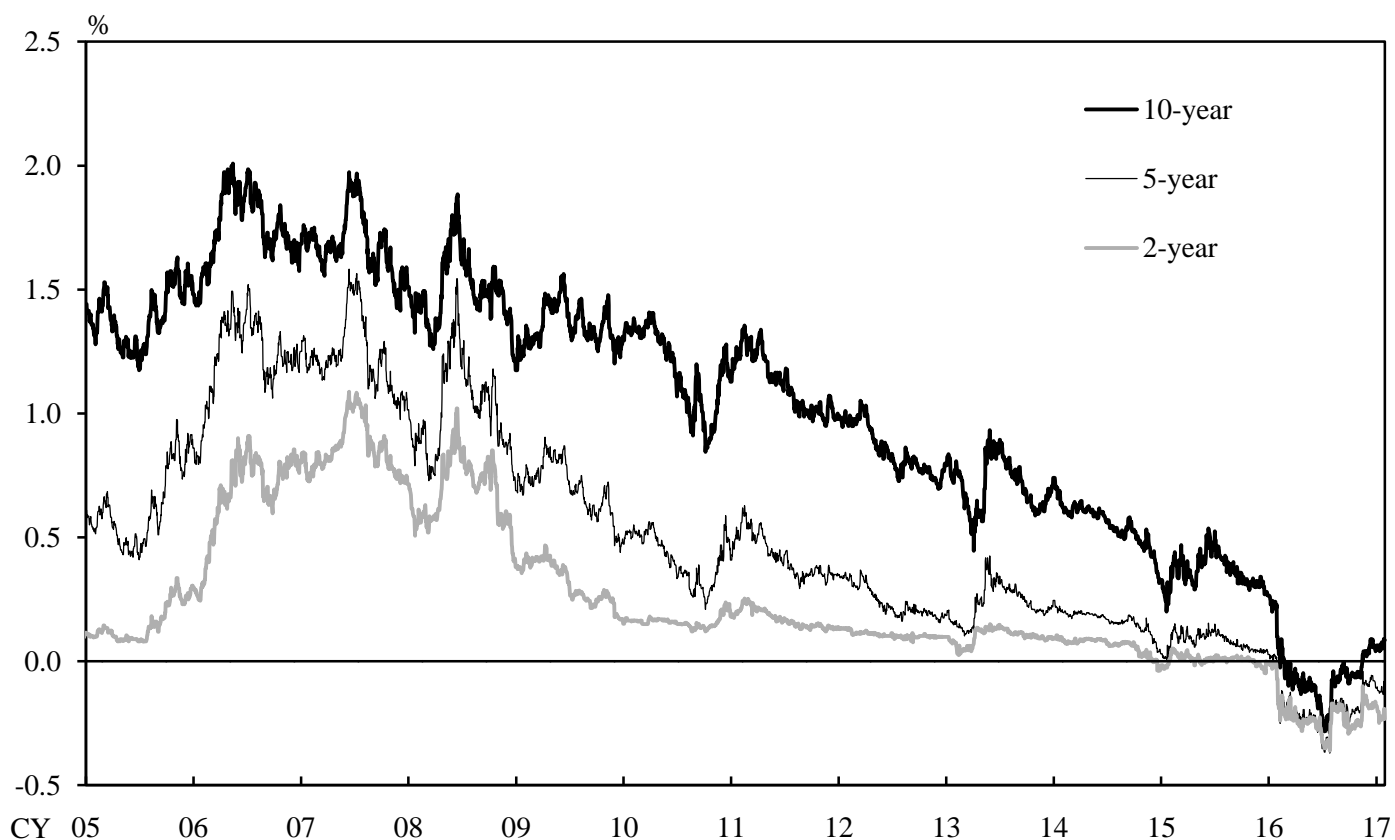
Sources: Bank of Japan; Cabinet Office.

## Nominal Benchmark Yields

(1) 10-Year Government Bond Yields in Selected Advanced Economies



(2) JGB Yields

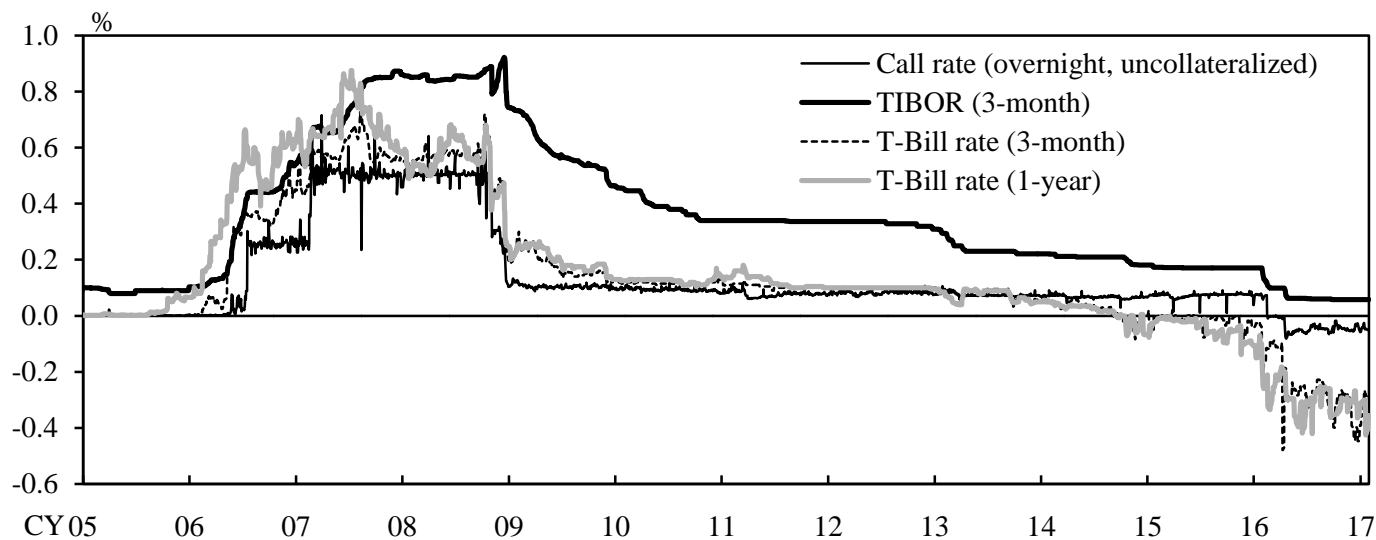


Source: Bloomberg.

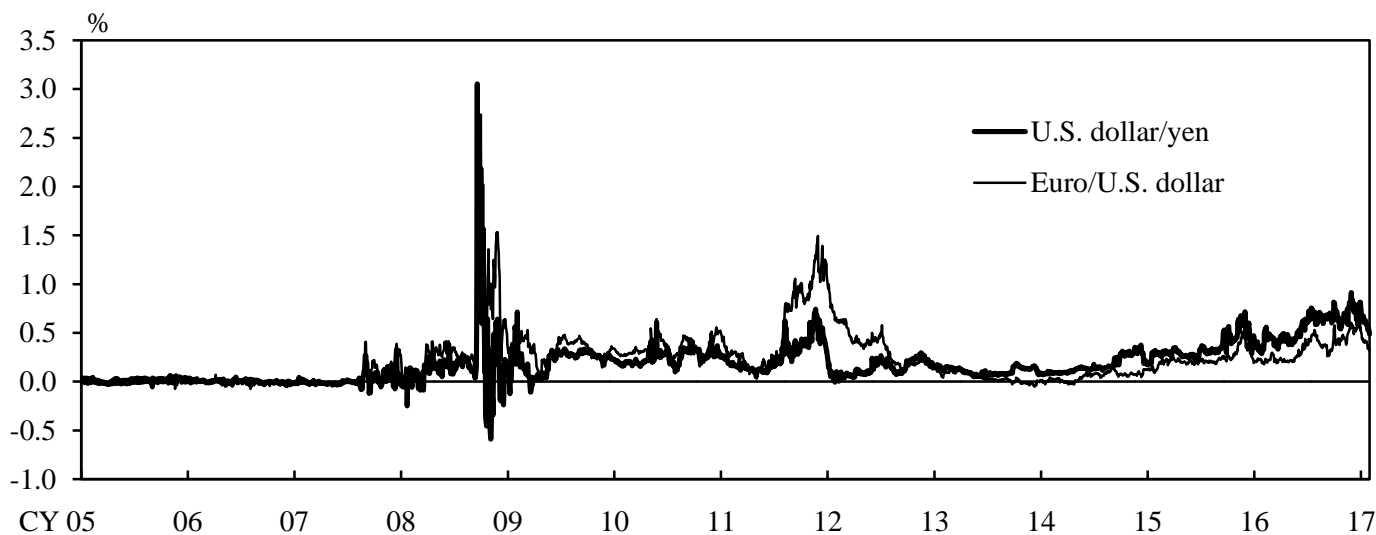


## Money Market Rates

### (1) Short-Term Interest Rates

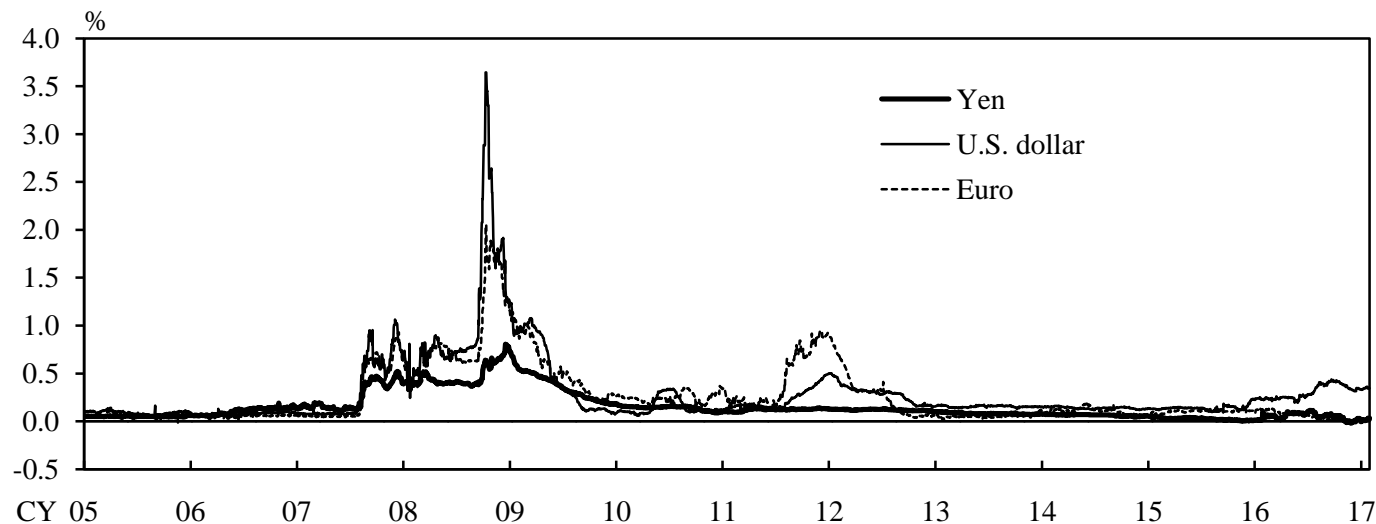


### (2) Dollar Funding Premiums through Foreign Exchange Swaps



Note: U.S. dollar funding rate from yen or euro minus 3-month dollar LIBOR.

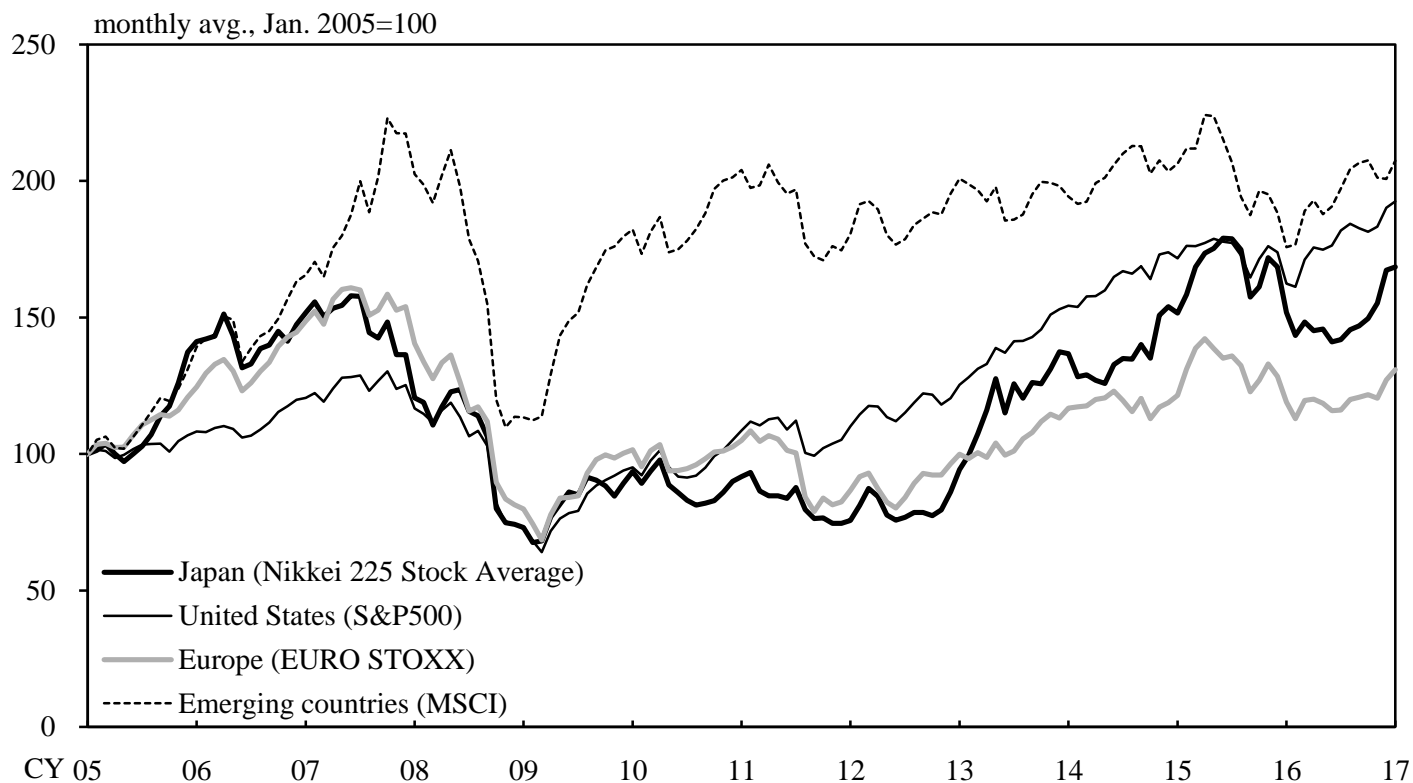
### (3) Credit Spreads for Yen-, Dollar-, and Euro-Denominated Term Instruments



Note: The credit spreads for term instruments are LIBOR (3-month) minus yields on overnight index swaps (3-month).  
Sources: Bank of Japan; Bloomberg.

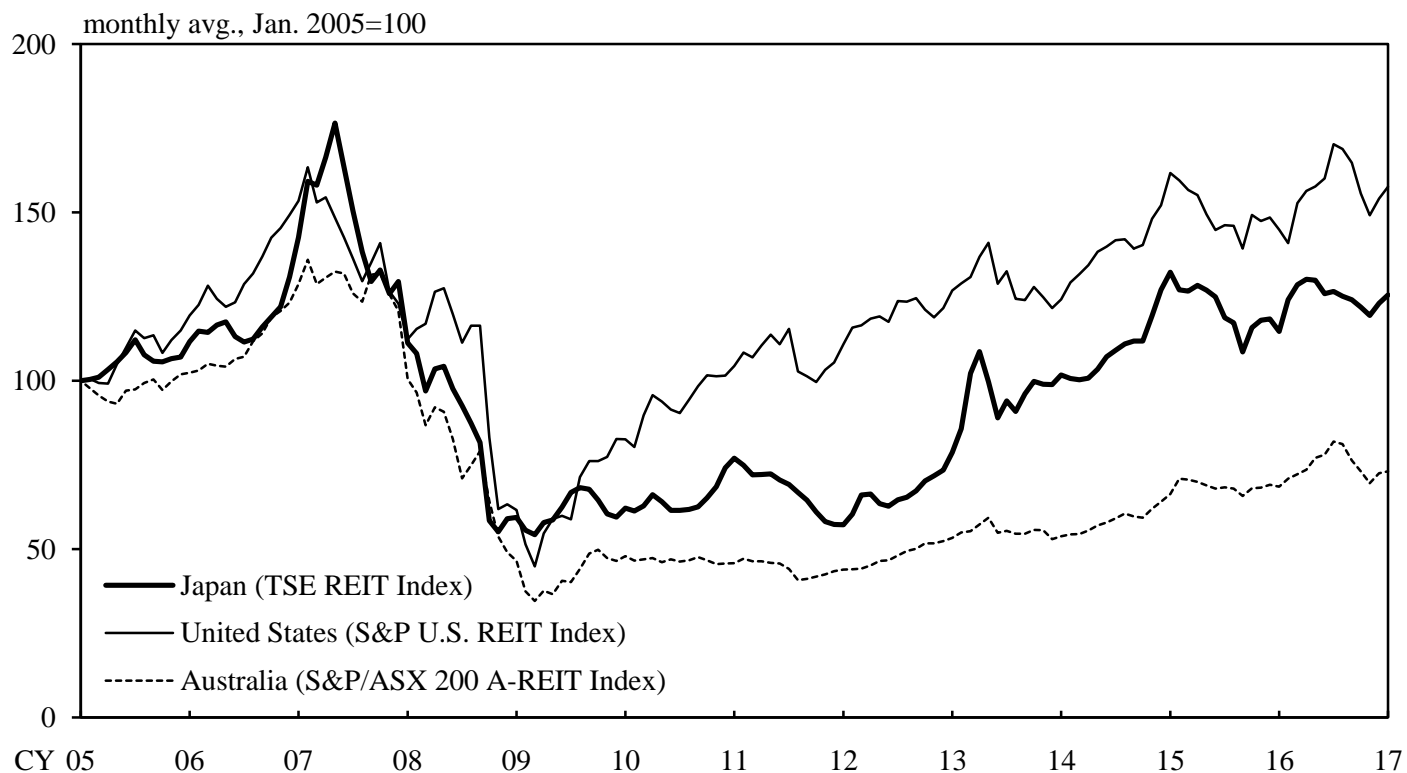
## Stock Prices and REIT Prices

### (1) Selected Stock Prices



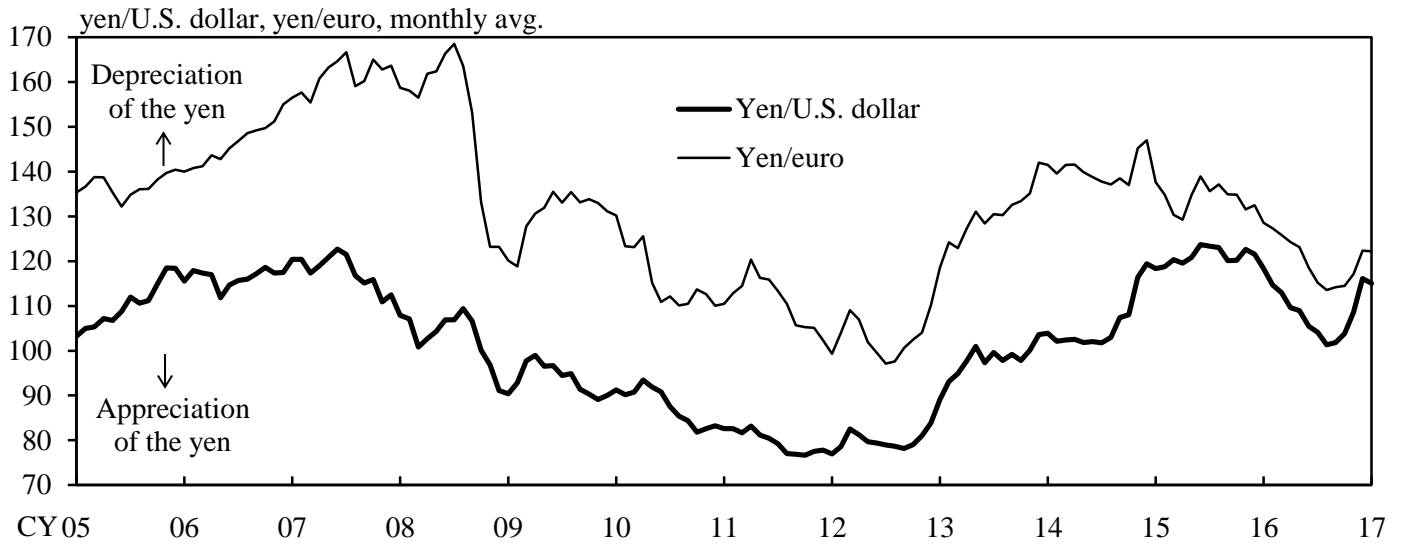
Note: Figures for emerging countries are based on the MSCI Emerging Markets Index calculated in the local currencies.

### (2) Selected REIT Indexes

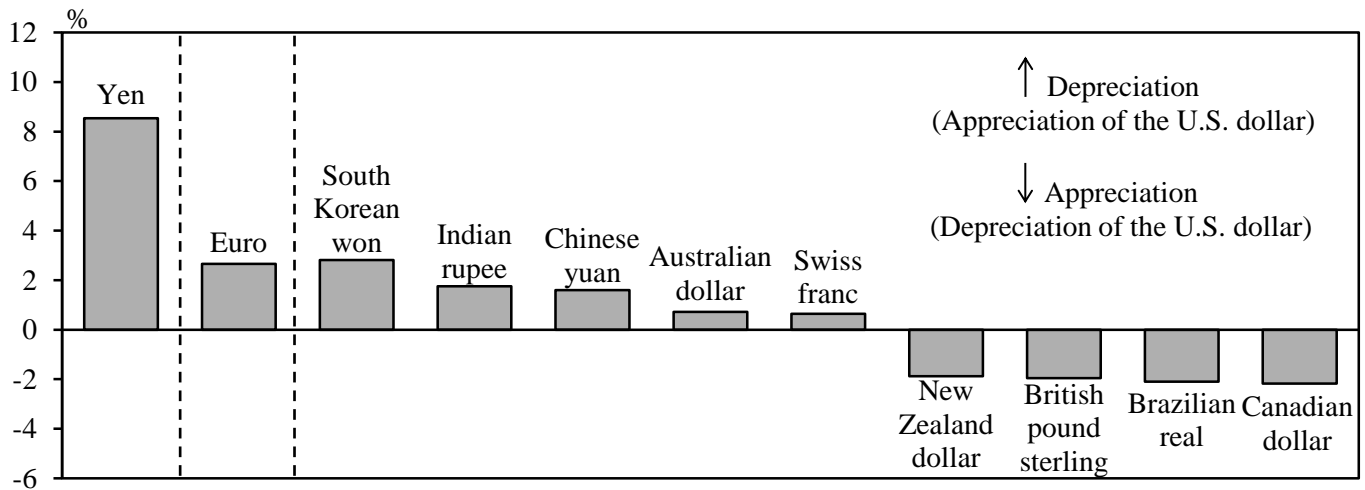


## Exchange Rates

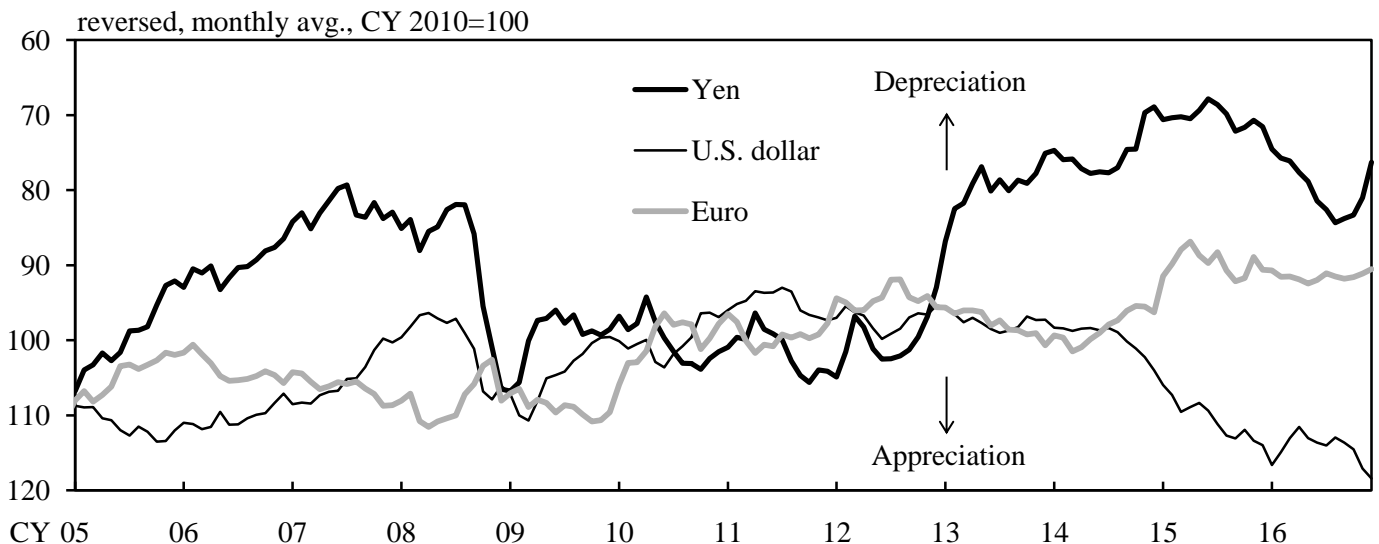
(1) Yen/U.S. Dollar and Yen/Euro



(2) Rates of Change in Selected Currencies against the U.S. Dollar (Since the End of October 2016)



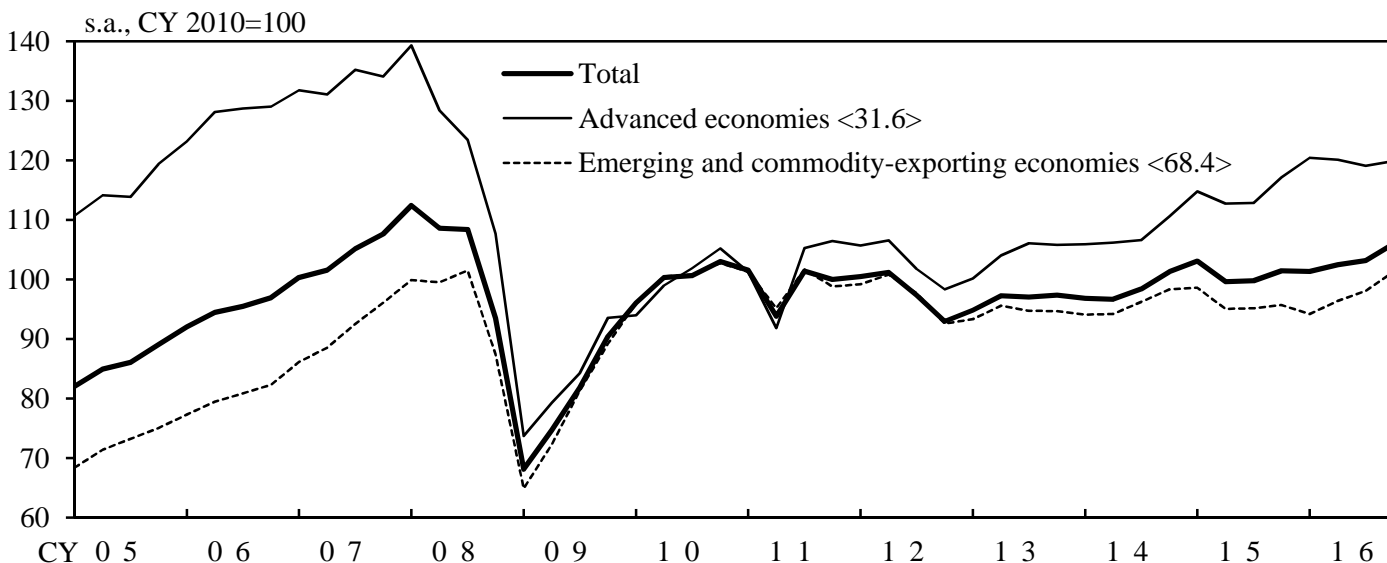
(3) Real Effective Exchange Rates



Note: The real effective exchange rates are based on the broad indices of the BIS effective exchange rate.  
Sources: Bank for International Settlements (BIS); Bloomberg.

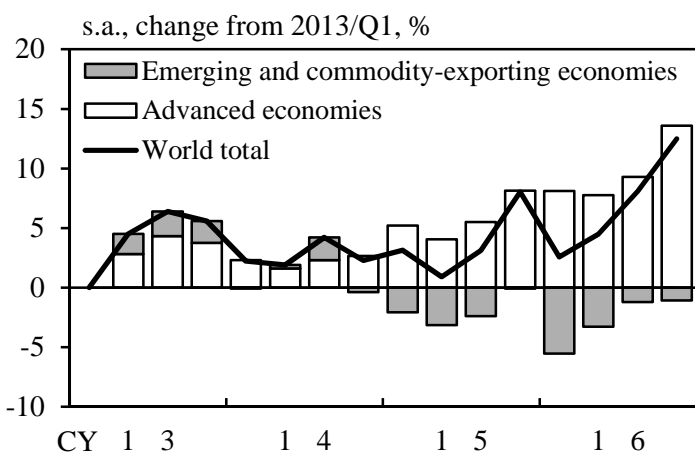
## Developments in Japan's Exports by Type of Goods (1)

(1) Japan's Real Exports



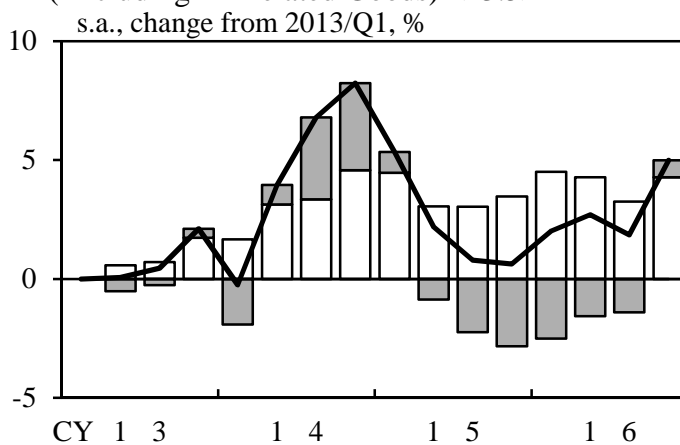
(2) Real Exports by Type of Goods

(a) Motor Vehicles and their Related Goods <24.9>

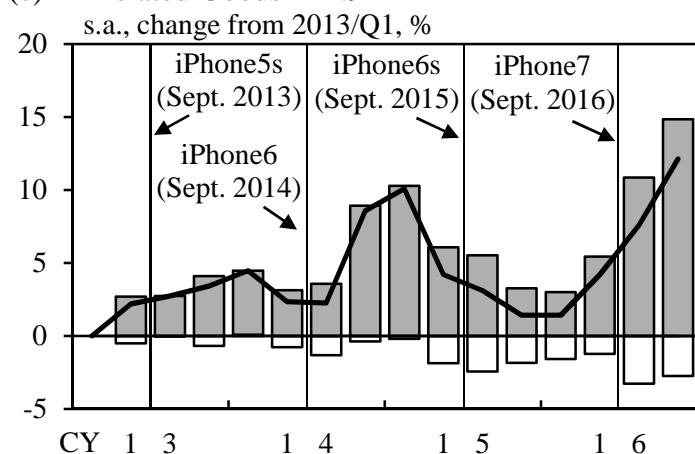


(b) Capital Goods and Parts

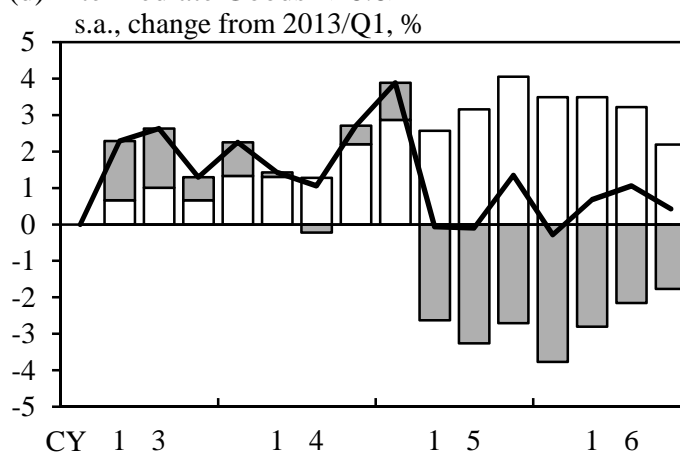
(Excluding IT-Related Goods) <23.5>



(c) IT-Related Goods <14.9>



(d) Intermediate Goods <18.8>



Notes: 1. Figures in angular brackets show the share of each region or each type of goods in Japan's total exports in 2016.

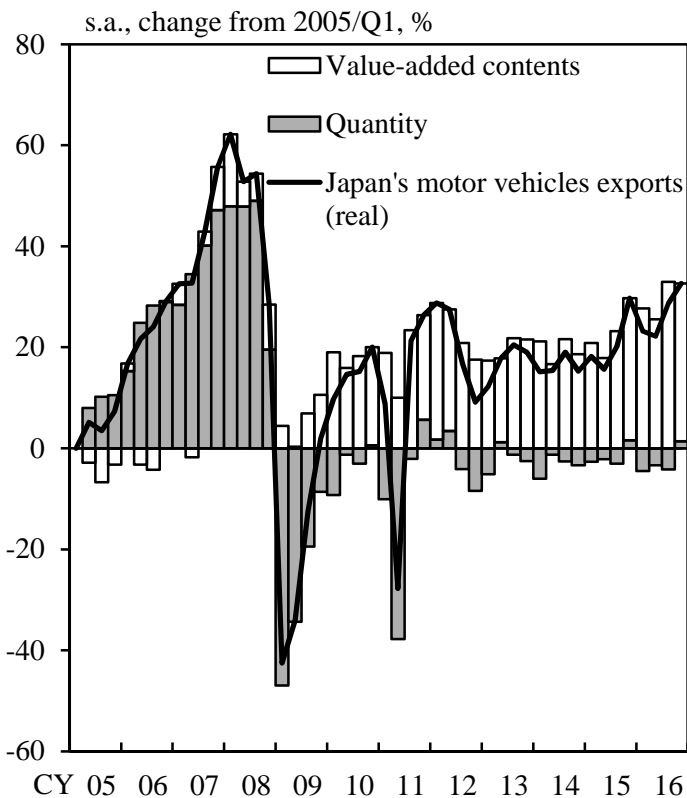
2. Advanced economies consist of the United States and the EU. Emerging and commodity-exporting economies consist of the rest of the world.

3. IT-related goods in this chart include semiconductor production equipment, computer parts, and audio and visual apparatus parts, which are not included in the IT-related goods defined in Chart 8 (2).

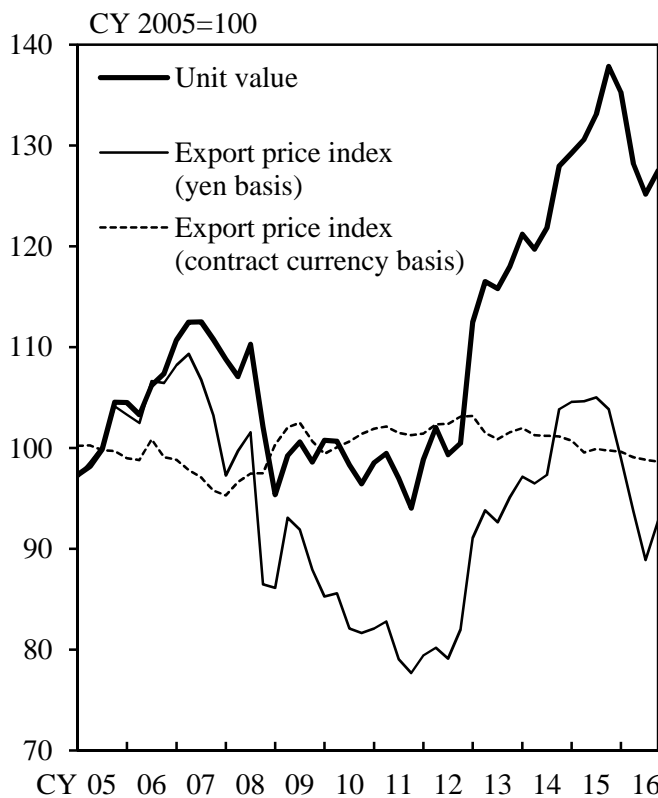
Sources: Ministry of Finance; Bank of Japan.

## Developments in Japan's Exports by Type of Goods (2)

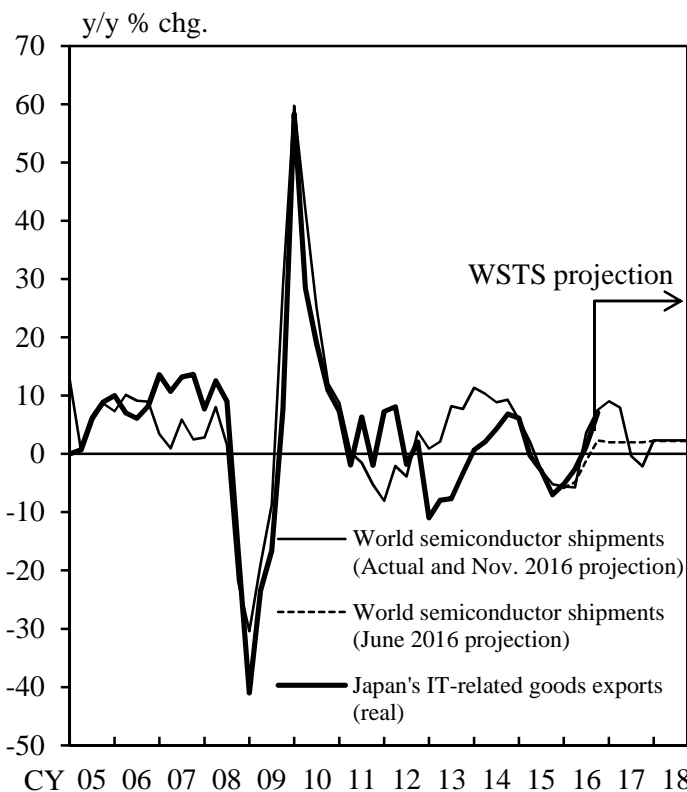
(1) Motor Vehicle Exports



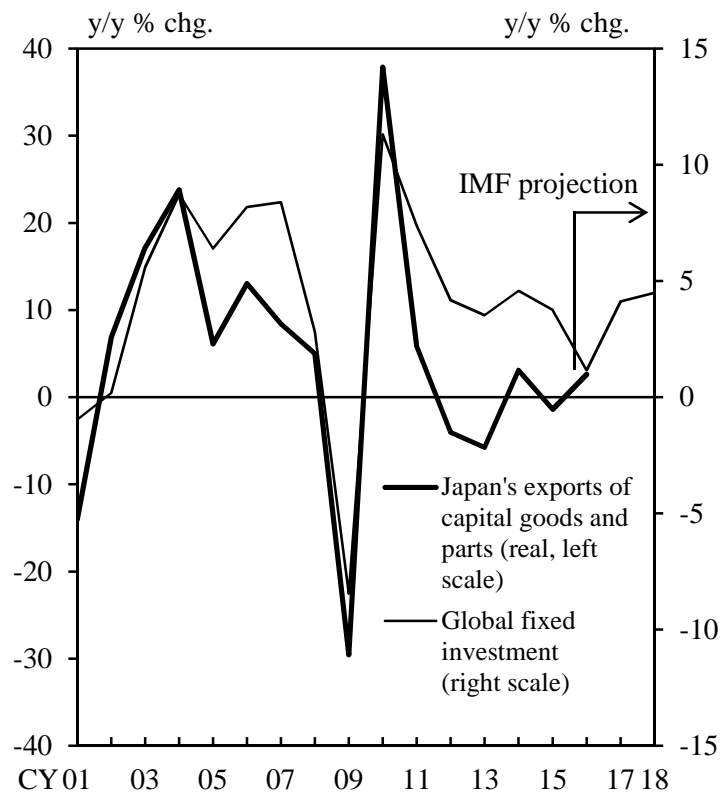
(2) The Rising Value Added of Motor Vehicle Exports



(3) World Semiconductor Shipments and IT-Related Goods Exports



(4) Global Fixed Investment and Japan's Exports of Capital Goods and Parts

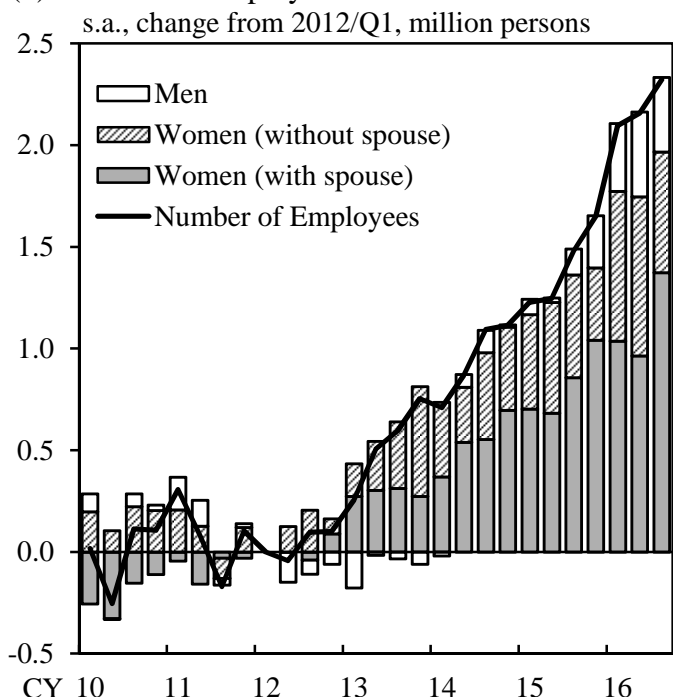


Note: Figures for global fixed investment of the world economy are estimated using global real GDP growth rates and investment-to-GDP ratio from the IMF's "World Economic Outlook." Figures are as of October 2016.

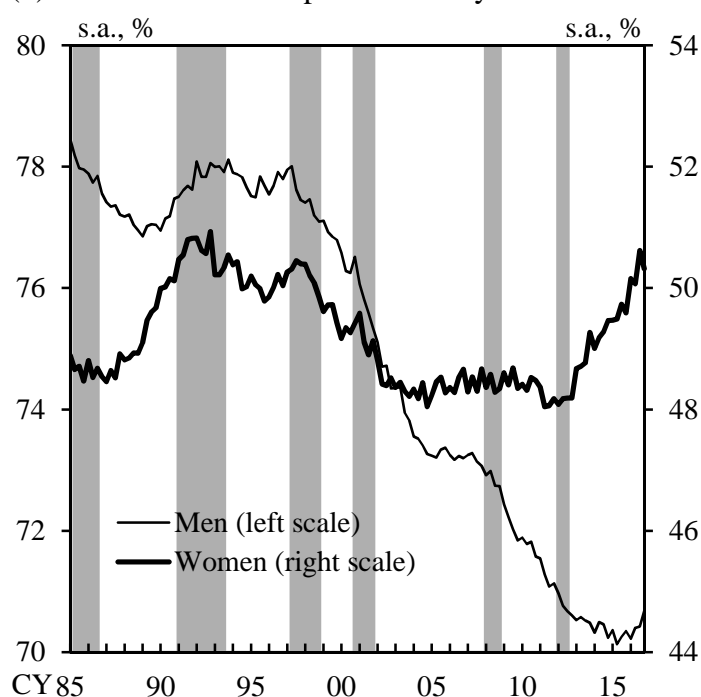
Sources: Ministry of Finance; Bank of Japan; World Semiconductor Trade Statistics (WSTS); IMF.

## Rise in Female Labor Force Participation and Dual-Income Households

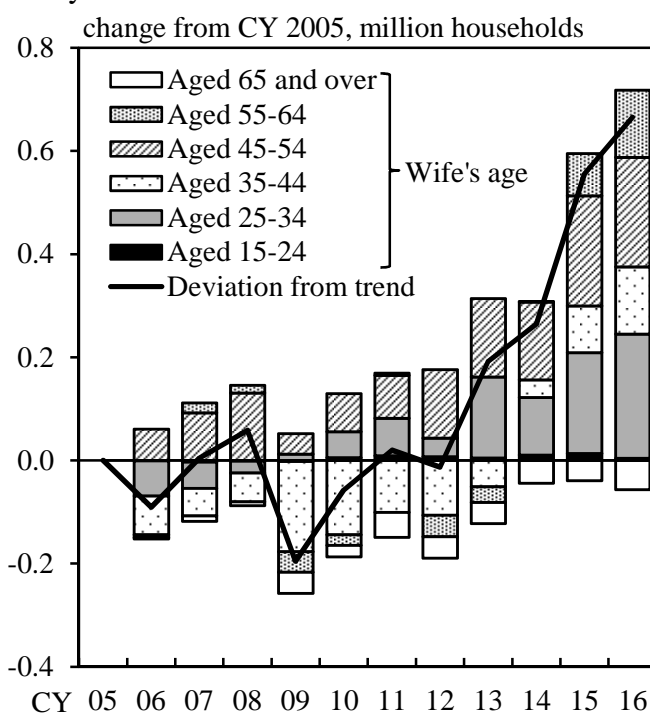
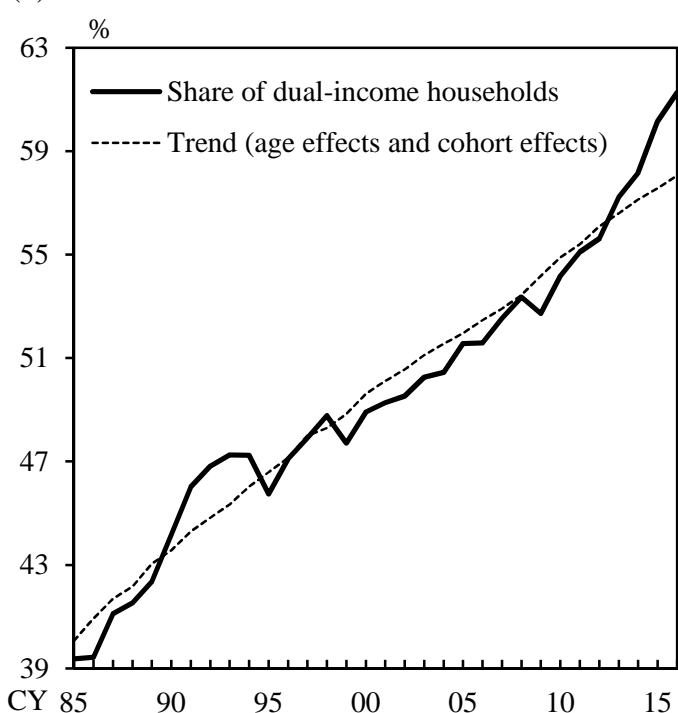
(1) Number of Employees



(2) Labor Force Participation Rate by Gender



(3) Share of Dual-Income Households and Trend Implied by the Cohort-Based Model



**Specification of the Cohort-Based Model:**

$$\text{Share of dual-income households}_{j,t} = \beta_{1,j} \cdot \text{Wife's age dummy}_j + \beta_{2,k} \cdot \text{Cohort dummy}_k + \varepsilon_{j,t}$$

$t = \text{CY } 1985\text{-}2016, j = \text{aged } 15\text{-}24, \dots, \text{aged } 55\text{-}64, \text{ and aged } 65 \text{ and over},$   
 $k = t - j = \text{born in the } 1910\text{s}, \dots, \text{born in the } 2000\text{s}.$

Notes: 1. Shaded areas in (2) indicate recession periods.

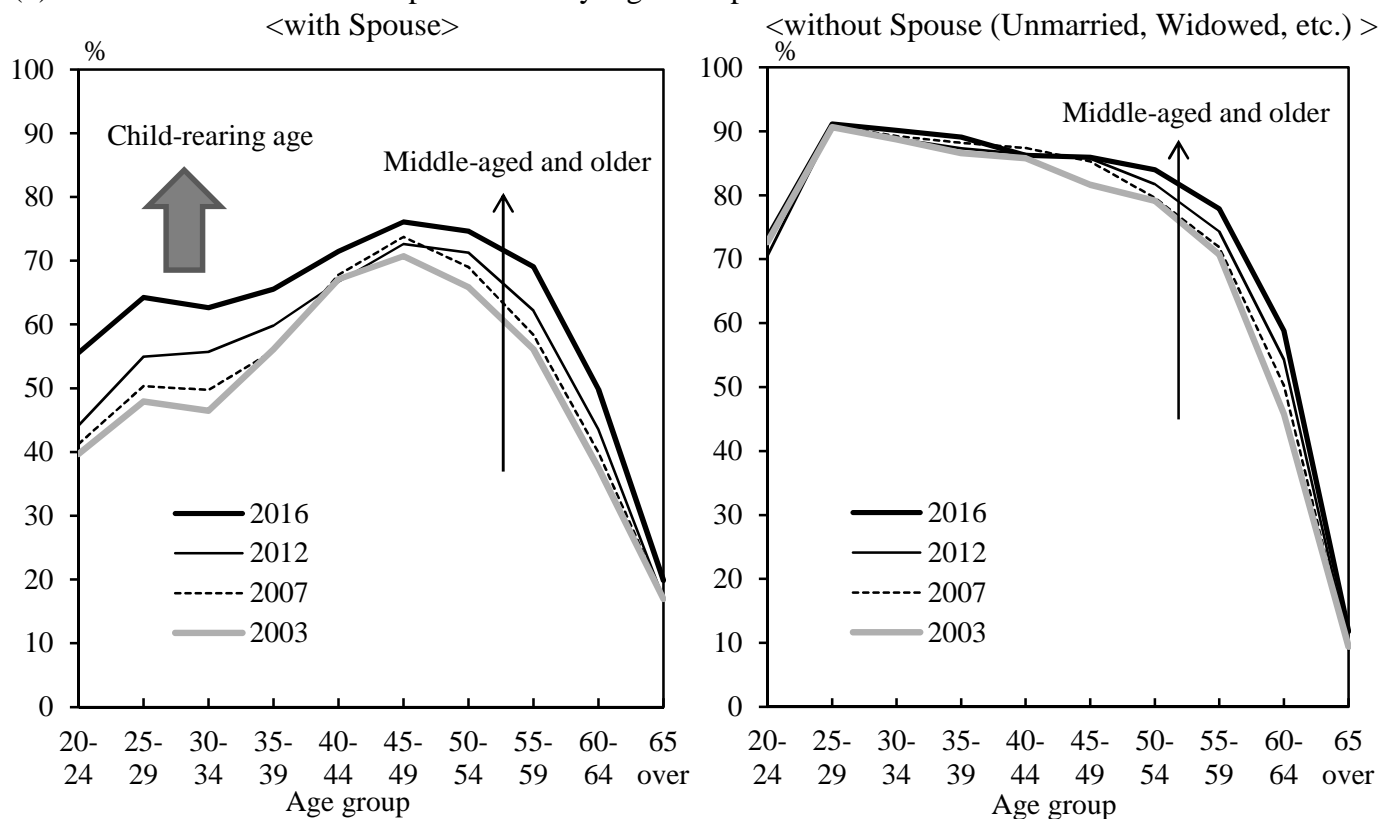
2. The share of dual-income households is the share of households in which both the husband and wife work as (non-agricultural) employees in the total number of households in which at least the husband works.

3. Figures for CY 2016 are Q1 to Q3 averages.

Source: Ministry of Internal Affairs and Communications.

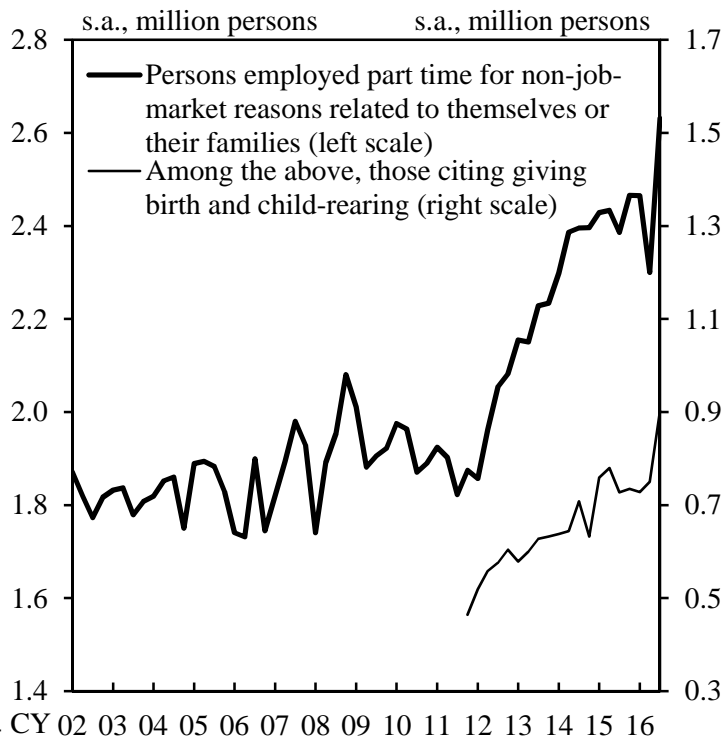
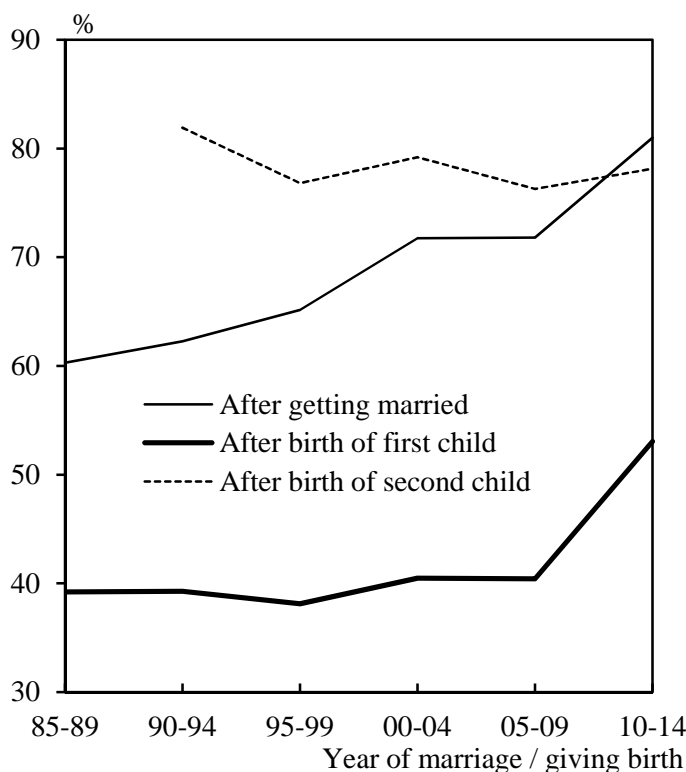
## Factors Underlying the Increase in Dual-Income Households (1)

(1) Female Labor Force Participation Rate by Age Group and Marital Status



(2) Ratio of Women Who Keep Working after Life Events

(3) Reasons for Women to Work Part-Time



Notes: 1. Figures for CY 2016 in (1) are January-September averages (of seasonally adjusted values).

2. Figures in (2) are based on the "National Fertility Survey" of married women under the age of 50.

3. Persons employed part-time in (3) are those who worked between 0 and 34 hours in the last week of the survey month.

Sources: Ministry of Internal Affairs and Communications; National Institute of Population and Social Security Research.

## Factors Underlying the Increase in Dual-Income Households (2)

### (1) Data and Estimation Methodology

#### Data

Microdata from the "Survey of Household Finances" conducted by the Central Council for Financial Services Information was used.

(a) Survey respondents: Households with at least two persons

(For the estimation, only data for households in which the wife is aged between 20 and 59 is used.)

(b) Number of respondents: 8,000 households (in CY 2015)

#### Estimation Methodology

In order to examine the effect of households' concerns about their financial situation in old age on probability that both the husband and the wife work, the following probit model is estimated,

$$P(Y = 1) = P(Y^* > 0)$$

$$Y^* = \beta_0 + \sum_j \beta_{1j} \times AGE_j \times DUM1 + \sum_j \beta_{2j} \times AGE_j \times DUM2 + Year\ Dummies + Controls$$

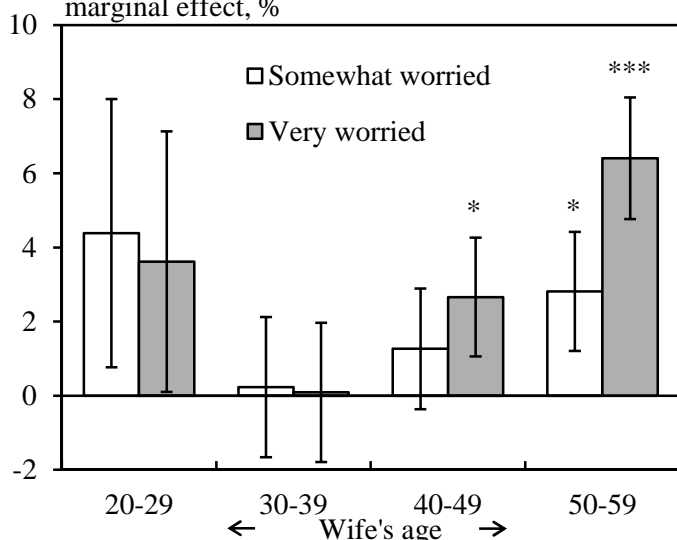
where  $Y$  is a dummy for dual-income households that equals 1 for dual-income households and 0 otherwise.

$DUM1$  and  $DUM2$  are dummies representing how worried households are about their financial situation in old age and are based on the following question in the survey: "In your household, how worried are you about your financial situation in old age? (Single answer required.) 1. Not very worried; 2. Somewhat worried; 3. Very worried."

$$DUM1 = \begin{cases} 1 & \text{Somewhat worried} \\ 0 & \text{Otherwise} \end{cases} \quad DUM2 = \begin{cases} 1 & \text{Very worried} \\ 0 & \text{Otherwise} \end{cases} \quad AGE_j \dots \text{Dummy for wife's age group (in 10-year intervals)}$$

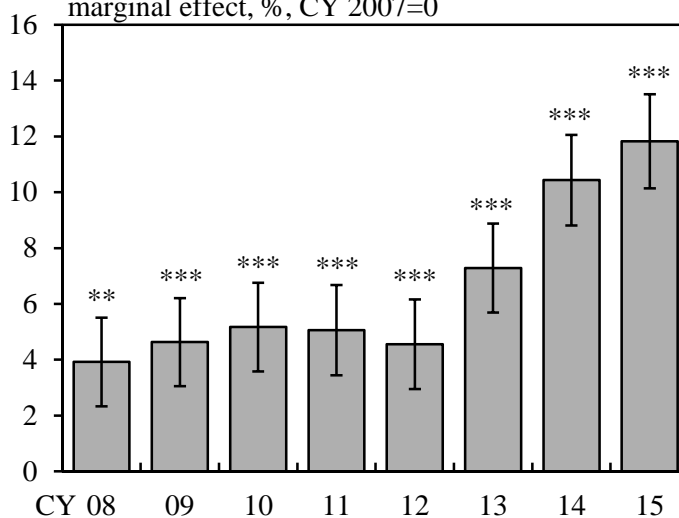
### (2) Effect of Concerns about Old Age Finances on

Probability that Husband and Wife Work  
marginal effect, %



### (3) Year Effect (Parameters for Year Dummies)

marginal effect, %, CY 2007=0



#### Details of Estimation Results

M. E.: Marginal effect on probability that both the husband and the wife work

	$DUM1 \times AGE$ , $DUM2 \times AGE$	Financial assets	Wife's age	Wife's age squared	With husband having reached retirement age	Having a child under age 6	Number of family members
M. E., %	See Chart (2)	-0.090	4.210	-0.054	-15.606	-22.643	2.243
p-value		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
	House ownership	Wife's educational attainment	Husband's educational attainment	Year dummies	Estimation period	Observations	Pseudo R <sup>2</sup>
M. E., %	-3.159	Included	Included	See Chart (3)	CY 2007-15	16,569	0.0437
p-value	(0.42)						

Notes: 1. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

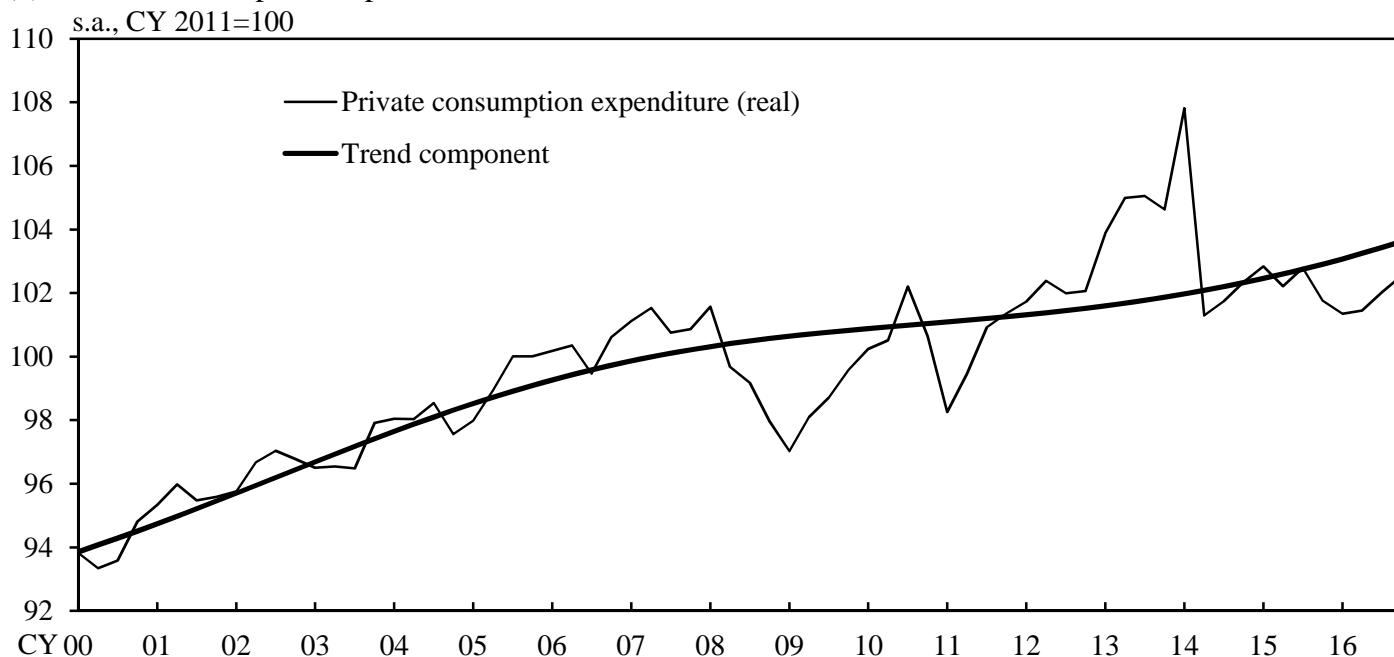
2. The error bands represent  $\pm 1$  standard error.

Source: The Central Council for Financial Services Information.



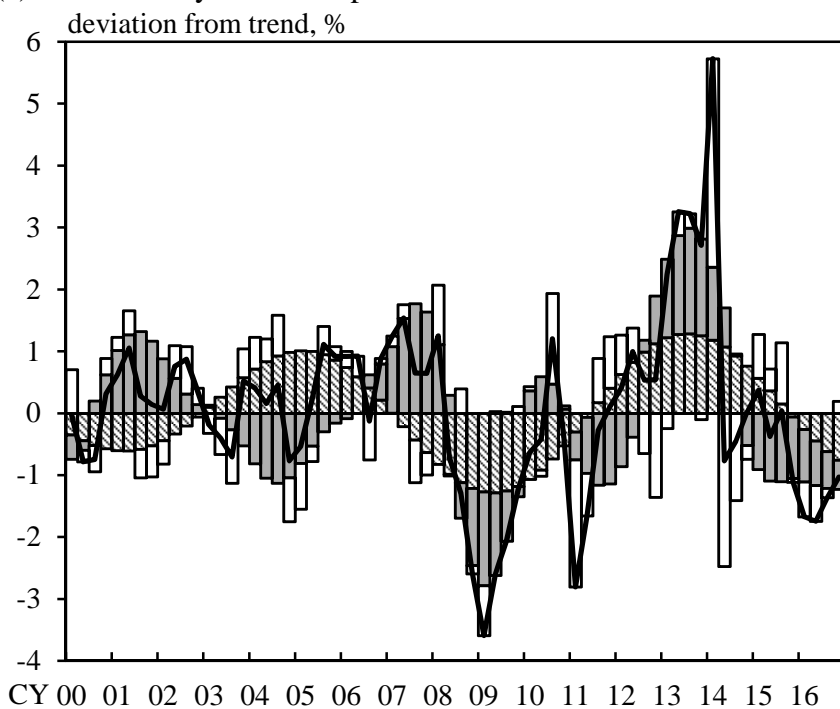
## Frequency Spectrum Analysis of Private Consumption

### (1) Private Consumption Expenditure and Its Trend

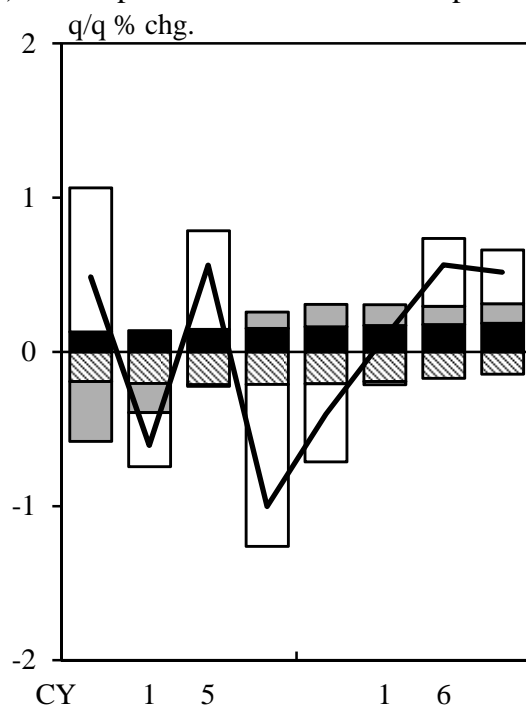


### (2) Cyclical Components of Private Consumption Expenditure

#### (a) Estimated Cyclical Components



#### (b) Decomposition of Recent Developments



- Short-term cycle (less than 2 years)
- ▨ Long-term cycle (7-12 years)
- ▒ Medium-term cycle (2-7 years)
- Trend component
- Private consumption expenditure (in (a), total of cyclical components)

Notes: 1. Up to 2015/Q4, private consumption expenditure is consumption of households (excluding imputed rent) from the SNA (first annual revision). Data from 2016/Q1 are obtained by extending private consumption expenditure using the quarter-on-quarter rate of change in the Consumption Activity Index (adjusting travel balance). Figures for 2016/Q4 are October-November averages.

2. Cyclical components are extracted using the Christiano-Fitzgerald filter. The trend component is calculated by subtracting cyclical components from the original series. The estimation period for filtering is 1980/Q1-2016/Q4.

Sources: Cabinet Office; Bank of Japan; Ministry of Economy, Trade and Industry; Ministry of Internal Affairs and Communications, etc.

## Inflation Expectations Formation and the Phillips Curve

### (1) Phillips Curve Specifications

#### (a) Hybrid Inflation Expectations Formation

$$\begin{aligned} \pi_t = & \beta_0 + \beta_1 \times \pi_t^e + \beta_2 \times \pi_{t-1} + (1 - \beta_1 - \beta_2) \times \pi_{t-2} \\ & + \beta_3 \times \text{GAP}_t \\ & + \beta_4 \times (\text{NEER}_{t-1} + \text{NEER}_{t-2} + \text{NEER}_{t-3})/3 \\ & + \Omega \times (\text{dummy variables for special factors}) \end{aligned}$$

$\beta_0$	-0.32 ***
$\beta_1$	0.29 ***
$\beta_2$	0.49 ***
$\beta_3$	0.07 ***
$\beta_4$	-0.06 ***
Adj. R <sup>2</sup>	0.80
S.E.	0.27

#### (b) Purely Backward Looking Inflation Expectations Formation

$$\begin{aligned} \pi_t = & \beta_1 \times \pi_{t-1} + \beta_2 \times (\pi_{t-2} + \pi_{t-3} + \pi_{t-4})/3 \\ & + \beta_3 \times \text{GAP}_t \\ & + \beta_4 \times (\text{NEER}_{t-1} + \text{NEER}_{t-2} + \text{NEER}_{t-3})/3 \\ & + \Omega \times (\text{dummy variables for special factors}) \end{aligned}$$

$\beta_1$	0.52 ***
$\beta_2$	0.28 ***
$\beta_3$	0.09 ***
$\beta_4$	-0.07 ***
Adj. R <sup>2</sup>	0.79
S.E.	0.27

\*  $\pi$ : CPI less fresh food, energy, and house rent (seasonally adjusted q/q % changes, annualized).

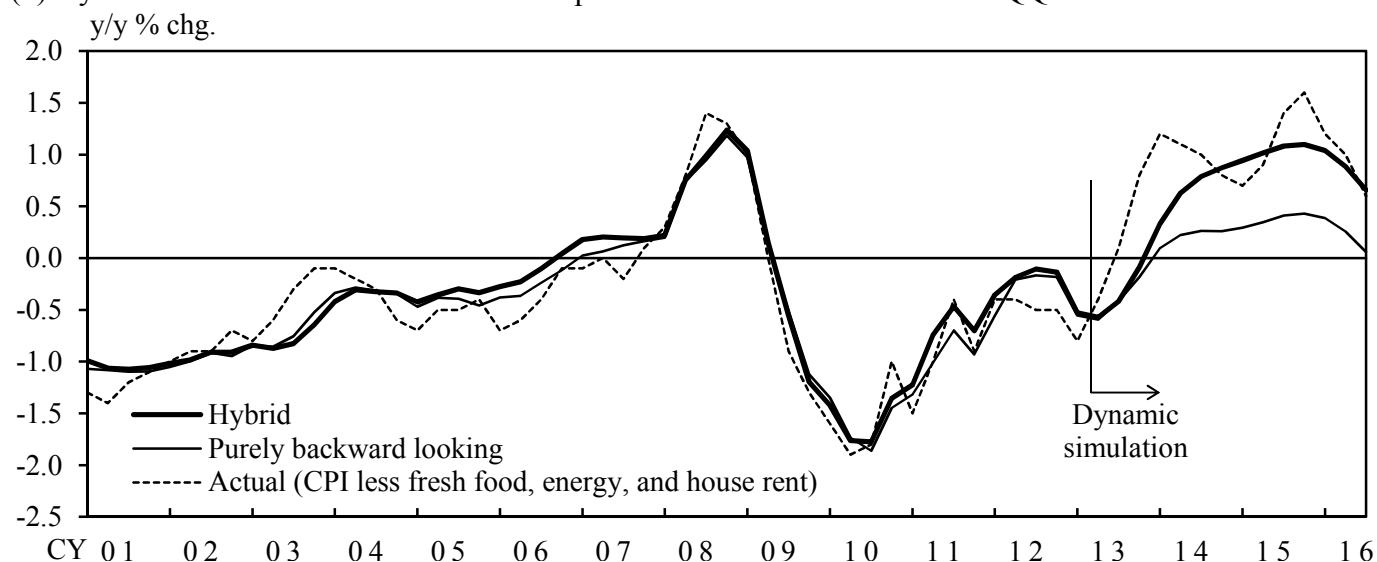
$\pi^e$ : medium- to long-term inflation expectations (%).

GAP: output gap (%). NEER: yen's nominal effective exchange rate (q/q % changes).

\* The estimation period is 1990/Q1-2016/Q3. \*\*\* denotes statistical significance at the 1% level.

S.E. represents the standard errors for the estimated y/y % changes.

### (2) Dynamic Simulation of Inflation Developments Since the Introduction of QQE



- Notes: 1. Figures for the CPI (less fresh food, energy, and house rent) are calculated by the Research and Statistics Department, Bank of Japan. Figures for the CPI are adjusted to exclude the estimated effects of changes in the consumption tax rate.
2. The output gap is estimated by the Research and Statistics Department, Bank of Japan.
3. Figures for medium- to long-term inflation expectations are the expectations for the CPI 6 to 10 years ahead and are based on the "Consensus Forecasts." In the estimations, dummy variables are included in order to control for the estimated effects of special factors such as the introduction of a subsidy for high school tuition.
4. In the dynamic simulation, the CPI is recursively estimated using only the backward-looking inflation expectations terms. With regard to medium- to long-term inflation expectations, the output gap, and the nominal effective exchange rate of the yen perfect foresight is assumed.

Sources: Ministry of Internal Affairs and Communications; Cabinet Office; BIS; Consensus Economics Inc., "Consensus Forecasts," etc.

## Economic Assessment by Region (Regional Economic Report)

Region	Assessment in October 2016	Changes from the previous assessment	Assessment in January 2017
Hokkaido	The economy has been recovering moderately.	⇒	The economy has been recovering moderately.
Tohoku	The economy has continued its moderate recovery trend, although production has been affected mainly by the slowdown in emerging economies.	↗	The economy has continued its moderate recovery trend.
Hokuriku	The economy has continued to recover, although sluggish movements have been observed in some aspects.	⇒	The economy has continued to recover.
Kanto-Koshinetsu	The economy has continued to recover moderately, although exports and production have been affected mainly by the slowdown in emerging economies.	↗	The economy has continued its moderate recovery trend.
Tokai	The economy has been expanding moderately, albeit at a somewhat reduced pace.	↗	The economy has been expanding moderately.
Kinki	The economy has been recovering moderately.	⇒	The economy has been recovering moderately.
Chugoku	The economy has been recovering moderately.	⇒	The economy has been recovering moderately.
Shikoku	The economy has continued to recover moderately.	⇒	The economy has continued to recover moderately.
Kyushu-Okinawa	The economy has been recovering moderately, with the effects of the Kumamoto Earthquake having eased.	⇒	The economy has been recovering moderately.

Note: The Regional Economic Report (Summary) is available on the Bank of Japan's web site (<http://www.boj.or.jp/en/research/brp/rer/rer170116.pdf>).

Source: Bank of Japan.