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Bank of Japan

**Overcoming Labor Shortages:
Prospects for Sustainable Economic Growth**

*Speech at the Meeting of Councillors of Nippon Keidanren
(Japan Business Federation) in Tokyo*

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(English translation based on the Japanese original)

Introduction

It is a great honor to have this opportunity to address such a distinguished gathering of business leaders in Japan today.

The year has flown by, and 2018 is now just a week away. Today, to round off 2017, I would like to take a look back at this year's economic developments both at home and abroad, and elaborate on Japan's current economic recovery phase -- the second longest in the post-war era -- while making comparisons with past recovery phases, focusing in particular on labor shortages and firms' efforts to overcome them. I would then like to explain the Bank of Japan's conduct of monetary policy and close my speech by sharing my hopes for Japan's economy in the coming year.

I. The Global Economy in a New Phase

I will start by talking about the global economy. At this meeting last year, I mentioned that the global economy at the time was entering a new phase by putting the negative legacy of the global financial crisis behind it. In fact, from a somewhat longer-term perspective, the global economy seems to have reached a turning point this year after having been subdued since the global financial crisis in 2008.

Let me take the example of developments in world trade (Chart 1). After the global financial crisis, growth of the world trade volume -- calculated by adding up the import volumes of economies worldwide -- was slower than global economic growth. This deceleration in the growth of the world trade volume has been referred to as "slow trade." Production activities in the manufacturing sector, which are closely linked to world trade, were subdued as well. However, this trend has been changing from the second half of 2016 to this year. Partly due to the substantial progress in inventory adjustments mainly in emerging economies, trade in goods such as materials, IT-related goods, and capital goods has become active recently and the world trade volume has been growing at a faster pace than the global economy again. Accordingly, business sentiment in the manufacturing sector on a global basis hit bottom in the first half of 2016 and improved markedly this year. Given that the growth rates of both advanced and emerging economies have been rising moderately, the global economy has been growing in a well-balanced manner.

Going forward, the global economy is expected to continue growing at a moderate pace. In the *World Economic Outlook* (WEO) released by the International Monetary Fund (IMF), growth projections have continued to be revised upward, and both advanced and emerging economies are expected to maintain their firm growth through next year. At international conferences I have recently attended, a frequently used phrase has been "synchronous growth" of the global economy. At those conferences, participants from various economies all looked brighter than they used to, which has given me the strong impression that the global economy has entered a new stage.

II. Economic Developments in Japan: Long-Lasting Recovery

Next, I will touch upon developments in Japan's economy. The economy has improved steadily this year, backed in part by the developments in the global economy that I just outlined. Real GDP for the July-September quarter registered relatively high growth of 2.5 percent on an annualized basis, representing positive growth for the seventh consecutive quarter since the January-March quarter of 2016.

In detail, Japan's exports have been on an increasing trend, mainly led by IT-related goods exports to Asia. Domestic demand has also increased. Specifically, business fixed investment has continued on an increasing trend with corporate profits improving. Private consumption has been increasing moderately, albeit with fluctuations, against the background of steady improvement in the employment and income situation. Public investment also has remained at a relatively high level due in part to the implementation of the government's stimulus measures formulated in fiscal 2016. As these developments show, Japan's economy is currently expanding moderately in a well-balanced manner, supported by multiple factors -- namely, external demand, domestic private demand, and domestic public demand. Another salient feature of Japan's recent economy is that the benefits of the economic expansion have been spreading to a wide range of economic entities. According to the Bank's *Tankan* (Short-Term Economic Survey of Enterprises in Japan), the diffusion indexes (DIs) for business conditions have continued to be positive, not only for large enterprises and manufacturers but also for small enterprises and nonmanufacturers (Chart 2). Also, by region, the DIs have improved significantly for all regions.

The current economic recovery is also characterized by its long duration. The duration of the current recovery phase, which started in December 2012, likely reached 60 consecutive months in November 2017 (Chart 3). This exceeds the 57 months of the *Izanagi* boom, which occurred in the midst of the period of high economic growth, and is the second longest boom in the post-war era. In the post-war era, the longest recovery phase is that from 2002 through 2008, followed by the current one as the second, the *Izanagi* boom from 1965 through 1970 as the third, and the *Heisei* boom from 1986 through 1991 as the fourth.

Each of the four recovery phases that I just mentioned has its own particular characteristics. During the *Izanagi* boom, for example, the economy achieved annual growth of more than 10 percent on average amid a steadily increasing population and under the slogan "catch up with and overtake" the U.S. and European economies. Growth expectations at that time differed substantially from those today. The *Heisei* boom more or less coincided with the so-called bubble period, when the expectations of a wide range of economic entities turned excessively bullish and, as a result, investment and consumption activity became overheated.

These phases have similarities as well. One notable similarity is that all four phases witnessed a tighter labor market than the periods before and after them. This past experience offers valuable insights into how the current acute labor shortages may affect wages and prices. More specifically, the experience of the past three recovery phases can provide us with important clues as to how the current labor shortages could transform Japan's economy going forward. In what follows, I would like to take a look back at these past phases in more detail.

III. Labor Shortages, Wages, Prices, and Productivity: Past Experience and Implications for the Present

Past Experience

Before comparing the current recovery phase with those in the past, I would like to first provide a theoretical introduction. Firms that face increases in costs due to wage increases stemming from labor shortages will generally consider the following two options. One is to pass on the increase in wage costs to the sales prices of their products and services with a

view to securing profits. The other is to undertake labor-saving investment and streamline production and sales processes in response to labor shortages, and thereby provide a larger amount of products and services with the same number of employees. This allows firms to secure profits without passing on increases in wage costs to sales prices. For example, if hourly wages of employees double due to labor shortages, firms will still be able to maintain the same level of profitability without raising the prices of their products if they introduce new production facilities that enable employees to produce twice as much per employee as before.

From a macroeconomic perspective, increases in firms' sales prices will lead to a rise in the general price level, while improvements in the efficiency of individual firms' production and sales processes will lead to higher productivity in the economy as a whole. Increases in nominal wages caused by labor shortages can be decomposed into two components: the part that is passed on to general prices and the rest, which is absorbed by the increase in labor productivity. Put differently, if we subtract the increase in prices from the increase in nominal wages, the remainder will reflect the increase in productivity. This corresponds to the rise in real wages, which represents an increase in households' real income. This raises households' purchasing power, stimulating private consumption, which in turn will spur new investment by firms through a rise in corporate profits. In this manner, the mechanism will start to operate by which increases in wages create a virtuous cycle from income to spending and encourage further economic expansion.

As mentioned earlier, in each of the four recovery phases, including the current one, labor market conditions tightened or have tightened. However, the specific degree to which labor market conditions tightened differs by phase (Chart 4). During the recovery phase in the mid-2000s, the active job openings-to-applicants ratio rose only to around 1, which was insufficient to trigger the virtuous cycle just mentioned. Under these circumstances, upward pressure on wages was limited, so that deflation continued and private consumption remained subdued. Despite being the longest in the post-war era, the economic recovery in the mid-2000s seems to have not been self-sustaining, but relied on external demand and, more specifically, the credit bubble in the United States fuelling that demand.

In contrast, during the *Izanagi* and *Heisei* booms, when the active job openings-to-applicants ratio increased nearly to 1.5 -- almost the same level as today -- and labor shortages became acute, wages increased and the virtuous cycle described earlier firmly took hold. I would now like to take a close look at developments in each of these phases.

Let me start with the *Izanagi* boom. During this period, the active job openings-to-applicants ratio increased to 1.49, which is very similar to the level today. Economic history textbooks as well as writings at the time suggest that, with wages rising due to acute labor shortages, firms simultaneously pursued the two options just described; that is, they passed on the increased costs to sales prices, and they improved production efficiency (Chart 5). The degree of pass-through to sales prices depended on individual firms and the industry to which they belonged. Since small firms in the service sector such as Japanese-style inns and barbershops, for instance, were so labor intensive that they could not absorb increases in wage costs through the streamlining of business processes and improvements in efficiency, they more or less fully passed on the increases in wage costs to services prices. According to statistics of the time, the cost of a haircut increased at an average annual rate of 10 percent during this period. On the other hand, faced with acute labor shortages, many small and medium-sized firms especially in the manufacturing sector actively invested in new facilities and equipment to improve efficiency. Such investment was also stimulated by the growth of processing and assembly industries, such as electric machinery and automobiles, which involved many manufacturing firms. For a certain period after the end of World War II, there was a significant productivity gap, called the "dual structure," between large firms with high capital intensity and small firms with low capital intensity. However, the gap narrowed significantly during the *Izanagi* boom, when small and medium-sized manufacturing firms actively invested in facilities and equipment. In this way, not only did prices rise, but firms' efforts to raise productivity also drastically intensified. As a result, real wages increased notably, thereby substantially boosting households' purchasing power. It is during this period that the penetration of durable goods such as private cars, color TV sets, and air conditioners -- the so-called "3Cs" -- increased rapidly. Furthermore, the surge in private consumption encouraged firms to undertake more

investment aimed at producing higher value-added products. Literally, with wages and prices increasing, a virtuous cycle from income to spending was in place.

A similar mechanism operated in the *Heisei* boom, which started from 1986 (Chart 6). Amid an increase in the active job openings-to-applicants ratio to nearly 1.5, the annual growth rate of scheduled wages rose to around 4 percent. Since part of the increase in wage costs was passed on to prices of products and services, the annual price inflation rate rose to around 3 percent. While it needs to be taken into account that expectations at the time were excessively bullish, firms increased fixed investment, boosting labor productivity. Manufacturing firms proactively introduced new technologies such as micro-electronic equipment, including robots, and nonmanufacturing firms made efforts to streamline administrative work through office automation. As a result, real wages increased, raising households' purchasing power. Many of you may remember the consumer boom at that time, leading to proactive investment by firms.

Implications for the Current Recovery Phase

Based on the experience of the past, I would like to explore wage and price developments as well as firms' efforts to raise productivity in the current recovery phase.

Let me start with wage developments. The year-on-year rate of increase in hourly wages of part-time employees, which are particularly sensitive to labor market conditions, has accelerated to the range of 2.0-3.0 percent. For full-time employees, base pay at many firms has increased for four consecutive years, suggesting that upward pressure on wages has been gradually but steadily increasing (Chart 7). That being said, it cannot be denied that, relative to the strength of the economy and degree of labor market tightening, the pace of increase in wages is more sluggish than in past recovery phases. While there may be many reasons for this, it seems that the 15 years of deflation are still greatly affecting the economy today, particularly with regard to the weak developments in wages. In Japan, wages of full-time employees are said to be not very sensitive to developments in labor market conditions. While the return of base pay increases signals an important improvement in the wage situation, firms' wage-setting stance has remained cautious on the whole. Some have argued that, reflecting that both labor and management in Japan place priority on the

long-term stability of employment and wages over wage increases, firms avoided large-scale layoffs and wage cuts under deflation, so that firms cannot simply switch to increasing wages even when the economy grows and labor market conditions tighten.

Next, I will talk about developments in prices and productivity. As I just mentioned, wages have been increasing gradually, albeit at a slower pace than in the past. Under these circumstances, it seems that many firms so far have been making efforts to raise their labor productivity and absorb increases in wage costs rather than raising their sales prices. For instance, a wide range of firms mainly in the nonmanufacturing sector have recently been proactively undertaking labor-saving and efficiency-improving investment. The software investment plans for this fiscal year of some industries such as construction, retailing, as well as accommodations and restaurants showed significant increases compared to the actual investment made last year. Meanwhile, specific examples of labor-saving and efficiency-improving investment include hotels and Japanese-style inns using artificial intelligence (AI) or robots to take care of their customers, construction firms introducing drones at construction sites, and transportation firms halving the number of workers at warehouses by building automated ones.

In contrast to such efforts to raise productivity, moves to pass on increases in wage costs to sales prices have lacked sufficient strength on the whole, since so far such moves have been only observed at some firms in labor-intensive industries and industries with a high ratio of part-time employees, such as transport and dining-out. The experience of prolonged deflation again plays a major role; with consumers remaining reluctant to accept price rises, many firms are concerned about losing customers if they raise prices. It seems so difficult for many firms to take the first step to raise their prices that they wait and see what other firms are doing.

In sum, during the current recovery phase, we have seen the mechanism in place by which labor shortages exert upward pressure on wages, which encourages firms to raise sales prices and work toward raising labor productivity. In this regard, the current recovery is more like the *Izanagi* and *Heisei* booms rather than the recovery in the mid-2000s. But at the same time, the mechanism is weaker so far in the current phase than in those two phases.

In particular, it has been taking time for firms' stance to shift toward increasing wages and prices despite acute labor shortages.

Nevertheless, economic conditions supportive to wage growth are clearly being put in place. The active job openings-to-applicants ratio already exceeds the peak levels of the *Izanagi* and *Heisei* booms and the unemployment rate is now firmly below 3 percent, suggesting that Japan's economy is virtually at full employment. Corporate profits are at record high levels, substantially exceeding the levels of the past recovery phases (Chart 8). Going forward, supported by highly accommodative financial conditions, the economy is likely to continue expanding firmly with labor market conditions tightening further. It is expected that this will reinforce the mechanism by which prices and labor productivity rise along with wages, encouraging households and firms to increase expenditures. If this takes place, the economy will continue to expand in a more sustainable manner.

Let me add one important thing. Although I made various comparisons to the *Izanagi* and *Heisei* booms, there is one notable difference between these two booms. The *Izanagi* boom helped to form a large middle class, leading to a situation in which almost all Japanese felt that they belonged to the middle class, and provided the basis for subsequent stable and sustainable economic growth. In contrast, the economic growth of the *Heisei* boom proved to be unsustainable. While the economy saw high wage growth and moderate price rises, the boom also gave rise to an asset bubble, the burst of which brought about the prolonged stagnation observed through the 2000s. In the current recovery phase, although no signs of excessively bullish expectations are observed in asset markets and financial institutions' behavior so far, developments in financial conditions also continue to warrant close attention.

IV. The Bank's Conduct of Monetary Policy

Next, I will explain the Bank's conduct of monetary policy.

With the aim of achieving the price stability target of 2 percent, the Bank has continued with powerful monetary easing since the introduction of quantitative and qualitative monetary easing (QQE) in April 2013. To strengthen it further, the Bank introduced a new

framework of "QQE with Yield Curve Control" last September. I am convinced that the series of powerful monetary easing measures has made a substantial contribution to the current 60-month-long recovery phase that I talked about.

On the price front, the annual CPI inflation excluding fresh food and energy has been positive as a trend for about four years since October 2013 (Chart 9). This is the first time since the end of the 1990s that such a development has been observed in Japan. Japan's economy is no longer in deflation, which is generally defined as a sustained decline in prices.

As I mentioned earlier, however, price developments in Japan have remained relatively sluggish compared to the economic expansion and the labor market tightening. Annual CPI inflation excluding fresh food and energy has remained only slightly positive, and there is still a long way to go to achieve the price stability target of 2 percent. Given this situation, the Bank will continue to persistently pursue powerful monetary easing under the current "QQE with Yield Curve Control," thereby more firmly supporting the mechanism in which the virtuous cycle from income to spending continues to operate, with wages and prices increasing moderately.

V. Overcoming Labor Shortages: Hopes for the New Phase

Given that there is little time left, I would like to conclude my speech. Today, I have taken a look back at past economic recovery phases and pointed out that the shortage of labor can give rise to increases in wages and prices, leading to a virtuous cycle in the economy. I am also aware that labor shortages are a major management issue that individual firms have been trying to address. In fact, it has been reported at the quarterly meetings of general managers of the Bank's branches that some firms have had to decline orders from customers due to labor shortages. Moreover, some have raised the concern that the acute labor shortages may constrain Japan's economic growth.

However, I do not share this pessimistic view. The past recovery phases that I talked about today provide grounds for my stance. Past experience shows that in the process of overcoming labor shortages, Japan's economy boosted its growth potential through

individual firms' efforts to raise their productivity. Labor shortages are only one example, and Japan's economy has repeatedly proved that something that initially was considered as a constraint on economic growth turned out actually not to be a constraint, but rather something that led the economy into a new phase. When Japan was hit by the two oil shocks in the 1970s, there were concerns that natural resource shortages would constrain Japan's economic growth and pessimistic views that Japan's economic growth rate would fall to zero prevailed. The reality was that proactive energy-saving investment by many firms made Japan's economy the most energy-efficient economy in the world, enabling it to overcome the challenges posed by the jump in oil prices. More recently, after the Great East Japan Earthquake, a concern was that electric power supply shortages and supply chain disruptions could be a major constraint on economic activity. However, many firms recovered their production capacity remarkably quickly by increasing in-house power generation facilities and rebuilding or relocating production sites.

As these examples indicate, the economy can grow by overcoming what in the short run are considered as constraints. A driver of overcoming such constraints has always been individual firms' proactive efforts. I am convinced that this is also the case with the current labor shortages. I have full confidence in the problem-solving abilities of Japanese firms. While many firms have already started to address labor shortages through fixed investment and other measures, it is important for firms to take full advantage of business opportunities by staying ahead of their competitors, with a view to deploying their available human resources effectively. In order for firms to further raise their growth potential, they also need to secure talented human capital by paying the appropriate wages. Under deflation, taking a step ahead of others may have seemed risky and the best option may have been to wait patiently, but this situation has already changed. There are some firms that have shaken off the deflationary mindset and have proactively embarked on new initiatives. When more firms follow suit, this will give rise to a virtuous cycle in the economy as a whole, with prices rising moderately as wages and productivity increase, leading to sustainable economic growth.

I sincerely hope that the year 2018 will be a wonderful one for all of you, and that you will overcome the challenges posed by labor shortages, helping Japan's economy to enter a new

phase. The Bank will continue to provide you with the maximum support in our role as the central bank.

Thank you for your attention.

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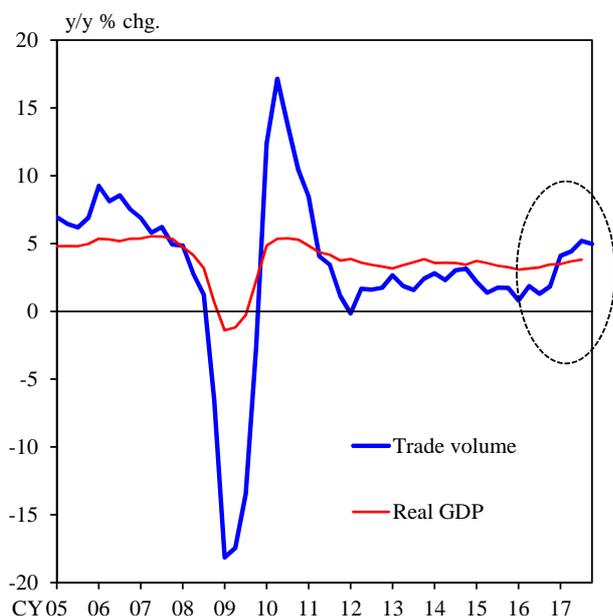
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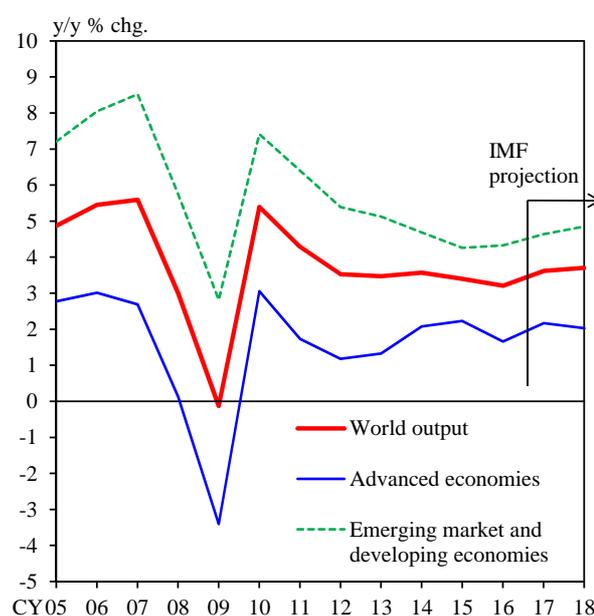
Chart 1

Global Economy

*World Trade Volume and
Real GDP of the Global Economy*



Projections for Global Real GDP Growth



Notes: 1. Figures for the trade volume are those for real imports. The figure for 2017/Q4 is that for October.

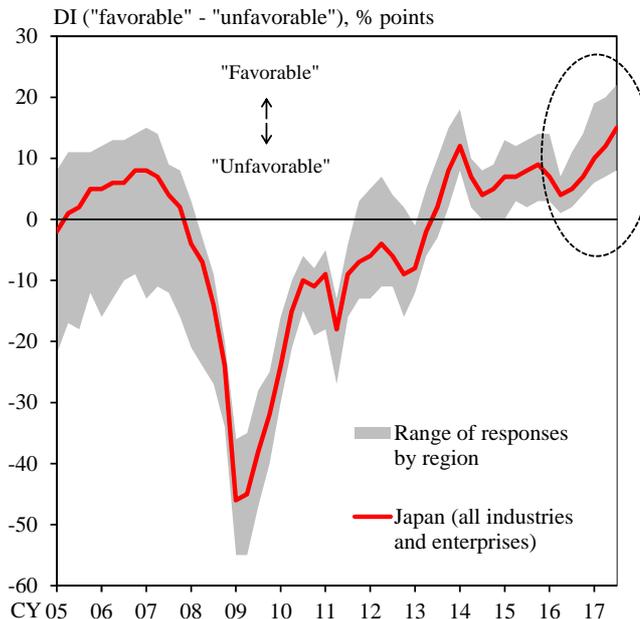
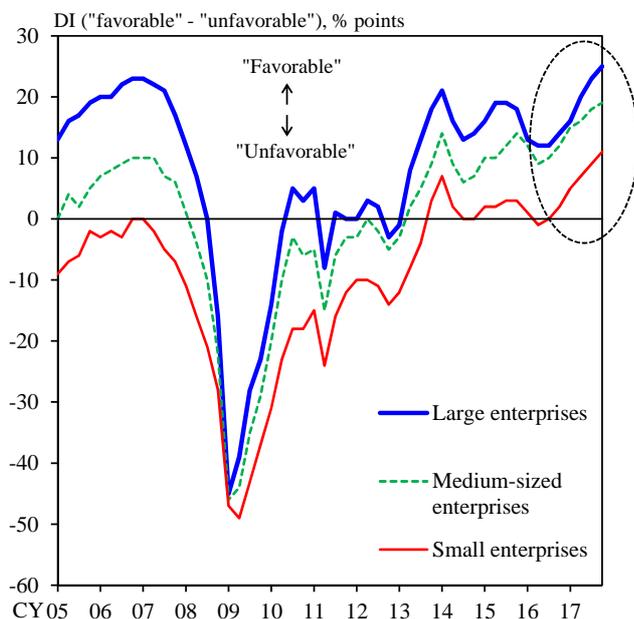
2. Real GDP of the world economy in the left chart is based on BOJ staff calculations using PPP-adjusted GDP shares of world total GDP from the IMF as weights.

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

Business Conditions DI (*Tankan*)

By Firm Size

By Region



Source: Bank of Japan.

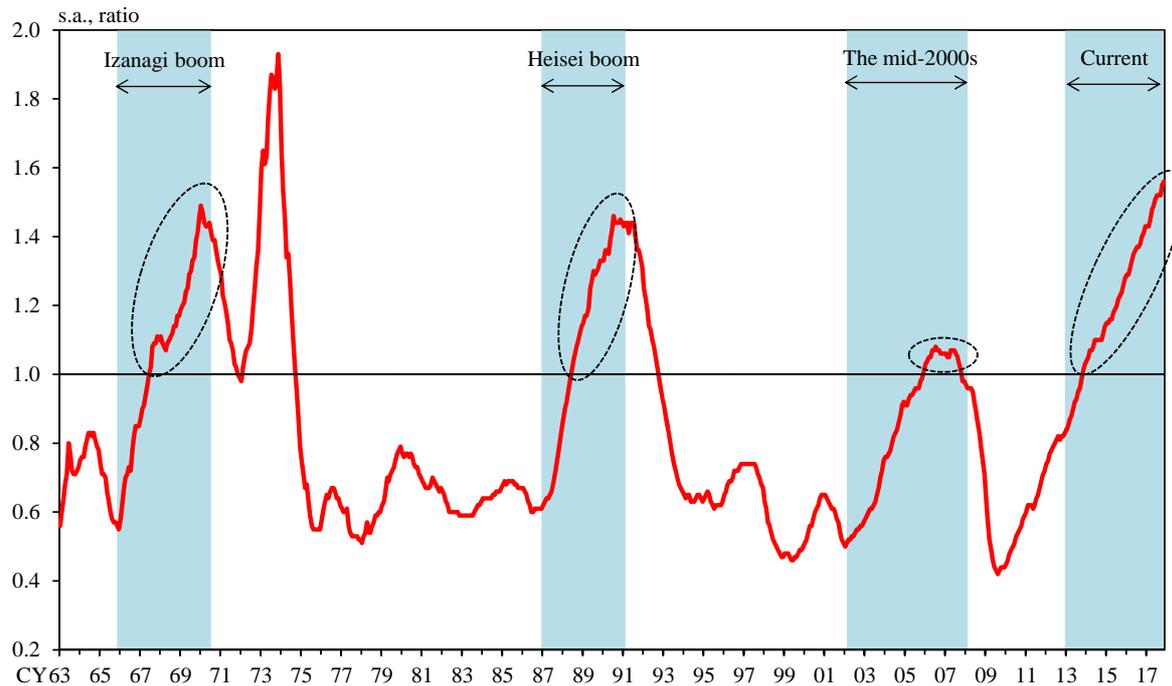
Duration of Economic Recovery Period

Rank	Period	Duration
1	February 2002-February 2008	73 months
2	December 2012-(Current)	60 months
3	November 1965-July 1970 (Izanagi boom)	57 months
4	December 1986-February 1991 (Heisei boom)	51 months
5	November 1993-May 1997	43 months

Note: Economic peaks and troughs are judged based on discussions by experts after waiting for data accumulation. The current recovery phase, which started in December 2012, seems to have lasted for 60 consecutive months by November 2017.
Sources: Cabinet Office, etc.

Labor Market Conditions

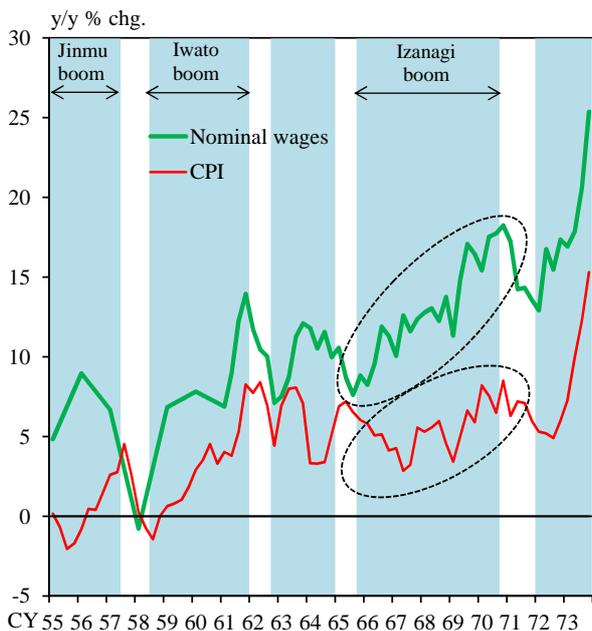
Active Job Openings-to-Applicants Ratio



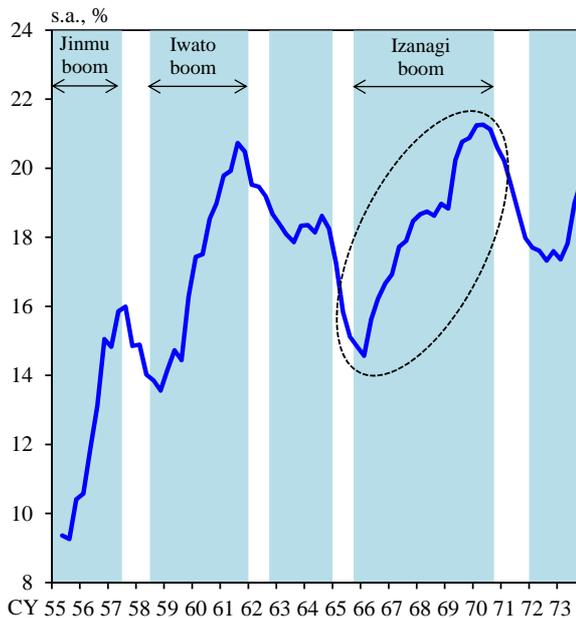
Source: Ministry of Health, Labour and Welfare.

Izanagi Boom

Wages and Prices



Investment-GDP Ratio (Nominal)



Notes: 1. Shaded areas indicate economic expansion periods.

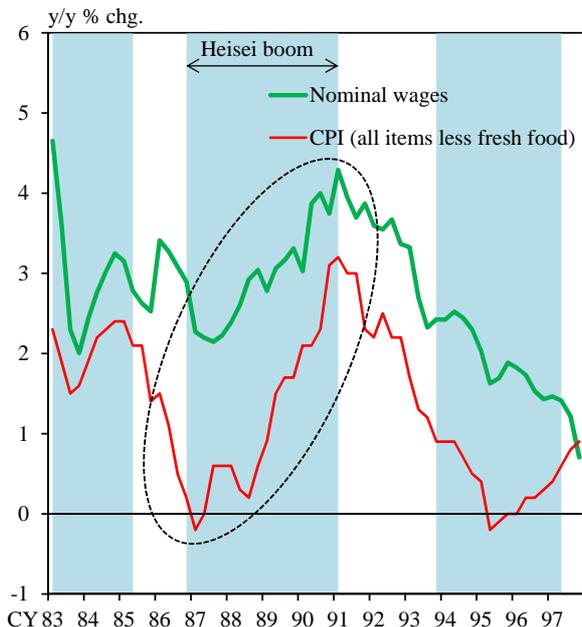
2. The CPI figures up to 1970 are the CPI for all items less imputed house rent and those from 1971 are that for all items less fresh food.

3. Figures for nominal wages are total cash earnings (establishments with 30 or more employees) based on quarterly data (up to 1960: annual data). Excluding "services" up to 1970.

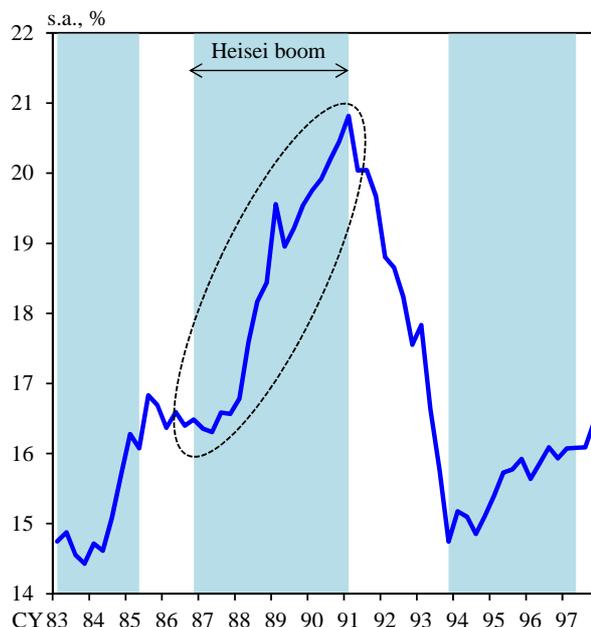
Sources: Ministry of Health, Labour and Welfare; Ministry of Internal Affairs and Communications; Cabinet Office, etc.

Heisei Boom

Wages and Prices



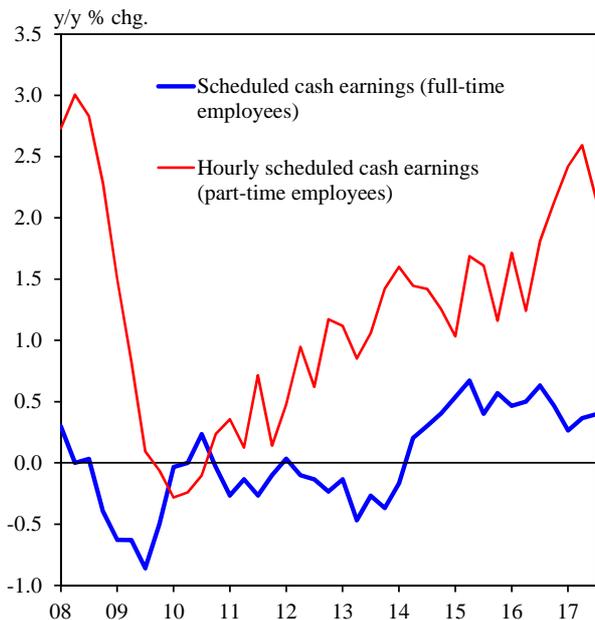
Investment-GDP Ratio (Nominal)



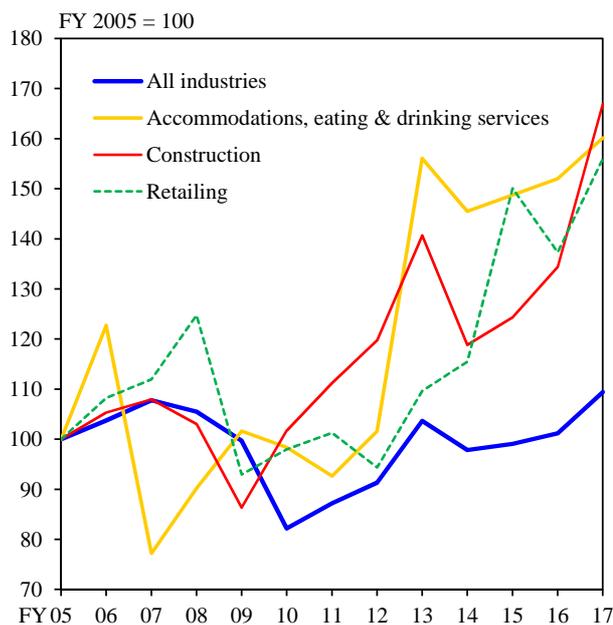
Notes: 1. Shaded areas indicate economic expansion periods.
 2. The CPI figures are adjusted for changes in the consumption tax rate.
 3. Figures for nominal wages are scheduled cash earnings (establishments with 30 or more employees).
 Sources: Ministry of Health, Labour and Welfare; Ministry of Internal Affairs and Communications; Cabinet Office, etc.

Current Recovery Phase

Nominal Wages



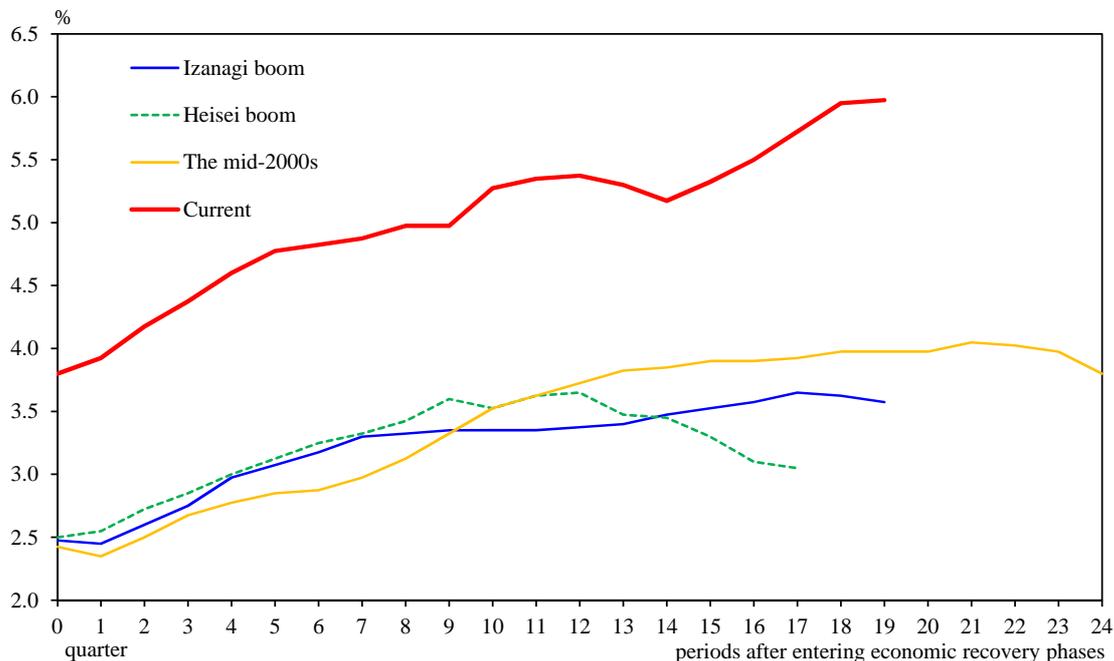
Software Investment (Tankan)



Notes: 1. Nominal wages: Q1 = March-May, Q2 = June-August, Q3 = September-November, Q4 = December-February. The figure for 2017/Q3 is the September-October average.
 2. Figures for the software investment plans for fiscal 2017 are forecasts from the December 2017 Tankan survey.
 Sources: Ministry of Health, Labour and Welfare; Bank of Japan.

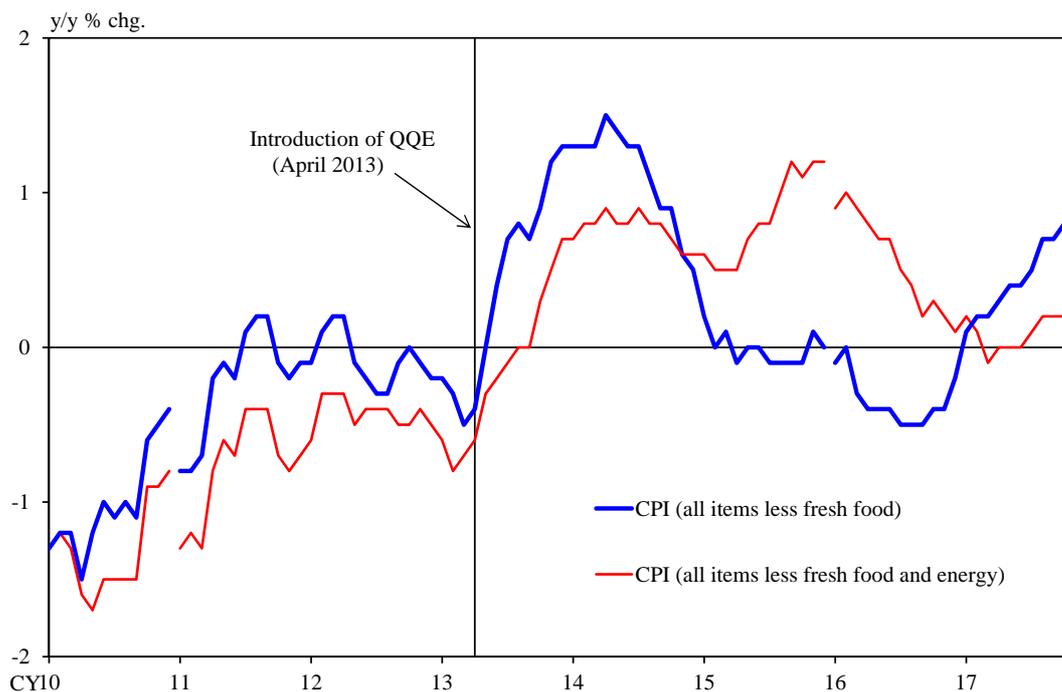
Corporate Profits

Ratio of Current Profits to Sales



Note: Based on the *Financial Statements Statistics of Corporations by Industry, Quarterly*. Excluding "finance and insurance." Figures show 4-quarter backward moving averages.
 Source: Ministry of Finance.

Consumer Prices



Note: Figures are adjusted for changes in the consumption tax rate.
 Source: Ministry of Internal Affairs and Communications.