



April 22, 2022

Bank of Japan

**Japan's Inflation Dynamics
and the Role of Monetary Policy**

Speech at Columbia University in New York

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Introduction

It is a great privilege to be invited to speak at Columbia Business School today. The Center on Japanese Economy and Business (CJEB) has long been a central hub for leading economists to carry out research and promote a better understanding regarding Japan's economy. I wish to express my deep respect for the efforts of Professor Emeritus Hugh Patrick, the founder of the CJEB, Professor David E. Weinstein, the current director at the center, and Professor Ito Takatoshi, my longtime friend and good partner in economic debate.

More than two years have passed since the COVID-19 outbreak in spring 2020. Despite the intermittent spread of new variants, the global economy is steadily overcoming the impact of COVID-19 due to progress in vaccinations. However, a new geopolitical uncertainty, namely, Russia's invasion of Ukraine, has been added recently. Inflation rates have risen worldwide since the second half of last year, as economic activity resumed from the pandemic. The recent surge in commodity prices in the wake of the crisis in Ukraine seems likely to increase inflationary pressure globally.

Today, I would like to talk about inflation dynamics in Japan amid the global surge in inflation and the role of the Bank of Japan's monetary policy. To anticipate my conclusion, Japan's inflation rate may be at around 2 percent for the time being, due mainly to a rise in energy prices. However, inflation in Japan differs significantly from that in the United States in terms of magnitude, spread, and economic conditions behind the rise in inflation. Therefore, it is my view that the Bank should persistently continue with the current aggressive monetary easing toward achieving the price stability target of 2 percent in a stable manner.

I. Developments in Economic Activity and Prices in Japan and the United States

Developments since the COVID-19 Outbreak

I will start by looking back at developments in Japan's economy since the pandemic began and comparing them with those in the United States. My first point concerns aggregate demand. In Japan, confirmed COVID-19 cases per capita have been around a quarter of that in the United States and deaths around a thirteenth (Chart 1). With cases being contained at

a very low level, recovery in aggregate demand in Japan has been slower than in the United States. Immediately after the COVID-19 outbreak in spring 2020, GDP for both Japan and the United States plunged significantly due to widespread social restrictions. Thereafter, however, with people adapting to COVID-19, demand in both countries has picked up, supported by large-scale fiscal and monetary policy measures. It took only about a year for U.S. GDP to recover to the pre-pandemic level and it has continued to expand strongly since then. On the other hand, Japan's GDP, although picking up as a trend, is still below the pre-pandemic level by more than 2 percent. This difference in GDP primarily reflects different developments in private consumption (Chart 2). In the United States, goods consumption has increased significantly on the back of strong demand for durable goods. Services consumption also recovered to its pre-pandemic level at the end of last year as vaccinations and the resumption of economic activity progressed. On the other hand, in Japan, goods consumption has been sluggish, partly affected by supply-side constraints on automobiles and household electrical appliances. Services consumption has also remained under downward pressure, reflecting strong risk aversion particularly among seniors. Overall, unlike in the United States, private consumption in Japan has still not returned to its pre-pandemic level. These developments show a notable difference between the two countries in the momentum of recovery in domestic demand, particularly private consumption.

Second, labor market conditions have also been significantly different between Japan and the United States (Chart 3). Labor demand, as measured by the number of job openings, has increased for both countries as their economies have reopened. However, there has been a large difference in the pace of recovery. In the United States, the number of job openings has soared to a record high level because labor demand has expanded in many industries and the job vacancy rate has also increased reflecting a rise in job separations. On the other hand, the number of job openings in Japan has remained below its pre-pandemic level as vacancies in the labor-intensive services sector have been slow to recover. In terms of labor supply, the U.S. labor force participation rate has declined markedly, reflecting the so-called Great Resignation, and has been below its pre-pandemic level. By contrast, in Japan, while the trend increase in the participation rate since 2013, led by a rise in the rate for women and seniors, has paused, the rate has not seen a large drop during the pandemic. In short,

labor markets in the United States and Japan have been substantially different, and the tightening of labor market conditions in the United States has been more evident than in Japan.

With these developments in domestic demand and labor market conditions, there has been a notable difference in inflation rates between the two countries (Chart 4). The U.S. CPI has risen at its fastest rate in 40 years, recently registering over 8 percent on a year-on-year basis. Although this rise partly reflects an increase in energy prices, the inflation rate excluding energy has also been very high, exceeding 6 percent. It seems increasingly likely that the United States is experiencing demand-pull inflation: price rises first became evident for goods such as automobiles after the turn of 2021, and then spread to services, partly due to wage increases. By contrast, Japan's CPI has recently been in the range of 0.5-1.0 percent on a year-on-year basis. Because unusual factors such as last year's reduction in mobile phone charges have significantly affected the year-on-year rate of change in the CPI, the inflation rate may be around 2 percent from April, when most of the impact dissipates. That said, inflation in Japan has been mainly due to a rise in energy prices, and underlying inflation, as measured by the CPI excluding fresh food and energy, has been only in the range of 0.5-1.0 percent. By category, the rate of change in Japan's CPI for goods has increased moderately, mainly led by food, which has seen a pass-through of increases in raw material costs. However, the rise for services has been limited, indicating that inflation in Japan has not been as widespread as in the United States.

The Impact of Russia's Invasion of Ukraine

Next, I will consider how Russia's invasion of Ukraine will affect developments in Japan's economic activity and prices for the time being. The situation surrounding Ukraine entails extremely high uncertainties, and it will be some time before we are able to judge the consequences. That said, qualitatively, the situation will affect the global economy through three channels. The first channel is a surge in international commodity prices, the second is a contraction in trade activity and disruption of supply chains, and the third is a deterioration in firms' and households' sentiment.

Of these channels, a rise in international commodity prices seems at this point to have the greatest impact (Chart 5). Russia is a major producer of commodities such as crude oil, natural gas, and coal. Prices of these commodities have surged since concern has increased over possible supply shortages due to production disruptions caused by the war and the economic sanctions on Russia. The impact of a rise in commodity prices differs considerably across economies, depending on the trade balance of commodities. The United States is the world's largest producer of crude oil and natural gas, and its exports and imports of these commodities have been more or less balanced. A rise in these commodity prices therefore does not lead to a net outflow of income from the economy. On the other hand, Japan imports most of its crude oil, natural gas, and coal, with imports of mineral fuels equal to around 3 percent of GDP. Given this trade structure, a rise in commodity prices leads to a net outflow of income from the economy. This in turn requires some segments within Japan's economy to bear the burden.

Where the burden falls depends on developments in the pass-through of the rise in commodity prices. Price rises of crude oil and natural gas almost automatically raise gasoline prices and electricity and gas charges, and this leads directly to a decline in households' real income. Moreover, since energy price rises lead to an increase in firms' production and operating costs, corporate profits will decline if firms cannot fully pass on the cost increases to selling prices. As Japan is a commodity importer, a rise in commodity prices pushes down the economy through a decrease in households' real income and corporate profits.

II. The Role of the Bank's Monetary Policy

I have so far highlighted the significant differences in the current situation of economic activity and prices between Japan and the United States. Next, let me share my views on the role of the Bank's monetary policy in light of Japan's economic and price developments.

Monetary Easing to Support Economic Recovery

Given the developments in Japan's economy, it is necessary and appropriate for the Bank to continue with monetary easing and thereby firmly support the economy. Japan's economy is on its way to recovery from a significant downturn caused by COVID-19. The output gap is

still negative, and economic overheating has not been of concern (Chart 6). Moreover, the rise in commodity prices is projected to result in trading losses for the time being, and this will push down domestic demand through a decline in income. The role of the Bank's monetary policy should thus be to provide accommodative financial conditions and thereby support the achievement of a full-fledged economic recovery.

At the same time, I do not think Japan's economy is in such a vulnerable situation that additional easing is required. Comparing the current surge in commodity prices with that in 2008, just prior to the Global Financial Crisis, provides a useful insight (Chart 7). The global economy had already started to decelerate in mid-2007, due mainly to adjustment in the U.S. housing market. Even amid such circumstances, commodity prices continued to climb sharply until Lehman Brothers was on the verge of bankruptcy. For instance, crude oil prices reached a record high of 140 U.S. dollars per barrel in July 2008, against the background of the narrative of robust commodity demand in emerging economies and the so-called financialization of commodities. Meanwhile, reflecting a slowdown in overseas economies and deterioration in the terms of trade, Japan's economy had already entered a recession in early 2008, losing its positive income formation momentum. Nonetheless, Japan's CPI increased rapidly by 2.4 percent on a year-on-year basis in the summer of 2008, due mainly to rises in energy and food prices. The resulting decline in real income of employees put greater downward pressure on private consumption.

As in 2008, the current rise in commodity prices is expected to fuel an increase in consumer prices, especially for energy and food. However, Japan's economy seems to be more resilient against the rise in commodity prices than it was in 2008 for four reasons. First, unlike in 2008, when the economy had already entered a recession, the economy is currently in the early stages of recovery from the pandemic, and there is relatively strong momentum for improvement. As I said earlier, private consumption has not yet returned to pre-pandemic levels. This means that there is still ample room for pent-up demand to materialize as the impact of COVID-19 subsidies. Second, the so-called forced savings accumulated under prolonged social restrictions are expected to mitigate the negative impact of the decline in households' real income caused by the rise in energy prices (Chart 8). As of the end of last year, forced savings in Japan were estimated to be around 50 trillion

yen, or about 9 percent of GDP.¹ Third, developments in corporate profits differ from 2008, when profits showed a clear decline under the impact of the rise in commodity prices. Now, corporate profits have continued to improve steadily, reflecting an increase in external demand and a pick-up in the domestic economy. The Bank's March 2022 *Tankan*, an economic survey of Japanese enterprises, conducted after Russia's invasion of Ukraine, shows that Japanese firms have maintained a positive stance toward business fixed investment, partly supported by accommodative financial conditions. Fourth, the Japanese government has provided fiscal support to mitigate the negative impact of higher energy prices, as part of its measures against oil price hikes. In sum, unlike in 2008, Japan's economy is projected to remain on a recovery trend, following a growth path that outpaces its potential growth rate.

Monetary Easing to Achieve the Price Stability Target of 2 Percent in a Stable Manner

Even taking into consideration price developments in Japan, it is reasonable to continue with monetary easing. Although inflation is expected to rise in the short run, such a rise consists primarily of cost-push inflation and therefore lacks sustainability.

How should monetary policy respond, in theory, when supply shocks cause a significant rise in commodity prices, which then push up domestic prices? A basic principle is that monetary policy does not address head-on the "direct effects" of supply shocks -- that is, the rises in gasoline prices and electricity charges stemming from higher crude oil prices. Prices of commodities such as crude oil and natural gas are determined by supply and demand in global markets; they cannot be controlled by the Bank's monetary policy. Likewise, the Bank's monetary policy cannot solve commodity shortages resulting from the situation surrounding Ukraine.

Then, what about when the increase in commodity prices heightens inflation expectations through its second-round effects and sets off a rising wage-price spiral? In some cases, a central bank needs to respond with monetary tightening. In fact, central banks in the United States and Europe have decided to adjust monetary easing, and my understanding is that this

¹ For details on the estimation method for forced savings, see Box 3 in the April 2021 *Outlook for Economic Activity and Prices* (Outlook Report).

is due to vigilance against such second-round effects. However, in Japan, it is unlikely that the current rise in commodity prices due to supply factors will immediately lead to a sustained rise in wages and prices. This is because Japan imports most of its resources and demand-pull inflationary pressure in the economy is weak.

Japan has experience of accelerated inflation caused by second-round effects, with a typical example being the runaway inflation that occurred after the first oil shock in 1973 (Chart 9). Komiya Ryutaro argues convincingly in his well-known paper that, when the first oil shock occurred in October 1973, over-aggressive monetary easing had spurred excessive demand and inflation had already risen to 14 percent.² To this situation was added the impact of import inflation caused by soaring crude oil prices. In 1974, wages increased by over 30 percent following the spring labor-management wage negotiations, and the rate of change in the CPI spiked to 25 percent. Professor Komiya argues that the surge in inflation from before the oil shock had created strong, persistent inflationary expectations among people and concerns about future supply shortages, and these trends were further exacerbated by the oil shock. In other words, with "home-made" inflation already occurring in Japan, the rise in crude oil prices accelerated inflation expectations, leading to runaway inflation.

The experience of this runaway inflation in Japan highlights the importance of stable inflation expectations. In fact, low and stable inflation expectations during the second oil shock in 1980 enhanced the effectiveness of swift monetary tightening, helping Japan avoid severe double-digit inflation. However, through the experience of the formation and burst of the asset bubbles in the second half of the 1980s, and the prolonged deflation thereafter, Japan has long been facing the issue of people's low inflation expectations. Business practices and wage formation based on the assumption that prices are unlikely to increase are deeply entrenched in Japanese society, and it is not easy to change them. Under these circumstances, the Bank adopted the price stability target of 2 percent in 2013, and has conducted large-scale monetary easing since then. It is encouraging to see that people's inflation expectations are starting to change positively with economic improvements. One example of this is the outcome of the annual spring labor-management wage negotiations,

² See Komiya, R., "Shōwa 48, 9-nen infurēshon no gen'in," in *Gendai nihon keizai: Makuroteki tenkai to kokusai keizai kankei* (Tokyo: University of Tokyo Press, 1988).

which are thought to reflect inflation expectations: the rate of wage increases for this year is expected to be higher than last year, reflecting favorable business performance (Chart 10). It would be rather desirable if people's inflation expectations and wages rose in a manner consistent with the achievement of the 2 percent price stability target.

The output gap in Japan is negative, and there is still a long way to go to achieve the 2 percent target in a stable manner. Therefore, even with a cost-push shock like the current one, the Bank has not faced the trade-off between prioritizing economic stability or price stability, unlike other central banks. The Bank's role in the current context is perfectly clear: to persistently continue with the current monetary easing centered on yield curve control. By doing so, it will firmly support the economic recovery from the pandemic and encourage the formation of a virtuous cycle in which both wages and prices rise moderately.

Monetary Policy Conduct amid Heightened Uncertainty

Uncertainties have heightened significantly in recent years due to non-economic factors, such as the COVID-19 pandemic, Russia's invasion of Ukraine, and, from a somewhat long-term perspective, climate change (Chart 11). As a result, central banks have been facing unprecedented challenges in conducting monetary policy. Looking back to the period of the Great Moderation, the economy was affected mainly by demand shocks and the situation remained fairly predictable. Since the 2010s, however, there have been frequent supply shocks whose course is difficult to predict, such as the Great East Japan Earthquake, natural disasters around the world, the pandemic, and Russia's invasion of Ukraine. Since the world has rarely experienced these kinds of shocks in recent years, data regarding their economic spillover is limited. When the outlook is especially uncertain, central banks need to be humble in examining available data and conduct monetary policy without having any preconceptions. In March last year, the Bank conducted an assessment of the policy framework of monetary easing. The main goal of this was to enhance the sustainability of monetary easing while ensuring its nimbleness. The Bank will carefully examine various risks, including COVID-19, and will continue to conduct monetary policy appropriately under the framework of yield curve control with enhanced sustainability and nimbleness.

Conclusion: Toward Achieving Sustainable Growth with Price Stability

In closing, let me touch on structural aspects of the medium- to long-term growth potential of Japan's economy.

Looking back on the performance of Japan's economy, the average real GDP growth rate in the 2010s was 1.2 percent (Chart 12). During that same period, GDP growth in the United States was 2.3 percent. Since the difference in the respective population growth rates during the period was about 1 percent, the GDP growth rate gap between the two countries can be mostly explained by demographic factors alone. In other words, Japan and the United States had roughly the same GDP per capita growth rate of around 1.5 percent.

In Japan, one factor that increased GDP per capita in the 2010s was the rise in the employment rate. This rise can be attributed to the increased labor force participation of women and seniors. Since many of these were part-time workers, hours worked per person declined. Even taking this into account, it is clear that an increase in labor supply has firmly supported growth in per capita GDP. This is in contrast to the 1990s and 2000s, when the shrinking labor supply pushed down the growth in per capita GDP. Another factor that also elevated the GDP growth rate in the 2010s is improvement in labor productivity per hour. Despite the increased diversity of labor force participants, labor productivity per hour continued to increase at around 1 percent, which is on a par with the United States.

What, then, is the outlook for Japan's per capita GDP growth rate in the 2020s? The labor force participation rate of women in Japan is already higher than in the United States (Chart 13). Moreover, the problem of the so-called M-shaped curve -- in which women in their late 20s to their 40s leave the labor market to bear and raise children -- has been generally resolved. This suggests that there is less room for the labor force participation rate of women to increase. Likewise, the rate for seniors is not expected to increase as it used to: Japan's baby boomers, born between 1947 and 1949, will soon be 75 years old or over, an age when the labor force participation rate plummets. Therefore, raising labor productivity per hour will be more important than ever in the current decade. In addition to making the labor market more fluid, investing in human capital is the key in this regard. Unlike the United States, Japanese firms put priority on long-term employment, and investment in

in-house education and training has played a vital role. Given that the pandemic has accelerated digitalization, the skills required of workers have seen drastic changes. As a result, it has become even more important to improve the skills of workers through in-house retraining, or re-skilling, and the Japanese government is stepping up its fiscal support in these areas. The Bank will also support firms' efforts to actively invest in human capital, albeit indirectly, by providing accommodative financial conditions.

Today, I have talked about a wide range of topics including recent developments in Japan's economy, the conduct of monetary policy, and medium- to long-term issues facing the economy. I hope that my remarks today will be of some help in deepening the understanding of Japan's economy, and I look forward to further advances by the CJEB in their research on Japan.

Thank you.

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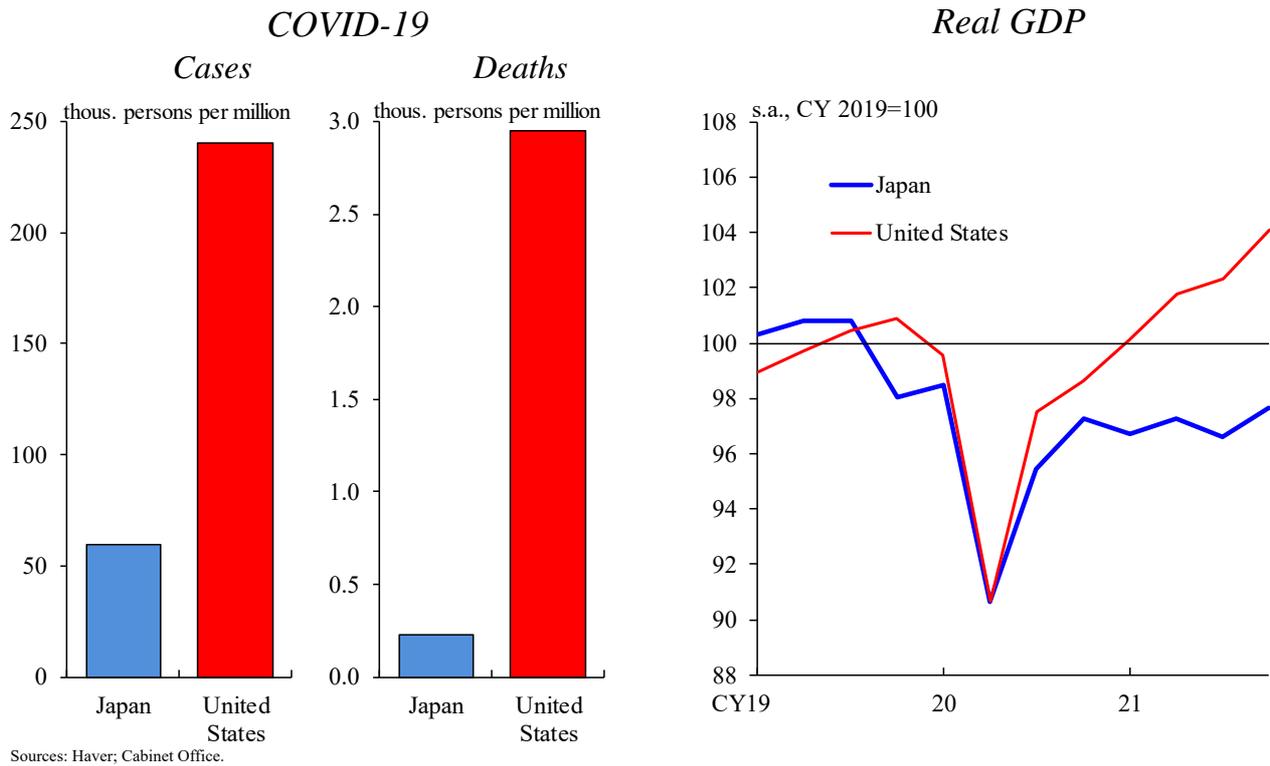
Introduction

I. Developments in Economic Activity and Prices
in Japan and the United States

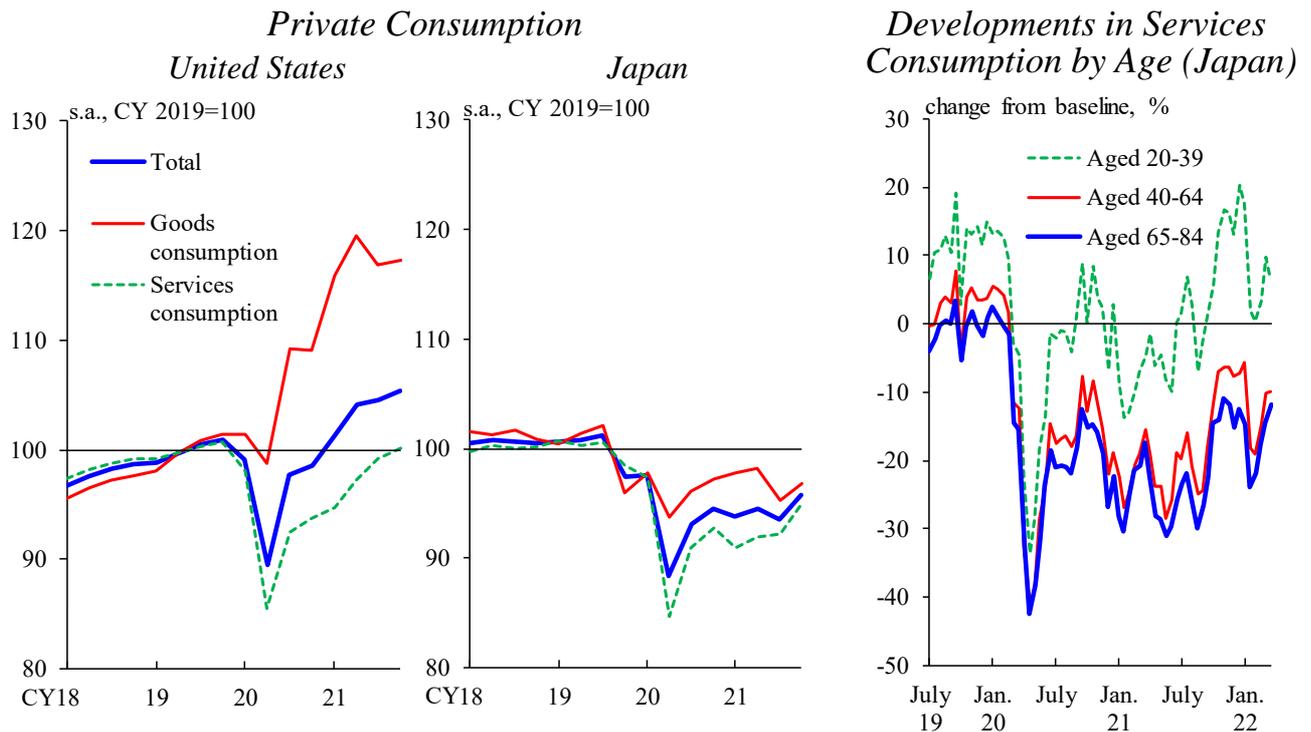
II. The Role of the Bank's Monetary Policy

Conclusion: Toward Achieving Sustainable
Growth with Price Stability

Economic Developments in Japan and the United States (1)



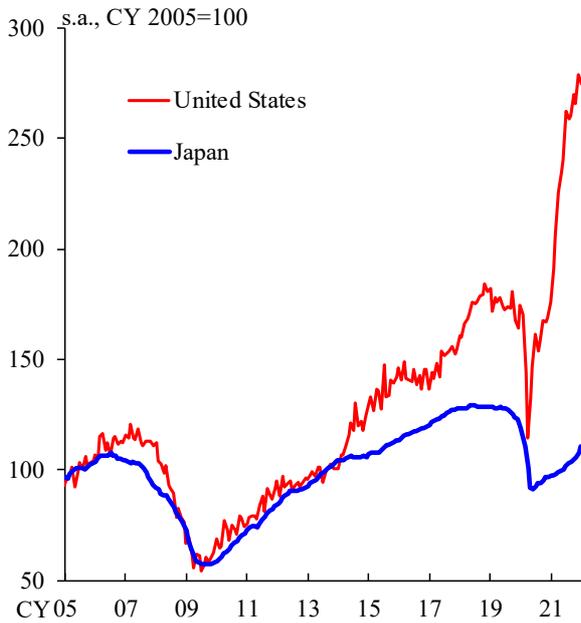
Economic Developments in Japan and the United States (2)



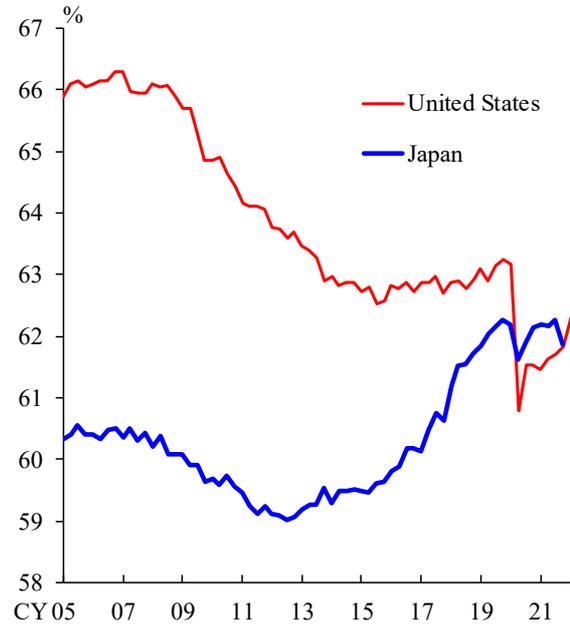
Note: In the right-hand chart, figures are from the reference series in *JCB Consumption NOW*, which take changes in the number of consumers into account. Figures are the arithmetic averages of the corresponding age groups in five-year increments. The baseline is the average for the corresponding half of the month for 2016 through 2018.
Sources: Haver; Cabinet Office; Nowcast Inc./ JCB, Co., Ltd., "JCB Consumption NOW."

Labor Market Conditions in Japan and the United States

Job Openings



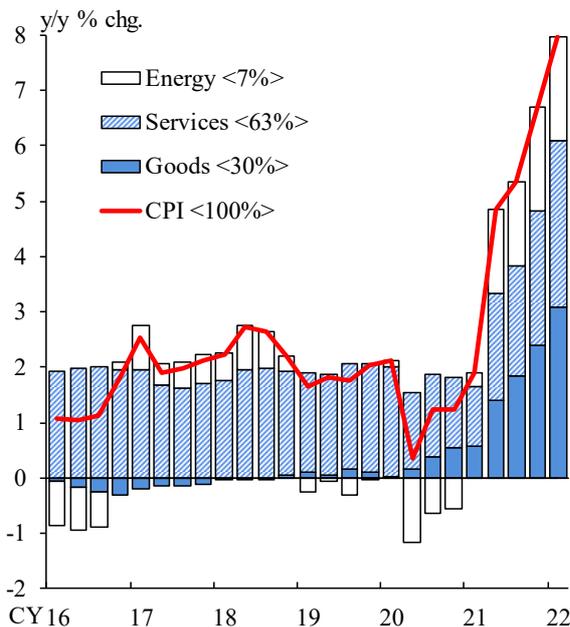
Labor Force Participation Rate



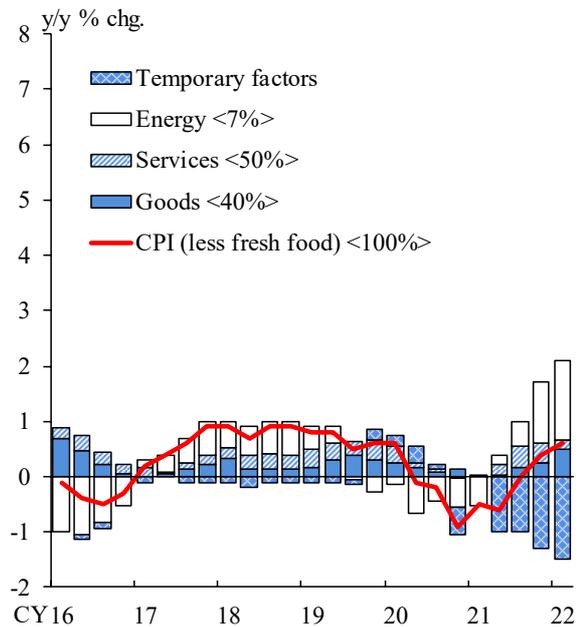
Sources: Haver; Ministry of Health, Labour and Welfare.

Consumer Prices in Japan and the United States

United States



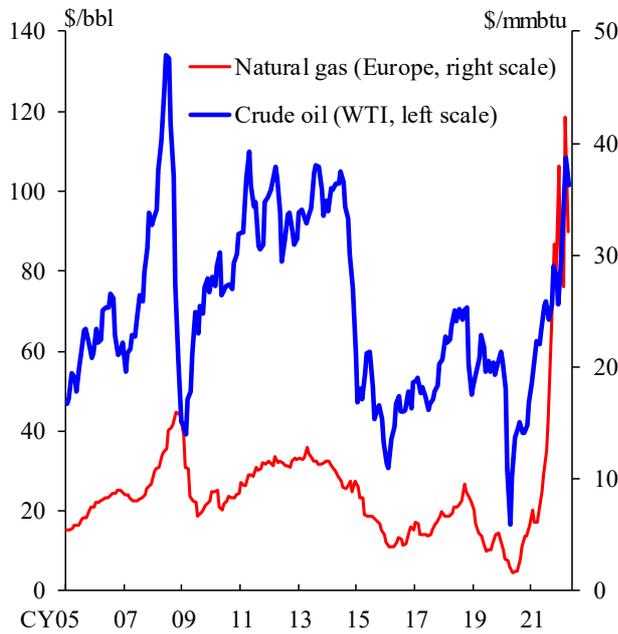
Japan



Notes: 1. Figures for services include administered prices.
 2. Figures for temporary factors for Japan are staff estimates and consist of mobile phone charges and the effects of the consumption tax hike, policies concerning the provision of free education, and the "Go To Travel" campaign, which covers a portion of domestic travel expenses.
 3. Figures in angular brackets show the share of each component. Figures for temporary factors for Japan include mobile phone charges (weight: 3%).
 Sources: Ministry of Internal Affairs and Communications; Haver.

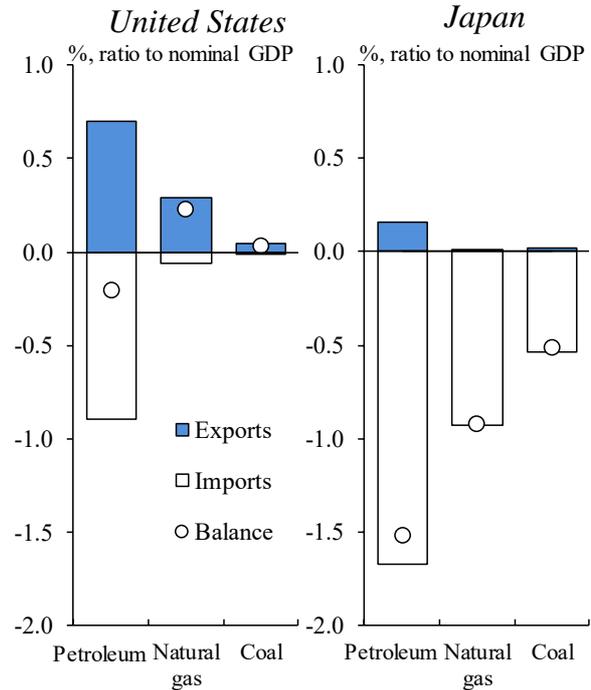
Commodity Prices and Commodity Exports and Imports

Energy Prices



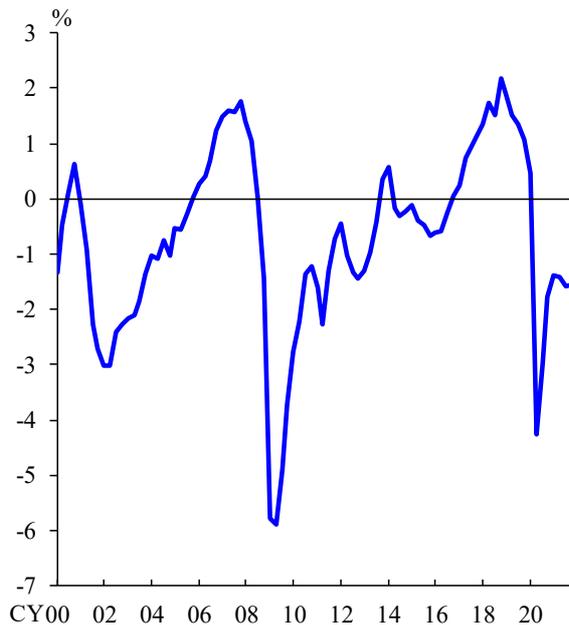
Sources: Bloomberg; World Bank; Ministry of Finance; Cabinet Office; UN Comtrade; Haver.

Trade Balance in Energy Resources (2021)



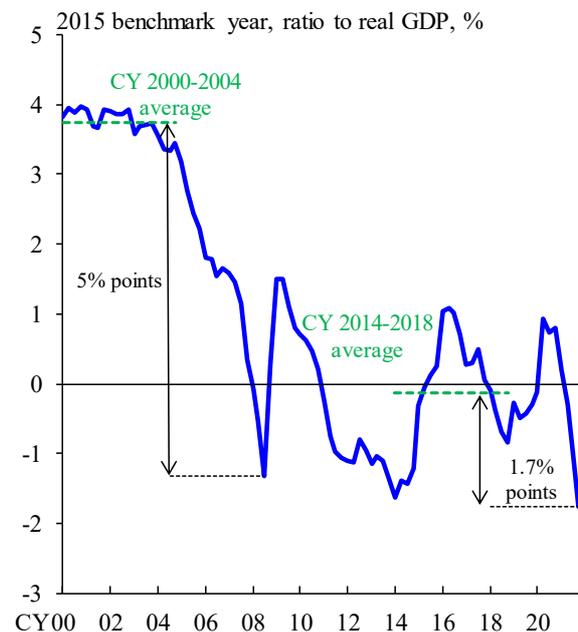
Output Gap and Trading Gains and Losses in Japan

Output Gap



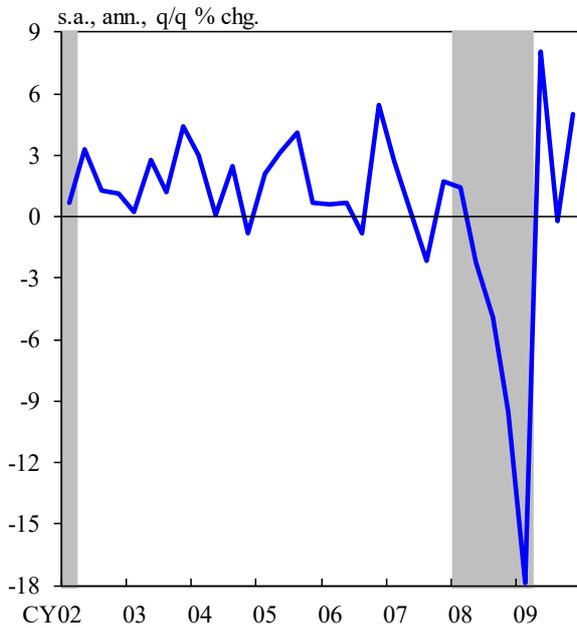
Sources: Bank of Japan; Cabinet Office.

Trading Gains and Losses

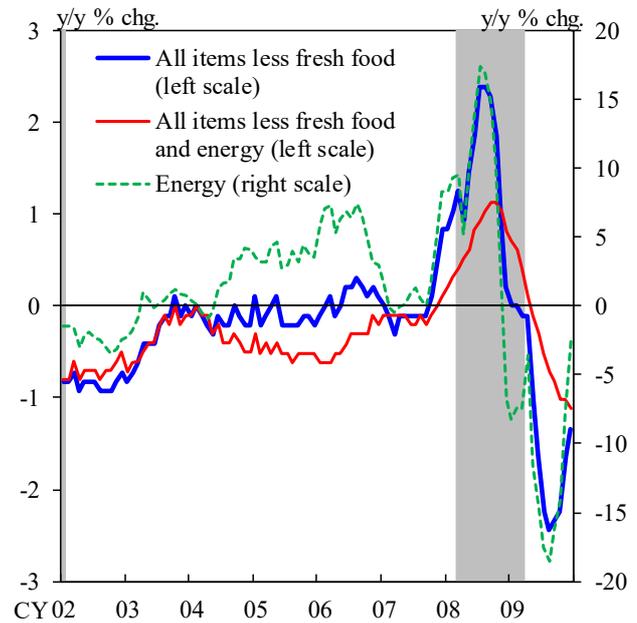


Developments in Japan's Economic Activity and Prices in 2008

Real GDP



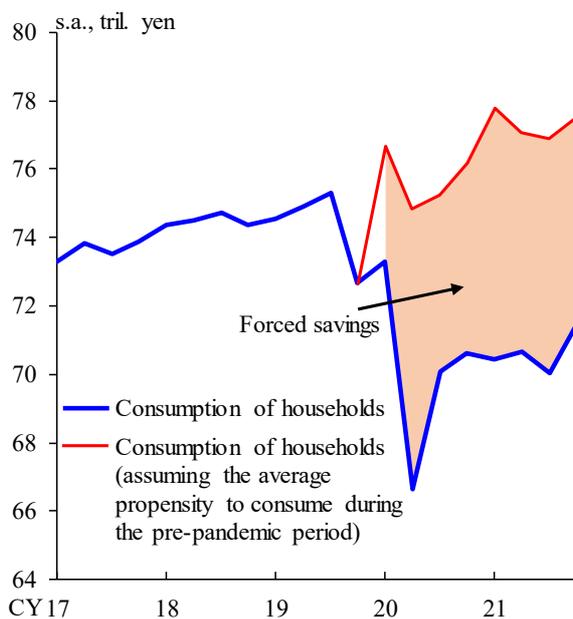
Consumer Prices



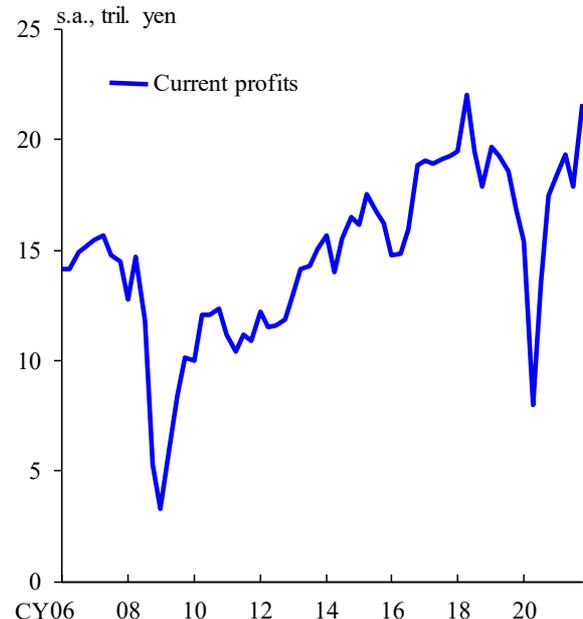
Note: Shaded areas denote recession periods.
Sources: Cabinet Office; Ministry of Internal Affairs and Communications.

Forced Savings in the Household Sector and Corporate Profits in Japan

Forced Savings

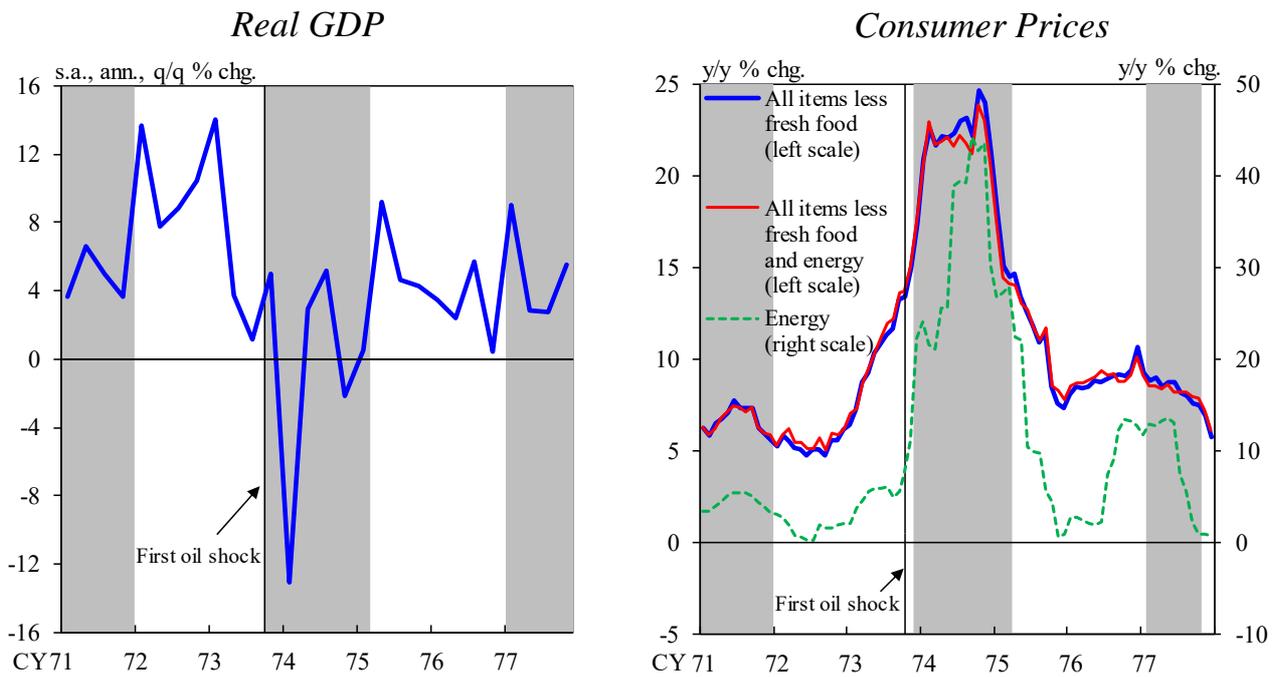


Corporate Profits



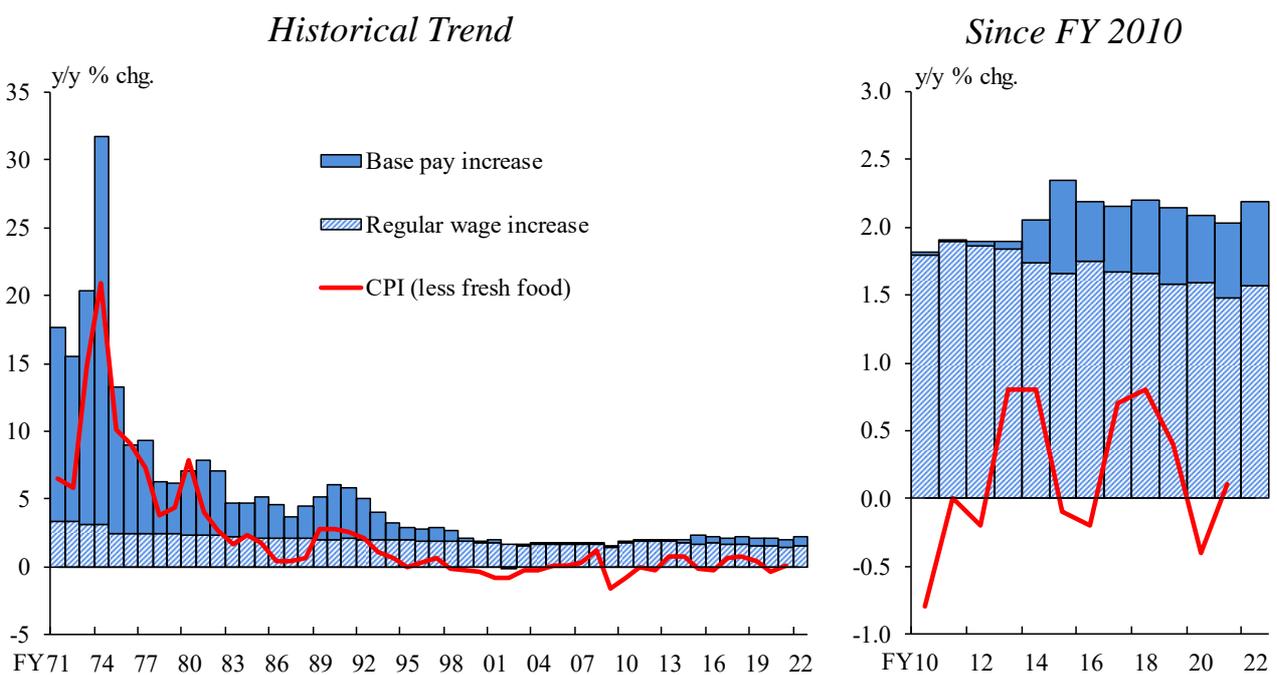
Notes: 1. In the left-hand chart, Consumption of households (assuming the average propensity to consume during the pre-pandemic period) = Disposable income, etc. (consisting of disposable income and "adjustment for the change in pension entitlements" and excluding special cash payments) × Average propensity to consume during the pre-pandemic period. "Pre-pandemic period" in the equation refers to the period from 2015 through 2019.
2. In the right-hand chart, figures are based on the *Financial Statements Statistics of Corporations by Industry, Quarterly* and exclude "finance and insurance." Figures from 2009/Q2 onward exclude pure holding companies.
Sources: Cabinet Office; Ministry of Finance, etc.

Developments in Japan's Economic Activity and Prices at the Time of the First Oil Shock



Note: Shaded areas denote recession periods.
Sources: Cabinet Office; Ministry of Internal Affairs and Communications.

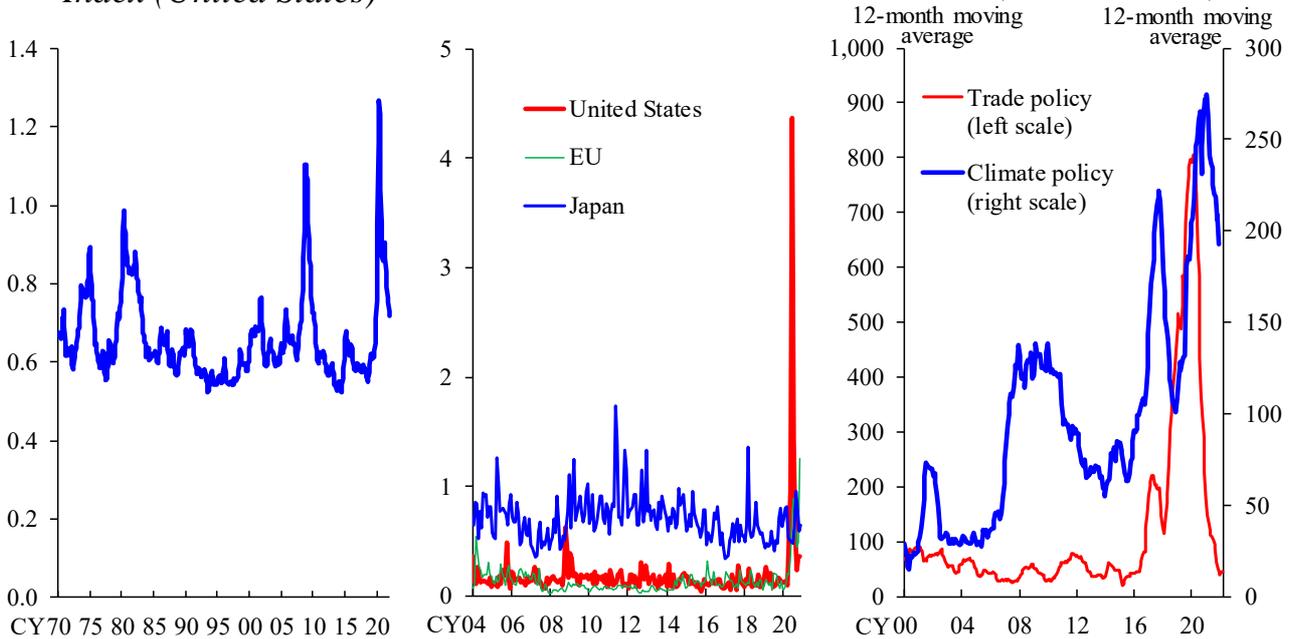
Prices and Wages in Japan



Notes: 1. Figures for wages through fiscal 2014 are based on the *Comprehensive Survey on Wage Conditions* conducted by the Central Labour Relations Commission. Those from fiscal 2015 onward are based on the wage negotiation results where the resulting increase in wages is clear among the results compiled by the Japanese Trade Union Confederation (RENGO).
2. The CPI figures for fiscal 1997 onward are adjusted for the consumption tax hikes.
Sources: Ministry of Internal Affairs and Communications; Central Labour Relations Commission; Japanese Trade Union Confederation (RENGO).

Heightened Economic Uncertainty

Macroeconomic Uncertainty Index (United States) Economic Surprise Index Economic Policy Uncertainty Index (United States)



Note: The latest period is December 2021 for the left-hand chart, November 2020 for the middle chart, and January 2022 for trade policy and December 2021 for climate policy in the right-hand chart.

Sources: Jurado, Kyle, Sydney Ludvigson, and Serena Ng (2015). "Measuring uncertainty." *American Economic Review*, 105(3); Scotti, Chiara (2016). "Surprise and uncertainty indexes: Real-time aggregation of real-activity macro-surprises." *Journal of Monetary Economics*, 82; Baker, Scott, Nicholas Bloom, and Steven J. Davis (2016). "Measuring economic policy uncertainty." *Quarterly Journal of Economics*, 131(4); Gavrilidis, Konstantinos (2021). "Measuring Climate Policy Uncertainty" *SSRN*.

Decomposition of Economic Growth in Japan and the United States

$$\text{GDP} = \text{Total population} \times \underbrace{\frac{\text{Employed persons}}{\text{Total population}} \times \frac{\text{Total hours worked}}{\text{Employed persons}}}_{\text{GDP per capita}} \times \frac{\text{GDP}}{\text{Total hours worked}}$$

Japan

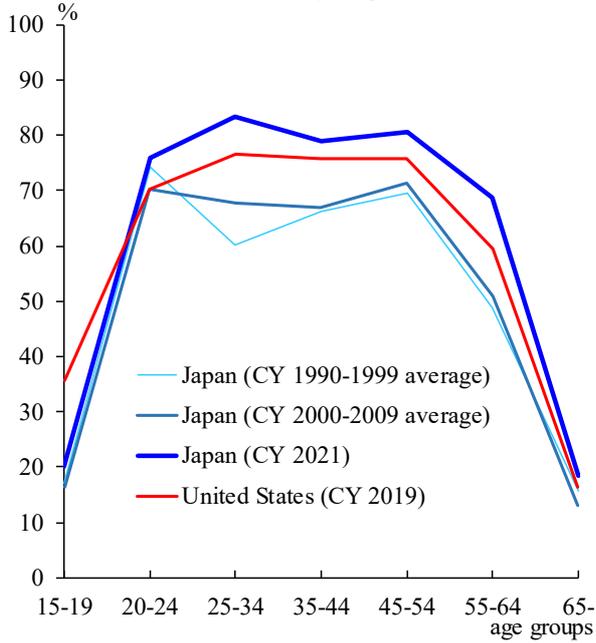
United States

	Japan						United States					
	GDP	Total population	GDP per capita	Employed persons/ Total population	Hours worked per person	GDP per hour worked	GDP	Total population	GDP per capita	Employed persons/ Total population	Hours worked per person	GDP per hour worked
	(a)	(a)	(a)	(b)	(c)	(d)	(a)	(a)	(a)	(b)	(c)	(d)
1990s	1.6	0.3	1.3	0.1	-1.2	2.4	3.2	1.2	2.0	0.1	-0.0	1.9
2000s	0.5	0.1	0.4	-0.2	-0.5	1.0	1.9	1.0	1.0	-0.5	-0.4	1.9
2010s	1.2	-0.1	1.3	0.6	-0.4	1.2	2.3	0.7	1.6	0.5	0.1	1.0

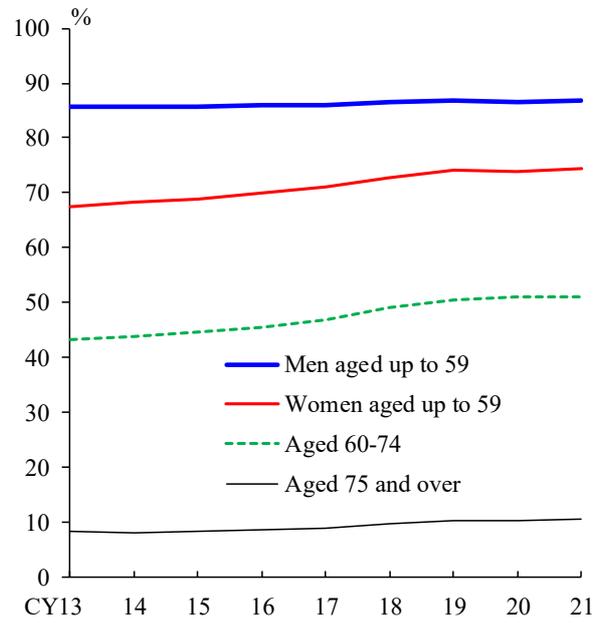
Sources: Cabinet Office; Ministry of Internal Affairs and Communications; OECD.

Labor Force Participation Rate in Japan

Women's Labor Force Participation Rate by Age



Developments in the Labor Force Participation Rate



Sources: Ministry of Internal Affairs and Communications; OECD.