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Japan's Economy: Monthly Outlook (Feb 2022)

Economic outlook revised; COVID-19 variants and resource price highs require continued vigilance

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Summary

- In light of the announcement of the Oct-Dec 2021 GDP 1st preliminary results, we have revised our economic outlook. We now see Japan's real GDP at +2.5% in FY2021, with FY2022 at +3.7%, and FY2023 at +1.6%. According to our main economic scenario, "Special Stricter Measures" are expected to be lifted in early March, after which the situation of COVID-19 infections is expected to remain stable due to the effectiveness of vaccines and the diffusion of oral medicines.

- We expect the economy to recover in FY2022, centering on services. Our outlook sees a growth rate of nearly 4%, with the implementation of the Go To Travel Campaign and the resumption of inbound tourism. The easing of the semiconductor shortage is expected to generate pent-up demand for automobiles in Japan, which is estimated to be around 0.8 trillion yen, and the increase in exports will also provide a tailwind to the economy. The greatest downside risk to Japan's economy continues to be the spread of variants of COVID-19. If newer variants appear in emerging nations and other countries, we can assume that they could eventually spread to Japan.

- Assuming a case where crude oil prices rise by $10/bbl after March in contrast to our main scenario, real GDP in FY2022 would fall below the main scenario by about 0.1%. The share of intermediate energy inputs in this estimate is relatively large since we take into consideration petroleum and coal products and electricity and gas supply, as well as transport and postal activities, and the accommodation and food services sectors, where demand has been sluggish due to the spread of COVID-19. Although the normalization of economic activity is expected to begin in spring, we need to be wary of the possibility that high resource prices will worsen business conditions in these industries. On the other hand, although the purchasing power of households will decline due to high resource prices, the impact is expected to be mitigated by excess savings of around 60 tril yen (outlook for end March 2022).

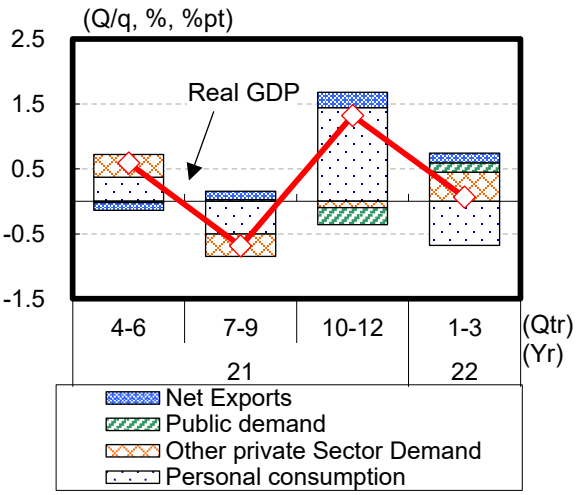
1. Growth of Nearly 4% Seen in FY2022, but Downside Risk is Great

Oct-Dec period real GDP sees positive contributions from resumption of economic activity and growth of production in motor vehicles

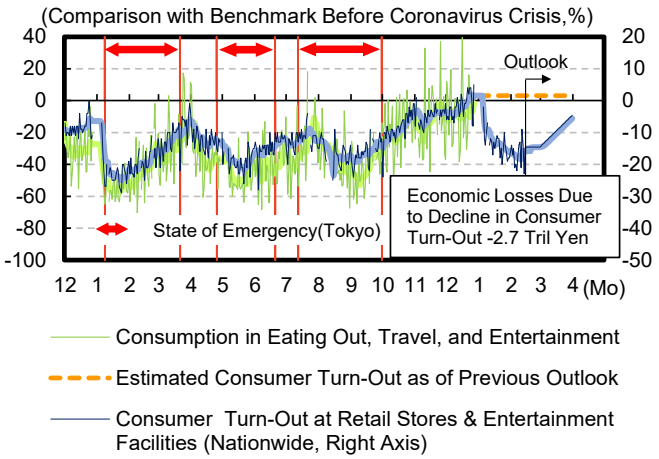
The real GDP growth rate for the Oct-Dec period of 2021 (1st preliminary est) was +5.4% q/q annualized (+1.3% q/q)[1]. The spread of COVID-19 settled down, and economic activity was resumed, leading to a comeback in personal consumption centering on eating out, travel, and entertainment. Moreover, growth in production of motor vehicles due to the mitigating effects of the shortage of parts brought upward pressure on exports, consumption of durables, and spending on capex. Real services consumption reached its highest level since the Jan-Mar period of 2020, reaffirming the rapid normalization of economic activity toward the end of 2021.

Looking at performance by demand component (Chart 1), real GDP was buoyed by personal consumption in the private sector, while capex spending by private sector corporations grew as well. As for the public sector, government consumption and public investment both declined. As for overseas demand, while exports grew, imports declined, giving net exports a positive contribution for two consecutive quarters.

Real GDP Growth Rate Results & Outlook **Chart 1**



Consumer Turn-Out and Consumption in Eating Out, Travel, and Entertainment **Chart 2**



Source: Cabinet Office, Ministry of Internal Affairs and Communications, Google, CEIC; compiled by DIR.
Note: The left side chart uses real figures, all seasonally adjusted. The benchmark used in the right side of the chart is the daily median between January 3 and February 6, 2020. The thick lines represent the 7-day central moving average. Eating out, travel, and entertainment related consumption is the total value of eating out, transportation, and culture & recreation services. Data from holidays falling on weekdays and the Obon Festival and year-end/New Year are excluded.

Gross domestic income (GDI) marks time due to trading losses

Against a backdrop of resource price highs, terms of trade deteriorated further with the import deflator rising at a pace exceeding that of the export deflator. Meanwhile, trading losses[2], which are an expression of income flowing out of Japan overseas through worsening terms of trade, amounted to -9.4 tril yen as of the Oct-Dec period, an increase in the margin of decline of 3.4 tril yen in comparison with the previous period. The growth rate of real gross national income was only +0.7% in comparison with the previous period. Since the Jan-Mar period, the growth rate of real GDI has fallen below that of real GDP for four consecutive quarters. This means that the income environment has not improved as much for households

[1] See the DIR report by Keiji Kanda and Wakaba Kobayashi dated 15 February 2022, *Oct-Dec 2021 1st Preliminary GDP Estimate*.
[2] Loss (gain if positive) due to changes in terms of trade from the base year of the deflator (currently 2015). It should be noted that the amount of loss or gain is revised when the base year is changed.

and corporations as it appears when we look at the GDP figures alone. We consider the problem of the high price of resources and their influence on the Japanese economy in Chapter 2.

Real GDP expected to achieve a small margin of growth in the Jan-Mar period of 2022

The real GDP growth rate for the Jan-Mar period of 2022 is expected to be +0.3% q/q annualized (+0.1% q/q) (Chart 1). Consumer turn-out has declined significantly with the Omicron variant of COVID-19 spreading in domestic Japan and most regions putting "Special Stricter Measures" in place. We expect economic losses due to the decline in consumer turn-out to reach 2.7 tril yen (Chart 2). With supply constraints intensifying due to the spread of infection and resource prices rising further, consumer spending is likely to decline in comparison to the previous quarter. Exports and capex, as well as government consumption are growing[3], and hence real GDP is expected to achieve a small margin of growth. We expect real GDP to recover to the level seen before the pandemic (Oct-Dec period of 2019) in the Apr-Jun period of 2022[4].

Major assumptions for FY2022 and beyond related to COVID-19 situation

The economic outlook is expected to be influenced by the COVID-19 situation in FY2022 and beyond. The infection continued to spread centering on Asia as of the writing of this report, and the sense of uncertainty remains great. The assumptions behind the main scenario put forward in this report are shown in Chart 3.

Major Assumptions in this Outlook Associated with the COVID-19 Situation **Chart 3**

	Period
COVID-19 Situation	**COVID-19 situation becomes relatively stable (new variants of disease not expected).** Measures to control spread of infection continue, additional vaccination provided, use of oral medications spreads, and system with ability to provide medical services is strengthened.
Booster Shots (3rd vaccination), Dissemination of Oral Medicines	**During Apr-Jun period of 2022**
Go To Travel Campaign	**From end of Japan's long holiday (Apr. 29 – May 5) to end November.** (Excluding summer vacation: mid-July to end August.)
Acceptance of Inbound Tourists	**To resume during Jul-Sep period of 2022.** (Recovery to 50% of 2019 quarterly average expected by Jan-Mar period of 2023, recovery to same level as 2019 expected by Jan-Mar period of 2024.)

Source: Produced by DIR.

A third (booster) vaccination and dissemination of oral medicines in Japan are expected during the Apr-Jun period of 2022. According to an analysis conducted by Professor Takashi Tsuchiya of the National Graduate Institute for Policy Studies in February 2021[5], the actual number of new infections in Tokyo is about 23 times the number known by the government. Based on this study, the cumulative number of infections since late December 2021 may have reached a level close to the acquisition of herd immunity. Looking at Professor Tsuchiya's most recent estimate (February 11, 2022), the estimated number of new infections per day in Tokyo reflects actual numbers, suggesting that the spread of infection may have largely subsided by February. Although the infection situation may worsen due to the replacement of the Omicron variant with a subspecies (BA.2) and the rapid increase in consumer turn-out, the normalization of economic activities will progress after the spring of 2022, partly due to additional

[3] It should be noted that the growth rate of exports in the Jan-Mar 2022 period is likely to be boosted by the carryover effect of the economic growth rate (i.e., an increase on a quarterly basis compared to the previous quarter, even if it remains flat on a monthly basis). These factors will also push up the growth rate of consumption of durable goods and capital investment, which have been affected by the cutback in automobile production due to supply constraints.

[4] Recovery to the level recorded in the Jul-Sep period of 2019 (the highest level before the pandemic) is expected by the Jul-Sep period of 2022.

[5] Tsuchiya, T. (2021), "A Study on the Spread of Novel Coronavirus Infections," *Operations Research February 2021, Vol. 66 No. 2*, pp. 90-103 (Japanese only).

vaccinations, widespread use of oral medicines, and strengthening of the healthcare delivery system. On the other hand, the emergence of new variants is not assumed in the main scenario of this forecast because it is difficult to predict in advance.

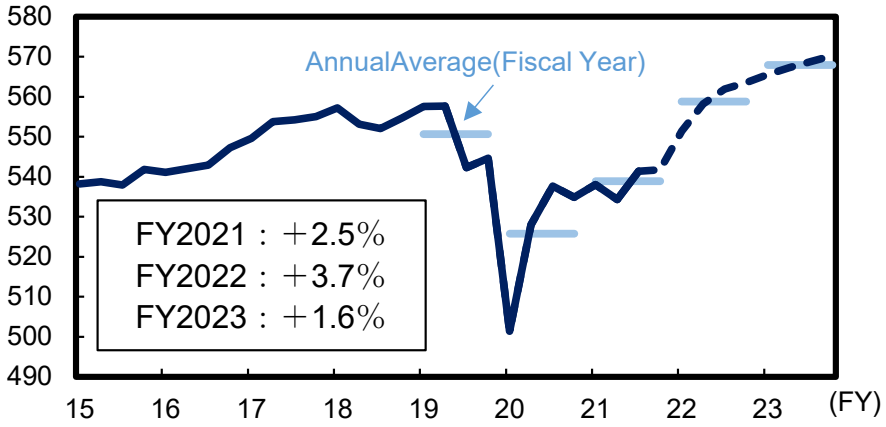
The Go To Travel Campaign, which was postponed due to the spread of the Omicron variant, was originally planned to be implemented from around January 2022 until before the summer vacation, excluding busy periods (such as Japan's long 'Golden Week' holiday). If the program is to be implemented in FY2022, maintaining the period and the policy of avoiding the busy season, the new implementation period is expected to be from after the Golden Week holiday until the end of November, excluding the summer vacation (mid-July to end-August).

Our outlook assumes that the acceptance of inbound foreign tourists to Japan will resume in the Jul-Sep period. In light of the government's thorough implementation of border control measures to date, it is expected that the government will cautiously resume accepting inbound tourists during the Jul-Sep period after confirming that the infection situation has settled down during the Apr-Jun period. Subsequently, inbound tourism is expected to increase gradually, reaching 50% of the 2019 level (about 8 million people per quarter) in the Jan-Mar period of 2023, and recovering to the same level as 2019 during the Jan-Mar period of 2024.

Japan's real GDP expected to grow by nearly 4% in FY2022

Chart 4 illustrates trends in real GDP in our main scenario, and our assumptions in producing the outlook for overseas economies. The outlook for overseas economies is based on the latest predictions (as of February 21) of DIR's own in-house expert on the countries examined here. For further details, please refer to the independent reports produced on each of the individual countries (Japanese only).

Outlook for Japan's Real GDP and Assumptions Regarding Overseas Economies **Chart 4**



US, Eurozone & China Real GDP Growth Rate

US	2021	+5.7%
	2022	+3.8%
	2023	+2.4%
Eurozone	2021	+5.2%
	2022	+4.0%
	2023	+2.4%
China	2021	+8.1%
	2022	+5.4%
	2023	+5.0%

Source: Produced by DIR based on data from Cabinet Office and various countries.
Note: The dashed line in the chart represents predicted values as estimated by DIR. Outlooks for the US, Eurozone and China are based on predictions by DIR's in-house expert.

According to our main scenario, we expect Japan's real GDP to register +2.5% in FY2021, with FY2022 at +3.7%, and FY2023 at +1.6%. A relatively high rate of growth is seen for FY2023. This is because the carryover effect of the economic growth rate is fairly large for that year. When the carryover effect is ignored, the growth rate is +0.8%.

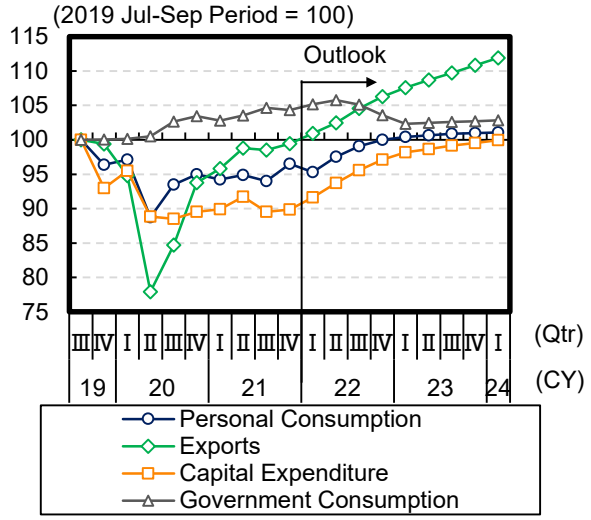
Our outlook for the growth rate in FY2022 has not changed from our previous outlook. As the infection situation settles down, the recovery trend in personal consumption and capital expenditure will strengthen, partly because the effects of economic stimulus measures will become apparent from the

Apr-Jun period onward, while government consumption is expected to grow sluggishly as the need for measures to deal with the COVID-19 crisis declines (Chart 5).

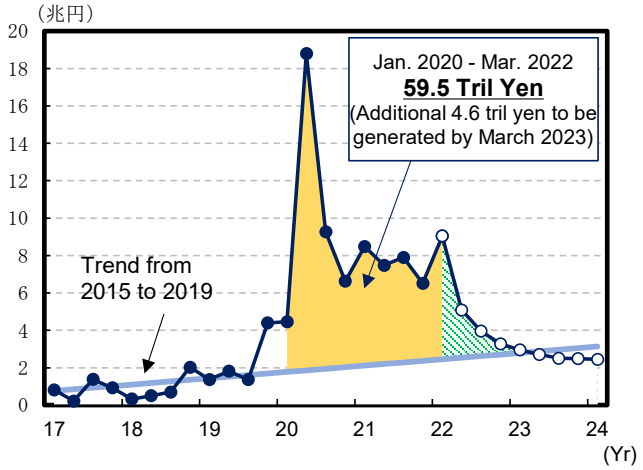
During the first half of FY2022, GDP is expected to get a significant upward push from personal consumption. Our main scenario assumes that the Go To Travel Campaign will be implemented from after the Golden Week holiday until the end of November, excluding the summer vacation (mid-July to end-August). This is expected to boost travel and eating out, as well as demand for transportation related areas (Chart 3). In addition, recovery production of automobiles as a means of handling pent-up demand is also expected, and consumption of goods centering on durables is expected to maintain favorable performance. (We examine the question of pent-up demand for automobiles, as well as the problem of the high price of resources in Chapter 2.)

As for the high price of resources recently, household purchasing power has declined with the increase in CPI, but the influence of this factor is expected to be mitigated by excess savings which accumulated during the pandemic. If the deviation from the trend in household savings seen in 2015-19 is regarded as excess savings, the amount is expected to reach about 60 tril yen by the end of March 2022 (Chart 6). However, most of this accumulated savings is held by high income households. It is the low-income households that are more susceptible to the effects of high resource prices. In particular, we need to remain aware that low-income households that did not qualify for the 100,000 yen temporary special benefit included in the December 2021 economic stimulus package (targeted at households with children and households exempt from residential taxation) may face a greater burden from rising prices.

Outlook for Major Demand Components **Chart 5**



Household Savings **Chart 6**



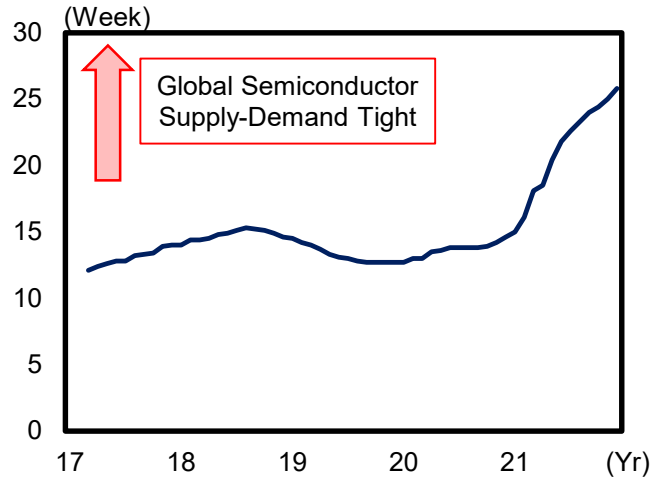
Source: Cabinet Office, Bank of Japan, Ministry of Internal Affairs and Communications; compiled by DIR.
Note: Figures are seasonally adjusted. The dots on the right not filled in with color are DIR estimates. Savings = disposable income – household final consumption expenditure.

We expect capex to continue on a gradual upward trend as corporate profits and sentiment improve amid a settling of the situation of COVID-19 infections. The Production Capacity DI ("excessive capacity" - " insufficient capacity ") for All industries and all Enterprises on the Bank of Japan's December 2021 Tankan survey is no longer positive ("excessive capacity ") for the first time in seven quarters since March 2020, and is expected to be negative ("insufficient capacity"). Machinery Orders (Cabinet Office, private sector demand excluding ships and electric power companies), which precede machinery investment, and scheduled construction starts (Ministry of Land, Infrastructure, Transport and Tourism, total for industrial buildings), which precede construction investment, also indicate that capex is resilient. In terms of the capital stock cycle, the economy is not expected to enter a stock adjustment phase for the time being. In addition, in line with global trends such as digitization and greening, investment in intangible assets such as information technology and R&D related to decarbonization are expected to contribute to an increase in capex.

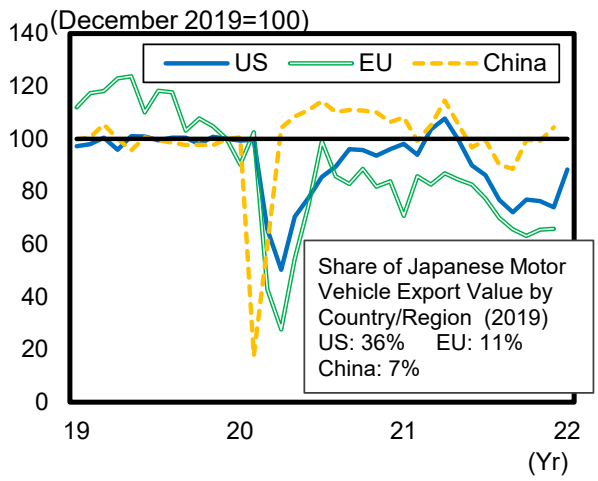
In FY2021, government consumption was boosted by vaccination costs and economic measures. In FY2022, COVID-19 related spending is expected to decline as the infection situation stabilizes. On the other hand, as Japan's population ages, the cost of medical and nursing care benefits has been increasing over the long term, and these are accounted for in government consumption. Government consumption is expected to increase moderately in FY2023, when the effects of the decline in COVID-19 related spending will have subsided. Public investment declined in FY2021, but is expected to pick up in FY2022, supported by the implementation of the Five-Year Accelerated Measures for Disaster Prevention and Mitigation and National Land Resilience (FY2021-25). However, a shortage of labor in the construction industry will be a bottleneck, and the recovery will likely be gradual.

Exports are expected to remain strong throughout the forecast period as supply constraints caused by the spread of COVID-19 and semiconductor shortages begin to dissipate, as well as a recovery in inbound consumption. Difficulty in procuring parts occurred in January 2022 due to the spread of COVID-19, and domestic motor vehicle manufacturers such as Toyota Motor were forced to cut production. This situation is now improving and is expected to be resolved in the April-June period of 2022. On the other hand, the lead time (the time it takes from order placement to delivery) for semiconductors is getting longer, and the supply-demand imbalance is becoming increasingly severe (Chart 7). In this regard, many believe that the semiconductor shortage will ease during 2022[6]. According to interviews conducted by the U.S. Department of Commerce with semiconductor manufacturers and others[7], new semiconductor plants will start operating as early as the second half of 2022. As the supply capacity of semiconductors is strengthened, exports of goods are expected to increase from the July-September period onward, capturing the pent-up demand for automobiles and other products that is believed to be occurring in the U.S. and Europe (Chart 8). In addition, according to "Market Potential" published by the International Trade Centre, the growth potential for Japan's goods exports is particularly large for mainstay items bound for the US and China. In the medium to long term, these items are likely to be the driving force behind Japan's exports.

Global Semiconductor Average Lead Time **Chart 7**



New Car Sales in the US, the EU, and China **Chart 8**



Source: Susquehanna Financial Group, Autodata, European Automobile Manufacturers' Association, China Association of Automobile Manufacturers; compiled by DIR.

Notes: 1) Semiconductor lead time is the time it takes from order placement to delivery.
2) Seasonally adjusted values for the EU and China shown on the right side of the chart calculated by DIR. The figure for China volume of sales to Chinese car dealers.

[6] Kazuki Kasahara, "Global shortage of semiconductors: will the shortage of goods and delays in delivery be resolved in 2022?" (Diamond Online, January 18, 2022) (Japanese only)

[7] "Results from Semiconductor Supply Chain Request for Information", U.S. Department of Commerce (Jan. 25, 2022)

Resumption of the acceptance of inbound tourists is expected to boost exports of services. As shown in Chart 3, our main scenario assumes that inbound tourism will resume during the Jul-Sep period of 2022, and is expected to reach 50% of the 2019 level (about 8 million people per quarter) in the Jan-Mar period of 2023, and recover to the same level as 2019 during the Jan-Mar period of 2024.

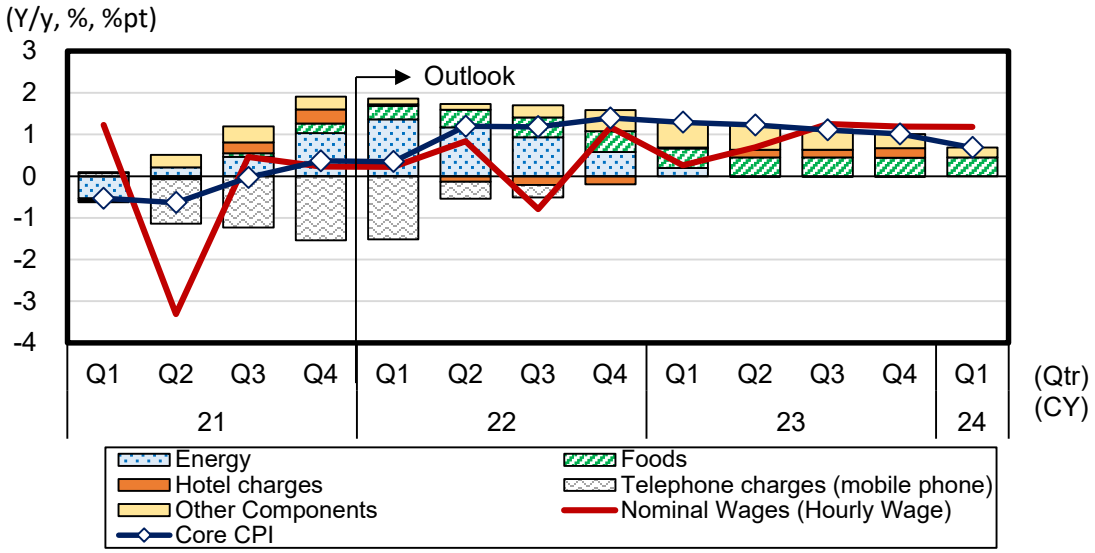
CPI to increase due to high price of resources, but will likely peak out at around the low 1% range

April 2021 core CPI (excluding fresh foods) was at -0.9% y/y due to the influence of cuts in "Telephone charges (mobile phone)". The growth rate later increased, with core CPI reaching +0.2% in January 2022. A factor analysis of the core CPI y/y rate of change reveals that the main factor pushing up prices has been energy.

The y/y rate of change in core CPI is expected to increase further from April 2022 when the impact of the reduction in "Telephone charges (mobile phone)" will have worn off and high resource prices continue to be a part of the mix (Chart 9). Here, we assume that the price of crude oil (WTI), which is currently over $90/bbl, will remain at $80/bbl from April. Although the extent to which prices are boosted by energy will gradually decline, core CPI is expected to rise to +1.1% y/y in FY2022, and to decline to +0.9% in FY2023. Food prices, which are passed on from import prices to retail prices at a slower pace than energy prices, will be the driving force behind core CPI. Food prices are expected to push up the y/y rate of change in core CPI by nearly +0.5%pt in FY2023.

The current rise in prices has a strong aspect of cost-push inflation. As Bank of Japan Governor Haruhiko Kuroda stated at his regular press conference after the January 2022 Monetary Policy Meeting, "We are not in a situation where prices are rising steadily toward the price stability target of 2%[8]." In order to achieve sustainable demand-pull inflation, prices and wages need to rise in a cyclical manner, but the current rate of wage growth remains low. Nominal wages (on an hourly basis) in our main scenario are expected to increase by 0.4% y/y in FY2022 and by 1.1% y/y in FY2023 (Chart 9). It will be interesting to see whether wage increases will accelerate through the Kishida administration's efforts to realize a "virtuous circle of growth and distribution".

Outlook for Core CPI and Nominal Wages **Chart 9**



Source: Ministry of Internal Affairs and Communications, Ministry of Finance, Ministry of Health, Labour and Welfare, Bank of Japan, EIA, CME, Haver Analytics; compiled by DIR.
Note: Our main scenario assumes that the Go To Travel Campaign will be implemented from after the Golden Week holiday until the end of November, excluding the summer vacation (mid-July to end-August).

[8] "Summary of BOJ Press Conference," Bank of Japan (Jan. 19, 2022) (Japanese only)

Greatest downside risk remains status of mutant strains of COVID-19

Growth of nearly 4% is seen for real GDP in FY2022, but downside risk is great. The major risk remains the trend in variants of COVID-19. While the third vaccination (the booster shot) is making progress in the advanced nations, unvaccinated population remains high in the emerging nations. According to the Oxford University Database, as of February 20, 2022, only 10.6% of people in low-income countries[9] had been vaccinated at least once (as compared to more than 61.9% worldwide). It is quite possible that new variants could emerge as vaccination lags in emerging nations, and that they could spread to developed countries such as Japan.

Other factors to watch out for include a further rise in energy prices due to tensions in Ukraine, a sharp rise in U.S. interest rates, China's real estate market entering an adjustment phase, and intensifying friction between the U.S. and China.

2. Influence of High Price of Resources and Pent-Up Demand for Automobiles on the Japanese Economy

In this chapter, we examine two topics that are considered to be of high importance in predicting the future of the Japanese economy: high resource prices and pent-up demand for automobiles. The impact of a weaker yen was discussed in *Japan's Economy: Monthly Outlook (Jan 2022) (Japanese only)*.

(1) High price of resources: $10/bbl rise in oil prices will push down real GDP by 0.1%pt in FY2022

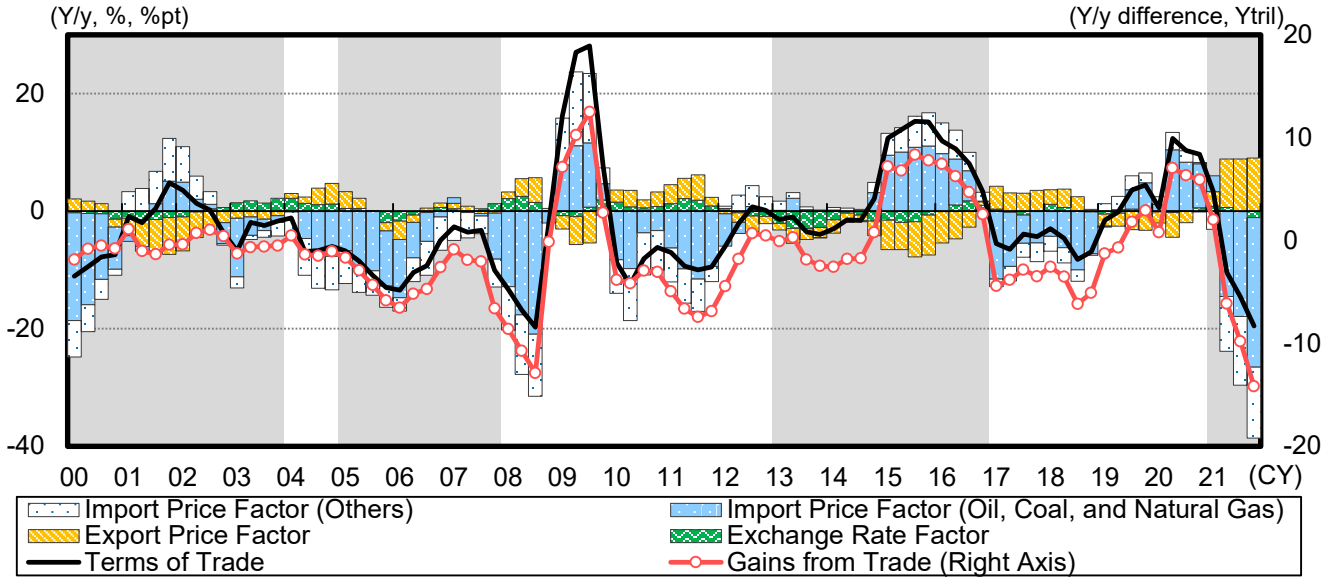
While energy demand has increased in line with the global economic recovery, the price of a wide range of resources has soared, partly because investment in resource development has been curbed against the backdrop of decarbonization. Meanwhile, the situation in Ukraine began to worsen around the end of 2021. Since Japan relies on imports for most of its resources, high resource prices are likely to lead to higher import prices. High resource prices indirectly depress GDP through outflows of income overseas (trading losses), and as mentioned in the previous chapter, Japan's trading losses reached -9.4 tril yen in the Oct-Dec period of 2021.

In Chart 10, the y/y rate of change in the terms-of-trade index for industry as a whole is broken down into three components: the exchange rate factor, the export price factor, and the import price factor (Also on a contract currency basis). The import price factor is divided into two categories: oil, coal, and natural gas, which have a particularly large impact, and others. This shows that import prices rose and terms of trade deteriorated around 2004-2008, 2010-2011, and 2017-2018, but the degree of deterioration in terms of trade at present is comparable to that of 2008, when WTI crude oil reached $140/bbl. Import prices have risen recently for a wide range of products, and while the y/y growth rate of import prices is higher than it was then, the fact that export prices have also risen substantially has mitigated the deterioration in terms of trade across industries.

When high resource prices occur in Japan, some of the imported inflation will be passed on to domestic retail prices, which will reduce the purchasing power of households and have a negative impact on consumer spending. Corporations will see their earnings squeezed by higher raw material costs and will try to curb their capex. Furthermore, if the decline in corporate earnings leads to a deterioration in the employment and income environment, the purchasing power of households will further decline.

[9] The World Bank defines low-income countries as those with a per capita GNI (gross national income) of $1,045 or less as of the year 2020.

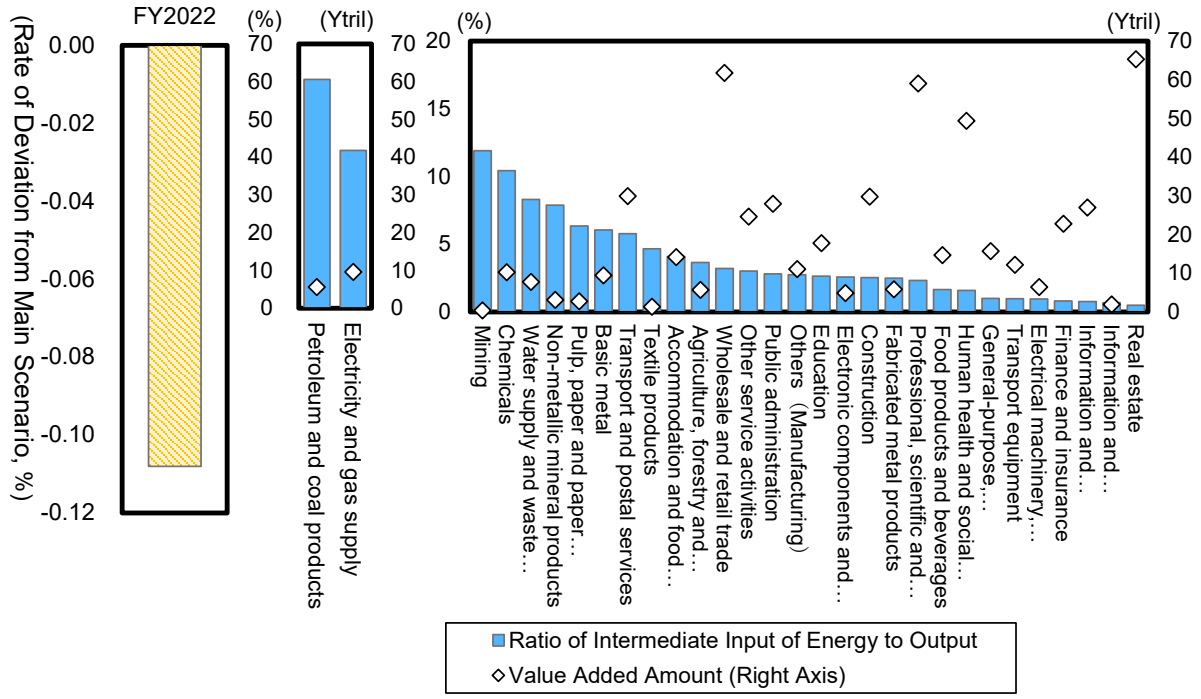
Factor Analysis of Terms of Trade **Chart 10**



Source: Cabinet Office, Bank of Japan; compiled by DIR.
Note: The export-import price index was used in putting together the factor analysis. The exchange rate factor uses both the yen-based index and contract currency based index. The export-import price factor uses the contract currency based index. Gains from trade is annualized. The shaded areas are periods when the yen was weak: 2000-2003, 2005-2007, 2013-2016, and 2021 through to the present.

Using our macroeconomic model that takes into account these endogenous mechanisms of each economic entity, we simulated the impact on real GDP by focusing on the rise in crude oil prices, as shown on the left side of Chart 11. In our main scenario, we assume that the crude oil price (WTI), which is currently over $90/bbl, will fall to $85/bbl in March and remain at $80/bbl from April onward as tensions in Ukraine ease. In contrast, if we assume a case where the crude oil price rises by $10/bbl after March compared to the main scenario, real GDP in FY2022 will be about 0.1% lower.

Influence on GDP if Price of Crude Oil Rises by $10 /bbl (Left), and Ratio of Intermediate Input of Energy to Output of Each Industry and Value Added (Center, Right) **Chart 11**



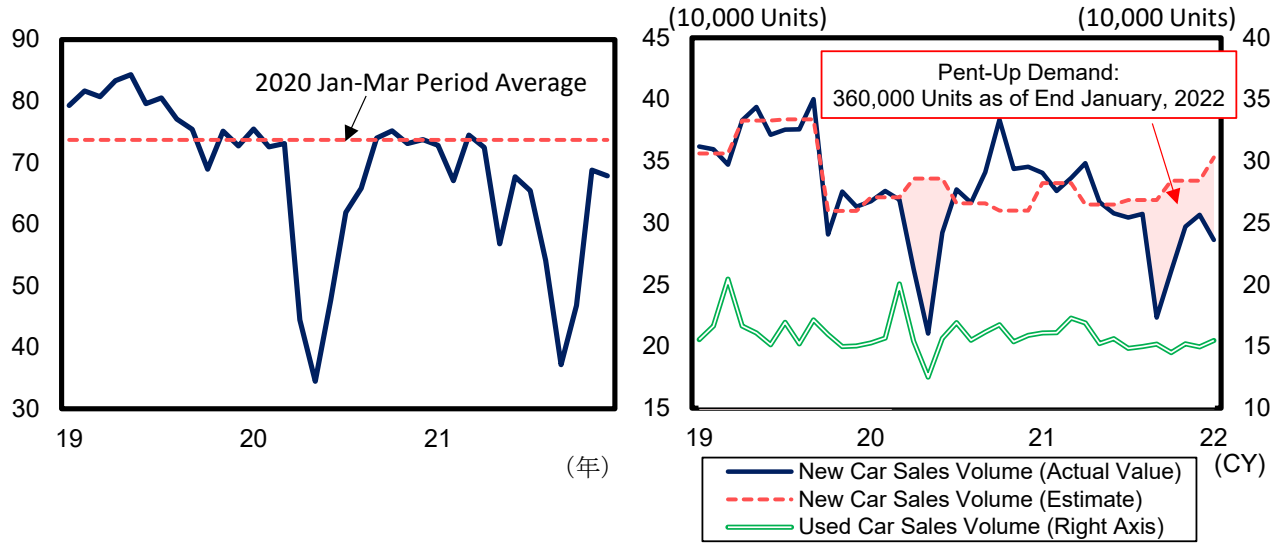
Source: Cabinet Office; compiled by DIR.
Notes: 1) The left side of the chart shows impact on real GDP if the price of crude oil (WTI) rises by $10 /bbl more than our main scenario after March 2022. This is a simulation using the DIR macro model.
2) Energy, shown on the right side of the chart, is the total of coal, oil, and natural gas, petroleum and coal products, and electricity, gas, and heat supply. Figures are based on the 2019 SNA input-output table. “Water supply and waste…” refers to “Water supply and waste management service”. “Pulp, paper and paper…” refers to “Pulp, paper and paper products”. “Accommodation and food…” refers to “Accommodation and food service activities”. “Agriculture, forestry and…” refer to “Agriculture, forestry and fishing”. “Electronic components and…” refers to “Electronic components and devices”. “Professional, scientific and…” refers to “Professional, scientific and technical activities”. “Human health and social…” refers to “Human health and social work activities”. “General-purpose, …” refers to “General-purpose, production and business oriented machinery”. “Electrical machinery, ...” refers to “Electrical machinery, equipment and supplies”. “Information and…”(left) refers to “Information and communications”. “Information and…”(right) refers to “Information and communication electronics equipment”.

Looking at the share of intermediate energy inputs in total output by industry, petroleum and coal products and electricity and gas supply account for by far the largest shares, at 60% and 40% respectively (Figure 11, center). In addition, the mining, chemicals, and water supply and waste treatment industries also have relatively large shares of the same, which is likely to lead to a deterioration in corporate profits (Figure 11, right). However, since the value added of the mining and chemical industries is not so large, the impact of the worsening of their earnings on the economy as a whole is likely to be limited. In this regard, the transport and postal activities, and accommodation and food services sectors, where demand has been sluggish due to the spread of COVID-19, have relatively large shares and value added. Although the normalization of economic activities is expected to begin in spring, we need to be wary of the possibility that the high price of resources will worsen business conditions in these industries.

(2) Domestic pent-up demand for automobiles: consumption will increase by 0.8 tril yen if this becomes manifest

In addition to the global shortage of semiconductors, the spread of COVID-19 in Southeast Asia, where parts are procured, caused a significant decline in domestic automobile production from August to October 2021 (Figure 12, left). As a result, domestic auto sales fell in the Jul-Sep period, but picked up quickly in the Oct-Dec period as supply constraints eased. 2022 has seen the spread of the Omicron variant, forcing automakers to cut production again as the number of infected people and close contacts in Japan soars.

Domestic Production Volume of Japanese Auto Makers (Left), and Pent-Up Demand for Domestic Motor vehicles (Right) **Chart 12**



Source: Bank of Japan, Cabinet Office, Ministry of Internal Affairs and Communications, Japan Automobile Dealers Association, Japan Mini Vehicles Association, News Releases from Auto Makers; compiled by DIR.

Notes: 1) Figures in both left and right sides of chart seasonally adjusted by DIR. The left side of the chart shows the sum of Toyota Motor Corporation, Honda Motor Company, Nissan Motor Company, Daihatsu Motor Company, Mazda Motor Corporation, Suzuki Motor Corporation, Mitsubishi Motors Corporation, SUBARU CORPORATION, and Hino Motors.

2) The estimate of new car sales volume was calculated using y/y estimated values from the Apr-Jun period of 2020 onwards, converted to a standard value. The period covered by the estimate is from the Jan-Mar period of 1984 to the Oct-Dec period of 2019. The estimation formula is as follows:
Sales volume of passenger vehicles on a y/y basis = 1.0 * actual earnings (employee compensation + other current transfer balance (net), y/y) -1.1 * real interest rate (y/y difference) + 0.4 * consumer sentiment (Employment environment indicators that make up the consumer confidence index, y/y difference) -3.3 * price of motor vehicles (y/y) + Σ β * dummy variables (y/y difference). Incomes expressed as real values with reference to household final consumption deflator. The dummy variable was produced by including consumption tax between 1989 and 2019, and the eco car subsidy during the 6-months around the time the consumption tax was increased in 2009 and 2011, and for half a year after, plus the 6-months after the Great East Japan Earthquake of 2011. Actual earnings, consumer sentiment, and the price of motor vehicles are given 1% significance, while constants are given a significance of 5%. The real interest rate does not reach the 10% level of significance. The coefficient of determination is 0.77. Other current transfer balance is made up of non-life insurance net premiums, non-life insurance payments, current transfers within general government, current international cooperation, other miscellaneous current transfers, and the Special Cash Payment.

The dashed line shown on the right side of Chart 12 is the estimated sales volume of new vehicles based on fundamentals such as purchasing power of households. In the first half of FY2020, potential demand increased due to the Special Cash Payment, while sales volume decreased due to voluntary restraint in going out and the closure of dealerships, and pent-up demand, the difference between the estimated and actual figures, accumulated. In the second half of FY2020, some of the pent-up demand appeared, but it accumulated again due to the reduction of automobile production, and it is estimated that 360,000 units remain at the end of January 2022. Multiplying this by the average unit price of a car in 2020 (about 2.3 mil yen), the pent-up demand is estimated to be 0.8 tril yen, which is equivalent to about 15% of the consumption of durable goods in the Oct-Dec period of 2021. The supply of automobiles is expected to increase after the spring of 2022, when the spread of COVID-19 is expected to settle down, and this is expected to be a factor boosting consumer spending.

However, semiconductor supply shortage is expected to continue for the time being. Toyota's production volume in March is expected to reach a record high for a single month, but the scale of recovery production will be smaller than previously planned due to the shortage of semiconductors. Although automobile production is expected to increase, the pace of increase will be moderate.

Japan's Economic Outlook No. 212 (February 21, 2022) Chart 13

		2021			2022				2023				2024	FY2021	FY2022	FY2023
		Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar			
Real GDP	Ytril; annualized	538.0	534.3	542.0	541.7	550.7	557.4	561.9	563.6	565.6	567.3	568.8	570.3			
	Q/q %	0.6	-0.7	1.4	-0.1	1.7	1.2	0.8	0.3	0.4	0.3	0.3	0.3			
	Q/q %; annualized	2.4	-2.7	5.9	-0.2	6.8	5.0	3.3	1.2	1.4	1.3	1.1	1.0			
	Y/y %	7.3	1.2	0.7	1.3	2.4	4.3	3.7	4.0	2.7	1.8	1.2	1.2	2.5	3.6	1.7
Private Consumption	Q/q %	0.7	-0.9	2.7	-1.3	2.2	1.5	1.2	0.4	0.3	0.2	0.1	0.1	2.5	4.2	1.8
Private Residential Investment	Q/q %	1.0	-1.6	-0.9	-0.0	0.5	0.7	0.6	0.3	0.0	-0.2	-0.3	-0.3	-1.2	0.5	0.4
Private Non-Resi. Investment	Q/q %	2.0	-2.4	0.6	1.9	2.2	1.9	1.7	1.1	0.5	0.5	0.4	0.4	1.6	6.1	3.2
Government Consumption	Q/q %	0.7	1.1	-0.3	0.8	0.6	-0.7	-1.4	-1.2	0.1	0.1	0.1	0.1	2.0	-0.2	-1.5
Public Investment	Q/q %	-3.3	-3.0	-3.7	-0.5	0.7	1.0	0.5	0.3	0.1	0.1	0.1	0.1	-7.6	-0.9	0.9
Exports	Q/q %	3.1	-0.3	1.0	1.4	1.4	2.1	1.7	1.3	1.0	1.0	1.0	1.0	12.8	5.8	4.9
Imports	Q/q %	3.8	-0.9	-0.3	0.8	1.8	1.5	1.3	0.8	0.5	0.5	0.4	0.4	6.3	3.9	2.8
Nominal GDP	Q/q %; annualized	0.9	-4.1	2.0	-1.2	8.7	6.0	3.5	1.9	2.1	1.8	1.6	1.3	1.1	3.6	2.3
GDP deflator	Y/y	-1.1	-1.2	-1.3	-1.9	-1.0	-0.4	0.4	0.9	0.6	0.5	0.7	0.5	-1.4	-0.0	0.6
Industrial production	Q/q	1.2	-3.7	1.0	2.2	3.2	0.9	0.5	0.4	0.3	0.2	0.1	0.2	6.4	5.5	1.4
Core CPI	Y/y	-0.6	-0.0	0.4	0.3	1.1	1.1	1.2	1.1	1.0	1.0	0.9	0.7	0.0	1.1	0.9
Unemployment rate	%	2.9	2.8	2.7	2.7	2.7	2.6	2.5	2.4	2.4	2.4	2.3	2.3	2.8	2.5	2.4
Trade balance (goods, services)	Ytril; annualized	4.0	-0.8	-2.2	-2.5	-2.0	-1.4	-1.1	-0.5	-0.1	0.3	0.9	1.4	-0.4	-1.3	0.7
Current account balance	Ytril; annualized	18.9	11.3	12.7	10.9	11.7	12.8	13.1	13.6	14.1	14.7	15.3	15.9	13.8	13.1	15.4
Major assumptions																
Crude oil price (WTI futures)	$/bbl	66.2	70.5	77.1	89.9	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	75.9	80.0	80.0
Exchange rate	Yen/$	109.4	110.1	113.7	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	112.1	115.0	115.0

Source: Compiled by DIR.
Note: GDP through Jan-Sep 2021: actual; thereafter: DIR estimates.