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Japan's Economy: Monthly Outlook (Feb 2021)

Examining the economic impact of vaccine dissemination and spread of infection from mutant strain

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Summary

- In light of the announcement of the Oct-Dec 2020 GDP 1st preliminary results, we have revised our economic outlook. We now see Japan's real GDP at -5.0% in FY2020, with FY2021 at +3.8%, and FY2022 seen at +2.3%. FY2021 and FY2022 are expected to achieve growth somewhat on the high side due to progress in vaccination and outlook for improvements in the US economy.

- The risk of the spread of COVID-19 infections is expected to remain great for the time being, and the possibility that the current state of emergency could be extended, or that a reissuance of the state of emergency could become unavoidable in the future, is not small. If a highly infectious mutant strain becomes prevalent in Japan, the death toll could increase by around 4,800 persons in comparison to our main scenario, and personal consumption could suffer a decline of around 24 tril yen in FY2021. Even if the mutant strain does not spread, there is still a possibility that a state of emergency could be declared again sometime in FY2021 if the pace of vaccination is slower than expected.

- If a state of emergency is reissued in the future, it will be necessary to design a system for payment of subsidies for shortening business hours in consideration of the situation facing business operations. It would be desirable to fine-tune the amount of payment based on the size and type of the business establishment and the economic level of each region. Meanwhile, as a means of increasing the effectiveness of policy measures, supplying payment of subsidies in return for cooperation to the entertainment industry, which has an especially high risk of spreading infections, is also worth considering.

1. Outlook for the Japanese Economy through FY2022

Oct-Dec 2020 real GDP achieved major growth, but Jan-Mar period of 2021 expected to lose speed

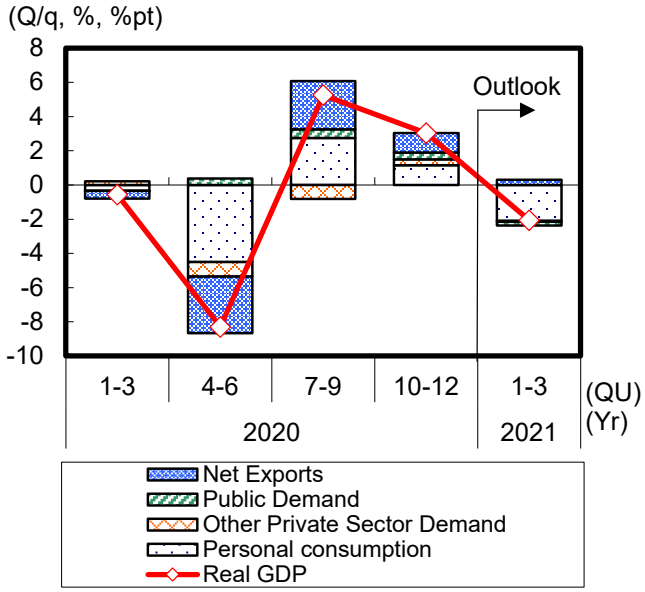
Japan's Oct-Dec 2020 real GDP growth (1st preliminary results) were up by 12.7% q/q annualized (+3.0% q/q) (Chart 1)[1]. While not comparable with the +22.7% logged in during the Jul-Sep period, major positive growth was achieved for the second consecutive quarter. Japan's real GDP recorded its steepest decline in the history of current statistics during the Apr-Jun period of 2020 due to the spread of COVID-19, plummeting 45 tril yen (in annualized figures) in comparison to the previous period, but then recovered over 90% of the loss over the following two quarters. We can confirm by this fact that the pace of recovery from the coronavirus crisis was quicker than initially expected.

Beginning in December, however, the economy lost its momentum. According to the Bank of Japan's Consumption Activity Index, personal consumption declined for the first time in five months in December 2020 as the spread of COVID-19 infections became more serious (Chart 2). The main cause was a decline in consumption of services after the Go To Campaigns were temporarily suspended, and the practice of self-restraint spread amongst consumers, meaning the avoidance of year-end parties and other large gatherings. An extended forecast making use of data on consumer turn-out available as of this writing, as well as POS data, information from individual companies, and industry statistics tells us that personal consumption declined even further in January 2021 after the reissuance of the state of emergency.

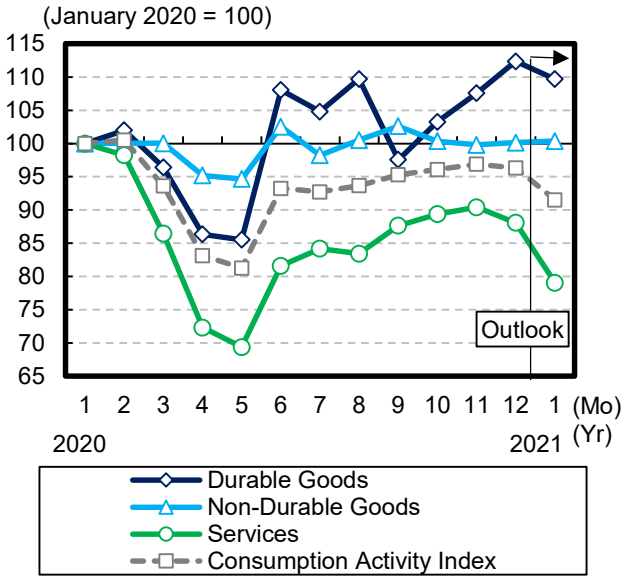
Real GDP during the Jan-Mar period is expected to record -8.0% q/q annualized assuming that the state of emergency is lifted by March 7. The period will likely reflect a downturn centering on personal consumption due to the influence of the reissuance of the state of emergency (Chart 1). This state of emergency creates moderate suppression of economic activity by narrowing down the target areas and industries. Hence, the effect on real GDP is estimated to be around -1.4 tril yen per month[2]. This is smaller than the amount of monthly decline experienced during the previous state of emergency in 2020, which saw around -3.1 tril yen per month. At the same time, exports and public investment are expected to experience moderate growth during the Jan-Mar period, thereby providing underlying support for the economy.

[1] See the DIR report by Keiji Kanda and Akane Yamaguchi dated 2021 February 15, titled "Oct-Dec 2020 1st Preliminary GDP Estimate."
[2] See the DIR report by Keiji Kanda and Akane Yamaguchi dated 2021 February 2, titled "Economic Outlook Revised Downwards due to Extension of State of Emergency to Ten Prefectures." (Japanese only)

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



Trends in Consumption Activity Index and Outlook for January **Chart 2**



Source: Cabinet Office, Bank of Japan, Ministry of Internal Affairs and Communications, Ministry of Economy, Trade and Industry, Google, Japan Automobile Dealers Association, Japan Mini Vehicles Association; compiled by DIR.
Note: Real figures are used, and are all seasonally adjusted. The Consumption Activity Index is adjusted for travel balance. Figures for individual goods and services are not adjusted for travel balance. The figure for non-durable goods is from the National Accounts, and includes semi-durable goods.

Main scenario assumes diffusion of vaccine

The pace of economic recovery in the future depends on progress in vaccinations, which have already begun both overseas and in Japan, and on the highly infectious mutant strain. According to our main scenario, the risk of further spread of COVID-19 decreases as vaccination progresses, and between the second half of FY2021 and FY2022, it is assumed that economic activity will increasingly return to normal. Meanwhile, it is assumed that the mutant strain will not spread.

As for the pace of vaccination, the situation is uncertain, but based on research published by Fujii and Nakata (2021)[3] we assume that by the last week of June, vaccination will speed up to 1.6 million people per week having completed the two shots required (see Chart 7). More than 50% of the population is expected to have been vaccinated by the end of March 2022. The risk of the spread of COVID-19 infections is expected to remain great for some time to come, and measures to prevent the spread of infection, such as maintaining social distance, will remain necessary. While social and economic activities will continue to be constrained to a degree, with the effect of the vaccine amongst other things, the reissuance of a state of emergency is expected to be avoided for the duration of the period covered by our outlook. In Chapter 2 we provide a quantitative examination of the effects on the economy assuming that the pace of vaccination is slower than expected, and the spread of the highly infectious mutant strain of COVID-19.

Outlook for real GDP according to main scenario: -5.0% in FY2020, +3.8% in FY2021, and +2.3% in FY2022

Chart 3 shows the trend in real GDP according to our main scenario, and our outlook for overseas economies which provides one of the assumptions for the main scenario. The outlook for overseas economies is based on the latest data provided by DIR's own experts in the overseas economies (as of February 19).

[3] "Covid-19 and Output in Japan", RIETI Discussion Paper Series 21-E-004, by Daisuke Fujii & Taisuke Nakata (January 21, 2021).

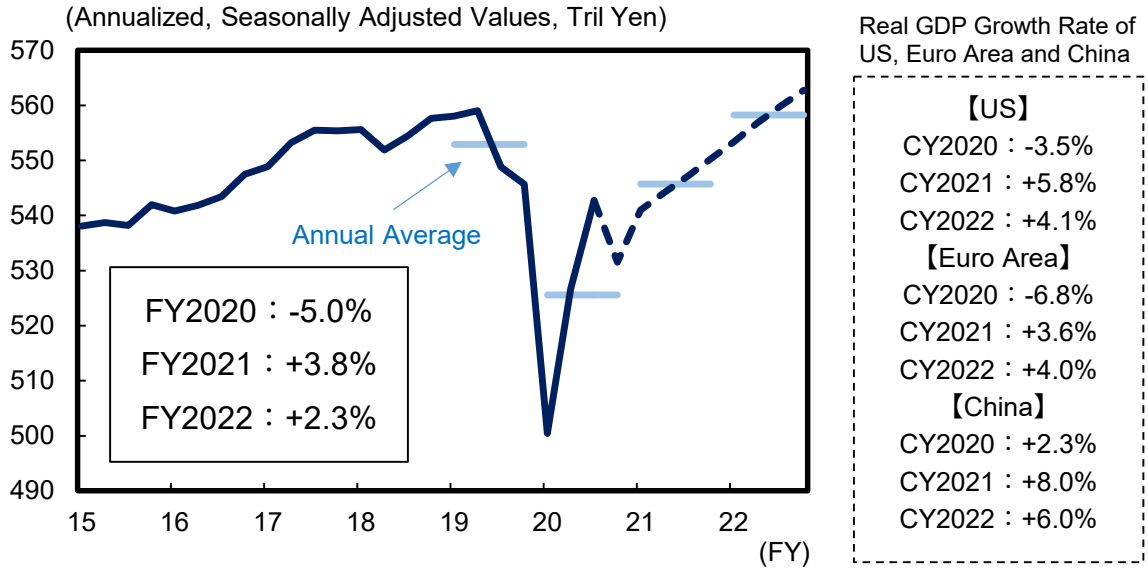
The 2021 real GDP growth rate in the US is expected to be +5.8%, while the Eurozone is expected to be at +3.6%, with China at +8.0%. In the US, with the Biden Administration's expansionary fiscal policy and progress in vaccinations, the economy is expected to recover, led by personal consumption and housing investment. In the Apr-Jun period of 2021 real GDP is expected to exceed the level seen before the coronavirus crisis (Oct-Dec period of 2019). Meanwhile, economic recovery is expected to be moderate in the Eurozone with the effects of measures to prevent the spread of COVID-19 amongst other issues. The economy is not expected to regain the lost ground from the 2020 crisis. In China, where normalization of economic activity is progressing quickly, high growth of +8.0% is expected. The real GDP growth rate averaged with the year 2020 is +5.2% in comparison to the previous year, falling below the +6% which before the coronavirus crisis was considered to be a growth rate the country could uphold for some time. That said, of all the major economies, China is expected to be able to gain relatively high performance in the "with corona" era.

The 2022 real GDP growth rate is expected to be +4.1% for the US, +4.0% for the Eurozone, and +6.0% for China. The US and China are expected to maintain high growth, while the Eurozone, which had been lagging in economic recovery, is expected to quicken the pace of its growth rate. The Eurozone is expected to exceed the level of its real GDP just before the coronavirus crisis by around the Jul-Sep period of 2022.

Against the background of this external environment Japan's real GDP growth rate is expected to register -5.0% in FY2020, with FY2021 at +3.8%, and FY2022 seen at +2.3% (Chart 3). While real GDP will be unable to avoid a major decline during the Jan-Mar period of 2021 due to the effects of the reissuance of the state of emergency, positive growth on the high side is expected at +7.3% q/q annualized during the Apr-Jun period as economic activity gets going again. After the previous state of emergency was lifted, pent-up demand occurred centering on durable goods. However, this time around suppression of consumption of goods is limited. For this reason, the same phenomenon where the growth rate is buoyed by pent-up demand will not likely occur to the same extent. Between the second half of FY2021 and throughout FY2022, the level of economic activity is expected to rise due to the recovery in overseas economies and the positive effects of vaccination, and the pace of Japan's economic recovery is expected to gradually speed up. Real GDP is expected to exceed the level seen just before the coronavirus crisis (in the Oct-Dec period of 2019) by around the Jan-Mar period of 2022, and by around the Oct-Dec period of 2022, it is expected to exceed the previous record set in the Jul-Sep period of 2019.

While the number of new infections per day is currently on the decline, the medical care provision system is still under pressure. A highly infectious mutant strain of COVID-19 has been detected in certain regions of Japan. If consumer turn-out increases rapidly after the state of emergency is lifted, the government may be forced to reissue a state of emergency within several months after as is explained in Chapter 2. The spread of the mutant strain would add fuel to the fire, likely leading to the implementation of stricter measures of the kind seen in the spring of 2020 to prevent the further spread of infections, ultimately leading to a major deterioration of the economic outlook. Continued vigilance is required regarding the effects of the COVID-19 situation on the economy in the future.

Outlook for Japan's Real GDP and Assumptions Regarding Overseas Economies **Chart 3**



Source: Cabinet Office, various statistics; compiled by DIR.
Note: The broken line represents predicted values produced by DIR. Outlooks for the US, Europe and China are based on outlooks produced by DIR area experts.

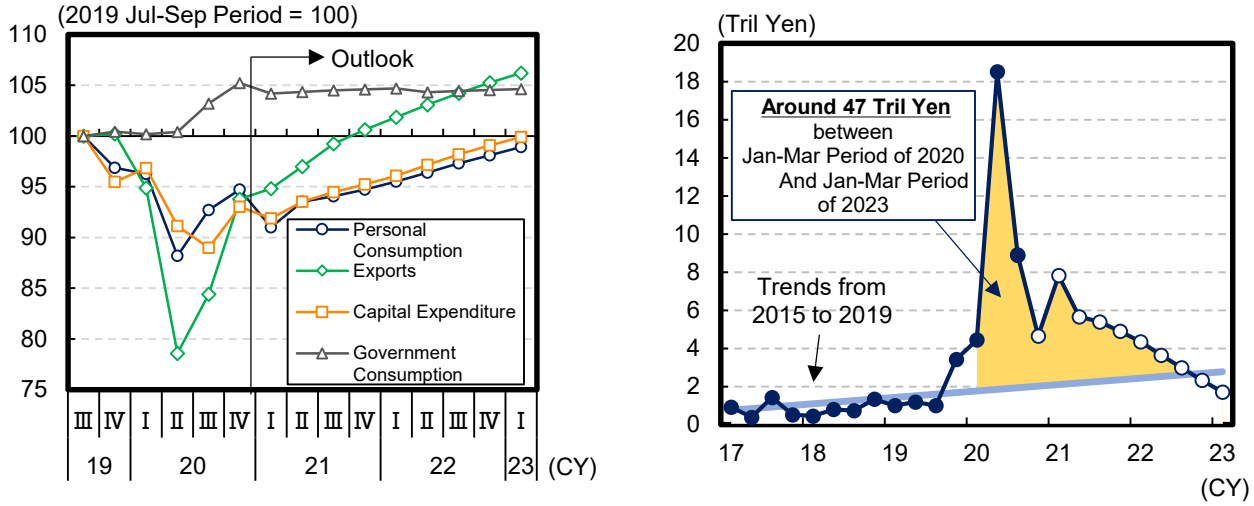
Outlook by demand component: Personal consumption will have plenty of room for growth after infections are brought under control

The major GDP components are shown on the left side of Chart 4, with the 2019 Jul-Sep period results set at 100. Personal consumption is expected to suffer a major downturn in the Jan-Mar period of 2021 due to the reissuance of the state of emergency, but is expected to recover during the Apr-Jun period. As vaccination progresses, the risk of the spread of disease is expected to be reduced, and consumption of services involving risk of infection, such as eating out and travel, are expected to quicken the pace of their recovery throughout FY2022. As a result, the level of personal consumption during the Jan-Mar period of 2023 is expected to approach that of the Jul-Sep period of 2019 when last-minute demand associated with the impending increase in the consumption tax occurred.

Household savings, found by subtracting consumption expenditure from disposable income, is expected to increase by about 75 tril yen during the three years from Jan-Mar 2020 to Jan-Mar 2023. Given that households have long had the tendency to devote a certain percentage of their disposable income on savings, 47 tril yen in excess savings exceeding these past trends (an increase of about 2.3 tril yen per quarter) over the same period is expected. (Chart 4, right). It is thought that the special fixed benefit of 100,000 yen per person and refraining from consumption of services contributed to the increase in savings. According to our main scenario in this month's outlook, uncertainty regarding the future of the social security system and the tax system has been strengthening the tendency of households to save as a precautionary measure since before the spread of COVID-19, and it is assumed that excess savings accumulated during the COVID-19 disaster will not be withdrawn[4]. In this sense, out main scenario is on the conservative side. There is a possibility that once the pandemic has been brought under control, the household propensity to consume could improve, leading to an increase in the tendency to dip into savings, thereby pushing personal consumption significantly up on the high side.

[4] See Masayuki Morikawa, "Policy Uncertainty and Consumption & Savings Behavior" (Research Institute of Economy, Trade and Industry Discussion Paper, February 2017, RIETI Discussion Paper Series 17-J-007, Japanese only).

Outlook for Major Components of Real GDP (Left), and Outlook for Household Savings (Right) Chart 4



Source: Cabinet Office; compiled by DIR.
Note: Values are all seasonally adjusted. Figures represented by the white circles on the right side of the chart are DIR estimates. Amount of savings = disposable income – household final consumption expenditure.

Exports are expected to continue a strong recovery backed by improvements in the external environment, and should reach the level recorded during the Jul-Sep period of 2019 by around the Oct-Dec period of 2021. Exports of goods are expected to maintain favorable performance, while at the same time, inbound tourism consumption, which brought in just under 5 tril yen in export of services in 2019, but then disappeared in the spring of 2020, should begin moving toward recovery during FY2022, becoming a factor in boosting exports.

Private sector capital expenditure is expected to decline somewhat during the Jan-Mar period of 2021 due in part to a reactionary decline after the previous period's major growth, and the influence of the spread of COVID-19. Domestic and overseas demand is expected to recover during the Apr-Jun period and beyond, encouraging a comeback centering on lagging machinery investment and construction investment. As a result, recovery to the level seen during the Jul-Sep period of 2019 is expected in around the Jan-Mar period of 2023. Investment in software associated with digitalization, labor-saving and manpower reduction, which has been maintaining underlying strength since before the spread of COVID-19, will likely continue to be a factor in boosting capital investment.

Government consumption, which has expanded rapidly reflecting the emergency economic measures and supplementary budget of 2020, is expected to shift into decline in the Jan-Mar period of 2021, due in part to the effect of the temporary suspension of the Go To Campaigns. Even so, it will still exceed the Jul-Sep period of 2019 by around 5% and is expected to continue at a high level thereafter. Moving into FY2022 the risk of the spread of COVID-19 is expected to decline, and coronavirus crisis response measures will gradually be reduced. On the other hand, Japan's population continues to age rapidly, and payment of medical and nursing care benefits continue to grow on a yearly basis. These expenses will continue to become manifest in government consumption. Since the spring of 2020, there has been a growing tendency to refrain from visiting medical institutions due to concerns regarding COVID-19, but this tendency will settle down as vaccination progresses. After all of the ups and downs, government consumption in FY2022 is ultimately expected to remain flat in comparison to the previous fiscal year.

2. Simulation: Spread of Infections due to Consumer Turn-Out, Vaccination Situation, and Mutant Strain

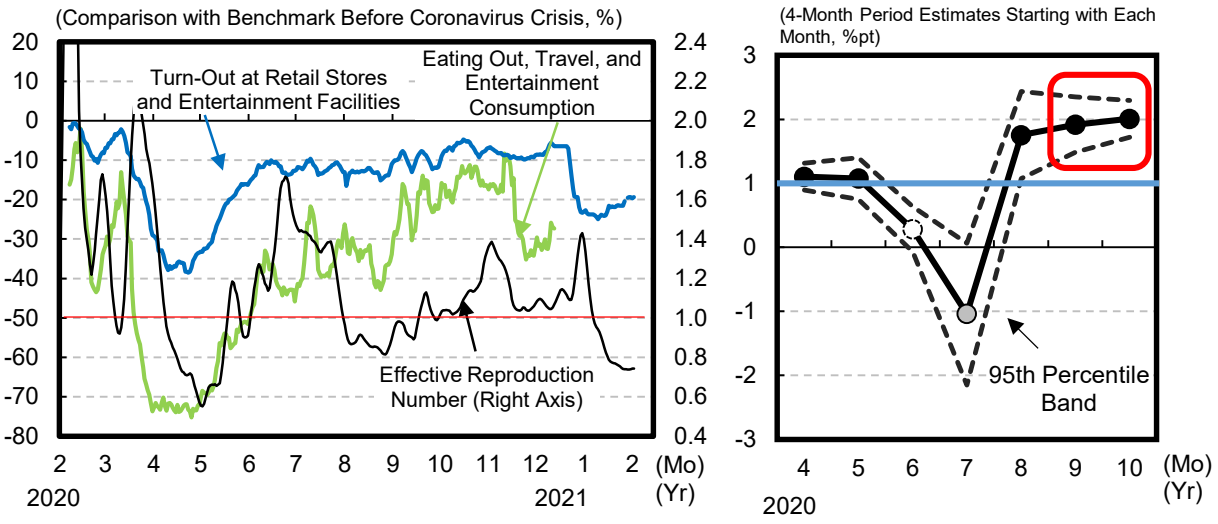
In this chapter we provide an estimate of the future COVID-19 situation and its effects on the economy, with effective reproduction number and consumer turn-out, which is highly influential on consumption, as our starting point

The question of how to get Japan's economy back on track toward recovery, while at the same time upholding both measures to prevent the spread of infection and efforts to encourage social and economic activity, will continue to be a challenge beyond FY2021. In doing so, the major issues from the viewpoint of maintaining the economy are the spread of infections and consumer turn-out, which is a major influence on the consumption of services.

The effective reproduction number, which indicates how many people are infected by one infected person, tends to lag behind consumer turn-out at retailers and entertainment facilities according to Google location information data by about two weeks. (Chart 5 left). Furthermore, the number of people is strongly correlated with consumption related to eating out, travel and entertainment. Therefore, in this chapter, we will use these relationships to simulate the number of newly infected people, the number of deaths, and the impact on the economy for each scenario.

The relationship between the effective reproduction number and consumer turn-out seems to have changed over the summer of 2020 due to thorough measures against infectious diseases and expansion of telework. We created an estimate formula that explains the effective reproduction number of the Tokyo metropolitan area in terms of consumer turn-out and temperature at retail stores and entertainment facilities, and performed a rolling estimate covering a period of four months (Chart 5, right side), and found that the relationship between consumer turn-out and the effective reproduction number became stable around September 2020 (the elasticity value significantly exceeds 1). The Bank of Japan's Outlook for Economic Activity and Prices (October 2020), shows that the relationship between consumer turn-out and the effective reproduction number changed around summer with a quantitative method using daily panel data. Charts 6 & 7 present a simulation with the estimate period set from September 2020 to mid-February 2021. Results show that if consumer turn-out in Tokyo increases by 1%, the effective reproduction number will increase by 1.79% (the coefficient of determination is 0.71).

Turn-Out, Consumption, and Effective Reproduction Number (Left), and Elasticity Value of Effective Reproduction Number in Relation to Consumer Turn-Out (Tokyo, Right) **Chart 5**



Source: Ministry of Internal Affairs and Communications, Ministry of Health, Labour and Welfare, Google, Tokyo Metropolitan Government, CEIC, Japan Meteorological Agency; compiled by DIR.

Notes: 1) The series' in the chart on the left all use a 7-day moving average. Turn-Out at Retail Stores and Entertainment Facilities and the benchmark for eating out, travel and entertainment consumption are expressed using the median value per day of the week between January 3 and February 6, 2020. The bold line indicates the 7-day moving average. Eating out, travel and entertainment consumption is the total of eating out, transportation, and cultural & entertainment services. Data from holidays occurring on weekdays, the Obon holiday (August 10-14, 2020), and year-end/Japanese New Year (December 28, 2020 to January 4, 2021) are not included.

2) We use a simple equation introduced by Toyo Keizai Inc. for effective reproduction number: Effective reproduction number = (number of new positives during last 7-days/number of new positives during the previous 7-days) ^ (mean generation time 5-days/ report interval 7-days). Supervised by Professor Hiroshi Nishiura, Kyoto University Graduate School of Medicine.

3) The equation for estimating the effective reproduction number used in the right side of the chart is as follows: log (effective reproduction number) = α x log (turn-out at retail stores and entertainment facilities (-14)) + β x log (average temperature (-14)) + γ April, May, and August-October have significance of 1%, while July has 10% significance, and June is not significant.

Suppressing the spread of infection must be prioritized for the time being in order to avoid the reissuance of a state of emergency

Chart 6 illustrates trends in consumer turn-out, number of infections, number of deaths, and personal consumption by scenario. According to our main scenario, it is assumed that consumer turn-out will gradually recover with the help of the implementation of priority measures such as the prevention of epidemics included in the revised Special Measures Law after the lifting of the state of emergency (Chart 6 upper left). As vaccination progresses, the number of newly infected people will gradually become less likely to increase. There will be a favorable environment for holding the Tokyo Olympic and Paralympic Games. Consumer turn-out in Tokyo is expected to recover to about 90% of where it was before the spread of COVID-19 by the end of 2021, while the number of newly infected people is expected to remain at a low level (Chart 6, upper right, in prefectures with a small number of infected people, output in some areas will recover to the level before the spread of the infection).

However, it is also possible that consumer turn-out could increase rapidly after the state of emergency is lifted. According to risk scenario (1), it is assumed that consumer turn-out will reach the maximum level it recorded after the spread of COVID-19 (in November 2020) after the state of emergency is lifted. In this case, new infections will exceed 1,000 per day in Tokyo by around May 2021, and the government will be forced to reissue a state of emergency[5]. The third stage of emergency is expected to be lifted after about 1 month, and after that, consumer turn-out will recover in stages the same way as in the main scenario. With vaccinations taking place the spread of the infection will be moderate. Meanwhile,

[5] When the state of emergency was reissued in January 2021, the number of new infections per day was around 1,000. Therefore, according to our estimate, it is assumed that the declaration is reissued when the number of new infections per day exceeds 1,000 on a 7-day moving average, and then canceled when the 7-day moving average falls below the stage 2 standard of 300.

personal consumption according to risk scenario (1) is estimated to fall below the amount in the main scenario by 0.5 tril yen on a nationwide basis[6], so the economic effects will be limited (Chart 6, bottom left). However, the number of infections nationwide is expected to be around 300,000 in contrast to the main scenario, while the number of deaths is expected to increase by around 1,900 (Chart 6, bottom right). It is necessary to prioritize suppression of infections for some time in order to avoid this kind of situation.

If the mutant strain of the disease spreads, the number of deaths in FY2021 is expected to grow by 4,800, while personal consumption is expected to decline by 24 tril yen

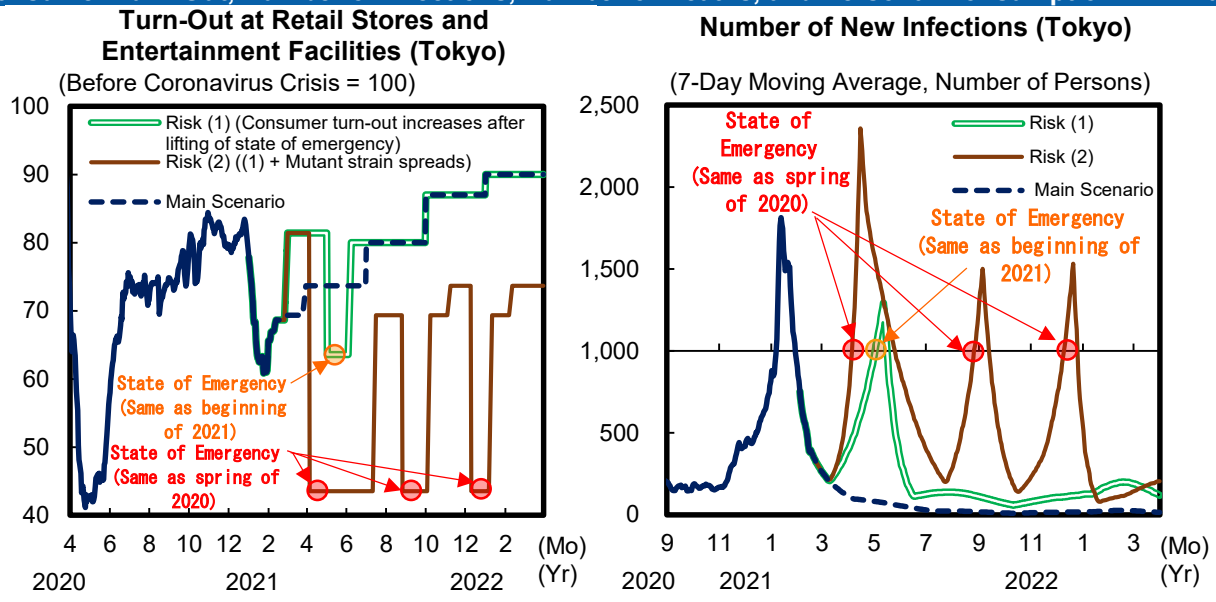
In addition to the assumptions used in risk scenario (1), risk scenario (2) assumes that the highly infectious mutant strain spreads. According to a survey published at the end of the year in 2020 by Imperial College London, the spread of the mutant strain of COVID-19 in the UK may increase the effective reproduction number by 0.4 – 0.7. In this risk scenario we assume that the effective reproduction number begins to rise by early March, and by the end of April, has risen by 0.55. This makes it easier for an explosion in infections to occur, and suppressing the increase in infections would require even more extreme measures.

As shown in the upper right of Chart 6, we see that as in the main scenario, even if the vaccine becomes widespread, several infection explosions will still occur during 2021. During the state of emergency, strict measures similar to those in the spring of 2020 will be required. As a result, the amount of personal consumption in risk scenario (2) is about 24.4 tril yen lower than in the main scenario, suggesting that it may cause enormous damage to the Japanese economy (in this case, Japan's real GDP growth rate is expected to fall from +3.8% to +0.6 in FY2021). The number of infected people is expected to increase by about 860,000 and the number of deaths by about 4,800 compared to the main scenario, and the number of suicides due to economic hardship is also expected to increase significantly[7]. It will be necessary to remain vigilant regarding the spread of the highly infectious mutant strain of the disease.

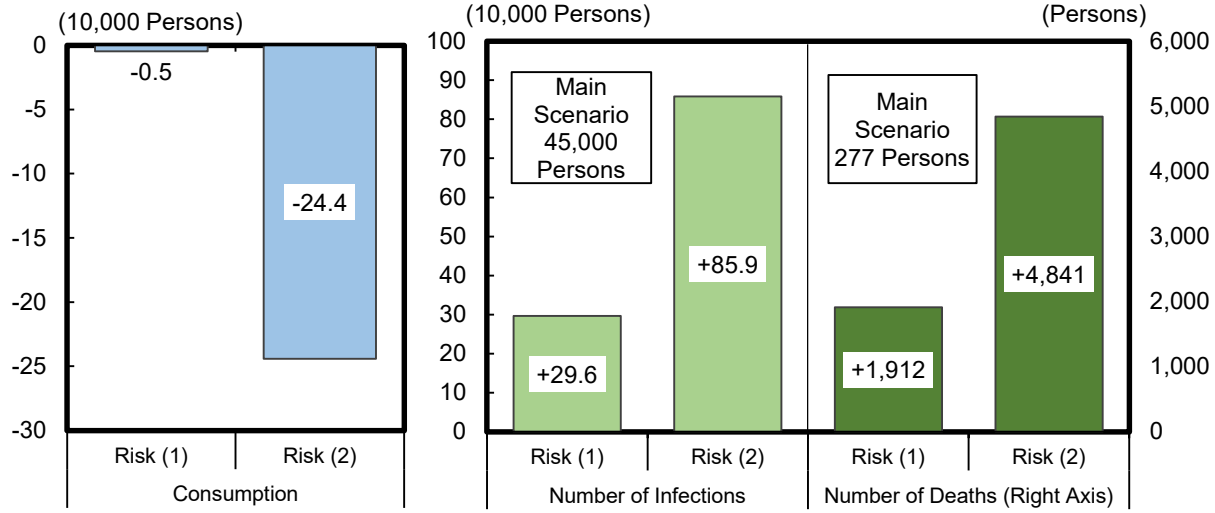
[6] The effect of the current state of emergency on personal consumption is assumed to be around -1.4 tril yen per month in comparison to the previous time when it was -4.3 tril yen.

[7] Assuming the unemployment rate rose by 1 percentage point between 1998 and 2019, there would be a correlation with the number of suicides due to economic and basic life problems with an increase of about 1,800. Based on this calculation, a decrease of about 24 tril yen in personal consumption will increase the number of suicides due to economic hardship by about 2,700.

Consumer Turn-Out, Number of Infections, Number of Deaths, and Personal Consumption — Chart 6



Rate of Deviation from Main Scenario (FY2021 Cumulative, Nationwide)



Source: Ministry of Health, Labour and Welfare, Tokyo Netropolitan Government, CEIC, Google, Japan Meteorological Agency, Bank of Japan, Cabinet Office; compiled by DIR.

Notes: 1) Turn-Out at Retail Stores and Entertainment Facilities is expressed using the 7-day moving average. The benchmark is the median value per day of the week between January 3 and February 6, 2020. Data from holidays occurring on weekdays, the Obon holiday (August 10-14, 2020), and year-end/Japanese New Year (December 28, 2020 to January 4, 2021) are not included.

2) The number of new infections was calculated after estimating effective reproduction number. We use a simple equation introduced by Toyo Keizai Inc. for effective reproduction number (Supervised by Professor Hiroshi Nishiura, Kyoto University Graduate School of Medicine):
Effective reproduction number = (number of new positives during last 7-days/number of new positives during the previous 7-days) ^ (mean generation time 5-days/ report interval 7-days).
The equation for estimating the effective reproduction number used in the right side of the chart is as follows. We used daily temperature from 2020 for the temperature data portion of the estimate:
log (effective reproduction number) = 1.79 x log (turn-out at retail stores and entertainment facilities (-14)) – 0.05 x log (average temperature (-14)) – 7.59 The estimation period was between September 1, 2020 and February 16, 2021. Variable and constant terms all had significance of 1%. The coefficient of determination was 0.71.

3) Assumptions regarding the vaccine: The number of people who have been vaccinated will gradually increase starting in April 2021, and starting in the last week of June and beyond, 160,000 people per week will be vaccinated (1.6 million people per week nationwide). Vaccinations will bring about a decrease in the number of people who could potentially be infected with COVID-19, and therefore we estimate that it will have the effect of decreasing the number of infections.

4) According to risk scenario (2), which assumes that a mutant strain of COVID-19 will spread, the effective reproduction number will rise beginning in early March 2021, and as of end April, will have risen by 0.55. According to a survey published at the end of the year in 2020 by Imperial College London, the spread of the mutant strain of COVID-19 in the UK may increase the effective reproduction number by 0.4 – 0.7 (Mainichi Shimbun, January 4).

5) Consumption amounts for each scenario have been calculated by converting them into GDP-based amounts in light of turn-out at retail stores and entertainment facilities and trends in service industries according to the Consumer Activity Index. The nationwide number of infections was calculated based on the most recent number of infections in Tokyo, and said figure was quadrupled. As for the number of deaths, we assume that the June – August 2020 figure of 0.96% will naturally decline to the cumulative death rate of persons age 50 and below (0.07%) as the number of vaccinations of elderly people progresses. (Figures for death rates are taken from materials provided by Professor Nishiura of the 11th Novel Coronavirus Disease Control Advisory Board.)

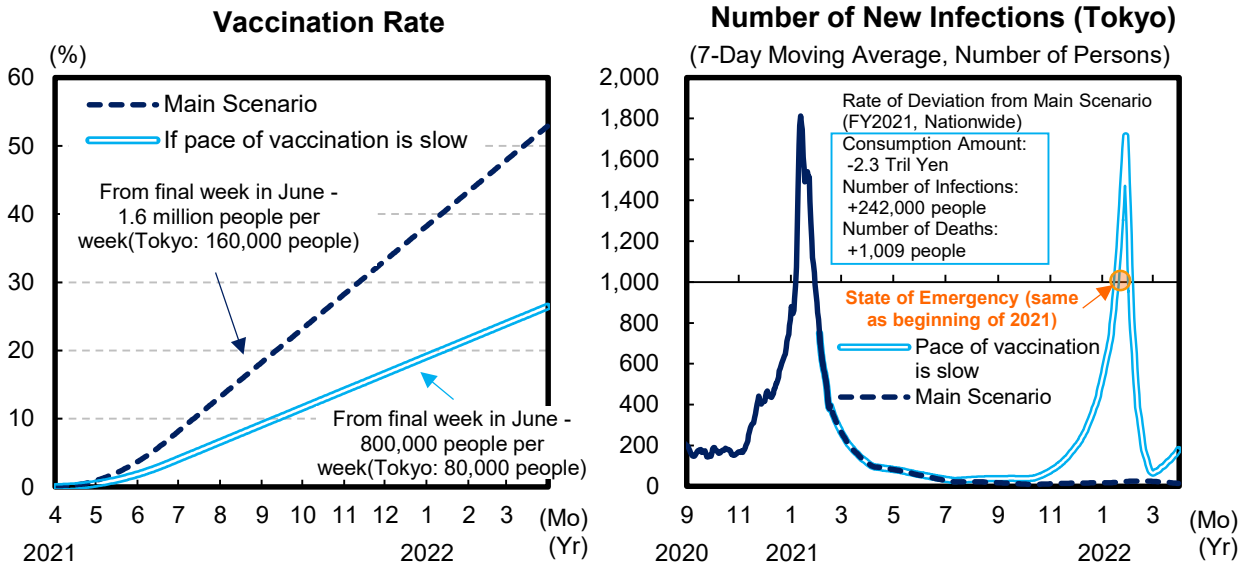
If dissemination of the vaccine is delayed, a state of emergency could again be reissued

There is great uncertainty regarding the pace of vaccination. In the main scenario, referring to Fujii and Nakata (2021) mentioned above, it is assumed that about half of Japan's citizens will have completed their second shot by the end of FY2021 (Chart 7 left). However, it is possible that shipments to Japan will be delayed due to the global shortage of vaccines, or that the vaccination system itself will not be well prepared, and there are concerns that the vaccine's effect will not last and the required number of vaccinations will increase. In addition, many people may refrain from vaccination due to concerns about safety and adverse events.

If the pace of vaccination is half of what the main scenario assumes (the vaccination rate being at about 25% as of the end of FY2021), then upward pressure on the effective reproduction number due to the recovery of consumer turn-out will exceed the suppression effect from dissemination of the vaccine. It is expected that the government will be forced to call another state of emergency toward the end of FY2021 (Chart 7). In this case, the number of infected people will increase by about 240,000 (the number of deaths will increase by about 1,000) and the amount of personal consumption will decrease by about 2.3 tril yen compared to the main scenario.

Establishing and strengthening the vaccination system not only protects the lives of the people, but can also be said to be the greatest economic measure. The government is required to proactively promote such efforts by taking advantage of the success stories of countries that have already begun the process, and to disclose information and provide clear explanations regarding adverse events in order to dispel public anxiety.

Effects on Infection Status and the Economy if Pace of Vaccination is Slower than Expected Chart 7



Source: Ministry of Health, Labour and Welfare, Tokyo Metropolitan Government, CEIC, Google, Japan Meteorological Agency, Bank of Japan, Cabinet Office; compiled by DIR.

Notes: 1) The vaccination rate is the percentage of people who have completed their second dose of the vaccine.

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3. The Question of Subsidies for Shortening Business Hours, and the Direction the Government Should be Headed

Upgrades and additions to various support measures for business in response to reissuance of state of emergency

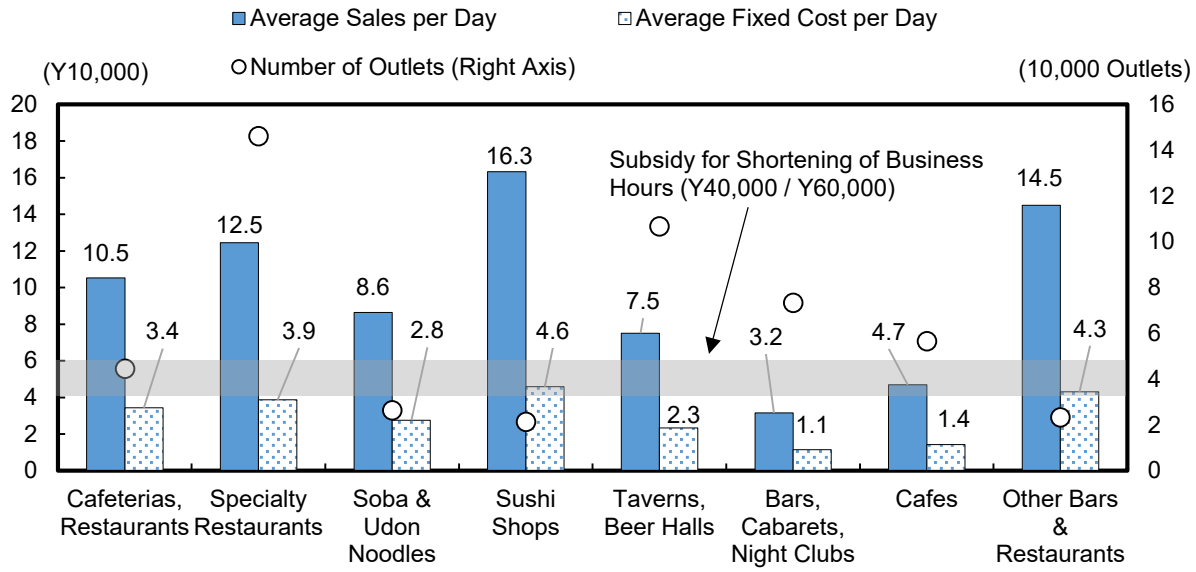
Following the reissue of the state of emergency, various support measures have been expanded and extended for industries suffering a major impact on business. For example, in the cooperation request category (payment of subsidy for shortening business hours), if restaurants and bars cooperate in shortening business hours and closing by 8:00 PM, 40,000 yen per day per business establishment will be paid (emergency declaration target per business establishment is 60,000 yen per day). This was raised from the previous 20,000 yen per day. In addition, the application deadline for subsidy program for sustaining businesses and rent support benefits has been extended to February 15, 2021. Also, temporary support for companies that have direct or indirect transactions with restaurants and companies that have been affected by the self-restraint order restricting going out or moving around unnecessarily has increased from 400,000 yen to 600,000 yen for small and medium-sized enterprises. It was expanded from 200,000 yen to 300,000 yen for individually run businesses (sole proprietorships).

The special measures for employment adjustment subsidies, whose term was up at the end of February, have been extended until the end of the month following the month when the state of emergency is completely lifted. In addition, in the regions subject to the state of emergency, the subsidy rate for restaurants run by large companies that shortened business hours and restricted the accommodation rate and maximum number of people at the request of the prefectural governor was 2/3 (or 3/4 if employees were not laid off). This was raised to 4/5 (or 10/10 if employees were not laid off). Employees of large companies that were not covered by the support fund and allowance for the leave forced to be taken under the COVID-19 outbreak for employees who have been forced to take leave and have not received leave allowance will now receive benefit payments according to the review. In this section, we will focus on the subsidy for shortening business hours among other support measures.

Subsidy for shortening business hours fails to take actual business situation into account

There are two types of subsidies for shortening business hours, regardless of the size, form, or region of the establishment, depending on whether the particular region is subject to the state of emergency. For this reason, some businesses can run stable operations with the subsidy for shortening business hours, while others are forced to continue operating late at night due to the tough business situation even if they receive the subsidy. In order to continue doing business in the face of declining demand, it is important to provide support based on fixed costs, which are incurred regardless of sales. Below, we summarize the current status of restaurant sales and fixed costs by type of establishment, region, and capitalization.

Average Sales & Fixed Costs per Day by Type of Restaurant Establishment **Chart 8**



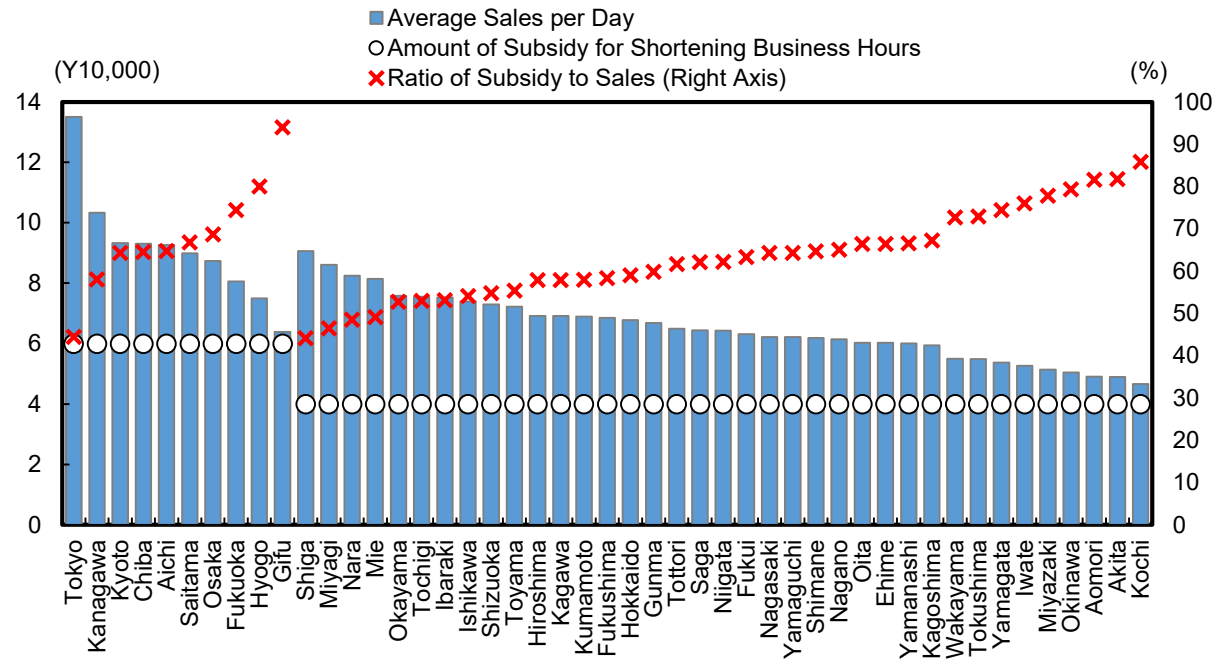
Source: Ministry of Internal Affairs and Communications; compiled by DIR.
Note: Fixed costs are the total of payment of salaries, rental fees for movable property & real estate, and interest payments etc.

Chart 8 shows average sales and fixed costs per day of restaurants by type of establishment. (Fixed costs are the total of payment of salaries, rental fees for movable property & real estate, and interest payments etc.). Looking at sales, sushi shops have the highest sales at 163,000 yen, which is more than 100,000 yen different from bars, cabarets, and night clubs. Of course, the figures shown here are just average establishments, and it should be noted that there are large variations depending on the size of the establishment. On the other hand, fixed costs account for about 30% of sales regardless of the type of restaurant, and it is expected that fixed costs can be covered by subsidies for shortening business hours, with the exception of sushi shops and other bars & restaurants.

Chart 9 shows the sales of restaurants by region. In Tokyo, where prices are the highest in Japan, the average daily sales amount to 135,000 yen, but in Kochi prefecture, it is only 47,000 yen. In Tokyo, the ratio of subsidies for shortening business hours to sales is about 40%, but in Kochi prefecture it is 86%. Gifu Prefecture, which is one of the regions subject to the state of emergency, is the highest, with subsidies for shortening business hours at 60,000 yen, which covers 94% of sales.

In this way, the level of sales varies greatly from prefecture to prefecture, so the degree of economic support varies from region to region with a uniform subsidy for shortening business hours nationwide. In addition, the state of emergency requires the shortening of business hours, and sales can be expected by 8:00 PM to a certain extent. Depending on the region, there is a high possibility that there are some business establishments whose income will increase more than before by receiving the subsidy for shortening business hours. Although fixed cost data by prefecture has not been released, as seen in Chart 8 above, the fixed cost ratio to sales is about 30% regardless of the type of restaurant, so for most prefectures, the subsidy for shortening business hours is at a sufficient level to support the decline in sales and payment of fixed costs.

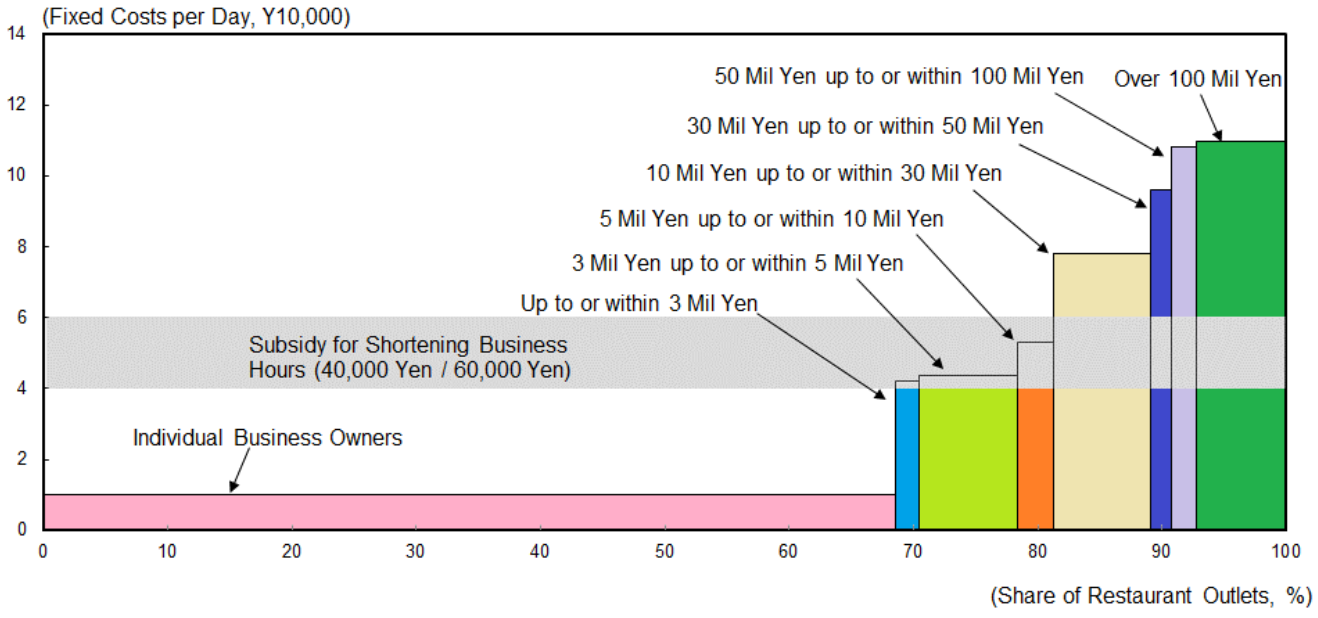
Average Sales per Day (2015) and amount of Subsidy for Shortening Business Hours by Prefecture **Chart 9**



Source: Ministry of Internal Affairs and Communications; compiled by DIR.

Now let's look at businesses by size. Chart 10 shows the share of subsidy payment by capitalization of the restaurant on the horizontal axis and fixed cost per day on the vertical axis. Individual business owners (sole proprietorships), who account for 70% of business establishments, have a fixed cost of about 10,000 yen per day, and business establishments with capital of less than 10 mil yen can also cover fixed costs with the subsidy for shortening business hours. On the other hand, although the overall share is about 20%, fixed costs per day exceeds the amount of the subsidy for shortening of business hours for establishments with capital of 10 mil yen or more. These are relatively large-scale establishments. It is highly possible that the subsidy for shortening of business hours is insufficient in this case.

Percentage Share of Restaurant Outlets by Capitalization and Fixed Costs per Day (2015) **Chart 10**



Source: Ministry of Internal Affairs and Communications; compiled by DIR.
Notes: 1) Fixed costs are the total of payment of salaries, rental fees for movable property & real estate, and interest payments etc.
2) Fixed costs of sole proprietorships in the case of businesses capitalized at up to 3 mil yen were estimated based on the ratio of fixed costs to sales of individual restaurant outlets.

If a state of emergency is again reissued, it will be necessary to design the system of subsidies and benefits in consideration of the actual business situation

The upgrade and expansion of the subsidy for shortening business hours has allowed most restaurant businesses to remain in operation even though they are required to shorten their hours, and to maintain their employees. However, it is possible that a subsidy for shortening business hours of 40,000 or 60,000 yen per day was insufficient as an economic support measure for restaurant outlets located in major cities such as Tokyo, and for businesses capitalized at over 10 mil yen. It appears that the current state of emergency was a simple mechanism with an emphasis on the speed of benefits, but it is not unlikely that a third emergency declaration will be issued in the future. In such a case, the lessons learned this time should be utilized to aim for a system that takes into consideration the actual business situation while ensuring the promptness of benefits.

As mentioned above, restaurant sales and fixed costs vary depending on the type of business, region, and size of the business establishment. Although it is desirable from the perspective of equity to deal with each type of restaurant, the burden on local government offices tends to be heavy, and benefits may be delayed. On the other hand, if the amount of the subsidy for shortening business hours is set for each prefecture, the increase in the burden on local governments can be kept under control. Specifically, as in the case of the livelihood protection system and the minimum wage system, it is a good idea to divide Japan's 47 prefectures into multiple blocks based on sales and other factors, and to set the amount of the subsidy for shortening business hours separately for each block. In addition, for large companies that can hardly cover fixed costs with the current subsidy for shortening business hours, it is possible to provide additional benefits after the fact by utilizing the final tax return information and adding the refund amount at the time of the tax refund. As the digitalization of the government progresses, information sharing with other benefit systems should be considered.

From the perspective of increasing the effectiveness of measures to prevent the spread of COVID-19, it is also worth considering providing subsidies to industries with infection risk, such as the entertainment industry. If the entertainment industry is provided with the same amount of the subsidy for shortening business hours as restaurants, the budget will come to about 60 bil yen per month. This is less than 10% of the budget for restaurants (about 740 bil yen). If benefits are streamlined by fine-tuning the subsidy for shortening business hours for restaurants, it will be possible to expand the scope of payments to other industries with the same budget as before.

Japan's Economic Outlook No. 208 (February 19, 2021) Chart 11

		2020			2021				2022				2023	FY2020	FY2021	FY2022
		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	Q/q %; annualized	-29.3	22.7	12.7	-8.0	7.3	2.3	2.2	2.3	2.3	2.5	2.2	2.1			
	Y/y	-10.3	-5.8	-1.2	-2.6	8.1	3.3	0.8	3.6	2.3	2.3	2.3	2.3	-5.0	3.8	2.3
Private spending	Q/q %; annualized	-29.5	22.0	8.9	-14.8	11.7	2.3	2.7	3.4	3.8	3.8	3.4	3.3	-6.6	3.1	3.4
Private housing investment	Q/q %; annualized	2.0	-21.0	0.2	1.6	1.7	1.7	2.0	2.4	2.6	2.6	2.4	2.0	-7.3	0.0	2.4
Capex	Q/q %; annualized	-21.5	-9.2	19.4	-4.8	7.4	4.1	3.2	3.6	4.5	4.5	3.6	3.2	-6.7	4.0	3.9
Government final consumption	Q/q %; annualized	0.9	11.7	8.1	-3.9	0.6	0.6	0.4	0.4	-1.4	0.4	0.4	0.4	3.4	1.2	-0.0
Public investment	Q/q %; annualized	9.2	3.6	5.5	0.6	0.4	0.7	0.6	0.6	0.6	0.2	0.2	0.2	4.5	1.2	0.5
Exports	Q/q %; annualized	-52.9	33.2	52.3	4.5	9.5	9.6	5.6	5.0	4.9	4.5	4.1	3.6	-11.0	13.2	5.0
Imports	Q/q %; annualized	5.1	-29.0	17.3	-2.4	10.0	8.2	5.8	6.6	6.8	6.9	6.1	5.7	-6.7	4.4	6.6
Nominal GDP	Q/q %; annualized	-28.2	23.7	10.5	-8.4	8.5	3.1	2.7	2.9	2.9	3.3	3.0	3.0	-4.3	4.1	3.0
GDP deflator	Y/y	1.4	1.2	0.2	0.0	-0.2	-0.1	0.4	0.7	0.6	0.6	0.7	0.8	0.7	0.2	0.7
Industrial production	Q/q	-16.9	8.8	6.3	2.4	3.0	2.4	2.0	1.8	1.5	1.5	1.2	1.2	-9.7	13.8	6.7
Core CPI	Y/y	-0.1	-0.2	-0.9	-0.7	-0.3	0.5	1.0	0.6	0.9	0.6	0.7	0.9	-0.5	0.4	0.8
Unemployment rate	%	2.8	3.0	3.0	3.1	3.1	3.0	2.9	2.8	2.8	2.7	2.7	2.6	2.9	2.9	2.7
Trade balance (goods, services)	Y tril; annualized	-6.6	5.4	10.5	9.2	9.4	10.3	10.3	9.9	9.9	9.6	9.3	9.0	4.6	10.0	9.4
Current account balance	Y tril; annualized	7.9	16.1	26.4	26.4	26.0	26.2	26.5	26.3	25.9	25.4	25.0	24.6	19.2	26.2	25.2
Major assumptions																
Crude oil price (WTI futures)	$/bbl	28.0	40.9	42.7	56.2	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	42.0	59.5	59.5
Exchange rate	Yen/$	107.6	106.1	104.5	104.6	105.0	105.0	105.0	105.0	105.0	105.0	105.0	105.0	105.7	105.0	105.0

Source: Compiled by DIR.
Note: GDP through Oct-Dec 2020: actual; thereafter: DIR estimates.