
The Japan Center for Economic Research (JCER),
Japan's leading think tank, forecasts Japan's economy from 2020 to 2035.

Japan Center for Economic Research¹

Japan's post-COVID economy

- **DX acceleration is a path to green growth**
- **Growth strategy under decarbonization constraints**

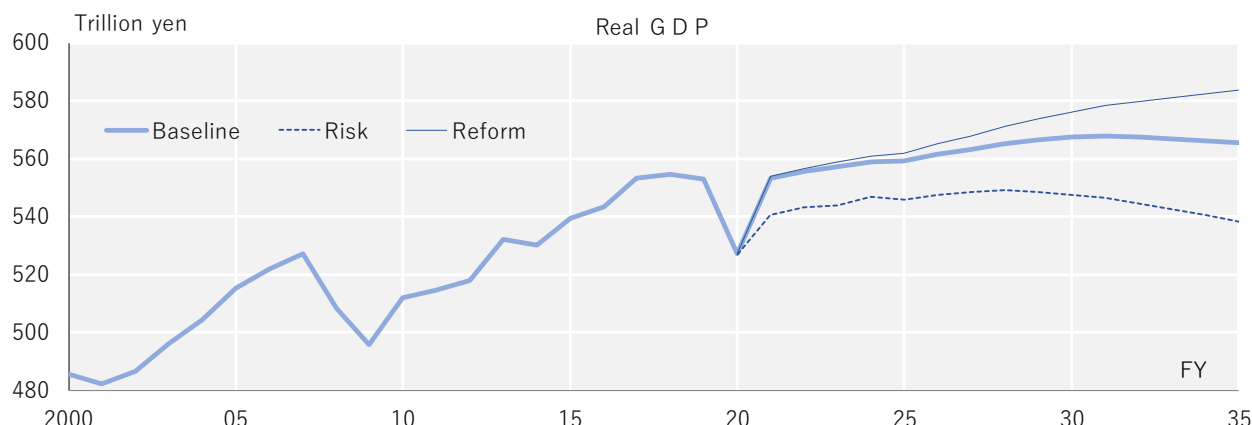
The spread of the novel coronavirus has had a significant impact on economies and societies worldwide. Japan, which already faces structural problems such as population decline and aging, is now facing additional economic constraints following Prime Minister Yoshihide Suga's declaration that the country will decarbonize. Digital transformation (DX) of society is the key to maintaining growth in such a scenario. The 47th medium-term economic forecast explores the path to green growth through DX.

- 1. Baseline scenario** - Japan's real gross domestic product (GDP) for fiscal 2035² will be 1.4% lower than the 46th forecast released in March last year as the number of foreign visitors remains stagnant and the country addresses the consequences of the massive fiscal support provided amid the COVID-19 crisis. The growth rate will enter negative territory in fiscal 2032 and thereafter.
- 2. Reform scenario** - DX will accelerate as efforts to fully utilize information and communications technology (ICT) gain momentum throughout society in response to the pandemic. Transition to a data-driven society where information spurs economic growth will promote energy and resource conservation and lead to the realization of a decarbonized society. This will increase the size of the economy by 3.2% (18 trillion yen) from the baseline scenario in fiscal 2035, leading to the growth rate remaining positive at 0.2% in the 2030s.
- 3. Risk scenario** - Global economic growth will remain weak as the pandemic continues into fiscal 2022 with the emergence of new variants. Fiscal support totaling 30 trillion yen will be required in fiscal 2021 and thereafter, forcing the country to deal with the related consequences. Thus, Japan's economy will not reach the pre-COVID peak of fiscal 2018 during the forecast period, until fiscal 2035, the end of the forecast period.

¹ Tatsuo Kobayashi (Principal Economist), Tetsuaki Takano (Senior Economist), Sumio Saruyama (Lead Economist), Katsuaki Ochiai (Specially Appointed Fellow), Kyoko Deguchi (Principal Economist), Hirofumi Kawasaki (Specially Appointed Fellow), Tatsujiro Suzuki (Specially Appointed Fellow), Hikaru Kobayashi (Specially Appointed Fellow), Trainee Economist: Yuichi Arita, Tetsuji Nakahara, and Shunya Matsuo.

² The fiscal year is from 1st April to 31st March.

Fig. 1 Positive growth rate will be maintained only under the reform scenario



Source: Cabinet Office “Annual Report on National Accounts” forecasted by JCER after FY2020.

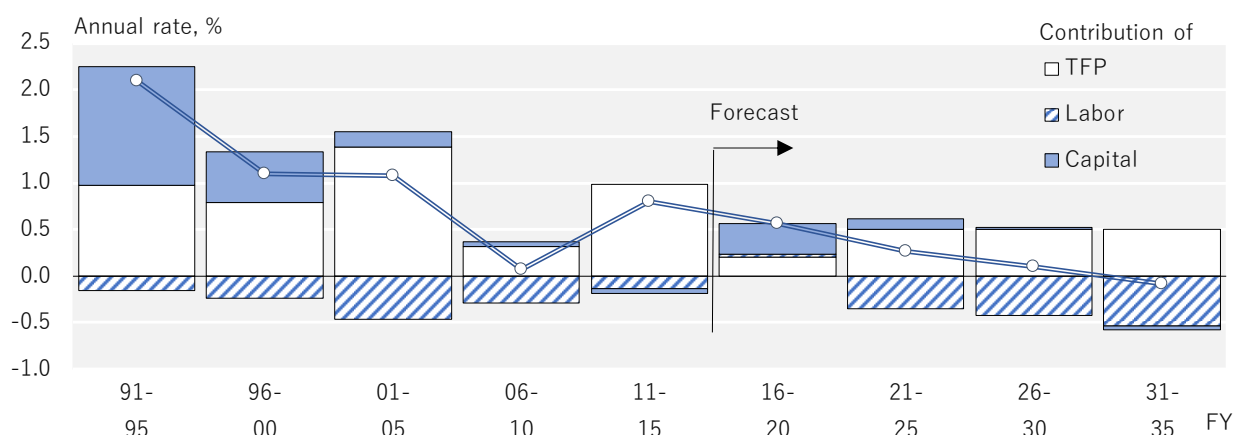
Sources for fig. 1-3, 6, 10 are the same.

1. Baseline scenario – Negative growth in the 2030s

The baseline scenario assumes that the pandemic will subside by the end of fiscal 2021 and that the Tokyo Olympics will be held under certain restrictions. It assumes that travel between Japan and other countries will gradually return to normal by the latter half of fiscal 2021 as vaccination expands. However, Japan’s medium- to long-term problems, such as population decline and aging, will weigh heavily on the economy. The country will face chronic negative growth starting in fiscal 2032.

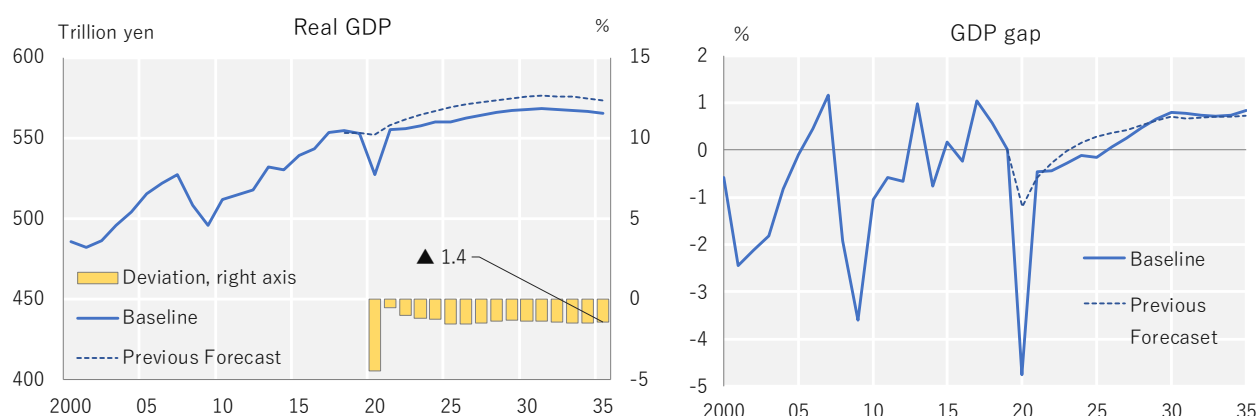
This is due to a decline in growth potential (potential GDP growth rate). The potential GDP growth rate will be negatively affected in a significant way due to a decrease in labor force as the country’s population declines and ages. The working-age population will decline by 10% by fiscal 2035, with people aged 75 or above accounting for approximately 20% of the country’s total population. This problem cannot be solved by capital (capital investment) or total factor productivity (TFP, i.e., productivity improvement through technological progress, ingenuity, the creation of business models, etc., Fig. 2).

Fig. 2 Potential growth rate will enter negative territory in the 2030s



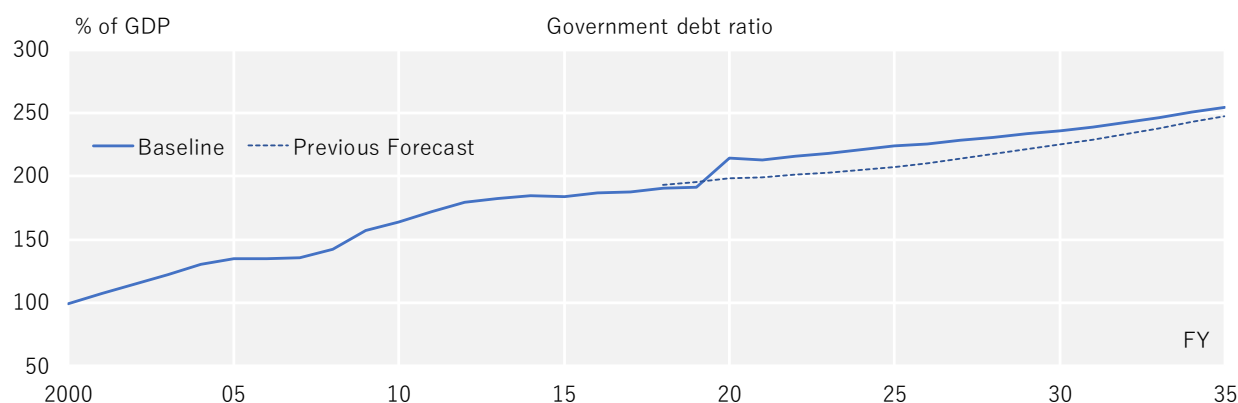
However, Fig. 2 may be a little too optimistic. While the baseline scenario assumes that TFP will grow at an annual rate of 0.5% during the forecast period in line with the average growth rate during the period from fiscal 2005 through 2018, there is also a possibility that TFP may decline because of the aging of the workforce and a decline in capital investment. Economic growth will decline along with growth potential. The size of the economy as of fiscal 2035 will be 1.4% smaller than the forecast released in March last year.

Fig. 3 Post-COVID growth will slow down



The government's outstanding debt will continue to increase—the government provided a total of 55 trillion yen to businesses and households during fiscals 2020 and 2021 in the form of sustainability subsidies, subsidies for businesses that had to reduce operating hours, and special subsidies for households. This forecast assumes that the government will increase income taxes by 2.2 trillion yen a year during the 25-year period starting in fiscal 2025 to redeem the massive amount of government bonds issued to finance these subsidies. The country's outstanding debt will increase to almost 1,500 trillion yen, with the debt-to-GDP ratio reaching 250%.

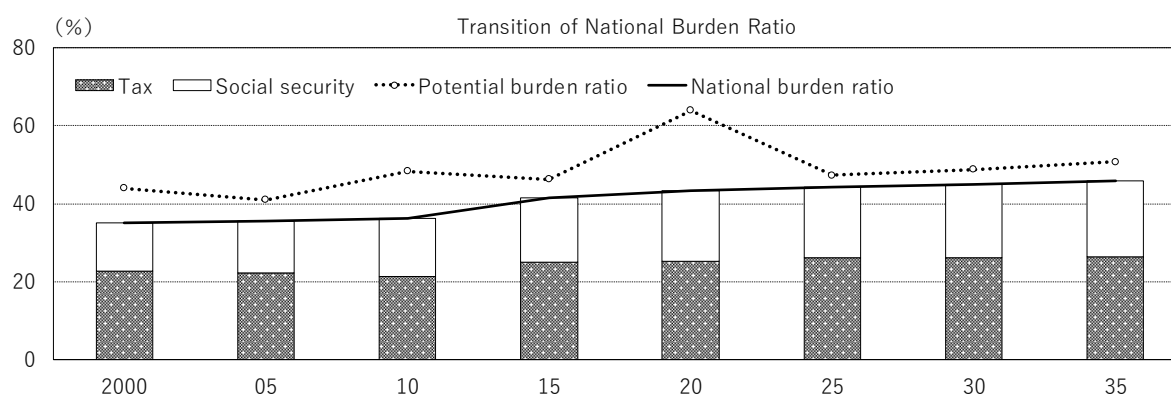
Fig. 4 The government's outstanding debt will continue to rise, with the debt-to-GDP ratio reaching 250% in fiscal 2035



Source: Cabinet Office "Annual Report on National Accounts", Ministry of Finance "Debt Management Report 2020" forecasted by JCER after FY2020.

The national burden ratio will also rise to 45.8% in fiscal 2035, an increase of 2.2 percentage points or more from fiscal 2019. In particular, the social security burden will increase by 1.5 percentage points as the population ages. There will be an inevitable debate on whether social security should be financed through an increase in social security premiums or in the consumption tax, and whether it should be financed by the working generation alone, or elderly people too should contribute.

Fig. 5 Social security premiums will continue to rise as the population ages



Note: National burden ratio is share of tax and social security to national income.

Source: Cabinet Office “Annual Report on National Accounts” forecasted by JCER after FY2020.

2. Reform scenario – Acceleration in DX investments will raise GDP by 1.4%

Under the baseline scenario, the country will inevitably fall into negative growth as the economy shrinks. The reform scenario assumes that the key to growth is the acceleration of DX, whose significance has been recognized during the ongoing pandemic. Under this scenario, the realization of a decarbonized society will not constrain growth. On the contrary, technology development for this realization will become a driving force for the economy. This scenario also assumes that, with the Biden administration taking charge in the US, the world will gradually shift toward an international cooperation model, away from protectionism, once the pandemic subsides. Under the Biden administration, the US has already rejoined the Paris Agreement, the international cooperative framework for preventing global warming—this administration’s approach to the World Trade Organization (WTO) and World Health Organization (WHO) too differs from that of Trump’s.

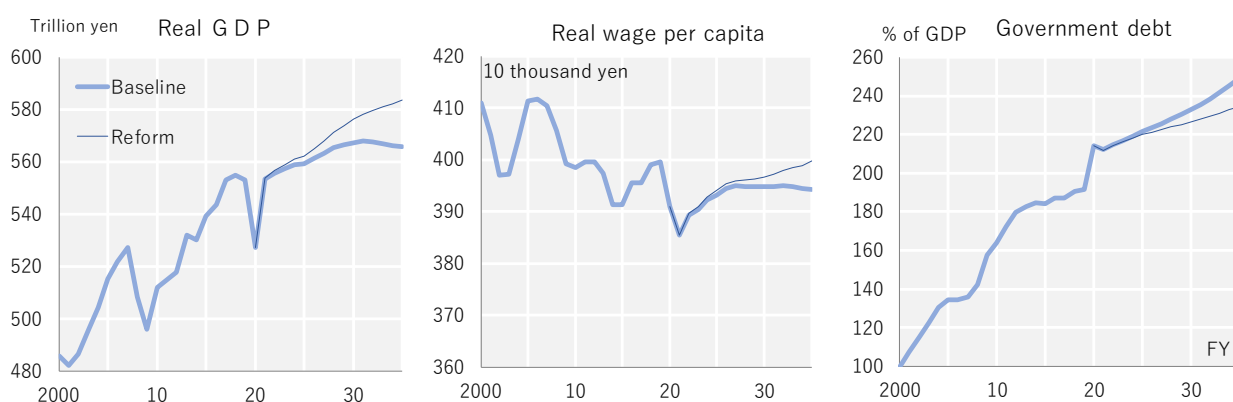
The Japan Center for Economic Research had discussed in [the long-term economic forecast](#) released in December 2019 the strong possibility that investments in intangible assets (software investments, the building of business models, research and development, and brand strategy), rather than in factories or machinery, were more likely to influence economic growth and change the industrial world and people’s lives. Intangible assets have a close relationship with DX, and thus investments in these are expected to raise productivity

and suppress the consumption of energy and resources through digitalization. The acceleration of a reassessment of investments, regulations, and internal corporate mechanisms for realizing DX is also essential for the creation of a decarbonized society (a society that produces virtually zero greenhouse gases) that Prime Minister Suga pledged to achieve by 2050.

Japan's investments in intangible assets totaled approximately 50 trillion yen as of 2015. The reform scenario has established a goal of increasing such investments by 3% a year. The scenario also assumes that an environmental tax (carbon tax) will be imposed on CO₂ emissions by fiscal 2035 to promote investments in intangible assets—the tax will be 10,000 yen per metric ton of CO₂.³ Investments in intangible assets will directly raise GDP by 0.5% and TFP by 0.9%. Thus, GDP will increase by 1.4% in fiscal 2035. On an annualized basis, the growth rate will increase by 0.1 point a year. Furthermore, a return to the international cooperation model will raise the growth rate by 0.2 % point according to an estimate based on the method used in our long-term economic forecast (which assumes that the level of economic openness, political stability, and barriers to digitalization are related to long-term productivity). Thus, GDP will increase by 3.2% in fiscal 2035 from the baseline scenario.

As a result, real wages per capita will increase by 1.4% during 2020-2035, along with a rise in GDP. However, it will not be possible to curb the increase in the government's outstanding debts ratio to GDP, even though the situation will be better than that under the baseline scenario (Fig. 6). Unless the growth rate can be raised drastically, it may be necessary to consider an increase in the consumption tax or other measures for fiscal consolidation even under the reform scenario.

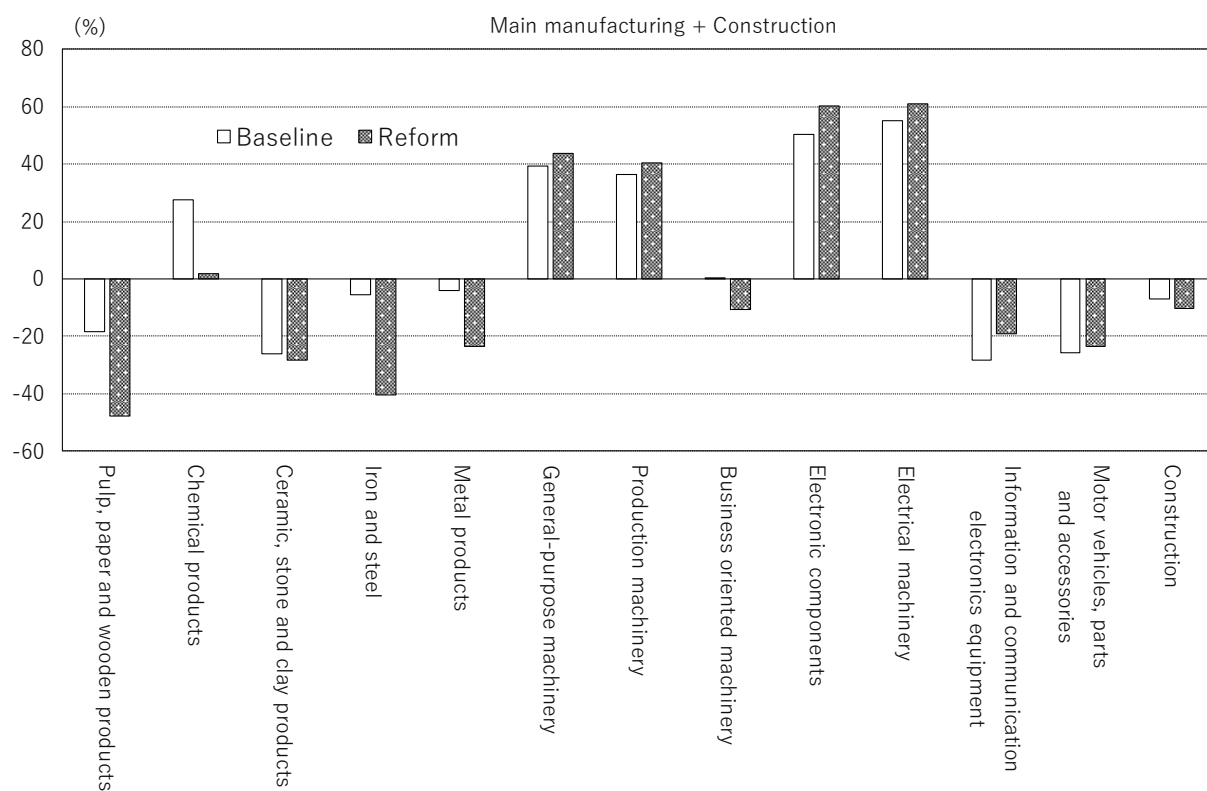
Fig. 6 GDP and wages will rise, but so will government debt

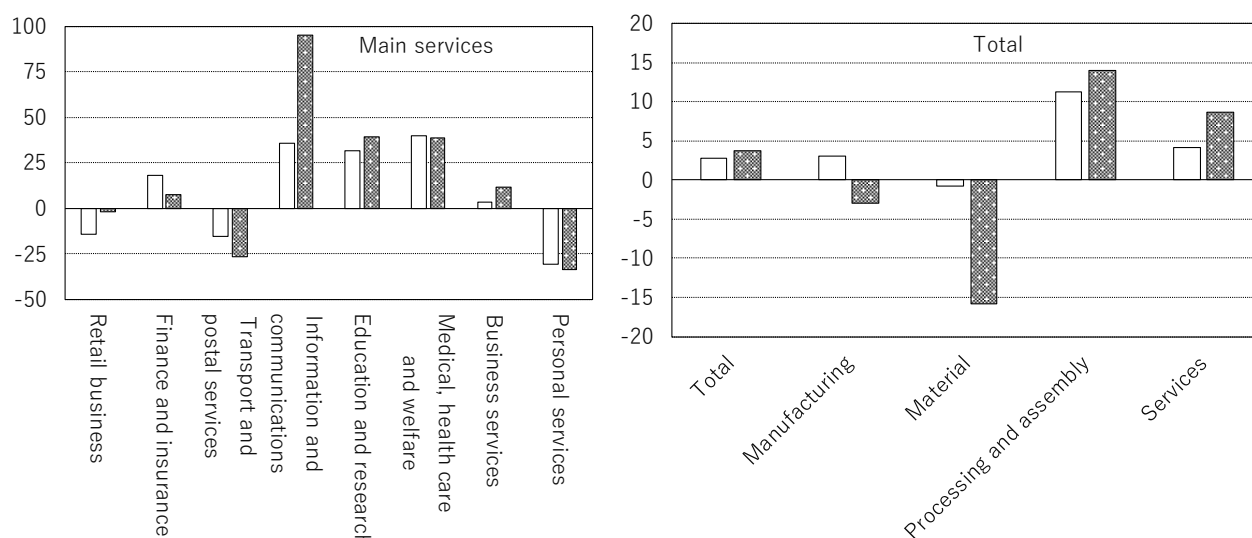


³ The revenue from the environmental tax will be distributed among households and businesses in the form of a reduction in social security premiums or tax cuts.

In addition, a projection was made regarding the industrial structure under the reform scenario that promotes investments in intangible assets and transforms the economic structure. The Fig. 7 compares changes in the industrial structure under the baseline and reform scenarios. Under the reform scenario, output will decline across the board in the materials industry as DX accelerates. In the manufacturing industry, electronic-component manufacturers involved in ICT, as well as electrical-equipment manufacturers benefiting from demand for electric-vehicle batteries amid increasing electrification, will boost production. In the service industry, growth will be seen in DX-related information and communications, as well as research and development.

Fig. 7 Shift from materials to information and communications as DX accelerates (2035/2015 changes)

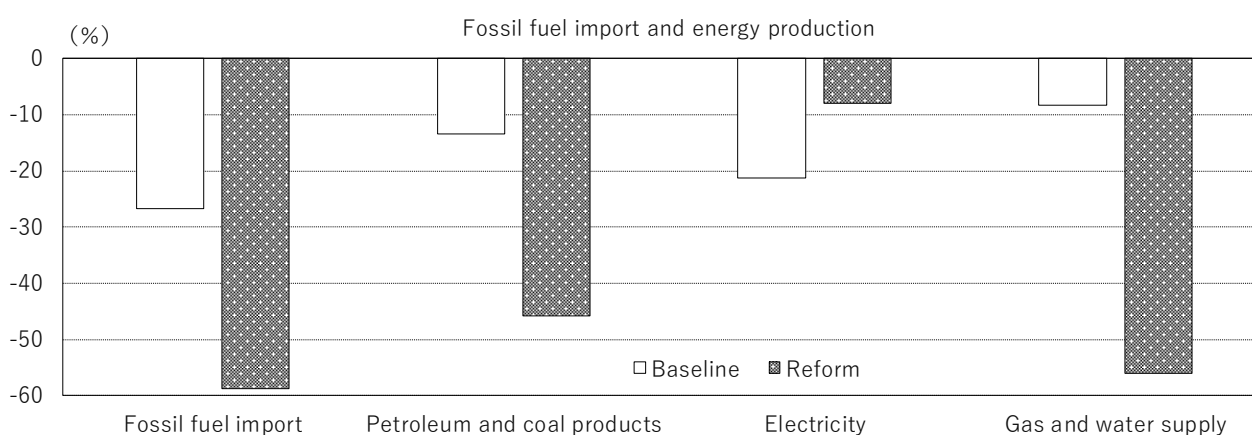




Source: Ministry of Internal Affairs and Communications “Input-Output Tables for Japan”, “Survey of Household Economy”, Ministry of Finance “Trade Statistics”

Production will decline across the board in the energy-related industry, except for electricity. Under the baseline scenario, the rate of decline in fossil fuel imports, petroleum and coal products and electricity will exhibit similar patterns. However, under the reform scenario, decline in electricity output will be less than 10% even as fossil fuel imports decline by nearly 60% (Fig. 8). The realization of a decarbonized society by 2050 presupposes that households and businesses will rely on electricity to meet all their energy needs. Energy use will fall to about one-fourth of the current level by fiscal 2050, but the production of electricity will increase by about 10%.

Fig. 8 Decline in electricity output will be smaller as electrification progresses (2035/2015 changes)

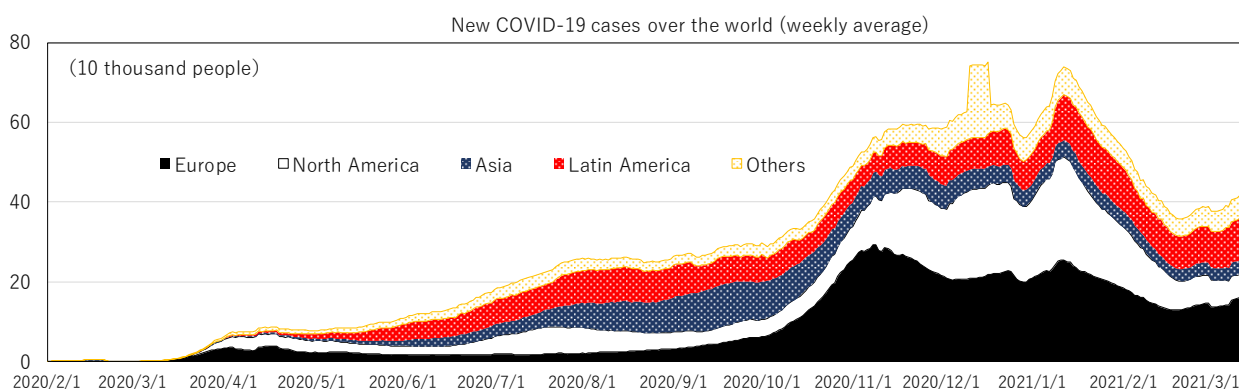


Source: The same source to fig. 7.

3. Risk Scenario-Economy will not return to the pre-COVID level by fiscal 2035

The novel coronavirus will continue to spread worldwide, with new variants emerging. There is thus the possibility that the pandemic may not easily subside even in Europe and the US, where vaccination is already underway. The Tokyo Olympics will be cancelled, and foreign visitors will be slow to return to Japan. There is a risk that people's activities will be restricted, and the global economic slump will persist for a prolonged period. If that happens, the rate of growth in the global economy may fall by 0.3% point (Fig. 9, 10).

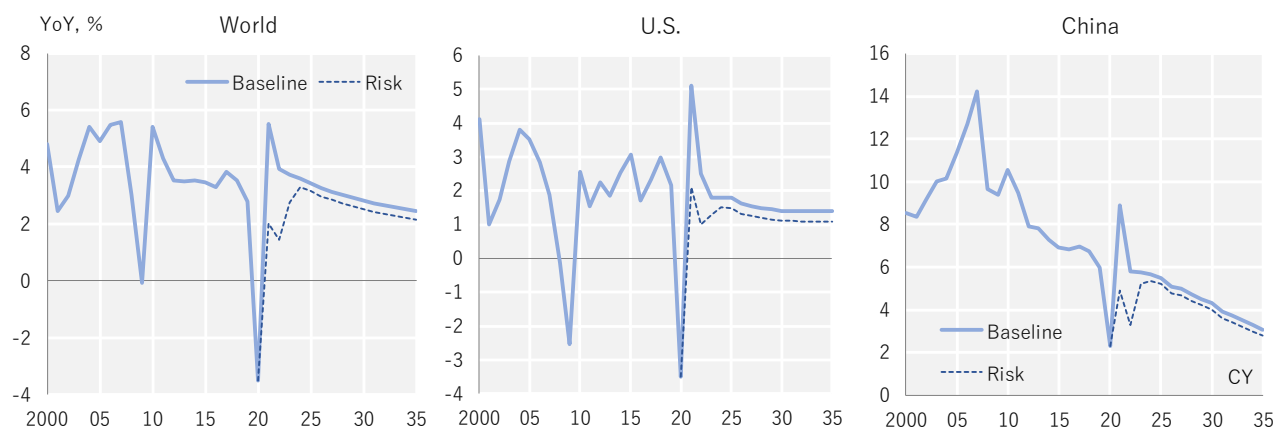
Fig. 9 The number of infected people will once again increase worldwide



Note: Data is up to 14th in March.

Source: The number of new cases is collected by NIKKEI based on each country's press release, WHO, and Johns Hopkins University.

Fig. 10 Growth rate for the world economy will fall by 0.3 percentage point as the pandemic persists

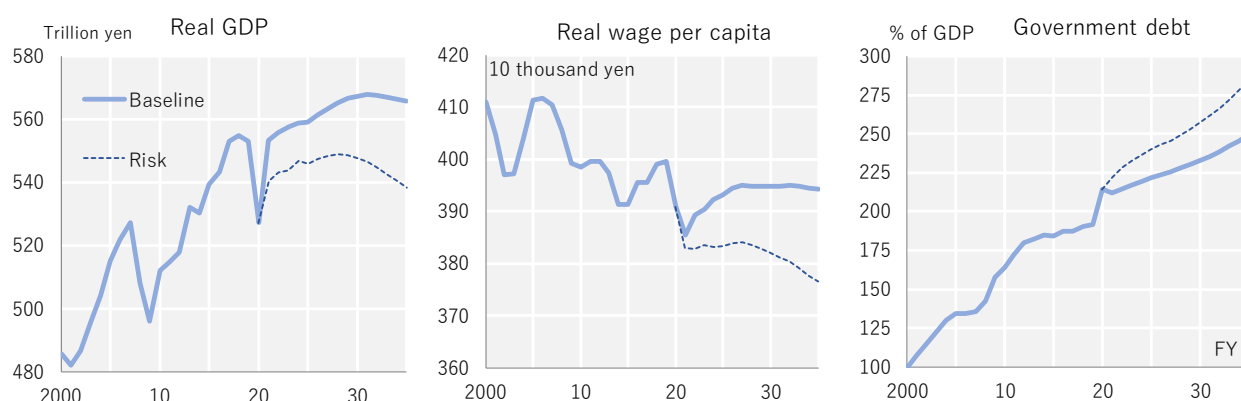


If such a situation arises, businesses, particularly face-to-face services, will continue to suffer. Corporate debts will exceed the amount projected under the baseline scenario by 30 trillion yen by fiscal 2022. The government will also have to increase subsidies by 20 trillion yen in fiscal 2021 and by 10 trillion yen in fiscal 2022 compared with the amount projected under the baseline scenario. The risk scenario, as does the baseline scenario, assumes that

the income tax will be raised from fiscal 2025. However, under the risk scenario, the amount of tax increased will be 3.4 trillion yen a year, 1.2 trillion yen more than the amount assumed under the baseline scenario.

As a result, real GDP will fail to reach the fiscal 2018 pre-COVID level and begin to enter negative territory in fiscal 2029. GDP will fall to the fiscal 2015 level in fiscal 2035. Export will lose momentum as overseas economies stagnate. Companies burdened by massive debt will hold back investments, and the country's growth potential will continue to decline. The GDP gap will not be eliminated. As for wages, the amount will be 10% lower (about 400,000 yen a year) than that projected under the baseline scenario. The government's outstanding debt will reach 280% of GDP in fiscal 2035 even if taxes are raised because of the massive fiscal spending and an economic contraction. There is even a possibility of national bankruptcy (Fig. 11).

Fig. 11 Wealth will diminish under the risk scenario



< Forecast overview >

	Actual Value		Forecast								
	Prospect (FY)	16-20	Baseline Scenario			Risk Scenario			Reform Scenario		
			21-25	26-30	31-35	21-25	26-30	31-35	21-25	26-30	31-35
Real GDP		-0.4	1.2	0.3	-0.1	0.7	0.0	-0.4	1.3	0.5	0.2
Real wage		0.0	0.1	0.1	0.0	-0.4	-0.1	-0.3	0.2	0.1	0.2
Government debt % of GDP		194	218	231	247	233	252	277	217	227	236 *
World GDP (CY)		1.9	4.0	3.0	2.6	2.5	2.7	2.3	4.2	3.3	2.9

Note: Annual average growth rate %, * is period average, government debt is on central and local government.

Source: Cabinet Office "Annual Report on National Accounts" forecasted by JCER after FY2020.

For inquiries regarding this paper, please contact Tatsuo Kobayashi of the JCER Economic Research Department at t.kobayashi {at mark} jcer.or.jp. (* Please change {at mark} to @)

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Nikkei Inc. Bldg. 11F 1-3-7 Otemachi, Chiyoda-ku, Tokyo 100-8066, Japan