

Chapter 2 Global economic trends and measures taken for mid - to long-term growth

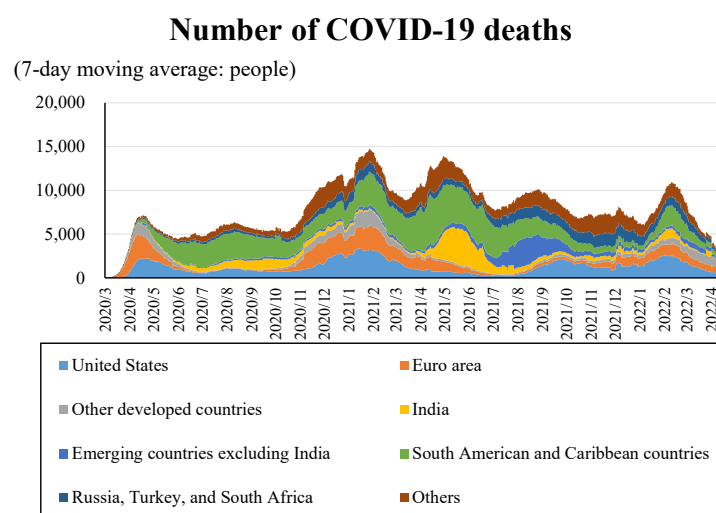
Section 1 Normalizing global economy to look beyond the COVID-19 impacts

1. Trends in the global economy

2021 could be considered a year indicating an outlook of the global economy after its recovery and the progress in responses to the unprecedented shock of COVID-19.

COVID-19 caused a severe global recession in early 2020. Meanwhile, the number of COVID-19 deaths is currently on a downward trend after several waves and variants, such as the Delta and Omicron variants (Figure I-2-1-1) thanks to the widespread use of vaccines and other factors.

Figure I-2-1-1. Trends in the number of COVID-19 deaths



Source: *WEO, April 2022* (IMF).

During the global spread of COVID-19, border measures to control the flow of people from abroad were implemented as important measures, especially in countries with serious numbers of infections, and the movement of people across borders was strictly restricted as a result. According to statistics published by the United Nations World Tourism Organization (Figure I-2-1-2), the number of international tourist arrivals decreased by -96.7% year-on-year in April 2020, and there was almost no flow of people across borders. The number of international tourist arrivals in January 2022 was still down by 67.1% compared to January 2019, but the movement of people across borders is gradually recovering.

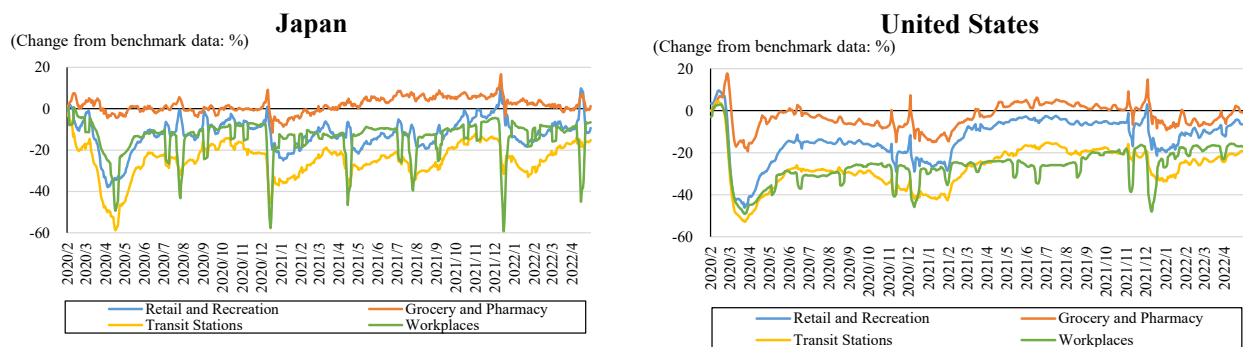
Figure I-2-1-2. International tourist arrivals

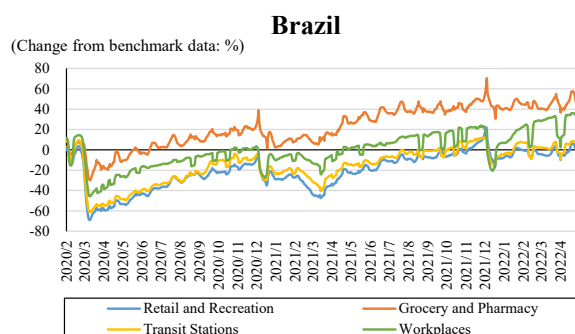
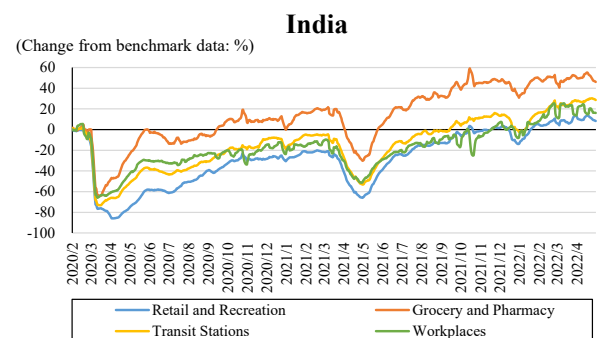
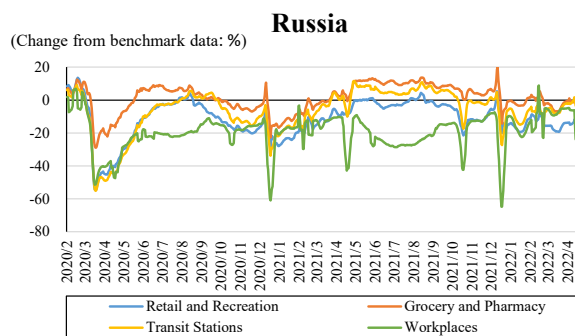
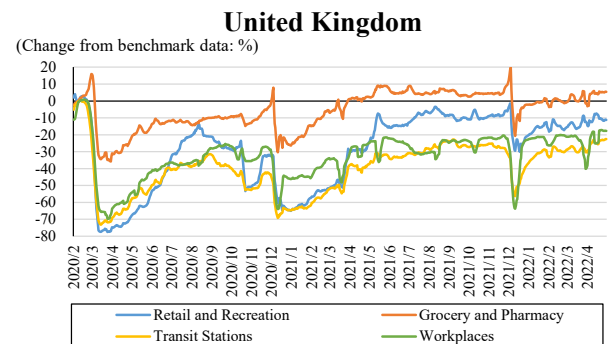
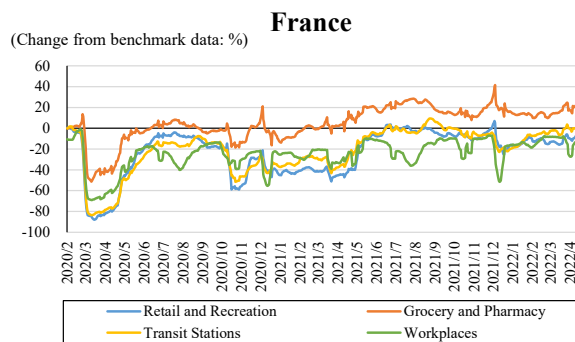
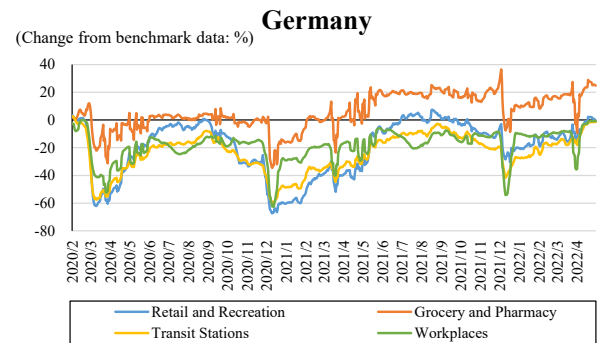
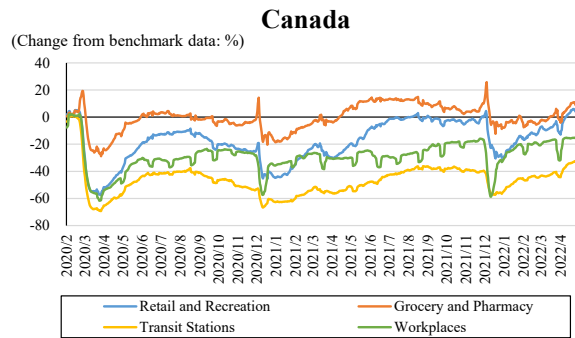


Source: United Nations World Tourism Organization.

The movement of people in individual countries also suggests that economic activity is heading toward a recovery. The figure below (Figure I-2-1-3) shows the change in number of visitors to various facilities in major countries, compared to just before the COVID-19 pandemic. The recent number of visitors to retailers, recreational facilities, stations, and workplaces in developed countries (Japan, the United States, Canada, Germany, France, the United Kingdom) is generally lower compared to before COVID-19 pandemic but the gap is shrinking. Also, regarding some emerging countries (India, Brazil), although the number of visitors to retailers and recreational facilities in Brazil is lower compared to before the COVID-19 pandemic, the number of visitors to other facilities has increased, showing a situation different from those in developed countries.

Figure I-2-1-3. Number of people who visited various facilities





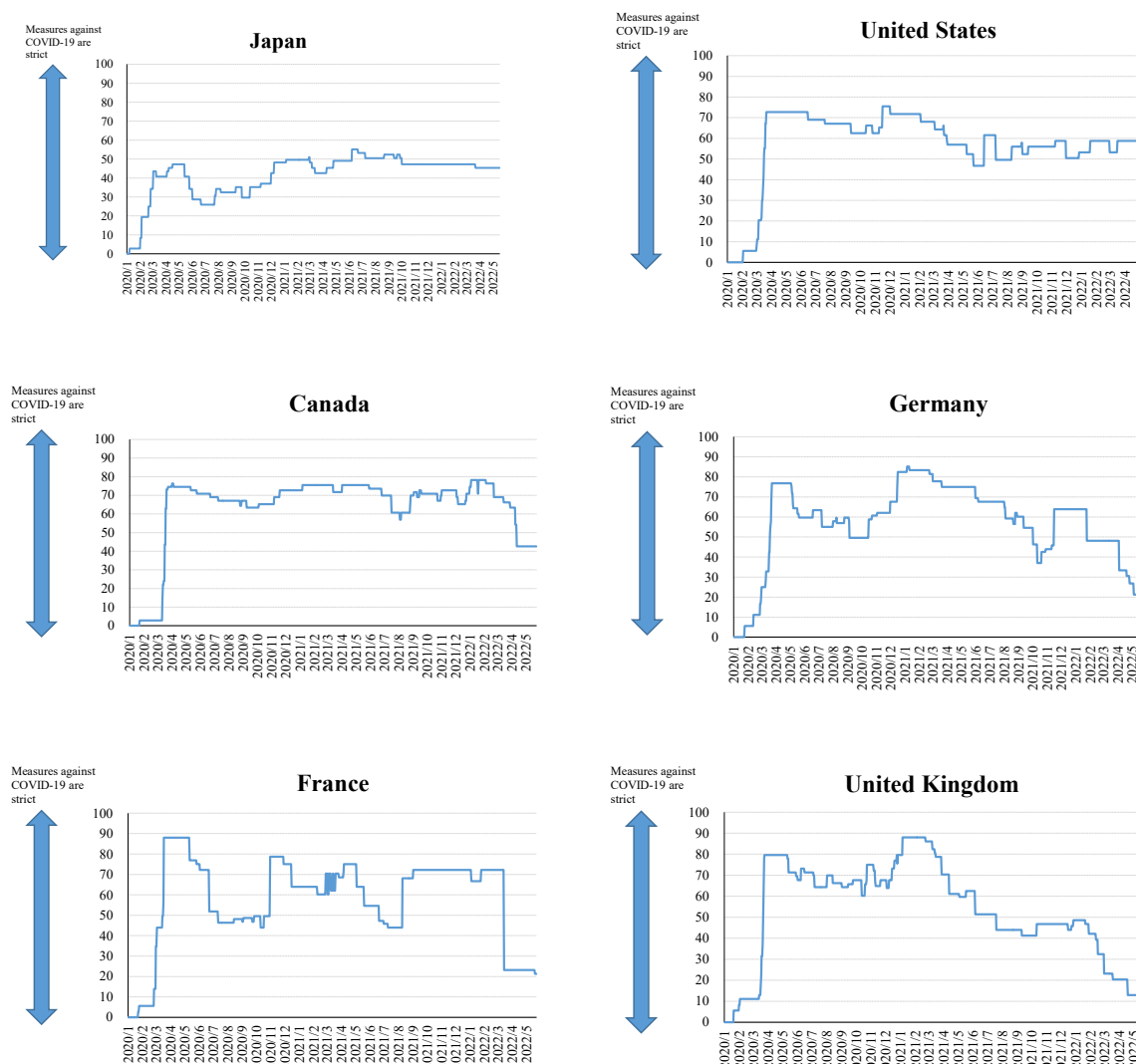
Note 1: "Benchmark date" refers to the median value for each item from January 3 to February 6, 2020.

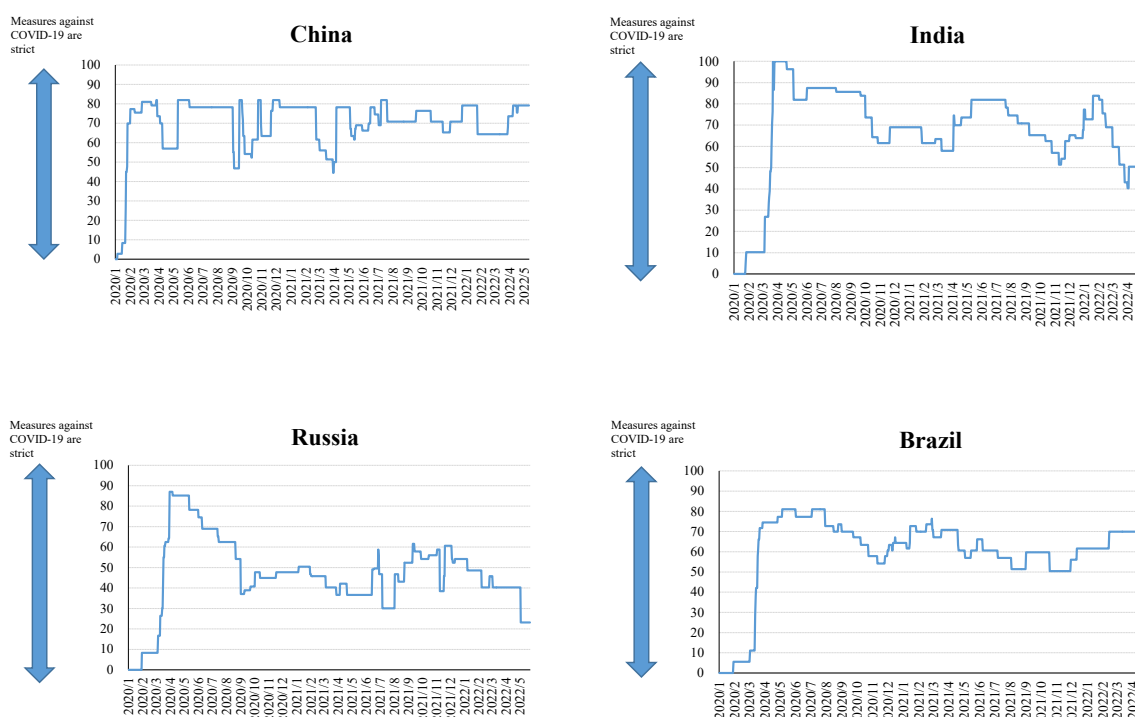
Note 2: Values are the seven-day moving average of the original daily data.

Source: *COVID-19: Community Mobility Report* (Google).

The figure below (Figure I-2-1-4) shows indices of the strictness of measures to prevent the spread of COVID-19. The strictness index remained high throughout 2021 in India, where the spread of COVID-19 variants was severe, and in Germany, the strictness index rose sharply due to lockdowns in response to the spread of a variant at the end of 2021. Although there are differences in trends between countries, measures to prevent the spread of COVID-19 have generally become less strict compared to in early 2020.

Figure I-2-1-4. Strictness indexes of measures against COVID-19





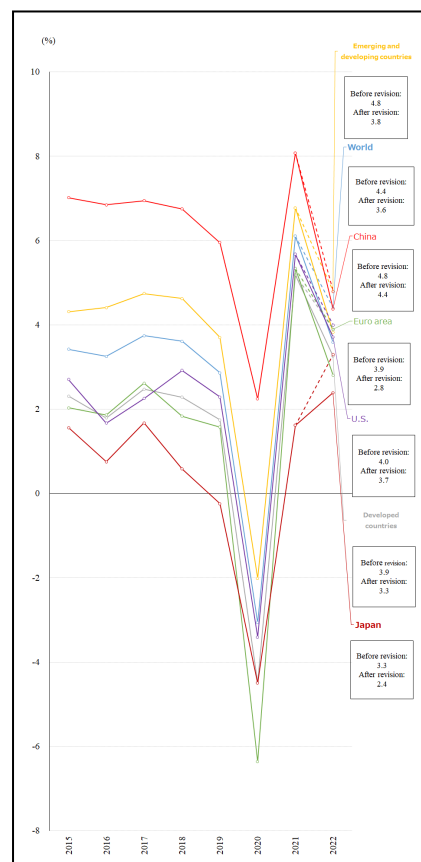
Note: Strictness index is calculated based on school closures, workplace closures, suspension of public events, regulations on gatherings, suspension of public transportation, requests to refrain from going out, restrictions on domestic and international travel, and public awareness activities.

Source: *COVID-19 Government Response Tracker, Blavatnik School of Government, University of Oxford* (Oxford).

Given the progress in responses to COVID-19 and the easing of restrictions on economic activities, the global real GDP grew by 5.9% in 2021, the highest growth rate since statistics began in 1980, according to the IMF (Table I-2-1-5). However, some developed countries such as the United States recorded growth rates high enough to recover from the 2020 downturn, while economic recoveries in other countries were not strong enough despite recording positive growth. Among developed countries, Japan and Germany in particular recorded a relatively lower real GDP growth rate in 2021. Both countries recorded limited recovery in real private consumption expenditures (Figure I-2-1-6). In addition, among emerging countries, China achieved positive growth in 2020 during the COVID-19 pandemic and maintained high growth rate in 2021. Also, India's growth was more than enough to recover from the 2020 downturn. However, the degree of recovery differs between regions in emerging countries. Generally, the recovery of the global economy from the impact of COVID-19 is a so-called K-shaped recovery, with countries and regions recovering at different paces.

Table I-2-1-5. Real GDP growth rates

(%)	2020	2021	2022	2023
Global	-3.1	6.1	3.6 (-0.8)	3.6 (-0.2)
Developed countries	-4.5	5.2	3.3 (-0.6)	2.4 (-0.2)
The United States	-3.4	5.7	3.7 (-0.3)	2.3 (-0.3)
Germany	-4.6	2.8	2.1 (-1.7)	2.7 (0.2)
France	-8.0	7.0	2.9 (-0.6)	1.4 (-0.4)
Italy	-9.0	6.6	2.3 (-1.5)	1.7 (-0.5)
Spain	-10.8	5.1	4.8 (-1.0)	3.3 (-0.5)
Japan	-4.5	1.6	2.4 (-0.9)	2.3 (0.5)
The United Kingdom	-9.3	7.4	3.7 (-1.0)	1.2 (-1.1)
Canada	-5.2	4.6	3.9 (-0.2)	2.8 (0.0)
Other developed countries	-3.9	5.0	3.1 (-0.5)	3.0 (0.1)
Emerging and developing countries	-2.0	6.8	3.8 (-1.0)	4.4 (-0.3)
Emerging and developing countries in Asia	-0.8	7.3	5.4 (-0.5)	5.6 (-0.2)
China	2.2	8.1	4.4 (-0.4)	5.1 (-0.1)
India	-6.6	8.9	8.2 (-0.8)	6.9 (-0.2)
ASEAN-5	-3.4	3.4	5.3 (-0.3)	5.9 (-0.1)
Emerging and developing countries in Europe	-1.8	6.7	-2.9 (-6.4)	1.3 (-1.6)
Russia	-2.7	4.7	-8.5 (-11.3)	-2.3 (-4.4)
Emerging and developing countries in South America and the Caribbean	-7.0	6.8	2.5 (0.1)	2.5 (-0.1)
Brazil	-3.9	4.6	0.8 (0.5)	1.4 (-0.2)



Emerging and developing countries in the Middle East and Central Asia	-2.9	5.7	4.6 (0.3)	3.7 (0.1)
Saudi Arabia	-4.1	3.2	7.6 (2.8)	3.6 (0.8)
Sub-Saharan Africa	-1.7	4.5	3.8 (0.1)	4.0 (0.0)

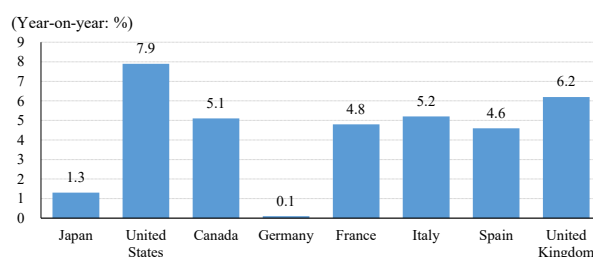
Note 1: Values for 2022 and 2023 are IMF forecast values.

Note 2: Values in parentheses are the revision from the January 2022 outlook.

Note 3: In the figure to the right, the dashed line is the outlook as of January 2022, and the solid line is that of April 2022.

Source: *WEO, April 2022* (IMF).

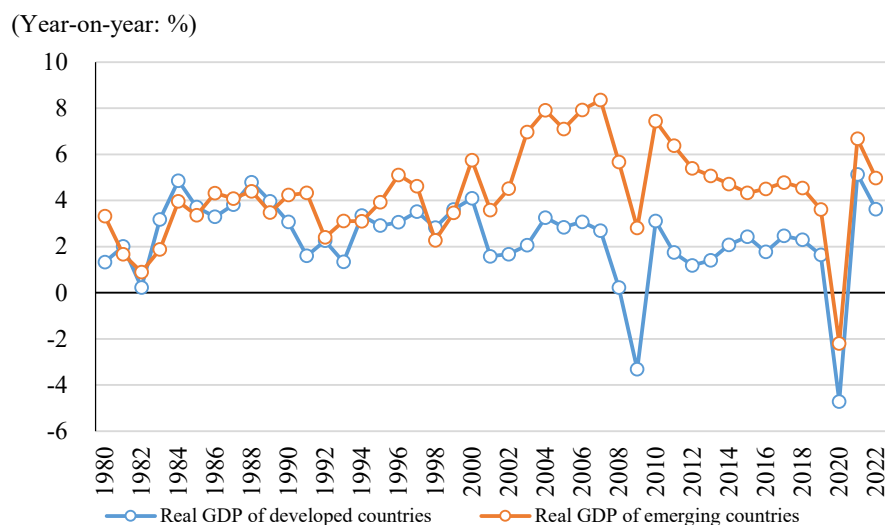
Figure I-2-1-6. Comparison of real private consumption expenditures in developed countries (2021)



Source: *WEO, April 2022* (IMF).

Looking back at how the global economy grew before the K-shaped economic recovery from the impact of COVID-19, the high real GDP growth rate of emerging countries was driving the global economy compared to developed countries in the early 2000s (Figure I-2-1-7).

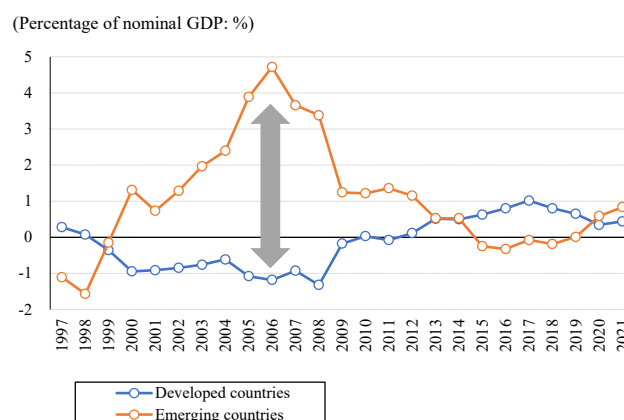
Figure I-2-1-7. Real GDP growth rates of developed and emerging countries



Source: *WEO Database* (IMF).

This is due mainly to China's accession to the WTO in December 2001 and the inclusion of emerging countries into the formation of global value chains that decentralize manufacturing processes across countries, particularly in the manufacturing industry. Under this trend of economic globalization, emerging countries have achieved high growth led by strong exports. The current accounts of advanced and emerging countries clearly indicate this macroeconomic development. In the simplest form of explanation, the current account deficits of developed countries (i.e., excessive domestic consumption) were covered by the current account surpluses of emerging economies (i.e., excess domestic savings) until the gap was narrowed by the global financial crisis in September 2008 (Figure I-2-1-8).

Figure I-2-1-8. Current accounts of developed and emerging countries

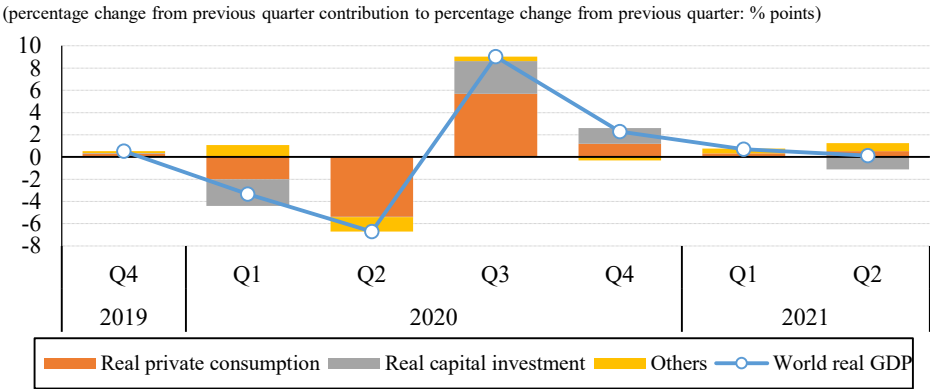


Source: *WEO Database* (IMF).

The economic recovery in 2021 was due to the impact of economic stimulus measures adopted in 2020. In fact, , the global real GDP growth rate fell sharply in the first half of 2020, but in the second half, fiscal and financial support measures such as cash benefits to households and corporate financial support led to a clear recovery in private consumption and capital investment (Figure I-2-1-9).

Despite the downside risks of economic turmoil caused by Russia's aggression against Ukraine, global real GDP growth is expected to grow by 3.6% in 2022, and in general, growth is expected in countries and regions except emerging and developing countries in Europe that are strongly impacted by the aggression. 2022 will be a year to look at the economic impact of Russia's aggression against Ukraine and the economy after COVID-19. This section will look at what factors may be important.

Figure I-2-1-9. Global real GDP and the contribution of components



Note 1: Estimated from countries and regions that accounted for 79.4% of economic activity in 2020.
 Note 2: "Others" includes government consumption expenditures, net exports between sample and non-sample countries, and residuals.
 Note 3: Global real GDP shows the change compared to the previous quarter, and the components show the contribution to the global real GDP growth.
 Source: *WEO, October 2021* (IMF).

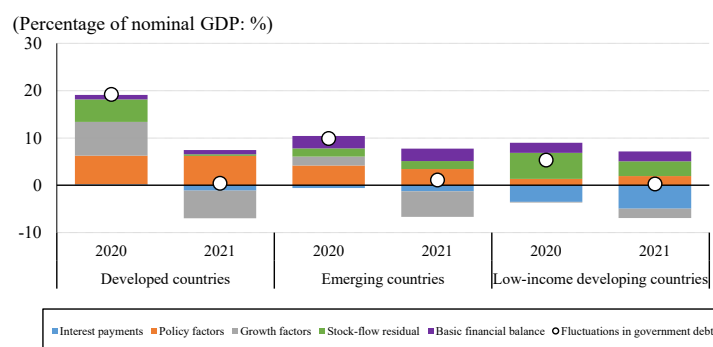
2. Lasting impact of the COVID-19 pandemic on government debt

Governments of various countries and regions have actively implemented economic measures while promoting economic recovery from the impact of COVID-19. From the perspective of impact on government debt, these policies fall into two main categories.

First type of policy is one that the scale as presented in the budget is directly accompanied by an increase in government expenditure. Specifically, these policies include cash benefits to households, increases in the amount of unemployment insurance, and extension of benefit periods. To implement these policies, governments mainly use funds raised by issuing government bonds beyond their initial budget, which is the main factor in the increasing amount of outstanding government debt. The following figure (Figure I-2-1-10) shows factors behind fluctuations in the outstanding government debt against nominal GDP in 2020 and 2021. Policies accompanying direct government expenditures

were implemented, and they were indicated as the main factor behind increases in government debt both in developed and emerging countries. Unlike debt from the second type of policy, which is described below, direct expenditures are executed according to the budget, so the scale of the policy is not unclear.

Figure I-2-1-10. Factors behind fluctuations in government debt



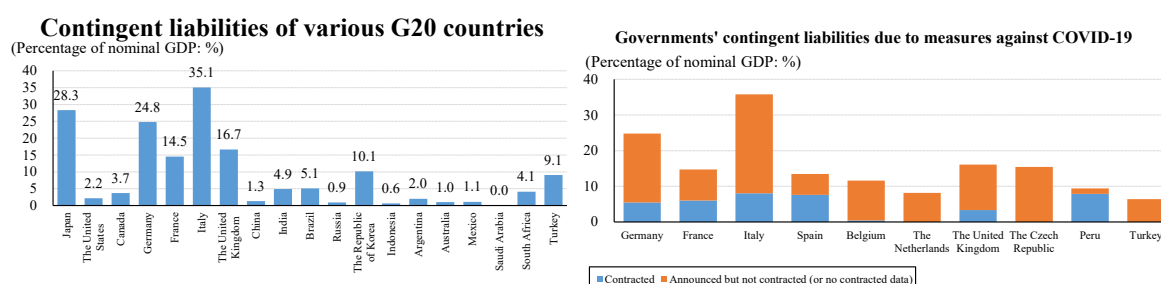
Note: "Stock-flow error" is defined as debt accruals due to relief measures and changes in valuations due to exchange rate fluctuations.

Source: *Fiscal Monitor October 2021* (IMF).

The second type of policy is one that the government decides on the scale of the policy, but the implementation does not immediately lead to an increase in government debt. Specifically, this applies to the granting of credit guarantees which are the main policy instrument for corporate financial support measures. The granting of credit guarantees is a mechanism in which, when a financial institution makes a loan to a company, the government reimburses the principal of the loan to the financial institution on behalf of the company, even if the loan becomes non-performing. A characteristic of this policy is that the budget for the policy is not executed if companies repay their loans. In other words, government debt is realized only if there is a credit event such as a corporate bankruptcy. Debt that is realized under certain conditions is called contingent liabilities.

Contingent liabilities as a percentage of nominal GDP for measures against COVID-19—the scale of which is expected to be close to that of government credit guarantees—is relatively high in developed countries part of the G20, including Japan, Germany, France, Italy, and the United Kingdom. Particularly in European countries, more than half of the scale of the measures is executed (Figure I-2-1-11). Although the global economy is recovering from the spread of COVID-19, the impact could affect corporate financing with time lag, and government debt could increase in the form of contingent liabilities.

Figure I-2-1-11. Scale of governments' contingent liabilities due to measures against COVID-19



Note 1: Contingent liabilities include those resulting from credit guarantees and policy operations performed by public institutions on behalf of the government.

Note 2: Values for the figure on the left and the figure on the right were collected at different times, so the values of contingent liabilities as a percentage of GDP may differ even for the same country.

Note 3: The United States offers loans to small and medium-sized enterprises under the Paycheck Protection Program, a system in which the government is effectively responsible for wage payments. Because they are classified as direct expenditures by the government, it is not classified as contingent liabilities.

Note: Implementation data for the Netherlands, the Czech Republic, and Turkey are unknown in the figure to the right.

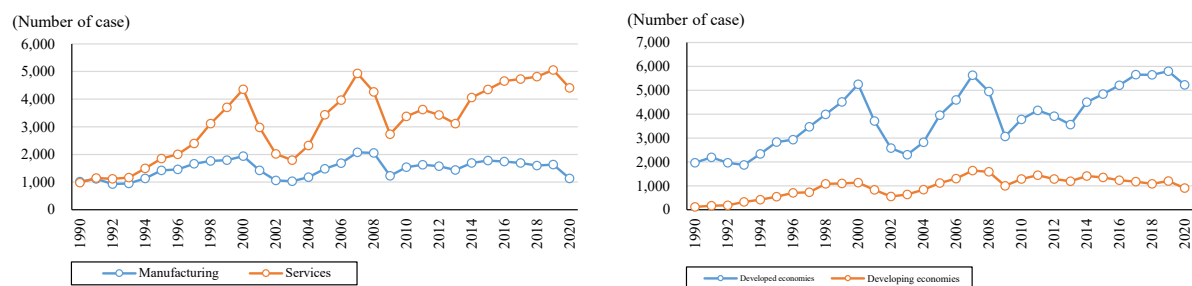
Source: *Database of Fiscal Policy Response to COVID-19* (IMF), *Fiscal Monitor October 2021* (IMF).

3. Support for corporate finance as effective measures for industrial policy

While COVID-19 has led to a severe global recession, there were certain types of corporate activities that contained the decline. Specifically, companies' cross-border M&A did not decline by a large margin when the spread of COVID-19 worsened worldwide in 2020, and the decline in the number of cases was limited compared to when the dot-com bubble burst in the early 2000s or during the global financial crisis in 2008 and 2009 (Figure I-2-1-12). These characteristics are common to both manufacturing and non-manufacturing industries (left). The same can be seen among developed and developing countries (right).

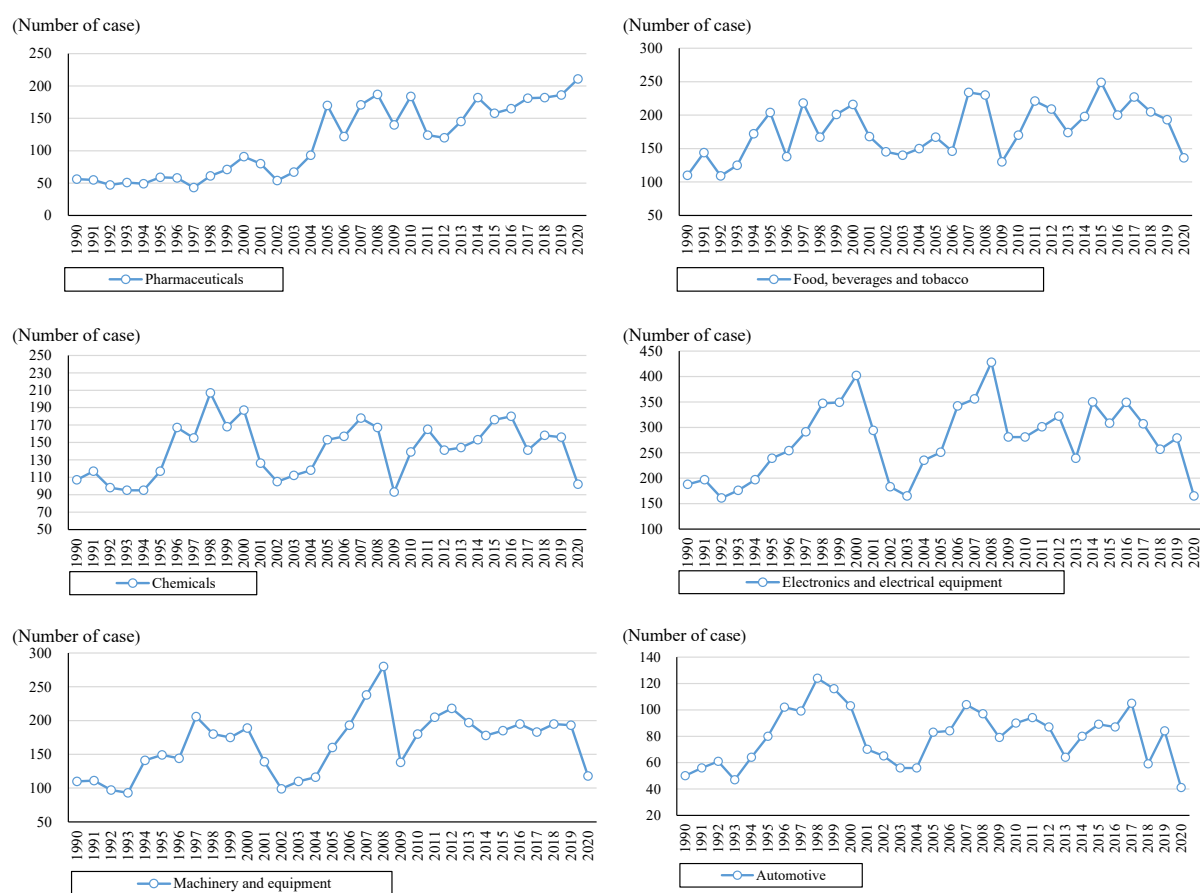
They can also be seen from cross-border M&As by industry. Among manufacturing industries, the number of cross-border M&As in the pharmaceutical industry increased, despite the decline in the total number (Figure I-2-1-13), and among service industries, there was a particularly limited decrease in the number of cross-border M&As in the information and communication industries and financial and insurance industries (Figure I-1-2-14). Although the impact of COVID-19 has intensified globally and severely damaged the global economy, there are signs of deep-rooted demand for the formation of business networks for vaccine development, stronger medical product supplies, and provision of contactless services.

Figure I-2-1-12. Number of cross-border M&As



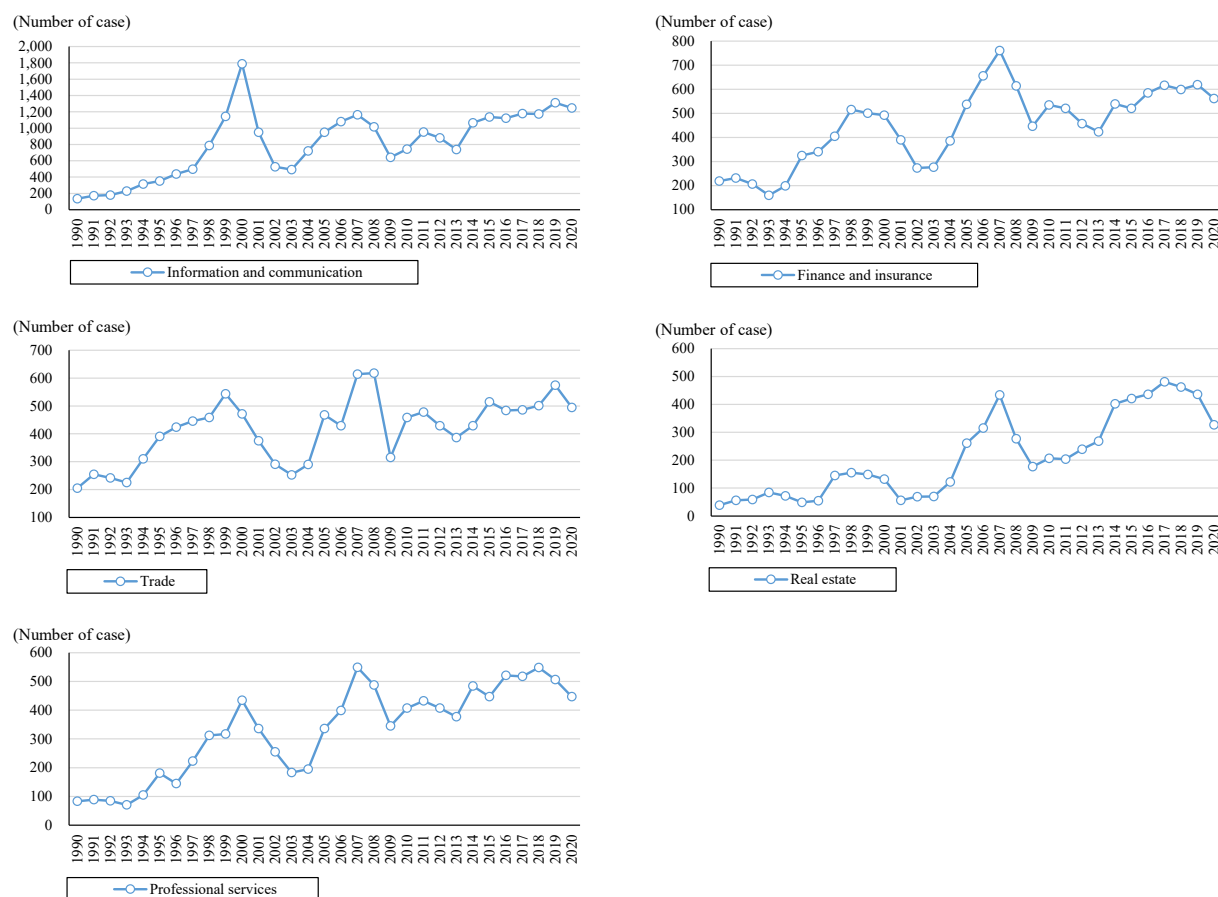
Note: Based on data from acquired companies.
Source: *World Investment Report 2021* (UNCTAD).

Figure I-2-1-13. Number of cross-border M&As in manufacturing industries



Note: Based on data from acquired companies.
Source: *World Investment Report 2021* (UNCTAD).

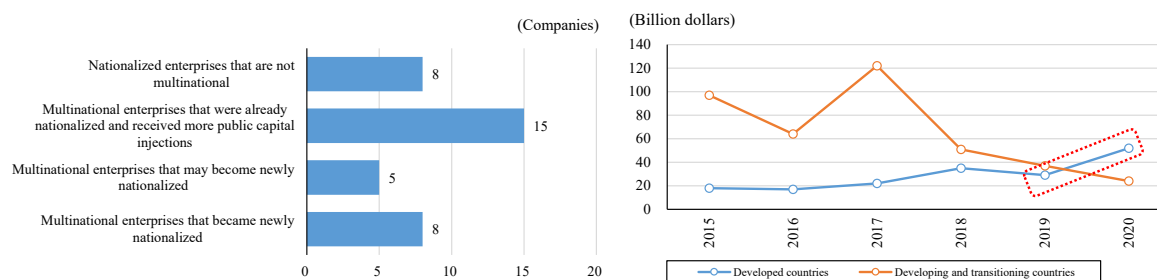
Figure I-2-1-14. Number of cross-border M&As in service industries



Note: Based on data from acquired companies.
Source: *World Investment Report 2021* (UNCTAD).

While economic measures against COVID-19 mainly supported households and companies that were severely impacted, they were effectively implemented as industrial policies (Figure I-2-1-15). Specific examples include effective nationalization policies that the government provided capital to severely damaged companies as part of financial support measures. As a result, there are companies that were newly nationalized (left), and the number of cross-border M&As by state-owned multinational companies in 2020 increased, especially in developed countries (right). Large-scale regional trade agreements, such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), stipulate the national treatment of foreign companies in government procurement and other areas, but such a trend could impact the formation of a fair and level competitive environment (so-called level playing field).

Figure I-2-1-15. Number of nationalized companies and cross-border M&As by nationalized multinational companies through measures against COVID-19

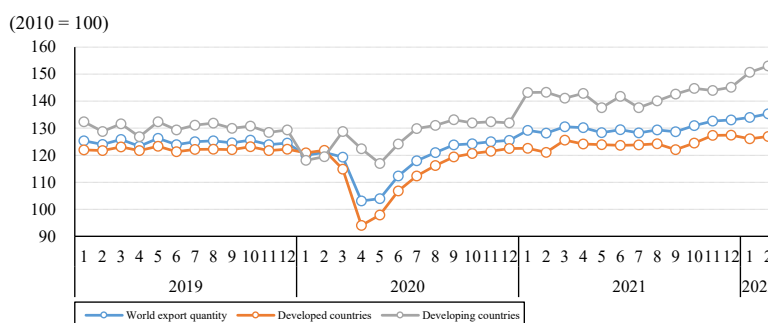


Source: *World Investment Report 2021* (UNCTAD).

4. Fragmented distribution of trade volume and inflationary pressure

Global trade volume recovered along with the global economy in 2021. The global export volume has returned to the same level in 2019 before the worldwide spread of COVID-19, and exports from emerging countries in particular have recovered significantly (Figure I-2-1-16).

Figure I-2-1-16. Export quantity by region



Note 1: Seasonally adjusted values.

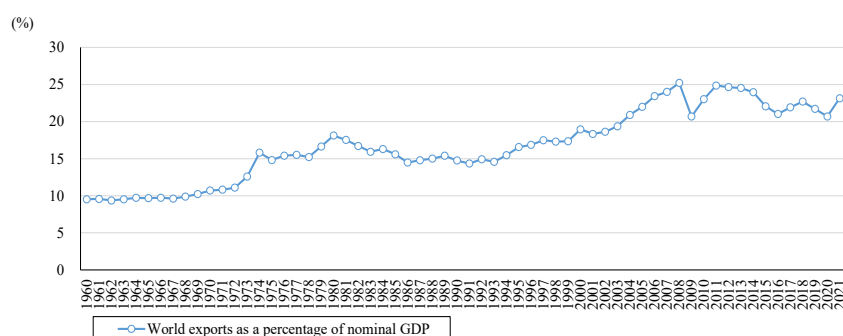
Note 2: Developed countries include the eurozone, the United States, the United Kingdom, Japan, and other developed countries in and outside of Asia.

Note 3: Emerging countries include China and other emerging countries in Asia, Eastern Europe and the Commonwealth of Independent States, South America, Africa, and the Middle East.

Source: *World Trade Monitor* (CPB Netherlands Bureau for Economic Policy Analysis).

On the other hand, the amount of global trade as a percentage of nominal GDP rose in 2021, but from a somewhat long-term perspective, it has been on a noticeable downward trend since the global economy recovered from the global financial crisis in 2011 (Figure I-2-1-17). Although trade volume is currently recovering, the recovery has been disproportionate to the scale of the economy (slow globalisation)..

Figure I-2-1-17. World goods exports as a percentage of nominal GDP

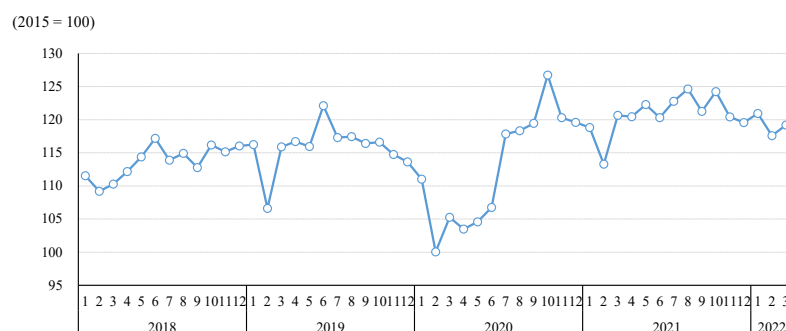


Note: World nominal GDP values from 1960 to 1979 are those of the World Bank, and values from 1980 are those of the IMF.

Source: IMF, World Bank, World Trade Organization.

As suggested by the regional differences in the recovery of export volumes, there are regional differences in maritime transport, which accounts for the majority of trade in goods. The Container Throughput Index (Figure I-2-1-18) is well above the level in 2019, when the spread of COVID-19 worsened worldwide (Figure I-2-1-18). The container handling volume indexes in the United States and China in particular are higher than before the spread of COVID-19, while the combined indexes for Japan, the Republic of Korea, and Taiwan are lower than the pre-COVID level (Figure I-2-1-19). This fragmented recovery of trade volume increased inflationary pressure in the form of disruptions in logistics due to container shortages, particularly in countries and regions with a noticeable recovery in trade volume.

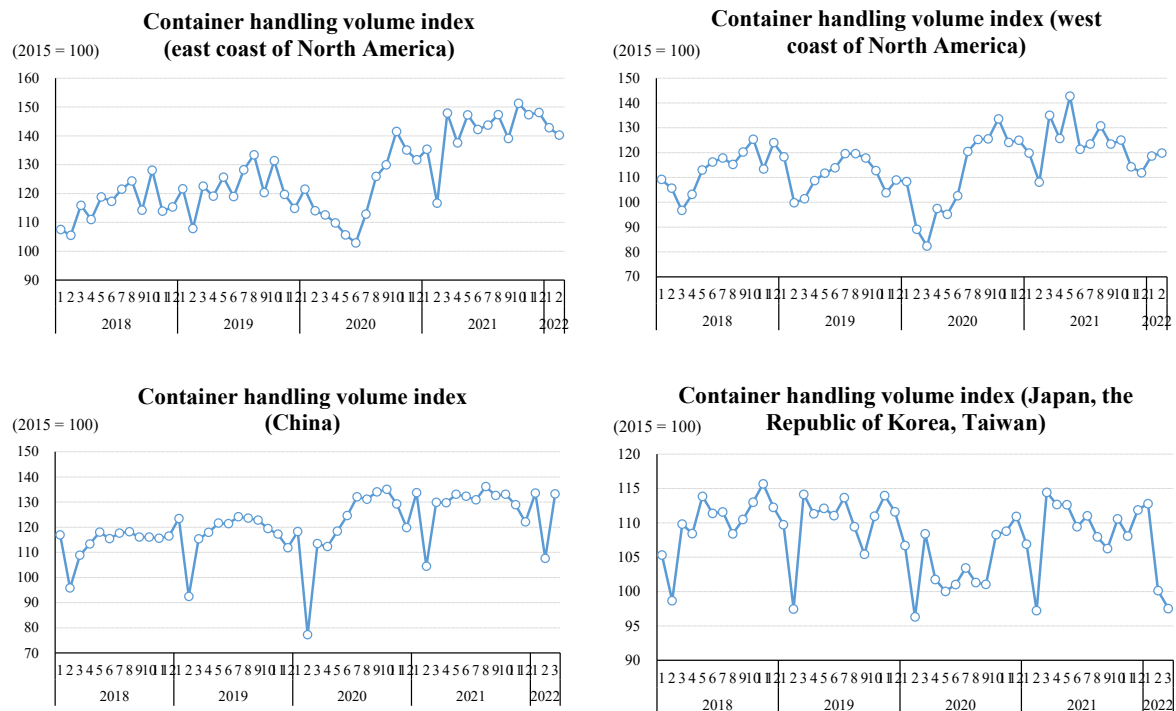
Figure I-2-1-18. Container Throughput Index



Note: Seasonally adjusted values.

Source: Data belonging to the Institute of Shipping Economics and Logistics, data obtained from CEIC.

Figure I-2-1-19. Throughput index by region

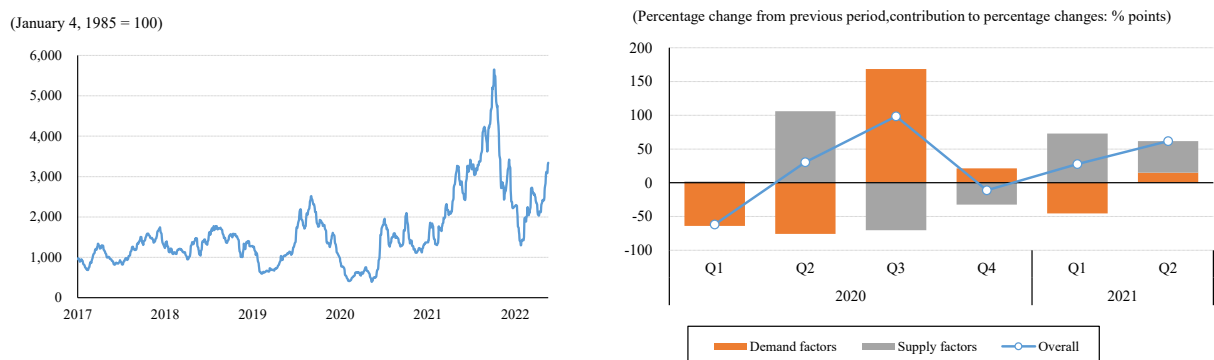


Note: Unadjusted values.

Source: Data belonging to the Institute of Shipping Economics and Logistics, data obtained from CEIC.

The global economy has recovered at a rapid pace, thanks in part to governments' measures against COVID-19. In other words, the recovery on the supply side has not been able to keep up with the rapid recovery on the demand side, which has led to increased inflationary pressure on prices of goods, especially in maritime transport (Figure I-2-1-20). While the Baltic Dry Index, which indicates trends in maritime transportation costs (left), rose sharply in mid-2021 and fell toward the end of the year, it recently rose again, still exceeding the level in 2019, before the COVID-19 pandemic. An analysis by the IMF shows that supply factors greatly contributed to the surge in maritime transportation costs in 2021, and shows the strength of the impact of the fragmented recovery of trade volume among regions (right).

Figure I-2-1-20. Baltic Dry Index



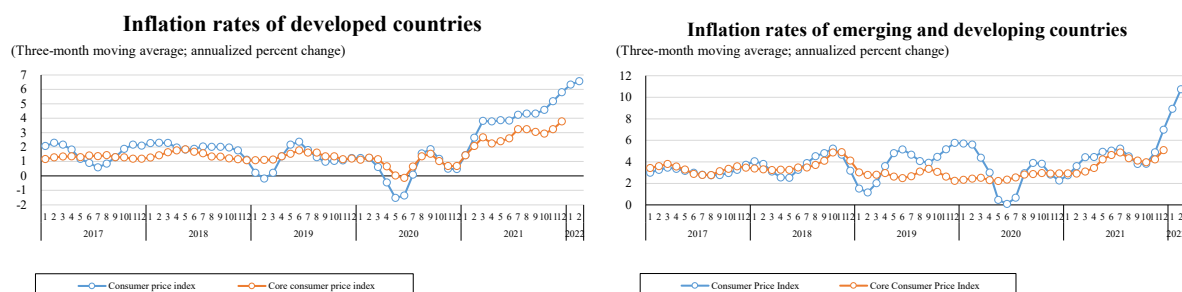
Note 1: In the figure on the right, "Overall" is the percentage change from previous quarter, and "Demand factors" and "Supply factors" are contributions.

Note 2: Figure on the right is based on the Generalized Dynamic Factor Model (GDFM) inspired by the Federal Reserve Bank of New York's Nowcast.

Source: *WEO, October 2021* (IMF), CEIC.

The inflationary pressure on the supply side actually appears in increased prices of goods at the consumer level (Figure I-2-1-21). The surge in overall consumer price inflation rates—which includes primary products such as food and energy—could be explained by the increased demand for liquefied natural gas, which is used for measures against climate change as it makes less carbon dioxide emissions than oil. However, the fact that core CPI—which does not include primary goods—is increasing at accelerating speeds suggests that the rise in logistics costs affects overall prices.

Figure I-2-1-21. CPI of developed (left) and emerging (right) countries



Note 1: Core CPI is CPI excluding food and energy.

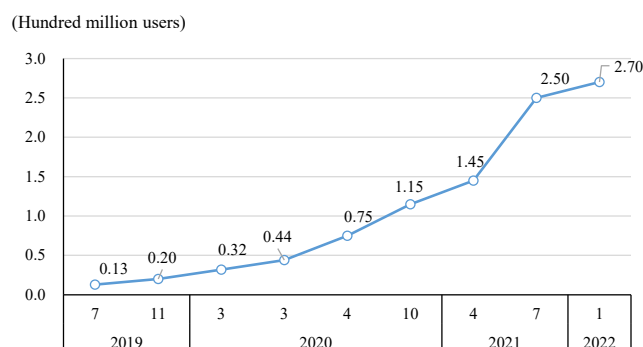
Note 2: Weighted average of each country's consumer price index in terms of GDP based on purchasing power parity.

Source: *WEO, April 2022* (IMF).

5. Responses to digitalization and underlying demand for contact-type economic activity

One of the characteristics of COVID-19 is that it led to restricted contact between people as part of preventive measures (e.g., difficulty in physically gathering workers at production sites). It also promoted the practice of telework. The monthly number of users of Microsoft Corporation's Teams—a major online communication tool—as a proxy variable for the spread of telework, increased from 20 million in November 2019 to 270 million in January 2022, increasing by 13.5 times in approximately two years (Figure I-2-1-22).

Figure I-2-1-22. Monthly number of Microsoft Teams users

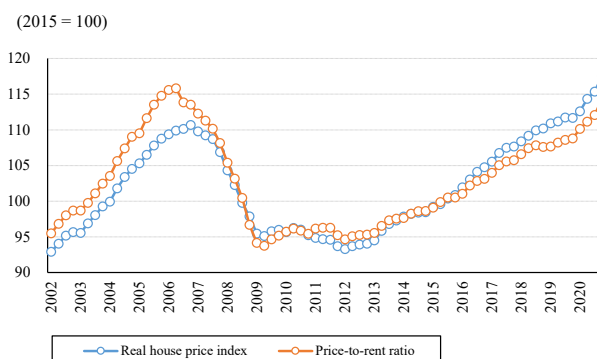


Note: Years and months on the horizontal axis are those for which Microsoft has released data.

Source: Materials from Microsoft.

These changes in the ways people work may have also affected asset prices. Specifically, since COVID-19 pandemic in 2020, real housing price and price-to-rent ratios have increased at an accelerated pace (Figure I-2-1-23). A similar increase can be seen across many countries (Figure I-2-1-24). One factor is the low interest rates resulting from the central bank's continued monetary easing policy. However, considering the damage that COVID-19 dealt to the economy, housing demand increased likely due to factors other than reduced mortgage rates, such as the diffusion of telework.

Figure I-2-1-23. Trends in housing prices



Note 1: A sample of 57 countries to calculate the index, weighted by GDP.

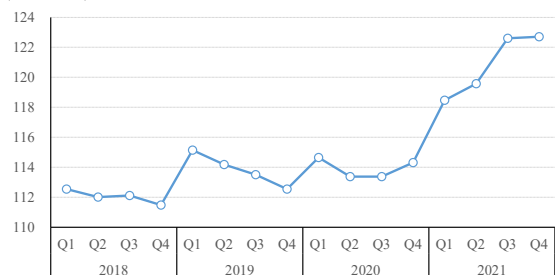
Note 2: Deflated using the CPI.

Source: *WEO, October 2021* (IMF).

Figure I-2-1-24. Housing prices by country

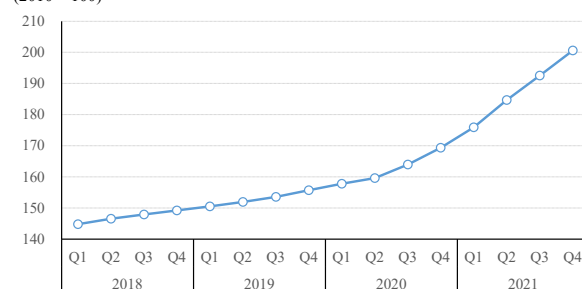
Japan

(2010 = 100)



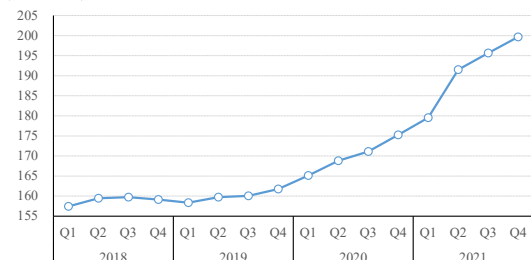
United States

(2010 = 100)



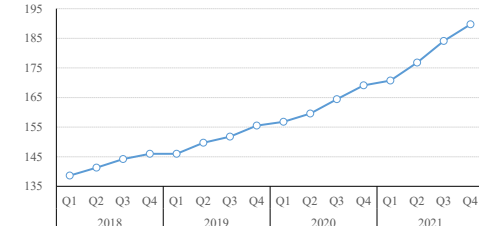
Canada

(2010 = 100)



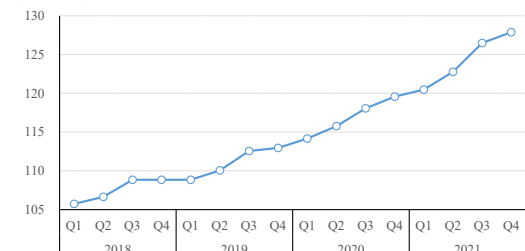
Germany

(2010 = 100)



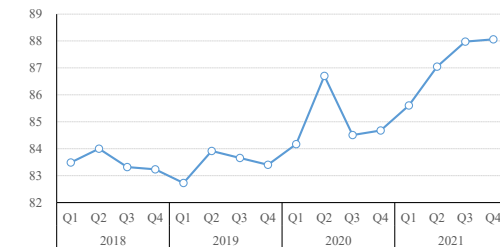
France

(2010 = 100)



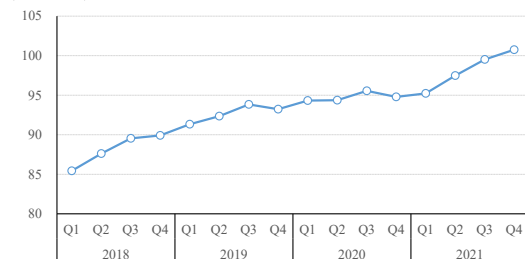
Italy

(2010 = 100)



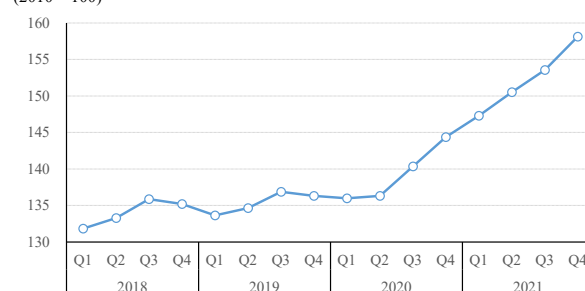
Spain

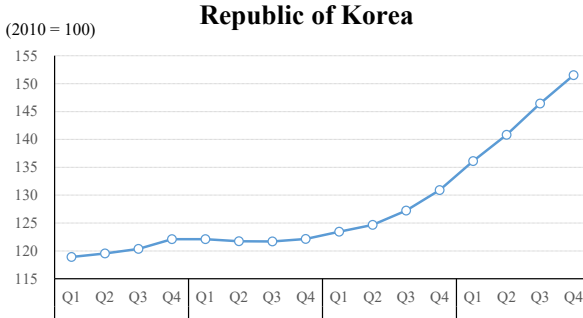
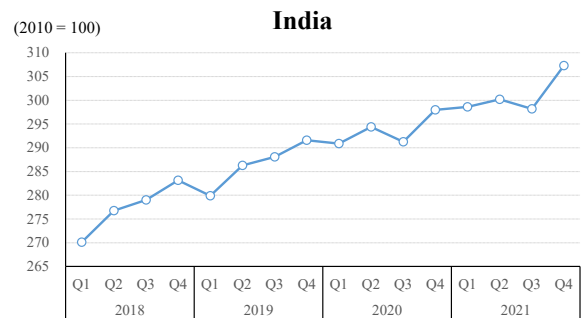
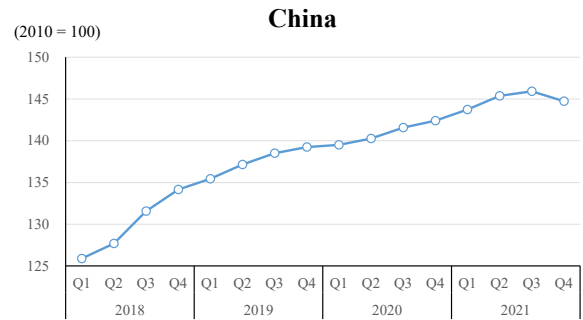
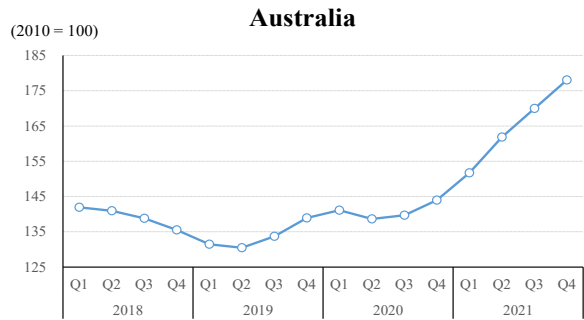
(2010 = 100)



United Kingdom

(2010 = 100)

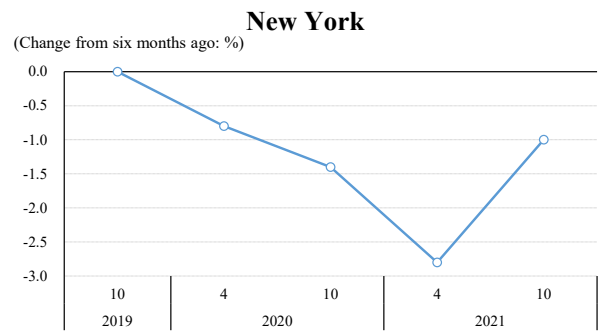
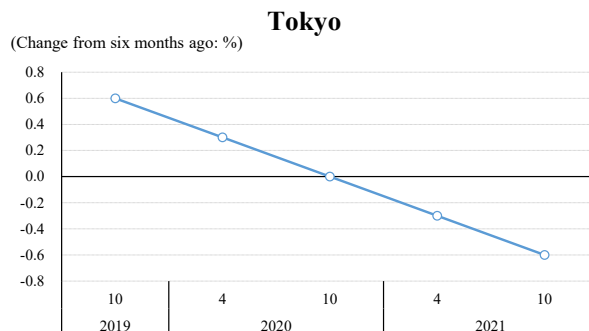




Source: Bank for International Settlements.

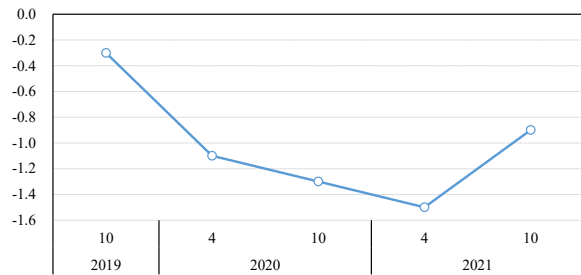
Furthermore, the diffusion of teleworking suggests a decline in demand for offices. In fact, office rents in major cities compared to six months ago has generally continued to decline since COVID-19 pandemic (Figure I-2-1-25). The changes in people's behaviors due to COVID-19 may have affected asset values such as housing prices and office rents.

Figure I-2-1-25. Office rents in major cities around the world



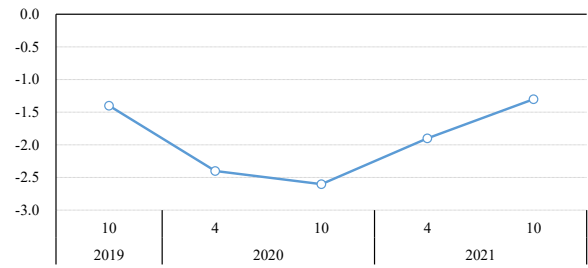
London

(Change from six months ago: %)



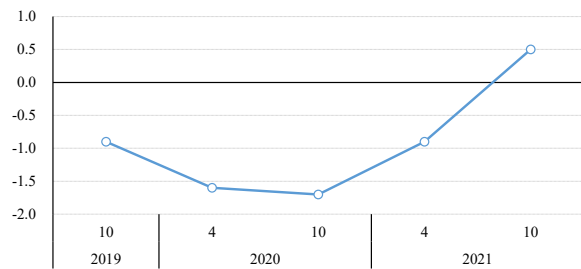
Beijing

(Change from six months ago: %)



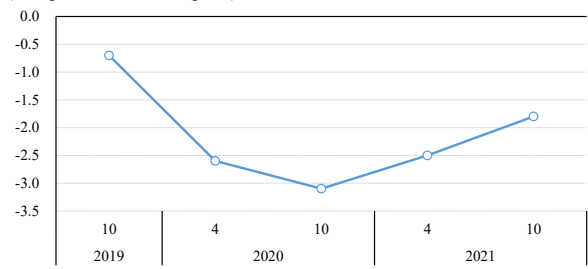
Shanghai

(Change from six months ago: %)



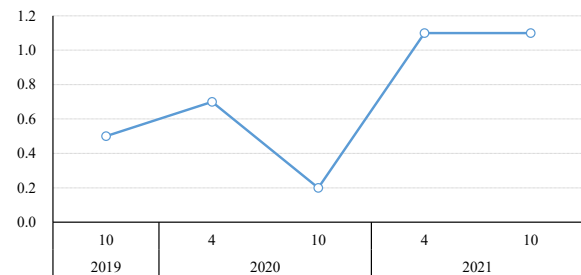
Hong Kong

(Change from six months ago: %)



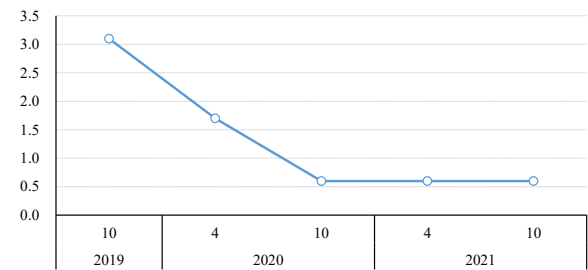
Seoul

(Change from six months ago: %)



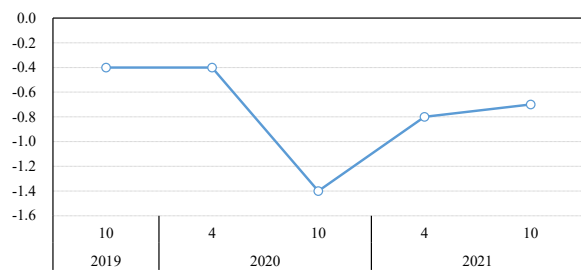
Taipei

(Change from six months ago: %)



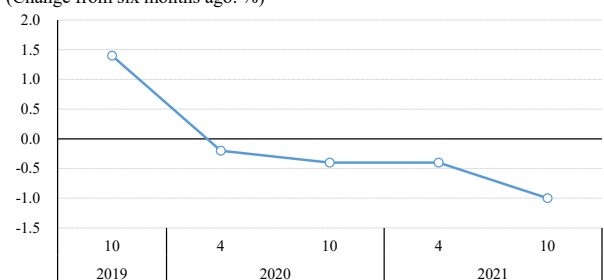
Kuala Lumpur

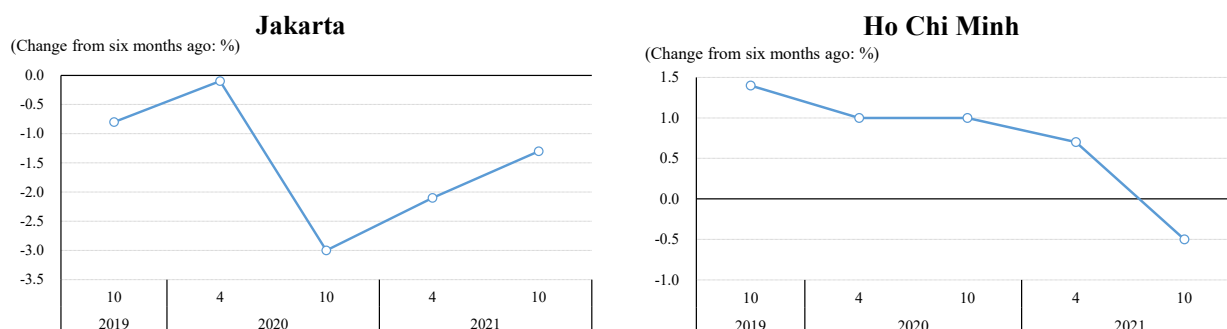
(Change from six months ago: %)



Bangkok

(Change from six months ago: %)

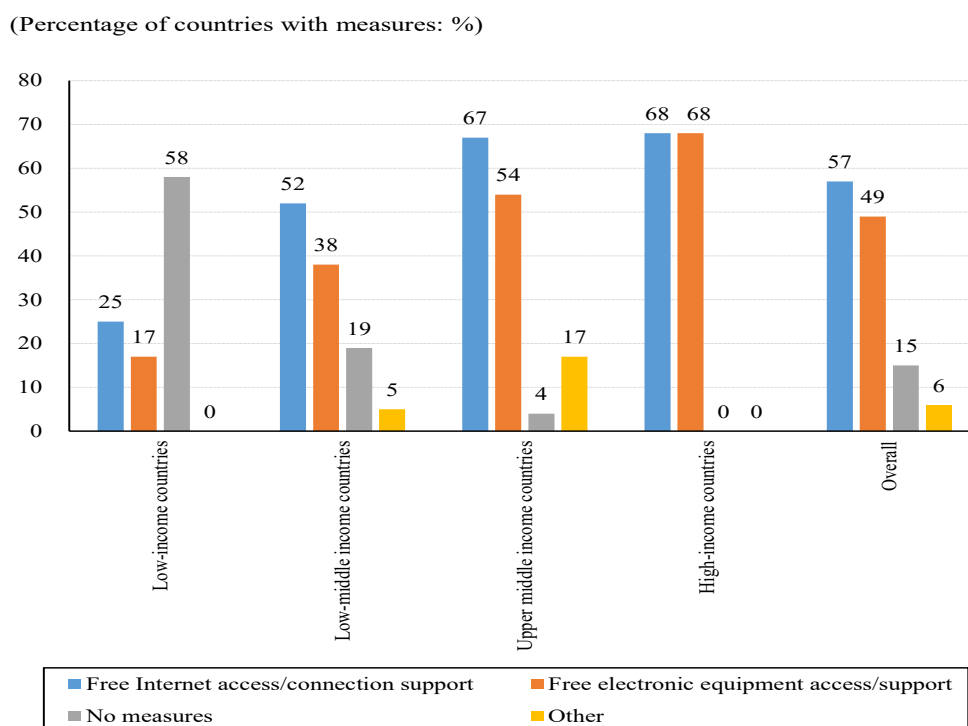




Source: Japan Real Estate Institute.

In addition, education is a service with an increased need to be provided in a contactless manner. The figure below (Figure I-2-1-26) shows the percentage that implemented remote learning support measures in various countries based on income classification. The figure shows that high-income countries have high percentages of policy implementation, whereas low-income countries have low percentages, and more than half of the correspondents answered that they have not implemented a policy. Given the growing importance of online education due to the COVID-19 pandemic, this gap in implementation of policies supporting remote learning means that low-income countries are more prone to opportunity loss to human capital compared to high-income countries, which may lead to limited economic growth in low-income countries in the long term.

Figure I-2-1-26. Percentage of remote learning support measures implemented in various country by income classification

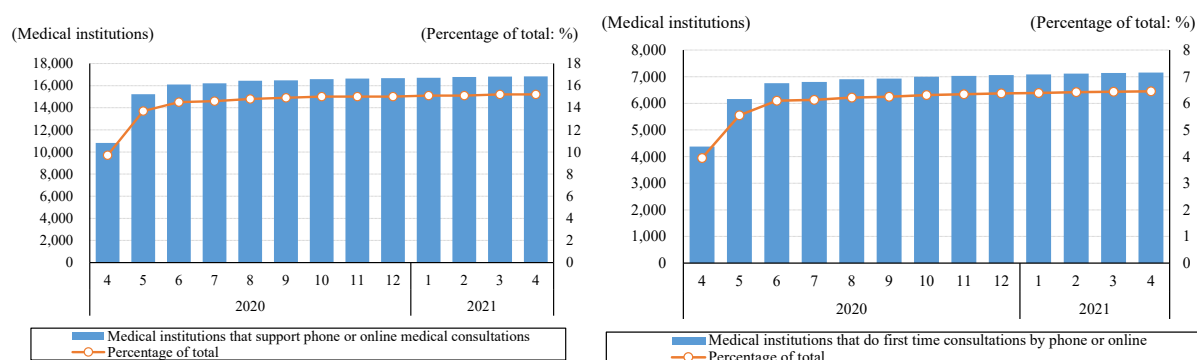


Note: Sample includes 12 low-income countries, 21 low-middle income countries, 24 upper-middle income countries, and 25 high-income countries for a total of 82 countries.

Source: Excerpt from *WHAT'S NEXT? Lessons on Education Recovery: Findings from a Survey of Ministries of Education amid the COVID-19 Pandemic*. (UNESCO, UNICEF, World Bank, OECD).

In addition, as with education, there is an increased need to provide medical care in a contactless manner. The figure below (Figure I-2-1-27) shows the trends in medical institutions that provide medical consultations in Japan online or by phone. According to the figure, the number of medical institutions that support phone or online consultations increased significantly from April to May 2020 after COVID-19 pandemic, but it peaked in June when the first wave of infections subsided, and has remained almost constant since then. Fewer than 20% of medical institutions support phone or online consultations, and fewer than 10% of medical institutions provide first time consultations by phone or online.

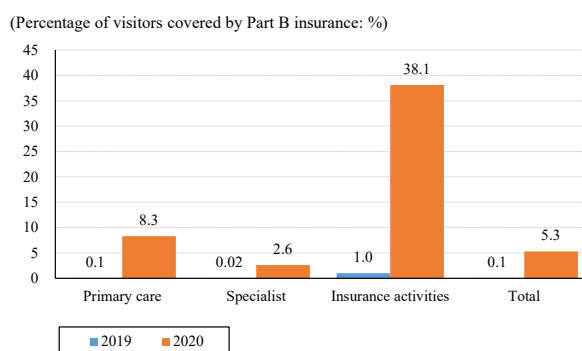
Figure I-2-1-27. Medical institutions that support phone or online medical consultations in Japan



Source: *White Paper on Information and Communications in Japan* (Ministry of Internal Affairs and Communications, 2021).

Comparing trends in use of online medical care to other countries, in the United States, telemedicine accounted for only 5.3% of all outpatient care applicable to Medicare Part B in 2020, but the use of telemedicine in insurance activities, including preventive care, increased significantly to 38.1% (Figure I-2-1-28). In China, Ping An Doctor—a major online medical care platform—reports that the use of online medical care had been progressing since before COVID-19 pandemic, as suggested by its usage data (e.g., number of registered users), its annual revenue, and other measures of performance (Figure I-2-1-29). While the diffusion of social infrastructures such as education and medical care has been likely facilitated by a unique characteristics of COVID-19, measures to provide those services in a manner appropriate for progress in technology and people's demands and to make digital technology more accessible in low-income countries are important assignments.

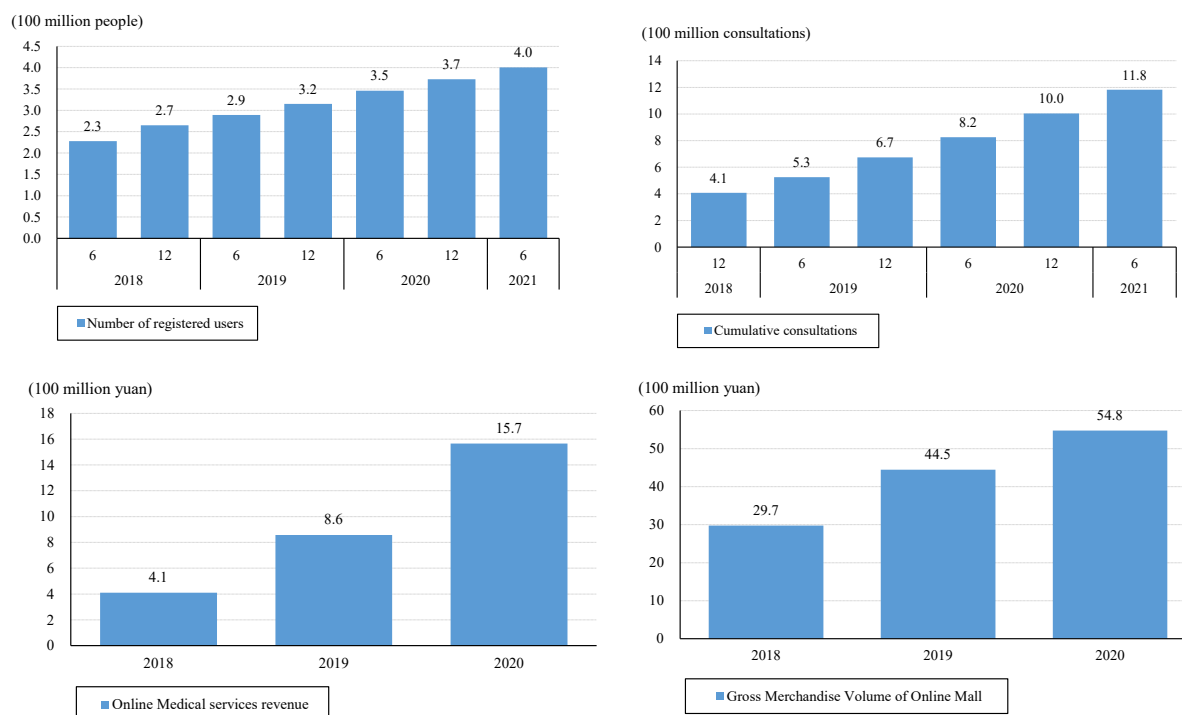
Figure I-2-1-28. Use of online medical consultations in the United States



Note: Medicare Part B is a medical insurance policy that covers mainly outpatient medical services, excluding hospitalization.

Source: “Medicare Beneficiaries’ use of Telehealth in 2020: Trends by Beneficiary Characteristics and Location (US Departmental Health & Human Services).

Figure I-2-1-29. Performance measures of Ping An Doctor



Source: Created by the Ministry of Economy, Trade and Industry based on financial reports of Ping An Doctor.

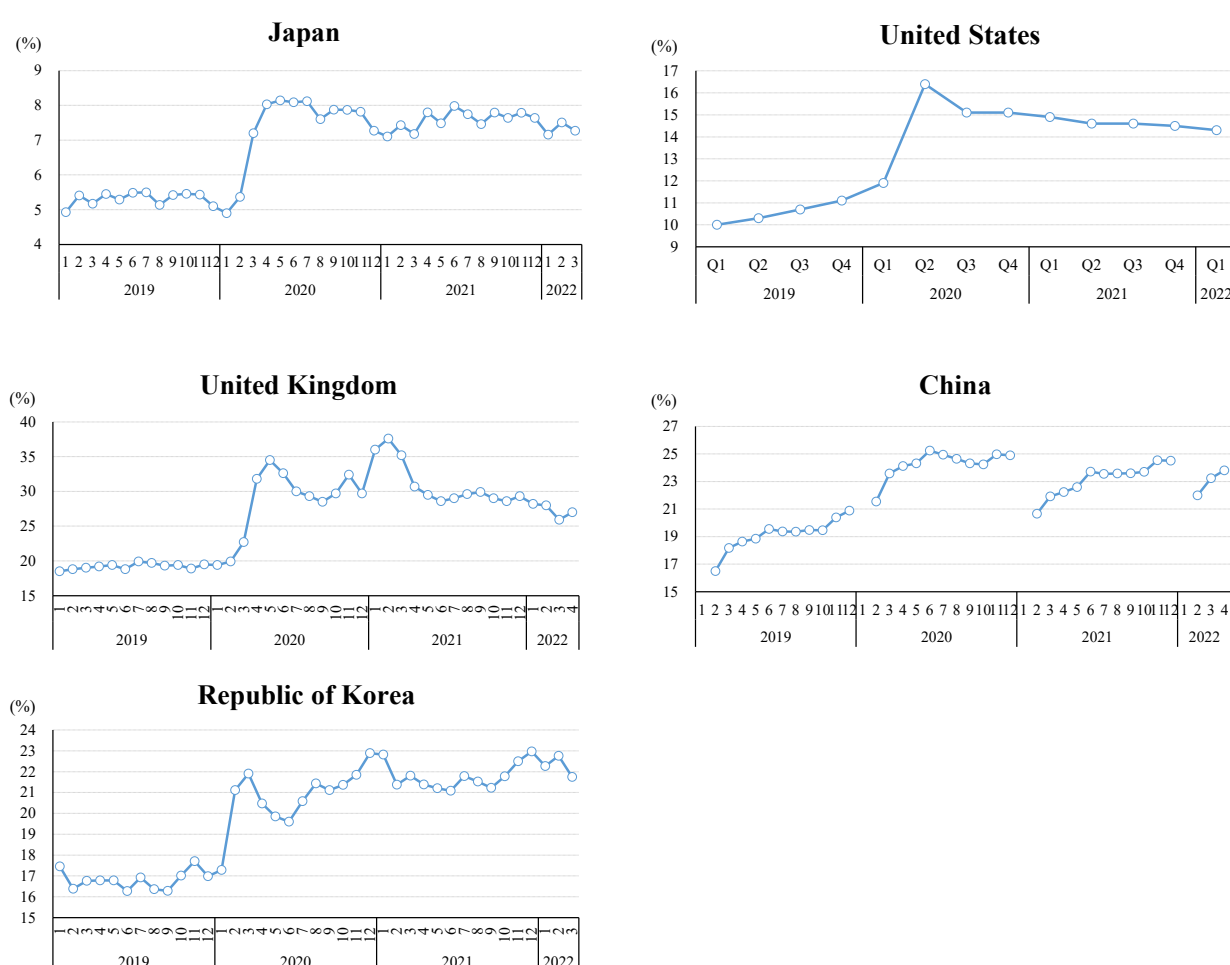
However, the COVID-19 pandemic has not necessarily promoted all contactless economic activities unilaterally. Looking at the percentage of retail sales accounted for by e-commerce in countries with a large e-commerce market, they increased sharply in early 2020, when the pandemic got severe, but shares have remained flat⁷⁹ since then (Figure I-2-1-30). This suggests that even if consumers

⁷⁹ Alcedo et al (2022) uses MasterCard's transaction data from 47 countries and 26 industries and states that the greater the share of online transactions in the country before COVID-19 pandemic, the greater

determine to some extent what they want to buy in advance, there is still underlying demand for consumer experiences at physical stores even when it makes sense to use an online store, and it is possible that physical and online stores co-exist.

Summing up the discussion in this section, the COVID-19 pandemic immediately boosted demand for contactless economic activities and created business opportunities for companies that were able to quickly respond to the digitalization trend. However, demand for contact-based economic activities remains deeply rooted as before, and it is important for companies to develop a hybrid model with both contact-based and contactless economic activities, while progressing digitalization as a driving force of growth.

Figure I-2-1-30. Percentage of retail sales accounted for by e-commerce



Note 1: Values are based on seasonally adjusted for the United States and the United Kingdom, and unadjusted values for other countries.

Note 2: Quarterly statistics are used for the United States, and monthly statistics for other countries.

Note 3: Values for the United Kingdom exclude those for automobile fuel.

Note 4: Because of the data constraints, the data for each country includes goods sales only and does not include online services such as ticket sales and accommodation reservations. The values for Republic of Korea and Japan are for non-store retailers including door-to-door sales and so on.

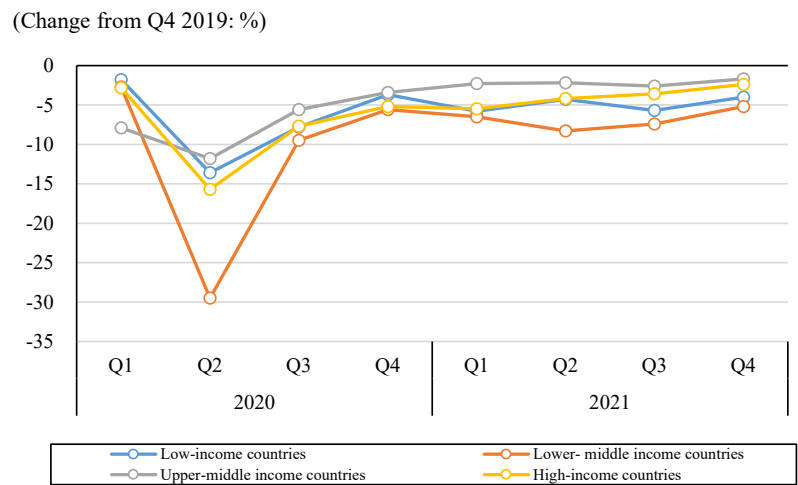
the increase in share of online transactions after the start of the pandemic. Although there are differences between industries, they argue based on the latest data that the increase in the share has peaked.

Source: Census Bureau, National Bureau of Statistics of China, Office of National Statistics, Ministry of Economy, Trade and Industry, Statistics Korea, CEIC.

6. Other aspects of labor market inequalities than income

The impact of COVID-19 on the labor market is different depending on aspects. According to an estimate by the International Labour Organization (ILO), the number of working hours lost due to COVID-19 were the most severe in the second quarter of 2020, when it began spreading worldwide. Since then, the number of working hours has gradually recovered, and is currently about 5% lower compared to the fourth quarter of 2019 (Figure I-2-1-31). This trend is common among countries of different incomes, and the impact of COVID-19 has not particularly widened the gap in terms of working hours.

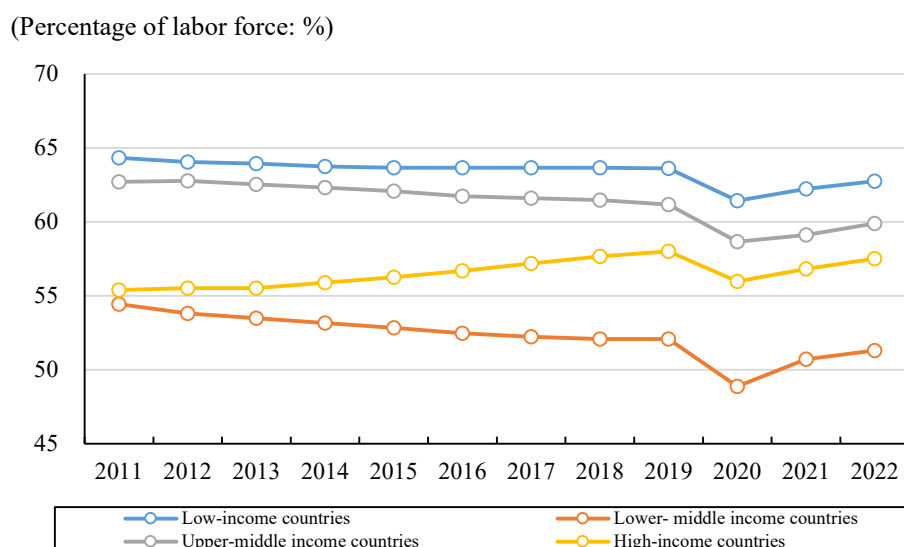
Figure I-2-1-31 Working hours lost due to COVID-19



Source: ILO.

Comparing the employment rates of those 15 years of age or older by income level of countries, they decreased in 2020, when the COVID-19 spread got severe, across all income levels (Figure I-2-1-32). Looking at the trend, even before the spread of COVID-19, there have been upward trends in high-income countries and downward trends in countries of other income levels. Looking at the global economy from a macro level, employment was created mainly in developed countries, while it was sluggish in developing countries. However, apart from those noticeable differences, COVID-19 had a similar impact on income groups in terms of downward pressure on employment.

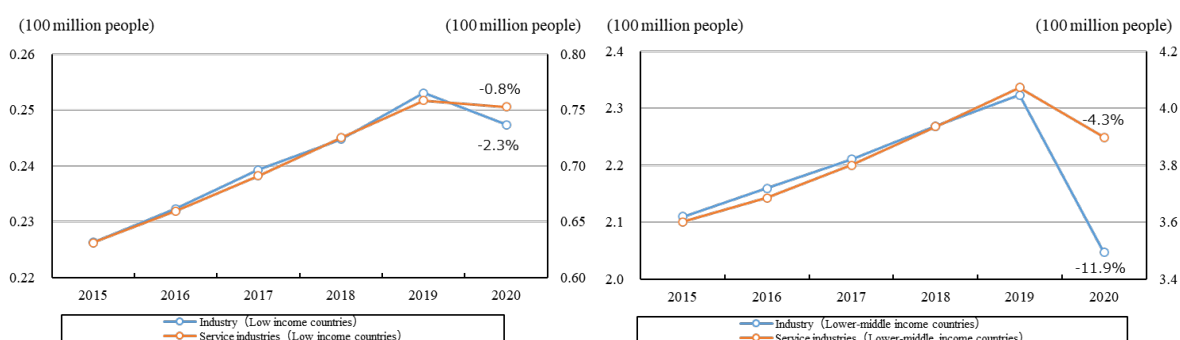
Figure I-2-1-32. Employment rate of people 15 years of age and older by income level

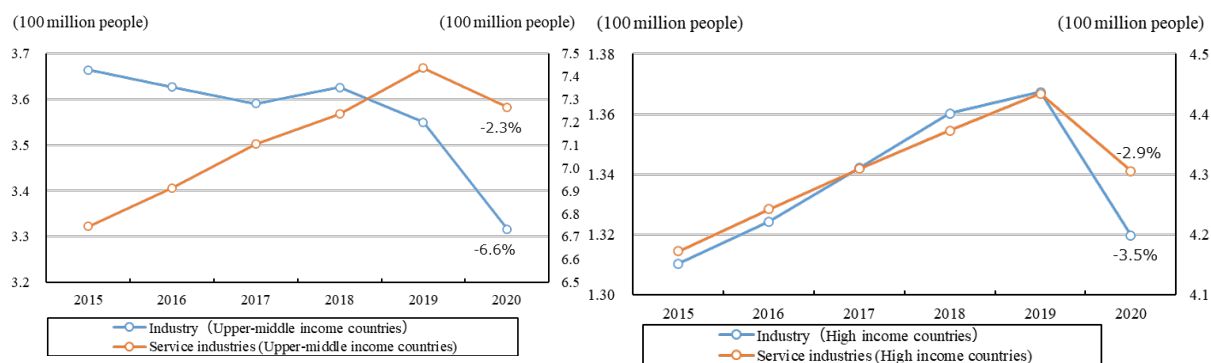


Note: Values for 2021 and 2022 are predictions by the ILO.
Source: ILO.

On the other hand, what appears to be inequalities in the labor market brought in by COVID-19 are differences in the decline in employment across industries. Looking at the employment in industrial and service sectors, it has decreased by a larger percentage in the industrial sector than in the service sector across all income levels (Figure I-2-1-33). In addition, low-middle and high-middle income countries in particular saw a marked decline in employment in the industrial sector. For those countries, the domestic value added embodied in foreign exports as share of gross exports had been increasing (increase in forward participation in supply chains). Thus, the impact of the global recession was strongly reflected through the decline in trade, as participation in the international division of labor in the global supply chain became active (Figure I-2-1-34).

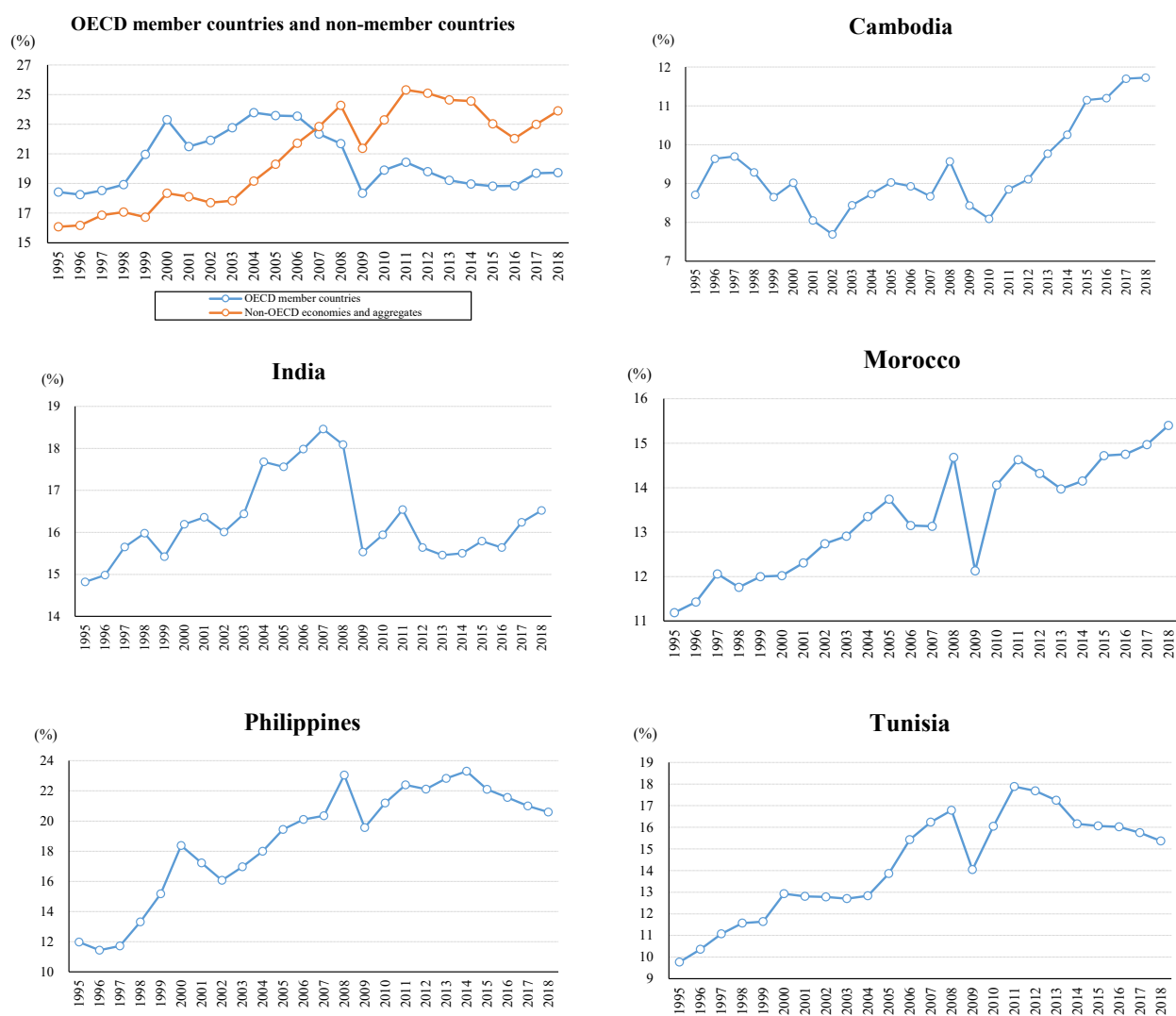
Figure I-2-1-33. Employment in manufacturing and service industries by income level

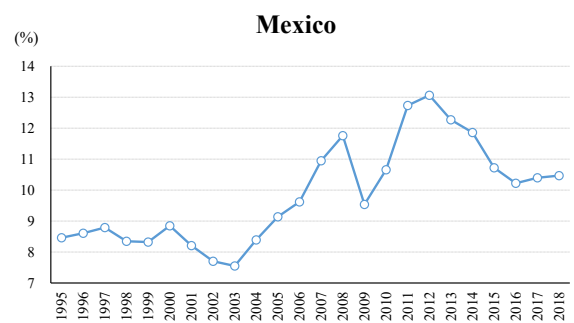
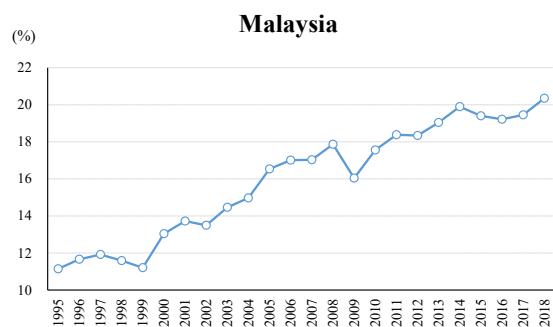
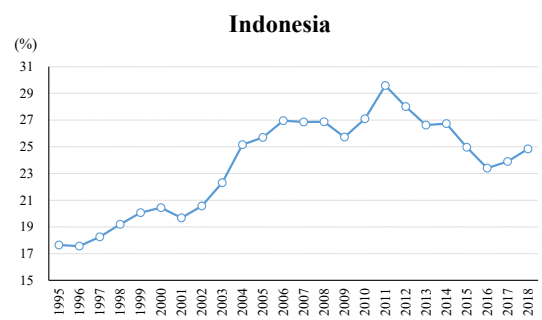
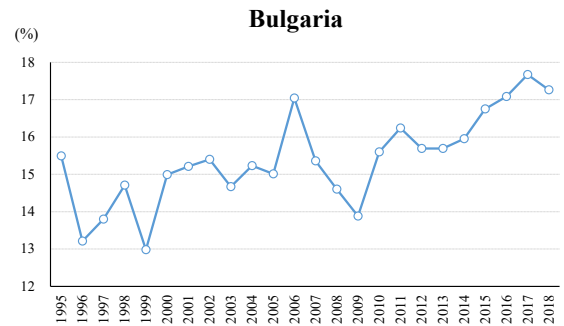
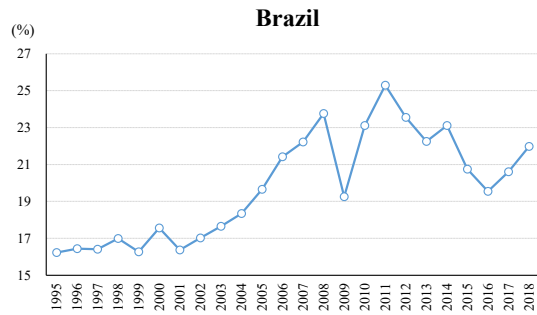
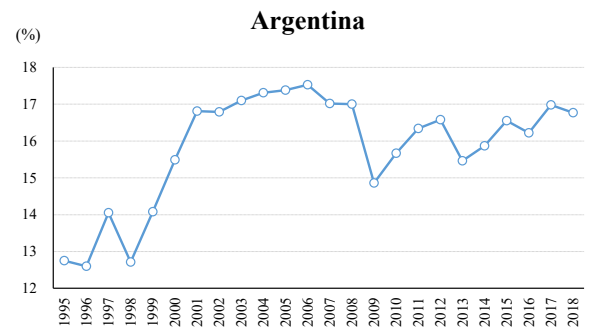
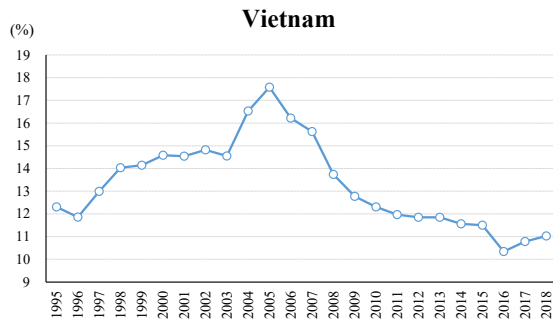


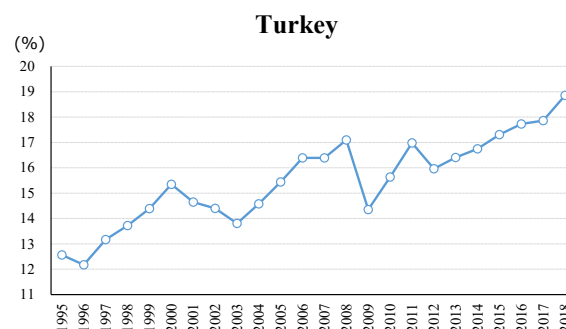


Source: ILO.

Figure I-2-1-34. Forward participation in the supply chain of middle-income countries





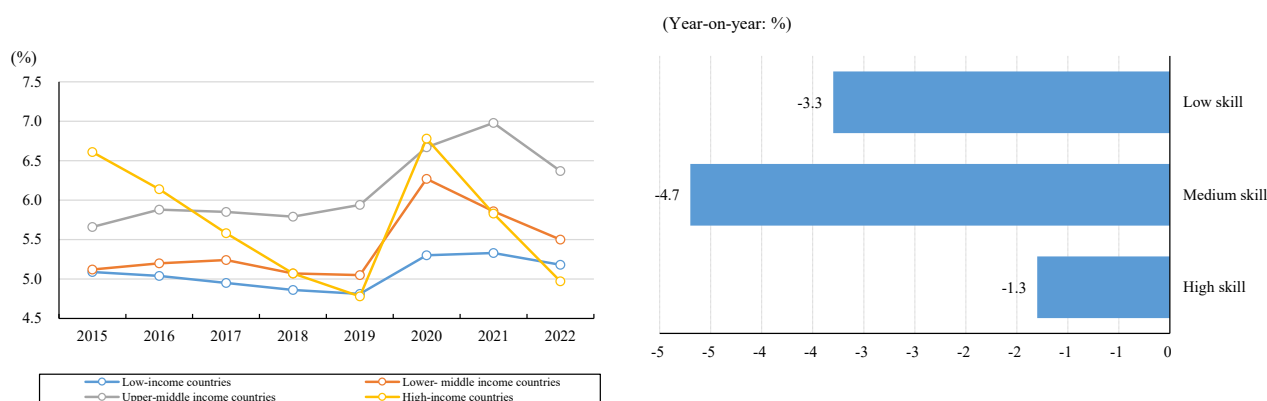


Note: Forward participation in the supply chain refers to domestic value added embodied in foreign exports as share of gross exports.

Source: OECD.

In addition, the number of lost jobs also show the impact of the integration of each country's manufacturing industry into the global supply chain (Figure I-2-1-35). Unemployment rate rose uniformly in 2020 when the COVID-19 pandemic got severe, continued rising even after the economy recovered in 2021 particularly in upper-middle income countries, and is expected to decline only modestly in 2022 (left). Looking at employment by skill in 2020, the largest decline was in mid-skill jobs, which include those at manufacturing sites (right), suggesting that trade declined amid the global economic recession and jobs incorporated into the international division of labor were severely affected. Looking at the employment rate by skill over the long term, upper-middle income countries saw a greater increase in the employment rate among middle-skill jobs compared to countries of other income levels (Figure I-2-1-36).

Figure I-2-1-35. Unemployment rate by income level (left) and employment rate in 2020 by skill (right)

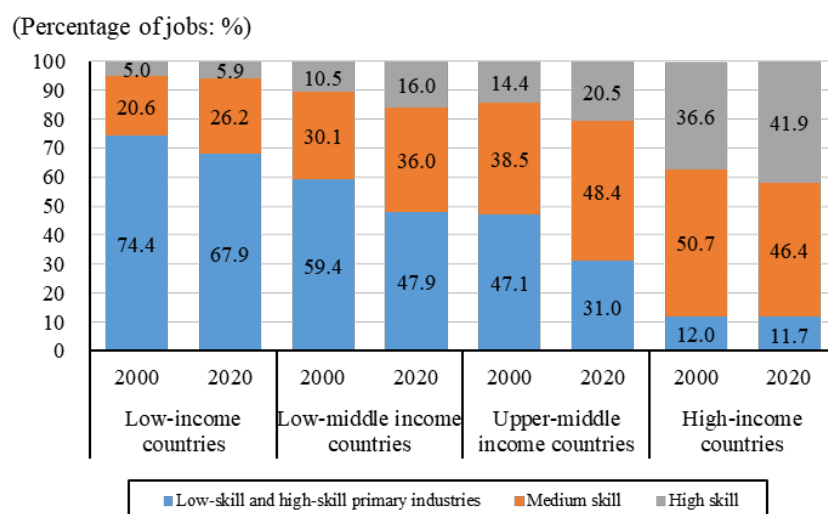


Note 1: On the left, values for 2021 and 2022 are predictions by the ILO.

Note 2: Skills are classified based on ISCO-08, with low-skill and high-skill primary industries being groups 6 and 9 (skilled agricultural, forestry and fishery workers, and elementary occupations), middle-skills jobs being groups 4, 5, 7, and 8 (clerical support workers, services and sales workers, craft and related trades workers, and plant and machine operators and assemblers), and high-skill jobs being groups 1 to 3 (managers, professionals, and technicians and associate professionals).

Source: ILO.

Figure I-2-1-36. Percentages of employment by skill

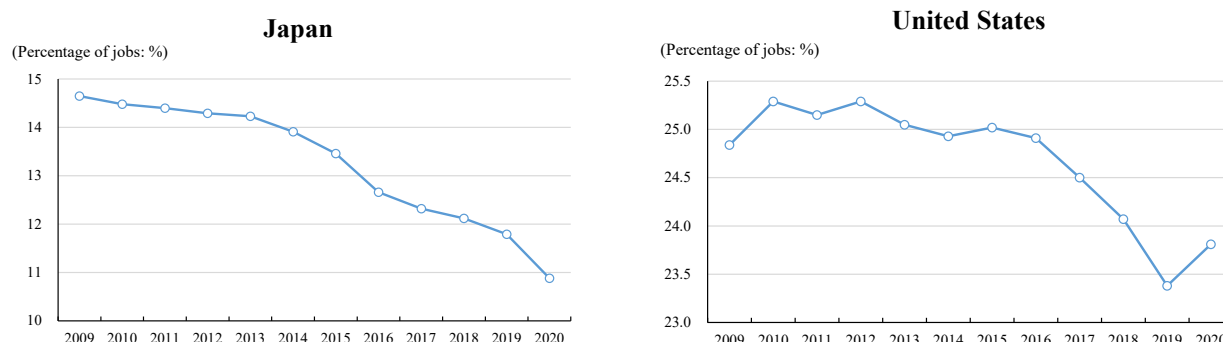


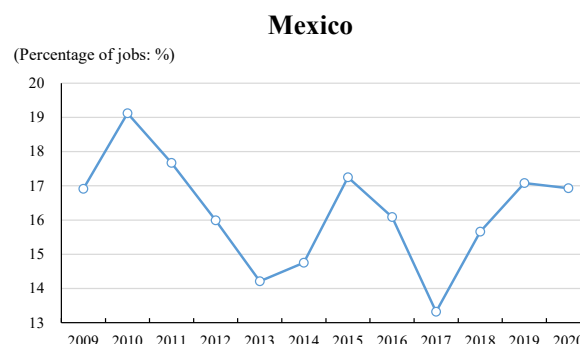
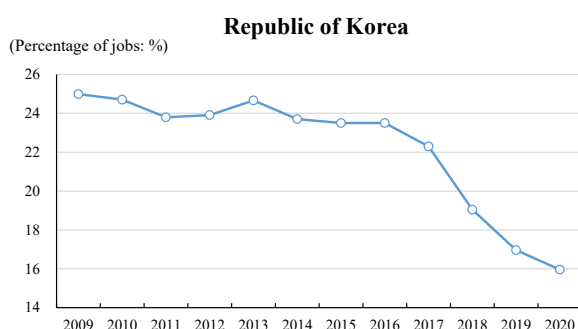
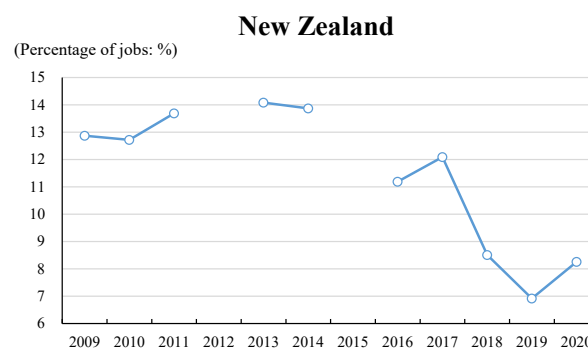
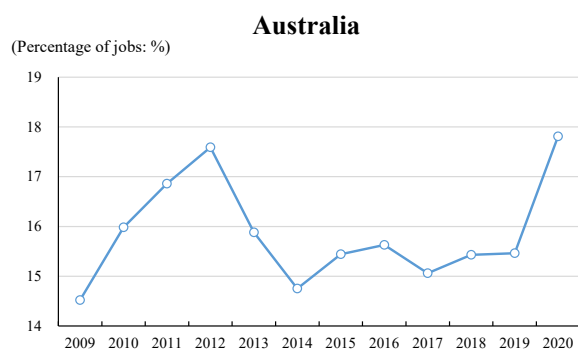
Note: Skills are classified based on ISCO-08, with low-skill and high-skill primary industries being groups 6 and 9 (skilled agricultural, forestry and fishery workers, and elementary occupations), middle-skills jobs being groups 4, 5, 7, and 8 (clerical support workers, services and sales workers, craft and related trades workers, and plant and machine operators and assemblers), and high-skill jobs being groups 1 to 3 (managers, professionals, and technicians and associate professionals).

Source: *Technology and Innovation Report 2021* (UNCTAD).

Besides inequalities among countries with different income levels, inequalities within countries are also important issues. In this regard, looking at the percentage accounted for by low-wage jobs in various countries, it rose in 2020 in Australia, New Zealand, and the United States (Figure I-2-1-37). There are differences in employment practices as to how these countries respond to the downward pressure on employment (e.g., whether it is easier for companies to decide to lay off and re-employ workers, or to maintain employment through measures such as utilization of employment subsidies). However, the increasing percentage of low-wage jobs seen in some countries can widen domestic income inequalities.

Figure I-2-1-37. Percentage of low-wage employment



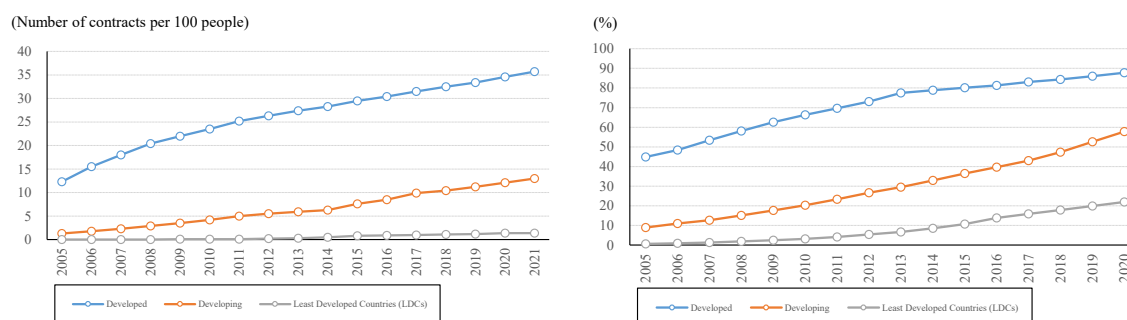


Note: Low-wage is defined as employment working for an hourly wage less than two-thirds of the median for all industries.

Source: ILO.

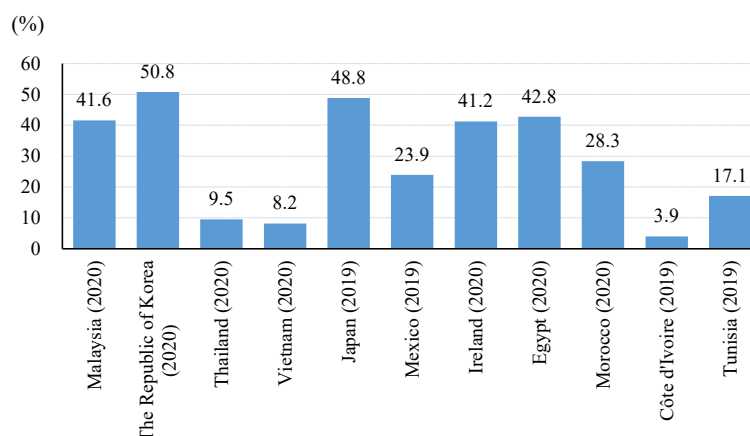
Employment in high-income countries declined less than other countries likely due to more favourable policy support for employment measures. In addition, because relatively advanced skills are likely required to be employed in those countries, employment in high-income countries has been durable to downward pressure on employment even during the economic downturn. In particular, there is a widening gap between countries with different income levels in digital skills and such an inequality is especially called the digital divide. In terms of digital access (Figure I-2-1-38), there is a widening gap between developed and low-income countries as shown by indicators such as numbers of fixed broadband subscriptions (left) and households with Internet access (right). In terms of digital skills, there is a large gap between countries in percentages of individuals with standard ICT skills (Figure I-2-1-39). These gaps in the education of digital resources are considered to have an increasingly important impact on employment and income inequalities.

Figure I-2-1-38. Digital access (left: Fixed broadband subscriptions; right: Percentage of households that have Internet access)



Source: International Telecommunication Union.

Figure I-2-1-39. Percentage of individuals with standard ICT skills



Note: Standard ICT skills refers to the use of mathematical functions in spreadsheet software, connection and installation of new devices, creation of electronic presentations using software, and the selection, download, installation, and configuration of chosen software.

Source: International Telecommunication Union.

7. Importance of procuring resources with growing need for green economy

Another characteristic of measures against COVID-19 is that they include measures to address climate change to promote green economy. In order to make the economy greener, for example, as lithium-ion batteries are important for the diffusion of electric vehicles and permanent magnets (e.g., neodymium magnets) are important for wind power generation, it is becoming increasingly important not only to possess the technology to produce, but also to procure rare metals, rare earths, and other important minerals (Table I-2-1-40). In fact, there is an estimate that in order to achieve zero greenhouse gas emissions in the second half of this century as agreed in the Paris Agreement the demand for lithium is estimated to be more than 25 times that of 2010 by 2030, and that demand for other important metals is also expected to increase (Figure I-2-1-41).

Table I-2-1-40. Examples of applications of important minerals

Mineral			Mineral		
Examples of applications			Examples of applications		
Rare metals	Lithium	Lithium-ion batteries, pharmaceuticals, lithium alloys	Rare earths	Scandium	Metal-halide lamps, alloys, catalysts, semiconductors
	Beryllium	Jewelry, beryllium alloys, construction materials for nuclear reactors, organic EL		Yttrium	Lasers, metal additives, magnets, radiation sources for medical purposes
	Boron	Semiconductors, nuclear reactor materials, heat resistant glass, abrasives, disinfectants, reinforced plastic, and organic EL		Lanthanum	Hydrogen storage alloys, lenses, heat resistant ceramics
	Titanium	Titanium alloys, aircraft, photocatalysts, cosmetics, reaction catalysts		Cerium	Glass, exhaust gas purification catalysts, abrasives, pharmaceuticals, alloys, ultraviolet absorbing glass
	Vanadium	Alloys, superconductors, oxidants, pharmaceuticals, flow batteries		Praseodymium	Glasswork goggles, magnets, fiber optic amplifiers
	Chromium	Plating, stainless steel, coloring		Neodymium	Magnets, tinted glass, MRI, ceramic capacitors
	Manganese	Manganese steel, lithium-ion batteries, electrodes for dry cell batteries, alkaline batteries, fluorescent materials		Promethium	Luminescent paint, atomic batteries
	Cobalt	Dyed porcelain, desiccants, β sources, magnetic heads, cathodes for lithium-ion batteries		Samarium	Magnets, nuclear reactor control rods, catalysts for automobile exhaust gas
	Nickel	Cupronickel, shape memory alloys, magnets, batteries		Europium	Light emission, bar codes for postcards, neutron absorbing material, magnetic semiconductors, organic EL
	Gallium	LEDs, low-melting-point metals, semiconductors		Gadolinium	Nuclear reactor digestives, blood projection agents, magneto-optical recording materials
	Germanium	Semiconductors, transistors, infrared lenses, fiber-optic communication		Terbium	Magnetostrictive alloys, magnetic optical discs
	Selenium	Copiers, exposure meters, rectifiers, infrared sensors, infrared transmitting glass		Dysprosium	Phosphorescent materials, magnets, nuclear reactor control materials, and magneto-optical recording materials
	Rubidium	Atomic clocks, dating instruments, fireworks		Holmium	Holmium lasers, magnets
	Strontium	Magnetic materials, glass additives, deoxidants, fireworks, superconductor materials			
	Zirconium	Nuclear reactors, ceramics,			

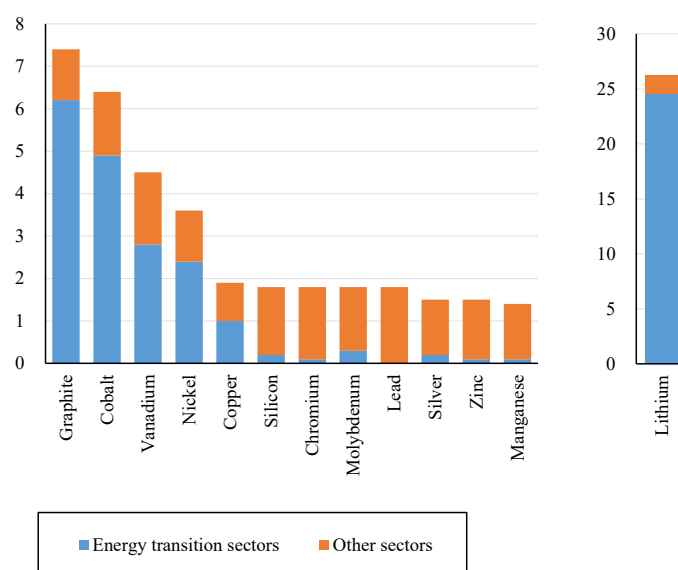
	jewelry
Niobium	Superconductors, superconducting magnets, noise filters for mobile phones, MRI
Molybdenum	Molybdenum steel, lubricating oil
Palladium	Catalysts, hydrogen storage metals, capacitors for mobile phones
Indium	Transparent electrodes, ultraviolet reflective glass, semiconductors
Antimony	Lead alloys, pharmaceuticals, plastics for mobile phones
Tellurium	Refrigerators, compound semiconductors, memory materials, semiconductors
Cesium	Atomic clocks, oil well drilling, optical glass materials
Barium	X-ray contrast agents, oil well drilling, high-temperature superconductors
Hafnium	Neutron inhibitors, super heat resistant alloys, raw materials for ceramics
Tantalum	Capacitors, implants
Tungsten	Incandescent bulbs, cemented carbide, armor piercing shell
Rhenium	Thermocouples, heat resistant alloys
Platinum	Jewelry, catalysts, pharmaceuticals, magnets, organic EL
Thallium	Insecticides, fungicides, myocardiography, semiconductors
Bismuth	Alloys, lead-free soldering, high-temperature superconductors, pharmaceuticals

	Erbium	Optical fiber, UV-cut glass
	Thulium	Radiation dosimeters, fiber-optic amplifiers, X-ray irradiation systems
	Ytterbium	Ultra-high speed pressure sensors, tactical lasers
	Lutetium	Ceramics, radiation therapy
Others	Graphite	Anodes for lithium-ion batteries

Source: Saitou, K. (2016), *SUGOI! KISHOU KINZOKU* Nippon Jitsugyo Publishing, materials from the National Institutes for Quantum Science and Technology.

Figure I-2-1-41. Demand outlook for important minerals

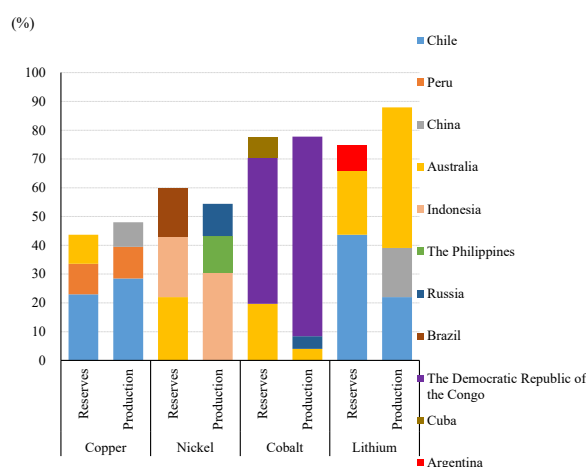
(Quantity demanded in 2030 compared to 2010: times)



Note: Based on the IEA's net zero emission scenario in 2050.
Source: *WEO, October 2021* (IMF).

As movements toward zero greenhouse gas emissions according to the Paris Agreement expand globally, the availability of important resources will become critical. Figure I-2-1-42 shows the reserves and production volume of major metals. Taking lithium for example, which is the raw material for lithium-ion batteries and thus important for electric vehicles, Chile and Australia are both major reserve holders and producers, and they are both members of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).

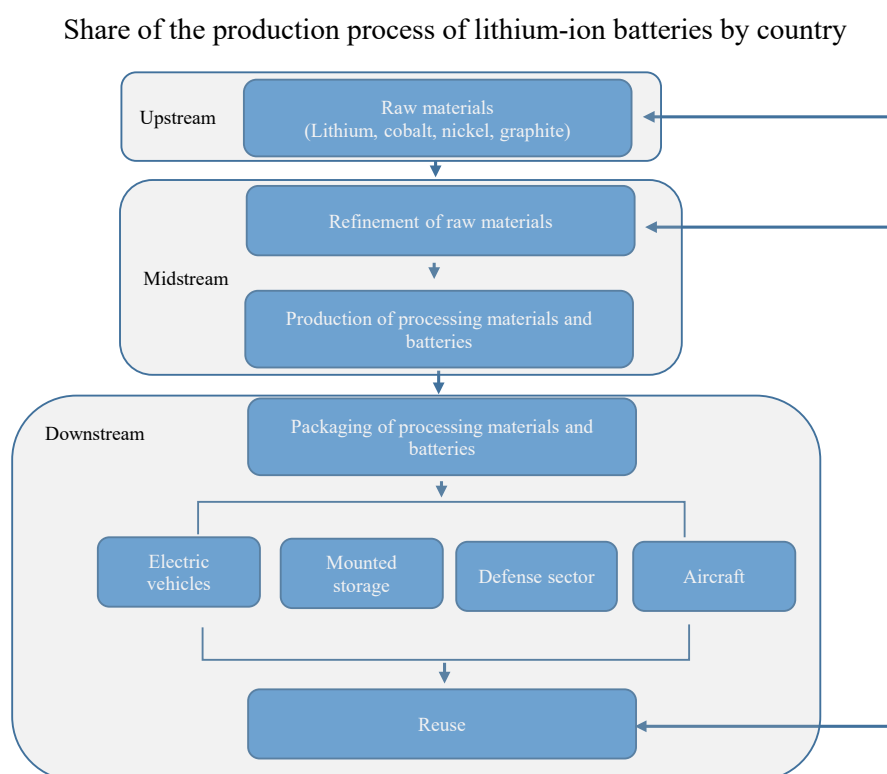
Figure I-2-1-42. Reserves of major metals and producing countries' shares



Source: *WEO, October 2021* (IMF).

On the other hand, according to a supply chain survey report prepared by the U.S. government under an executive order, supply capacity in the production cycle of lithium batteries is unevenly distributed in certain countries, especially in the midstream supply chain, raising concerns from the viewpoint of supply chain resilience (Figure I-2-1-43). Taking these examples into account, it is important to analyze risks related to the supply networks of important goods from various perspectives, such as whether it is reasonable to diversify procurement sources to a certain extent or increase the possibility of procurement by strengthening technology domestically.

Figure I-2-1-43. Share of the production cycle and process of lithium batteries by country



(%)	Cathodes	Anodes	Electrolyte dissolver solution	Battery separators
United States	--	10	2	6
China	42	65	65	43
Japan	33	19	12	21
Republic of Korea	15	6	4	28
Others	10	--	17	2

Source: *Building Resilient Supply Chains, Revitalizing American Manufacturing, And Fostering Broad-based Growth* (The White House).

8. Importance of business dynamism to overcome secular stagnation

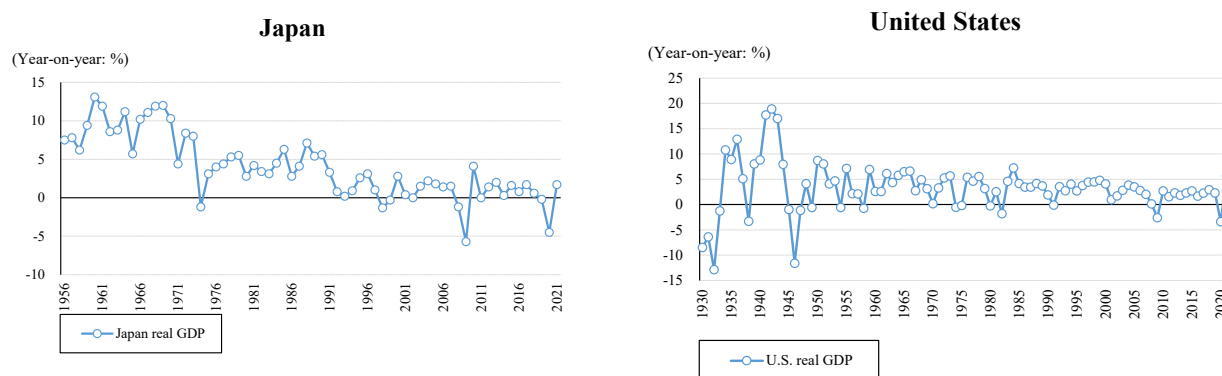
The IMF reported that the world economy's real GDP growth rate in 2020 was -3.1%, the lowest since the data began in 1980. While this is mainly due to the impact of the COVID-19 pandemic, the secular stagnation theory is garnering attention arguing that economic recovery tends to be a slow after

a serious global economic shock. The secular stagnation theory was proposed by Harvard University professor Alvin Hansen in 1938 and one of the advocates in present time is Lawrence Summers, Harvard University professor and former U.S. Secretary of Treasury. According to the theory, the United States was under secular stagnation after the Great Depression as the country suffered from a weak recovery and prolonged period of high unemployment rate. The theory argued that one of the fundamental causes behind the stagnation is a decrease in demand for investment due to a declining population growth rate.

Given the secular stagnation theory, comparison is made for the real GDP growth rate and the I-S balance, which indicates demand for capital investment for Japan and the United States, for which long-term statistics are available. From the viewpoint of economic shocks that impacted real GDP growth, global shocks common to both countries include the oil crisis (1970s), global financial crisis (the financial crisis triggered by the bankruptcy of Lehman Brothers Holdings in September 2008), and the COVID-19 pandemic (2020 and onward). On the other hand, a shock unique to Japan is the burst of the bubble economy and the subsequent disposal of non-performing loans (1990s and onward) and unique shocks to the United States are the savings and loan association (so-called S&L) crisis (1980s) and the burst of the dot-com bubble (early 2000s).

Looking at both countries' long-term real GDP while taking these economic shocks into account, Japan's real GDP growth rate has been on a steady down trend with a negative real GDP growth rate of -1.2% recorded in 1974 due to the oil crisis. In particular, the real GDP growth rate has remained low since the 1990s, when the disposal of non-performing loans was a central issue after the burst of the bubble economy. On the other hand, looking at the long-term real GDP growth rate in the United States, although there were large fluctuations during the Great Depression (1930s) and the World War periods (1940s), there appears no significant decline in the growth rate even after the economic shocks unique to the United States (Figure I-2-1-44). These contrasting trends in economic growth are also indicated by the fact that the average real GDP growth rates for every 10 years for Japan has been declining while that of the United States has been relatively firm (Table I-2-1-45).

Figure I-2-1-44. Real GDP growth rates of Japan and the United States



Note: A formal series that includes each year is used for Japan's real GDP growth rate. However, as multiple sources with different reference years are used, the figures for the entire period do not strictly connect.

Source: Cabinet Office (Japan), Bureau of Economic Analysis (U.S.).

Table I-2-1-45. Real GDP growth rates of Japan and the United States (Average growth rates for every 10 years)

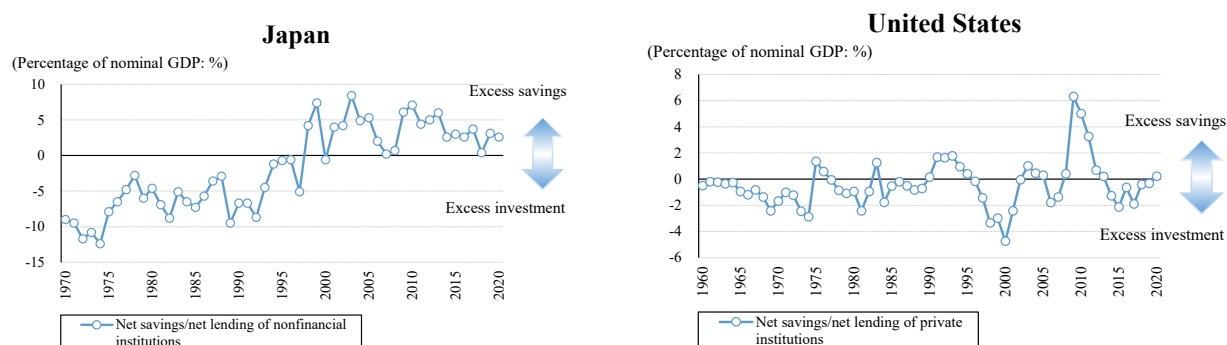
(Average real GDP growth rate: %)	Japan	United States
1960-1969	10.5	4.5
1970-1979	5.2	3.2
1980-1989	4.4	3.1
1990-1999	1.6	3.2
2000-2009	0.5	1.9
2010-2019	1.2	2.3

Note: Japan's real GDP growth rate is calculated using a formal series that includes each year, but multiple sources with different reference years are used.

Source: Cabinet Office (Japan), Bureau of Economic Analysis (U.S.).

Comparison of corporate sector's I-S balances, which are considered as the cause of secular stagnation, suggests an underlying factor behind the contrasting long-term real GDP growth trends in Japan and the United States. In Japan, nonfinancial institutions actively invested in the 1970s when the real GDP growth rate was at a high level (excess investment in the I-S balance), but there has not been such active investment since the end of the 1990s, when the disposal of non-performing loans was a central issue due to the burst of the bubble economy (persistent excess savings). On the other hand, looking at the I-S balance in the United States, although there were some periods in which private institutions were pessimistic about investing especially due to the global financial crisis at the end of the 2000s, excluding such large-scale crises, corporate sector generally has recorded excess investment over savings (Figure I-2-1-46).

Figure I-2-1-46. I-S balances of Japanese and U.S. companies



Note: A formal series that includes each year is used for Japan's I-S balance. However, as multiple sources with different reference years are used, the figures for the entire period do not strictly connect.

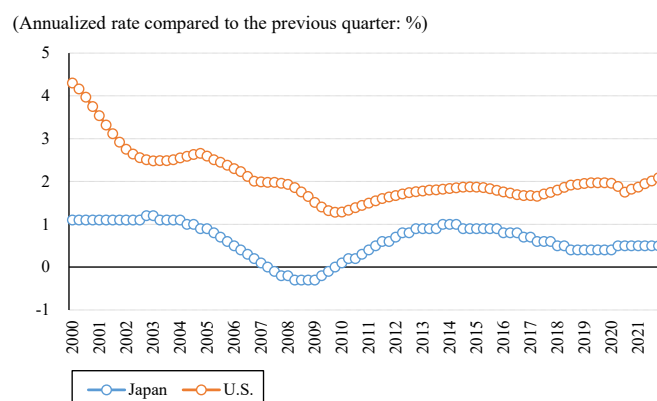
Source: Cabinet Office (Japan), Bureau of Economic Analysis (U.S.).

These differences between Japan and the United States are likely due to differences in expectations regarding economic growth. Expectations regarding economic growth are thought to be related to the potential growth rate, which is also considered to be the equilibrium real interest rate or natural rate of interest, defined as the neutral interest rate that does not accelerate or slow down the economy.

Comparing the potential growth rates of Japan and the United States, while Japan's potential growth

rate has been below 1 percent in recent years, that of the United States has recently returned to 2 percent and recovered to the level before the global financial crisis. Thus, in recent years (Figure I-2-1-47), the fact that the United States recovered the potential economic momentum even after economic crises such as the global financial crisis (late 2008 onward), the European debt crisis (early 2010s), and the COVID-19 pandemic (2020 onward) is likely based on the underlying positive sentiment toward investment..

Figure I-2-1-47. Potential growth rates of Japan and the United States



Note: Potential growth rate is the annualized potential real GDP growth rate compared with the previous quarter.

Source: Cabinet Office, Congressional Budget Office.

As Japan is still considered to be in a situation described by the secular stagnation theory, there are concerns about stagnation in business dynamism. The following table (Table I-2-1-48) compares indicators that are considered to be useful for observing business dynamism in Japan and the United States. While the years analyzed for Japan (2010 to 2018) are different from those for the United States (the 1980s to around 2010), the major indicators in both countries generally indicate a decline in business dynamism.

Table I-2-1-48. Comparison of business dynamism in Japan and the United States

Item	Overview	Empirical facts		
		Japan	United States	Interpretation
Market concentration	Market share of top few companies (Market share/Herfindahl index)	Partial increase	Increased	In Japan, the share of the top 20 companies decreased. However, in the United States, the shares of the top 1%/10% companies increased. This is considered to be the difference between the United States, where large corporations such as GAFA hold monopolies, and Japan, where less powerful companies and SMEs increased their market shares as a result of the top companies in each industry losing shares
Markup	Companies'	Increased	Increased	The markup percentage increases as market

percentage	productivity and pricing power			concentration and market power increase. This trend is being observed globally
Profitability ratios	Companies' profitability	Increased	Increased	It is thought that if the market concentration is high, the scale of investment will decrease and profitability will increase. Companies aim for high profitability and low production-to-investment ratios
Labor share (value added)	Percentage of companies' value added accounted for by wages	Decreased	Decreased	It is thought that the individual wage level is not evaluated accordingly to labor productivity
Correlation between changes in market concentration and in labor share	Relationship between market concentration and wage share in added value	Negative	Negative	There is a negative correlation between labor share and market concentration. Conversely, labor productivity and added value are high in industries with high market concentration
Gap between the top 5% of companies with the highest labor share and the lower 95%	Gap between the companies with the highest labor share and follower companies	Increased	Increased	This is a major concern, as the total productivity of an industry decreases when there is a gap in labor productivity
Rate of entry of new companies	How actively new companies are entering	Decreased	Decreased	A decrease in the number of new companies entering is often seen as a sign of stagnation in business dynamism
Share of employment of young companies (established less than 5 years ago)	Percentage of workers employed by young companies	Decreased	Decreased	Young companies are a major concern because they contribute greatly to job creation
Gross worker reallocation rate	Degree of changes in the number of people who are employed	Increased	Decreased	It is thought that Japan's job loss rate is increasingly drastically because of an increase in business closures due to the aging of business owners and other factors.
Distribution of sales growth rates	The degree of variations of companies' life cycles	Decreased	Decreased	This is thought to be because the gaps between companies' life cycles are becoming smaller as a result of fewer new companies entering

Note 1: Values are based on unadjusted values for Japan's and seasonally adjusted values for the United States.

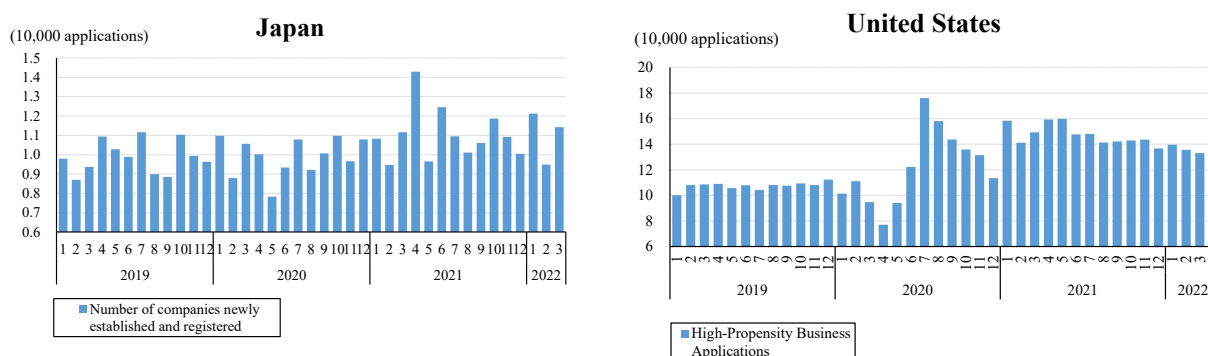
Note 2: For the United States, business formation applications assuming employment are classified according to the information in documents submitted to the IRS and categorized as the high-propensity applications. They are expected to be businesses with a high propensity of turning into ones with payroll.

Source: Created by METI based on data from Akcigit and Ates (2019), Takizawa, Hosono, and Miyakawa (2020).

While Japan and the United States have observed the shared phenomenon of declining business dynamism from a long-term perspective, there are differences in corporate metabolism in both countries even during the economic crisis caused by the COVID-19 pandemic. Specifically, the following figure (Figure I-2-1-49) shows entrepreneurship trends in Japan and the United States. Even as the COVID-19 pandemic got serious in the United States, the number of business formation applications that assume employment increased from mid-2020 and remained at a high level compared to before the COVID-19 pandemic. On the other hand, looking at the number of companies established on a registration basis in Japan, although the number of registered companies increased drastically in April 2021, the number of companies established generally did not change significantly before and after the COVID-19 pandemic.

Companies' metabolism is fueled by the emergence of new companies that encourage innovation, suggesting that the changes in social lifestyles caused by COVID-19 are perceived as business opportunities in the United States. Companies are facing a different competitive environment, with issues such as accelerating digitalization, the increasing importance of economic security (e.g., resource procurement and supply chain management) and consideration of common values (human rights and the environment). In Japan, creating an environment that promotes business dynamism is an important assignment. In addition, the secular stagnation before the COVID-19 pandemic has changed into a strong recovery in the United States and other countries since 2021, mainly because of government support after the COVID-19 shock. Although economic recovery through government expenditure and monetary easing is temporary phenomenon and economic growth is expected to settle around the middle- to long-term potential growth rate, it is important to take advantage of the global economic growth by increasing external demand to grow Japan's economy.

Figure I-2-1-49. Entrepreneurship trends in Japan and the United States



Note 1: The values are based on unadjusted values for Japan's statistics and seasonally adjusted values for the United States.

Note 2: For the United States, business formation applications assuming employment are classified according to the information in documents submitted to the IRS and are categorized as the high-propensity applications. They are expected to be businesses with a high propensity of turning into ones with payroll.

Source: Ministry of Justice (Japan), Census Bureau (U.S.).