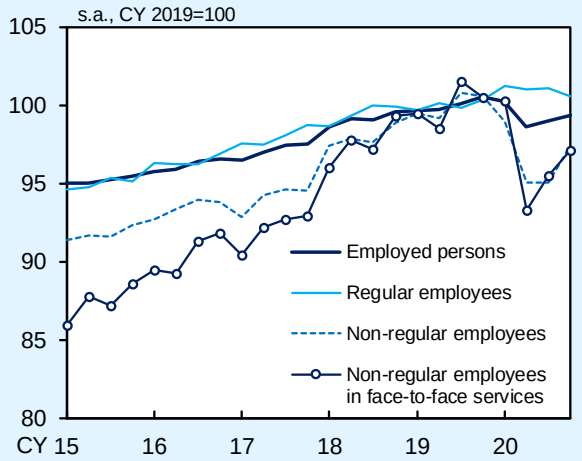
(Box 3) Extent of Transmission of the COVID-19 Shock across Employment and Business Fixed Investment

The impact of COVID-19 on Japan's economy has been extremely large, as seen in a substantial decline in its GDP for the April-June quarter of 2020, and widespread across the economy regardless of sector. That said, taking a detailed look at a pick-up in the economy since the July-September quarter, it can be pointed out as a characteristic of the COVID-19 shock that its impact is uneven across sectors and attributes. From this viewpoint, this box examines the extent of transmission of the COVID-19 shock across employment and business fixed investment.

A characteristic of the COVID-19 pandemic is that the face-to-face services industry in particular, such as accommodations as well as eating and drinking, has been affected directly, thereby generating a substantial decline in demand and a rise in operating costs -- although this was not the case around last spring, when economic activities were widely constrained regardless of sector under the state of emergency. On this basis, the variation in the impact of the COVID-19 shock across sectors seems to have become clearer, since (1) the transmission of the shock in the overall economy through a cycle from income to spending has been constrained to some extent on the back of large-scale and swift policy responses from the fiscal and monetary sides, and (2) steady exports and production in Japan due to a global recovery in trade activity and firm goods consumption have become evident. In fact, as for the employment situation, contrary to firm

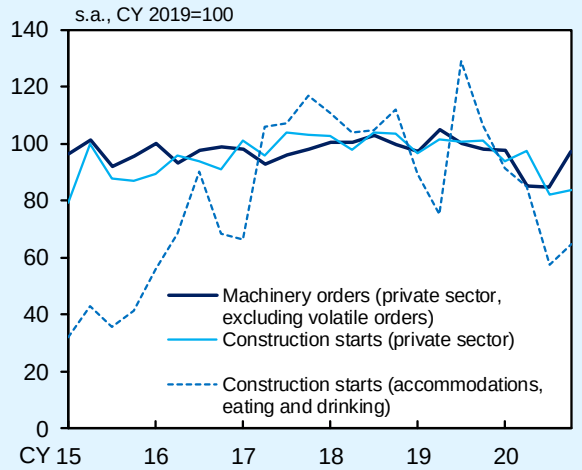
Chart B3-1: Employment and Business Fixed Investment by Sector

1. Number of Employed Persons



Source: Ministry of Internal Affairs and Communications.
Notes: 1. Face-to-face services consist of "accommodations, eating and drinking," "living-related services and amusement," "education, learning support," and "medical, health care and welfare."
2. Figures for 2020/Q4 are October-November averages.

2. Indicators of Business Fixed Investment

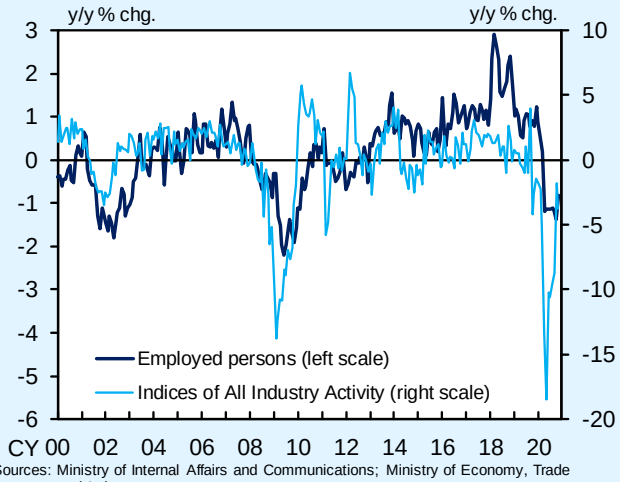


Sources: Cabinet Office; Ministry of Land, Infrastructure, Transport and Tourism.
Notes: 1. Volatile orders: orders for ships and orders from electric power companies.
2. Figures for construction starts are estimated costs of nonresidential construction.
3. Figures for 2020/Q4 are October-November averages.

developments in the number of regular employees, the number of non-regular employees has declined, mainly in the face-to-face services industry (Chart B3-1[1]). Even when looking at the breakdown of business fixed investment, while machinery investment has picked up, construction investment in the accommodations as well as eating and drinking services industry has shown particularly notable weakness (Chart B3-1[2]).

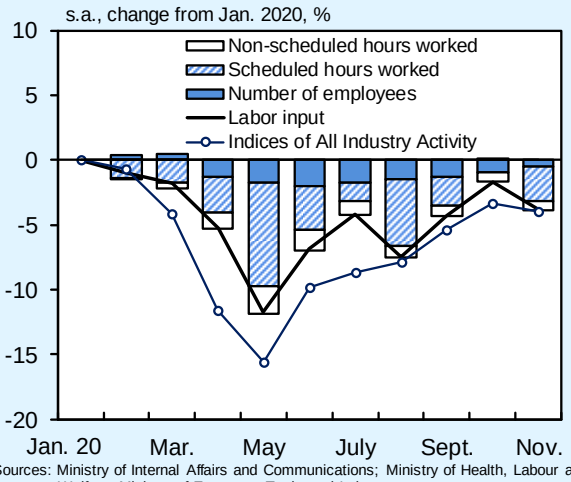
Taking a detailed look at the employment situation, despite the fact that the degree of decline in economic activity (in terms of the *Indices of All Industry Activity*) in the current phase has exceeded that following the bursting of the IT bubble and that at the time of the GFC, the rate of decline in the number of employed persons has been small compared with these past phases of economic downturn (Chart B3-2). On the other hand, labor input -- which consists of not only the number of employees but also the number of working hours per employee -- shows that, in the current phase, fairly large adjustments have been made, mainly though substantial reductions in scheduled hours worked (Chart B3-3). This indicates that firms have responded to a rapid drop in demand for their products or services by prioritizing temporary closures of businesses (i.e., reductions in working days) and reductions in working hours per day while hoarding a majority of their employees, partly through making active use of employment adjustment subsidies, which were expanded in response to the current situation. Although labor hoarding during an economic downturn is a characteristic among Japanese firms, if the expanded subsidies were unavailable for them, they would have been highly likely to have decided on larger-scale job cuts,

Chart B3-2: All Industry Activity and Number of Employed Persons



Sources: Ministry of Internal Affairs and Communications; Ministry of Economy, Trade and Industry.
Note: Figures for the "Indices of All Industry Activity" from August 2020 onward are calculated using the growth rate of the weighted average of the "Indices of Industrial Production" and the "Indices of Tertiary Industry Activity."

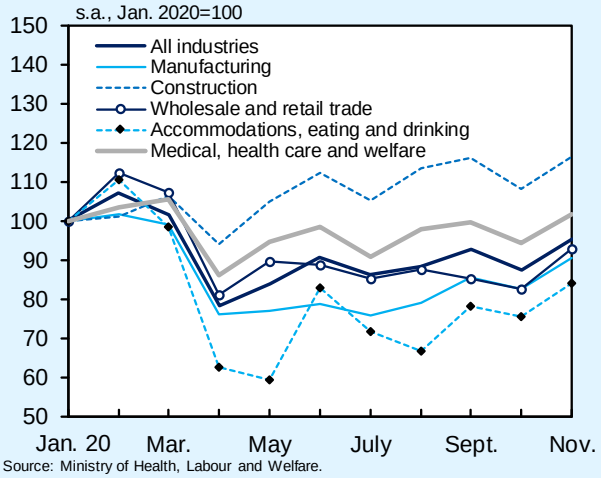
Chart B3-3: All Industry Activity and Labor Input



Sources: Ministry of Internal Affairs and Communications; Ministry of Health, Labour and Welfare; Ministry of Economy, Trade and Industry.
Note: Figures for the "Indices of All Industry Activity" from August 2020 onward are calculated using the growth rate of the weighted average of the "Indices of Industrial Production" and the "Indices of Tertiary Industry Activity."

reductions in the number of new graduates recruited, and stopping contract extensions for fixed-term employees. If this were the case, the degree of decline in overall wages and income should have been larger than that of the actual declines brought about by fewer working days and hours. The actual declines refer to those in scheduled cash earnings (i.e., the portion of expected earnings during normal times that was not covered by leave allowances) and in non-scheduled cash earnings. As a result, further downward pressure should have been put on private consumption. In other words, the positive contribution of employment adjustment subsidies and other measures to support firms and employment can be gauged by the extent to which the negative impact that should have emerged was mitigated.

Chart B3-4: Number of New Job Openings by Industry



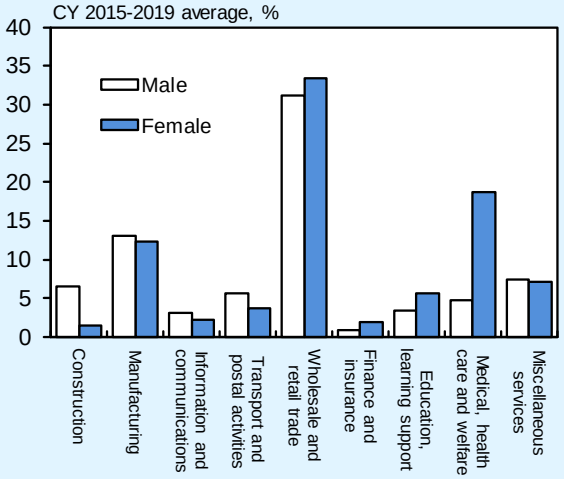
Source: Ministry of Health, Labour and Welfare.

That said, as mentioned earlier, employment adjustments, mainly of non-regular employees, have remained in the face-to-face services industry, which has been affected by COVID-19 more than any other industry. On the other hand, with large-scale employment adjustments in the overall economy being avoided, positive developments have been observed in part of the labor market, as seen in an increase in new job openings in industries where corporate activities had long been constrained by labor shortage, such as construction, medical, health care, and welfare services, as well as wholesale and retail trade (Chart B3-4). If workers leaving the face-to-face services industry -- where employment opportunities have decreased due to the impact of COVID-19 -- are gradually absorbed by other industries that have continued to face structural labor shortage, this will constrain

upward pressure on the unemployment rate. In this regard, as pointed out in the October 2020 Outlook Report, the following developments have been observed: in industries that have been under strong pressure to reduce employment due to the impact of COVID-19, such as accommodations as well as eating and drinking, a relatively high ratio of workers have moved to other industries, due partly to a high proportion of non-regular employees in such industries; there has been a notable number of cases where female workers in particular have moved to the wholesale and retail trade industry or the medical, health care, and welfare services industry (Chart B3-5). Such employment reallocation from the face-to-face services industry to industries with labor shortage is expected to ease the worsening of labor market conditions to some extent.

Turning to business fixed investment, adjustment pressure on capital stock has remained small compared with the deterioration in economic activity. This seems largely attributable to the fact that business fixed investment has been supported from the financial side, mainly through active efforts by financial institutions. In addition, such efforts have been encouraged by the Bank's and the government's measures to support financing. In this regard, the DI in the *Tankan* for financial institutions' lending attitudes as perceived by firms suggests that their attitudes have remained accommodative, mainly in terms of those perceived by small firms (Chart B3-6). This DI usually has a strong correlation with the business conditions DI and tends to show severer attitudes in the phase of an economic downturn, but in the current phase, it is clearly deviating from developments in the business conditions DI,

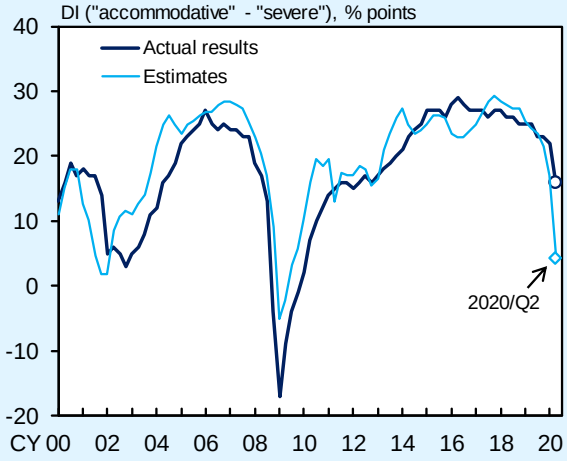
Chart B3-5: Industries to Which Employed Persons in Face-to-Face Services Moved



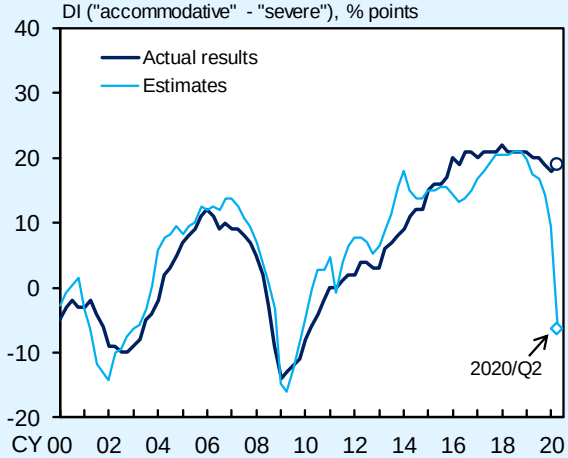
Source: Ministry of Internal Affairs and Communications.
Notes: 1. Figures are calculated using data for employed persons who changed jobs in the past year.
2. Face-to-face services consist of "accommodations, eating and drinking" and "living-related services and amusement." Figures exclude those who changed jobs within face-to-face services.

Chart B3-6: Lending Attitudes of Financial Institutions

1. Large Enterprises



2. Small Enterprises

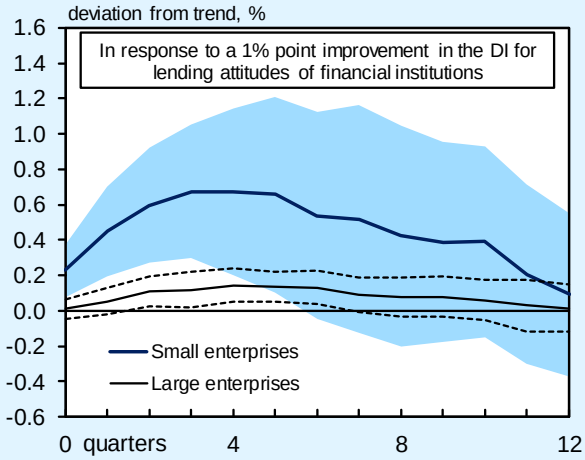


Source: Bank of Japan.
Notes: 1. Based on the *Tankan*. All industries.
2. The estimates are obtained by regressing the DI for lending attitudes of financial institutions on the business conditions DI.

which has remained at a low level.

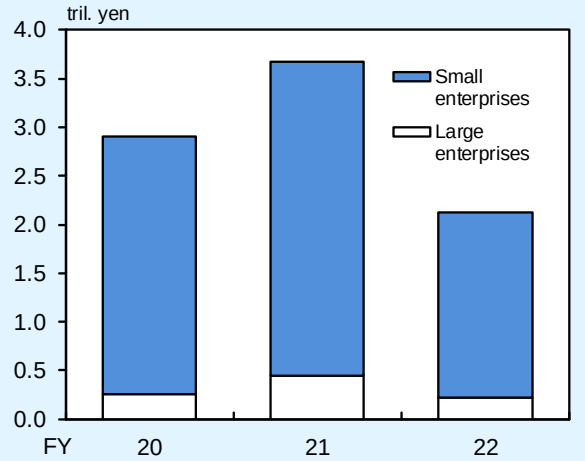
The contribution of such accommodative lending attitudes to supporting business fixed investment can be estimated by using a local projection model for the amount of business fixed investment by firm size, using the following four explanatory variables: (1) the DI in the *Tankan* for financial institutions' lending attitudes; (2) TOPIX; (3) the Macroeconomic Uncertainty Index; and (4) GDP.[23] The estimation results indicate that improvement in the lending attitude DI is statistically significant in terms of pushing up business fixed investment, and such positive effects are particularly large among small firms (Chart B3-7). In addition, by using the estimation results of this model, a calculation was made of how the lending attitudes that have remained accommodative in the current phase will have effects on business fixed investment.[24] The result suggests that improvement in the lending attitude DI will push up the amount of business fixed investment, mainly by small firms, and the overall amount will increase over three years by around 3 trillion yen (around 6 percentage points) on an annual average basis (Chart B3-8). That said, these estimation results should be interpreted with some latitude as they depend on the estimation model.

Chart B3-7: Impact of Lending Attitudes on Business Fixed Investment



Sources: Cabinet Office; Bloomberg; Ministry of Finance; Bank of Japan, etc.
Note: Estimated using the local projection method by size of enterprise. Explanatory variables include lagged dependent variables, the TOPIX, the Macroeconomic Uncertainty Index, and GDP. The shaded area and the broken lines indicate the 95 percentile bands. The estimation period is 1994/Q1-2020/Q1. Figures for business fixed investment are based on the "Financial Statements Statistics of Corporations by Industry, Quarterly." Excluding "finance and insurance."

Chart B3-8: Amount of Increase in Business Fixed Investment



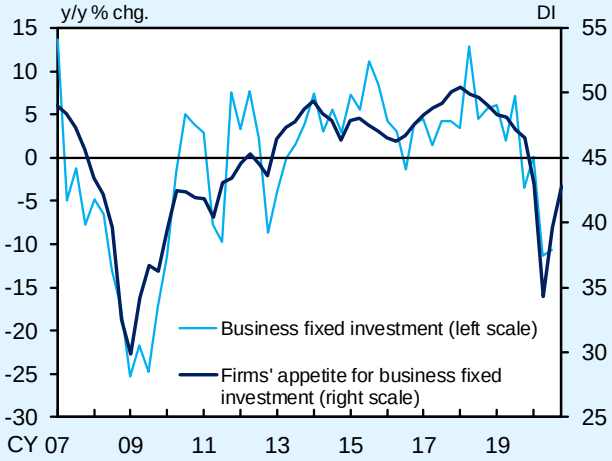
Sources: Cabinet Office; Bloomberg; Ministry of Finance; Bank of Japan, etc.
Note: Figures are estimated using the trend in 2020/Q1 and the deviation from the trend. The deviation from the trend is calculated as the response of business fixed investment to a shock to the DI for lending attitudes of financial institutions in 2020/Q2. The difference between the actual result and the estimate obtained by regressing the DI for lending attitudes on the business conditions DI is regarded as the shock.

[23] The Macroeconomic Uncertainty Index is calculated by aggregating the variance of forecast errors of the time-series models related to various macroeconomic indicators. For details on the calculation method, see "Characteristics of Uncertainty Indices in the Macroeconomy," *Bank of Japan Working Paper Series*, no. 20-E-6, October 2020.

[24] In the calculation, by firm size, the following was regarded as an "additional positive shock to lending attitudes": the difference in level between the actual result of the DI for financial institutions' lending attitudes for June 2020 and such DI estimated from its past correlation with the business conditions DI.

With accommodative financial conditions being maintained and the heightening of macroeconomic adjustment pressure on capital stock being avoided, the sectors where business fixed investment has continued declining significantly have been limited to the face-to-face services industry and some sectors of the transportation industry. In addition, since machinery investment in the manufacturing industry has picked up clearly on the back of a recovery in exports and production, there seems to have been a rise in the likelihood that overall business fixed investment will turn to a pick-up, mainly led by machinery investment and digital investment aimed at responding to COVID-19. In fact, an indicator of firms' appetite for business fixed investment -- for which survey respondents mainly consist of small and medium-sized firms -- shows that such appetite has turned to a clear improvement recently (Chart B3-9).

Chart B3-9: Firms' Appetite for Business Fixed Investment



Sources: Ministry of Finance; Teikoku Databank, Ltd.
Note: Figures for business fixed investment are based on the "Financial Statements Statistics of Corporations by Industry, Quarterly." Excluding "finance and insurance."