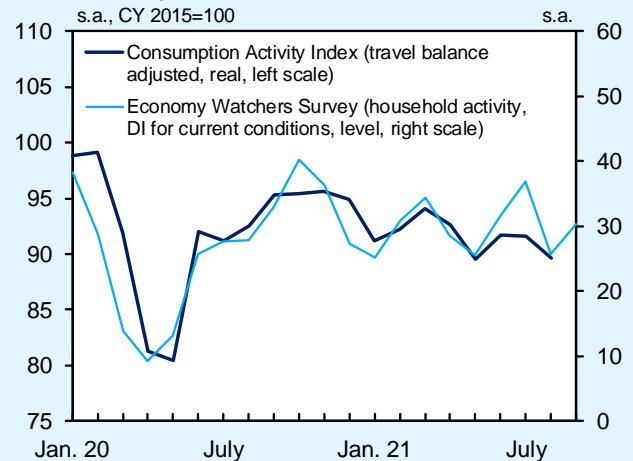


(Box 3) Private Consumption during the COVID-19 Pandemic: Developments in the First Half of Fiscal 2021

Looking back at the first half of fiscal 2021, private consumption, mainly of face-to-face services, fluctuated in the short run but on average remained stagnant at a level below that prior to the pandemic (Chart B3-1). This box examines recent developments in private consumption while considering their relationship with the COVID-19 pandemic, the resultant public health measures, and progress with vaccinations. It should be noted that the results of the analysis presented in this box should be interpreted with some latitude because the analysis is based on limited data obtained under the unusual situation of the pandemic. It is therefore important to assess recent developments based on various data and analyses.

Recent consumption developments as measured by the CAI -- a monthly indicator of private consumption -- are as follows. Although consumption declined for the April-May period of 2021, mainly reflecting the resurgence of COVID-19 and the resultant third state of emergency, it picked up temporarily for June, with the COVID-19 situation heading toward improvement and the state of emergency being lifted late in the month for most regions (some of them shifted to priority measures to prevent the spread of disease). Consumption for July was almost unchanged from June, remaining firm even amid the resurgence of the number of confirmed new cases of COVID-19 and the fourth state of emergency declared for Tokyo. However,

Chart B3-1: Developments in Private Consumption



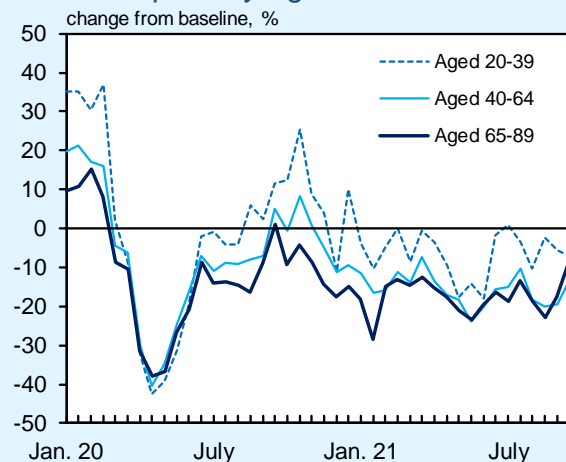
Sources: Bank of Japan; Cabinet Office, etc.
Note: Figures for the Consumption Activity Index (CAI) are based on staff calculations. The CAI figures (travel balance adjusted) exclude inbound tourism consumption and include outbound tourism consumption.

it turned to a decline for August, against the background of the nationwide spread of the Delta variant and the expansion in the areas where the state of emergency was declared.

A key to understanding these private consumption developments is to grasp those of seniors, whose expenditures account for a large share in total consumption expenditures. In this regard, services consumption developments based on credit card spending by age group show that, while consumption activities by the younger generation exhibited relatively strong developments, those by seniors showed no notable increase through August (Chart B3-2). It is noteworthy that, for the period from June through August in particular, seniors were not so active in terms of consumption that involved going out and traveling, even though they were ahead of other age groups with respect to progress with vaccinations.

To examine the relationship between recent consumption developments and COVID-19 or vaccinations, an analysis is made using microdata from a survey conducted by Imperial College London and YouGov in selected countries. This survey asks respondents a number of questions, such as "how often have you avoided crowded areas?" and "have you had the first or second doses of a COVID-19 vaccine?" Of the survey results, the proportion of respondents answering that they do not avoid crowded areas can be interpreted as indicating people's willingness to

Chart B3-2: Developments in Services Consumption by Age



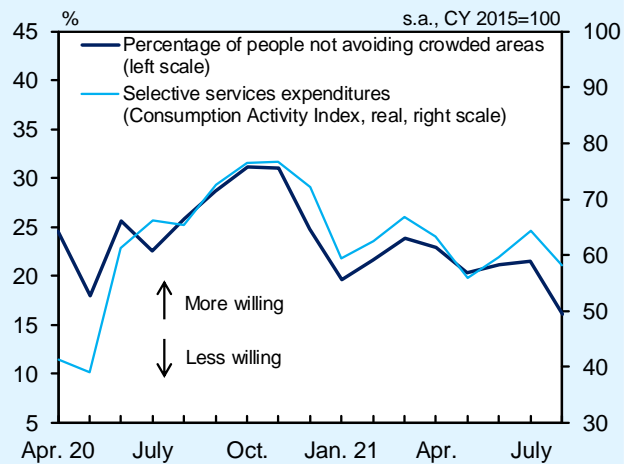
Source: Nowcast Inc./ JCB, Co., Ltd., "JCB Consumption NOW."
 Notes: 1. Figures are from the reference series in *JCB Consumption NOW*, which take changes in the number of consumers into account. Figures are the arithmetic averages of the corresponding age groups in five-year increments.
 2. The baseline is the average for the corresponding half of the month for 2016 through 2018.

go out.²⁴ In fact, this willingness is highly correlated with selective services expenditures as measured by the CAI and thus can be regarded as a useful proxy variable for expenditures for face-to-face services (Chart B3-3[1]). An international comparison shows that Japanese respondents, at least until around this summer, were less willing to go out relative to U.S. and U.K. respondents, suggesting Japanese people's cautiousness in this regard during the COVID-19 pandemic, while this also seems to partly reflect the difference in progress with vaccinations at the time of the survey (Chart B3-3[2]).

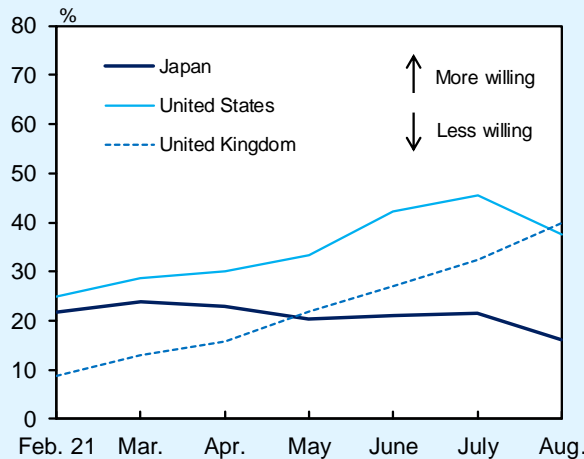
Next, an ordered probit model is estimated to explain the willingness to go out using variables such as the number of confirmed new cases of COVID-19 in the region where the respondent is based, the stringency index -- which indicates the strictness of public health measures -- as well as dummies, for example, for whether or not the respondent is vaccinated and for their age and gender (Chart B3-4).²⁵ The estimation results, which cover from May through August 2021, suggest that (1) there was no statistically significant change in the willingness to go out of

Chart B3-3: Willingness to Go Out According to Survey Results

1. Comparison with Consumption Activity Index



2. International Comparison



Sources: Jones, Sarah P., Imperial College London Big Data Analytical Unit and YouGov Plc. 2020; Imperial College London YouGov Covid Data Hub, v1.0, YouGov Plc, April 2020; Bank of Japan, etc.

Notes: 1. Percentage of people answering 3, 4, or 5 (where 5 represents "not at all") to the question "how often have you avoided crowded areas?" (5 choices: 1-5).
 2. Figures for "selective services expenditures (Consumption Activity Index)" are the weighted averages of food services, travel services, railway, bus, taxi, air, services for amusement and hobbies, and accommodations. Based on staff calculations.

²⁴ Answers to the question "how often have you avoided crowded areas?" range from 1 ("always") to 5 ("not at all"). The proportion of people answering 3, 4, or 5 to this question was used for the analysis here.

²⁵ The causality between whether or not a person is vaccinated and the willingness to go out may run in both directions. Specifically, on the one hand, a person may become less vigilant against COVID-19 after getting vaccinated, and on the other hand, a person with higher vigilance may be more willing to get vaccinated. To address the estimation problem arising from this (i.e., endogenous biases of estimated parameters), not fully vaccinated respondents who expressed some level of disagreement in answer to the question "to what extent do you agree or disagree that COVID-19 is very dangerous for you?" are excluded from the sample, and thus the analysis was limited to those who have at least some vigilance against COVID-19.

seniors aged 65 years and over even after they were vaccinated, (2) those under the age of 65 took a somewhat more active stance toward going out after getting vaccinated, and (3) an increase in the number of confirmed new cases made overall respondents more cautious about going out. Given the very short observation period available, these results may not be fully applicable to a variety of situations. That said, the following developments can be confirmed by the estimation results obtained from microdata on people's behavior: (1) a pick-up in mobility and consumption from June through July was driven mainly by consumers other than seniors, particularly the younger generation; (2) in the meantime, seniors were not so active in terms of consumption even though they were ahead of other age groups with respect to progress with vaccinations; and (3) for August, mobility and consumption declined again due to the rapid spread of the Delta variant and the resultant heightening of overall consumers' vigilance.

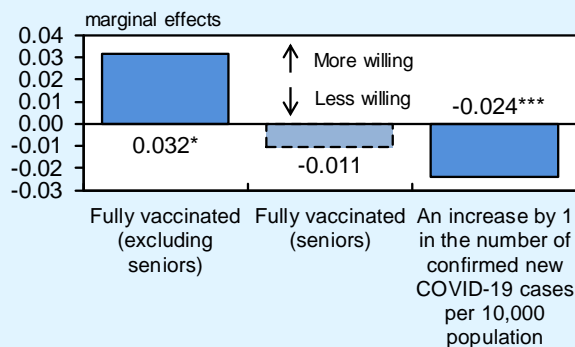
Lastly, turning to consumption developments since September, the *Economy Watchers Survey* and high-frequency data suggest that consumption has been heading toward improvement. In addition, signs of a pick-up have been observed in services consumption by seniors, which showed no notable increase through August (Chart B3-2). In the outlook, private consumption is expected to pick up again, supported by the gradual materialization of pent-up demand from seniors. This will likely occur as the resumption of consumption activities progresses while public health is being protected, such as through the widespread vaccinations, including for the younger generation, and through

Chart B3-4: Decomposition of Changes in the Willingness to Go Out

1. Estimation Method

Dependent variable:	Answers ranging from 1-5 to "how often have you avoided crowded areas?" (where a higher score indicates a lower frequency of avoiding crowds)
Explanatory variables:	<ul style="list-style-type: none"> (1) Fully-vaccinated dummy (equals 1 if a respondent is vaccinated twice) (2) Confirmed new COVID-19 cases (population share by region, lagged by 7 days) (3) Stringency index (strictness of public health measures) (4) Senior dummy (equals 1 if a respondent is over 64 years old) (5) Gender dummy (equals 1 if a respondent is male) (6) Employment dummy (equals 1 if a respondent is a full-time or part-time worker) (7) Disease dummy (equals 1 if a respondent has one or more of 13 major diseases such as asthma, cancer, and diabetes) (8) Region dummy (8 regional areas) (9) Fully-vaccinated dummy × Senior dummy
Estimation period:	May-August 2021
Number of observations:	4,047

2. Estimation Results



Sources: Jones, Sarah P., Imperial College London Big Data Analytical Unit and YouGov Plc. 2020, Imperial College London YouGov Covid Data Hub, v1.0, YouGov Plc, April 2020; Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, University of Oxford; Ministry of Health, Labour and Welfare; Ministry of Internal Affairs and Communications.

Notes: 1. Estimated excluding those who are not fully vaccinated and responded with 1, 2, or 3 (where 1 represents "disagree") to the question "to what extent do you agree or disagree that COVID-19 is very dangerous for you?" (7 choices: 1-7). For the number of new COVID-19 cases, the 7-day backward moving average is used.

2. Figures are the marginal effects on the probability that respondents answered with 3, 4, or 5 (where 5 represents "not at all") to the question "how often have you avoided crowded areas?" (5 choices: 1-5).

3. *** and * denote statistical significance at the 1 percent and 10 percent levels, respectively.

the phased easing of movement restrictions with the use of, for example, vaccination certificates. That said, in light of this summer's experience, it is likely for the time being that consumers' willingness to go out and travel will remain largely dependent on the COVID-19 situation and resultant vigilance of people against COVID-19. It is necessary to continue to carefully monitor consumer behavior while also taking account of differences across attributes.