Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Traveling and eating out during the COVID-19 pandemic: The Go To campaign policies in Japan

Toshihiro Okubo
Faculty of Economics, Keio University, 2-15-45 Mita Minato, Tokyo 108-8345, Japan

ARTICLE INFO
JEL classification:
H12
H20
H84
Keywords:
COVID-19
Travel
Eating-out
Demand inducing policies (Go To Campaigns)

Abstract
The coronavirus disease (COVID-19) pandemic plunged many industries of the economy into contraction, particularly the travel, hotel accommodation, and eating/drinking industries. In Japan, some demand-inducing policies targeting such industries were implemented, known as the Go To Travel and Go To Eat campaigns. Using a unique individual-level survey, we investigate what factors make people respond to these campaign policies. We find that certain socioeconomics factors (e.g., gender, income, ICT skills) as well as noneconomic factors matter. In particular, risk attitudes, and personal traits (e.g., extraversion) crucially affect whether people traveled or dined out in response to these campaigns despite the spread of COVID-19.

1. Introduction
Since February 2020, coronavirus disease (COVID-19) has spread with alarming speed all over the world. Governments have imposed lockdowns to restrict mobility and activities and contain the spread of the virus. However, the containment measures have plunged economies worldwide into significant contraction. The negative impact on gross domestic product growth is massive. Many countries have implemented economic support measures, such as cash handouts, subsidies, allowances, financial support, provisional reductions of value added taxes (VAT), and postponement of tax payments. One of the central issues has been whether to prioritize measures to limit the spread of infections or to focus on mitigating the large economic downturn. Countermeasures to COVID-19 in many countries have wavered between these two priorities.

Some specific industries, i.e., travel, accommodation services, entertainment, and hospitality (restaurants, cafés, eateries, etc.), suffered huge downturns (Gössling et al. 2020). These industries have been required to shut down their businesses or shorten their working hours during periods of increased restrictions and lockdowns to combat the COVID-19 spread. They have also, therefore, been a key target for special government support, including subsidies, allowances, and postponement of rent payments.

The tourism and hospitality sectors are always fragile in catastrophic events such as natural disasters and pandemics (Ritchie, 2008). The pandemic of COVID-19 is much more severe than we have experienced. In case of Japan, according to Indices of Tertiary Industry Activity, prepared by METI METI (2022), the index of the tourism sector decreased by half from January to June 2020, and subsequently the government demand-inducing policies (‘Go To Campaign’ policies, as discussed below) helped recovery in some degree from July to December 2020, but the tourism sector remained stagnant in 2021. According to Hidalgo et al. (2022), COVID-19 involves three major unique aspects. First, the number of people affected is larger than in other epidemics. Second, the geographical spread is over the world, while most natural disasters are spatially very limited. Third, the duration is longer. Several waves of infections magnify uncertainty and it stops business. These aspects require governments to take large scale countermeasures against COVID-19 in tourism and hospitality sectors, in particular.

We use a unique individual survey to investigate what individual socioeconomic factors, personal behaviors (e.g., individual COVID countermeasures), and noneconomic factors (e.g., personality traits) lead people to respond to or refrain from using the demand-inducing measures in tourism and hospitality sectors. We investigate two

☆ This research is financed by Grant-in-Aid for Scientific Research JSPS KAKENHI (19H01487), Research Promotion Program for Jisedai Kenkyu Project (Keio University) and NIRA. I would like to thank Reiko Kanda for helpful comments and Atsushi Inoue, Kozue Sekijima, and Kohei Ando for their excellent assistance. I also thank an editor and two anonymous referees for helpful and excellent comments.
E-mail address: okubo@econ.keio.ac.jp.
1 https://www.meti.go.jp/english/statistics/tyo/sanzi/index.html

https://doi.org/10.1016/j.japwor.2022.101157
Received 1 July 2022; Received in revised form 22 August 2022; Accepted 13 September 2022
Available online 17 September 2022
0922-1425/© 2022 Elsevier B.V. All rights reserved.
Japanese voucher policies, the “Go To Travel” and “Go To Eat” campaigns, in detail from the aspect of individual behaviors.

A reason for investigating the Japanese campaign policies is in the unique infection control measures. The Japanese infection control measures do not rely on legal sanctions or penalties and are instead request-based. Some people could travel and/or dine out with some fear of infection but without legal penalties. The behaviors largely depend on their own responsibility, which is largely influenced by personal characteristics, socioeconomic factors and non-economic factors. Thus, our study is aimed at investigating such campaign policies in Japan.

1.1. Literature review and this paper

In various countries, demand-side policies have been implemented to stimulate the sectors of the economy hardest hit. One such policy has been vouchers for domestic travel. For instance, governments issued vouchers for domestic travel in Japan (“Go To Travel”), Italy (“Bonus Vacanze”), Iceland (“Travel Gift”), Thailand (“We Travel Together”), and Singapore (“The SingapoRediscover Vouchers”). In Hungary and Turkey, fiscal incentives involving the reduction of VAT on travel expenses were implemented. For more details on such policies, see, e.g., Cărţăriu et al. 2020; Nhamo et al. 2020; World Tourism Organization (2020) and OECD (2020).

However, the increased labor mobility driven by the domestic travel policies has resulted in greater spread of the virus. In the literature on epidemics, although they did not directly evaluate the impact of the policies, Kraemer et al. (2020) and Zhao et al. (2020) find a positive association between traveler volume from Wuhan City, China, and the confirmed COVID-19 cases in the other 10 major cities in China. Farzanegan et al. (2020) find that countries exposed to high flows of international tourism tend to have more cases. Policy evaluations of the “Go To Travel” campaign in Japan find that it increased the number of new cases (Anzai and Nishiura, 2021; Miyawaki et al., 2021). Thus, the association between the “Go To Travel” campaign and COVID-19 cases might be crucial. In the literature on tourism management and economics, Matsuura and Saito (2022) investigate the “Go To Travel” campaign and find that tourists shifted their travel destinations from distant to neighboring regions. Suzuki et al. (2021) study the impact of Go To Travel on hotel reservations and find that high-class accommodations were more likely to be selected.

Turning to policies stimulating demand for restaurants, cafés, and eateries, several support policies encouraging dining out have been implemented in various countries. In the United Kingdom, a total of GBP 500 million was spent on subsidizing dining-out expenses under the “Eat Out to Help Out” policy implemented for one month in August 2020, which provided discounts of up to 50% on dining out in restaurants and cafés (see González-Pampillo et al., 2021; Fetzer, 2022). Likewise, the Japanese government introduced a “Go To Eat” campaign, which involved 25% discounts for dining out. These are large-scale demand-inducing measures. In addition, some countries such as Austria, Germany, Belgium, and the UK temporarily reduced VAT for restaurants, cafés, hospitality services, nonalcoholic beverages, and catering food services. Ferzer (2022) investigates the “Eat Out to Help Out” policy in the UK and finds that the policy contributed to a temporary rise in sales but was responsible for 8–17% of all confirmed COVID cases. González-Pampillo et al. (2021) also investigates footfall using the daily mobility data and finds that the “Eat Out to Help Out” policy induced footfall by 5–6%, which was associated with recreational activities on specific days when the discount was available.

In sum, such demand-inducing measures always involve huge risks of infections spreading, and the pandemic spiraling out of control. This implies that to exercise these policies, it is essential to implement an effective testing regime, with polymerase chain reaction (PCR) and antigen tests and an effective contact tracing system. As noted, the existing studies (e.g., Fetzer, 2022; González-Pampillo et al. 2021) have investigated how these demand-inducing measures spread infections and whether they successfully boosted demand. However, relatively unknown is on individual’s response to the demand-inducing measures. Therefore, in this paper, we use a unique individual survey to investigate what individual socioeconomic factors (e.g., income, gender, educational background, and age), personal behaviors (e.g., individual COVID countermeasures, such as handwashing and mask wearing), and noneconomic factors (e.g., risk attitudes and personality traits) lead people to respond to or refrain from using the demand-inducing measures with taking PCR tests in the high exposure on risk of infections.

The remainder of this paper is structured as follows. Section 2 describes the background context in Japan, and Section 3 provides data and stylized facts. Sections 4 and 5 provide estimation results. Finally, Section 6 concludes the paper.

2. Background

2.1. COVID-19 and countermeasures

Fig. 1 presents an overview of the daily numbers of new COVID-19 cases in Japan during periods when states of emergency were declared and when the Go To campaigns were implemented. The World Health

Japan & The World Economy 64 (2022) 101157

Fig. 1. Daily number of new infections in Japan.
Organization declared the COVID-19 virus a pandemic on March 11, 2020. During the early days of its spread, the Japanese government declared a state of emergency on April 7, 2020. The government requested people to avoid nonessential trips and to work from home rather than commuting, and requested retail shops, department stores, and restaurants, eateries, and cafés to shut down or shorten their business hours. Workers were requested to work from home (e.g., Okubo et al. 2021, Okubo, 2022). However, the Japanese infection control measures were “soft” in the sense that they involved a request-based policy without legal sanctions or penalties.

After the first state of emergency was lifted on May 25, 2020, economic activity resumed, and the government shifted its focus from containing COVID-19 infections to economic countermeasures. To aid recovery from the economic downturn, particularly for the hotel and accommodation industries, on July 22, 2020, the government initiated its Go To Travel campaign, covering 35% of domestic travel expenses. The Go To Travel campaign did not initially apply to Tokyo, but it was included in the scheme from October 1, 2020, when a 15% discount voucher was added to the 35% discount offered originally, bringing the total discount rate to 50%. The Go To Eat campaign was launched all over Japan on October 1, 2020, covering some dining-out expenses in restaurants, cafés, and eateries.

In August 2020, the second wave of COVID-19 hit Japan, but the number of new infections gradually decreased without the government declaring a state of emergency. Therefore, the government’s Go To Travel campaign remained operative throughout the second wave of COVID-19. However, Japan experienced a third wave with a surging number of infections in late November 2020. In December, as the third wave worsened, the government again shifted its focus, this time away from economic countermeasures and toward containing the spread of infections. The number of infections in the third wave was much larger than in the first and second waves (there were 7880 new infections per day at the peak of the third wave, as shown in Fig. 1). Finally, the government stopped the Go To Travel campaign on December 28, 2020, and the second state of emergency was declared on January 8, 2021.

2.2. Go To campaign policies

As shown in Fig. 1, the Go To Campaign policies were implemented in the period between the first and second state of emergency. In the state of emergency, people are requested to stay at home. By contrast, the Go To Campaign policies promoted people to travel and dine out in spite of a certain level of infections.

As noted above, the Go To Travel campaign involves a government subsidy to encourage domestic travel. The campaign provides people with subsidies of up to 50% on hotel accommodation, tourist attractions, and shopping at travel destinations. In more detail, domestic travelers received a 35% discount on travel expenses and, after October 1, 2020, an additional 15% discount in the form of vouchers that can be used at travel destinations. To take advantage of the discounts, domestic travelers must book hotel accommodation affiliated with the Go To campaigns on travel websites or through travel agencies.

The Go To Eat campaign aimed at encouraging people to dine out and involved two forms of incentives: discount vouchers and point-based rewards. Discount vouchers of up to 25% were available after purchasing a voucher booklet from the website prepared by each prefectural government. One voucher booklet covered various dining-out locations, although it could only be used for the restaurants, cafés, and eateries affiliated with the Go To Eat campaign. The second incentive, point-based rewards, meant that when diners booked certain restaurants and eateries affiliated with the Go To campaign, they obtained points worth 500 yen for lunches and 1000 yen for dinners, which could then be used next time they dined out in affiliated eateries.

3. Data and stylized facts

3.1. Data

In this paper, we use data from the COVID-19 survey on Japanese workers entitled “Questionnaire Survey on the Effects of the Spread of COVID-19 on Telework-based Work Styles, Lifestyle, and Awareness,” (Okubo-NIRA Telework Survey), which was conducted by the Nippon Institute for Research Advancement (NIRA) and Toshihiro Okubo (Keio University) (see Okubo, 2020; Okubo, 2022; Okubo and NIRA, 2021). Our paper uses the survey conducted in April 2021 (the fourth wave of the survey), which asked respondents about their use of the Go To campaigns. The survey asked respondents their frequency of vacation travels and dining out in the spread of Covid-19: 1) travels using Go To Travel, 2) vacation travels without using Go To Travel (i.e., travel at their own expense), 3) dining out using Go To Eat, 4) dining with others (outside their family and cohabitants), and 5) PCR tests. We note that our questionnaire clarifies vacation travels in the spread of Covid-19 and thus any business trips are not included. The sample size is 9197 persons. The survey also asked questions about individuals' characteristics and attitudes toward the government’s COVID-related policies.

3.2. Stylized facts

Table 1 shows the share of those who used the Go To campaign policies. In total, 27% of respondents used Go To Travel and 25% used Go To Eat. Regarding frequency, 14% of respondents used Go To Travel once, 7% twice, 4% three to four times, and 2% more than five times. Go To Eat was used by 8% of respondents once, 6% twice, 5% three to four times, and 6% more than five times.

As a comparison, Table 1 shows the frequency of travels where Go To

| Freq | Go-To Travel | Travel without Go-To | Go-To Eat | Dining-out together |
|------|--------------|----------------------|----------|---------------------|
| 0    | 73           | 83                   | 75       | 69                  |
| 1    | 14           | 10                   | 8        | 9                   |
| 2    | 7            | 4                    | 6        | 7                   |
| 3-4  | 4            | 2                    | 5        | 8                   |
| more than 5 | 2         | 1                    | 6        | 8                   |

The survey was conducted on a website constructed by Nikkei Research Co. The survey takes a stratified random sampling strategy. Japan is stratified into five regions by regional classification and six age groups for each gender (12 age groups per region). The number of samples for 60 region–age groups is determined by population ratios. The Population Census (Ministry of Internal Affairs and Telecommunication) is employed as the sampling unit.

A data link is https://nira.or.jp/paper/data/2022/26.html The data is panel structure with seven waves. We use the fourth wave. The questionnaire is available at https://www.nira.or.jp/paper/NIRA_report_20220611.pdf.

The Go To Travel campaign is available only at affiliated hotel accommodations. Many of them are resort hotels, “ryokan”, and small-scale luxurious hotels rather than hotels for business trips and hotels in city centers (see Suzuki et al., 2020 for more detail). Thus, travels using Go To Campaign are mainly for leisure and vacation. But, since travels without using Go To Travel include all kinds of travels, our questionnaire clarifies this as “vacation travel without Go To Travel”.

3 Using the Okubo-NIRA Telework Survey, Okubo (2022) reports telework use in Japan from January 2020 to September 2021. He investigates which factors (infection of COVID-19, individual characteristics, task characteristics, and working environments) are associated with telework use. Okubo et al. (2021) finds working environments (e.g., flexible working system) is crucial in teleworker’s performance.
Table 2
Use of Go-To Campaigns (%).

|          | Travel without Go-To Travel |
|----------|-----------------------------|
|          | 0 1 2 3–4 ≥ 5 Total         |
| Go-To-Travel | 0 69 3 1 0 0 73             |
|           | 1 9 4 1 0 0 14             |
|           | 2 3 2 1 0 0 7              |
|           | 3–4 1 1 1 1 0 4            |
|           | ≥ 5 0 0 0 0 0 0 2           |
| Total     | 83 10 4 2 1 1 100          |

|          | Go-To-Eat |
|----------|-----------|
|          | 0 1 2 3–4 ≥ 5 Total |
| Go-To-Travel | 0 63 3 2 2 2 73 |
|           | 1 7 3 1 1 1 14  |
|           | 2 3 1 1 1 0 7    |
|           | 3–4 2 1 1 1 1 4  |
|           | ≥ 5 1 0 0 0 1 2  |
| Total     | 75 8 6 5 6 1 100 |

Travel was not used and the frequency of dining out with others outside the family/cohabitants in small parties. In total, 17 % of people traveled without using Go To Travel, and 31 % dined out with others.

The upper panel of Table 2 shows the share of respondents who used or did not use Go To Travel. In total, 69 % of respondents did not travel at all, 14 % traveled only using Go To Travel, without undertaking any travel fully at their own expense, 13 % traveled using Go To Travel as well as traveling at their own expense, and only 4 % traveled without Go To Travel.

The middle panel of Table 2 shows the share of respondents using Go To Eat and dining out with others outside the family/cohabitants. We note that Go To Eat covers not only dining in such small parties but also solitary dining, and thus, the two groups partially overlap. A total of 58 % of respondents did not use Go To Eat and have not dined parties, 17 % did not use Go To Eat but dined together with others outside their family/cohabitants, 10 % used Go To Eat but did not dine out with others outside their family/cohabitants, and 17 % of respondents used Go To Eat as well as dined with others outside the family/cohabitants.

The bottom panel of Table 2 shows the share of respondents using both programs, Go To Travel and Go To Eat: 63 % did not use either programs, 9 % used only Go To Eat, 13 % used only Go To Travel, and 15 % used both.

Table 3 reports on PCR tests given the frequencies in each campaign. The Tables indicate that 88 % of respondents did not take PCR tests; of the 13 % that did get tested, 7 % were only tested once. A small number of people takes PCR tests. However, there is weakly positive relationship between the use of campaigns and the number of PCR tests taken in both campaigns. Since PCR tests are not readily available at the early stage, this finding suggests that respondents using the campaigns made some efforts not to spread infection.

4. Estimations and results

4.1. Basic estimations

In this section, using the survey, we conduct econometric analyses of individuals’ travel and dining-out preferences to investigate what factors influenced the uptake of the Go To Eat and Go To Travel programs (See Appendix Table A1 for the basic statistics). The basic estimation equation is given as follows:

\[ B_i = \alpha + \beta_1 X_i + \beta_2 Y_i + \beta_3 \text{RCOVID}_{ij} + \text{Job}_{ij} + \text{Pref}_{ij} + \epsilon_i, \]

where dependent variable \( B_i \) denotes respondent i’s behaviors, \( B_i \in \{ B1, B2, B3, B4 \} \). Four behaviors are investigated: (B1) travels using Go To Travel, (B2) vacation travels not using Go To Travel (respondents finance all expenses by themselves), (B3) dining out using Go To Eat, and (B4) dining out with other people outside the family/cohabitants. The variables from B1 to B4 are measured by frequencies (0 for none, 1 for once, 2 for twice, 3 for 3–4 times, and 5 for more than 5 times in our estimation). Since these are count variables, we estimate (1) using negative binomial estimations with robust standard errors.\(^7\)

\( X \) denotes a set of individual variables, where Male is a male dummy, Age denotes the age variable (scaled by age 10), Income is the annual income in 2019 (scaled by 500,000 yen), Univ is a dummy for a university degree, and ICT skill denotes the individual’s information and community technology (ICT) skills, measured by four levels (none, introductory, intermediate, and advanced).\(^8\) In addition, we add a variable for family structure. Marry is a dummy for having a spouse with whom one lives (See Appendix Table A1 for detail definitions and the basic statistics). Y denotes a set of working environment variables, where Employ is the dummy for employers such as board member and private business owner, and Firm_Size is firm size variable measured by total employees.\(^9\) RCOVID denotes the number of daily new infections per capita at respondent i’s residential place j (at the municipality level).\(^10\) Several fixed effects are added. Job is the occupational fixed

\(^{7}\) Even if we take 4 for 3–4 times instead of 3, our main results never change.

\(^{8}\) A Poisson model is not appropriate in our case, because our data are over-dispersed. However, the results are quantitatively and qualitatively similar. Results are available from the author upon request.

\(^{9}\) In terms of ICT skills, the following apply to each skill level: (1) personal computer (PC) not used for work (= 0 for our calculation), (2) introductory level (e-mail and data input by PC) (= 1), (3) intermediate level (data processing, calculations, and documentation) (= 2), and (4) advanced level (development of software, programming, and network management) (= 3). The item of this question follows the questionnaire in PIAAC and De La Rica and Gortazar (2016). G_Q06 in PIAAChttps://www.oecd.org/skills/piaac/BO-MASTER.HTM#G_Q06

\(^{10}\) Firm size (Size) is categorized as 5–29 employees, 30–99 employees, 100–499 employees, more than 500 employees, and public offices.

\(^{11}\) In the rural areas (villages), the number of new infections is not available at the municipality level. However, it is available from health centers jointly handled by multiple municipalities. Thus, the number of municipality-level patients in the rural areas is derived from the number of new infections at the health center weighted by the population of each municipality.

Table 3
Use of Go-To Campaigns and PCR tests (%).

|          | PCR tests |
|----------|-----------|
|          | 0 1 2 3–4 ≥ 5 Total |
| Go-To-Travel | 0 93 5 1 1 0 100 |
|           | 1 81 13 5 2 0 100 |
|           | 2 70 13 9 6 2 100 |
|           | 3–4 71 12 8 5 5 100 |
|           | ≥ 5 75 6 1 6 1 11 100 |
| Total     | 87 7 3 2 1 100 |

|          | PCR tests |
|----------|-----------|
|          | 0 1 2 3–4 ≥ 5 Total |
| Go-To-Eat | 0 92 6 1 1 0 100 |
|           | 1 73 16 7 3 1 100 |
|           | 2 69 12 13 4 2 100 |
|           | 3–4 78 9 3 3 2 7 100 |
|           | ≥ 5 88 6 2 1 3 100 |
| Total     | 88 7 3 2 1 100 |
effect and Pref is the prefectural fixed effect.\textsuperscript{12}

The first column of Table 4 reports the results for Go To Travel (B1). Age is significantly negative, while Marry, Univ, ICT\_skill, and Income are all significantly positive. Thus, younger, richer, educated, married people with high ICT skills tend to use Go To Travel more frequently. Employer and Firm\_Size are significantly positive. Business owners and workers for big companies tend to use Go To Travel more frequently than others. RCOVID is not significant.

As a comparison, the second column of Table 4 reports the results for travels by individuals who did not use Go To Travel (B2). Similar to column 1 (the Go To Travel estimation), Age is significantly negative and ICT\_skills, Univ, Marry, and Income are all significantly positive. Younger, educated, richer, married persons with higher ICT skills tend to travel more without using Go To Travel compared with other individuals. Overall, those who travel with and without using Go To Travel have similar socioeconomic characteristics. The magnitudes of almost all significant variables (except Marry and Income) in B2 are larger than in B1. The Go To Travel campaign (B1) benefits are available only from affiliated accommodation services, and it includes some luxurious services and different coupons across destinations. This requires people for greater information-seeking or search costs, which might be burdensome for some individuals. By contrast, there are no restrictions on destinations or what accommodation is used in the case of travels without Go To Travel (B2). Thus, travels without Go To are easier. Therefore, the elasticities of the variables in B2 may tend to be larger than those in B1.

Next, the third column of Table 4 reports the results for the Go To Eat campaign (B3). UNIV, Income, Marry, and ICT\_skill are significantly positive, and Male and Age are significantly negative. Thus, younger, richer, highly educated females with high ICT skills, who are married, tend to use Go To Eat more than others. Employer and Firm\_Size are significantly positive. Similar to travel estimations, business owners and workers for big companies tend to use Go To Eat more frequently than others. Unlike travel estimations, RCOVID is significantly positive. Since the number of daily new infections per capita, RCOVID, tend to be higher in densely populated urban areas, the urban areas have more available restaurants and eateries, enabling more frequent use of Go To Eat.

As a comparison, the fourth column of Table 4 reports the result on dining with small groups outside the family or cohabitants (B4). The significant variables are similar to those for the Go To Eat estimation. However, Marry and Firm\_Size are now insignificant. RCOVID is still significant but smaller magnitude of coefficient in Go To Eat estimation. RCOVID is proportional to density of population and restaurants. Thus, the frequency of dining together outside the family/cohabitants is less biased toward urban areas than that of Go To Eat. The Go To Eat campaign operates only with affiliated restaurants and eateries. Because urban areas have a concentration of such places, urban residents have a relative advantage in terms of the availability of affiliated venues and use of the Go To Eat program.

In essence, the Go To campaigns appear to work to some extent. Those with higher incomes tend to use the Go To programs. This indicates that the government policies worked well to some extent in the sense that they assisted tourism and hospitality service sectors whose income declined sharply and encouraged spending by wealthier people to stimulate the economy.

### 4.2. Noneconomic factors (behavioral bias, attitude toward COVID, and personality traits)

Now, we add a set of noneconomic factor variables, $Z$, to Eq. (1), as follows:

$$
B_i = \alpha + \beta_1 X_i + \beta_2 Y_i + \beta_3 RCOVID_{ij} + \beta_4 Z_i + \text{Job}_{ij} + \text{Pref}_{ij} + \epsilon_i
$$

(2)

where $Z$ is composed of 1) behavioral biases, 2) attitudes toward COVID-19-related government policies and individuals’ behaviors in terms of countermeasures (using masks and social distancing), and 3) personality traits, as categorized by the Big 5.\textsuperscript{13}

The first set of variables concerns behavioral biases, i.e., risk measures (Risk). Risk attitude is measured from 0 (not willing to take risk at all) to 10 (willing to take risk) in daily life. Higher values indicate that the respondents prefer higher risk and higher returns, and vice versa.

The second set of variables is respondents’ attitudes toward COVID-19 (Policy and Mask\_distance), based on two questions. In the first question, respondents were asked whether the government should place more emphasis on economic countermeasures than on containing COVID-19. Respondents could choose agree ($= 1$), or disagree ($= 0$).

\textsuperscript{12} Job is based on 38 occupation categories. We note that there are 47 prefectures in Japan.

\textsuperscript{13} Currently, some studies find that individual’s policy response and preference are largely associated with his/her non-economic factors (e.g. see Okubo, 2021 for individual’s preference on the immigration policy and Palermay and Okubo (2022) for the public preference on trade liberalization in Japan).
variable to put more emphasis on economic countermeasures (see the measures. We find that 26% of respondents would prefer the govern-

NOTE: All fixed effects (Job, Pref) are included, but omitted to report from the table. Robust standard errors.

Non-economic Factors.

T. Okubo

Social norms crucially affect individual’s countermeasures. See e.g., Schmidt-Petri, et al. (2022).

with the variable for the estimations, “Policy”, being a binary variable based on the respondents’ preferences concerning economic countermeasures. We find that 26% of respondents would prefer the government to put more emphasis on economic countermeasures (see the variable “Policy” in Appendix Table A1). The other question concerned the respondents’ own countermeasures against COVID-19 in their daily life. The survey asked respondents about the frequency with which they washed their hands and used a face mask and avoided mass gatherings and followed social distancing. In the survey, the respondents were asked to choose one of five options, “always,” “frequently,” “sometimes,” “seldom,” and “never,” for both types of behaviors. The results are shown in Appendix Table A2. Around 60% of respondents answered that they always or frequently washed their hands and used a mask, whereas only around 38% responded that they always or frequently maintained social distancing. Our variable for estimation, “Mask_distance”, takes the mean of the answers to (1) and (2), where “always” = 4 for the calculation, “frequently” = 3, “sometimes” = 2, “seldom” = 1, and “never” = 0.

Third, personality traits measured by the Big 5 are added (E, A, C, N, O). In the field of psychology, the Big 5 personality traits refer to five basic dimensions of personality: extraversion (E), agreeableness (A), conscientiousness (C), neuroticism (N), and openness (O) (see Nettle (2009) for more details). It is well known that one’s Big 5 personality trait remains stable over time (Soldz and Vaillant, 1999) and is influenced by genes and growing environments in childhood. The genetic influence makes up 40-60% of the Big 5 personality (Jang et al., 1996). Thus, it is unlikely that the COVID-19 pandemic would alter a respondent’s Big 5 personality.

Extraversion (E) features sociability, talkativeness, and social interest. Thus, higher extraversion means a person is more outgoing, whereas lower extraversion means a person is more reserved. In the literature, extraversion is positively associated with spending more time in some social contexts (Diener et al., 1984). Higher extraversion can predict more alcohol consumption, popularity, parties attended, dating variety, and exercise (Paunonen, 2003). Extraversion is negatively associated with being alone but positively associated with spending time with friends and colleagues (Wruz et al., 2016). Agreeableness (A) indicates attributes such as trust, altruism, and being kind and considerate to others. Agreeableness is positively associated with higher team performance (Bell, 2007; Bradley et al., 2013). Openness (O) features characteristics such as creativity, imagination, and insight. Higher openness indicates a broad range of interests. This is positively associated with interacting with strangers but negatively associated with doing nothing and being with family (Wruz et al., 2016). Conscientiousness (C) features thoughtfulness and goal-directed behaviors. It is associated with behaving responsibly, carefully, and with self-discipline. It is positively associated with engaging in working (Wruz et al., 2016). Persons with higher conscientiousness are likely to perform fastest in most information-seeking tasks (Al-Samarraie et al., 2017). In the case of school students, it has been found that the more conscientious students were, the more time they spent in class and public places other than restaurants, bars, and cafés (Mehl et al., 2006). Neuroticism (N) is characterized by frequent worries, sadness, and emotional instability. People with higher neuroticism tend to prefer more strongly to be alone (Mehl et al., 2006).

Table 5 reports the results. In almost all columns, Policy and Risk are significantly positive. Thus, people who would prefer the government to focus more on economic countermeasures rather than strict epidemic controls, and prefer high risk and high returns are likely to travel and dine out more even during periods when the spread of infections is higher. Both traveling and eating out involve a higher risk of infection, and, therefore, those who enjoy engaging in these activities during the pandemic tend to be risk takers.

Regarding the Big 5, all behavior columns have significantly positive results for E. A is significantly positive in B3 and B4. C is significantly negative in B2 and B4. Thus, extraversion is positively associated with traveling and dining out with people outside the family and cohabitants. This is consistent with the psychology literature, as more extraverted people tend to attend more parties (Paunonen, 2003) and spend more time with friends and colleagues (Wruz et al., 2016). Agreeableness
means people are considerate of others, which could lead them to enjoy organizing trips and dining-out experiences for others using the Go To programs. This is consistent with previous psychology studies on agreeableness (Bell, 2007; Bradley et al., 2013). Conscientiousness (C) is associated with behaving responsibly, carefully, and with self-discipline. Because those who travel without using Go To Travel do not need to seek information or register with this government program, they are less conscientious. This is consistent with the existing psychology literature on conscientiousness and information-seeking behaviors (e.g., Al-Sammari et al., 2017).

### 4.3. Further investigations

As mentioned in Section 2, the Go To Travel campaign did not initially apply to Tokyo until October 1, 2020. The campaign period is shorter for residents of Tokyo than those of other prefectures. This might make bias toward less use of the campaign. Therefore, as a robustness check, we investigate what factors led to residents of Tokyo to participate. Thus, we conduct the same estimation by adding one by one from the following probit estimation:

$$
Use_i = \Phi(\alpha + \beta_1X_i + \beta_2Y_i + \beta_3C + \beta_4Z_i + \text{Job}_i + \text{Pref}_i + \epsilon_i)
$$

where $Use$ is a dummy for a traveler using Go To Travel. If the traveler uses Go To Travel at least once, then the dummy takes a value of one, and zero otherwise. All independent variables are the same as in Eq. (2).

We therefore investigate what factors led to residents of Tokyo to participate. Here, we investigate whether the Go To Travel offers benefits to travelers, and conclude that multicollinearity is not serious in our estimations.

### 5. Who uses campaigns with taking PCR test?

#### 5.1. Travelers who use go to travel and other travelers

Now, we focus only on those who traveled during the pandemic. That is, the sample is limited to travelers in the pandemic of COVID-19. Although the Go To Travel campaign offered benefits to travelers, accessing them imposed some burdens such as information seeking task. As mentioned above, the program was available only at affiliated hotels and accommodation. Moreover, some cities suddenly stopped accepting Go To Travel visitors, for example, Osaka and Sapporo cities ceased participating in the program on November 23, 2020. Thus, to use the program, travelers needed to carefully seek information on the Internet about eligibility and consider whether the affiliated tour packages matched to their preferences. Here, we investigate what factors led people to choose participation in Go To Travel.

Based on all respondents who traveled, we conduct the following probit estimation:

$$
Probit(Use) = \Phi(\alpha + \beta_1X + \beta_2Y + \beta_3C + \beta_4Z + \text{Job} + \text{Pref} + \epsilon)
$$

where $Use$ is a dummy variable indicating whether a traveler used Go To Travel. If the traveler uses Go To Travel, then the dummy takes a value of one, and zero otherwise. All independent variables are the same as in Eq. (2).

As mentioned above, the applicability and benefits of the Go To Travel program vary across accommodations as well as destinations and прожектори што се користат за други целу.
services, and are not applicable to all accommodations. Owing to considerations of infection control, the Go To Travel program covered many small-scale tours and luxurious hotel accommodation (see Suzuki et al., 2022). Thus, those who are more conscientious tend to participate in the program and partake in smaller scale but luxurious trips for vacation.

As mentioned above, the Go To Travel campaign started on July 22, 2020, but did not initially apply to Tokyo until October 1, 2020. Since the campaign period is shorter in Tokyo, their campaign choice will make bias toward travels without using the campaign. As a robustness check, the same estimations are conducted in the sample without residents of Tokyo. As shown in Column 2 of Table 6, main results are the same. Younger travelers who are more conscientious tend to use Go To Travel.

5.2. Go to eat campaign for eating out

Next, we focus on eating out. The sample is limited to those who dined out. As discussed above, Go To Eat, similar to Go To Travel, was available only at affiliated restaurants and eateries. We investigate those who chose to eat out using Go To Eat. Our sample includes only those who dined out and is composed of two groups: respondents who used Go To Eat and those who chose to dine out with other people outside their family and/or cohabitants. We conduct a probit estimation using Eq. (3). The dependent variable, Use, is now a dummy for Go To Eat users.

The third column of Table 6 reports the results. Marry, ICT Skill, Policy, and C are significantly positive. Then, Age and A are significantly negative. Younger with higher ICT skills, who are more conscientious and less agreeable, tend to use Go To Eat. The Go To Eat campaign requires information-seeking tasks to determine which restaurants are affiliated with the campaign and offer reward points, and, thus, it requires conscientiousness. Those who prefer the government to focus on economic countermeasures tend to use Go To Eat for eating out. Reward points are provided only to the person who booked even if others dine out with them, and, thus, the program might attract less altruistic, i.e., less agreeable, people. Younger persons with high ICT skills are advantaged by such a booking system.

5.3. Go to campaigns and PCR tests

As the Go To campaigns promote labor mobility, they also contribute to the spread of COVID-19 infections (Anzai and Nishiura, 2021). If PCR tests were mandatory for use of the programs, they could function as countermeasures against COVID to some extent and mitigate the spread of infections. However, in Japan, there is a charge for PCR tests. PCR tests are not mandatory. As shown in Section 3, only a small share of Go To program users took PCR tests. We investigate which individuals took PCR tests among the Go To program users. Our survey asked respondents about their frequency of PCR testing, although it did not ask whether the tests were conducted because they were traveling and dining out, and they may have had other motivations for taking the tests. Our sample is limited to Go To program users.

We use the following probit estimation:

\[
Prob(PCR) = \Phi\left( \alpha + \beta_1 X_1 + \beta_2 Y_1 + \beta_3 \text{RCOVID}_i + \beta_4 \text{Job}_i + \text{Pref}_j + e_i \right),
\]

where PCR is a dummy for taking PCR tests, which takes a value of one if respondent i took a PCR test. The fourth column of Table 6 reports the results for Go To Travel users. For Go To Travel, Age is significantly negative, whereas Male and ICT skills are significantly positive. Risk and E are significantly positive, while A is significantly negative. Thus, among the Go To Travel users, younger males with high ICT skills tend to take PCR tests. In addition, people with higher risk attitudes tended to take tests. Less agreeable people also tend to take tests.

Next, the fifth column of Table 6 reports the results for Go To Eat users. Age is significantly negative, whereas Male and ICT skills are significantly positive. Risk is significantly positive, whereas A is significantly negative. The results are similar to those for Go To Travel.

Although the number of taking PCR is small (Table 3), we observe weak positive relationship between the frequency of using the campaign and the number of PCR tests. As shown in the previous estimation (Table 5), risk-taking Go To Travelers tended to travel more frequently and thus they tend to take PCR tests more. In this sense, the policy seems to involve infection controls in some degree. However, since our survey cannot directly identify reasons for taking PCR tests and cannot fully identify causality, we cannot judge whether the Go To campaign policies were successfully combined with infection controls. Overall, our paper can derive three possible implications. First, the majority of people could not take PCR tests. It is problematic that there is a charge to undertake the tests, which reduces incentives for lower-income people to take them. In spite of it, even under such constraints, some infection controls seem to be implemented in the Go To campaigns. Second, our findings suggest that the government could take strict infection controls to some specific groups with some personal traits rather than all individuals in the Go To campaign policies. In other words, the government could provide some incentives or regulations encouraging PCR tests and/or vaccinations when using Go To campaigns for some specific people who are reluctant to take PCT tests. Third, to implement the demand-inducing policies and infection controls, the government needs to cover enough information to the people and reduce uncertainty from various types of misperception about infections. In the pandemic, individual’s misperception largely affects economic activities and individual behaviors, as found by Hamano et al. (2020).

6. Conclusion

This paper studies demand-inducing policies, the Go To campaigns, for traveling and eating out during the COVID-19 pandemic in Japan. Using a unique individual survey, we find that rich, educated persons, with high ICT skills, tend to use these programs and, in the case of Go To Eat, those who live in urban areas. In addition to these factors, personality traits matter. More risk-taking individuals with higher extra-version tend to use the Go To programs. PCR tests were not widely spread at the early stage, but more campaign users tended to take PCR tests.

A remaining technical issue is the identification problem, which prevents us from reaching more causal conclusions. This is related to the qualification of our survey data. By collecting more detailed data and using good instrumental variables, it might be possible to clarify the causal relationship.

Data Availability

The data that has been used is confidential.

17 Okubo et al. (2022) studies individual’s vaccination hesitancy in Japan, using the Okubo-NIRA Telework Survey. Vaccination rates are lower among younger women and self-employed. Income level is not crucial. Although attitude towards risk and time preference were not crucial factors for vaccination, fear of infection, infection prevention behavior, and agreement with government policies on behavioral restrictions in crisis situations positively correlated with vaccination.
## Appendix

See Tables A1–A3.

### Table A1

Basic Statistics.

| Variable names    | Definitions                        | Mean     | Min   | Max   | Sd     | Num   |
|-------------------|------------------------------------|----------|-------|-------|--------|-------|
| PCR               | Freq of PCR tests                  | 0.207676 | 0.000 | 5.000 | 0.6923 | 9197  |
| B1                | Freq of Go-To-Travel               | 0.490486 | 0.000 | 5.000 | 0.9891 | 9197  |
| B2                | Freq of travels without Go-To      | 0.308253 | 0.000 | 5.000 | 0.8193 | 9197  |
| B3                | Freq of Go-To-Eat                  | 0.659345 | 0.000 | 5.000 | 1.3654 | 9197  |
| B4                | Freq of dining-out                 | 0.8518   | 0.000 | 5.000 | 1.5146 | 9197  |
| ROCOVID           | Case of covid per capita at municipality | 0.004275  | 0.000 | 0.021 | 0.0031 | 9197  |
| Male              | Male dummy                         | 0.562357 | 0.000 | 1.000 | 0.4961 | 9197  |
| Age               | Age                                | 8.000    | 0.000 | 14.000| 3.6933 | 9197  |
| Marry             | Spouse living together             | 0.52017  | 0.000 | 1.000 | 0.4996 | 9197  |
| Univ              | University degree dummy            | 0.515168 | 0.000 | 1.000 | 0.4998 | 9197  |
| Income            | Income                             | 4.126645 | 0.25  | 21.25 | 3.4436 | 9197  |
| ict_skill         | ICT skill                          | 1.388605 | 0.000 | 3.000 | 0.9124 | 9197  |
| Income            | Income                             | 1.388605 | 0.000 | 3.000 | 0.9124 | 9197  |
| Risk              | Risk attitude                      | 3.813744 | 0.000 | 10.000| 2.2324 | 9197  |
| Policy            | More economic countermeasure       | 0.264543 | 0.000 | 10.000| 0.4411 | 9197  |
| Mask_distance     | Covid countermeasure               | 2.191639 | 0.000 | 10.000| 1.3316 | 9197  |
| E                 | Extraversion                       | 3.738882 | 1.000 | 7.000 | 2.1153 | 9197  |
| A                 | Agreeableness                      | 4.593509 | 1.000 | 7.000 | 1.0028 | 9197  |
| C                 | Conscientiousness                  | 4.076384 | 1.000 | 7.000 | 1.068  | 9197  |
| N                 | Neuroticism                        | 3.945906 | 1.000 | 7.000 | 1.053  | 9197  |
| O                 | Openness                           | 3.833098 | 1.000 | 7.000 | 1.0181 | 9197  |

### Table A2

People’s COVID countermeasures (%).

|                      | washing hands | social distance |
|----------------------|---------------|-----------------|
| always               | 35.28         | 15.62           |
| frequently           | 26.28         | 23.42           |
| sometimes            | 12.44         | 19.11           |
| seldom               | 8.62          | 15.29           |
| not at all           | 17.38         | 26.56           |

### Table A3

VIF.

Eq. 1  Eq. 2

| ROCOVID | 2.68 | 2.69 |
| Male    | 1.4  | 1.47 |
| Age     | 1.29 | 1.37 |
| Marry   | 1.22 | 1.22 |
| Univ    | 1.29 | 1.29 |
| Income  | 1.55 | 1.56 |
| ICT     | 1.52 | 1.54 |
| Employer| 1.47 | 1.48 |
| Firm_Size| 1.49 | 1.49 |
| Risk    | 1.13 |      |
| Policy  | 1.04 |      |
| Mask_distance | 1.11 |      |
| E       | 1.38 |      |
| A       | 1.33 |      |
| C       | 1.43 |      |
| N       | 1.46 |      |
| O       | 1.36 |      |

### References

Anzai, A., Nishiyama, H., 2021. “Go To Travel” campaign and travel-associated coronavirus disease 2019 cases: a descriptive analysis, July–August 2020. J. Clin. Med. 10, 986.

Al-Samarraie, H., Eldenfria, A., Dawoud, H., 2017. The impact of personality traits on users’ information-seeking behavior. Inf. Process. Manag. 53 (1), 237–247.

Bell, S.T., 2007. Deep-level composition variables as predictors of team performance: a meta-analysis. J. Appl. Psychol. 92, 595–615.

Bradley, R.H., Baur, J.E., Banford, C.G., Postlethwaite, B.E., 2013. Team players and collective performance: how agreeableness affects team performance over time. Small Group Res. 44 (6), 680–711.
OECD, 2020, Mitigating the impact of COVID-19 on tourism and supporting recovery, OECD Tourism Papers, 2020/03, OECD Publishing, Paris.

Okubo, T., 2020. Spread of COVID-19 and Telework: Evidence from Japan. Covid Econ. 32, 1–25.

Okubo, T., 2022. Telework in the spread of COVID-19. Inf. Econ. Policy 60, 100987.

Okubo, T., Inoue, A., Sekijima, K., 2021. Teleworker performance in the COVID-19 era in Japan. Asian Econ. Pap. 20 (2), 175–192.

Okubo, T., Inoue, A., Sekijima, K., 2021. Who got vaccinated for COVID-19? evidence from Japan. Vaccines 9 (12), 1505.

Okubo, T. & Nippon Institute for Research Advancement. (2021). Report on the results of a questionnaire survey concerning the impact of the use of telework to respond to the spread of the COVID-19 on working styles, lifestyles, and awareness. Nippon Institute for Research Advancement.

Paunonen, S.V., 2003. Big five factors of personality and replicated predictions of behavior. J. Personal. Soc. Psychol. 84 (2), 411.

Ritchie, B., 2008. Tourism disaster planning and management: from response and recovery to reduction and readiness. Curr. Issues Tour. 11 (4), 315–348.

Schmidt-Petri, C., Schroder, C., Okubo, T., Graeber, D., Rieger, T., 2022. Social norms and preventive behaviors in Japan and Germany during the COVID-19 pandemic. Front. Public Health 10, 842177.

Soldz, S., Vaillant, G.E., 1999. The Big Five personality traits and the life course: a 45-year longitudinal study. J. Res. Personal. 33 (2), 208–232.

Suzuki, S., Okano, Y., Takahashi, K., 2022. The impact of travel subsidy on individual accommodations under COVID-19 pandemic analyzing changes of plans listed on an online travel service. J. Glob. Tour. Res. 7 (1), 61–68.

Wrzus, C., Wagner, G.G., Riediger, M., 2016. Personality-situation transactions from adolescence to old age. J. Personal. Soc. Psychol. 110 (5), 782.

World Tourism Organization. Understanding Domestic Tourism and Seizing Its Opportunities: [https://hrturizam.hr/wp-content/uploads/2020/09/unwto-3.pdf].

Zhao, S., Zhuang, Z., Cao, P., et al., 2020. Quantifying the association between domestic travel and the exportation of novel coronavirus (2019-nCoV) cases from Wuhan, China in 2020: a correlational analysis. J. Travel Med. 27:taaa022.