

Impact of Japan's domestic COVID-19 policy on Taiwanese tourists' intention to visit Japan

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Abstract

The study quantitatively measured the effect of trust or lack of trust in Japan's COVID-19 policy on Taiwanese tourists' travel intentions using the propensity score matching method. Data were collected between 2nd and 4th December 2020 from Taiwanese people who had travelled to Japan in 2018 to 2020. The results showed that Taiwanese tourists were motivated to travel to Japan if they trusted the government's measures against COVID-19; however, 57% of Taiwanese tourists did not trust those measures according to our survey. Moreover, our survey suggests that Japan's stringent precautionary regulations regarding COVID-19, in popular tourist locations, may be more attractive to tourists. Contrary to the predictions of other studies, tourists still look forward to revisiting favourite places, instead of shifting to new, suburban travel locations. The results of this study are accurate in their predictions in the light of the post-Covid19 situation in 2023.

Keyword: post-COVID-19 tourism; Japan; Taiwan; COVID-19 prevention policies; propensity score matching

1. Introduction

Following the COVID-19 outbreak in early 2020, international travel had been completely suspended for some time. In Japan too, where infection rates are generally lower than in Europe and the United States (US), inbound tourism has been completely prohibited by policy. In the past, most Japanese tourists came from China, Korea, and Taiwan. Taiwan had the highest share of visitors. Additionally, Taiwanese tourists repeatedly visit Japan. The complete suspension of travel exchanges between these East Asian countries had a significant impact on the Japanese economy. Further, Taiwan controlled the pandemic better than Japan and only 77 local cases of infection were found up to April 2021. However, there was a rise in cases after May 2021, with up to 535 new local infections per day. These numbers are small by global standards, and it is important to note there were virtually no local infections at 2020, the time this survey was done. For the Japanese tourism industry, allowing visitors from countries where the pandemic's spread has been relatively mild may be practical for promoting tourism in the post-COVID-19 era. However, for potential Taiwanese tourists, traveling to Japan implies bearing a higher infection risk and travel costs. Our research is set primarily in the recovery period of a trip after COVID-19, and we study the possible concerns of Taiwanese tourists. Through online questionnaires, this study examines the willingness of Taiwanese tourists who had visited Japan in the past three years, to revisit it. Moreover, this study extensively includes Taiwanese tourists' views on Japan's COVID-19 policies.

There are several studies relevant to evaluating Japanese COVID-19 policies. An analysis by Zhang (2021) indicated poor communication with the public may have been closely related to COVID-19's spread in Japan. Kreps and Kriner (2020) found that emphasizing uncertainty in the projections could erode public trust in some U.S. contexts. Careful scientific communication is critical to maintaining public support for science-based policies, as the scientific consensus shifts over time. Bargain and Aminjonov (2020) noted that COVID-19 forced governments worldwide to take drastic measures with lockdown policies that are often very constraining; these policies must receive large support from the population to be efficient—this support is not guaranteed and certainly not homogenous. Dimiter et al. (2020) found health ministers with a medical background who acted faster and more decisively had positive effects on managing the pandemic's impact. Using mobility data at the regional level in Europe, Bargain and Aminjonov (2020) showed that higher political trust is associated with a larger reduction in non-essential mobility following the implementation of containment policies. Schmelz (2020) found that those who experienced state coercion in eastern Germany were less control-averse concerning COVID-19 measures than western Germans. This means that people from various backgrounds or different countries may have different acceptance levels of COVID-19 measures. The distrust of Japan's pandemic prevention measures had also spread to foreign countries through the news, especially to Taiwan, which has the highest number of repeat travellers to Japan. However, whether different views on foreign policies have an impact on the activities of foreign travellers needs to be further analysed in other countries.

The purpose of this study is to quantitatively measure the impact of trust of in Japan's COVID-19 policies on Taiwanese tourists' travel intentions, using the propensity score matching method. Our survey uses online questionnaires to examine revisit intention of Taiwanese tourists to Japan who have visited Japan in 2018 to 2020 to revisit the country.

We not only examine travellers' behaviour to understand the reasons and purposes for visiting Japan actively in the post-COVID-19 era, but determine whether those who enjoy

cultural experiences are more active than those who enjoy scenic beauty. We study the premise wherein Taiwanese consumers may revisit Japan in the post-COVID-19 era, including exogenous factors such as a decline in pandemic-related data. Through this study, we can understand whether the pandemic led to a tourism shift from urban to rural areas. Moreover, we investigate whether the overall perception of Japan in Taiwan is affected by changes in the pandemic prevention policy, which may also affect tourists' willingness to visit. Finally, we study the preferences of Japanese inbound tourism systems and suggest some possible adaptation strategies, including policies and strategies for pandemic prevention, food services, transportation, accommodations, attractions, and green tourism.

2. Materials, methods, and overall traveling behaviour findings before COVID-19

This study was conducted between 2nd and 4th December 2020 via an online questionnaire survey of Taiwanese people who had travelled to Japan in the past three years. The questionnaire excluded people in the tourism, food and beverage, and market research-related industries, as well as respondents who were the decision-makers on travel destinations. The final target population was 300 keep about 5 confidence intervals of 4 and a 95 % confidence level. The quota ratio was set according to the age group of Taiwanese visitors to Japan in 2018 (JNTO, 2019). Since the total number of travellers under 20 and over 60 years of age only comprised 8.7% (JNTO, 2019) of the population, the target population was those aged 20–60 years old. The final questionnaire age composition was 26% ($n=78$) for those aged 20–29 years, 38% ($n=114$) for those aged 30–39 years, 24% ($n=72$) for those aged 40–49 years, and 12% ($n=36$) for those aged 50–59 years.

First, among the 300 Taiwanese respondents who had been to Japan, the average number of trips to Japan was 4.7 and the average length of stay was five days and four nights. Independent travel, i.e., a trip organised by the traveller (39%) was the most common way to travel to Japan before COVID-19. Especially among 20–29-year-old-travellers, more than half (51%) travel to Japan independently. The top 5 most popular travel destinations were Tokyo (62%), Osaka (58%), Hokkaido (57%), Kyoto (52%), and Nara (39%). The most frequent activities were eating gourmet food, enjoying the natural scenery, shopping, and going on historical and cultural tours. Among all the respondents, 187 stated that after the end of the COVID-19 pandemic, the country they wanted to visit most was Japan.

Compared to the period before the outbreak, 172 people (57%) did not trust Japan's pandemic prevention policy. Also, 128 people (43%) claimed they were less likely to go to Japan (or did not consider going to Japan). Of these 128 people, 108 (84%) did not trust Japan's pandemic prevention policy. Regarding information obtained on COVID-19 prevention during the pandemic period, 181 respondents (60%) said they were concerned about news related to pandemic prevention in Japan. This shows that tourists are concerned about the pandemic in other countries, and trust in a country's pandemic prevention policy affects their willingness to travel there.

Figure 1 shows the seven-stage evaluation we used to ask Taiwanese tourists how their impression of Japan changed before and after COVID-19.

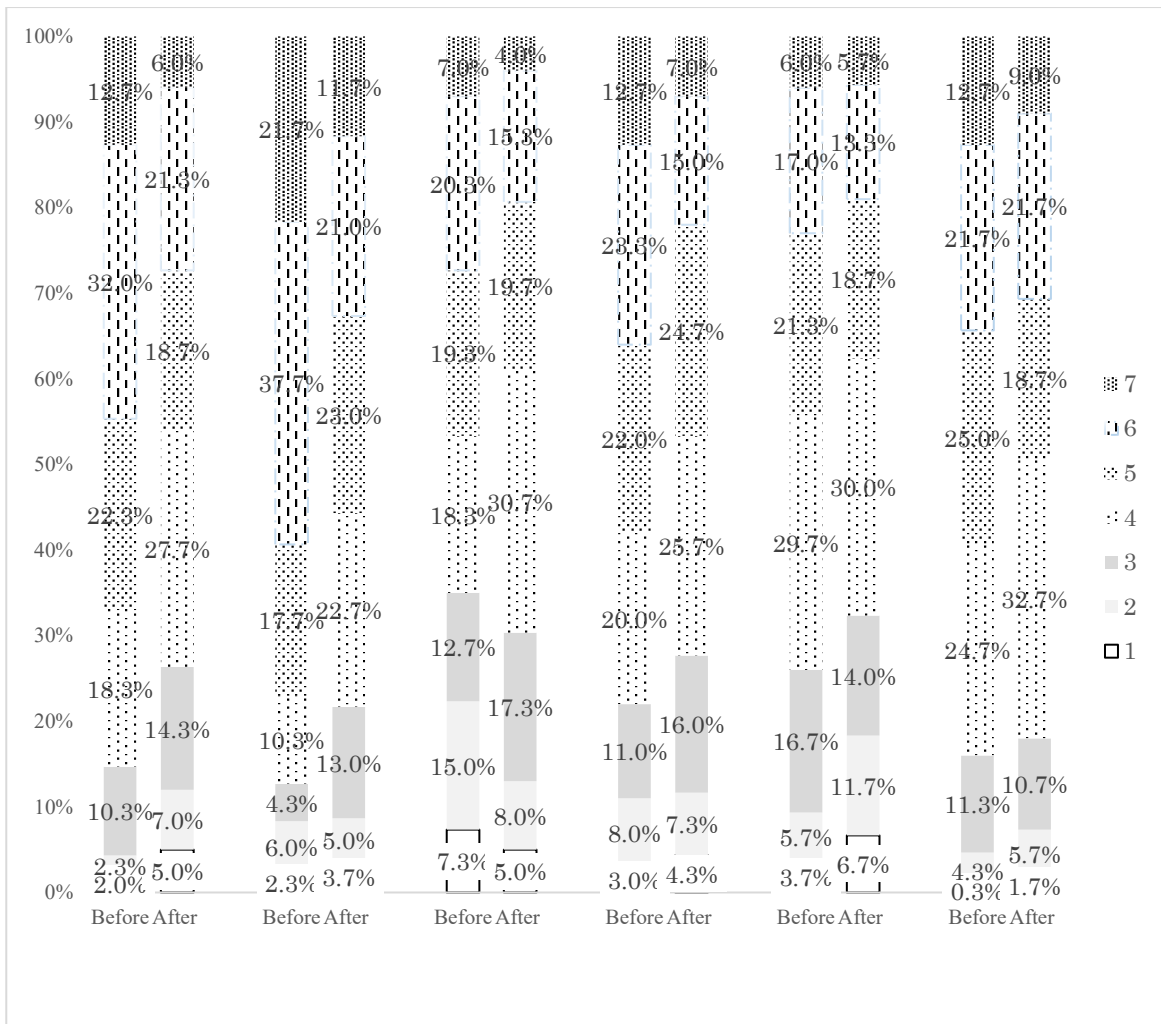


Figure 1. Japan’s image changed after COVID-19, as determined through seven-stage continuous evaluation of Taiwanese tourists’ impression of Japan.

The questions included changes in the level of intimacy, rigorousness, indolence, advancement, flexibility, and digital orientation. These seven impressions represent the impressions that Taiwanese tourists may have had of Japan in the past, that is, the more advanced impressions. As Figure 1 shows, there is a weakening of these impressions. In other words, the overall percentage of responses close to 7, which shows the higher level decreased, and the percentage of responses close to 1, which shows the lower level has increased. Although the pandemic is less severe in Japan than in Europe and the US, the seven-stage continuous evaluation of Japan by Taiwanese tourists before and after the pandemic shows the direction of change went from ‘rigorous’ to ‘arbitrary’, from ‘advanced’ to ‘traditional’, from ‘flexible’ to ‘inflexible’, and from ‘digital’ to ‘manual’, in the negative direction under the significance level of 1% by *t*-test. Before COVID-19, Taiwanese travellers used to see Japan as friendly, and cautious, following the rules, and advanced; whereas, after COVID-19, they see Japan as less friendly, less cautious, and less advanced.

3. Estimation of the effect of trust or lack of trust in Japan’s COVID-19 policies using propensity score matching (PSM) method

This section describes the quantitative measurement of the effect of trust or lack of trust in

Japan's COVID-19 policies on the travel intentions of Taiwanese tourists. In this case, simply comparing the average value of Taiwanese tourists' intention to travel with trust or lack of trust in Japan's COVID-19 policies is not an accurate measure of the effect. This is because trust or lack of trust in Japan's COVID-19 policies tends to be associated with a higher degree of familiarity with Japan and may be responsible for any apparent difference. Therefore, to determine the effect of trust in Japan's COVID-19 policies, it is necessary to appropriately control for various factors related to it. In this case, the comparison of those who trusted Japan's measures against COVID-19 is only one factor. That is, we must account for those who distrusted the policies but had the same familiarity level with Japan as those who trusted the policies.

Based on this idea, this study uses the propensity score matching (PSM) method to examine the causal effects more actively (Rosenbaum & Rubin, 1983). A propensity score is a conditional probability predicted from various conditions (i.e., covariates) of 'trust or not'. The propensity score method is an analysis that takes advantage of the counterfactual framework when it is not practically possible to observe both sides at the same time (Morgan & Winship, 2014), such as the effect of the same person on distrust or trust in Japan's policies against COVID-19. If we apply this contrast, not to the same individual, but to a certain group, we can reproduce a similar situation. That is, for groups with the same characteristics, the question is whether there is a difference in willingness to travel after COVID-19 if one group trusts the Japanese policy and the other does not.

As an analytical procedure, we first performed logistic regression analysis using covariates that could affect trust in Japan's COVID-19 policies and then estimated the propensity score. Table 1 summarises those results.

Table 1. Effect of confidence in Japan's measures against COVID-19: Logistic analysis.

Dependent variable:	Odds Ratio	Std. Err.	z-value	P-value	[95% Conf. Interval]	
the intention to travel to Japan will remain the same or increase = 1; if decrease=0						
trustJP: (trust in Japan's policy to deal with COVID-19 = 1; if not=0)	6.27***	1.96	5.86	0.000	3.39	11.58
propensity_score	6.05***	3.76	2.90	0.004	1.78	20.46
cons	0.33***	0.09	-4.22	0.000	0.19	0.55
Number of obs=300; Log likelihood =-164.704; AIC=1.118; BIC=-1364.615						

*** $p < 0.01$

To take advantage of the rich information in the online survey data, we used 'change in association with Japan after the pandemic', 'access to pandemic-related news about Japan', 'understanding of Japan until now', and 'individual characteristics' as hierarchy indicators. First, to calculate the propensity score, a logistic regression analysis was conducted with the dependent variable being trust or lack of trust in Japan's COVID-19 policies, which was the variable 'trustJP'. In the estimation, we used the statistical software Stata 16. The distribution of the dependent variable is binary, so binominal distribution is specified. The table showing

the results in terms of odds ratios is summarised in Appendix 1. A propensity score is calculated using the above method, a new variable called propensity score is created, and the C statistic for this estimation is 0.7873, which means the estimation is appropriate for identification. The resulting visualisation of the distribution of the calculated propensity scores is displayed in Figure 2.

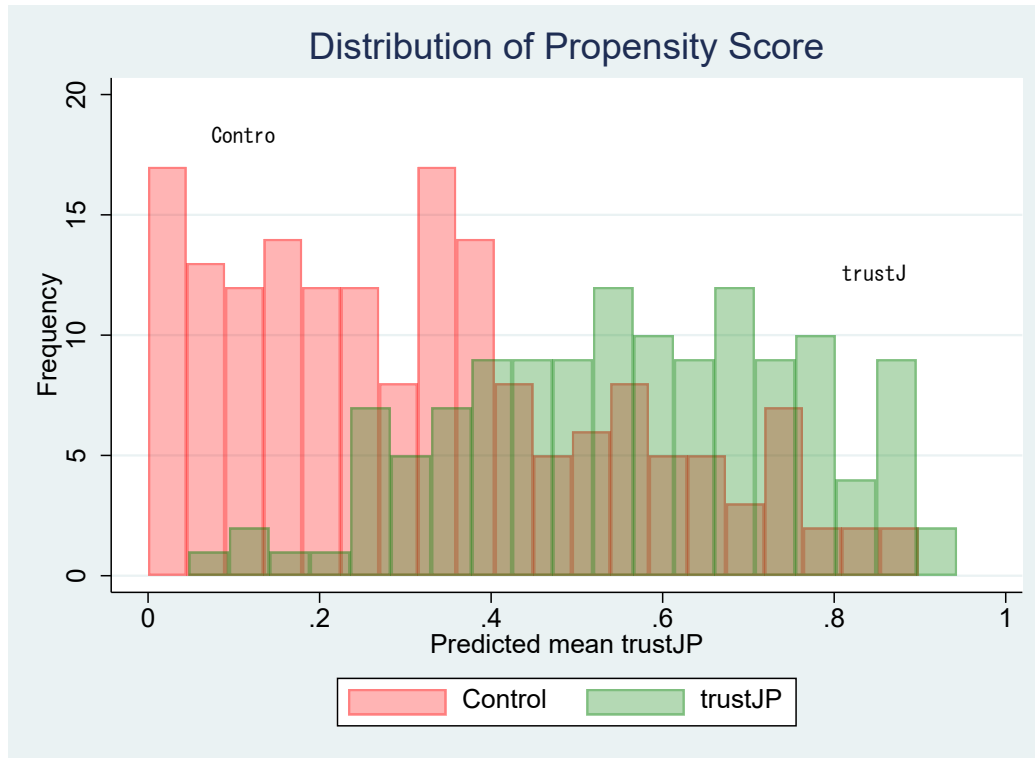


Figure 2 Distribution of propensity scores for the control and treatment groups (who trust in Japan’s COVID-19 policies)

Next, the dependent variable was a dummy variable in which the value for respondents who indicated that ‘the intention to travel to Japan will remain the same or increase’ was 1. Logistic regression was performed with dummy variables ‘trustJP’ and ‘propensity score’ as independent variables. Table 1 summarises the results. The odds ratio of trustJP, the dummy for trust or lack of trust in Japan’s COVID-19 policies, is 6.27 (95% confidence interval: 3.39–11.58).

In the following, we compare the mean values of the outcomes of the treatment and control groups using the propensity score and calculate the average treatment effect (ATE) by weighting with inverse probability. If the ATE is statistically significant, it means that trust in Japan’s COVID-19 policies is effective in influencing tourists’ travel intentions. The results of the analysis are summarised in Table 2.

Table 2. Average treatment effect.

Treatment-effects estimation						
Estimator: inverse-probability weights; Outcome model: weighted mean; Treatment model: logit						
Dependent variable:	Coef.	Robust Std. Err.	z-value	P-value	[95% Conf. Interval]	
the intention to travel to Japan will remain the same or increase = 1; if decrease=0						
ATE trustJP(1 vs 0)	0.425***	0.057	7.39	0.00	0.312	0.538
POmean trustJP (0)	0.396***	0.041	9.47	0.00	0.314	0.479

*** $p < 0.01$

In table 2, we can see the ATE (0.425; $p < 0.01$) and the results of its statistical test. This means that the treatment group has a 0.425-point advantage. This result showed that when the average willingness to travel to Japan is 39.7%, confidence in the Japanese COVID-19 measures increased willingness to travel to Japan by another 42.5%.

The purpose of the propensity score matching analysis is also to increase the comparability of the samples in the treatment and control groups. To determine if this objective has been achieved, it is necessary to check the degree of reduction in the differences in the respective covariates of both groups before and after matching. The graph for the balance check is shown in Figure 3.

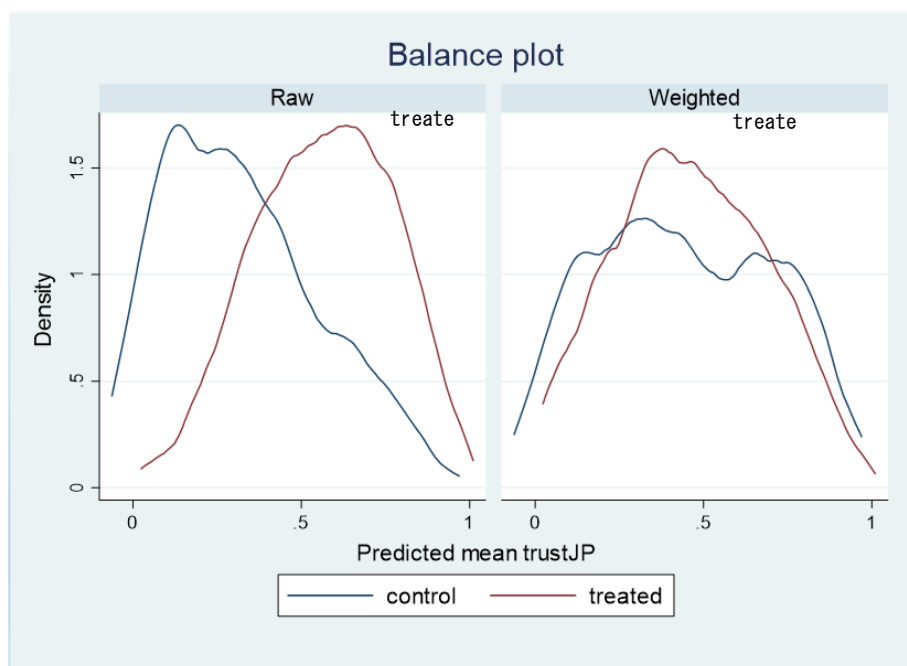


Figure 3 Balance between control and treatment groups

The standardised differences are smaller, and the variance ratio was closer to 1 after the treatment (Appendix 2). In other words, as a result of matching by propensity score, we can conclude that the comparability of the samples in the treatment and control groups has increased.

Thus, we use the propensity score matching method to devise a more positive causality estimation. Based on these results, we can say that Taiwanese tourists are motivated to travel to Japan since they trust Japan's measures against COVID-19. For Japan, whose policy goal is to develop the tourism industry, various policies can affect tourism, including domestic ones. Conversely, countries with strong domestic policies can be expected to develop tourism with accompanying economic effects in the post-COVID-19 era.

4. The travel pattern and possible adaptation strategies in the future

The post-COVID-19 period will allow service providers to rethink and reset the tourism industry for the future. During the pandemic, social unity, self-sacrifice, and a sympathetic attitude are as significant as wearing a face mask to protect oneself and others (Sharma et al., 2021). Private tourism operators' efforts are very important. Uğur and Akbıyık (2020) point out that travel insurance may reanimate the industry via travel packages, including travel insurance services. However, it has been argued in previous studies that the tourism industry is more likely to recover from shocks due to various forms of government intervention than if only individual roles are taken (Assaf & Scuderi, 2020; McCartney, 2020; Ioannides & Gyimóthy, 2020; Chen et al., 2020). Škare et al. (2021) suggest that private and public policy support should be coordinated toward capacity building, such as via corona vouchers, nautical tourism, social distance hospitality services, and automation. Changes in travellers' perspectives have also been studied. For example, Li et al. (2020) suggest global health emergencies evoke three types of tourism patterns: from general to elaborate, open-hearted to closed, and radical to conservative. Moreover, with the shift to closer, suburban, and agricultural travel forms, many studies view this as an opportunity for global tourism activity development in line with sustainability values; this removes the negative side of traditional tourism (Lew et al., 2020; Niewiadomski, 2020; Romagosa, 2020). We also surveyed possible changes in future travel.

In our survey, only 172 of 300 people answered that they would still like to visit Japan (60 people: the willingness has increased; 112 people: the outbreak did not change the willingness to travel to Japan); food and natural scenery remained their top reasons for visiting Japan. About 64% of 172 respondents said they would return within six months if Japan reopened for travel. This was the same as the survey by Wachyuni and Kusumaningrum (2020), which found that 65% of respondents would return to traveling within six months after the pandemic ended. According to JNTO statistics, the number of Taiwanese travellers increased from 423,701 in October 2019 to 424,800 in October 2023 (JNTO, 2023). This statement is also supported in the framework of this study.

We asked respondents who actively wanted to visit Japan what their main travel purpose was in the past, and where they wanted to travel in the post-COVID-19 era (Table 3).

Table 3. Willingness to travel to Japan, pre- and post-COVID-19.

	Those whose willingness has increased		No impact on my willingness	
	Before	After	Before	After
Before: Most common activities during past visits to Japan				
After: The activities I would like to do if I travel to Japan				
Base (number)	60	60	112	112
	%	%	%	%
Shopping	20.0	18.3	11.6	16.1
Gourmet food	35.0	36.7	40.2	33.9
History and Culture Tour	16.7	13.3	11.6	8.0
Natural Scenery	16.7	16.7	25.9	25.0
Go to theme parks (e.g., Disneyland, Universal Studios...)	3.3	6.7	8.0	8.9
Participate in sports activities (e.g., Japanese professional baseball tournaments, marathons...)	1.7	1.7	0.9	0.0
Participate in entertainment-related activities (such as: concerts, plays...)	0.0	0.0	0.9	0.0
Participate in sub-cultural experiences such as animation (such as: cosplay, animation exhibition, maid restaurant...)	0.0	0.0	0.0	1.8
Go to Japanese agricultural/fishing villages to enjoy or experience rural scenery	6.7	6.7	0.9	6.3
Hand-made experience	0.0	0.0	0.0	0.0
Cruise service	0.0	0.0	0.0	0.0

There were not many differences in activity preferences before and after COVID-19. However, in the ‘no impact on my willingness to travel to Japan’ group, those who chose to go to Japanese agricultural/fishing villages to enjoy or experience rural scenery increased from 0.9% to 6.3%. The most popular activities continued to be shopping, eating gourmet food, and going on historical and cultural tours. Moreover, the number of people who wanted to be close to natural scenery has not changed. Although theme parks are probably more crowded, the willingness to visit theme parks has not changed. According to statistics from the Japan Tourism Agency (2023), foreign visitors spent ¥1,205.2 billion in Japan in the first six months of 2023, equivalent to 95.1% of the amount spent in the same period in 2019. The largest amount spent by Taiwan tourists (¥173.9 billion, 14.4% of the total) surpassed that of the US, with a remarkable increase of 23.0% compared to the same period in 2019. This is also supported within the study.

Of the respondents who wish to, but cannot visit Japan due to the pandemic in 2020, 60% read and learn about Japan’s pandemic prevention news, 52% are concerned with the number of people afflicted by COVID-19 in Japan, and 47% follow the change of travel warning light indicators. Hence, we conclude that the pandemic had an impact on willingness to visit Japan, with 57% of travellers not trusting Japan's pandemic prevention policy.

Although the most desired destination remains the same, tourists’ activities will still

be influenced by COVID-19. Table 4 shows the percent of people who stated they would actively choose a suburban area closer to nature was 60%, 51% would avoid crowded places such as metropolitan areas, and 49% would prioritise restaurants, hotels, and places that meet Japan's pandemic prevention regulations.

Table 4. Considerations when choosing a place to travel in Japan post-COVID-19 (multiple choice).

Actively choose suburbs that are close to nature	60.5%
Avoid going to crowded places such as metropolitan areas	50.6%
Prefer to go to restaurants and locations that comply with Japan's pandemic prevention regulations	49.4%
Prioritise attractions with a limited number of venues	30.2%
Try not to take public transportation and change to rent a car or charter a car	22.1%
Prioritise whether there are multilingual medical services nearby	20.3%
As originally planned	6.4%

Note: The target is 172 people who want to trip to Japan with a higher or unchanged willingness.

Regarding changes in travellers' perspectives, our survey results in Table 3 and Table 4 indicate the shift to travel styles with more sustainability values has not occurred as predicted in previous studies like Wachyuni and Kusumaningrum (2020), who found that 66% preferred nature tourism after COVID-19. However, some micro changes may occur. Travellers will choose relatively less crowded places to stay, eat, and move around, even if they go to the same destinations.

We are also concerned about the types of restaurants that Taiwanese tourists choose to dine at. Restaurants are considered susceptible to COVID-19 infection but eating out cannot be avoided when sightseeing. From Table 5, for restaurant selection, people were willing to travel to Japan, but dining habits have changed slightly. They referred a restaurant where one person orders one meal, not Izakaya (a Japanese-style bar), nor conveyor belt sushi, which used to be one of the most popular Japanese meals among Taiwanese tourists.

Table 5. Restaurants tourists would choose to eat at in Japan (multiple choice).

	Those whose willingness has increased		No impact on my willingness	
	Before	After	Before	After
Before: What kinds of restaurants have you visited in the past when you were in Japan? (Multiple choice)				
After: When you travelled to Japan in the post-pandemic era, what types of restaurants did you choose to dine at? (Multiple choice)				
Base:	(60)	(60)	(112)	(112)
	%	%	%	%
Self-service buffet	50.0	43.3	41.1	22.3
Izakaya or bar	70.0	38.3	62.5	32.1
Fast Food Chain Restaurant	58.3	31.7	55.4	25.0
A restaurant where one person orders one meal (light meal, set meal, ramen...)	73.3	58.3	82.1	74.1
Conveyor belt sushi	60.0	28.3	47.3	26.8
Karaoke or KTV and other meals	21.7	5.0	7.1	5.4
Others	0.0	1.7	0.9	0.9
I do not plan to eat in a restaurant (take-out or convenience store or supermarket)	NA	3.3	NA	0.9
No impact, still go to the restaurant I am used to...	NA	11.7	NA	12.5

Note: The target is 172 people who want to trip to Japan with a higher or unchanged willingness.

Those who were still willing to travel to Japan or whose willingness to travel to Japan was not changed by COVID-19 expected some anti-pandemic measures when visiting Japan. As Table 6 shows, most tourists expect ‘regular disinfection of public space facilities’, ‘provision of disinfectant to sanitise hands’, and ‘control the number of people and maintain social distancing in indoor facilities’. Furthermore, Taiwanese visitors favoured not only requiring mask use but there was a higher rate of requests for the obligatory wearing of medical masks. This reflects the fact that Taiwanese tourists have become accustomed to their own country's policy and expect foreign countries to have corresponding measures.

Table 6. Anti-pandemic measures tourists are looking forward to during travel in Japan in the post-COVID-19 era.

	All	Willingness has increased	No impact
Base	172	60	112
	%	%	%
Regular disinfection of public space facilities	73.8	73.3	74.1
Provide disinfectant to sanitise hands	69.2	63.3	72.3
Control the number of people and maintain social distancing for indoor facilities	59.3	50.0	64.3
Mandatory to wear medical masks	55.8	53.3	57.1
Mandatory to wear any kind of mask	45.9	50.0	43.8
Facility to check body temperature before admission	42.4	38.3	44.6
If symptoms similar to the pandemic are found, nucleic acid tests and related medical services can be provided	39.5	40.0	39.3

With regard to green tourism subsidy, though we did not ask about an exact subsidy amount, we found that 56% believed that the preferential housing subsidy available to foreigners increases the willingness to travel to Japan; while only around 34% believed the preference program for rural tourism experiences increases the willingness to travel to Japan. Thus, we may conclude that travellers would like a whole package subsidy, such as a housing discount subsidy, instead of a green tourism subsidy.

Our study generally supported the importance of the public policy support described in previous studies. In particular, we found that tourists place great importance on the viability of the destination's policies and public attitude.

5. Conclusion

This study quantitatively measured the effect of trust or lack of trust in Japan's COVID-19 policies on the travel intentions of Taiwanese tourists, using the propensity score matching method to devise a more positive causality estimation. Based on these results, we concluded that Taiwanese tourists were motivated to travel to Japan if they trusted Japan's measures against COVID-19. Moreover, we examined the consumers' purposes for visiting Japan in the post-COVID-19 era. Our survey also suggested that the country's stringent COVID-19 prevention regulations for locations frequented by tourists, such as regularly disinfecting public facilities, providing hand sanitizers, controlling the number of gathered people, and maintaining social distancing in indoor facilities, may be more attractive to tourists. However, contrary to the expectations of other studies, tourists in Taiwan still look forward to revisiting their favourite places. This would have been the most accurate prediction compared to present day.

While there have been several studies related to the evaluation of Japan's policies against COVID-19, this study is the first to analyse the opinions of foreign tourists. This study suggested that those who found COVID-19 measures in their home countries more successful and severe may have higher demands for measures against COVID-19 in their tourist destinations. The study also proved that trust of foreign quarantine measures impacted tourism. Domestic public policy should also take into consideration its fast impact on foreign communities via various forms of media in the future.

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Declarations

There is no conflict of interest to declare.

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Appendix 1. Logistic regression analysis with covariates that may affect trust in Japan's COVID-19 policy by Propensity Score Matching (PSM) Method.

Dependent Variable	Odds Ratio	Std. Err.	z	P-value	[95% Conf. Interval]	
trustJP: Trust in Japan's policy on COVID-19 Trust = 1						
Change in the image of Japan after the pandemic						
dfriendly: The degree of increase in the impression of Japanese friendliness (change in 7 stages of evaluation)	0.600	0.202	-1.51	0.130	0.310	1.162
drigorous: The degree of increase in the impression of Japanese rigorousness (change in 7 stages of evaluation)	0.281***	0.091	-3.90	0.000	0.148	0.531
dresilience: The degree of increase in the impression of Japanese resilience (change in 7 stages of evaluation)	0.474**	0.142	-2.49	0.013	0.264	0.852
dadvanced: The degree of increase in the impression of Japanese advancement (change in 7 stages of evaluation)	1.193	0.392	0.54	0.590	0.627	2.278
dflexible: The degree of increase in the impression of Japanese flexibility (change in 7 stages of evaluation)	0.755	0.226	-0.94	0.349	0.420	1.359
ddigital: The degree of increase in the impression of Japanese digital orientation (change in 7 stages of evaluation)	0.492*	0.201	-1.74	0.082	0.221	1.095
Access to Japanese news related to the pandemic						
news_people: Confirmed the news of the number of infected people in Japan = 1	0.601*	0.179	-1.71	0.088	0.335	1.078
news_pre-pidemics: Confirmed the news of the number of infection prevention in Japan = 1	1.231	0.369	0.69	0.488	0.684	2.217
news_travelalert: Confirmed the news of the travel alert of Japan = 1	1.361	0.421	1.00	0.319	0.742	2.496
news_visa: Confirmed the news of travel visas to Japan = 1	1.896*	0.707	1.72	0.086	0.913	3.935
news_travel: Confirmed the news of travel tourism in Japan = 1	1.579	0.499	1.44	0.149	0.849	2.935
news_ticket: Confirmed the news of the price of airline tickets to Japan = 1	1.044	0.444	0.10	0.919	0.453	2.406
The understanding of Japan so far						
noJP: I do not understand Japanese = 1	0.486**	0.146	-2.40	0.017	0.270	0.877
JPaddict: I am addicted to one or more Japanese cultural features or trends= 1	1.381	0.413	1.08	0.280	0.769	2.484
Individual characteristics						
Marriage: Married = 1	2.236**	0.767	2.35	0.019	1.141	4.381
Age: age	0.954***	0.018	-2.57	0.010	0.920	0.989
Nostay: I will not go to Japan while at-home quarantine is required= 1	1.496	0.476	1.27	0.205	0.802	2.792
_cons: constant	3.125*	2.165	1.64	0.100	0.804	12.15

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Appendix 2. Standard difference of covariates before and after weighting by inverse-probability.

Covariate balance summary				
Dependent Variable	Standardised	differences	Variance	ratio
trustJP: Trust in Japan's policy on COVID-19 Trust = 1	Raw	Matched	Raw	Matched
Change in the image of Japan after the pandemic				
dfriendly: The degree of increase in the impression of Japanese friendliness (change in 7 stages of evaluation)	-0.271	-0.114	0.645	0.716
drigorous: The degree of increase in the impression of Japanese rigorousness (change in 7 stages of evaluation)	-0.651	-0.133	0.635	0.834
dresilience: The degree of increase in the impression of Japanese resilience (change in 7 stages of evaluation)	-0.536	-0.036	0.929	1.268
dadvanced: The degree of increase in the impression of Japanese advancement (change in 7 stages of evaluation)	-0.219	-0.104	0.733	0.637
dflexible: The degree of increase in the impression of Japanese flexibility (change in 7 stages of evaluation)	-0.264	-0.136	0.797	0.921
ddigital: The degree of increase in the impression of Japanese digital orientation (change in 7 stages of evaluation)	-0.439	-0.057	0.642	1.039
Access to Japanese news related to the pandemic				
news_people: Confirmed the news of the number of infected people in Japan = 1	-0.136	-0.017	1.012	1.003
news_prpandemics: Confirmed the news of the number of infection prevention in Japan = 1	0.161	-0.012	0.932	1.006
news_travelalert: Confirmed the news of the travel alert of Japan = 1	0.242	-0.022	1.023	0.998
news_visa: Confirmed the news of travel visas to Japan = 1	0.325	0.016	1.495	1.019
news_travel: Confirmed the news of travel tourism in Japan = 1	0.282	-0.014	1.169	0.993
news_ticket: Confirmed the news of the price of airline tickets to Japan = 1	0.106	0.025	1.231	1.050
The understanding of Japan so far				
noJP: I don't understand Japanese = 1	-0.364	-0.076	0.866	0.963
JPaddict: I am addicted to one or more Japanese cultural features or trends = 1	0.187	0.042	0.938	0.985
Individual characteristics				
Marriage: Married = 1	0.187	-0.042	1.038	0.990
Age: age	-0.094	-0.033	0.908	1.021
Nostay: I will not go to Japan while at-home quarantine is required = 1	0.080	-0.044	1.071	0.964
	Raw	Weighted		
Number of obs =	300	300.0		
Treated obs =	128	141.9		
Control obs =	172	158.1		

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