

How Much Will International Tourists Pay to Clean Up Arashiyama?

An Analysis Focusing on Western Tourists

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1. Introduction

As the COVID-19 pandemic has come to an end, the tourism industry in Japan has regained its vitality like in the past, which brings huge economic benefits by stimulating the local economy. However, the problem of overtourism is back at the same time. Arashiyama, a popular tourist destination in Kyoto, has been suffering from the garbage problem caused by overtourism for a long time even before the pandemic. The garbage problem not only damages the beautiful nature of Arashiyama but also brings an extra burden on the local administration. To cover the cost of garbage management, a budget is necessary and therefore it is important to estimate the public value of protecting the environment in Arashiyama. Especially since the garbage problem is generated by tourists' activities, understanding tourists' valuation is necessary. This study evaluates English-speaking international tourists' willingness-to-pay (WTP), mainly focusing on tourists from Western countries, by using the contingent valuation method (CVM) through a questionnaire survey. Furthermore, this study discusses some possible factors influencing tourists' WTP.

2. Methodology

Because environmental goods are non-market goods, CVM is used to evaluate the WTP. In this study, we conducted an on-site survey at Arashiyama Park-Nakanoshima Area in November 2023, during the autumn foliage season. The survey includes questions about people's travel experiences in Japan and Arashiyama, their impression of the garbage problem, their general environmental attitudes, and socio-demographic information. To measure general environmental attitudes, we adopt the New Ecological Paradigm (NEP) scale to quantify people's pro-environmental attitudes.

The survey uses a single-bounded dichotomous WTP question with 6 levels of bid. Also, there are two scenarios for the WTP question, one with additional information and the other without additional information. Hence, 12 versions of the questionnaire are randomly distributed to English-speaking international tourists. In the end, 245 responses are collected.

3. Results

The logit model results are partially displayed in the table below. Since the question about respondents' annual income is open-ended (i.e., we do not have income data for some observations), the sample size shrinks a lot (from N=241 to N=132) after including income as an explanatory variable. According to the signs of estimated coefficients shown in the first model (i.e., the model including income variable and not excluding protest responses (PR)), the probability of answering "yes" is negatively associated with the level of bid, the visiting motivation related to world heritage, whether the respondent comes from Europe, whether

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the respondent feels somewhat easy to throw garbage away, and whether the respondent believes the proposed solution is effective. For positive coefficients, the probability of answering “yes” is positively associated with income level, visiting motivations related to natural scenery, monkey park, and rickshaw ride, whether the respondent is living in Japan, and whether the respondent really wants to revisit. At the same time, general environmental attitudes (i.e., variable “NEP score”) are also positively related to the probability of answering “yes.”

Based on the logit model results, we can estimate the median WTP and the mean WTP. Using results from the first model (logit 1), the median WTP is around 91 JPY, and the mean WTP is around 6667 JPY. Using results from the second model (logit 2), the median WTP is about 286 JPY, and the mean WTP is about 7322 JPY. Unfortunately, even though the mean WTPs from both models are statistically significant, the median WTPs from both models are not statistically significant.

4. Conclusion

Overall, we can see that the median WTP of international tourists towards the garbage issue is low and possibly zero. The insignificant WTP may result from multiple reasons. For example, levels of bid might be set too high, so it is difficult to accurately detect the true WTP. Also, the description of the WTP question’s scenario might not be clear enough to make respondents understand the situation. Nevertheless, from a policymaker’s perspective, it may not be a good idea to get funding from international tourists. On the one hand, the consumption of tourists brings great economic benefits to local people, so it seems unreasonable to make them pay even more. On the other hand, problems caused by the crowdedness of tourists indeed put a burden on local residents, so raising money from local residents will put even more burden on them and thus it is also not reasonable to ask them to pay for the garbage problem. Hence, further studies are needed to find an acceptable solution for both sides.

	logit 1		logit 2 (excluding PR)	
ln(bid)	-0.508	**	-0.564	**
	(0.225)		(0.262)	
NEP score	0.063	**	0.041	
	(0.032)		(0.035)	
M_natural scenery	1.665	*	1.021	
	(0.857)		(0.854)	
M_monkey park	1.205	**	1.227	*
	(0.561)		(0.651)	
M_world heritage	-1.617	**	-1.489	*
	(0.747)		(0.767)	
M_rickshaw ride	2.069	*	1.296	
	(1.222)		(1.293)	
Continent				
Asia	1.653		1.908	*
	(1.068)		(1.138)	
Europe	-1.199	*	-0.909	
	(0.659)		(0.668)	
Length of trip in Japan				
living in Japan	3.026	***	2.534	**
	(1.124)		(1.013)	
Willingness to revisit				
definitely yes	1.082	*	0.883	
	(0.618)		(0.618)	
Difficulty of throwing garbage away				
somewhat easy	-1.839	**	-1.194	
	(0.755)		(0.814)	
Effectiveness				
Neutral	-1.295	*	-1.601	**
	(0.763)		(0.795)	
ln(income)	0.588	*	0.629	*
	(0.324)		(0.370)	
Intercept	-12.201	**	-10.291	*
	(5.601)		(6.099)	
N	132		108	
Log pseudolikelihood	-51.48		-46.72	
BIC	171.33		159.00	
AIC	130.97		121.45	

Note: Robust standard error in the parentheses.

*** p<.01, ** p<.05, * p<.1