

Estimating preferences for pricing policies in Japanese national parks using best-worst scaling

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Introduction

The purpose of this study is to understand preferences of the general Japanese public for pricing policies in the national park system applying the best-worst scaling (BWS) approach. One remarkable feature of Japanese national parks is that the most of costs for park services have traditionally financed not by visitors but by general taxpayers. Recently, however, the Japanese government has faced a serious financial shortage; each national park faces revenue shortfalls. In the near future, we need some fundamental changes in Japanese parks system on pricing policies. We have to know general Japanese citizens' preferences for them.

Many countries introduce some kind of pricing policies other than taxes in national parks, wildlife reserves and other protected areas. Laarman and Gregersen (1996) divided pricing policies in terms of nature-based tourism in these areas into seven categories: general entrance fee, fees for use, concession fees, royalties and profit shares, licenses and permits, voluntary donations and taxes. This study attempts to quantify the Japanese citizens' preferences for the above seven alternative pricing policies by BWS approach.

BWS is a method developed by Finn and Louviere (1992). It requires the respondent to choose one alternative that she or he prefers the most and one alternative that she or he prefers the least from a series of choice sets that contain different combinations of alternatives. Previous studies have shown that most of the Japanese people agree with introducing cost burden for services in national parks. If we ask Japanese people about preferences for seven alternative pricing policies in a straightforward fashion (e.g. 5-point Likert scale from "strong agree" to "strong disagree"), most of them seem to reply "strong agree" or "agree". Thus, we may not distinguish differences among preferences for these policies. BWS is sensitive to quantitatively distinguish preferences in these situations.

Method

Questionnaire design

The experimental design is needed to construct a series of BWS choice sets. Balanced incomplete block designs (BIBDs) are useful to ensure that each alternative appears equal number of times and is equally paired with each of the other alternatives across all choice sets (Auger, Devinney and Louviere, 2007; Lee, Soutar and Louviere, 2007). In our survey, each pricing policy appears three times across the series of choice sets and each pair of pricing policy appears once.

Counting analysis

In this study, we employed counting analysis to analyze data obtained by a series of tasks. In counting analysis, we count the number of “total best (aggregated number of the best)” and “total worst (aggregated number of worst)”, respectively. Then, we calculate “B-W score (“total best”–“total worst”)” of each alternative. A higher B-W score indicates that an alternative is evaluated relatively higher on an underlying latent scale. Please see Marley and Louviere (2005) on details of theoretical foundations.

Results

A web survey was conducted to obtain BWS data during the period from 9 to 13 January, 2015. Invitations to complete the survey were sent to 24, 102 Japanese citizens through a research company, and 2,351 people responded. Although this response rate is the low (9.8%), it is similar response rate to mailed survey in Japan (e.g. Yamaura et al., 2016).

The results of counting analysis are summarized in Table 1. Table 1 also shows an index estimated by dividing B-W score by frequency of appearance in aggregated choice sets ($2,351 \times 3 = 7,052$). The most frequently chosen pricing policy in the “total best” category was general entrance fee (chosen 4,764 times), followed by fee for use (chosen 3,640 times). The most frequently chosen pricing policy in the “total worst” category was royalties and profit shares (chosen 4,110 times), followed by taxes (chosen 3,617 times). The pricing policy with the highest B-W score was general entrance fee, followed by fee for use. The results show that general entrance fee and fee for use are relatively preferred to other pricing policies. In addition, the current pricing policy based on taxes is not relatively preferred.

Table 1. Total best, total worst and B-W scores

alternatives	total best	total worst	B-W score	B-W score divided by frequency of appearance	ranking
general entrance fee	4,764	787	3,977	0.564	1
fees for use	3,640	815	2,825	0.401	2
concession fees	1,539	3,436	-1,897	-0.269	6
royalties and profit shares	804	4,110	-3,306	-0.469	7
licenses and permits	2,232	1,412	820	0.116	3
voluntary donations	1,748	2,280	-532	-0.075	4
taxes	1,730	3,617	-1,887	-0.268	5

Discussion

Japanese citizens tend to prefer direct pricing policies (general entrance fee, fees for use and licenses and permits), which are collected in exchange for the direct provision of visitor services. In contrast, they are relatively reluctant to pay for indirect method (concession fees, royalties and profit shares, voluntary donations and taxes) that their relationship between services and payment is not sufficiently clear. However, there remains a technical problem regarding the effectiveness of the direct pricing policies in Japan. Japanese national parks are no more than a layer of multiple land uses; therefore, park managers cannot easily place gates for fee collection and control all of visitors.



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