

133 What do website review activities imply about natural park users?

Yoshiaki Shimazaki¹, Christian Crowley², ¹Akita Prefectural University, Japan. ²U.S. Department of the Interior, USA

Introduction

Information-provision is a low-cost way of potentially affecting levels of park use. Providing information about amenities at various parks, along with information on current conditions can affect users' choices of where to visit [Shimazaki and Crowley (2014)]. This is similar to how profit maximizing firms provide information (often as advertisements) to attract consumers. However, this tool may not always be used effectively by non-profit-maximizing park managers. Shimazaki et al. (2017) quantified the amount of information available on Japanese national park web sites created by the government managing authority, and investigated the relationship between information and the degree of national park use. They found that the amount of information posted on the authority's web site is not related to the park visitation.

Some internet services provide a platform to exchange information. Social network services allow users to transmit information not only among people with which the user has an established relationship, but also more widely, among people with no previous contact. Other internet services are specially designed to allow people to post public reviews of what they purchased or experienced. Such information on the internet often reflects people's preferences, based on what they find worth mentioning, providing an indication of their underlying utility functions. For non-marketed goods like public goods and common resources, uncovering the factors affecting people's perceived quality of experience is crucial for the management of resources.

In this study, we investigate what information are park users are transmitting, focusing on subjective information such as user reviews from internet travel services. We also investigate the correlation between the number of review activities and the official visitor counts of parks to see if review activities can be used for estimating the number of park visits. The results of this study would help park management authorities seeking to optimize park

user experiences, for example through information provision.

Methodology and Data

Japanese natural parks display great variation in the range of park information available. For example, visitors to Mt. Fuji will find a wide range of information readily available, while visitors to lesser known national parks may have a more difficult time locating information they need. As mentioned in Shimazaki et al. (2017), this variability suggests using Japanese parks as a test case to investigate information transmitted by park users.

We determine the factors important for national park users by analyzing reviews posted on an internet travel information service. The website 4travel.jp is a large Japanese website for posting travel reviews and comparing prices for travel-related services. The site holds over 1.6 million domestic travel reviews, including overall ratings of experiences from 1 (worst) to 5 (best). From the website, we collected all review data posted as of July 4, 2017, using the Python programming language's web crawling function.

To determine whether a given review is related to national park travel or not, we selected reviews with specific keywords related to national parks. The keywords are points of interest referred to in the website of 33 national parks operated by the Japanese Ministry of the Environment. We found a total of 32,236 such reviews. We assumed that these reviews are posted on the website by people who actually visited the places.

Our next step was to identify frequently appearing words using the text analytics application IBM SPSS Text Analytics for Surveys. The application also analyzes the sentiment of reviews; we focused on reviews with an overall positive sentiment. Table 2 shows a summary of the text analysis, excluding general words such as "do", "go," etc.

Words frequently appearing in reviews include "nature," "food," "hotel," "access," "hot spring," "shrine," "weather," and "applause for the

price.” Moreover, about 93% of the reviews were determined to be positive sentiment (“positive”). We use the rating and the positive sentiment as dependent variables, and run separate regressions to determine the relationship of each variable with frequently appearing words.

Results

The web reviews we analyzed included ratings of the visitor’s overall experience, from 1 (worst) to 5 (best). The regression results for the text analysis, using rating as the dependent variable, are shown in Table 1.

We found that “nature,” “shrine,” and “weather” are positively and significantly related to the ratings of travel experiences in national parks. Among these, “nature” is the word most related to higher ratings, followed by “shrine,” and then “weather”.

Table 1: Regression results for ratings

variable	Coef.	Std. Err.	p-value	
nature	0.167	0.008	0.000	***
food	0.010	0.010	0.335	
hotel	-0.014	0.011	0.196	
access	0.004	0.009	0.649	
hot_spring	-0.004	0.012	0.760	
shrine	0.144	0.012	0.000	***
weather	0.040	0.012	0.001	***
p_applause	0.000	0.015	0.994	
_cons	3.939	0.007	0.000	***
n	32,236			
Adj R^2	0.018			

Next, we found that the number of review activities and the official visitor counts of parks are highly correlated with correlation coefficient 0.82.

Concluding Remarks

This study investigated the factors important for national park users by analyzing reviews posted on an internet travel information service. The results indicated that mentions of “nature,” “shrine,” and “weather” are positively and highly related with ratings of travel experiences (on a scale of 1 to 5). Moreover, we found that “food,” “nature,” “weather,” “hotel,” and “hot spring” are highly related to the reviews determined as having a positive sentiment. The results indicate that national park users tend to exchange information related to nature, weather, and (perhaps surprisingly) shrines. This may differ substantially from reviews for non-nature-based tourism.

We also found that the number of review activities and the official visitor counts of parks are highly correlated. It indicates that the number of review activities could be useful for estimating visitor counts for unmonitored natural parks.

Natural areas provide an attractive recreational resource and yet are subject to negative impacts from use (and overuse). This paper suggests that information-oriented management can improve user welfare by not only limiting or avoiding those impacts at popular sites, but also by introducing users to new areas.

References

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