

Two factor model of consumer satisfaction: International tourism research



Sangkon Park ^a, Sowon Hahn ^{b, *}, Taehun Lee ^c, Minji Jun ^a

^a Korea Culture & Tourism Institute, Republic of Korea

^b Seoul National University, Republic of Korea

^c Chung-Ang University, Republic of Korea

HIGHLIGHTS

- Theories of behavioral economics were applied in the international tourism study.
- Expectation, reciprocity, and peak-end rule can increase tourism satisfaction.
- The MIMIC model found factors related to current satisfaction and future behavior.
- Two correlated factors were affected by expectation, tour season, and first visit.
- Results can benefit international tourists visiting through guided tour programs.

ARTICLE INFO

Article history:

Received 3 April 2017

Received in revised form

8 January 2018

Accepted 9 January 2018

Keywords:

Tourism satisfaction
Behavioral economics
Expectation
Reciprocity
Peak-end rule

ABSTRACT

We applied theories of behavioral economics and conducted a field research on 881 tourists from China visiting Seoul through guided tour programs. We randomly assigned participants to study conditions based on theories of expectation, reciprocity, and peak-end rule. At the end of the tour, participants evaluated various aspects related to tour satisfaction and general impression of the city. A confirmatory factor analysis supported that these variables can be explained by two correlated factors, identified as the Current Satisfaction Factor (CSF) and the Future Behavior Factor (FBF). The multiple indicator multiple causes (MIMIC) model showed that CSF was impacted by expectation and tour season, and FBF by expectation, tour season, and first visit. Our results suggest that providing additional information before each activity can improve tourism satisfaction and non-manipulated variables such as tour season and first visit can be incorporated to further enhance tourism satisfaction.

© 2018 Elsevier Ltd. All rights reserved.

1. Introduction

Research has shown that consumers try to retaliate for failed services, regardless of who is directly responsible for the service in question (Ariely, 2007; de Quervain, Fischbacher, Treyer, & Schellhammer, 2004). For example, an unsatisfied restaurant customer may attempt to penalize the wait staff by leaving a smaller tip, even if the wait staff is not responsible for the unsatisfactory food. At other times, a customer may try to punish a higher level of authority, such as a restaurant owner or an entire

city. The same idea can be applied to tourism. When people travel using tour packages, they are under the impression that they are visiting Paris or London, not a package route of a travel company. Tourists can blame the whole city for an unsatisfactory experience. Consequently, it may be useful to implement policy-level controls on tourism management instead of relying on individual companies' service control.

In recent years, policymakers have begun to embrace behavioral economics to make interventions for human behavior and decision-making (Bhargava & Loewenstein, 2015). This approach was popularized as a “nudge” by a best-selling book with the same title (Thaler & Sunstein, 2008). Nudges can alter people's behavior in predictable ways without removing options or significantly changing economic incentives (Thaler & Sunstein, 2008). For example, human behavior can be modified by strategically placing

* Corresponding author. Department of Psychology, College of Social Sciences, Seoul National University, 1 Gwanak-ro, Gwanak-gu, Seoul, Republic of Korea.

E-mail address: swhahn@snu.ac.kr (S. Hahn).

fruit in the school lunch line.

In the present study, we hypothesized that tourism satisfaction can be improved without fundamentally changing tour programs or providing economic incentives. We chose theories of behavioral economics that can be seamlessly incorporated into the guided tour programs without interfering with ongoing activities. First, we investigated whether tourism satisfaction can be improved by providing additional information before each activity to build up participants' expectation for the upcoming activities. Second, we investigated whether the sense of reciprocity can increase tourism satisfaction. Third, we examined whether we could increase tourism satisfaction by highlighting the end of the tour program. We also measured effects of non-manipulated variables such as weather and previous visits to the city on tourists' satisfaction and their attitudes toward future visits.

While consumers generally consider the acquisition utility (the value of a good for its price) for most goods, they tend to consider the transaction utility (the difference between the amount paid and the 'reference price' for the goods) when traveling in another country (Thaler, 1985). Since tourists' utility varies depending on the point of consumption, this study focused on accommodation, transportation, food, shopping, and guidance, which are the key points of tourism services for those traveling to Korea. In addition, we measured tourists' attitudes using behavioral variables such as intention to recommend or revisit as well as the amount they are willing to pay (WTP) for the same tour package.

2. Literature review

2.1. Expectation

Previous research has shown that expectations for upcoming events can change how an individual evaluates the event (Ariely & Norton, 2007). Receiving positive or negative information before experiencing a product can modify the evaluation of the product. For instance, Wilson, Lisle, Kraft, and Wetzel (1989) demonstrated that participants evaluated cartoons to be more interesting when they received positive information about the cartoon in advance. In Lee, Frederick, and Ariely (2006), participants evaluated the beer negatively when they were informed in advance that the beer included balsamic vinegar. While balsamic vinegar can actually enhance the taste of beer, information about the ingredient may reduce the quality of the beer drinking experience.

The effect of expectation can be observed at the perceptual level (Biederman, 1972; Palmer, 1975), assessment of individual abilities (Darley & Gross, 1983), movie evaluation (Klaaren, Hodges, & Wilson, 1994; Geers & Lassiter, 2005), and evaluation of subjective well-being (Brief, Butcher, George, & Link, 1993). Brand names or packaging also have a significant impact on consumer preferences for carbonated beverages (McClure et al., 2004), turkey (Makens, 1965), beer (Allison & Uhl, 1964), power bars (Wansink, Park, Sonka, & Morganosky, 2000), coffee (Olson & Dover, 1978), and dairy products (Wardle & Solomons, 1994).

Researchers have proposed several theoretical frameworks to explain the effects of expectations. Lee et al. (2006) proposed *Direct Effect Hypothesis*, which claims that expectations have a direct impact on perceptual experiences. Another theoretical account for the role of expectation is *Affective Expectation Model* (Wilson & Klaaren, 1992). According to this model, when there is a discrepancy between actual and expected experience, people do not make any additional effort to reduce the gap. Instead,

consumers will rely heavily on their previous expectations when there is not enough information or conflicting information about the product.

2.2. Reciprocity

Classical economic theories assume that humans are selfish and willing to maximize capital gains at the expense of others (Williamson, 2007). However, actual human behavior is not always consistent with rational models. One example against rational models of human behavior is the tendency for reciprocity, in which people return favor with favor and hostility with hostility. Reciprocity is not necessarily based on how it affects an individual's future. In fact, people are willing to reward and punish strangers they will never meet again. Classical economic theories predict that if there is an opportunity for a free ride, people will take the opportunity. However, those who are reciprocal are willing to punish free riders at extra cost. As a result of this reciprocity, a more cooperative society can be built.

One study shows that customers tend to feel indebted when they receive a free product at a supermarket, and as a result, try to buy more (Cialdini, 1993). Another shows that employees tend to steal more from their company after pay-cuts (Giacalone & Greenberg, 1997). The tendency for reciprocity is well demonstrated in the ultimatum game. In this game, a proposer suggests how to split the money between two players and a responder can decide whether or not to take the offer. If the respondent declines the offer, neither party will receive the money. Pure rational models would suggest that responders should accept any amount because any money is better than none. However, studies show that responders tend to reject the offer if proposers offer less than 30 percent of the total (Camerer & Thaler, 1995; Güth, Schmittberger, & Schwarze, 1982). This result is consistent with the idea that people value fairness over pure gain.

2.3. Peak-end rule

The peak-end rule is that people tend to evaluate their experience based on the best experience and the final experience not based on the whole or average experience. Kahneman, Fredrickson, Schreiber, and Redelmeier (1993) investigated this phenomenon with laboratory experiments. For one condition, participants placed their hands in painfully cold water of 14 degree Celsius for 60 s. For the second condition, participants placed their hands in water of 14 degree Celsius for 60 s, and then placed their hands in water of 15 degree Celsius for additional 30 s. When the participants were asked to choose one of the two conditions, they preferred the second condition even though the second condition led a longer unpleasant experience. This result indicates that participants evaluated the experience based on the end of the experience, which was less unpleasant in the second condition. Similarly, Redelmeier and Kahneman (1996) found that patients evaluated the painful medical procedures based on the end of the experience rather than the overall experience. In other words, patients preferred the procedure with a less painful ending, even if the overall pain was worse.

Researchers argue that people remember the peak and ending experiences as the representative one and predict future events based on this highly available but unrepresentative memory (Morewedge, Gilbert, & Wilson, 2005; Ochsner, 2000). According to the peak-end rule, manipulating the end interaction between the employee and customer can significant change how a consumer remembers the event. For example, if the last experience is positive, such as providing a free sample or opening a door, the whole

Table 1
Visitor profile.

Variable	Options	Percent
Gender	Male	35%
	Female	65%
Age	15–24	9.5%
	25–34	23.7%
	35–44	29.7%
	45–54	19.2%
	55–64	12.3%
	Over 65	5.6%
Number of visits to Korea	1 st time	72.8%
	2 nd or more	27.2%
Decision point to travel	Within a month before the trip	53.7%
	Over a month before the trip	46.3%
Season of travel	Summer	35.9%
	Other seasons	64.1%
Length of stay	Less than 5 days	73.0%
	5 or more days	27.0%
Tour team size	Less than 10	4.0%
	10–19	50.9%
	20–29	28.9%
	30 or more	16.2%

consumer experience can be considered positive.

3. Field study

3.1. Overview

We conducted a field study to investigate whether tourism satisfaction can be improved by applying theories of expectation, reciprocity, and peak-end rule. We also conducted a statistical modeling to have a broad understanding of how multiple factors influence individuals' evaluation of the tour. We aimed to use behavioral economics theories that could be seamlessly added to the tour package without interfering with on-going activities. First, the expectation manipulation was added by providing additional information before each activity. Tour guides delivered the information using the script about local customs and culture. The script was developed based on previous international tourists' comments, collected by Korea Culture & Tourism Institute. Second, the reciprocity treatment was developed as an apology for the pre-arranged shopping route. Tourism companies often include a pre-arranged shopping route to reduce tour program costs and increase revenues, even though shopping is not always a priority for tourists. However, if people appreciate the lower price of the tour

Table 2
Tourism evaluation questionnaire items.

Item number	Item wording of questionnaire	English translation
S1	您对这一次韩国旅行大体上有多满意?	Overall, how satisfied are you with your current trip to Korea?
S2	那么,您对以下项目大体上有多满意?	How satisfied are you with these specific items?
S2-1	饮食	Food
S2-2	交通	Transportation
S2-3	住宿	Housing
S2-4	旅游商品	Tour package
S3	在将来5年内,再来韩国旅游的意向有多大?	How much do you intend to return to Korea in the next five years?
S4	您有没有意向给周边朋友推荐韩国旅行?	After your trip to Korea, how is your overall image of Korea?
S5	在这一次韩国旅行中,您对韩国的大体印象如何?	Are you interested in recommending this trip to Korea to some people around?
S6	如果您要购买与这一次同样的旅游商品,您最多能付多少钱?(如果不要,填入'0')	If you buy the same Korean travel products this time, how much will you pay for? (0 if there is no intention to do so)

Table 3

Distribution of responses to each questionnaire item. A 5-point Likert scale was used, with 1 being very dissatisfied and 5 being very satisfied. For the intention to recommend or revisit items, 1 indicates least likely and 5 indicates most likely.

Questionnaire items	1	2	3	4	5	Mean	Std. dev
S1. Overall satisfaction	27	21	130	169	458	4.25	1.04
S2-1. Food	41	71	176	150	356	3.89	1.22
S2-2. Transportation	22	47	152	287	772	4.34	1.02
S2-3. Housing	13	22	97	151	463	4.38	0.94
S2-4. Tour package	12	34	156	184	370	4.15	1.00
S3. Revisit	26	55	88	331	306	4.04	1.03
S4. Image	23	21	88	267	393	4.24	0.96
S5. Recommend	10	20	108	222	444	4.33	0.89
S6. LNWTP	–	–	–	–	–	6.17	3.42

package, the shopping experience may not be considered negative in the sense of reciprocity. Third, the theory of the peak-end rule was applied by manipulating the end of the tour. International tourists leaving Seoul depart from the Incheon International Airport. The way back to the airport from the downtown follows the Han River, which divides Seoul in the middle. We hypothesized that this last trip could be highlighted as the "Han River Tour" instead of a bus ride to the airport. The complete script is described in [Appendix](#).

3.2. Participants

This present study involved 46 separate tour groups including 881 Chinese tourists visiting Seoul, Korea through guided tour programs. Each tour group consisted of 9–36 individuals ($mean = 19.2$, $SD = 7.1$), and the average number of tourists per group was 18. The average age of participants was 41, and 65 percent of them were female. About 73 percent of the tourists visited Korea for the first time and 54 percent of them made the travel decision less than one month before the trip. About 36 percent of them visited during the months of July and August and 73 percent stayed for fewer than 5 days. Demographic information of participants is presented in [Table 1](#).

3.3. Procedure

We contacted tour guides/translators through Korean Association for Tour Guides and Translation. The tour guides' role was critical because they could instill the treatment without fundamentally changing the contents of the tour program. The total

number of guides participating in the study was 10, and 5 of them were female. They ranged from 30 to 54 years in age ($mean = 42.6, SD = 7.5$). They had two to thirty years of experience working as a tour guide ($mean = 10.5, SD = 10.1$). The tour guides received sealed packets that included study conditions and how to administer the study condition. We randomly assigned tour groups to one of eight conditions with an equal distribution of the three treatments (expectation, reciprocity, peak-end rule). These three treatments were considered as different independent variables with two levels (treatment presence and absence). Thus, this study has a 2 (expectation presence/absence) \times 2 (reciprocity presence/absence) \times 2 (peak-end presence/absence) design.

At the end of the tour, participants were asked to rate their overall experience, satisfaction with food, transportation, housing, and tour packages. Participants were also asked to rate their intention to revisit, intention to recommend, overall image of the city, and amount they would be willing to pay (WTP) for the same tour package. The tourism evaluation questionnaire items are listed in Table 2.

4. Results

4.1. Responses to satisfaction questionnaire

The distribution of participants' responses to each item is shown in Table 3. For the customer satisfaction survey, we used the 5-point Likert scale with 1 indicating very dissatisfied and 5 indicating very satisfied. For the items evaluating the intention to recommend or revisit, 1 indicated "least likely" and 5 indicated "most likely." We analyzed the effects of expectation, reciprocity and peak-end manipulations on these 9 items. Table 4 shows the participants' mean responses for each treatment condition.

To investigate the role of three treatments on general and specific tourism satisfaction, we conducted 3-way ANOVAs with expectation, reciprocity, and peak-end as between subject factors. The ANOVA results are summarized in Table 5. The results show that all three manipulations improved customer satisfaction, but the expectation treatment had a particularly strong impact on all satisfaction questionnaire items. The results also show that these manipulations interact with each other.

For the overall satisfaction, we found significant main effects for expectation ($F(1,797) = 39.44, p < .001, \eta_p^2 = 0.047$) and reciprocity ($F(1,797) = 4.49, p = .034, \eta_p^2 = 0.006$). We also found a significant interaction for reciprocity x peak-end ($F(1,797) = 4.36, p = .037, \eta_p^2 = 0.005$). For the food satisfaction, significant main effects were observed for expectation ($F(1,786) = 27.86, p < .001, \eta_p^2 = 0.034$) and reciprocity ($F(1,786) = 5.42, p = .020, \eta_p^2 = 0.007$). In addition, significant interactions were obtained for

Table 5

ANOVA results for each satisfaction item using three treatment conditions as independent variables. An asterisk (*) indicates a statistical significance of $p < .05$.

Variables	df	MS	F	η_p^2	Sig
<i>Overall Satisfaction</i>					
Expectation	1	39.585	39.443	.047	.000 *
Reciprocity	1	4.508	4.491	.006	.034
Peak-end	1	9.987	9.951	.012	.002
Expectation * Reciprocity	1	.001	.001	.000	.979
Expectation * Peak-end	1	.136	.135	.000	.713
Reciprocity * Peak-end	1	4.373	4.357	.005	.037 *
Expectation * Reciprocity * Peak-end	1	3.676	3.663	.005	.056
<i>Food Satisfaction</i>					
Expectation	1	38.157	27.864	.034	.000 *
Reciprocity	1	7.418	5.417	.007	.020 *
Peak-end	1	2.506	1.830	.002	.177
Expectation * Reciprocity	1	14.125	10.315	.013	.001 *
Expectation * Peak-end	1	8.561	6.252	.008	.013 *
Reciprocity * Peak-end	1	11.129	8.127	.010	.004 *
Expectation * Reciprocity * Peak-end	1	15.348	11.208	.014	.001 *
<i>Transportation Satisfaction</i>					
Expectation	1	12.463	12.463	.016	.000 *
Reciprocity	1	3.057	3.065	.004	.080
Peak-end	1	5.310	5.324	.007	.021 *
Expectation * Reciprocity	1	.080	.080	.000	.778
Expectation * Peak-end	1	6.183	6.20	.008	.013 *
Reciprocity * Peak-end	1	1.820	1.825	.002	.177
Expectation * Reciprocity * Peak-end	1	4.690	4.702	.006	.030 *
<i>Housing Satisfaction</i>					
Expectation	1	8.702	10.071	.013	.002 *
Reciprocity	1	.626	.725	.001	.395
Peak-end	1	2.116	2.449	.003	.118
Expectation * Reciprocity	1	.002	.003	.000	.957
Expectation * Peak-end	1	2.650	3.067	.004	.080
Reciprocity * Peak-end	1	3.275	3.790	.005	.052
Expectation * Reciprocity * Peak-end	1	1.531	1.772	.002	.184
<i>Tour Package Satisfaction</i>					
Expectation	1	19.506	20.504	.027	.000 *
Reciprocity	1	1.249	1.313	.002	.252
Peak-end	1	14.629	15.377	.020	.000 *
Expectation * Reciprocity	1	.855	.899	.001	.343
Expectation * Peak-end	1	.006	.007	.000	.936
Reciprocity * Peak-end	1	1.357	1.427	.002	.233
Expectation * Reciprocity * Peak-end	1	6.840	7.190	.010	.007 *

expectation x reciprocity ($F(1,786) = 10.32, p = .001, \eta_p^2 = 0.013$), expectation x peak-end ($F(1,786) = 10.32, p = .001, \eta_p^2 = 0.013$), reciprocity x peak-end ($F(1,786) = 8.13, p = .004, \eta_p^2 = 0.010$), and expectation x reciprocity x peak-end ($F(1,786) = 11.21, p = .001, \eta_p^2 = 0.014$). For the transportation satisfaction, significant main effects were observed for expectation ($F(1,764) = 11.46, p < .001, \eta_p^2 = 0.016$) and peak-end ($F(1,764) = 5.32, p = .021, \eta_p^2 = 0.007$). Significant interactions were obtained for expectation x peak-end ($F(1,764) = 6.2, p = .013, \eta_p^2 = 0.008$), and expectation x

Table 4

The mean responses of participants in each condition. Numbers in parentheses indicate standard deviation.

Variables	Expectation		Reciprocity		Peak-end	
	treatment	control	treatment	control	treatment	control
Overall Satisfaction	4.47 (0.84)	4.02 (1.17)	4.33 (0.98)	3.98 (1.05)	4.35 (0.99)	4.16 (1.07)
Food Satisfaction	4.09 (1.05)	3.67 (1.35)	3.99 (1.13)	3.76 (1.13)	3.93 (1.18)	3.86 (1.25)
Transportation Satisfaction	4.46 (0.89)	4.21 (1.13)	4.41 (0.94)	4.25 (1.10)	4.40 (0.98)	4.27 (1.06)
Housing Satisfaction	4.49 (0.83)	4.26 (1.04)	4.42 (0.94)	4.33 (0.93)	4.42 (0.90)	4.34 (0.98)
Tour package Satisfaction	4.29 (0.93)	3.98 (1.05)	4.20 (0.98)	4.08 (1.02)	4.27 (0.92)	4.02 (1.06)
Intention to revisit	4.12 (0.90)	3.92 (1.13)	4.06 (1.05)	4.01 (1.02)	4.27 (0.92)	4.03 (1.06)
Overall image of the city	4.39 (0.78)	4.09 (1.09)	4.30 (0.94)	4.18 (0.97)	4.26 (0.96)	4.23 (0.92)
Intention to recommend	4.46 (0.75)	4.19 (1.00)	4.36 (0.89)	4.30 (0.89)	4.35 (0.99)	4.16 (1.07)
LNWTP	6.26 (3.46)	6.08 (3.39)	6.23 (3.46)	6.09 (3.38)	6.50 (3.22)	5.84 (3.58)

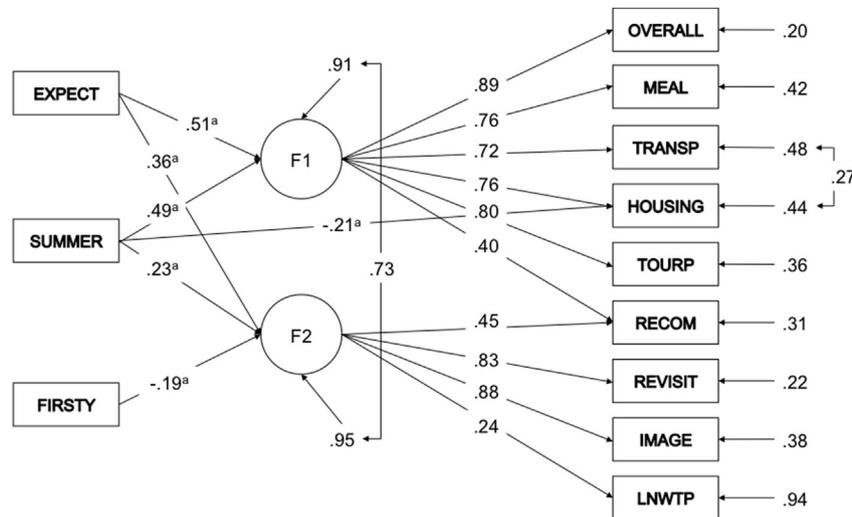


Fig. 1. Path diagram of the final MIMIC model and partially standardized solution.

Note: In the partially standardized solutions, binary covariates EXPECT, SUMMER, and FIRSTY were not standardized. ^aThese estimates should be interpreted as how many standardized scores in CSF, FBF, and HOUSING are expected to change as a function of one unit increase in a given covariate. These values can be interpreted akin to Cohen's *d* (*d* = 0.20, 0.50, and 0.80 for small, medium, and large effects, respectively).

reciprocity x peak-end ($F(1,764) = 4.70, p = .030, \eta_p^2 = 0.006$). For the *housing satisfaction*, the expectation main effect was significant ($F(1,738) = 10.07, p = .002, \eta_p^2 = 0.013$). For the *tour package satisfaction*, we found significant main effects for expectation ($F(1,748) = 20.50, p < .001, \eta_p^2 = 0.027$) and peak-end ($F(1,748) = 15.38, p < .001, \eta_p^2 = 0.020$), and also found a significant three way interaction for expectation x reciprocity x peak-end ($F(1,738) = 7.19, p = .007, \eta_p^2 = 0.010$).

4.2. MIMIC modeling

To better understand how these variables interact with each other and with non-manipulated variables, we conducted a multiple indicator multiple causes modeling (MIMIC). We started our analysis by first fitting a confirmatory factor analysis (CFA) with two correlated factors. We found that the first factor was adequately measured by items: satisfaction scores for overall satisfaction, food satisfaction, transportation satisfaction, housing satisfaction, tour package satisfaction, and intention to recommend, whereas the second factor was adequately measured by items: intentions to revisit, intention to recommend, overall image of the city and LNWT. The modification indices suggest the error term of item transportation be correlated with the error term of item housing. The chi-square statistic with non-normality correction (Yuan & Bentler, 2000) was found to be 21.021 on 24 degrees of freedom with a *p*-value = .638, showing a good fit. Also, the RMSEA = 0.000 with a *p*-value = 1.000 for the test of close fit. Furthermore, the fit indices CFI and TLI had values 1.000 and 1.002, respectively while the SRMR was 0.014, as expected when the model fits well.

We then proceed to fit a structural equation model, widely known as a multiple indicator multiple causes (MIMIC) model, to investigate the effects of covariates on the factor structure. In the initial model, expectation, reciprocity, peak-end, summer travel, and first visit were used as covariates. However, only statistically significant covariates were included in the final model. The pattern of factor loadings identified in the previous step was preserved in

this analysis. The final model was the one that allowed the estimation of the covariance between the residual variances of factor 1 and factor 2. This implies that the constructs of factor 1 and factor 2 are not completely orthogonal, and that this overlap cannot be fully accounted for by the covariates. According to the modification index, the direct path was identified significant from summer travel to the indicator of the first factor housing. This implies that the indicator of the first factor functions different for summer visitors and non-summer visitors. Specifically, it can be expected that, regardless of the level of the underlying factor score, summer visitors will score lower on the housing indicator than non-summer visitors.

The partially standardized maximum likelihood estimates of the parameters in the final model are given on the path diagram in Fig. 1. All parameter estimates were found to be statistically significant at a nominal 5 percent level. The chi-square statistic with non-normality correction (Yuan & Bentler, 2000) was 70.948 on 45 degrees of freedom with a *p*-value = .008. The RMSEA = 0.027 with a *p*-value = 1.000 for the test of close fit. CFI, TLI, and SRMR also indicated an adequate fit (0.992, 0.988, and 0.021, respectively).

When we looked closely at the items included in the confirmatory factor analysis, the first factor was typically based on the specific satisfaction of the trip, such as whether the participants were satisfied with food, housing, transportation, or the tour package overall. On the other hand, the second factor was associated with responses that are related with future intention to visit or recommend the tour to others. Therefore, we have named the first factor as the Current Satisfaction Factor (CSF) and the second factor as Future Behavior Factor (FBF). The *intention to recommend* variable was included in both factors.

When we fit a multiple indicator multiple causes (MIMIC) model, the results demonstrate that manipulated expectations had a strong effect on participants' responses, influencing both CSF and FBF. The MIMIC model confirms that the expectation manipulation had a strong effect on participants' responses. However, reciprocity and peak-end manipulations did not have a significant impact and thus were not included in the model. In addition, whether or not the tour happened during the summer (SUMMER) influenced both

CSF and FBF, suggesting that the season of the trip can modify individuals' experience of the present travel as well as their desire to visit in the future. In addition, whether the tour was their first visit to the city (FIRSTY) made a significant influence on FBF. None of the other non-manipulated variables play significant roles in the MIMIC model. Other variables included in the presented study are gender, age, size of the tour team, and whether participants decided the trip during the final month before the tour, as well as experience, gender, age, and nationality of the tour guides.

5. Discussion

We applied theories of behavioral economics to investigate whether we can improve tourism satisfaction without fundamentally changing the tour content or providing financial incentives. We conducted a field study on Chinese tourists visiting Seoul, Korea, and measured general and specific tour satisfaction, overall impression of the city, the intention to recommend or revisit the city, and willing to pay amount (WTP) amount for the same tour package. Our results demonstrated that raising expectations by providing additional information before the activities can increase tour satisfaction and favorable attitudes for future visits. In addition, our results demonstrate that the effects of reciprocity and peak-end manipulations also made positive influence on tour satisfaction, although the impact was smaller than the effect of raising expectations. It should be noted that effects of expectation, reciprocity, and peak-end could also be influenced by culture. For instance, even though the effect of expectation was strong in the present study, it is possible that visitors from other cultures would exhibit a different attitude when "building up" expectations. Cultural difference can play a role in the effect of reciprocity. In many Asian cultures, demand for monetary exchange can be considered indecent even if fairness is important, so reciprocity manipulation may be better handled implicitly.

When we fit a multiple indicator multiple causes model (MIMIC), the results support that two correlated factors, identified as Current Satisfaction Factor (CSF) and Future Behavior Factor (FBF), can be adequately measured by nine variables. Our results also demonstrate that the season of the tour (e.g., summer travel) as well as the expectation manipulation had effects on both CSF and FBF. For many tourists, weather can be an important part of the trip. Many non-manipulated factors including weather can influence people's mood, and previous

research shows that people make decisions about future based on current affective information (Andrade & Ariely, 2009; Simonsohn, 2010). For instance, prospective students visiting a very competitive university showed a greater tendency to enroll if the weather was cloudy during their visit, which could make the university appear more competitive (Simonsohn, 2010). However, research also shows that it is possible to control the impact of weather on evaluation and decisions. For instance, when people are conscious aware of the situational factors such as weather, the mood based on weather no longer affects people's evaluation (Clare, Gasper, & Garvin, 2001). In addition to the impact of the tour season, our model also shows the first visit factor influenced FBF. In fact, many people do not want to visit the same city multiple times, regardless of how enjoyable the trip was. However, they still can recommend the trip to others, as our model shows that both CSF and FBF can be measured by the intention to recommend. These results suggest that the effects of non-manipulated variables on tour satisfaction and future behavior can be incorporated in designing a tour program.

The present results have practical implications in improving tourism satisfaction and increasing favorable attitudes for future visits. First, it is beneficial to preface activities with relevant positive information to build up expectations for the event. This information should be designed to increase tourists' internal expectations for upcoming activities. Second, giving a feeling of reciprocity or framing the end of the tour can also improve tour satisfaction. Finally, non-manipulated factors such as tour season or first visit should be incorporated in designing tour programs. One of the limitations of the present study is that we only measured survey responses. Thus, the current study cannot answer whether applying behavioral economics can actually increase future tourism. Another limitation of the current study is that we used Chinese tourists visiting Korea, so the effects might be limited to the specific Asian culture. Further studies using human behavior theories in various contexts can provide practical and theoretical contributions to the field of tourism.

Appendix. Verbal scripts used in the study to provide additional information

Information	Script
Local fast food	Everyone is busy in this society. So one-plate meal is preferred among busy people, and you can easily grab quick lunch anywhere. Have you heard about "Bulgogi plate" or "pork-belly plate"?
Traditional food	In Korea, people used special spice and flavor for hundreds of years such as fermented beans, and hot paste. You may find Korean food too spicy, but you can enjoy the depth of the Korean food and culture.
Food portion	You might think that the amount of side dish is small. Koreans are serious about recycling and try to reduce food waste. But you are always welcome to take the second or third serving in a restaurant.
Geographic feature	Rush hour traffic jam is just other mega cities, but for a different reason. In Korea 70 percent of land is mountain. It is difficult to make a road around it while the population of Seoul grew to 10 million.
Local transportation	The subway system of Seoul is internationally known. There are 9 different subway lines, and you can basically get around anywhere in Seoul using subway, and it is also equipped with Wi-Fi.
Air pollution	Like all the other big cities, Seoul also has air pollution problems. But relatively speaking, it is better than other mega-cities. So don't worry about it and enjoy your tour.
Accommodation	Your hotel may not be large or luxurious, but it is close to many attractions and it provides clean and safe environment. It is well following the international guideline, so you can enjoy your stay.
Option tour	Tomorrow, we will have an option tour. It was necessary to include the option tour to make the tour package economical. I hope you understand.
End of the tour	Now we are heading to the airport. You may be tired, but please take a look at your side. This is beautiful Han-River. It is the symbol of Seoul and the economic growth of Korea is called "Miracle of Han-River." The river crosses the city, and there is an island called "Yeo-Yi-do" including the Congress building. There is the 63rd story building in that island overlooking the city.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.tourman.2018.01.007>.

References

- Allison, R., & Uhl, K. (1964). Influence of beer brand identification on taste perception. *Journal of Marketing Research*, 1(3), 36–39. <https://doi.org/10.2307/3150054>.
- Andrade, E. B., & Ariely, D. (2009). The enduring impact of transient emotions on decision making. *Organizational Behavior and Human Decision Processes*, 109(1), 1–8. <https://doi.org/10.1016/j.obhdp.2009.02.003>.
- Ariely, D. (2007). The customer's revenge. *Harvard Business Review*, 85(12), 31–43.
- Ariely, D., & Norton, M. I. (2007). Psychology and experimental economics: A gap in abstraction. *Current Directions in Psychological Science*, 16(6), 336–339. <https://doi.org/10.1111/j.1467-8721.2007.00531.x>.
- Bhargava, S., & Loewenstein, G. (2015). Behavioral economics and public policy 102: Beyond nudging. *The American Economic Review*, 105(5), 396–401. <https://doi.org/10.1257/aer.p20151049>.
- Biederman, I. (1972). Perceiving real-world scenes. *Science*, 177(43), 77–80. <https://doi.org/10.1126/science.177.4043.77>.
- Brief, A. P., Butcher, A. H., George, J. M., & Link, K. E. (1993). Integrating bottom-up and top-down theories of subjective well-being: The case of health. *Journal of Personality and Social Psychology*, 64(4), 646. <https://doi.org/10.1037/0022-3514.64.4.646>.
- Camerer, C., & Thaler, R. H. (1995). Anomalies: Ultimatums, dictators and manners. *The Journal of Economic Perspectives*, 9(2), 209–219. <http://www.jstor.org/stable/2138174>.
- Cialdini, R. (1993). *The psychology of influence*. New York: William Morrow & Co.
- Clare, G. L., Gasper, K., & Garvin, E. (2001). Affect as information. In J. P. Forgas (Ed.), *Handbook of affect and social cognition* (pp. 121–144). Mahwah, NJ: Lawrence Erlbaum Associates.
- Darley, J. M., & Gross, P. H. (1983). A hypothesis-confirming bias in labeling effects. *Journal of Personality and Social Psychology*, 44(1), 20–33. <https://doi.org/10.1037/0022-3514.44.1.20>.
- de Quervain, D. J., Fischbacher, U., Treyer, V., & Schellhammer, M. (2004). The neural basis of altruistic punishment. *Science*, 305(5688), 1254–1258. <https://doi.org/10.1126/science.1100735>.
- Geers, A. L., & Lassiter, G. D. (2005). Affective assimilation and contrast: Effects of expectations and prior stimulus exposure. *Basic and Applied Social Psychology*, 27(2), 143–154. https://doi.org/10.1207/s15324834basp2702_5.
- Giacalone, R. A., & Greenberg, J. E. (1997). *Antisocial behavior in organizations*. Thousand Oaks: Sage publication.
- Güth, W., Schmittberger, R., & Schwarze, B. (1982). An experimental analysis of ultimatum bargaining. *Journal of Economic Behavior & Organization*, 3(4), 367–388. [https://doi.org/10.1016/0167-2681\(82\)90011-7](https://doi.org/10.1016/0167-2681(82)90011-7).
- Kahneman, D., Fredrickson, B. L., Schreiber, C. A., & Redelmeier, D. A. (1993). When more pain is preferred to less: Adding a better end. *Psychological Science*, 4(6), 401–405. <https://doi.org/10.1111/j.1467-9280.1993.tb00589.x>.
- Klaaren, K. J., Hodges, S. D., & Wilson, T. D. (1994). The role of affective expectations in subjective experience and decision-making. *Social Cognition*, 12(2), 77–101. <https://doi.org/10.1521/soco.1994.12.2.77>.
- Lee, L., Frederick, S., & Ariely, D. (2006). Try it, you'll like it the influence of expectation, consumption, and revelation on preferences for beer. *Psychological Science*, 17(12), 1054–1058. <https://doi.org/10.1111/j.1467-9280.2006.01829.x>.
- Makens, J. C. (1965). Effect of brand preference upon consumers perceived taste of Turkey meat. *Journal of Applied Psychology*, 49(4), 261–263. <https://doi.org/10.1037/h0022455>.
- McClure, S. M., Li, J., Tomlin, D., Cypert, K. S., Montague, L. M., & Montague, P. R. (2004). Neural correlates of behavioral preference for culturally familiar drinks. *Neuron*, 44(2), 379–387. <https://doi.org/10.1016/j.neuron.2004.09.019>.
- Morewedge, C. K., Gilbert, D. T., & Wilson, T. D. (2005). The least likely of times: How remembering the past biases forecasts of the future. *Psychological Science*, 16(8), 626–630. <https://doi.org/10.1111/j.1467-9280.2005.01585.x>.
- Ochsner, K. N. (2000). Are affective events richly recollected or simply familiar? The experience and process of recognizing feelings past. *Journal of Experimental Psychology: General*, 129(2), 242–261. <https://doi.org/10.1037/0096-3445.129.2.242>.
- Olson, J. C., & Dover, P. A. (1978). Cognitive effects of deceptive advertising. *Journal of Marketing Research*, 15(1), 29–38. <https://doi.org/10.2307/3150398>.
- Palmer, S. E. (1975). Visual perception and world knowledge: Notes on a model of sensory-cognitive interaction. *Explorations in Cognition*, 279–307.
- Redelmeier, D. A., & Kahneman, D. (1996). Patients' memories of painful medical treatments: Real-time and retrospective evaluations of two minimally invasive procedures. *Pain*, 66(1), 3–8. [https://doi.org/10.1016/0304-3959\(96\)02994-6](https://doi.org/10.1016/0304-3959(96)02994-6).
- Simonsohn, U. (2010). Weather to go to college. *The Economic Journal*, 120(543), 270–280. <https://doi.org/10.1111/j.1468-0297.2009.02296.x>.
- Thaler, R. H. (1985). Mental accounting and consumer choice. *Marketing Science*, 4(3), 199–214. <https://doi.org/10.1287/mksc.4.3.199>.
- Thaler, R. H., & Sunstein, C. R. (2008). *Nudge: Improving decisions about health, wealth, and happiness*. New Haven: Yale University Press.
- Wansink, B., Park, S. B., Sonka, S. T., & Morganosky, M. (2000). How soy labeling influences preference and taste. *The International Food and Agribusiness Management Review*, 3(2000), 85–94. <https://ssrn.com/abstract=2474801>.
- Wardle, J., & Solomons, W. (1994). Naughty but nice: A laboratory study of health information and food preferences in a community sample. *Health Psychology*, 13(2), 180–183. <https://doi.org/10.1037/0278-6133.13.2.180>.
- Williamson, O. E. (2007). The economic institutions of capitalism. Firms, markets, relational contracting. In C. Boersch, & R. Elschen (Eds.), *Das Summa Summarum des Management*. Gabler. https://doi.org/10.1007/978-3-8349-9320-5_6.
- Wilson, T. D., & Klaaren, K. J. (1992). "Expectation whirls me round": The role of affective expectations on affective experiences. In M. S. Clark (Ed.), *Emotion and social behavior* (pp. 1–31). Newbury Park, CA: Sage.
- Wilson, T. D., Lisle, D. J., Kraft, D., & Wetzel, C. G. (1989). Preferences as expectation-driven inferences: Effects of affective expectations on affective experience. *Journal of Personality and Social Psychology*, 56(4), 519–530. <https://doi.org/10.1037/0022-3514.56.4.519>.
- Yuan, K. H., & Bentler, P. M. (2000). Three likelihood-based methods for mean and covariance structure analysis with nonnormal missing data. *Sociological Methodology*, 30(1), 165–200. <https://doi.org/10.1111/0081-1750.00078>.



Sangkon Park (email: sgpark@kcti.re.kr) is a research fellow at the Korea Culture & Tourism Institute. His research interests include policy design and evaluation, applied econometrics, and applied behavioral science. He received his Ph.D. in economics from Chung-Ang University. For the present article, he developed the ideas for the research, designed the experiment, and wrote the first draft of the manuscript.



Sowon Hahn (Email: swahn@snu.ac.kr) is an associate professor in the Department of Psychology at Seoul National University. Her research interests include cognitive psychology, behavioral economics, and Human-Computer Interaction. She received her Ph.D. in psychology from the University of Illinois at Urbana-Champaign. For the present article, she provided theoretical support for the study, wrote the final manuscript, and revised the article as a corresponding author.



Taehun Lee (Email: lee0267@cau.ac.kr) is an assistant professor in the Department of Psychology at Chung-Ang University. His research interests include quantitative psychology, psychological test analysis, multivariate data analysis, structural equation modeling, and other methodological issues. He received his Ph.D. in psychology from the University of North Carolina at Chapel Hill. For the present article, he formulated the research hypothesis into structural equations, applying a MIMIC model to provide statistical explanation to the tourism data.



Minji Jun (Email: minzhi@kcti.re.kr) is a Ph.D. candidate in Tourism at Hanyang University. She is a currently a researcher at the Korea Culture & Tourism Institute. Her research specializes in the Chinese tourism market. She received a B.A. in Chinese Language and Chinese Studies from Dongduk Women's University and received an M.A. in Chinese Studies from Hanyang University. For the present article, she designed and implemented the field experiments and aggregated data.