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Introduction

Public lands in the U.S., such as national parks, have been challenged to make ends meet for the past few decades. Since the government authorized to charge recreation fees such as entrance fees and user fees on public lands in the 1990s, there has been a gradual reduction in governmental allocations to public lands (Ostfeld & Simpson, 2018; Schwartz & Lin, 2006). Hence, public land managers and authorities have been under pressure to charge entrance fees as a means to increase self-generated revenue. Currently, 108 out of 423 units in the national park service system are charging an entrance fee (National Park Service, 2020a). Thus, for public lands considering imposing an entrance fee, one of the pressing concerns is whether and how entrance fees would affect visitors.

Entrance fees in public lands need to be cautiously adopted as they are often subject of significant criticism, particularly their impacts on visitation. Some scholars argue that recreation fees hurt visitation (Anderson, 2000; Schwartz & Lin, 2006), while others contend that such impact is relatively small (Sage et al., 2018; Reynisdottir et al., 2008; Stevens et al., 2014). Furthermore, recreation fees on public lands may harm visitation through their negative impacts on visitor future behaviors. Paying recreation fees might increase visitors' expectations (More et al., 1996; Silver, 2005), resulting in low satisfaction (Oliver, 1980) and a decrease in future revisit intentions. As such, recreation fees on public lands might have a greater impact on visitation beyond visitor numbers. However, this research line has primarily focused on recreation fees' impacts on the number of visitors. Less attention has been paid to their influence on visitors' post-purchase evaluations and on-site behaviors.

The objectives of this study were two-fold: 1) to examine the impacts of entrance fees on national park visitors' post-purchase evaluations and on-site behaviors, and 2) to examine the framing effect of a free entrance in shaping visitors' post evaluations and on-site behaviors to improve cost recovery. To this end, this study consisted of two experiments and adopted a scenario-based experiment approach. Experiment 1 investigated how different entrance fee conditions (an entrance fee vs. a free entrance vs. a discounted entrance fee) influence visitors' post-purchase evaluations (i.e., satisfaction, revisit intentions, and price value) and on-site behaviors (i.e., the amount of time and money visitors intend to spend in the park). Experiment 2 focused on investigating the dimensions of visitors' experience influenced by different entrance fee conditions and the effects of tax subsidy information. Experiment 1 results were presented in this abstract as Experiment 2 is in the data collection stage at the time of writing.

Literature Review

There have been several endeavors to examine the impacts of public land recreation fees on visitation. Some research attempted to predict the potential impacts of recreation fees before fee programs were implemented (Schroeder & Louviere, 1999; Schwartz & Lin, 2006). For example, Schroeder and Louviere (1999) developed a model predicting the impacts of recreation fees and found that recreation fees were influential in shaping visitors' choices on public recreation sites. However, it seems that the actual impacts of recreation fees would be more significant than predicted. Schwartz and Lin (2006) examined how the predicted number of public land visitors

differed from the actual one after implementing a fee program. They found that the actual number was significantly lower than the predicted one.

On the flip side, research from consumer behaviors suggested that people tend to overreact to a zero price (i.e., free entrance). The demand for a zero-priced product is significantly higher compared to a product that is priced slightly greater than zero. This phenomenon is called the “zero-price effect” (Shampanier et al., 2007). Shampanier et al. (2007) conducted a series of experiments to confirm the zero-price effect and argued that a zero price not only means no cost for consumers but also conveys extra benefits and utility in itself. Specifically, their experiments demonstrated a higher level of positive affect when facing free offers, which in turn influences purchase decision-making. Hossain and Saini (2015) replicated Shampanier et al.’s (2007) study and found that the zero-price effect was more salient for hedonic products than utilitarian products. Nicolau and Sellers’s study (2012) is arguably the first to examine the zero-price effect in the field of tourism. Their study revealed that free breakfast steered people away from their preferred hotels and chose a less preferred hotel.

Extant research on the zero-price effect has predominately focused on its influence on consumers’ purchase decision-making; it remains relatively unknown how a zero price will affect post-purchase evaluations and on-site behaviors. Shampanier et al.’s (2007) experiments suggested that people tend to overvalue a zero price, and the “valuation of free goods increase beyond their cost-benefit differences” (p. 747). Thus, it is plausible that perceived price value of free entrance to national parks will be higher than a fee entrance. Since perceived price value acts as a key predictor of tourist satisfaction and loyalty (Lee et al., 2012), visitors paying entrance fees may be less satisfied and less likely to revisit. Therefore, the following are proposed:

H₁: Visitors’ perceived price value will be lower when a national park charges an entrance fee (vs. when a national park does not charge an entrance fee).

H₂: Visitor satisfaction will be lower when a national park charges an entrance fee (vs. when a national park does not charge an entrance fee).

H₃: Visitors’ revisit intention will be lower when a national park charges an entrance fee (vs. when a national park does not charge an entrance fee).

Perceived price value is a comparison between the product costs and the benefits derived from a product (Sweeney & Soutar, 2001). As aforementioned, compared to free admission, a fee admission will likely lead to a lower value perception. To get the most out of a paid visit, it is probable that visitors may spend more time in the park to retrieve more benefits/utility. Similarly, visitors may spend less money during a paid visit to minimize costs. Thus, the following hypotheses are proposed:

H₄: Visitors will spend more time in a national park that charges an entrance fee (vs. in a national part that does not charge an entrance fee).

H₅: Visitors will spend less money in a national park that charges an entrance fee (vs. in a national park that does not charge an entrance fee).

A secondary objective of this study was to examine the framing effect of a free entrance on visitors' post-purchase evaluations and on-site behaviors as a way to address the financial challenges for free national parks. Most public lands in the U.S. that provide recreation opportunities do not charge a fee. For instance, almost three-fourths of the national park units are free to the public. National parks sites that charge an entrance fee also offer a number of free entrance days every year (National Park Service, 2020b). On these occasions, entrance fees are not an option to generate revenues.

Informed by the transaction utility theory, we propose that a fee-to-free framing of a free entrance may change visitors' post-purchase evaluations and on-site behaviors. Transaction utility theory posits that consumers derive value not only from the value of the goods or services (i.e., acquisition value) but also from the quality of the "deal" (i.e., transaction utility). Transaction utility is a function of the difference between the actual price and reference price, and research suggested that consumers' perception of transaction utility influences purchase decisions (Thaler, 2008). For instance, consumers offered a small instant coupon (e.g., \$1 off) tend to spend more money and make more unplanned purchases in both online shopping (Milkman & Beshears, 2009) and in-store shopping (Heilman et al., 2002). These overspending behaviors can be explained by a psychological income effect created by an illusion of monetary savings (Heilman et al., 2002; Milkman & Beshears, 2009). The money "saved" from a coupon or a deal decreases the amount of money that consumers plan to spend and creates a feeling of extra "income" and an illusion of higher spending power (Heilman et al., 2002). As such, we propose that a discount framing of a free entrance (i.e., used to be \$15, now \$0) will increase national park visitors' transaction utility. Higher transaction utility will increase perceived price value and subsequently future revisit intention (Um, Chon & Ro, 2006). The psychological income effect will increase park visitors to spend more money in the park. Thus, the following hypotheses are proposed:

H₆: Visitors' perceived price value will be higher when a national park's free entrance is framed as a fee discount (vs. no framing of the free entrance).

H₇: Visitors' revisit intention will be higher when a national park's free entrance is framed as a fee discount (vs. no framing of the free entrance).

H₈: Visitors will spend more money in a national park when a national park's free entrance is framed as a fee discount (vs. no framing of the free entrance).

Methodology (Experiment 1)

This study adopted a scenario-based experiment approach. Participants were asked to read a hypothetical scenario about a visit to a national park and answer a series of questions, including satisfaction, revisit intentions, perceived price value, and the amount of time and money they intend to spend in the park. Satisfaction, revisit intentions, and perceived price value were measured using 7-point Likert scale questions. Global satisfaction was measured with one item from Taplin et al. (2016). Revisit intentions and perceived price value were measured with three and four items from Wen and Chi (2013) and Sheth et al. (1991), respectively. Participants were asked to estimate how many hours (between 0 and 24 hours) and how much money (between \$0 and \$100) they would spend in the park. The scenario script included both text descriptions and

images of a hypothetical national park. All scenarios were identical except for the entrance fee. Participants were randomly assigned to one of the three entrance fee conditions: 1) a fee condition, 2) a free condition, and 3) a discount-framing condition (originally \$15, now \$0). See **Figure 1** for the manipulation of the three conditions. The survey was reviewed by a panel of experts specializing in tourism, hospitality, and experimental design. The data was collected through a Qualtrics survey link between July and October 2020. Participants were recruited from a large public university in the U.S. Midwest.

Figure 1. The manipulations of entrance fee information



1) the fee condition

2) the free condition

3) the discount-framing condition

Results

Respondent Profile

Participants were asked to answer two attention check questions regarding the amount of entrance fee they paid in the scenario. A total of 67 responses failed the attention check, and additional 33 responses were incomplete. As a result, a total of 272 valid responses were included in the final analysis. Specifically, the fee condition had 97 responses, the free condition had 84 responses, and the discount-framing condition had 91 responses.

The average age of the respondents was 40.3 (SD = 13.9, MD = 40), ranging from 18 to 75. The respondents are mostly female (75%, n=204) and white (80.1%, n=218). The average annual household income was relatively evenly distributed, with the median income being \$75,000 to \$99,999.

Hypothesis Testing

A series of one-way ANOVA tests revealed that perceived price value, revisit intentions, and the amount of money visitors intend to spend in the park were significantly different among the three conditions, but no difference was found for satisfaction and the amount of time they intend to spend in the park (see **Table 1**). This result suggests that national park visitors' price value perception, revisit intention, and on-site consumption are influenced by entrance fees, but entrance fees do not affect visitors' satisfaction and intended length of visit. Thus, H₂ and H₄ were not supported.

Table 1. Differences in visitors' experience and behavior between different entrance fee conditions

	Fee Condition	Free Condition	Discount-framing Condition	F	p*
Satisfaction	5.20	5.36	5.34	.430	.651
Price value	5.15	6.53	6.38	48.01	.000
Revisit intention	4.43	4.82	4.93	5.355	.005

Time	5.78	6.20	6.10	.317	.728
Money	27.55	30.26	38.10	5.406	.005

* $p < .05$.

Post hoc analyses were run to examine the pairwise differences for revisit intention, price value, and the amount of money visitors intend to spend (see **Table 2**). It revealed that the free entrance and the fee-to-free entrance participants showed higher perceived price value and revisit intentions than those in the entrance fee condition. It means that visitors perceive higher price value and show higher revisit intention when they do not pay park admission than when they pay. Hence, H₁, H₃, and H₅ were supported. There was no difference in perceived price value and revisit intention between the free entrance and the discounted entrance conditions. This indicated that evaluation of price value and revisit intention is not influenced by discount framing. Thus, H₆ and H₇ were not supported.

In terms of the amount of money visitors intend to spend in the park, only the fee-to-free condition participants showed a significantly higher amount of money than the entrance fee participants. The difference between the free entrance and the fee-to-free entrance condition was marginal ($p = .062$). This result does not support H₈; however, it implies that the impact of discount framing on on-site consumption intention might need further investigations.

Table 2. Pairwise Mean difference in visitors' experience and behavior between different entrance fee conditions¹

	Conditions	Mean Difference	Std. Error	p^*	95% CI	
					Lower	Upper
Price value	Fee - Free	-1.38	.161	.000	-1.76	-1.00
	Fee - Discount	-1.23	.164	.000	-1.62	-.845
	Free - Discount	.148	.135	.518	-.172	.468
Revisit intention	Fee - Free	-.388	.163	.048	-.774	-.003
	Fee - Discount	-.497	.160	.006	-.875	-.120
	Free - Discount	-.109	.166	.789	-.500	.282
Money	Fee - Free	-2.72	3.07	.651	-9.97	4.54
	Fee - Discount	-10.6	3.53	.009	-18.9	-2.21
	Free - Discount	-7.84	3.44	.062	-16.0	.31

¹ A Tukey HSD post hoc analysis was run to examine the pairwise differences for revisit intention, and a Games-Howell post hoc analysis was run for price value and the amount of money visitors intend to spend because the assumption of homogeneity of variances was violated.

* $p < .05$.

Additional Analysis

Additional analyses were performed to gain insights into the relationship between entrance fees and visitation. A two-way ANOVA analysis was run to examine the moderation effect of entrance fees on the relationship between revisit intention, satisfaction, and perceived price value. Perceived price value was divided into binary (low and high) using median as the cutoff ($m = 5.99$, $MD = 6.5$) for the analysis ($Skew = -1.344$, $Kurt = 1.728$). The mean value ($m = 5.29$, $MD = 5.00$) was used as the cutoff point for the binary satisfaction variable ($Skew = -.720$, $Kurt = .641$).

The result indicated that there was a statistically significant interaction between entrance fees and perceived price value for revisit intention ($F_{(2, 266)} = 3.957$, $p = .02$, partial $\eta^2 = .029$), whereas there was no statistically significant interaction between entrance fees and satisfaction. As **Figure 2** shows, the relationship between price value and revisit intention was stronger in the entrance fee

condition than the other two free entrance conditions. The simple main effect analysis showed a significant main effect of perceived price value on revisit intention only in the fee condition ($F_{(1, 266)} = 11.815, p = .001, \text{partial } \eta^2 = .043$) (see **Table 3**). This result suggests that paying an entrance fee to a national park may invoke market norms and a market exchange relationship (Ariely et al., 2018; Shampanier et al., 2007), in which visitors apply cost-benefit analysis for evaluation and future purchase decision-making.

Figure 2. The moderation effect of entrance fee on the relationship between satisfaction, price value, and revisit intention

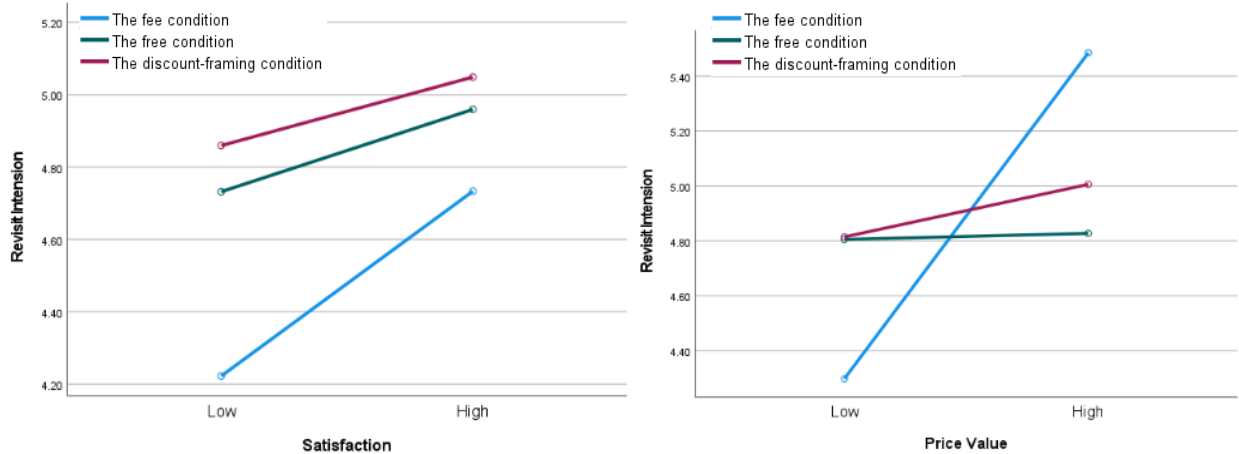


Table 3. The simple main effect of perceived price value on revisit intention for different entrance fee conditions

Conditions		Sum of Squares	df	Mean Square	<i>F</i>	<i>p</i> *	Partial η^2
Fee	Contrast	13.727	1	13.727	11.815	.001	.043
	Error	309.053	266	1.162			
Free	Contrast	.008	1	.008	.007	.932	.000
	Error	309.053	266	1.162			
Discounted	Contrast	.796	1	.796	.685	.409	.003
	Error	309.053	266	1.162			

* $p < .05$.

Conclusion and Discussion

This study was arguably the first attempt to apply the zero-price effect in a public tourism experience context. Moreover, as the current zero price research focuses on its impact on demand (e.g., Nicolau & Sellers, 2012), this study extends this research line by examining the effect of a zero price on consumption behavior during a trip and post-trip evaluations. The findings of the current study confirmed the zero-price effect exists in public tourism services as the free entrance significantly increased revisit intentions.

Experiment 1 results demonstrated a significant lower perceived price value and revisit intention after paying an entrance fee. This suggests that entrance fees in national parks discourage not only potential visitors by increasing entry barriers (e.g., Schroeder & Louviere, 1999) but also future

return visitors by decreasing value perception. This study also found that visitors intend to spend less money within the park when there is an entrance fee, implying that visitors' evaluations of the visit and on-site consumption behaviors are influenced by entrance fees. Hence, it can be argued that entrance fees in national parks hurt visitation as well as concession revenues. However, as the results revealed, framing a free entrance as a discount can encourage visitors to spend more during their visit in the park, generating more concession revenues for deferred maintenance.

The findings of this study can draw a number of practical implications. First, when considering imposing an entrance fee, national park managers should ensure a quality visitor experience to justify the charge, as visitors tend to apply cost-benefit analysis to evaluate a visit after paying an entrance fee. Second, as entrance fees hurt visitors' revisit intentions, national park managers should pay more attention to the long-term effect of an entrance fee when assessing its impact on visitation. Third, for free entrance parks or free entrance days, national park managers should consider providing the cost information of service provision as it may be effective in driving concession revenues and return visitors.

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