Tourist Attraction, Satisfaction, and Behavioral Intention of Industrial Tourist: Economic Factors as Moderator

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ABSTRACT

This study examined the relationship between satisfaction and behavioral intention as they relate to tourist attractions in Taiwan. Structural equation modeling was conducted using data from 376 industrial tourists. The findings reveal that the only the effects of tourist attraction, but also satisfaction, on behavioral intention, are supported. Furthermore, economic factors play a moderating role in the satisfaction \( \rightarrow \) behavioral intention model.

Keywords: Industrial Tourism, Tourist Attraction, Overall Satisfaction, Behavioral Intention, Economic Factors.

INTRODUCTION

Consistent with general global trends that promote purposeful visits in the travel and tourism industry (Martin & Mason, 1993), industrial tourism is rapidly becoming a significant segment of the tourism market (Otgaar & Klijs, 2010; Otgaar, 2010, 2012), and Taiwan is no exception. Inspired by the growth of industrial tourism in developed countries, the Taiwanese government began to actively promote industrial tourism in 2003, declaring it a major strategic objective of industrial sustainability policies. This was followed by dramatic growth in the industrial tourism sector, with the number of factories open to tourists increasing from 14 in 2008 to 117 in 2014 (MOE, 2014). Moreover, revenue generated from this sector reached 2.5 billion NT$ (around $.08 billion) in 2013 and is expected exceed 2.8 billion NT$ (around $.09 billion) by 2014 (MOE, 2014; China Times, 2014).

In both Taiwan and around the world, growth in industrial tourism has catapulted issues associated with the management and sustainability of the sector into the spotlight. Unlike other types of tourism, the development of industrial tourism depends heavily on the capacity of independent firms (Otgaar, Berg, den Berger, & Feng, 2007; Frew, 2000; Lee & Chen, 2010). Hence, the question of how to shift away from product-led development, that emphasizes brand image and reputation, to visitor-oriented development, that emphasizes the interests and preferences of tourists, is crucial for success in this industry (Apostolakis & Jaffry, 2005).

Past studies (Lee & Lin, 2010; Lee & Chen, 2009a, 2009b; Lee, 2012; Stephan, 2001) have sought to uncover the antecedents of behavioral intentions, revealing the strong predictive power of tourist attraction and satisfaction. Tourist behavior is further influenced by economic factors, such as per capita income, tour cost, and transportation costs (Chen & Wu, 2009; Uysal, 1998); however, no empirical data related to these factors has been collected in the field of industrial tourism. Therefore, the current study aimed to fill this research gap by investigating relationships between economic factors, perception of tourist attraction, satisfaction, and behavioral intention in the context of industrial tourism in Taiwan. The relationships among these proposed constructs were examined through structural equation modeling (SEM).
CONCEPTUAL BACKGROUND AND HYPOTHESES

Tourist Attraction

Previous research has demonstrated the existence of relationships between elements of tourist attractions and satisfaction, loyalty, and revisit intentions (Chao, 2014; Wang & Tseng, 2009; Richards, 2002). Tourist attractions exert a pulling power. Pulling power is associated with not only the personal interests and preferences of tourists, but also how well the attraction has been designed, developed, and operated (Gunn, 1988; Richards, 2002; Dalen, 1989; Lew, 1987; Swarbrooke & Homer, 1999). Yet some scholars argue that tourists are not pulled to visit attractions; rather, they are pushed to specific destinations by their own motivations (Wang & Tseng, 2009; Kim, Cheng, & O’Leary, 2007).

According to MacCannell (1973), Inskeep (1991), Leiper (1990), and Swarbrooke and Homer (1999), tourist attractions can be classified into the following groups: natural attractions (e.g., landscape), cultural attractions (e.g., history and architecture), special attractions (e.g., famous people), and events (e.g., festivals). Researchers have consistently demonstrated that tourists’ perception of the quality of a tourist attraction can predict behavioral intention (Ernest, 2000; Marek, 2005). More specifically, positive perceptions (cognitive perspective) lead to satisfaction (affective response), which in turn influences intentions such as the intention to revisit or the intention recommend the attraction to others (Richards, 2002; Fishbein & Ajzen, 1975). Thus, the first two hypotheses of this study are as follows:

Hypothesis 1: Tourist attraction has a positive effect on satisfaction.

Hypothesis 2: Tourist attraction has a positive effect on behavioral intentions.

Satisfaction

Satisfaction can be viewed as how a consumer’s expectations of a product or service compares with perceived actual performance (Chen & Tsai, 2007; Churchill & Surprenant, 1982). According to Rosen and Suprenant (1998), satisfaction comprises two dimensions: transaction-specific and general-overall. The former refers to the assessment conducted during the activity (i.e., purchasing or visiting), while the latter is focused on evaluations made after consumption. Based on the findings of previous research (Chen & Tsai, 2007), this study formulated the following hypothesis:

Hypothesis 3: Satisfaction is positively correlated with the intention to revisit or recommend.

Moderating Effects of Economic Factors

Economic factors exert a vital influence on tourist behavior (Chen & Wu, 2008; Uysal, 1998; Kim, 2014). These factors include per capita income, product prices, and transportation costs (Uysal, 1998). However, in travel and tourism literature, economic factors are generally conceptualized as the prices of tourism products (Kim, 2014). It has been argued that situational changes encountered by tourists do not directly affect economic factors (Chen & Wu, 2008). For example, factory tours might offer add-on courses, providing greater opportunities for tourists to interact with workers and to understand the production process. However, even if tourists are interested in these courses, they may not participate in them due to financial constraints. To be successful in the highly competitive industrial tourism market, understanding the effects of economic factors on behavioral intention is crucial (Kim, 2014). Therefore, the final two hypotheses of this study are as follows:

Hypothesis 4: Economic factors will moderate the relationship between tourist attraction and behavioral intention.

Hypothesis 5: Economic factors will moderate the relationship between satisfaction and behavioral intention. Figure 1 depicts the proposed model.
Each Construct was Measured According to the following Aspects

Tourist attractions comprise three elements: a tourist, a sight (i.e., a factory), and a marker (i.e., reputation of the product or tour) (Richards, 2002). We adopted twenty-five items from the work of Chen and Tsai (2007), Lee and Chen (2009a, 2009b), and Lee and Lin (2010) to evaluate tourist attraction. Based on these studies, these twenty-five items were divided into six dimensions: experience, purchase product, image, environment, service, and knowledge exchange.

Satisfaction is defined as the pleasure experienced by an industrial tourist upon the completion of a tour or as the extent to which his/her experience meets his/her expectations (Chen & Tsai, 2007; Lee & Chen, 2009a, 2009b; Lee & Lin, 2010).

Behavioral intentions are manifested by a willingness to revisit or by a willingness to recommend the experience to others (Chen & Tsai, 2007; Lee & Chen, 2009a, 2009b; Lee & Lin, 2010). As suggested by Chen and Wu (2008) and Uysal (1998), the economic factors considered in this study are product prices and tourist budgets.

METHODOLOGY

Questionnaire Design

A questionnaire was drafted based on relevant literature and then revised based on feedback from two tourism experts and a pilot sample of 33 college students. The aim of this revision was to ensure content validity. The questionnaire consisted of four parts. Part 1 collected information related to industrial tourist attractions, with 25 items covering the six dimensions: experience, purchase product, image, environment, service, and knowledge. Part 2 used eight items to measure satisfaction (S) (Lee & Chen, 2009a, 2009b; Lee & Lin, 2010) and four items to gauge behavioral intention (BI) to revisit or to recommend (Bigne, Sanchez, & Sanchez, 2001; Sirakaya, Petrick, & Choi, 2004; Tian-Cole, Crompton, & Willson, 2002). For these two parts, respondents were asked to indicate their agreement with each item using a five-point Likert-type scale ranging from “strongly disagree” (1) to “strongly agree” (5). Part 3 collected demographic information using the following six items: gender, age, education level, occupation, marital status, and income level. Part 4 solicited information related to respondents’ visitation experience.
via a categorical scale that focused on type of destination (e.g. factory or distillery), transportation, purpose, and budget.

**Sample Design and Data Collection**

The study was conducted between March and May 2014, and the study population comprised individuals visiting industrial tourism sights in central Taiwan. Using systematic sampling, a total of 400 questionnaires were delivered and 376 usable samples were returned, resulting in a response rate of 94.00%.

The great majority (68.9%) of respondents were between the age of 22 and 39, and there were slightly more male visitors (50.3%) than female ones. In terms of education level, 68.1% of respondents had a university degree or higher. Students (38.8%) comprised the main occupation category. Finally, the great majority (96%) of respondents had a monthly income of less than NT$40,000, and 55.3% were single.

**Data Analysis**

Data analysis was performed in two stages. First, we conducted exploratory factor analysis using the principal component method with a varimax rotation on tourist attraction to examine associated dimensionalities and psychometric properties. In the second stage, we used structural equation modeling (SEM) to empirically test relationships between tourist attraction, satisfaction, and behavioral intention.

**RESULTS**

In this study, we used a multi-attribute approach to measure tourist perceptions of industrial attractions. Principal component factor analysis returned seven factors with an eigenvalue greater than one that explained 67.835% of the variance. Six items had a factor loading of less than .6, and two items had a cross-factor loading greater than .4. The latter eight items were therefore removed from the scale. Remaining factors were ranked as follows: experience, purchase, image, environment, service, and knowledge. Details are presented in Table 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measurement item</th>
<th>Cronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience (EX)</td>
<td>2</td>
<td>.687</td>
</tr>
<tr>
<td>Purchase (PUR)</td>
<td>4</td>
<td>.714</td>
</tr>
<tr>
<td>Image (IM)</td>
<td>3</td>
<td>.756</td>
</tr>
<tr>
<td>Environment (ENV)</td>
<td>3</td>
<td>.754</td>
</tr>
<tr>
<td>Service (SER)</td>
<td>2</td>
<td>.717</td>
</tr>
<tr>
<td>Knowledge (KNOW)</td>
<td>2</td>
<td>.795</td>
</tr>
</tbody>
</table>

Reliability for each of the factors was measured using Cronbach’s α coefficient, which ranged from .687 to .795. Five factors were above the cut-off criterion of 0.7 recommended by Nunnally (1978). “Experience” (.687) fell below the threshold. However, Peterson (1994) suggested that 0.6 is typically an acceptable minimum. Thus, all factors considered by this study had adequate reliability. Confirmatory factor analysis (CFA) with a covariance matrix was then conducted using AMOS 18 to test the convergent validity of the constructs. The fit indices suggested by Joreskog and Sorbom (1993) as well as by Hair, Anderson, Tatham, and Black (1998) were used to assess model adequacy. Convergent validity
is determined by item reliability, construct reliability, and average variance extracted (Hair et al., 1998). As shown in Table 2, t-values for standardized factor loadings of all items were significant (p<.01). In addition, construct reliability estimates ranging from .637 to .857, were close to or exceeded the critical value of 0.7 recommended by Hair et al. (1998), and the average variances extracted for all constructs were greater than the .36 threshold suggested by Fornell and Larcker (1981). Composite scores for each construct were obtained from the mean scores across all items representing a given construct.

### Table 2: Convergent validity

<table>
<thead>
<tr>
<th>Construct</th>
<th>Estimated</th>
<th>S.E.</th>
<th>t-value</th>
<th>Std. Estimated</th>
<th>SMC 1-SMC</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXP &lt;- --- TA</td>
<td>1</td>
<td>---</td>
<td>---</td>
<td>.541</td>
<td>.293</td>
<td>.707</td>
<td>.788</td>
</tr>
<tr>
<td>PUR &lt;- --- TA</td>
<td>1.068</td>
<td>.113</td>
<td>9.418</td>
<td>.696</td>
<td>.484</td>
<td>.516</td>
<td></td>
</tr>
<tr>
<td>IMG &lt;- --- TA</td>
<td>1.08</td>
<td>.119</td>
<td>9.075</td>
<td>.652</td>
<td>.425</td>
<td>.575</td>
<td></td>
</tr>
<tr>
<td>ENV &lt;- --- TA</td>
<td>1.186</td>
<td>.13</td>
<td>9.156</td>
<td>.662</td>
<td>.438</td>
<td>.562</td>
<td></td>
</tr>
<tr>
<td>SER &lt;- --- TA</td>
<td>.861</td>
<td>.109</td>
<td>7.925</td>
<td>.529</td>
<td>.280</td>
<td>.720</td>
<td></td>
</tr>
<tr>
<td>KNOW &lt;- --- TA</td>
<td>1.216</td>
<td>.137</td>
<td>8.844</td>
<td>.625</td>
<td>.391</td>
<td>.609</td>
<td></td>
</tr>
<tr>
<td>S1 &lt;- --- S</td>
<td>1</td>
<td>---</td>
<td>---</td>
<td>.736</td>
<td>.542</td>
<td>.458</td>
<td>.878</td>
</tr>
<tr>
<td>S2 &lt;- --- S</td>
<td>1.101</td>
<td>.075</td>
<td>11.443</td>
<td>.773</td>
<td>.598</td>
<td>.402</td>
<td></td>
</tr>
<tr>
<td>S3 &lt;- --- S</td>
<td>.9</td>
<td>.068</td>
<td>11.83</td>
<td>.703</td>
<td>.494</td>
<td>.506</td>
<td></td>
</tr>
<tr>
<td>S4 &lt;- --- S</td>
<td>.888</td>
<td>.069</td>
<td>11.069</td>
<td>.68</td>
<td>.462</td>
<td>.538</td>
<td></td>
</tr>
<tr>
<td>S5 &lt;- --- S</td>
<td>.868</td>
<td>.071</td>
<td>10.798</td>
<td>.648</td>
<td>.420</td>
<td>.580</td>
<td></td>
</tr>
<tr>
<td>S6 &lt;- --- S</td>
<td>.894</td>
<td>.078</td>
<td>10.413</td>
<td>.61</td>
<td>.372</td>
<td>.628</td>
<td></td>
</tr>
<tr>
<td>S7 &lt;- --- S</td>
<td>.991</td>
<td>.074</td>
<td>10.395</td>
<td>.706</td>
<td>.498</td>
<td>.502</td>
<td></td>
</tr>
<tr>
<td>S8 &lt;- --- S</td>
<td>.894</td>
<td>.074</td>
<td>11.098</td>
<td>.646</td>
<td>.417</td>
<td>.583</td>
<td></td>
</tr>
<tr>
<td>BI1 &lt;- --- BI</td>
<td>1</td>
<td>---</td>
<td>---</td>
<td>.763</td>
<td>.582</td>
<td>.418</td>
<td>.869</td>
</tr>
<tr>
<td>BI2 &lt;- --- BI</td>
<td>1.089</td>
<td>.067</td>
<td>16.251</td>
<td>.835</td>
<td>.697</td>
<td>.303</td>
<td></td>
</tr>
<tr>
<td>BI3 &lt;- --- BI</td>
<td>.99</td>
<td>.066</td>
<td>15.107</td>
<td>.778</td>
<td>.605</td>
<td>.395</td>
<td></td>
</tr>
<tr>
<td>BI4 &lt;- --- BI</td>
<td>1.031</td>
<td>.068</td>
<td>15.238</td>
<td>.785</td>
<td>.616</td>
<td>.384</td>
<td></td>
</tr>
</tbody>
</table>

Discriminant validity ensures that all constructs are distinguishable from each other. Table 3 reports the inter-construct correlation with the squared root of AVE for each construct. Results indicate that the only construct with poor fit was “perception of tourist attraction”. Discriminant validity was confirmed for all other constructs (Fornell & Larcker, 1981).

### Table 3: Discriminant validity

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Mean</th>
<th>S.D.</th>
<th>Tourist Attraction</th>
<th>Satisfaction</th>
<th>Behavioral Intention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tourist Attraction</td>
<td>3.8459</td>
<td>.46125</td>
<td>.620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>3.8836</td>
<td>.56051</td>
<td>.685**</td>
<td>.689</td>
<td></td>
</tr>
<tr>
<td>Behavioral Intention</td>
<td>3.7892</td>
<td>.66052</td>
<td>.602**</td>
<td>.646**</td>
<td>.791</td>
</tr>
</tbody>
</table>

The results of SEM analysis are depicted in Fig. 2. The fit indices of the model are summarized in Table 4. For the overall model, $\chi^2$ is 382.189. For the $\chi^2$/d.f. ratio, a value below 5 is considered acceptable, and the $\chi^2$/d.f. ratio of our model is 2.895. Other goodness of fit indicators shows that the hypothesized model fits the empirical data well (see Table 3).
Table 4: Goodness of fit indices

<table>
<thead>
<tr>
<th>Reference value</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>χ²-test</td>
<td>p&gt;.05</td>
</tr>
<tr>
<td>χ²</td>
<td>1~3</td>
</tr>
</tbody>
</table>

Fit indices
- GFI >.8
- AGFI >.8
- PGFI >.5
- NFI >.9

Alternative indices
- CFI >.9
- RMSEA <.08

As shown in Fig. 2, perception of tourist attraction had a significantly positive effect on satisfaction and behavioral intention (γ₁=.831, t-value =6.50, p<.001; γ₂=.39, t-value =6.90, p<.001); thus, H1 and H2 are supported. Satisfaction also had a significantly positive effect on intention (β₁=.41, t-value =2.83, p<.001); thus, H3 is supported.

![Figure 2: Estimated Structural Model](image)

Note: 1. Unstd. Est. (SE, Std. Est.)
2. ***: p<.001

To examine the moderating effects of economic factors, tourists were divided two groups: those traveling on a low-cost and those traveling on a high-cost. These groups were subsequently used to test the casual relationships in our model. As shown in Table 5, the effects of perception of tourist attraction on both satisfaction (.83) and behavioral intention (.45) were positively significant in the low cost group. Moreover, the effect of satisfaction on behavioral intention (.35) was positively significant as well. The GFI and CFI fit indices for the low-cost group were .861 and .902, respectively. For the high-cost group, the effects of perception of tourist attraction on both satisfaction (.83) and behavioral intention (.38) were positively significant; the effect of satisfaction on behavioral intention (.42) was also significant. For the high-cost group, the GFI and CFI fit indices were .850 and .901, respectively. Thus, H1, H2, and H3 were supported in both groups. These results indicate that cost does not exert a moderating effect on the relationship between perception of tourist attraction and behavioral intention—that is, H4 is not supported. However, economic factors do exert a moderating effect on the relationship between satisfaction and behavioral intention; in other words, H5 is supported.
Table 5: Structural parameter estimates and goodness-of-fit indices for low- and high-cost groups

<table>
<thead>
<tr>
<th>Hypothesized</th>
<th>Standardized estimate</th>
<th>Low-cost</th>
<th>High-cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tourist attraction → satisfaction</td>
<td>.83</td>
<td>.83</td>
<td></td>
</tr>
<tr>
<td>Tourist attraction → Behavioral intention</td>
<td>.45</td>
<td>.38</td>
<td></td>
</tr>
<tr>
<td>Satisfaction → Behavioral intention</td>
<td>.35</td>
<td>.42</td>
<td></td>
</tr>
<tr>
<td>Fit statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\chi^2=326.435$ $p&lt;.01$</td>
<td></td>
<td></td>
<td>$\chi^2=254.314$ $p&lt;.01$</td>
</tr>
<tr>
<td>GFI=.861, CFI=.902</td>
<td></td>
<td></td>
<td>GFI=.850, CFI=.901</td>
</tr>
</tbody>
</table>

CONCLUSIONS

To examine the drivers of industrial tourist behavior, this study drew on related literature to formulate a descriptive model. Empirical testing of this model revealed the effects that tourists’ perceptions of attractions have on satisfaction and thus on behavioral intentions. The moderating effects of tourists’ costs were further demonstrated. Our findings can be used to improve development strategies and sustain competitive advantage in the field of industrial tourism. In practice, economic factors likely present a useful means for predicting tourists’ behavioral intentions.

REFERENCES


