Research Article

International Tourists Purchase Intention towards Low-Carbon Tour Packages

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Abstract

More attention hence has been paid to low-carbon economic theory to reduce carbon dioxide emissions and understand green development. Therefore, the concept of low-carbon tourism has become increasingly accepted. Also, travel agencies play a crucial role in promoting the concept of environmental protection and low-carbon tourism. In recent years, the importance of the tourism development has been emphasized in Taiwan. The government has developed various tourist policies, and the number of tourists in Taiwan has increased to more than 10 million in 2015. However, no studies have investigated the international tourists in Taiwan who purchased low-carbon tour packages provided by travel agencies. The present study, therefore, explored international tourists' understanding of low-carbon tour packages in Taiwan, their purchase intention, and willingness to pay. The following results were revealed. First, international tourists in Taiwan exhibited a certain degree of understanding of low-carbon tour packages (M = 3.79). Second, the understanding of low-carbon tour packages significantly influenced purchase intention; particularly, tourists' views about food and accommodation effectively predicted their purchase intention. Third, 34.5% of international tourists in Taiwan were willing to pay 5% more to purchase low-carbon tour packages, and 32.3% of international tourists in Taiwan were willing to pay 10% more to purchase low-carbon tour packages. That the results of this study can serve as a reference for the government and travel agencies to design and determine prices for low-carbon tour packages.

Keywords:

International traveler, Low-carbon tour package, purchase intention, willingness to pay

1 Introduction

1.1 Research Background and Motivation

In 2007, the United Nations World Tourism Organization convened the second international conference on climate change and tourism and proposed the Davos Declaration that presented the relationship among climate change, tourism and low-carbon economic and indicated that tourism businesses should endeavour to reduce greenhouse gas emissions (Gössling, 2009). The Taiwan government has developed various tourist policies; the Tourism Bureau designated 2002 as the International Year of Ecotourism. Moreover, in 2014 the Executive Yuan began to promote the national green-energy and low-carbon action program (Executive Yuan, 2015), showing that the concept of low-carbon tourism has become increasingly accepted by Taiwanese people. Also, travel agencies play a crucial role in promoting the concept of environmental protection and low-carbon tourism.

Tourism businesses in Taiwan have developed prosperously. In the past decade, the number of international tourists increased from 3.51 million in 2005 to 10.43 million in 2015. Recent studies have shown that rising environmental awareness has stimulated green consumption. Consumers are aware that their purchase behaviour may negatively influence the ecological balance and are thus willing to pay more to purchase green products (Wahid, Rahbar, & Shyan, 2011; Han, Hsu, & Lee, 2009). Previous studies have explored prices that domestic tourists are willing to pay for low-carbon tour packages. However, no studies have explored whether international tourists' purchase intension towards low-carbon tour packages provided by travel agencies in Taiwan. In the present study, prospect international tourists were examined as research targets to investigate the relationship between their understanding of low-carbon tour packages and their willingness to purchase such packages. Accordingly, this study can contribute to the academic field and serve as a reference for travel agencies to design and determine prices for low-carbon tour packages.

1.2 Research Background and Motivation

This study aimed to explore potential international tourists' understanding of low-carbon tour packages provided by travel agencies in Taiwan, including tourism knowledge, purchase habits, tourist attractions, meals, transportation, and accommodation. This study also aimed to understand whether potential international tourists were willing to purchase low-carbon tour packages and how much they were willing to pay for them. Also, we aimed to determine whether potential international tourists' willingness to purchase low-carbon tour packages was influenced by their understanding of the low-carbon tour packages. Finally, according to the results of this study, suggestions are provided for government agencies and tourism businesses for further marketing reference.

2 Literature Review

2.1 International Tourists and Tourism Development

In the past decade, various tourism policies have been formulated, and the number of international tourists in Taiwan has increased annually. According to Tourism Bureau, Ministry of Transportation and Communications (2016), the number of international tourists in Taiwan reached 9.91 million in 2014, among whom China constituted the largest number of tourists, followed by Japan, Hong Kong, and Macao, and Southeast Asia. Regarding the age of international tourists in Taiwan, 939.463 people (10%) were below 20 years of age; 1,844,889 people (18%) were between 20 and 29 years of age; 1,988,524 people (20%) were between 30 and 39 years of age; 1,807,090 people (18%) were between 40 and 49 years of age; 1,733,548 people (18%) were between 50 and 59 years of age; and 1,697,660 people (16%) were over 60 years of age. Therefore, age levels were evenly distributed among international tourists in Taiwan. Most international tourists (72.57%) visited Taiwan for sightseeing; among whom 41% participated in tour packages designed by travel agencies. The main factors attracting tourists to Taiwan were scenic attractions, food, and shopping. Specifically, the main tourist attractions were night markets, Taipei 101, and the National Palace Museum; the main activities undertaken by tourists in Taiwan were shopping and visiting night markets and monuments. The satisfaction level of tourists in Taiwan reached 96%.

Tourism is a major economic activity worldwide. For energy saving, carbon reduction, and sustainable development, introducing the concept of low-carbon tourism is crucial (Ji, 2013). Although numerous studies have explored topics related to international tourists, little research has been conducted on their perception and attitude towards low-carbon tourism. Therefore, the present study explored inbound tourists' understanding of low-carbon tourism in Taiwan, their willingness to purchase low-carbon tour packages, and prices that they were willing to pay. The results of this study can serve as a marketing reference for travel agencies and the government.

2.2 Low-Carbon Tourism

Low-carbon tourism was officially discussed at the World Economic Forum in May 2009 (Huang & Deng, 2011; Zhang & Liu, 2011) to formulate low-carbon tourism by energy saving, pollution prevention, and carbon reduction (Fan & Li, 2010). Shi and Peng (2011) thought that the purposes of low-carbon tourism were to improve the quality of tourism services, protect local natural and cultural environments, and contribute to local development. The ultimate goal of low-carbon tourism is to alleviate climate change and realize the sustainable development of the society.

2.3 Purchase Intention

Purchase intention, which can be influenced by external factors, refers to consumers' attitude or rating of products (Wen & Li, 2013). Wen and Li (2013) reported that knowledge about green food exerted a positive and significant effect on ecological

emotion, both of which also affect consumer purchase intention significantly and positively. Hsieh (2013) indicated that consumers' understanding of six dimensions of low-carbon tour packages was positively correlated with their purchase intention; however, tourist knowledge did not significantly influence purchase intention. According to previous studies, consumers' uncertainty about products influenced their purchase intention, and consumers who possessed knowledge about sustainable consumption and showed purchase intention did not necessarily demonstrate actual purchase behaviour.

2.4 Willingness to Pay

Willingness to pay refers to the price that consumers are willing to pay for a product. The prices reflect the value of the product in the consumer's mind (Lin & Li, 2013). Willingness to pay has often been used to indicate the maximum amount that consumers intend to pay (Chung, J. Y., Kyle, G. T., Petrick, J. F., & Absher, J. D, 2011). In tourism and leisure literature, willingness to pay has been used to estimate the value of environmental improvement and natural attractions. Therefore willingness to pay is referred not only to the financial values to enjoy the current benefits of the destination but also preserving it for future generation (Ramdas, M., & Mohamed, B., 2014). By prior research suggestions, it is necessary to learn about the willingness to pay of customers for low-carbon tour package.

2.5 Contingent valuation method

This value assessment method is commonly used for assessing the value of a nonmarket product (particularly, the value of the environment). This method is simple, easy to operate, and widely used to evaluate nonmarket products. In previous studies on tourism and leisure, willingness to pay was used to estimate the value of nonmarket products (Reynisdottir, Song, & Agrusa, 2008). According to the contingent valuation method, after a hypothetical market is established, a method for inducing a willingness to pay must be determined (Lin & Li, 2013) to help interviewees express their views about products. Four common methods for inducing a willingness to pay are open-ended bidding, payment cards, bidding game, and closed-ended bidding. There are the different advantage of them. The method of closed-ended bidding avoids various possible errors (Arrow, Solow, Leamer, Portney, Randner, & Schuman, 1993), resembles people's purchase behaviour in daily life, and is simple and applicable to a mail survey. If an interviewee finds that evaluating nonmarket products without market prices is challenging, then they will be unable to provide an answer or a price (Hsieh, 2013). Therefore, the present study adopted the closed-ended bidding method and conducted a questionnaire survey, preventing the interviewees from leaving too many blank answers.

3 Methodology

3.1 Research Framework and Hypotheses

In this study, the dependent variable was their willingness to purchase low-carbon tour packages. On the basis of willingness-to-pay theory, the contingent valuation method was used to estimate the prices that tourists were willing to pay for low-carbon tour packages. The research framework based on the research objectives and previous studies is presented as follows.

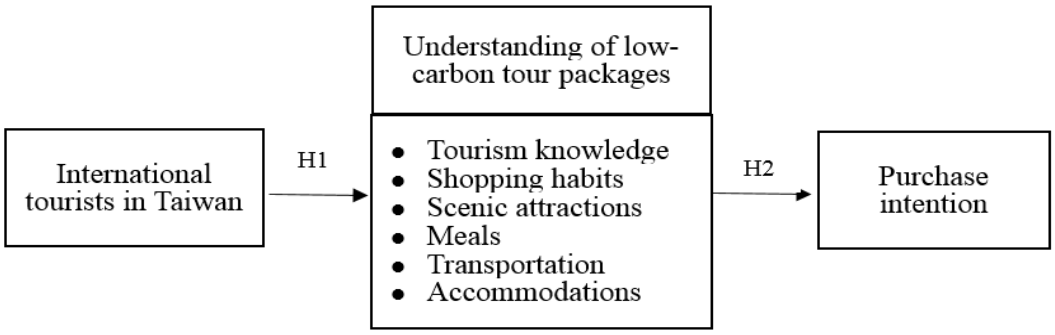

Figure 1: Conceptual Structure

Hypothesis 1: International tourists in Taiwan possess different levels of understanding regarding low-carbon tour packages.

Hypothesis 2: International tourists' understanding of low-carbon tour packages influences their purchase intention.

3.2 Research Scope

The numbers of international tourists from various countries were as follows: 3,987,152 people (38.70%) from China, 1,634,790 people (15.00%) from Japan, 1,375,770 people (16.26%) from Hong Kong and Macao, 376,235 people (3.15%) from Singapore, and 439,240 people (11.39%) from Malaysia. Therefore, in the present study targeted international tourists from China, Japan, Hong Kong and Macao, Singapore, and Malaysia who may participate in low-carbon tours provided by travel agencies. Based on the participant's size, the Equation (1) was used to determine the sample size (Smyth, Dillman, Christian, and McBride,2009). Under the conditions of p = ½, z = 1.96, and e = 5%, the sample size was calculated to be 384. However, the final sample size was increased to 650 questionnaires to account for invalid responses.

$$n = \frac{Z^2}{e^2} p(1-p) \quad (1)$$

The “n” is the sample size, “e” is the number of allowable errors, “Z” is the confidence level, and “p” is the proportion of random samples. Because the research target incorporated a wide scope of international tourists in Taiwan, a quota sampling method was adopted to select participants.

The samples were taken from four regions; the parent population was 7,813,187 according to a 2014 report by the Tourism Bureau. A total of 650 questionnaires were distributed. The number of a questionnaire for each region was determined as follows using the quota sampling method. Below are the questionnaires distribution statistics

a. Mainland China: 52% × 650 = 338
b. Japan: 20% × 650 = 130
c. Hong Kong and Macao: 18% × 650 = 117
d. Singapore and Malaysia: 10% × 650 = 65

A pilot survey was conducted in November 2015 to ensure the validity of the questionnaire and reduce sampling errors. The formal survey was conducted from December 2015 to February 2016; the questionnaires were distributed at Kaohsiung International Airport, Taiwan Taoyuan International Airport, and leisure farms that are popular with international tourists. The quota sampling method was used to avoid systematic errors, collect data, and obtain reliable and valid analysis results. In total, 650 questionnaires were distributed, 152 of which were invalid. The remaining 498 valid questionnaires yielded a return rate of 77%.

The questionnaire survey was used to collect data. Following Hsieh (2013), Horng, Hu, Teng, and Lin (2014), and Kyung, Kang, Stein, Heo, and Lee (2012); we developed the questionnaire to investigate the intention to purchase low-carbon tour packages. It contained 33 items, was used to assess participants’ understanding of low-carbon tour packages. These items were related to six factors: tourism knowledge, shopping habits, scenic attractions, meals, transportation, and accommodation. A 5-point Likert scale was adopted (one = strongly disagree, five = strongly agree).

4 Findings

4.1 Demographic information

Descriptive statistics (frequency and percentage) were used to illustrate the demographic information of international tourists in Taiwan, including gender, age, education level, occupation, and monthly income (Table 1). Among the international tourists who participated in the present study, 255 (51.2%), 78 (15.7%), 103 (20.7%), and 62 (12.4%) people were from China, Japan, Hong Kong and Macao, and Singapore and Malaysia, respectively. Overall, the numbers of men and women were similar. Most

of the international tourists were students aged between 21 and 30 years, had a bachelor's degree and earned less than NT$20,000 per month.

Table 1: Demographic information of international tourists in Taiwan

Category	Item	Number	Percentage (%)
Country	China	255	51.2
	Japan	78	15.7
	Hong Kong/Macaw	103	20.7
	Malaysia/Singapore	62	12.4
Gender	Male	232	46.6
	Female	266	53.4
Age	21~30	245	49.2
	31~40	84	16.9
	Below20	54	10.8
	51~60	54	10.8
	41~50	33	6.6
	Above 61	28	5.6
Education	Bachelor degree	269	54.0
	Senior college	98	19.7
	Junior college	60	12.0
	Master degree	37	7.4
	Junior high or under	25	5.0
	Doctoral degree	9	1.8
Occupation	Student	136	27.3
	Other	109	21.9
	Service industry	98	19.7
	Business industry	60	12.0
	Self-employment	42	8.4
	Government	28	5.6
	employees	15	3.0
	Retiree	10	2.0
	Housekeeper		
Income NT$	20,000 or below	198	39.8
	20,001~40,000	136	27.3
	40,001~60,000	73	14.7
	100,001 or above	32	6.4
	60,001-80,000	30	6.0
	80,001-100,000	29	5.8

4.2 Reliability analysis

The values of Cronbach's α for the questionnaire sections investigating the understanding of low-carbon tour packages and purchase intention were 0.983 and 0.909 (>0.7), respectively, indicating high reliability.

4.3 Understanding of low-carbon tour packages, purchase intention, and willingness to pay

An ANOVA analysis was used to assess whether international tourists from different regions demonstrated distinct levels of understanding regarding low-carbon tour packages. The overall difference was significant ($p < 0.05$), indicating that consumers from various countries understood low-carbon tour packages to vary degrees. Thus, a Scheffes test was performed subsequently to verify that international tourists from China had a greater understanding of low-carbon tour packages than did those from Japan, Hong Kong, and Macao, and Singapore and Malaysia and that international tourists from Hong Kong and Macao had a more favourable understanding of low-carbon tour packages than did those from Japan and Singapore and Malaysia.

Regarding consumers' willingness to pay, the participants who chose '0%' were unwilling to spend extra funds on low-carbon tour packages; the other participants (83.1%) who chose '5%' to '20%' were willing to spend extra funds on low-carbon tour packages. Overall, most of the participants were willing to spend 5% or 10% more on low-carbon tour packages. Therefore, Hypothesis 1 (international tourists in Taiwan possess different understandings of low-carbon tour packages) was supported.

4.4 Understanding of low-carbon tour packages and purchase intention

Regarding the regression analysis, the dependent variable was purchase intention, and the independent variables were tourism knowledge, shopping habits, scenic attractions, meals, transportation, and accommodation. Tables 2 show that the regression model was significant ($F = 80.961$, $p = 0.000$); also, all variance inflation factor values for the various dimensions of the understanding of low-carbon tour packages were less than 3, indicating there is no colinearity issue. Therefore, Hypothesis 2 (international tourists' understanding of low-carbon tour packages influences their purchase intention) was supported.

Table 2: Understanding of low-carbon tour packages and purchase intention

Model	Unstandardised coefficients		Standardised coefficients	t	p	VIF
	β	Std. error	Beta			
Constant	.494	.178		2.779	.006	
Tourism knowledge	.184	.050	.173	3.691	.000	2.150
Shopping habits	.122	.045	.135	2.717	.007	2.419
Scenic attractions	.051	.046	.048	1.096	.274	1.848
Meals	.090	.044	.102	2.067	.039	2.394
Transportation	.120	.047	.100	2.530	.012	1.536
Accommodation	.288	.042	.314	6.873	.000	2.038

5 Conclusion

5.1 International tourists in Taiwan and their understanding of low-carbon tour packages

The mean score of the participants on the understanding of low-carbon tour packages was 3.79, indicating that international tourists in Taiwan demonstrated a moderate to the high understanding of low-carbon tour packages. This may be because the information is easily available, in addition to the emergence of environmental awareness and the prevalence of energy saving and carbon emission reduction. Consumers from various countries understood low-carbon tour packages to different degrees. In particular, the mean score of the consumers from mainland China indicated the highest level of understanding, followed by those of Hong Kong and Macao, Singapore and Malaysia, and then Japan. Numerous researchers in China are currently exploring low-carbon tourism. For example, Cheng, Su, and Tan (2013) indicated that establishing a low-carbon assessment system facilitated encouraging people to purchase low-carbon tour packages and that tourists from China have gradually accepted the concept of low-carbon tourism. Ministry of Environmental Protection of China (2016) indicated that greenhouse gas emissions in China exceeded the equivalent of 6 billion tons of carbon dioxide, the highest worldwide. Because of pressure from the international community and intends to fulfill its obligation as a member of the international community, China announced that the government would deal with climate change issues on the national level to achieve the goal of energy saving and carbon emission reduction. Tourists from China are probably aware of the importance of environmental protection, energy saving, and carbon emission reduction, and therefore have a superior understanding of low-carbon tour packages.

Regarding the understanding of low-carbon tour packages, the results related to tourism knowledge, shopping habits, scenic attractions, meals, transportation, and accommodation indicated that significant differences in these dimensions existed among international tourists from various countries. In particular, the mean score of the participants for meals was the lowest, indicating that the participants did not understand the importance of meals in low-carbon tour packages. The results accorded with those of Hsieh (2013), who revealed that the mean score of consumers for meals was relatively low. The mean score of the participants for transportation was the highest, indicating that the participants considered transportation to be crucial for low-carbon tour packages. Accordingly, travel agencies that provide low-carbon tour packages are suggested to use hybrid vehicles and avoid crowded roads to reduce carbon emissions, thereby allowing consumers perceive their endeavour to environmental protection. Therefore, Hypothesis 1 (international tourists in Taiwan possess different understandings of low-carbon tour packages) was supported.

5.2 International tourists' purchase intention for low-carbon tour packages

The mean score of the participants for purchase intention was 3.70, indicating that international tourists in Taiwan had moderate purchase intention towards low-carbon tour packages. Regarding purchase intention, the mean score of the participants from China was the highest, followed by the participants from Hong Kong and Macao, Singapore and Malaysia, and finally Japan. Shi and Peng (2011) indicated that China should integrate the concept of low-carbon tourism into tourist attractions and educate tourists on low-carbon tourism; therefore, tourists form mainland China should have high purchase intention towards low-carbon tour packages. In addition, most of the interviewees of the present study were prospect tour group participants from China, who are more willing to purchase tour packages from travel agencies. By contrast, most tourists from Japan, Hong Kong, and Macao, and Singapore and Malaysia were individual tourists who are not interested in tour packages provided by travel agencies but prefer planning their journeys.

5.3 International tourists in Taiwan and their willingness to pay for low-carbon tour packages

According to the results, only 16.9% of the tourists were unwilling to pay for low-carbon tour packages, and most tourists were willing to pay 5% or 10% more to purchase low-carbon tour packages, verifying the additional cost of such packages acceptable to international tourists in general. The results showed that tourist source regions were related to willingness to pay. Most tourists from mainland China and Japan were willing to pay 5% more to purchase low-carbon tour packages; most tourists from Hong Kong and Macao and Singapore and Malaysia were willing to pay 10% more to purchase low-carbon tour packages. These results in accord with those of Lin and Li (2013) and Hsieh (2013). Lin and Li (2013) found that approximately 85% of consumers were willing to pay for low-carbon tour packages; in particular, most consumers were willing to pay 10% more. According to Hsieh (2013), 85.5% of consumers were willing to purchase low-carbon tour packages; 39.2% and 30.5% of consumers were willing to pay 10% and 5% more to purchase such packages, respectively. Therefore, the results of the present study can serve as a reference for travel agencies to determine prices for low-carbon tour packages.

5.4 International tourists' understanding of low-carbon tour packages and purchase intention

The results showed that international tourists' understanding of low-carbon tour packages significantly influenced their purchase intention. The effect of scenic attractions was not significant. However, tourism knowledge, shopping habits, meals, transportation, and accommodations significantly positively influenced purchase intention. These results contradict with those of Hsieh (2013), who indicated that tourism knowledge did not significantly influence purchase intention. The reason may be that the research targets in that study were group tourists from Taiwan, whereas the

research targets in the present study were a group and individual tourists from other countries. Also, the preferences of individual tourists or backpackers for using electronic information sources (such as the Internet) and light luggage might also account for this research contradiction. By contrast, the results related to meals, transportation, and accommodations accord with those of Hsieh (2013), indicating that Taiwanese and international tourists considered meals, accommodations, and transportation to be crucial and that these variables influenced their purchase intention. Providing local and seasonal food and certified green accommodations to tourists can enhance their intention to purchase low-carbon tour packages, and is a useful marketing strategy that should not be overlooked. Accordingly, Hypothesis 2 (international tourists' understanding of low-carbon tour packages influences their purchase intention) was supported. That founding can provide to the academic field, also serve as a marketing strategy for travel agencies to design and determine prices for low-carbon tour packages; moreover, it serves as a reference for Taiwan government for promoting low-carbon tourism.

5.5 Study limitation and further research

The limitation of this study should be acknowledged. The sampling bias is a concern because all the agents in the sample were from Taiwan, visitors from other countries or cultures might yield different results. Therefore, the results show that more long-term research and comparative studies are necessary for this area.

6 About the author

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