

Evaluation of the Public Identity and Recreational Value of the Cultural Low Carbon Tourism

Case studies on the three Taiwan cultural industry sites

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Abstract—With the need of environmental conservation and the global climate change, the issue of low carbon tourism becomes one of the main environmental solutions. Based on the pre-studies for cultural low carbon tourism development by using the expert questionnaires, the public perception was one of the most main factors to influence the development of low carbon tourism in Taiwan. Therefore, the study focuses on the public identity and recreational value for the understanding of cultural low carbon tourism. It also pays attention to survey the public identity for the satisfactions for the local cultural industry and low carbon tourism. The user willingness to pay for the issue was valued by using the contingent valuation method and the results is showed as the public supporting standards. The three study sites, including Sanyi, Yongjing and Songboling, were chosen. They owned rich local cultural industries, and all of them were famous for cultural tourism. For the research process, there are 450 valid questionnaires by using the face to face survey and structural questionnaires, and the pre-test is suitable for the final survey. The major results show that the personal income and occupation were related with other variables, and the potential recreational value was NT145.620 for WTP. In addition, the CVM model is quite suitable for the future predict for low carbon tourism development.

Keywords-public identity; low carbon tourism; contingent valuation method (CVM); willingness to pay(WTP)

I. INTRODUCTION

With the trend of sustainable development and global climate change, the issue of low carbon tourism becomes one of the main environmental solutions. Many countries try to improve the traditional tourism and look forward to an alternative way to overcome the environmental impacts of tourist activities [1]. Taiwan owned rich and well-known viewpoints, and the tourist activities were vivid. Therefore, the impacts of tourist activities were huge so that the natural or cultural resources were damaged often. However, the cultural heritages or local cultural industries had enough attractive to attract many tourists, but they were not able to endure the high density use. Then, The high density use made massive carbon emission. Therefore, the low carbon tourism became a trend toward to more suitable and sustainable management ways.

Based on the improvement of the tourism policies for the Taiwanese government, the cultural tourism seems to become one of the main tourism ways, because it not only increases the added value of the heritages, but also offer more potential

for tourism perspective. The phenomenon provided evidence to show the importance of sustainable management for cultural heritages [2]. However, the issues, including heritage preservation problems and more greenhouse gas emission, are happened with the increase of tourists to affect the living environment quality. Based on the report from 2008 UNEP, the greenhouse gas emission from tourism industry is about 5% [3]; even though tourism is a low-polluting industry relatively. Therefore, the government must practice more related policies to reduce carbon emissions earlier to face the rapid expansion of tourism for the future economic issues from the international pressure of carbon reduction.

Based on the pre-studies for cultural low carbon tourism development by the Delphi methods, the public perception was one of the most main factors to influence the development of low carbon tourism in Taiwan. The situation shows that the public identity plays an important role for the development of cultural low carbon tourism.

Therefore, the study focuses on the public identity for better understanding of the low carbon tourism, including environmental protection, tourist activities and environmental education, at three sites, Sanyi, Yongjing and Songboling. They owned rich local cultural industries, and all of them were famous for cultural tourism. It also pays attention to survey the public identity for the satisfactions for their tourism and the thoughts of low carbon tourism. The user willingness to pay for the development of low carbon tourism was valued by using the contingent valuation method and the results is showed as the public supporting standard for the possible strategies.

II. THE MEANING OF LOW CARBON TOURISM

The Brundtland Report revealed that economic development should coordinate with the earth's environment carrying capacity, the coming international organization or treatment, such as UNCED and Kyoto Protocol, make some specifications to improve the impact of climate change. With the rise of globalization, the increasing complexity of public affairs and the network also reduce the state's power. In contrast, the local governments or city governments have strong ability to respond to the need of the people, gradually play an important role in the field of environmental governance [4].

In order to mitigate the impact of tourism activities on the environment and seek sustainable development, green tourism springs up and becomes a new tourism industry. Meanwhile, green tourism is a way to travel and reduce carbon emissions.

In 2011 World Conservation Union World Congress (IUCN) offered the Global Sustainable Tourism Criteria to be a global accepted standard by tourism industries, scholars, and environmental groups. The main concepts included demonstrate effective sustainable management, maximize social and economic benefits to the local community and minimize negative impacts, maximize benefits to the environment and minimize negative impacts and maximize benefits to cultural heritage and minimize negative impacts for sustainable tourism [5].

World Tourism Organization showed the tourism products had a conspicuous trend from landscape-based tourism to cultural tourism. Its result meant the cultural tourism will be one of the most attractive tourism products [6], the situation was showed in Taiwan tourism markets with the international trend of cultural heritage tourism as well. The Taiwan authority, the Tourism Bureau (MOTC), had chosen 18 potential developing areas to improve the new in-depth travel styles, and it also expected to combine among the local culture, cultural resource and heritages for sustainable development of tourism industry in Taiwan [7].

III. RESEARCH METHOD

A. Theoretical Basis

The theoretical basis for the present study is that behavior can be predicted well by respondent's behavioral intentions which are explained by conviction, communal criterion and attitude. Convictions are evaluations of the behavior under study. Selective captures the evaluation of the behavior by respondents which matter to the individual under study. Attitude represents the ability of an individual to actually engage in the behavior under study. As such it captures hindering factors.

The value for each of these five dimensions is computed by combining two underlying aspects: in the case of conviction, one aspect is whether the individual thinks that the behavior will have certain consequences. The effect of communal criterion on behaviors consists of the individual's assessment of important peer's evaluation of the behavior and the extent to which it matters what peers think. Based on the literature review the study framework is following as Figure 1:

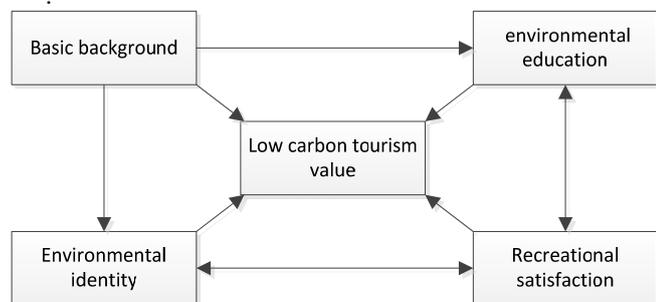


FIGURE I. RESEARCH FRAMEWORK

B. Contingent Valuation Method

The comprehensive perception of sustainable water resource use is abstractive and not means for transaction. For the valuation of those kinds of none-market resources, Ciriacy-Wantrup (1947) first proposed the Contingent Valuation Method (CVM) as a survey-based economic technique [8]. This method offers an imaginative pricing system to trace the demand curve for a public good unavailable from market data [9]. This system referred to as a preference model helps us recognize what are worth to people [10]. Portney (1994) argued that the approach of CVM must first “contain a scenario or description of the (hypothetical or real) policy or program for the respondents to value or vote upon [11].” Second, “the survey must contain a mechanism for eliciting value or a choice from the respondents”, typically with open-ended questions such as how much money people would be willing to pay for? Two guidelines for the application of CVM are that personal interviews, rather than telephone interviews, should be conducted to improve face validity, and follow-up questions should be asked to ensure that respondents understand the choices they are being asked to make and to discover the reasons for their answers. These two guidelines were followed in the study. CVM is now used in research throughout the world in a variety of fields, including transportation, sanitation, health, the arts, education and environmental studies [12]. For general respondents, CVM offers a simple way for them to express their degrees of preference.

The questionnaire of CVM used in the study measured a 9-item group for “environmental identity”, one 12-item-group for “Recreational satisfaction,” one 5-item-group for “environmental education,” and one 1-item-group for “Willingness to pay,” an 8-item group for “Basic background.” The items, “Willingness to pay,” “Age” and “Annual Income”, were set to be open-ended as interval measures. They were interviewed through the qualitative process and acted as the “subject matter expert rater” to check every item of the questionnaire in a yes-or-no referendum format. Each qualified item was approved by more than half of the panelists. To make sure the survey was clear and understandable; it was given as a pilot study to 100 dwellers that live respectively. The reliability and internal consistency of the survey were assessed by using Cronbach’s coefficient alpha.

C. Sampling

Because the aim of the study is to explore the role of communal criterion and attitude on tourism-related behavioral intentions-as opposed to making statements about population proportions who share certain perspective or intentions-it is not necessary for the sample to be representative. Rather, it is important that input from a highly heterogeneous group of respondents is captured.

The face to face survey was conducted in July, 2015, through 469 questionnaires using five-point Likert-type scale designed to identify respondents’ preferences regarding the sustainable water resource use. Interviewers had been trained previously and were ready to administer the surveys. Survey participants were interviewed through a convenient sampling

approach in the three areas with sample sizes conforming to the population ratio of each region. Respondents were asked to complete every item in the questionnaire. A total of 9 respondents stated that they didn't have time to finish the survey or refused to complete it, and 10 stated that they had never known the low carbon tourism, leaving a qualified sample size of 450, or a response rate of 95.9%. T-test and ANOVA tests were used to identify the differentiation of different groups. Principle component analysis, the contingent valuation method, and general linear regression analysis with the stepwise method were used to analyze the effects of the perception factors and reveal a preference model.

IV. RESULTS AND DISCUSSION

A. Characteristics of Respondents

The socio-demographic attribute was noteworthy that 59.3% (45.3%+14.0%) of the respondents were within the age range of 20-to-40, an active and latent future conservation source. More of them were unmarried, educated at the college or junior-college level, bourgeois, or service-industry employees, and had an income level from US\$10,200 to US\$15,420 per year. T-testing on gender and marital status showed no significant difference in WTP. ANOVA on "Environmental professional background," "Visiting Frequency," "Residential Area," "Education," and "Occupation" showed no significant difference in WTP. "Age", "Monthly Income" and "Annual Income" showed no significant correlation between WTP and themselves.

In the "Environmental professional background," 23.50% chose "related education background," 29.50% chose "Participation with the related courses," 16.79% chose "Media with environmental education," and 30.22% chose "not related background." In the "living areas" 64.10% said they has lived in the central Taiwan, and the results showed their tourism sites were related with the living areas.

B. The Information of the Tourism

For the main purpose for the respondents, the "Enjoy the view (72.2%)" and "Enjoy nature (53.6%)" were the most frequency. The third and fourth were "Join local industry (42.7%)" and "visit industrial activities (41.8%)". For "Whether the site was the main purpose site", most of the respondents showed "Yes (738%)", and over 42% arrived more than four times. They go with "family (44.9%)" and "Friends (33.1%)", and the "car (57.1%)" was viewed as the main traffic tool.

C. Satisfaction and Environmental Identity

More than 70% (17.3%+53.1%) respondents illustrate the satisfaction for the trips, and only 0.9% said they felt unconfutable for this trip. For the satisfaction of natural landscape, 77.8% showed satisfied, and 61.3% feel satisfied in the cultural landscape. For the industrial landscape, more than 67% described satisfied. However, the public facilities and Congestion level were viewed as un-satisfied, more than 50%. The willingness to pay for improvement was 247.56 and 225.22. Comparison with other studies, the value was lower.

More than 49% respondents showed they had listened low carbon tourism, and it showed the idea of low carbon tourism

was well-known. 23.3% said they joint low carbon tourism in this trip, but it showed they may not know the meaning of low carbon tourism by face-to-face interview.

D. The Inter-Relationship between Demographic Attributes and Perception of Water Use

Through the analysis, several variables in demographic attributes are related with the some items, belonging to the perception of water use. For the residential area, the "Present water use ways", "Preference for government policy", "Acceptance of reclaimed water", "Preference not for close-to-body use of reclaimed water", and "Preference for close-to-body use of reclaimed water" have a significantly correlation, and the results show different metropolitan area have different identification for the water use. Moreover, "Education " is significant correlated with "Identification for lack of water resources at Taiwan", "Preference for "close-to-body" use of reclaimed water", and "Safety of reclaimed water", and then the situation illustrates the respondents with higher education care more about the safety for the reclaimed water and its extension issues. "Professional background" is significantly correlated with "Preference for government policy", "Acceptance of reclaimed water", "Who can influence the acceptance of reclaimed water", and "Reasons to influence the acceptance of reclaimed water", so that the environmental professional background may have some differences for water use perception. By using Pearson product-moment correlation, "Acceptance of reclaimed water", "Preference not for close-to-body use of reclaimed water and "Preference for close-to-body use of reclaimed water" have significantly positive correlations with the both of income is significant respectively, and the results can match the education partly.

E. Environmental Education

63.7% of the respondents showed the tourist activities will impact the tourism site environment, and 86.9% showed the conservation and protection were needed.

The contents of low carbon tourism considered and their order were followed as table1:

TABLE I. THE ORDER OF CONTENTS OF LOW CARBON TOURISM

The contents of low carbon tourism	score
Low carbon communication	71.8%
Resource recycle and reuse	65.8%
Environmental conservation	60.9%
Promotion of low carbon education	59.1%
Tourism with industry	58.2%
Ecological conservation	57.8%
Low carbon industry development	53.1%
Low carbon building design	52.2%
Industry conservation	50.7%
Local culture protection	42.3%
Low carbon marketing	41.7%
Complete basic installation	40.2%
Ecological capacity control	39.6%
Environmental monitoring	39.4%
Local industry transformation	37.5%
Low carbon community development	36.4%
Low carbon partnership	35.2%

F. The Inter-Relationship between deMographic Attributes and Recreational Satisfaction

For the correlation analysis, some variables in demographic attributes are related with the some items in the recreational satisfaction. “Survey area” and “Residential area” were significantly correlated with “Total satisfaction”, “Natural landscape satisfaction”, and “Cultural landscape satisfaction”, and it means the different living city should have different satisfaction for the landscape requirement. In addition, there is a significant correlation between “Education” and “Local industry landscape satisfaction“. “Personal income” and “Family income” were related with “Total satisfaction”, “Cultural landscape satisfaction”, and “Industry landscape satisfaction”.

G. The Inter-Relationship between Demographic Attributes and Low Carbon Tourism

Some variables in demographic attributes are related with the some items in this perception. “Survey area” was significantly correlated with “The Frequency of tourism”, “traffic tools”, and “Tourism pay” and it means the different sites should have different situation for tourism styles. In addition, there is a significant correlation between “Age” and “Low carbon industry identity. “Personal income” and “Family income” were related with “Tourism pay”, “the understanding of low carbon tourism”, and “The Frequency of tourism”.

H. The Inter-Relationship between Demographic Attributes and Environemtal Education

For the correlation analysis, some variables in demographic attributes are related with the some items in the recreational satisfaction. “Survey area” was significantly correlated with “Impact of tourist activities”, and it means the different survey city should have different situation for the environmental impact. In addition, there is a significant correlation between “Age” and “Impact of tourist activities “. “Occupation” and “Personal income” were related with “WTP of Low carbon tourism”.

I. WTP for Metropolitan Sustainable Water Use

Based on the WTP approach, the model was shown as below (with un-standardized coefficients) by using simple linear regression analysis and stepwise regression analysis: (see Eq(1), Eq(2))

A. Normal Model (simple linear regression, $R^2=0.458$)

$$WTP1 = -9.421 - 1.204(\text{Age}) - 2.815(\text{number of family}) + 0.002(\text{Personal income}) + 0.004(\text{tourism pay}) + 17.859(\text{Total satisfaction}) - 16.247(\text{Natural landscape satisfaction}) + 29.433(\text{Cultural landscape satisfaction}) + 6.869(\text{Industry landscape satisfaction}) - 5.206(\text{Public installation satisfaction}) + 20.563(\text{Tourist amount satisfaction}). \quad (1)$$

B. Economic Model (stepwise regression, $R^2=0.451$)

$$WTP = 66.570 + 0.002(\text{Personal income}) \quad (2)$$

The mean of the price that respondents are willing to pay (WTP) was NT\$ 145.620 per year, and the values through

Eq(1) and Eq(2) are NT\$ 109.025 per year and NT\$ 123.502 per year. The three results are very similar and the models are suitable for predict. Based on the three WTP results, it shows that the respondents expect not only keep the same tourism quality, but also like to pay more for sustainability, even the price was quite low.

V. CONCLUSION

To sum up, the results showed the respondents viewed low carbon tourism as an environmental protection tool, so that the order of the content showed the related contents owned higher score. The situation meant the low carbon tourism development of future promotion might meet some problems, such as misunderstanding of the real meaning. It will make the tourists own lower willing to join the activities. Therefore, the authorities are able to transport the right thoughts for public. Moreover, the value of the low carbon WTP was low, and it showed the respondents had still lower acceptance. Most of people were not able to understand the meaning of low carbon tourism more; even they listen to the words. Therefore, they were doubtful for the issues. In addition, the contingent valuation method was viewed as a suitable tool to measure the value of low carbon tourism.

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REFERENCES

- [1] Can, H. & Hongbing, D., The model of developing low-carbon tourism in the context of leisure economy, *Energy Procedia* 5 (2011) 1974–1978.
- [2] Graeme Aplin, *Heritage: Identification, Conservation, and Management*. Oxford University Press. (2002).
- [3] World Tourism Organization, *From Davos to openhagen and Beyond : Advancing Tourism’s Response to Climate Change*. Copyright© 2009 World Tourism Organization Website : www.unwto.org. (2009).
- [4] Gossling, S., Sustainable tourism development in developing countries: some aspects of energy use. *Journal of Sustainable Tourism*, 8(5) (2000) 410–425.
- [5] Tang, Z., Shi, C.B., and Z. Liu, Sustainable Development of Tourism Industry in China under the Low-carbon Economy. *Energy Proscenia* 5 (2011) 1303-1307.
- [6] World Tourism Organization (WTO), *Budgets and Marketing Plans of National Tourism Administrations*. Madrid: World Tourism Organization. (2007).
- [7] MOTC, MOTC website, <http://www.motc.gov.tw>. (2013).
- [8] S. V , Ciriacy-Wantrup, Capital Returns From Soil-conservation Practices. *Journal of Farm Economics* 29 (1947) 1188-90.
- [9] W. M. Hanemann, Valuing The Environment Through Contingent Valuation. *The Journal of Economic Perspectives* 8(4) (1994) 19-43.
- [10] T. Schelling , *The Life You Save May Be Your Own*, In Chase, S. (Ed.), *Problems In Public Expenditure Analysis*. Washinton, D. C.: Brooklings Institution, , 3-17. (1968) .
- [11] P. R.. Portney, The Contingent Valuation Debate: Why Economists Should Care. *The Journal of Economic Perspectives*, 8(4) (1994) pp3-17.
- [12] R. T. Carson, K.. Martin, & J. Wright, *A Bibliography of Contingent Valuation Studies and Papers*. La Jolla, CA: Natural Resource Damage Assessment, Inc. (1994).